南方科技大学
SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY

2026

Southern University of Science and Technology Undergraduate Programs

SUSTech Teaching Affairs Office

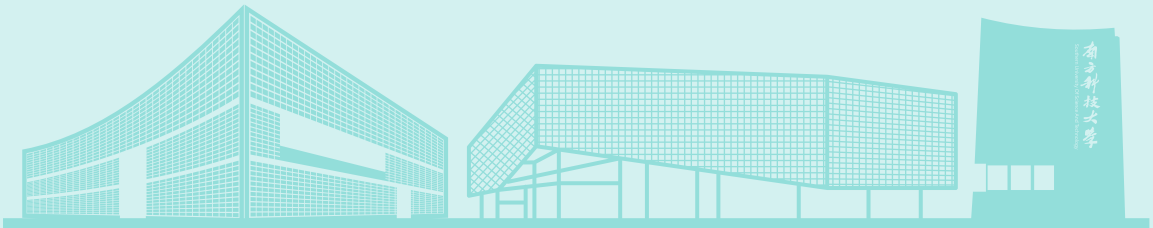


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General Education Requirement for International Students

For international students beginning their study in 2026, six required modules must be completed in the general education (GE) section, i.e., Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module, Humanities and Social Sciences Module, Mathematics and Natural Sciences Module, and GE to Majors Bridging Module.

General Education Curriculum

Requirements: Total ≥ 79 credits

Module	Category	Credits
Chinese Language and Culture Module 16 Credits	Chinese Language and Culture	16
Arts and Physical Education Module 6 Credits	Physical Education	4
	Arts	2
Competence Development Module 19 Credits	Computer Programming	3
	Writing	2
	Foreign Languages	14
Humanities and Social Sciences Module 8 Credits	Humanities	4
	Social Sciences	4
Mathematics and Natural Sciences Module ≥28 Credits	Mathematics	12-14
	Physics	10-12
	Chemistry	3-4
	Geoscience + Life Sciences	3
GE to Majors Bridging Module 2 Credits	Introduction to Majors	2
Total		79
Note: A total of 10 credits in Arts, Humanities, and Social Sciences is sufficient.		

1. Chinese Language and Culture Module

Requirements: Students must complete a total of 16 credits. All courses are compulsory.

Category	Course Code	Course Name	Require-ment	Credits	Terms	Prerequisite	Dept.
Chinese Language and Culture	CLE008	Elementary Chinese I	Required	2	1/Fall	None	CLE
	CLE009	Elementary Chinese II	Required	2	1/Spr.	Elementary Chinese I	
	CLE027	Intermediate Chinese I	Required	2	2/Fall	Elementary Chinese II	
	CLE028	Intermediate Chinese II	Required	2	2/Spr.	Intermediate Chinese I	
	CLE031	Advanced Chinese I	Required	2	3/Fall	Intermediate Chinese II	
	CLE032	Advanced Chinese II	Required	2	3/Spr.	Advanced Chinese I	
	CLE033	Chinese Culture	Required	2	1-4 Fall	NA	
	CLE034	Chinese History	Required	2	1-4 Spr.	NA	

2. Arts and Physical Education Module

Requirements: Students must complete a total of 6 credits, with 4 credits in Physical Education and 2 credits in Arts.

Category	Course Code	Course Name	Require-ment	Credits	Terms	Prerequisite	Dept.
Physical Education	GE131	Physical Education I	Required	1	1/Fall	NA	PE Center
	GE132	Physical Education II	Required	1	1/Spr.	NA	
	GE231	Physical Education III	Required	1	2/Fall	NA	
	GE232	Physical Education IV	Required	1	2/Spr.	NA	
	GE331	Physical Education V	Required	0	3/Fall	NA	
	GE332	Physical Education VI	Required	0	3/Spr.	NA	
Arts	GEM051	Appreciation of the Chinese Vocal Music Works	Optional	2	1-4 Spr. &Fall	NA	AC
	GEM066	Appreciation of Chinese Instrumental Music Works	Optional	2	1-4 Spr. &Fall	NA	AC
	GEM074	Appreciation of Chinese and Foreign Film Music	Optional	2	1-4 Spr. &Fall	NA	AC
	GEM062	Brief History and Appreciation of Chinese Operas	Optional	2	1-4 Spr. &Fall	NA	AC
	GEM022	Art of Elocution	Optional	2	1-4 Spr. &Fall	NA	AC
	GEM063	Chorus	Optional	2	1-4 Spr. &Fall	NA	AC
	GEM056	Introduction to Art	Optional	2	1-4 Spr. &Fall	NA	AC
	GEM038	The Study of Courtyard Gongbi Bird-and-Flower Painting in Song Dynasty	Optional	2	1-4 Spr. &Fall	NA	AC
	GEM060	Design Aesthetic	Optional	2	1-4 Spr. &Fall	NA	AC
	GEM008	Music Theory and Solfeggio	Optional	2	1-4 Spr. &Fall	NA	AC
	Other courses (subject to change)		Optional	2	1-4 Spr. &Fall		

3. Competence Development Module

Requirements: Students must complete a total of 19 credits, including 3 credits in Computer Programming, 2 credits in Writing (mandatory for international students), and 14 credits in Foreign Languages. In the Foreign Languages module, students are assigned to A/B/C 3 levels: Level-A students are exempt from *SUSTech English I and SUSTech English* II; Level-B students are exempt from *SUSTech English* I. Students of both Level-A and Level-B are required to take at least one 2-credit CLE elective course after completing the compulsory English courses.

Level A: Starts with *SUSTech English III*

Level B: Starts with *SUSTech English II*

Level C: Starts with *SUSTech English I*

Category	Course Code	Course Name	Require-ment	Credits	Terms	Prerequisite	Dept.
Computer Program-ming[1]	CS109	Introduction to Computer Programming	Restricted	3	1-2 Spr. &Fall	NA	CSE
	CS110	Introduction to Java Programming	Restricted	3	1-2 Spr. &Fall	NA	
	CS111	Introduction to C Programming	Restricted	3	1-2 Spr. &Fall	NA	
	CS112	Introduction to Python Programming	Restricted	3	1-2 Spr. &Fall	NA	
	CS113	Introduction to Matlab Programming	Restricted	3	1-2 Spr. &Fall	NA	
Writing	CLE026	Scientific Writing	Required	2	1-4 Spr. /Fall	EAP	CLE
Foreign Languages	CLE021	SUSTech English I	Required	4	1 Fall	NA	CLE
	CLE022	SUSTech English II	Required	4	1 Spr. /Fall	NA	CLE
	CLE023	SUSTech English III	Required	4	1-2 Spr. /Fall	NA	CLE

[1] Computer programming courses in the Competence Development Module are GE Required Courses for Science and Engineering.

	CLE030	English for Academic Purposes	Required	2	1-2 Spr. /Fall	SUSTech English III	CLE
	GE2229	Public Speaking	Elective	2	1-4 Spr. /Fall	EAP	CLE
	GEL006	Communication Skills	Elective	2	1-4 Spr. /Fall	EAP	CLE
	CLE010	English for Engineering	Elective	2	1-4 Spr. /Fall	EAP	CLE
	CLE012	Scientific and Technical Translation	Elective	2	1-4 Spr. /Fall	EAP	CLE
	CLE013	English Pronunciation	Elective	2	1-4 Spr. /Fall	EAP	CLE
	CLE019	Critical Thinking / English Debate	Elective	2	1-4 Spr. /Fall	EAP	CLE
	CLE039	English for Career Development	Elective	2	1-4 Spr. /Fall	EAP	CLE
	CLE041	English for International Academic Conference	Elective	2	1-4 Spr. /Fall	EAP	CLE
	CLE043	Cambridge Business English (Vantage)	Elective	2	1-4 Spr. /Fall	NA	CLE
	CLE044	English for Innovators	Elective	2	1-4 Spr. /Fall	NA	CLE
	CLE045	Cambridge Business English (Higher)	Elective	2	1-4 Spr. / Fall	NA	CLE
	CLE046	Advanced Grammar in Use / Writing	Elective	2	1-4 Spr. /Fall	NA	CLE
	CLE048	Elementary Spanish	Elective	2	1-4 Spr. /Fall	NA	CLE
	CLE049	Elementary German	Elective	2	1-4 Spr. /Fall	NA	CLE
	CLE050	Elementary Japanese	Elective	2	1-4 Spr. /Fall	NA	CLE
	CLE051	Elementary French	Elective	2	1-4 Spr. /Fall	NA	CLE
	CLE052	Podcasting: English Listening and Speaking Through Culture	Elective	2	1-4 Spr. /Fall	NA	CLE

	CLE053	English for Professional Engineering Skills: Language in Project Design, Management and Communication	Elective	2	1-4 Spr. /Fall	EAP	CLE
	CLE054	Upper Elementary French	Elective	2	1-4 Spr. /Fall	Elementary French	CLE
	CLE055	Upper Elementary Spanish	Elective	2	1-4 Spr. /Fall	Elementary Spanish	CLE
	CLE056	Upper Elementary Japanese	Elective	2	1-4 Spr. /Fall	Elementary Japanese	CLE
	CLE057	Upper Elementary German	Elective	2	1-4 Spr. /Fall	Elementary German	CLE
	CLE060	English for Fluency	Elective	2	1-4 Spr. /Fall	NA	CLE
	CLE061	Study Abroad Language and Culture Development	Elective	2	1-4 Spr. /Fall	NA	CLE
	CLE062	Global English / Communication Skills	Elective	2	1-4 Spr. /Fall	NA	CLE
	CLE063	Writing for Publication	Elective	2	1-4 Spr. /Fall	EAP	CLE
	CLE064	Academic English for Research Methodologies and Referencing	Elective	2	1-4 Spr. /Fall	EAP	CLE
	CLE065	Reading / Writing for Understanding Science	Elective	2	1-4 Spr. /Fall	NA	CLE
	CLE066	English for Design	Elective	2	1-4 Spr. /Fall	NA	CLE
	CLE067	European Languages and Cultures	Elective	2	1-4 Spr. /Fall	NA	CLE
	CLE068	American Culture and Language Acquisition Through Film	Elective	2	1-4 Spr. /Fall	NA	CLE
	CLE069	Subject Vocabulary	Elective	2	1-4 Spr. /Fall	NA	CLE
	CLE070	English Through Inquiry: AI, Personal Growth, and Scientific Pursuit	Elective	2	1-4 Spr. /Fall	EAP	CLE
	(The course list is subject to change; Please follow the placement results and take the required English courses in the designated semesters.)						

4. Humanities and Social Sciences Module

Requirements: Students must complete a total of 8 credits/4 courses.

Category	Course Code	Course Name	Require-ment	Credits	Terms	Prerequ isite	Dept.
Humanities	HUM014	Science Fiction: Fiction and Film	Optional	2	1-4 Spr. /Fall	NA	HUM
	HUM018	Science Fiction Writing	Optional	2	1-4 Spr. /Fall	NA	HUM
	HUM029	An Introduction on History of Science and Civilization	Optional	2	1-4 Spr. /Fall	NA	HUM
	HUM037	Appreciation of Science Fiction Literature	Optional	2	1-4 Spr. /Fall	NA	HUM
	HUM053	An Introduction to Chinese Philosophy	Optional	2	1-4 Spr. /Fall	NA	HUM
	HUM056	Films from the Perspective of Ecological Thoughts	Optional	2	1-4 Spr. /Fall	NA	HUM
	HUM075	An Introduction to the Classics of Chinese Literature	Optional	2	1-4 Spr. /Fall	NA	HUM
	HUM079	An Introduction to Chinese Classics	Optional	2	1-4 Spr. /Fall	NA	HUM
	HUM086	Introduction to Classics of Western Philosophy	Optional	2	1-4 Spr. /Fall	NA	HUM
	Other relevant courses (subject to change)		Optional	2	1-4 Spr. /Fall		
Social Sciences	SS016	Memory Study of Sino-Foreign Culture	Optional	2	1-4 Spr. /Fall	NA	SSC
	SS024	Basic Skills of Video Shooting and Editing	Optional	2	1-4 Spr. /Fall	NA	SSC
	SS033	A Chinese History in Archaeological Records	Optional	2	1-4 Spr. /Fall	NA	SSC
	SS058	Hebrew Literature and Culture	Optional	2	1-4 Spr. /Fall	NA	SSC
	SS059	Urbanization in China	Optional	2	1-4 Spr. /Fall	NA	SSC
	SS133	Chinese Physics and Physicists in the 20th Century	Optional	2	1-4 Spr. /Fall	NA	SSC
	SS162	Paleography and Chinese Culture	Optional	2	1-4 Spr. /Fall	NA	SSC
	SS166	Introduction to Human Geography	Optional	2	1-4 Spr. /Fall	NA	SSC
	SS167	Human Evolution	Optional	2	1-4 Spr. /Fall	NA	SSC
	SS173	Transportation and Modern Chinese Society	Optional	2	1-4 Spr. /Fall	NA	SSC
	Other relevant courses (subject to change)		Optional	2	1-4 Spr. /Fall		

5. Mathematics and Natural Sciences Module[2]

Requirements: Students must complete a minimum of 28 credits. For Mathematics, students must select one of the A, B, or C course categories (at least 8 credits) and complete either the *Advanced Linear Algebra I* or *Linear Algebra* for 4 credits. For Physics, students are required to choose either course category A or B (at least 8 credits) and complete the course *Experiments of Fundamental Physics* for 2 credits. For Chemistry, students must complete at least one of the listed courses to receive a minimum of 3 credits. For Biology and Life Sciences, students must select one of the listed courses to receive 3 credits.

Category	Course Code	Course Name		Require-ment	Credits	Terms	Prerequisite	Dept.
Mathematics	MA101a	Mathematical Analysis I	Category A	Restricted	5	1 Fall	NA	MATH
	MA102a	Mathematical Analysis II		Restricted	5	1 Spr.	Mathematical Analysis I	
	MA117	Calculus I	Category B	Restricted	4	1 Fall	NA	
	MA127	Calculus II		Restricted	4	1 Spr.	Calculus I	
	MA118	Single-variable Calculus	Category C	Restricted	4	1 Fall	NA	
	MA128	Multivariable Calculus		Restricted	4	1 Spr.	Single-variable Calculus	
	MA107	Advanced Linear Algebra I		Restricted	4	1 Fall	NA	
	MA113	Linear Algebra		Restricted	4	1 Spr. &Fall	NA	
Physics	PHY101	General Physics I	Category A	Restricted	5	1 Fall	NA	PHY
	PHY102	General Physics II		Restricted	5	1 Spr.	General Physics I	
	PHY105	College Physics I	Category B	Restricted	4	1 Fall	NA	
	PHY106	College Physics II		Restricted	4	1 Spr.	College Physics I	
	PHY104B	Experiments of Fundamental Physics		Required	2	1-2 Spr. &Fall	NA	
Chemistry	CH103	General Chemistry		Restricted	4	1-2 Spr. &Fall	NA	CHEM
	CH105	Chemistry: The Central Science		Restricted	3	1-2 Spr. &Fall	NA	
Geoscience + Life Science	BIO103	Principles of Biology		Restricted	3	1-2 Spr. &Fall	NA	BIO
	BIO102B	Introduction to Life Science		Restricted	3	1-2 Spr. &Fall	NA	
	EOE111	College Earth Science		Restricted	3	1-2 Spr. &Fall	NA	ESS, OCE, ESE

[2] Mathematics, Physics, Chemistry, and Geoscience + Life science courses in the Mathematics and Natural Sciences Module are GE Required Courses for Science and Engineering.

6. GE to Majors Bridging Module

Requirements: Students must complete a total of 2 credits.

Category	Course Code	Course Name	Require-ment	Credits	Terms	Prerequisite	Dept.
Introduction to Majors	AI101	AI and Applications	Optional	3	1 Spr.	Calculus I or Mathematical Analysis I	SAI
	COE100	Introduction to Engineering	Optional	2	1-2 Spr. /Fall	NA	COE
	OCE107	Introduction to Ocean Engineering	Optional	3	1-2 Spr.	NA	OCE
	MSE460	Orientation Program of Dept. of Materials Science and Engineering	Optional	1	1-2 Spr.	NA	MSE
	MSE102	Frontier Seminars in Materials Science and Engineering	Optional	1	1-2 Fall	NA	MSE
	MSE104	Introduction to AI for Materials Science	Optional	1	1-2 Fall	NA	MSE
	EE111	Electronic Information Science and Technology in the AI Era	Optional	1	1-2 Spr. &Fall	NA	EE
	SME104	Introduction to Integrated Circuit	Optional	2	1 Spr. &Fall	NA	SME
	IDE101	Introduction to Scientific Logic	Optional	3	1-2 Fall	NA	BOC
	ESS208	Introduction to Natural Disaster Science	Optional	2	1-2 Spr. /Fall	NA	ESS
	ESS101	Space Exploration	Optional	2	1-2 Spr. /Fall	NA	ESS
	ESS103	Earthquake	Optional	2	1-2 Spr. /Fall	NA	ESS
	ESS104	Polar Exploration	Optional	2	1-2 Spr. /Fall	NA	ESS
	FIN102	Finance	Optional	3	1-2 Spr. /Fall	NA	FIN
	FIN103	Principles of Economics	Optional	3	1-2 Spr. /Fall	NA	FIN
	FET205	Introduction to Accounting	Optional	3	1-2 Spr. /Fall	NA	FIN
	FIN104	Innovation and Entrepreneurship Management: From Science to Business	Optional	3	1-2 Spr.	NA	FIN
	STA101	Fascinating Statistics	Optional	3	1-2 Spr.	NA	STA

	ME232	Prolegomenon to Robotics	Optional	3	1-2 Spr. /Fall	NA	MEE
	ME113	Introduction to Modern Mechanical Engineering	Optional	2	1-2 Spr. /Fall	NA	MEE
	MAE210	Introduction to Aerospace Technologies	Optional	2	1-2 Spr.	NA	MAE
	MAE212	Mechanics on the tip of the tongue	Optional	1	1-2 Spr.	NA	MAE
	BMEB131	Introduction to Biomedical Engineering	Optional	2	1-2 Spr.	NA	BME
	MAE101	Experimental DIY: Discover the beauty of mechanics	Optional	2	1-2 Spr.	NA	MAE
	MAE102	Flight Simulating Experiment	Optional	1	1-2 Spr. &Fall	NA	MAE
	MAE205	Introduction to Aeronautics and Mechanics	Optional	2	1-2 Fall	NA	MAE
	ESE319	Global Climate Change	Optional	3	1-2/Fall	NA	ESE
	ESE223	City and Environment	Optional	3	1-2 Spr.	NA	ESE
	ESE322	Environmental and Health	Optional	3	1-2 Spr.	NA	ESE
	MED108	Introduction to Global Health	Optional	2	1-2 Spr. /Fall	NA	MED
	MED104	Fundamentals in Biomedical Sciences	Optional	3	1-2 Spr. /Fall	NA	MED
	MED106	Immunity and Health	Optional	2	1-2 Spr.	NA	MED
	MED303	Introduction to Anatomy	Optional	3	1-2 Spr. /Fall	NA	MED
	MED110	Social Medicine	Optional	2	1-2 Spr. /Fall	NA	MED
	MED115	Introduction to Drug Development	Optional	3	1-2 Spr.	NA	MED
	MED117	Global Health in Big Data	Optional	2	1-2 Spr. &Fall	NA	MED
	MED119	Diet and Health	Optional	2	1-2 Spr. &Fall	NA	MED
	MED120	Nobel Prize in Medicine	Optional	2	1-2 Spr. &Fall	NA	MED
	MED121	Drug Discoveryand Applications	Optional	2	1-2 Spr. &Fall	NA	MED
	MED122	A Bite of Health	Optional	2	1-2 Spr. &Fall	NA	MED

	MED123	An Invitation to Our Brain	Optional	2	1-2 Spr. &Fall	NA	MED
	MED124	Horticultural Products: Quality,Hutrition and Health	Optional	2	1-2 Spr. &Fall	NA	MED
	MED125	Biomedical Literature Intelligent Retrieval and Writing	Optional	2	1-2 Spr. &Fall	NA	MED
	MED126	Clinical Nutrition	Optional	2	1-2 Spr. &Fall	NA	MED
	MED127	Viruses and health	Optional	2	1-2 Spr. &Fall	NA	MED
	MED128	Cancer Prevention, Treatment and Health	Optional	2	1-2 Spr. &Fall	NA	MED
	MED129	Machine Learning for Medicine	Optional	2	1-2 Spr. &Fall	NA	MED
	MED130	Principles and Practices of Gene Therapy	Optional	2	1-2 Spr. &Fall	NA	MED
	SDM114	Product Design Visualization	Optional	3	1-2 Spr.	NA	AiM
	SDM476	Foundation of AI-NOT	Optional	3	1-2 Fall	NA	AiM
	SDM172	Introduction to AI Models and Algorithms	Optional	3	1-2 Fall	NA	AiM
	EBA106	Management	Optional	3	1-2 Spr. &Fall	NA	ISME
	MIS110	Introduction to Machine Learning and Big Data Analytics	Optional	3	1-2 Spr.	NA	ISME
	EBA108	Introduction to Business Intelligence and Analysis	Optional	3	1-2 Spr. /Fall	NA	ISME
	CS103	Introduction to Artificial Intelligence	Optional	2	1-2 Fall	NA	CSE
	CH104	Chemistry and Discovery	Optional	1	1-2 Spr. &Fall	NA	CHEM
	CH330	Practice for Cosmetic Science	Optional	1	1-2 Spr.	NA	CHEM
	CH210	Frontiers of Chemical Science	Optional	2	1-2 Spr.	NA	CHEM
	BIOS201	Genome, why we are different?	Optional	2	1 Sum.	NA	BIO
	BIO108	Human Evolution Optional	Optional	2	1 Spr	NA	SOLS
	PHYS002	Lectures on selected Frontiers in Physics	Optional	2	1-2 Spr.	NA	PHY
	(The course list is subject to change)						

7. Course Introduction to the Mathematics and Natural Sciences Module and Computer Programming Courses in the Competence Development Module（Course requirements for the following categories are detailed in the major curriculum of each program.）

Mathematics

Course Code	Course Name	Credits	Course Objectives
MA101a	Mathematical Analysis I	5	This course aims at providing math majored students with solid foundation in the theory of analysis, cultivating their ability of rigorous logical reasoning and mathematical thinking.
MA102a	Mathematical Analysis II	5	
MA117	Calculus I	4	This course emphasizes the basic concepts and properties of single-variable and multivariable Calculus theories, as well as the basic techniques of calculating differentiation and integration. It develops students' ability to use the ideas of Calculus to solve problems in other scientific disciplines.
MA127	Calculus II	4	
MA118	Single-variable Calculus	4	This course emphasizes the basic concepts and properties of single-variable and multivariable Calculus theories, as well as the basic techniques of calculating differentiation and integration, providing students with the necessary mathematical foundation for further study in the subsequent major courses
MA128	Multivariable Calculus	4	
MA107	Advance Linear Algebra I	4	It aims at leading students into systematic and thorough studies of the fundamentals of modern algebra and providing a solid foundation for subsequent, more advanced courses in math major. The contents of the course and the standards of assessment will normally surpass the other courses in the same series, with the purpose to foster students with the strongest algebra knowledge and foundation.
MA113	Linear Algebra	4	The course introduces the basic concepts and theories in linear algebra, including systems of linear equations, matrix algebra, determinants, vector spaces, linear transformations, eigenvalues and eigenvectors, singular value decomposition and quadratic forms and other related theories, laying a solid foundation for further study in the advanced Linear Algebra courses.

Physics

Course Code	Course Name	Credits	Course Objectives
PHY101	General Physics I	5	The course is mainly for physics majors, focusing on the introduction to the origin and development of physics principles, as well as the connotations and interrelationships of different physical laws. It also emphasizes the use of mathematical tools to conduct qualitative and quantitative analyses of physical phenomena in order to help students build a solid foundation in mathematical physics for further research in physics.
PHY102	General Physics II	5	
PHY105	College Physics I	4	The course is intended for general science and technology and other related majors. It mainly introduces the basic principles and laws of physics and cultivates students' basic ability to flexibly apply their physics knowledge to research and analyze various physical phenomena. It allows students to form a good knowledge framework and foundation for further study in related major courses.
PHY106	College Physics II	4	

Chemistry

Course Code	Course Name	Credits	Course Objectives
CH103	General Chemistry	4	The course provides students with an understanding of the most fundamental principles of chemistry (including microscopic theory, statistical theory and macroscopic theory) and their applications in chemistry and chemical engineering, incorporating contents from inorganic chemistry, organic chemistry, analytical chemistry, physical chemistry and polymer. Introduction to cutting-edge developments in chemistry is also included.
CH105	Chemistry：the Central Science	3	The course provides students with an understanding of the most fundamental principles of chemistry (including microscopic theory, statistical theory and macroscopic theory) and their applications in chemistry and chemical engineering, which incorporates contents from inorganic chemistry, organic chemistry, analytical chemistry, physical chemistry and polymer. The course also introduces contents related to chemistry and life, chemistry and materials, chemistry and the environment, and chemistry and energy.

Geoscience + Life Sciences

Course Code	Course Name	Credits	Course Objectives
BIO103	Principles of Biology	3	Principles of Biology allows the most diversified exposure to biology at the introductory level. It is designed to provide a comprehensive knowledge base in life sciences-spanning heredity and development, molecular and cellular biology, microbiology and immunology, and plant biology and ecology-that students can use as a foundation for life-long learning in the sciences. In addition, it is also designed to provide an excellent preparation for a wide range of advanced courses including biochemistry, cell biology, molecular biology, microbiology, immunology, and genetics.
BIO102B	Introduction to Life Science	3	Introduction to Life Sciences is a discovery course mainly for SUSTech freshmen, with or without prior knowledge in biology. Each module of the course begins with an exposition of some interesting biological issues that are relevant to our health, daily life and spiritual pursuit, and provides the insight into the history of modern life science, its knowledge base, great achievements, exacting research results and challenges, as well as a summary of the common ground shared by experimental sciences (curiosity, dialectic, chance, inevitability, etc.). Thanks to the extensive and profound multidisciplinary interaction and collaboration, the life science has expanded far beyond its classical scope, leading to quite a few subversion of traditional and contemporary biological perceptions in past 60 years. This course would break away from the stereotypic teaching style(s) of biology, guide students through a novel learning journey, and educate them to respect, appreciate and value the lives.
EOE111	College Earth Science	3	This course aims to guide students in exploring the mysteries of Earth and the universe, and in understanding the complexity of the Earth system and humanity's role within it. The course content encompasses the origins of the universe and planetary systems, the formation of elements and molecules, the structure and evolution of Earth, the birth and evolution of life, the interaction between Earth's inner spheres and its surface environment, as well as pressing issues such as global climate change, natural disasters, resources and the environment, and space exploration. This course emphasizes the cultivation of students' scientific literacy, systematic thinking skills, and global responsibility, providing them with a multidisciplinary knowledge framework that lays the foundation for further learning and research in natural sciences, engineering technology, social sciences, and other fields. Through learning, students will develop a scientific perspective on nature, gain a deeper understanding of the relationship between humans and Earth, foster a curiosity to delve into various subjects, and contribute their wisdom and actions to addressing future environmental and social challenges.

Computer Programming

Course Code	Course Name	Credits	Course Objectives
CS109	Introduction to Computer Programming	3	The course aims to cultivate students who have programming experience before their university study. In this course, we will introduce the fundamentals of object-oriented programming language and techniques. The students will be familiar with the mainstream programming language Java and be able to use the language to construct programs and solve practical problems.
CS110	Introduction to Java Programming	3	The course is designed for students who have no programming experience and aims to cultivate them on basic knowledge and techniques of programming. Students will learn basic elements and structures of programming through JAVA and use Java to solve simple programming problems.
CS111	Introduction to C Programming	3	The course introduces C language and programming design methods, aiming at helping students understand the basic structure of program design and the general workflow and logic of using programming to solve real-world problems. The students will master the basic ideas, methods and skills of C programming. They should be able to write qualified programs independently and complete simple group research and development projects. Most importantly, students will be trained for a programming mindset and have the initial ability to use programming language and development environment to solve practical problems in the field, laying a solid foundation on programming theories and practice for subsequent major studies and research.
CS112	Introduction to Python Programming	3	The basic goal of this course is to introduce the data type and related programing skills in the Python language. The course covers the Python programming environment setup, main components of Python (variables, operators, data type, etc.), flow control, functions, lists, dictionaries, tuples and sets, input and output, plotting, Numpy, SciPy, Pandas, and objected-oriented programming. At the end of the course, students are expected to master the Python language and to be able to solve relevant scientific computing problems proficiently and effectively
CS113	Introduction to Matlab Programming	3	MATLAB is a U.S. commercial mathematical software from MathWorks, Inc. targeting the high-tech computing environment of scientific computing, visualization, and interactive programming. It integrates many powerful features such as numerical analysis, matrix computation, visualization of scientific data, and modeling and simulation of nonlinear dynamic systems in an easy-to-use windowed environment, providing a comprehensive solution for scientific research, engineering design, and many scientific fields where efficient numerical computation is necessary. This course will introduce the basic concepts, methods, techniques, and common misconceptions of MATLAB and provide students with a foundation for using MATLAB in the areas of scientific computing, data analysis, simulation modeling, etc.

SUSTech Undergraduate Programs for International Students

Dept.	Majors	Degree	Major by Discipline	Contact
Department of Mathematics	Financial Mathematics	BEc	Finance	0755-88018719
	Mathematics and Applied Mathematics	BSc	Mathematics	
Department of Physics	Physics	BSc	Physics	0755-88018251
	Applied Physics	BSc	Physics	
Department of Chemistry	Chemistry	BSc	Chemistry	0755-88018350
Department of Earth and Space Sciences	Geophysics	BSc	Geophysics	0755-88018804
Department of Statistics and Data Science	Statistics	BSc	Statistics	0755-88015675
	Data Science and Big Data Technology	BSc	Computer Science	
Department of Mechanics and Aerospace Engineering	Theoretical and Applied Mechanics	BSc	Mechanics	0755-88018176
	Aerospace Engineering	BEng	Aerospace	
Department of Mechanical and Energy Engineering	Mechanical Engineering	BEng	Mechanical Engineering	0755-88018173
	Robotics Engineering	BEng	Automation	
	Science and Engineering for Renewables	BEng	Energy and Power	
Department of Materials Science and Engineering	Materials Science and Engineering	BEng	Materials	0755-88015994
	Electronic and Photonic Materials and Devices	BEng	Materials	
Department of Electrical and Electronic Engineering	Communication Engineering	BEng	Electronic Information	0755-88018569
	Optoelectronic Information Science and Engineering	BEng	Electronic Information	
	Information Engineering	BEng	Electronic Information	
Department of Computer Science and Engineering	Computer Science and Technology	BEng	Computer Science	0755-88018553
	Intelligence Science and Technology	BEng	Computer Science	
Department of Ocean Science and Engineering	Oceanography	BSc	Marine Science	0755-88018759
	Offshore Engineering and Technology	BEng	Offshore Engineering	

Department of Biomedical Engineering	Biomedical Engineering	BEng	Biomedical Engineering	0755-88015001
	Intelligent Medical Engineering	BEng	Medical Technology	
School of Environmental Science and Engineering	Environmental Science and Engineering	BEng	Environmental Science and Engineering	0755-88018064
	Hydrology and Water Resources Engineering	BEng	Water Conservancy	
School of Microelectronics	Microelectronics Science and Engineering	BEng	Electronic Information	0755-88010151
School of Automation and Intelligent Manufacturing	Industrial Design (Suspension of Admissions)	BEng	Mechanical Engineering	0755-88015339
	Automation	BEng	Automation	
School of Artificial Intelligence	Artificial Intelligence (Suspension of Admissions)	BEng	Electronic Information	0755-88015379
School of Life Sciences	Biological Sciences	BSc	Biological Sciences	0755-88018404
	Biotechnology (Suspension of Admissions)	BSc	Biological Sciences	
	Bioinformatics	BSc	Biological Sciences	
School of Medicine	Biomedical Science	BSc	Basic Medicine	0755-88018033
	Clinical Medicine (Suspension of Admissions)	BM	Clinical Medicine	
	Stomatology (Suspension of Admissions)	BM	Stomatology	
College of Business	Finance	BEc	Finance	0755-88018609
	Financial Engineering	BEc	Finance	
	Big Data Management and Applications	BBA	Management Science and Engineering	0755- 88012803
	Industrial Engineering	BBA	Industrial Engineering	
	Accounting (Accounting Analytics Concentration)	BBA	Business Administration	
School of Design	Industrial Design	BEng	Mechanical Engineering	0755-88012833
SUSTech – King's School of Medicine	Biomedical Science (Suspension of Admissions)	BSc	Basic Medicine	0755-88012972
	Biomedical Engineering (Suspension of Admissions)	BEng	Biomedical Engineering	

Department of Mathematics

Program of Financial Mathematics

for International Students (2026)

I. Introduction

In 2012 the Chinese Ministry of Education approved financial mathematics as a major in the field of economics. At present, more than 60 universities have been granted the right conferring degrees in financial mathematics. Students enroll in schools or departments of mathematics and can obtain a Bachelor’s degree in Economics.

In China, option trading began in 2015. With the rapid development of networks, the scale of high-frequency trading via networks and aided by computer programming will also increase. In order to prevent financial crisis and to maintain the stability of financial markets, talents of financial risk management who have solid abilities in financial modeling and quantitative analysis are in urgent need. As a result, there is an urgent need in financial markets for talents with excellent foundation of mathematics, superb computer programming skills and a good understanding of finance. It is of great significance to develop the financial mathematics major well in order to cultivate high-end financial talents for China’s financial industry.

Program code: 020305T

II. Objectives and Learning Outcomes

1. Objectives

The objective for undergraduates majoring in financial mathematics is to cultivate high-level, applied and interdisciplinary financial talents who possess good professional ethics, solid theoretical basis of financial mathematics, superior abilities in data processing and computer programming, high level of foreign languages as well as innovative and entrepreneurial spirit, and are able to engage in financial data processing, model analysis, quantitative investment and risk management in all kinds of financial institutions, and to lay a theoretical foundation for them to pursue postgraduate studies.

2. Learning Outcomes

Have a solid foundation in mathematics, master the basic theories and analytical methods of economics and finance, and be able to apply the knowledge gained to conduct mathematical analysis and research on theoretical financial issues. Students will be able to use analytical tools and quantitative analysis methods of financial mathematics to solve financial practice problems, and have the basic ability to deal with banking, insurance, securities, investment and other aspects of business.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Economics

3. The minimum credit requirement for graduation: 146 credits. The specific requirements are as follows.

<table>
<tr><th colspan="2"></th><th>Category</th><th>Minimum Credit Requirement</th></tr>
<tr><td rowspan="14">General Education Courses</td><td rowspan="2">Chinese Language and Culture Module</td><td>Chinese Language and Culture</td><td>16</td></tr>
<tr><td rowspan="2">Arts and Physical Education Module</td><td>Physical Education</td><td>4</td></tr>
<tr><td>Arts</td><td>2</td></tr>
<tr><td rowspan="3">Competence Development Module</td><td>Computer Programming</td><td>3</td></tr>
<tr><td>Writing</td><td>2</td></tr>
<tr><td>Foreign Languages</td><td>14</td></tr>
<tr><td rowspan="2">Humanities and Social Sciences Module</td><td>Humanities</td><td>4</td></tr>
<tr><td>Social Sciences</td><td>4</td></tr>
<tr><td rowspan="4">Mathematics and Natural Sciences Module</td><td>Mathematics</td><td>12</td></tr>
<tr><td>Physics</td><td>10</td></tr>
<tr><td>Chemistry</td><td>3</td></tr>
<tr><td>Geo-science + Life science</td><td>3</td></tr>
<tr><td>GE to Majors Bridging Module</td><td>Introduction to Majors</td><td>2</td></tr>
<tr><td rowspan="4">Major Courses</td><td rowspan="3">Major Required Courses</td><td>Major Foundational Courses</td><td>16</td></tr>
<tr><td>Major Core Courses</td><td>22</td></tr>
<tr><td>Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)</td><td>14</td></tr>
<tr><td>Major Elective Courses</td><td>Major Elective Courses</td><td>15</td></tr>
<tr><td colspan="3">Total</td><td>146</td></tr>
<tr><td colspan="4">Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.</td></tr>
</table>

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1 Fall		Department of Mathematics
	MA127	Calculus II	4	1 Spring	Calculus I	
	MA113	Linear Algebra	4	1 Spring & Fall		
Physics	PHY105	College Physics I	4	1 Fall		Department of Physics
	PHY106	College Physics II	4	1 Spring	College Physics I	
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall		
Chemistry	CH105	Chemistry: The Central Science	3	1-2 Spring & Fall		Department of Chemistry
Geo-science + Life science	BIO103/ BIO102B/ EOE111	Principles of Biology/Introduction to Life Science/College Earth Science	3	1-2 Spring & Fall	None	Department of Biology/Department of ESS，OCE and ESE
Computer Programming	CS109/ CS110/ CS111/ CS112/ CS113	Introduction to Computer Programming/Introduction to Java Programming/Introduction to C programming/Introduction to Python ProgrammingPython /Introduction to Matlab Programming	3	1-2 Spring & Fall	None	Dept. of Computer Science and Engineering

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	MA117	Calculus I	MA117
	MA127	Calculus II	MA127
	MA113	Linear Algebra	MA113
Declare major at the end of the second academic year	MA117	Calculus I	None
	MA127	Calculus II	MA127
	MA113	Linear Algebra	
	MA109	Advanced Linear Algebra	MA113
	PHY105	College Physics I	
	PHY106	College Physics II	PHY105
	CS109/CS110/CS111/ CS112/CS113	Introduction to Computer Programming/Introduction to Java Programming/Introduction to C programming/Introduction to Python ProgrammingPython /Introduction to Matlab Programming	CS109/CS110/ CS111/CS112/ CS113

Notes:
If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Financial Mathematics

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	MA109	Advanced Linear Algebra	4	0	1/Spring	MA113	Department of Mathematics
	MA213-16	Mathematical Analysis	5	0	2/Fall	MA127	Department of Mathematics
	MA215	Probability Theory	4	0	2/Fall	MA102a/MA127/MA128	Department of Mathematics
	MA236	Foundations of Mathematical Statistics	3	0	2/Spring	MA215	Department of Mathematics
	Total		16	0			
Major Core Courses	MA201a	Ordinary Differential Equations A	4	0	2/Spring	MA213-16 & MA109	Department of Mathematics
	MA208	Applied Stochastic Processes	3	0	2/Spring	MA213-16 & (MA215/ MA212) & MA109	Department of Mathematics
	FMA304	Asset Pricing and Risk Management	3	0	3/Fall	MA236 /MA212	Department of Mathematics
	FMA303	Security Investments	3	0	3/Fall	MA215	Department of Mathematics

	FMA302	Financial Economics	3	0	3/Spring	MA215	Department of Mathematics
	FMA301	Econometrics	3	0	3/Spring	MA236 /MA212	Department of Mathematics
	FMA307	Models and Pricing of Financial Derivatives	3	0	3/Spring	MA208	Department of Mathematics
	Total		22	0			
	MA491	Undergraduate Thesis/ Project	12	12	4/Spring	NONE	Department of Mathematics
	MA480	Research Projects*	2	2	Any semester after the first school year	NONE	Department of Mathematics
	MA470	Internship*		2	Any summer after the first school year	NONE	Department of Mathematics
	Total		14	16			
Total			52	16			

Note：
Students are required to choose Research Projects (including all kinds of scientific research activities, scientific and technological innovation projects, wining prizes in competitions above the provincial level, publishing papers, engaging in advanced studies both at home and abroad as well as attending a certain number of seminars or public lectures, and related credits are identified by the Department) and one course in Internship to carry out practice.

Table 2: Major Elective Courses

Program of Financial Mathematics

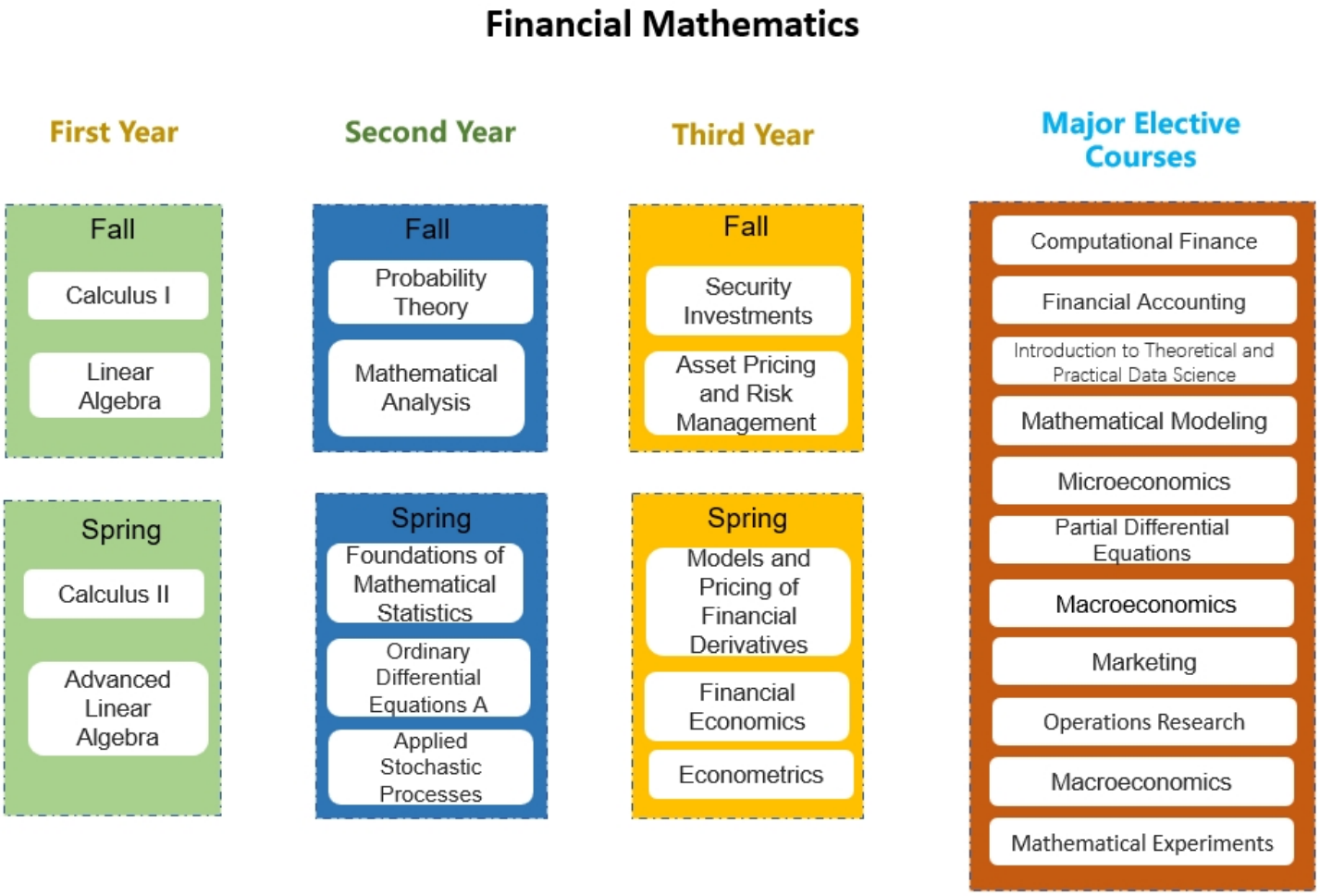
Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
MA206	Mathematical Modeling	3	1	2/Spring	MA201a	Department of Mathematics
MA210	Operations Research	3	0	2/Spring	MA231/MA213-16	Department of Mathematics
FIN201	Microeconomics	3	0	2 Fall & Spring		Dept. of Finance
FIN204	Macroeconomics	3	0	2 Fall & Spring		Dept. of Finance
FIN203	Financial Accounting	3	0	2 Fall		Dept. of Finance
FIN215	Political Economics	3	0	2 Fall		Dept. of Finance
FIN313	Strategic Behavior	3	0	3 Spring		Dept. of Finance
MA234	Introduction to Theoretical and Practical Data Science	4	1	3/Spring	MA212	Department of Mathematics
MA302	Functional Analysis	3	0	3/Spring	MA301& MA202& MA109	Department of Mathematics
FIN210	Economics of Money and Banking	3	0	3/Spring		Dept. of Finance
MIS202	Marketing	3	0	3/Spring		Dept. of Finance
MA303	Partial Differential Equations	3	0	3/Fall	MA201b	Department of Mathematics
MA207	Mathematical Experiments	3	1	3/Fall	MA213-16	Department of Mathematics
MA216	Computational Finance	3	0	3/Fall	(MA215/MA212) & MA109	Department of Mathematics
FIN403	Cases in Financial Innovations	3	0	4 Fall		Dept. of Finance
FIN314	Frontier and Practice of Securities Market	1	1	4 Fall	Microeconomics、Macroeconomics	Dept. of Finance
Total		47	4			
Note: Students are required to complete 15 credits for the Major Elective Courses.						

Table 3: Overview of Practice-based Learning

Program of Financial Mathematics

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
PHY104B	Experiments of Fundamental Physics	2	2	1-2 Spring & Fall	None	Department of Physics
CS109	Introduction to Computer Programming	3	1	1-2 Spring & Fall	None	Department of Physics
CS110	Introduction to Java Programming	3	1	1-2 Spring & Fall	None	Department of Physics
CS111	Introduction to C programming	3	1	1-2 Spring & Fall	None	Department of Physics
CS112	Introduction to Python Programming	3	1	1-2 Spring & Fall	None	Department of Physics
CS113	Introduction to Matlab Programming	3	1	1-2 Spring & Fall	None	Department of Physics
MA206	Mathematical Modeling	3	1	2/Spring	MA201a	Department of Mathematics
MA207	Mathematical Experiments	3	1	3/Fall	MA213-16	Department of Mathematics
MA234	Introduction to Theoretical and Practical Data Science	4	1	3/Spring	MA212	Department of Mathematics
MA470	Internship	2	2			Department of Mathematics
MA491	Undergraduate Thesis/Project	12	12			Department of Mathematics
Total		41	24			

Curriculum Structure of Financial Mathematics



Department of Mathematics

Program of Mathematics and Applied Mathematics

for International Students (2026)

I. Introduction

Established in 2012, Southern University of Science and Technology is a young university aiming to become a top research university in the world. In recent years, the university has attracted many outstanding researchers. The Department of Mathematics currently has 44 full-time faculty members. Our faculty members' research covers a broad range of areas including Mathematics (dynamical systems, algebra and combinatorics, algebraic number theory, PDEs, mathematical physics and differential geometry, etc.), Computational and Applied Mathematics (applied mathematics, numerical analysis, computational fluid dynamics, scientific computing, inverse problems, data science, etc.), Probability and Statistics, and Financial Mathematics.

There are many jobs and opportunities for further academic development for undergraduate students in mathematics and applied mathematics. Government agencies, banks, insurance companies, securities investment companies, software developers, market survey and analysis companies, e-commerce companies and many high-tech companies all have job opportunities for undergraduate students in mathematics and applied mathematics. Students who wish to pursue graduate studies in mathematics and applied mathematics can also find many opportunities either in China or overseas.

Academic subject areas: Bachelor of Science

Program code: 070101

II. Objectives and Learning Outcomes

1. Objectives

The objective of the undergraduate programs in mathematics and applied mathematics is to produce outstanding students with a solid foundation in mathematics, a broad knowledge base in related areas such scientific computing and other areas of science, and excellent ability of critical thinking and working independently.

2.Learning Outcomes

The department provides a wide variety of courses that will meet the needs of students

interested in pure mathematics and applied mathematics. The ultimate training objective of the undergraduate programs is to enable students to excel in their future career choices, whether they choose to work in government or industries, or to become mathematical scientists.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Science.

3. The minimum credit requirement for graduation: 145 credits. The specific requirements are as follows.

<table>
<tr><th colspan="2">Module</th><th>Category</th><th>Minimum Credit Requirement</th></tr>
<tr><td rowspan="13">General Education Courses</td><td>Chinese Language and Culture Module</td><td>Chinese Language and Culture</td><td>16</td></tr>
<tr><td rowspan="2">Arts and Physical Education Module</td><td>Physical Education</td><td>4</td></tr>
<tr><td>Arts</td><td>2</td></tr>
<tr><td rowspan="3">Competence Development Module</td><td>Computer Programming</td><td>3</td></tr>
<tr><td>Writing</td><td>2</td></tr>
<tr><td>Foreign Languages</td><td>14</td></tr>
<tr><td rowspan="2">Humanities and Social Sciences Module</td><td>Humanities</td><td>4</td></tr>
<tr><td>Social Sciences</td><td>4</td></tr>
<tr><td rowspan="4">Mathematics and Natural Sciences Module</td><td>Mathematics</td><td>12</td></tr>
<tr><td>Physics</td><td>10</td></tr>
<tr><td>Chemistry</td><td>3</td></tr>
<tr><td>Geoscience + Life science</td><td>3</td></tr>
<tr><td>GE to Majors Bridging Module</td><td>Introduction to Majors</td><td>2</td></tr>
<tr><td rowspan="4">Major Courses</td><td rowspan="3">Major Required Courses</td><td>Major Foundational Courses</td><td>16</td></tr>
<tr><td>Major Core Courses</td><td>13</td></tr>
<tr><td>Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)</td><td>14</td></tr>
<tr><td>Major Elective Courses</td><td>Major Elective Courses</td><td>23</td></tr>
<tr><td colspan="3">Total</td><td>145</td></tr>
<tr><td colspan="4">Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.</td></tr>
</table>

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1Spr/Fall	None	Department of Mathematics
	MA127	Calculus II	4	1Spr/Fall	MA117	Department of Mathematics
	MA113	Linear Algebra	4	1Spr/Fall	None	Department of Mathematics
Physics	PHY101/ PHY105	General Physics I /College Physics I	4	1Spr/Fall	None	Department of Physics
	PHY102/ PHY106	General Physics II/College Physics II	4	1Spr/Fall	College Physics I	Department of Physics
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spr & Fall	None	Department of Physics
Chemistry	CH103/ CH105	General Chemistry/Chemistry: The Central Science	3	1-2 Spr & Fall	None	Department of Chemistry
Geoscience + Life science	BIO103/ BIO102B/ EOE111	Principles of Biology/Introduction to Life Science/College Earth Science	3	1-2 Spr & Fall	None	Department of Biology/Depa rtment of ESS，OCE and ESE
Computer Programming	CS109/ CS110/ CS111/ CS112/ CS113	Introduction to Computer Programming/Introduction to Java Programming/Introduction to C programming/Introduction to Python ProgrammingPython /Introduction to Matlab Programming	3	1-2 Spr & Fall	None	Dept. of Computer Science and Engineering

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	MA117	Calculus I	MA117
	MA127	Calculus II	MA127
	MA113	Linear Algebra	MA113
Declare major at the end of the second academic year	MA117	Calculus I	None
	MA127	Calculus II	MA127
	MA113	Linear Algebra	
	MA109	Advanced Linear Algebra	MA113
	PHY105	College Physics I	
	PHY106	College Physics II	PHY105
	CS109/ CS110/ CS111/ CS112/ CS113	Introduction to Computer Programming/Introduction to Java Programming/Introduction to C programming/Introduction to Python ProgrammingPython /Introduction to Matlab Programming	CS109/ CS110/ CS111/ CS112/ CS113

Notes:
If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Mathematics and Applied Mathematics

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	MA109	Advanced Linear Algebra	4	0	1/Spr	MA113	Department of Mathematics
	MA213-16	Mathematical Analysis	5	0	2/Fall	MA127	Department of Mathematics
	MA215	Probability Theory	4	0	2/Fall	MA102a/ MA127/ MA128	Department of Mathematics
	MA209-16	Elementary Number Theory	3	0	2/Fall	MA109	Department of Mathematics
	Total		16	0			
Major Core Courses	MA214	Abstract Algebra	3	0	2/Spr	MA109	Department of Mathematics
	MA201a	Ordinary Differential Equations A	4	0	2/Spr	MA213-16 & MA109	Department of Mathematics
	MA303	Partial Differential Equations	3	0	3/Fall	MA201a	Department of Mathematics
	MA301	Real Analysis	3	0	3/Fall	MA213-16	Department of Mathematics
	Total		13	0			
Practice-based Courses	MA491	Undergraduate Thesis/Project	12	12	4/Spr	NONE	Department of Mathematics
	MA480	Research Projects*	2	2	Any semester after the first school year	NONE	Department of Mathematics
	MA470	Internship*		2	Any summer after the first school year	NONE	Department of Mathematics
	Total		14	16			
Total			43	16			

Note： Students are required to choose Research Projects (including all kinds of scientific research activities, scientific and technological innovation projects, wining prizes in competitions above the provincial level, publishing papers, engaging in advanced studies both at home and abroad as well as attending a certain number of seminars or public lectures, and related credits are identified by the Department) and one course in Internship to carry out practice.

Table 2: Major Elective Courses

Program of Mathematics and Applied Mathematics

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
MA206	Mathematical Modeling	3	1	2/Spr	MA201a	Department of Mathematics
MA202	Complex Analysis	3	0	2/Spr	MA213-16	Department of Mathematics
MA208	Applied Stochastic Processes	3	0	2/Spr	MA213-16 & (MA215/MA212) & MA109	Department of Mathematics
MA210	Operations Research	3	0	2/Spr	MA231/MA213-16	Department of Mathematics
MA204	Mathematical Statistics	3	0	2/Spr	MA215/MA212	Department of SDC
MA207	Mathematical Experiments	3	1	3/Fall	MA213-16	Department of Mathematics
MA216	Computational Finance	3	0	3/Fall	(MA215/MA212) & MA109	Department of Mathematics
MA323	Topology	3	0	3/Fall	MA214	Department of Mathematics
MA321	Representations of groups	3	0	3/Fall	MA214	Department of Mathematics
MA234	Introduction to Theoretical and Practical Data Science	4	1	3/Spr	MA212	Department of Mathematics
MA302	Functional Analysis	3	0	3/Spr	MA301& MA202& MA109	Department of Mathematics
MA327	Differential Geometry	3	0	3/Spr	MA201a	Department of Mathematics
MA401	Dynamical Systems	3	0	4/Fall	MA201a	Department of Mathematics
Total		40	3			

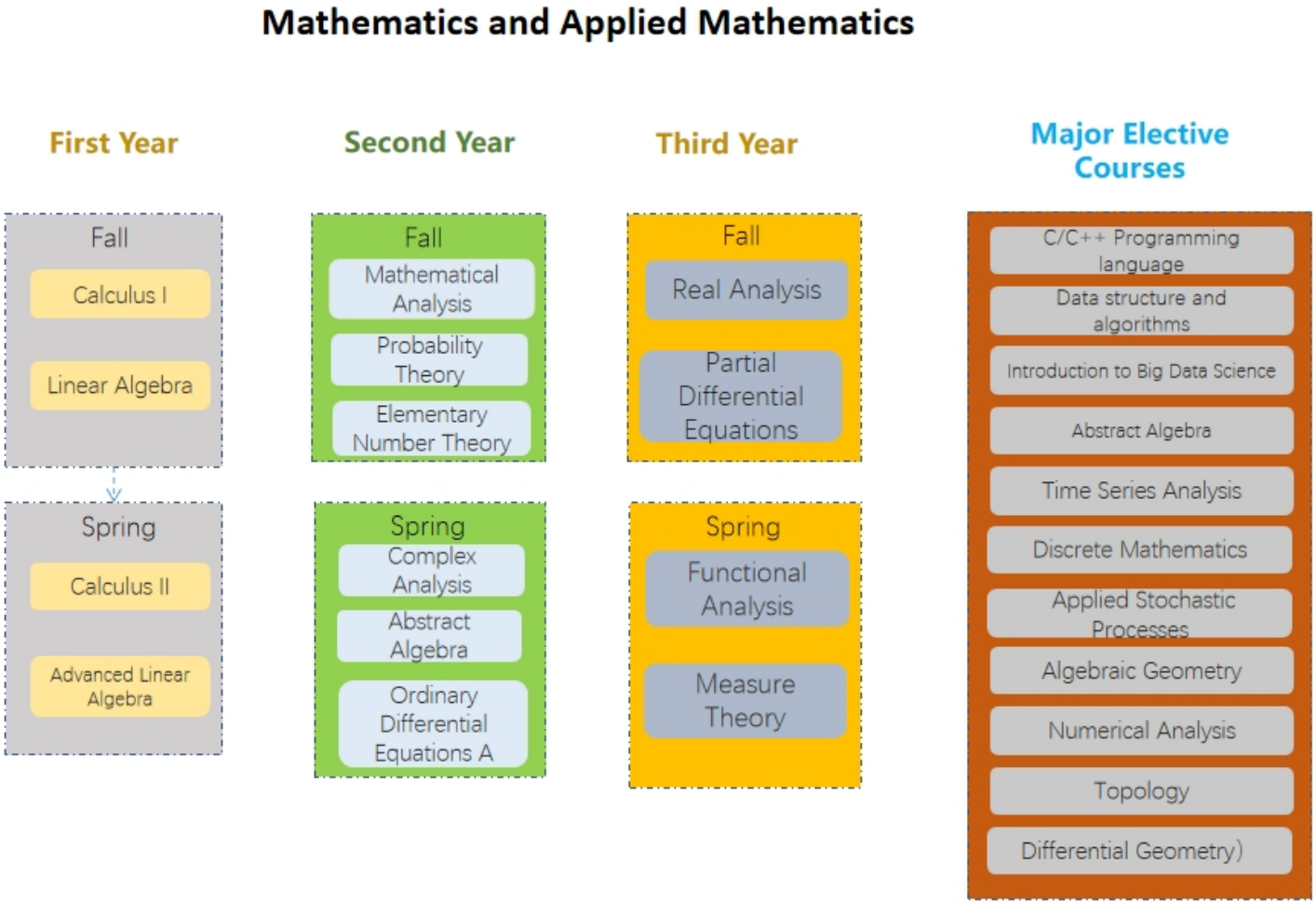
Notes:
1. Students are required to complete 23 credits for the Major Elective Courses.

Table 3: Overview of Practice-based Learning

Program of Mathematics and Applied Mathematics

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
PHY104B	Experiments of Fundamental Physics	2	2	1-2 Spring & Fall	None	Department of Physics
CS109	Introduction to Computer Programming	3	1	1-2 Spring & Fall	None	Department of Physics
CS110	Introduction to Java Programming	3	1	1-2 Spring & Fall	None	Department of Physics
CS111	Introduction to C programming	3	1	1-2 Spring & Fall	None	Department of Physics
CS112	Introduction to Python Programming	3	1	1-2 Spring & Fall	None	Department of Physics
CS113	Introduction to Matlab Programming	3	1	1-2 Spring & Fall	None	Department of Physics
MA206	Mathematical Modeling	3	1	2/Spr	MA201a	Department of Mathematics
MA207	Mathematical Experiments	3	1	3/Fall	MA213-16	Department of Mathematics
MA234	Introduction to Theoretical and Practical Data Science	4	1	3/Spr	MA212	Department of Mathematics
MA470	Internship	2	2			Department of Mathematics
MA491	Undergraduate Thesis/Project	12	12			Department of Mathematics
Total		41	24			

Curriculum Structure of Mathematics and Applied Mathematics



Department of Physics

Program of Physics

for International Students (2026)

I. Introduction

Physics is one of the oldest disciplines of natural science based on experiments, which involves the studies of motions of objects ranging from subatomic to cosmic levels, and the exploring of interactions and transformations of substances. It keeps developing as human explores the Nature. Until the 17th century, the Newtonian mechanics had been established, and the laws of motion of various objects including celestial bodies were well understood. In the late 19th century, physics became a systematic and rigorous discipline that contains mechanics, thermodynamics, electromagnetism, optics, etc., known as classic physics nowadays. The modern physics was developed at the beginning of the 20th century with the establishment of relativity and quantum mechanics. Significant breakthroughs in exploring the fundamental structure of the universe were made that greatly facilitated the development of technology and pushed forward the frontier of human cognition. However, the exploration of nature is far from complete. Many fundamental problems were still not being solved, such as the motion law of celestial objects in cosmic level, a more fundamental structure of elementary particles, and the physics laws of complex and strongly correlated macroscopic materials.

Physics is closely related to many other natural science disciplines. It has been a driving force to various of subjects including mathematics, chemistry, biology, geology, materials science, and information science. In addition, physics also makes great contributions to the revolutions of new technology arising from the theoretical breakthroughs, including nuclear energy, semiconductor, superconductor, laser, aerospace industry, etc. In short, physics plays a very important role in our economy and daily life. Progresses in areas such as fusion energy, novel semiconductor materials, high temperature superconductivity, quantum information and quantum computation are expected in the foreseeable future, and these progresses will lead to the developments of many other new areas of science and technology.

Physics Department at Southern University of Science and Technology, was established in 2011. It is one of the five earliest departments in SUSTech. At present, its research fields include theoretical physics, mathematical physics, particle physics and cosmology, condensed matter physics, computational physics, quantum information and quantum computation, optics, atomic

and molecular physics, Soft matter Physics and Biophysics, etc.

Academic subject areas: Physics

Program code: 070201

II. Objectives and Learning Outcomes

1. Objectives

The major provides systematic physics training for students, making them ready for advanced study and frontier research in physics and interdisciplinary disciplines in the future, as well as R&D, production, teaching and management in industrial departments, scientific research institutes and educational departments.

2. Learning Outcomes

Graduates should meet the requirements of the Ministry of Education on the ideological and political theory and moral education of undergraduates, have certain humanistic literacy, aesthetic literacy and social science knowledge, and establish correct labor values and attitudes, and meet the following professional training requirements:

1. Solid Mathematical Foundation

2. Systematically and comprehensively grasping the basic theories of Physics

3. Familiar with physics experiment methods and skills

4. Understanding the frontiers and developments of one or more research directions in physics or related majors

5. Abundant knowledge of physics and flexible application of physical theory in daily life and scientific research practice

6. Scientific Spirit, Innovative Awareness and Preliminary Scientific Research Ability

7. Basic knowledge background of related science and Engineering Majors

8. Basic computer programming, application and numerical computing capabilities

9. Ability to consult English documents, write papers and communicate academically

10. Good oral skills and teamwork spirit

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Science.

3. The minimum credit requirement for graduation: 149 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	25
		Major Core Courses	13
		Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	14
	Major Elective Courses	Major Elective Courses	18
Total			149
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1 Fall	None	Department of Mathematics
	MA127	Calculus II	4	1 Spring	Calculus I	
	MA113	Linear Algebra	4	1 Spring & Fall	None	
Physics	PHY105	College Physics I	4	1 Fall	None	Department of Physics
	PHY106	College Physics II	4	1 Spring	College Physics I	
	PHY104B	Experiments of Fundamental Physics	2	1 Spring & Fall	None	
Chemistry	CH105	Chemistry: The Central Science	3	1-2 Spring & Fall	None	Department of Chemistry
Geoscience + Life science (Choose one from two)	BIO102B	Introduction to Life Science	3	1-2 Spring & Fall	None	Department of Biology
	EOE111	College Earth Sciences	3	1-2 Spring & Fall	None	Dept. of Earth and Space Sciences, Dept. of Ocean Science and Engineering, School of Environment
Computer Programming (Choose one from five)	CS109	Introduction to Computer Programming	3	1-2 Spring & Fall	None	Dept. of Computer Science and Engineering
	CS110	Introduction to Java Programming	3	1-2 Spring & Fall	None	
	CS111	Introduction to C programming	3	1-2 Spring & Fall	None	
	CS112	Introduction to Python Programming	3	1-2 Spring & Fall	None	
	CS113	Introduction to Matlab Programming	3	1-2 Spring & Fall	None	

Note:
1. Mathematics: MA101a Mathematical Analysis I, MA102a Mathematical Analysis II can replace MA117 Calculus I, MA127 Calculus II;
2. Algebra: MA107 Advanced Linear Algebra I can replace MA113 Linear Algebra;
3. Physics: PHY101 General Physics I , PHY102 General Physics II can replace PHY105 College Physics I, PHY106 College Physics II;
4. Chemistry: CH103 General Chemistry can replace CH105 Chemistry: The Central Science;
5. Geoscience + Life science: BIO103 Principles of Biology can replace BIO102B Introduction to Life Sciences.
6. The above alternative courses are also applicable to "Prerequisites for Major Declaration".

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code		Course Name	Prerequisite
Declare major at the end of the first academic year	PHY105		College Physics I	None
	PHY106		College Physics II	College Physics I
	PHY104B		Experiments of Fundamental Physics	None
	MA117		Calculus I	None
	MA127		Calculus II	Calculus I
	MA113		Linear Algebra	None
Declare major at the end of the second academic year	PHY105		College Physics I	None
	PHY106		College Physics II	College Physics I
	PHY104B		Experiments of Fundamental Physics	None
	MA117		Calculus I	None
	MA127		Calculus II	Calculus I
	MA113		Linear Algebra	None
	Computer Programming(Choose one from five)	CS109	Introduction to Computer Programming	None
		CS110	Introduction to Java Programming	None
		CS111	Introduction to C programming	None
		CS112	Introduction to Python Programming	None
		CS113	Introduction to Matlab Programming	None

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Physics

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	PHY203-15	Mathematical Methods in Physics	4		2/Fall	MA127, PHY106, MA113	PHY
	PHY209	Foundations of Theoretical Physics	4		2/Fall	PHY106	PHY
	PHY201-15	Physics Laboratory II	2	2	2/Fall	PHY105, PHY104B	PHY
	PHY210	Atomic Physics	3		2/Fall	PHY106	PHY
	PHY204	Thermodynamics and Statistical Physics I	3		2/Spr	PHY106	PHY
	PHY206-15	Introduction to Quantum Mechanics	3		2/Spr	PHY203-15, PHY209 or PHY205-15	PHY
	PHY208	Electrodynamics II	3		2/Spr	PHY207-15 or PHY209	PHY
	PHY307	Modern Optics	3		2/Spr	PHY106	PHY
	Total		25	2			

Major Core Courses	PHY301	Physics Laboratory IV	3	3	3/Fall	PHY105, PHY104B	PHY
	PHY305	Quantum Mechanics II	3		3/Fall	PHY206-15	PHY
	PHY303	Statistical Mechanics II	3		3/Fall	PHY204	PHY
	PHY321-15	Introduction to Solid State Physics	4		3/Fall	PHY206-15	PHY
	Total		13	3			
Practice-based Courses	PHY480	Scientific InnovationProject	2	2		None	PHY
	PHY495	Thesis (Graduationproject)	12	12		None	PHY
	Total		14	14			
Total			52	19			

Note：

1. PHY203-15 "Mathematical Methods in Physics" can be replaced by PHY213 "Mathematical Methods in Physics (H)".
2. PHY203-15 "Mathematical Methods in Physics" can be replaced by a combination of Complex Analysis courses (MA202 or MA232) and Partial Differential Equations courses (MA303 or MA336).
3. PHY201-15 "Physics Laboratory II" can be replaced by PHY231 "Physics Laboratory II (H)" .
4. PHY301 "Physics Laboratory IV" can be replaced by the combination of PHY309 "Research Training I" and PHY310 "Research Training II".
5. PHY307 "Modern Optics" can be replaced by optical fundamentals courses (including EE210 "Fundamentals of Optics").
6. Students can start their Scientific Innovation Project after the first academic year. The minimum credit hours of the project are 64.
7. When choosing course alternatives, attention should be paid to the requirements of the prerequisite courses for the relevant courses, as well as differences in content and difficulty. After the course is replaced, no additional credits will be recognized for the relevant courses. The rules for credit recognition and replacement are interpreted by the Teaching Steering Committee of the Department of Physics.

Table 2: Major Elective Courses

Program of Physics - Limited Elective Courses - 6 Credits

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
PHY211	Theoretical Mechanics	3		3/Fall	PHY209	PHY
PHY380	Frontiers and Interdisciplinary Studies in Subatomic Physics	3		3/Fall	PHY106, PHY210	PHY
PHY336	Introduction to Computational Physics	3		3/Spr	CS110, PHY204, PHY321-15	PHY
PHY439	General Relativity: from Black Holes to Cosmology	3		3/Spr	MA113, PHY209	PHY
Total		12				

Note：
1. PHY336 Computational Physics can be replaced by ESS207 Computational Methods (H).
2. Students are required to choose at least two course from the above four courses. The additional courses selected can be counted towards the credits of “Major Elective Courses - Elective Courses”.

Program of Physics - Elective Courses - 12 credits

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Mathematics	MA109	Advanced Linear Algebra	4		1/Spr	MA113	MATH
	MA212	Probability and Statistics	3		2/Fall	MA127	MATH
	MA327	Differential Geometry	3		3/Spr	MA201a/ MA201b	MATH
	MA321	Representations of Groups	3		3/Fall	MA214/ MA219	MATH
	MA323	Topology	3		3/Fall	MA214/ MA219	MATH
Computer	ME112	Introduction to Matlab	2	1	1/Spr	None	ME
	CS205	C/C++ Program Design	3	1	2/Fall	None	CSE
	CS303B	Artificial Intelligence B	3	1	3/Fall	CS110, CS203B, MA212	CSE
	CS405	Machine Learning	3	1	4/Fall	MA113 MA212	CSE
Mechanical & Electronic	ME102	CAD and Engineering Drawing	3	1.5	1/Spr	None	ME
	EE104	Fundamentals of Electric Circuits	2		1/Spr	MA127, MA113 or MA107B	EE
	EE201-17	Analog Circuits	3		2/Fall	PHY106, EE104	EE
	EE201-17L	Analog Circuits Laboratory	1	1	2/Fall	EE201-17	EE
	EE202-17	Digital Circuits	3		2/Spr	PHY106	EE
	EE202-17L	Digital Circuits Laboratory	1	1	2/Spr	EE202-17	EE
Physical Theory	ESS314	Fundamentals of Plasma Physics	4		3/Fall	PHY203-15	ESS
	MAE303	Fluid Mechanics	4		3/Fall	MA127, PHY106	MAE
	MAE304	Elasticity	4		3/Spr	MAE203 MAE202	MAE
	PHY441	Quantum Information	3		4/Fall	PHY206-15, MA113	PHY

Physical Experiments and Applications	PHY401	Virtual Experiments on Frontiers of Physics	1	1	2/Spr	PHY104B	PHY
	PHY330	Solid Optoelectronics	3		3/Spr	PHY206-15, PHY307	PHY
	PHY324	Laser Fundamentals	3		3/Spr	PHY307, PHY210	PHY
	PHY340	Semiconductor Physics	4		3/Spr	PHY321-15	PHY
	PHY328	Low Temperature Physics	3	1	3/Spr	PHY204	PHY
	PHY360	Quantum Materials	3		3/Spr	PHY305, PHY321-15	PHY
	PHY369	AI for physics	3	0.5	3/Spr	MA113, MA127	PHY
Physics Comprehensive Development	PHYS001	Open Physics Laboratory I	1	1	1/Smr	None	PHY
	PHY221	Open Physics Laboratory II	1	1	2/Fall	PHY104B	PHY
	GE351	Scientific Literature and Writing	1		3/Fall	None	CHEM
Total			78	12			

Note：

1. Students should report their plans of major elective courses after claiming their majors by consulting their academic advisors. The minimum credit requirement of elective course is 12.
2. The courses whose course codes start with PHYS are summer semester courses. Dynamic course of summer semester may be changed depending on the situation.
3. Major elective courses of specific semesters may be changed according to the situation. The number of major elective courses may increase with the development of curriculum construction, please refer to the course schedule for the current year.
4. Students can take mathematics, statistics, computer, electronics, chemistry, materials and other courses not being listed above according to the advice of academic advisors. The credits obtained can be applied for the credits certification of major elective courses in Physics.
5. Courses with similar content can be substituted, but credits can not be certificated repeatedly. The credit certification rules should be interpreted by the Teaching Steering Committee of the Department of Physics.

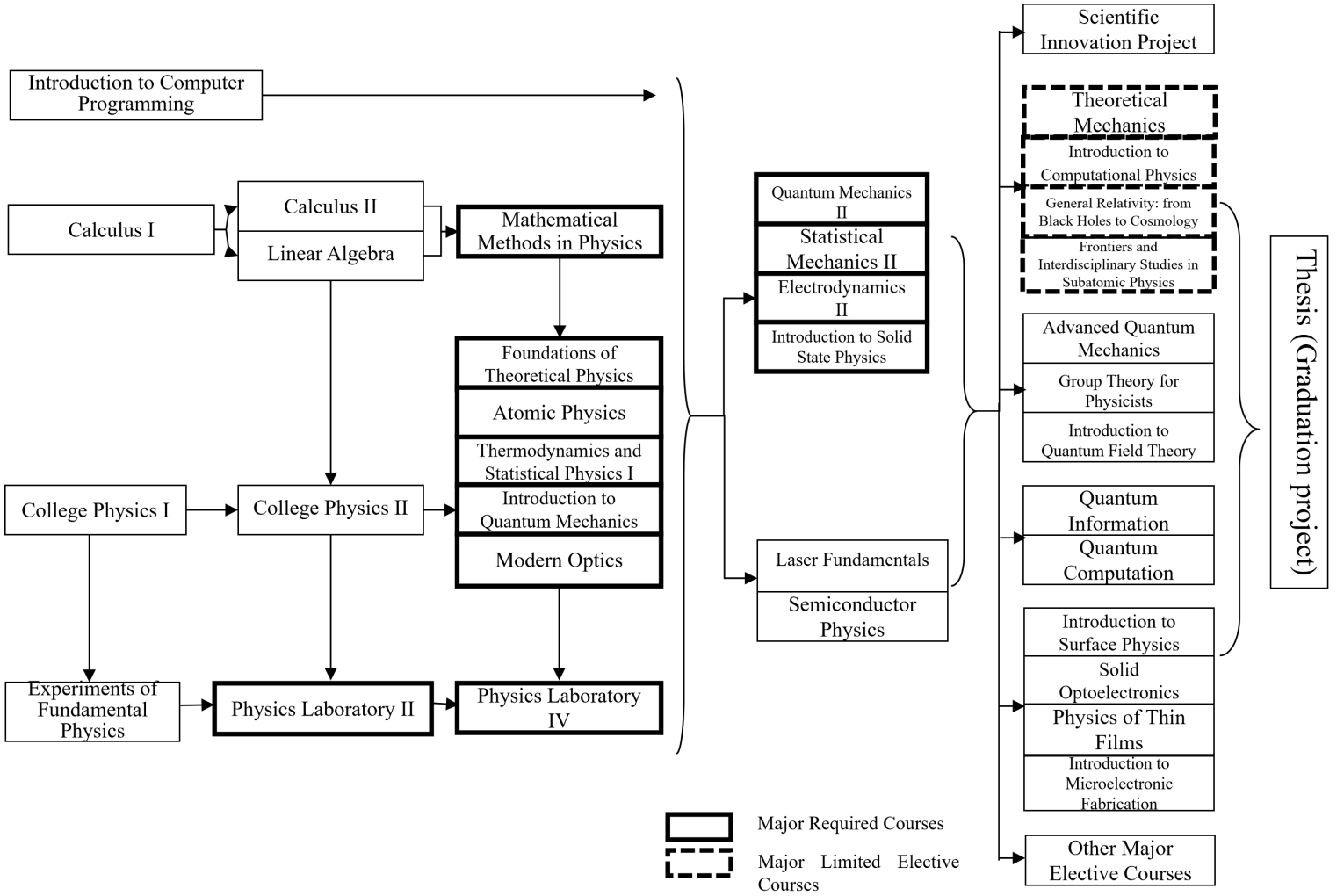
Table 3: Overview of Practice-based Learning

Program of Physics

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
ME102	CAD and Engineering Drawing	3	1.5	1/Spr	None	ME
PHYS001	Open Physics Laboratory I	1	1	1/Smr	PHY104B	PHY
PHY201-15	Physics Laboratory II	2	2	2/Fall	PHY105, PHY104B	PHY
PHY221	Open Physics Laboratory II	1	1	2/Fall	PHY104B	PHY
EE201-17L	Analog Circuits Laboratory	1	1	2/Fall	EE201-17	EE
EE202-17L	Digital Circuits Laboratory	1	1	2/Spr	EE202-17	EE
PHY301	Physics Laboratory IV	3	3	3/Fall	PHY105, PHY104B	PHY
PHY328	Low Temperature Physics Laboratory	3	1	3/Spr	PHY204	PHY
PHY480	Scientific Innovation Project①	2	2		None	PHY
PHY495	Thesis (Graduation project)	12	12		None	PHY
Total		29	25.5			

Note：
①Students can start their Scientific Innovation Project at terms after the first academic year. The minimum credit hours of the project are 64.

Curriculum Structure of Physics



Department of Physics

Program of Applied Physics

for International Students (2026)

I. Introduction

Applied physics is a discipline which aims at the applications of the laws of physics for developing new technologies, new functional materials, and solving some particular engineering problems. In the past century, breakthroughs in theoretical physics have triggered revolutions in modern industries, such as nuclear energy, semiconductor, superconductor, laser, aviation and aerospace, etc. At present, physics plays a great role in economy and our daily life. While in the future, progresses in areas like fusion energy, new energy materials, high temperature superconductivity, metamaterials and quantum information are expected. It is then a big challenge to transfer the latest achievements in physics to technologies and practical applications.

Southern University of Science and Technology is located in Shenzhen city which is one of the most developed areas in China. There are numbers of high-tech enterprises in the city which bring pressing needs for original innovation of technology and high-level R&D technicians and engineers. Applied physics serves as a bridge between physics and other majors like chemistry, materials science and engineering, electrical and electronic engineering, etc. This program offers two tracks: Applied Physics and Microelectronic Devices. The Applied Physics track focuses on translating physical principles into practical cross-disciplinary applications and technological solutions. The Microelectronic Devices track emphasizes the physical foundations and process technologies in semiconductors and integrated circuits, aligning closely with industry needs.

Compared with the Physics program, the Applied Physics program is more application-oriented, aiming to serve national and regional economic development. It is committed to building an efficient industry-academia-research collaboration platform, promoting original technology R&D and application, and cultivating high-level technical R&D talents with solid physical foundations and engineering practice capabilities for society.

Academic subject areas: Physics

Program code: 070202

II. Objectives and Learning Outcomes

1. Objectives

The major provides systematic applied physics training for students who can engage in research, teaching, technology development and management in Applied Physics and related science and technology fields (such as materials science, semiconductor industry, electronic information, computer industry, etc.), or who can further study in related disciplines.

2. Learning Outcomes

The students should meet the requirements of the Ministry of Education on the ideological and political theory and moral education of undergraduates. Besides certain humanistic literacy, aesthetic literacy and social science knowledge, and establish correct labor values and attitudes, the students should acquire the following professional skills.

1. Good Mathematical Foundation

2. Mastering the Basic Theory and Principles of Physics

3. Master the methods and skills of physics experiment

4. Understanding Industrial Production Activities

5. Professional knowledge in science and Engineering

6. Ability of computer programming, application and numerical calculation

7. Good English reading, writing and communication skills

8. Good oral expression, communication and coordination skills and teamwork spirit

9. Have a certain ability to acquire knowledge independently

10. Ability of scientific spirit, innovative consciousness, theoretical application and Technological Development

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Science

3. The minimum credit requirement for graduation: 154 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses (Applied Physics)	Major Required Courses	Major Foundational Courses	28
		Major Core Courses	17
		Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	16
	Major Elective Courses	Major Elective Courses	14
Major Courses (Microelectronic Devices)	Major Required Courses	Major Foundational Courses	32
		Major Core Courses	17
		Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	16
	Major Elective Courses	Major Elective Courses	10
Total			154
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1 Fall	None	Department of Mathematics
	MA127	Calculus II	4	1 Spring	Calculus I	
	MA113	Linear Algebra	4	1 Spring & Fall	None	
Physics	PHY105	College Physics I	4	1 Fall	None	Department of Physics
	PHY106	College Physics II	4	1 Spring	College Physics I	
	PHY104B	Experiments of Fundamental Physics	2	1 Spring & Fall	None	
Chemistry	CH105	Chemistry: The Central Science	3	1-2 Spring & Fall	None	Department of Chemistry
Geoscience + Life science (Choose one from two)	BIO102B	Introduction to Life Science	3	1-2 Spring & Fall	None	Department of Biology
	EOE111	College Earth Sciences	3	1-2 Spring & Fall	None	Dept. of Earth and Space Sciences, Dept. of Ocean Science and Engineering, School of Environment
Computer Programming (Choose one from five)	CS109	Introduction to Computer Programming	3	1-2 Spring & Fall	None	Dept. of Computer Science and Engineering
	CS110	Introduction to Java Programming	3	1-2 Spring & Fall	None	
	CS111	Introduction to C programming	3	1-2 Spring & Fall	None	
	CS112	Introduction to Python Programming	3	1-2 Spring & Fall	None	
	CS113	Introduction to Matlab Programming	3	1-2 Spring & Fall	None	

Note:
1. Mathematics: MA101a Mathematical Analysis I, MA102a Mathematical Analysis II can replace MA117 Calculus I, MA127 Calculus II;
2. Algebra: MA107 Advanced Linear Algebra I can replace MA113 Linear Algebra;
3. Physics: PHY101 General Physics I , PHY102 General Physics II can replace PHY105 College Physics I, PHY106 College Physics II;
4. Chemistry: CH103 General Chemistry can replace CH105 Chemistry: The Central Science;
5. Geoscience + Life science: BIO103 Principles of Biology can replace BIO102B Introduction to Life Sciences.
6. The above alternative courses are also applicable to "Prerequisites for Major Declaration".

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code		Course Name	Prerequisite
Declare major at the end of the first academic year	PHY105		College Physics I	None
	PHY106		College Physics II	College Physics I
	PHY104B		Experiments of Fundamental Physics	None
	MA117		Calculus I	None
	MA127		Calculus II	Calculus I
	MA113		Linear Algebra	None
Declare major at the end of the second academic year	PHY105		College Physics I	None
	PHY106		College Physics II	College Physics I
	PHY104B		Experiments of Fundamental Physics	None
	MA117		Calculus I	None
	MA127		Calculus II	Calculus I
	MA113		Linear Algebra	None
	Computer Programming(Choose one from five)	CS109	Introduction to Computer Programming	None
		CS110	Introduction to Java Programming	None
		CS111	Introduction to C programming	None
		CS112	Introduction to Python Programming	None
		CS113	Introduction to Matlab Programming	None

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Applied Physics

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	Required Major Foundational Courses for the Applied Physics Specialization:						
	ME102	CAD and Engineering Drawing	3	1.5	1/Spr	None	ME
	PHY201-15	Physics Laboratory II	2	2	2/Fall	PHY105, PHY104B	PHY
	PHY203-15	Mathematical Methods in Physics	4		2/Fall	MA127, PHY106, MA113	PHY
	PHY209	Foundations of Theoretical Physics	4		2/Fall	PHY106	PHY
	PHY210	Atomic Physics	3		2/Fall	PHY106	PHY
	ME103	Awareness Practice of Manufacturing Engineering	3	2	2/Fall Spr	None	ME
	PHY204	Thermodynamics and Statistical Physics I	3		2/Spr	PHY106	PHY
	PHY206-15	Introduction to Quantum Mechanics	3		2/Spr	PHY203-15, PHY209 or PHY205-15	PHY
	PHY307	Modern Optics	3		2/Spr	PHY106	PHY
	Total		28	5.5			
	Required Major Foundational Courses for the Microelectronic Devices Specialization:						
	ME102	CAD and Engineering Drawing	3	1.5	1/Spr	None	ME
	PHY201-15	Physics Laboratory II	2	2	2/Fall	PHY105, PHY104B	PHY

	PHY209	Foundations of Theoretical Physics	4		2/Fall	PHY106	PHY
	SME105	Fundamentals of Circuit Analysis	3		2/Fall Spr	MA117	SME
	SME211	Analog Integrated Circuit	4	1	2/Fall Spr	SME105	SME
	SME212	Digital Integrated Circuit	4	1	2/Fall Spr	SME105 or PHY106	SME
	PHY210	Atomic Physics	3		2/Fall	PHY106	PHY
	PHY204	Thermodynamics and Statistical Physics I	3		2/Spr	PHY106	PHY
	PHY206-15	Introduction to Quantum Mechanics	3		2/Spr	PHY203-15, PHY209 or PHY205-15	PHY
	PHY307	Modern Optics	3		2/Spr	PHY106	PHY
	Total		32	5.5			
Major Core Courses	Required Major Core Courses for the Applied Physics Specialization:						
	PHY301	Physics Laboratory IV	3	3	3/Fall	PHY105, PHY104B	PHY
	PHY321-15	Introduction to Solid State Physics	4		3/Fall	PHY206-15	PHY
	PHY324	Laser Fundamentals	3		3/Spr	PHY307, PHY210	PHY
	PHY340	Semiconductor Physics	4		3/Spr	PHY321-15	PHY
	PHY328	Low Temperature Physics	3	1	3/Spr	PHY204	PHY
	Total		17	4			
	Required Major Core Courses for the Microelectronic Devices Specialization:						

	SME214	Semiconductor Device Physics	3	1	3/Fall Spr	SME213	SME
	PHY321-15	Introduction to Solid State Physics	4		3/Fall	PHY206-15	PHY
	SME206	Signals and Systems	3	1	3/Fall Spr	MA117	SME
	SME305	VLSI Fabrication Technology	3	1	3/Spr	None	SME
	PHY340	Semiconductor Physics	4		3/Spr	PHY321-15	PHY
	Total		17	3			
Practice-based Courses	PHY480	Scientific Innovation Project	2	2		None	PHY
	PHY485	Internship	2	2		None	PHY
	PHY495	Thesis (Graduation project)	12	12		None	PHY
	Total		16	16			
Total (Applied Physics)			61	25.5			
Total (Microelectronic Devices)			65	24.5			

Note:

1. PHY203-15 "Mathematical Methods in Physics" can be replaced by PHY213 "Mathematical Methods in Physics (H)".
2. PHY203-15 "Mathematical Methods in Physics" can be replaced by a combination of Complex Analysis courses (MA202 or MA232) and Partial Differential Equations courses (MA303 or MA336).
3. PHY201-15 "Physics Laboratory II" can be replaced by PHY231 "Physics Laboratory II (H)".
4. PHY301 "Physics Laboratory IV" can be replaced by the combination of PHY309 "Research Training I" and PHY310 "Research Training II".
5. PHY307 "Modern Optics" can be replaced by optical fundamentals courses (including EE210 "Fundamentals of Optics").
6. Students can start their Scientific Innovation Project after the first academic year. The minimum credit hours of the project are 64.
7. Students may undertake the Internship after the first academic year, with a minimum duration requirement of 4 weeks.
8. When choosing course alternatives, attention should be paid to the requirements of the prerequisite courses for the relevant courses, as well as differences in content and difficulty. After the course is replaced, no additional credits will be recognized for the relevant courses. The rules for credit recognition and replacement are interpreted by the Teaching Steering Committee of the Department of Physics.

Table 2: Major Elective Courses

Program of Applied Physics - Applied Physics Track - 14 credits

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Mathematics	MA109	Advanced Linear Algebra	4		1/Spr	MA113	MATH
	MA212	Probability and Statistics	3		2/Fall	MA127	MATH
	MA327	Differential Geometry	3		3/Spr	MA201a/ MA201b	MATH
	MA321	Representations of Groups	3		3/Fall	MA214/ MA219	MATH
	MA323	Topology	3		3/Fall	MA214/ MA219	MATH
Computer	ME112	Introduction to Matlab	2	1	1/Spr	None	ME
	CS205	C/C++ Program Design	3	1	2/Fall	None	CSE
	CS301	Embedded System and Microcomputer Principle	3	1	3/Fall	CS207	CSE
	CS303B	Artificial Intelligence B	3	1	3/Fall	CS110, CS203B, MA212	CSE
	CS405	Machine Learning	3	1	4/Fall	MA113, MA212	CSE
Mechanical & Electronic	EE104	Fundamentals of Electric Circuits	2		1/Spr	MA127,MA113 or MA107B	EE
	EE201-17	Analog Circuits	3		2/Fall	PHY106, EE104	EE
	EE201-17L	Analog Circuits Laboratory	1	1	2/Fall	EE201-17	EE

	EE202-17	Digital Circuits	3		2/Spr	PHY106	EE
	EE202-17L	Digital Circuits Laboratory	1	1	2/Spr	EE202-17	EE
	SME206	Signals and Systems	3	1	3/Fall Spr	MA117	SME
	SME214	Semiconductor Device Physics	3	1	3/Fall Spr	SME213	SME
	SME305	VLSI Fabrication Technology	3	1	3/Spr	None	SME
Physical Experiments and Applications	PHY401	Virtual Experiments on Frontiers of Physics	1	1	2/Spr	PHY104B	PHY
	PHY330	Solid Optoelectronics	3		3/Spr	PHY206-15，PHY307	PHY
	PHY336	Introduction to Computational Physics	3		3/Spr	CS110, PHY204, PHY321-15	PHY
	PHY360	Quantum Materials	3		3/Spr	PHY305, PHY321-15	PHY
	PHY369	AI for physics	3	0.5	3/Spr	MA113, MA127	PHY
Physical Theory	PHY208	Electrodynamics II	3		2/Spr	PHY207-15 or PHY209	PHY
	PHY211	Theoretical Mechanics	3		3/Fall	PHY209	PHY
	PHY305	Quantum Mechanics II	3		3/Fall	PHY206-15	PHY
	PHY303	Statistical Mechanics II	3		3/Fall	PHY204	PHY
	ESS314	Fundamentals of Plasma Physics	4		3/Fall	PHY203-15	ESS

	MAE303	Fluid Mechanics	4		3/Fall	MA127, PHY106	MAE
	PHY380	Frontiers and Interdisciplinary Studies in Subatomic Physics	3		3/Fall	PHY106, PHY210	PHY
	MAE304	Elasticity	4		3/Spr	MAE203, MAE202	MAE
	PHY439	General Relativity: from Black Holes to Cosmology	3		3/Spr	MA113, PHY209	PHY
	PHY441	Quantum Information	3		4/Fall	PHY206-15, MA113	PHY
Physics Comprehensive Development	PHYS001	Open Physics Laboratory I	1	1	1/Smr	None	PHY
	PHY221	Open Physics Laboratory II	1	1	2/Fall	PHY104B	PHY
	GE351	Scientific Literature and Writing	1		3/Fall	None	CHEM
Total			98	13.5			

Note:

1. Students should report their plans of major selective courses after claiming their majors by consulting their academic advisors. The minimum credit requirement of elective course is 14.
2. The courses whose course codes start with PHYS are summer semester courses. Dynamic course of summer semester may be changed depending on the situation.
3. Major elective courses of specific semesters may be changed according to the situation. The number of major elective courses may increase with the development of curriculum construction, please refer to the course schedule for the current year.
4. Students can study chemistry, biology, materials, electronics and other courses not being listed above according to the advice of academic advisors. The corresponding credits can be counted as elective ones after the credits certification of major elective courses in Applied Physics.
5. Courses with similar content can be substituted, but credits can not be certificated repeatedly. The credit certification rules should be interpreted by the Teaching Steering Committee of the Department of Physics.

Program of Applied Physics - Microelectronic Devices Track- 10 credits

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Mathematics	MA109	Advanced Linear Algebra	4		1/Spr	MA113	MATH
	MA212	Probability and Statistics	3		2/Fall	MA127	MATH
	MA327	Differential Geometry	3		3/Spr	MA201a/ MA201b	MATH
	MA321	Representations of Groups	3		3/Fall	MA214/ MA219	MATH
	MA323	Topology	3		3/Fall	MA214/ MA219	MATH
Computer	ME112	Introduction to Matlab	2	1	1/Spr	None	ME
	CS205	C/C++ Program Design	3	1	2/Fall	None	CSE
	CS301	Embedded System and Microcomputer Principle	3	1	3/Fall	CS207	CSE
	CS303B	Artificial Intelligence B	3	1	3/Fall	CS110, CS203B, MA212	CSE
	CS405	Machine Learning	3	1	4/Fall	MA113, MA212	CSE
Microelectronic Devices	SME208	Chip Application Practic	1	1	2/Spr	None	SME
	SME308	Advanced Semiconductor Fabrication Laboratory	3	1.5	3/Fall Spr	SME214	SME
	SME310	Deep Learning on Chip	3	1	3/Spr	SME212	SME
	SME311	The Foundation of IC Layout Design	1	1	3/Spr	SME306	SME
	SME312	Electronic Design Automation (EDA) Basics	3	1	3/Spr	SME105, MA127, MA113	SME
	SME315	Design of Micro and Nano Sensors	3		3/Fall	PHY106	SME

	SME317	System-on-a-Chip Design	3	1	3/Fall	SME212	SME
	SME318	Introduction to MEMS and NEMS	3	1	3/Fall	PHY106	SME
	SME321	Introduction to GaN Semiconductor Materials and Devices	3		3/Fall	None	SME
	SMES202	Patent Basics for Scientists and Engineers	1		2/Fall	None	SME
	SMES208	Analysis Practice of Integrated Circuit Dissection	1	1	2/Smr	SME214	SME
	SMES209	Digital Circuit Practice for Machine Vision	1	1	2/Smr	CS207 or SME212	SME
	SMES210	Training for transfer of creative achievements in IC	1	1	2/Smr	SME214	SME
Physical Experiments and Applications	PHY401	Virtual Experiments on Frontiers of Physics	1	1	2/Spr	PHY104B	PHY
	PHY330	Solid Optoelectronics	3		3/Spr	PHY206-15，PHY307	PHY
	PHY324	Laser Fundamentals	3		3/Spr	PHY307, PHY210	PHY
	PHY301	Physics Laboratory IV	3	3	3/Fall	PHY105, PHY104B	PHY
	PHY336	Introduction to Computational Physics	3		3/Spr	CS110, PHY204, PHY321-15	PHY
	PHY328	Low Temperature Physics	3	1	3/Spr	PHY204	PHY
	PHY360	Quantum Materials	3		3/Spr	PHY305, PHY321-15	PHY
	PHY369	AI for physics	3	0.5	3/Spr	MA113, MA127	PHY
Physical Theory	PHY203-15	Mathematical Methods in Physics	4		2/Fall	MA127, PHY106, MA113	PHY
	PHY208	Electrodynamics II	3		2/Spr	PHY207-15 or PHY209	PHY
	PHY211	Theoretical Mechanics	3		3/Fall	PHY209	PHY

	PHY305	Quantum Mechanics II	3		3/Fall	PHY206-15	PHY
	PHY303	Statistical Mechanics II	3		3/Fall	PHY204	PHY
	ESS314	Fundamentals of Plasma Physics	4		3/Fall	PHY203-15	ESS
	MAE303	Fluid Mechanics	4		3/Fall	MA127, PHY106	MAE
	PHY380	Frontiers and Interdisciplinary Studies in Subatomic Physics	3		3/Fall	PHY106, PHY210	PHY
	MAE304	Elasticity	4		3/Spr	MAE203, MAE202	MAE
	PHY439	General Relativity: from Black Holes to Cosmology	3		3/Spr	MA113, PHY209	PHY
	PHY441	Quantum Information	3		4/Fall	PHY206-15, MA113	PHY
Physics Comprehensive Development	PHYS001	Open Physics Laboratory I	1	1	1/Smr	None	PHY
	PHY221	Open Physics Laboratory II	1	1	2/Fall	PHY104B	PHY
	ME103	Awareness Practice of Manufacturing Engineering	3	2	2/Fall Spr	None	ME
	GE351	Scientific Literature and Writing	1		3/Fall	None	CHEM
Total			122	25			

Note:

1. Students should report their plans of major selective courses after claiming their majors by consulting their academic advisors. The minimum credit requirement of elective course is 10.
2. The courses whose course codes start with PHYS are summer semester courses. Dynamic course of summer semester may be changed depending on the situation.
3. Major elective courses of specific semesters may be changed according to the situation. The number of major elective courses may increase with the development of curriculum construction, please refer to the course schedule for the current year.
4. Students can study chemistry, biology, materials, electronics and other courses not being listed above according to the advice of academic advisors. The corresponding credits can be counted as elective ones after the credits certification of major elective courses in Applied Physics.
5. Courses with similar content can be substituted, but credits can not be certificated repeatedly. The credit certification rules should be interpreted by the Teaching Steering Committee of the Department of Physics.

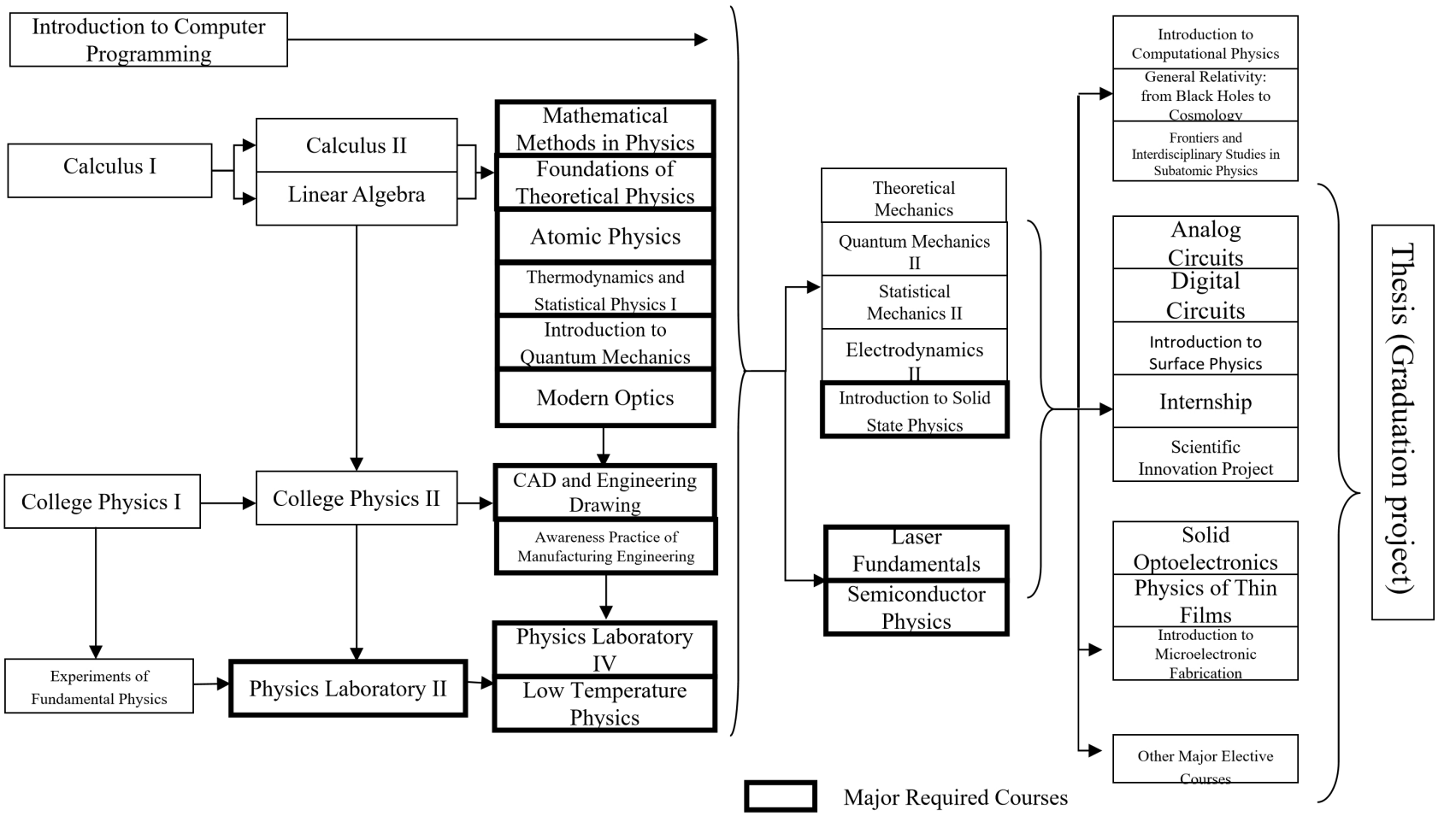
Table 3: Overview of Practice-based Learning

Program of Applied Physics

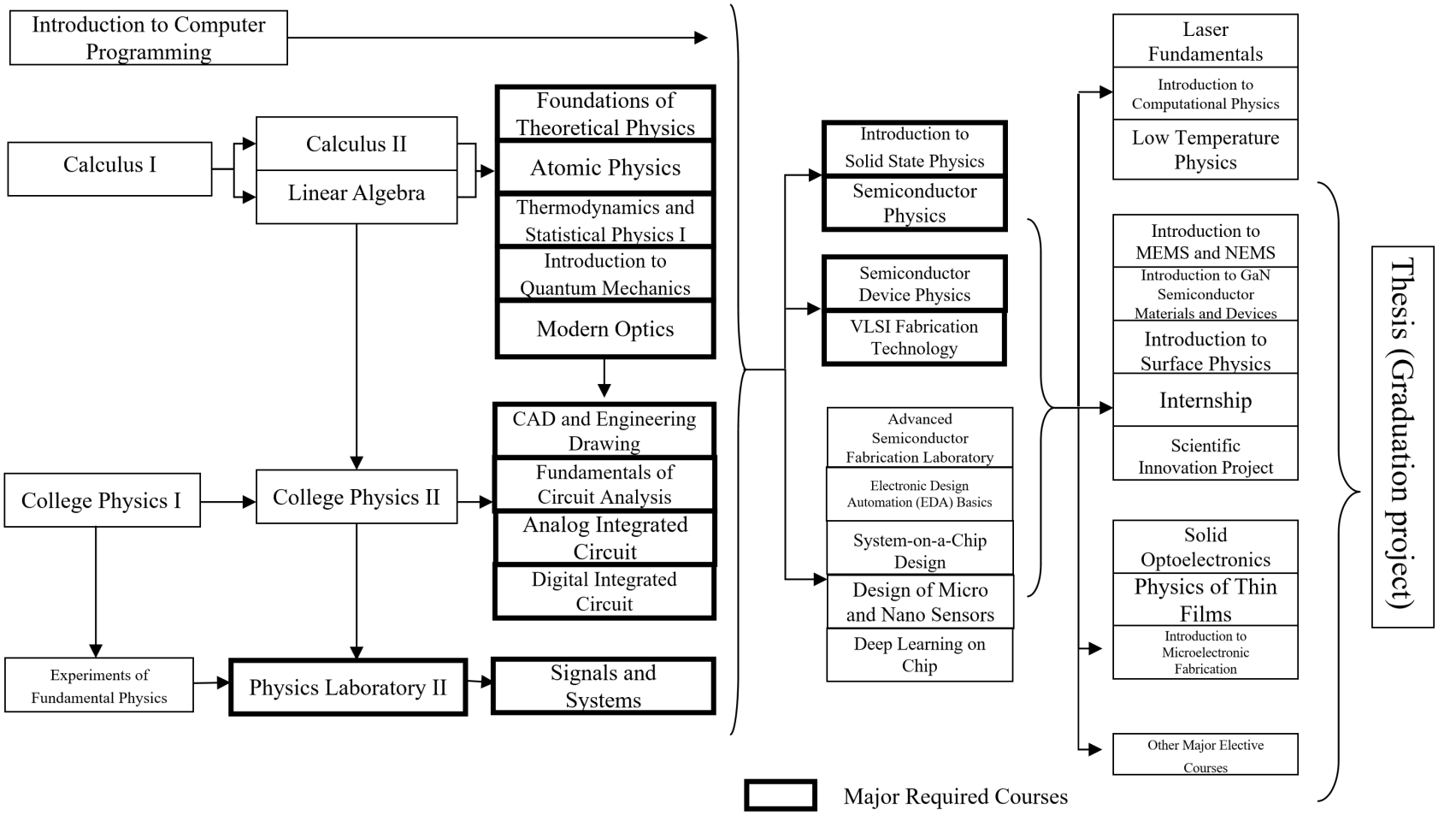
Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
ME102	CAD and Engineering Drawing	3	1.5	1/Spr	None	ME
PHYS001	Open Physics Laboratory I	1	1	1/Smr	PHY104B	PHY
ME103	Awareness Practice of Manufacturing Engineering	3	2	2/Fall Spr	None	ME
PHY201-15	Physics Laboratory II	2	2	2/Fall	PHY105, PHY104B	PHY
PHY221	Open Physics Laboratory II	1	1	2/Fall	PHY104B	PHY
EE201-17L	Analog Circuits Laboratory	1	1	2/Fall	EE201-17	EE
EE202-17L	Digital Circuits Laboratory	1	1	2/Spr	EE202-17	EE
SME211	Analog Integrated Circuit	4	1	2/Fall Spr	SME105	SME
SME212	Digital Integrated Circuit	4	1	2/Fall Spr	SME105 or PHY106	SME
PHY301	Physics Laboratory IV	3	3	3/Fall	PHY105, PHY104B	PHY
SME214	Semiconductor Device Physics	3	1	3/Fall Spr	SME213	SME
SME206	Signals and Systems	3	1	3/Fall Spr	MA117	SME
PHY328	Low Temperature Physics Laboratory	3	1	3/Spr	PHY204	PHY
SME305	VLSI Fabrication Technology	3	1	3/Spr	None	SME
PHY480	Scientific Innovation Project①	2	2		None	PHY
PHY485	Internship	2	2		None	PHY
PHY495	Thesis (Graduation project)	12	12		None	PHY
Total		51	34.5			

Note:
①Students can start their Scientific Innovation Project at terms after the first academic year. The minimum credit hours of the project are 64.

Curriculum Structure of Applied Physics - Applied Physics Track



Curriculum Structure of Applied Physics - Microelectronic Devices Track



Department of Chemistry

Program of Chemistry

for International Students (2026)

I. Introduction

Chemistry is regarded as the central science because of its role in connecting different subjects and its importance in interdisciplinary research, such as chemical biology, materials science, energy, agricultural development, drug discovery and so on.

For the teaching, the comprehensive 4 years credit-based bachelor curriculum in our Department covers a wide range of chemistry aspects and related disciplines with up-to-date literature materials for their selection. Generally it includes the four basic chemistry areas as the core courses (organic, inorganic, analytical and physical chemistry), elective courses included but not limited to medicinal chemistry, polymer chemistry, chemical biology, energy and materials chemistry, supramolecular chemistry and environmental chemistry, which are closely related to the frontiers of current research and the needs of our society. Moreover, in order to encourage inter-disciplinary research, the students are motivated to study other science related subjects in the first year of admission, including but not limited to biology, physic and engineering.

Adhering to our university's motto of "Research, Innovation and Entrepreneurship," the Chemistry Department focuses on cultivating students' innovation, critical thinking and ability for interdisciplinary cooperation. The curriculum design emphasizes not only the basic theory, but also practical training particularly in the areas of new medicine, new energy, and new materials. Undergraduates are strongly encouraged to participate in various research programs supervised by professors to cultivate their creativity, practical skills and ability for interdisciplinary cooperation. The department maintains a wide array of sophisticated instrumentation necessary for modern chemical research and teaching.

Therefore, good chemistry training continues to play a substantial role in the rapid development of science and technology in this century and provides students with good prospects in industry, academia, business as well as civil organizations.

Academic subject areas: Chemistry

Program code: 070301

II. Objectives and Learning Outcomes

1. Objectives

The undergraduate Chemistry program is aimed at training new generations of top-notch innovative personnel who have a solid background in mathematics and physics, extensive knowledge of chemistry, strong experimental skills, an international perspective and an entrepreneurial spirit.

2. Learning Outcomes

(1)Have a high sense of social responsibility and good scientific and cultural literacy.

(2)Master basic knowledge of mathematics and physics.

(3)Master the basic theoretical knowledge and experimental skills of chemistry.

(4)Understand the history、frontier and development trend of chemistry.

(5)Have innovation awareness and practical ability and be able to adapt to the future development of science and technology、economy and society.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Science.

3. The minimum credit requirement for graduation: 149 credits. The specific requirements are as follows.

<table>
<tr><th colspan="2">Module</th><th>Category</th><th>Minimum Credit Requirement</th></tr>
<tr><td rowspan="13">General Education Courses</td><td>Chinese Language and Culture Module</td><td>Chinese Language and Culture</td><td>16</td></tr>
<tr><td rowspan="2">Arts and Physical Education Module</td><td>Physical Education</td><td>4</td></tr>
<tr><td>Arts</td><td>2</td></tr>
<tr><td rowspan="3">Competence Development Module</td><td>Computer Programming</td><td>3</td></tr>
<tr><td>Writing</td><td>2</td></tr>
<tr><td>Foreign Languages</td><td>14</td></tr>
<tr><td rowspan="2">Humanities and Social Sciences Module</td><td>Humanities</td><td>4</td></tr>
<tr><td>Social Sciences</td><td>4</td></tr>
<tr><td rowspan="4">Mathematics and Natural Sciences Module</td><td>Mathematics</td><td>12</td></tr>
<tr><td>Physics</td><td>10</td></tr>
<tr><td>Chemistry</td><td>3</td></tr>
<tr><td>Geoscience + Life Science</td><td>3</td></tr>
<tr><td>GE to Majors Bridging Module</td><td>Introduction to Majors</td><td>2</td></tr>
<tr><td rowspan="4">Major Courses</td><td rowspan="3">Major Required Courses</td><td>Major Foundational Courses</td><td>45</td></tr>
<tr><td>Major Core Courses</td><td>3</td></tr>
<tr><td>Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)</td><td>12</td></tr>
<tr><td>Major Elective Courses</td><td>Major Elective Courses</td><td>10</td></tr>
<tr><td colspan="3">Total</td><td>149</td></tr>
<tr><td colspan="4">Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.</td></tr>
</table>

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117/ MA101a	Calculus I/ Mathematical Analysis I	4/5	1 Fall	None	Department of Mathematics
	MA127/ MA102a	Calculus II/ Mathematical Analysis II	4/5	1 Spring	Calculus I/ Mathematical Analysis I	
	MA113/ MA107	Linear Algebra/ Advanced Linear Algebra I	4	1 Spring & Fall	None	
Physics	PHY105/ PHY101	College Physics I/ General Physics I	4/5	1 Fall	None	Department of Physics
	PHY106/ PHY102	College Physics II/ General Physics II	4/5	1 Spring	College Physics I/ General Physics I	
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	
Chemistry	CH103/ CH105	General Chemistry/ Chemistry: The Central Science	4/3	1 Fall	None	Department of Chemistry
Geoscience + Life science	BIO102B/ BIO103/ EOE111	Introduction to Life Science/ Principles of Biology/ College Earth Sciences	3	1-2 Spring & Fall	None	Department of Biology/ Department of ESS、OCE、ESE
Computer Programming	CS109/ CS110/ CS111/ CS112/ CS113	Introduction to Computer Programming/ Introduction to Java Programming/ Introduction to C Programming/ Introduction to Python Programming/ Introduction to Matlab Programming	3	1-2 Spring & Fall	None	Dept. of Computer Science and Engineering

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	CH103/ CH105	General Chemistry/Chemistry: The Central Science	None
	MA117/ MA101a	Calculus I/Mathematical Analysis I	None
	MA127/ MA102a	Calculus II/Mathematical Analysis II	Calculus I/Mathematical Analysis I
	PHY105/ PHY101	College Physics I/General Physics I	None
	PHY106/ PHY102	College Physics II/General Physics II	College Physics I/General Physics I
	PHY104B	Experiments of Fundamental Physics	None
Declare major at the end of the second academic year	CH103/ CH105	General Chemistry/Chemistry: The Central Science	None
	MA117/MA101a	Calculus I/Mathematical Analysis I	None
	MA127/ MA102a	Calculus II/Mathematical Analysis II	Calculus I/Mathematical Analysis I
	PHY105/ PHY101	College Physics I/General Physics I	None
	PHY106/ PHY102	College Physics II/General Physics II	College Physics I/General Physics I
	PHY104B	Experiments of Fundamental Physics	None
	MA113/ MA107	Linear Algebra/Advanced Linear Algebra I	None
	BIO102B/ BIO103/ EOE111	Introduction to Life Science/Principles of Biology/College Earth Sciences	None

Note:
If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course ArrangementTable 1: Major Required Courses Program of Chemistry

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	CH102-15	General Chemistry Laboratory	2	2	1/Spring	General Chemistry/Chemistry: The Central Science	Chem.
	CH203	Organic Chemistry I	4		1/Spring	General Chemistry/Chemistry: The Central Science	Chem.
	CH206	Organic Chemistry II	4		2/Fall	Organic Chemistry I	Chem.
	CH208	Organic Chemistry Laboratory	2	2	2/Fall	Organic Chemistry I	Chem.
	CH209	Inorganic Chemistry I	4		2/Fall		Chem.
	CH216	Analytical Chemistry I	3		2/Fall	General Chemistry/Chemistry: The Central Science	Chem.
	CH301	Physical Chemistry I	4		2/Fall	Calculus II, College Physics II, General Chemistry/Chemistry: The Central Science	Chem.
	CH204	Inorganic Chemistry Laboratory	2	2	2/Spring	Inorganic Chemistry I	Chem.
	CH217	Analytical Chemistry Laboratory I	2	2	2/Spring	Analytical Chemistry I	Chem.
	CH211	Inorganic Chemistry II	4		2/Spring or 3/Fall	Inorganic Chemistry I	Chem.

	CH218	Analytical Chemistry II	3		2/Spring or 3/Fall	Analytical Chemistry I, Analytical Chemistry Laboratory I	Chem.
	CH302	Physical Chemistry II	4		2/Spring or 3/Fall	Physical Chemistry I	Chem.
	CH219	Analytical Chemistry Laboratory II	2	2	3/Fall	Analytical Chemistry I, Analytical Chemistry Laboratory I	Chem.
	CH303	Physical Chemistry Laboratory	2	2	3/Fall	Physical Chemistry I	Chem.
	CH340	Structural Chemistry	3		3/Spring	Physical Chemistry II	Chem.
	Total		45	12			
Major Core Courses	CH403	Principle of Chemical Engineering	3		3/Fall or 3/Spring	Calculus II, College Physics II	Chem.
	Total		3				
Practice-based Courses	CH491	Degree Thesis (Design)	12	12	4/Fall & Spring		Chem.
	Total		12	12			
Total			60	24			

Table 2: Major Elective Courses

Program of Chemistry

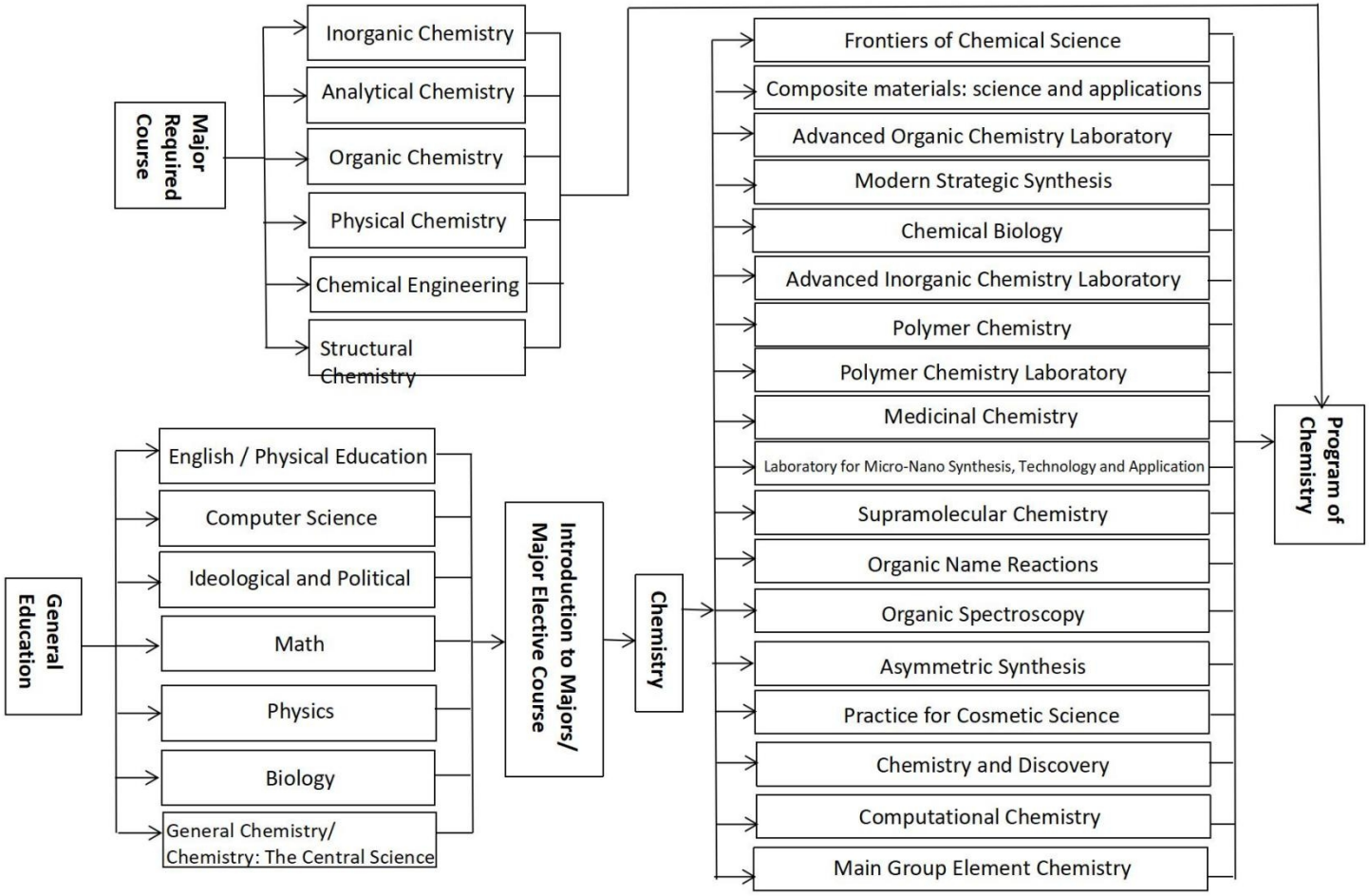
Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
CH221	Main Group Element Chemistry	4		2/Fall	General Chemistry/Chemistry: The Central Science	Chem.
CH311	Modern Strategic Synthesis	3		3/Fall	Organic Chemistry II	Chem.
CH314	Asymmetric Synthesis	3		3/Fall	Organic Chemistry II	Chem.
CH315	Polymer Chemistry	3		3/Fall	Organic Chemistry II	Chem.
CH317	Medicinal Chemistry	3		3/Fall		Chem.
CH319	Advanced Inorganic Chemistry Laboratory	2	2	3/Fall	Inorganic Chemistry Laboratory	Chem.
CH321	Polymer Chemistry Laboratory	1	1	3/Fall	Polymer Chemistry	Chem.
CH331	Composite materials: science and applications	3		3/Fall		Chem.
CH306	Laboratory for Micro-Nano Synthesis, Technology and Application	2	2	3/Spring	General Chemistry Laboratory	Chem.
CH308	Supramolecular Chemistry	2		3/Spring		Chem.
CH309	Advanced Organic Chemistry Laboratory	2	2	3/Spring	Organic Chemistry II, Organic Chemistry Laboratory	Chem.
CH312	Organic Spectroscopy	2		3/Spring	Organic Chemistry II	Chem.
CH313	Chemical Biology	3		3/Spring	General Chemistry/Chemistry: The Central Science	Chem.
CH320	Organic Name Reactions	2		3/Spring	General Chemistry/Chemistry: The Central Science	Chem.
CH401	Computational Chemistry	3	1	4/Spring	Physical Chemistry II	Chem.
CH481	Projects of Science and Technology Innovation	4	4	3/Fall or Spring		Chem.
Total		42	12			
Note: Major Elective Courses shall not be less than 10 Credits.						

Table 3: Overview of Practice-based Learning

Program of Chemistry

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
CH102-15	General Chemistry Laboratory	2	2	1/Spring	General Chemistry/Chemistry: The Central Science	Chem.
CH208	Organic Chemistry Laboratory	2	2	2/Fall	Organic Chemistry I	Chem.
CH204	Inorganic Chemistry Laboratory	2	2	2/Spring	Inorganic Chemistry I	Chem.
CH217	Analytical Chemistry Laboratory I	2	2	2/Spring	Analytical Chemistry I	Chem.
CH219	Analytical Chemistry Laboratory II	2	2	3/Fall	Analytical Chemistry I, Analytical Chemistry Laboratory I	Chem.
CH303	Physical Chemistry Laboratory	2	2	3/Fall	Physical Chemistry I	Chem.
CH319	Advanced Inorganic Chemistry Laboratory	2	2	3/Fall	Inorganic Chemistry Laboratory	Chem.
CH321	Polymer Chemistry Laboratory	1	1	3/Fall	Polymer Chemistry	Chem.
CH306	Laboratory for Micro-Nano Synthesis, Technology and Application	2	2	3/Spring	General Chemistry Laboratory	Chem.
CH309	Advanced Organic Chemistry Laboratory	2	2	3/Spring	Organic Chemistry II, Organic Chemistry Laboratory	Chem.
CH401	Computational Chemistry	3	1	4/Spring	Physical Chemistry II	Chem.
CH481	Projects of Science and Technology Innovation	4	4	3/Fall or Spring		Chem.
CH491	Degree Thesis (Design)	12	12	4/Fall & Spring		Chem.
Total		38	36			

Curriculum Structure of Chemistry



Department of Earth and Space Sciences

Program of Geophysics

for International Students (2026)

I. Introduction

Academic subject areas: Geophysics is a subject of natural science which applies the principles and methods in physics to the study of the Earth and its surrounding space environment and planets. It explores their structure, composition, formation, and evolution and studies the various natural phenomena happening in the systems. The core research areas include Earth Geophysics, Space Science and Technology, and Planetary Science. The discipline values both theoretical and applied studies. These studies not only improve our scientific understanding of the Earth's and planets' structure and the physics behind various natural phenomena, but also support defense sector, natural disaster prevention, and many industrial and high-tech sectors important to the national economic development, such as monitoring nuclear explosions, prediction and prevention of natural disasters such as earthquakes, volcanoes, landslides, rock bursts, solar storms, oil and gas exploration, metallic and nonmetallic mineral mining, underground space exploration such as water, roads, urban construction, etc.

Program code: Geophysics (0708).

II. Objectives and Learning Outcomes

1. Objectives

The program is aimed to cultivate students with systematic theoretical knowledge and experimental skills in geophysics. Graduates are expected to develop a prudent work and research attitude, the ability of self-study, and the innovation and entrepreneurial spirit needed for advancing modern science and technology.

2. Learning Outcomes

（1）At graduation, students should have a solid foundation in mathematics and physics, master a foreign language, and have the ability to apply computer technology to solve practical problems;

（2）Understand and master the basic theories, basic knowledge and basic skills of geophysics;

（3）Be capable of the thinking methods and basic skills of scientific research, and have the ability to analyze, propose and solve practical problems;

（4）Have strong organizational management, communication and teamwork skills;

（5）Have wide knowledge, strong adaptability, can adapt to the needs of many aspects of modern society.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years. The academic credit system of SUSTech allows flexible study years, but not less than 3 years or more than 6 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Science.

3. The minimum credit requirement for graduation: 149 credits. The specific requirements are as follows.

Module		Category	Minimum Credit Requirement
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
		Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life Science	3
	Introduction to Majors Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	20
		Major Core Courses	17
		Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	12
	Major Elective Courses	Major Elective Courses	21
Total			149
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Chinese Studies & Writing）, Humanities and Social Sciences Module, and Introduction to Majors Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117/ MA101a	Calculus I / Mathematical Analysis I	4/5	1 Fall	None	Department ofMathematics
	MA127/ MA102a	Calculus II / Mathematical Analysis II	4/5	1 Spring	Calculus I / Mathematical Analysis I	
	MA113/ MA107	Linear Algebra / Advanced Linear Algebra I	4	1 Spring &Fall	None	
Physics	PHY105/ PHY101	College Physics I / General Physics I	4/5	1 Fall	None	Department ofPhysics
	PHY106/ PHY102	College Physics II / General Physics II	4/5	1 Spring	College Physics I / General Physics I	
	PHY104B	Experiments of FundamentalPhysics	2	1-2 Spring& Fall	None	
Chemistry	CH105/CH103	Chemistry: The CentralScience / General Chemistry	3/4	1-2 Spring& Fall	None	Department ofChemistry
Geoscience + Life Science	EOE111BIO102B/ BIO103	College Earth Science / Principles of Biology/ Introduction to Life Sciences	3	1-2 Spring& Fall	None	ESS，OCE and ESE/Department ofBiology
Computer Programming	CS109/CS110/ CS111/CS112 CS113	Introduction to Computer Programming/Introduction to Java Programming/Introduction to C Programming/ Introduction to Python Programming/Introduction to Matlab Programming	3	1-2 Spring& Fall	None	Department ofComputerScience andEngineering

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	MA117/ MA101a	Calculus I / Mathematical Analysis I	None
	MA113/ MA107	Linear Algebra / Advanced Linear Algebra I	None
	PHY105/PHY101	College Physics I / General Physics I	None
Declare major at the end of the second academic year	MA117/ MA101a	Calculus I / Mathematical Analysis I	None
	MA127/ MA102a	Calculus II / Mathematical Analysis II	Calculus I / Mathematical Analysis I
	PHY105/PHY101	College Physics I / General Physics I	None
	PHY105/PHY101	College Physics I / General Physics I	None
	PHY106/ PHY102	College Physics II / General Physics II	College Physics I / General Physics I
	PHY104B	Experiments of Fundamental Physics	None

Note:
If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Geophysics

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	MA212	Probability and Statistics	3		2 Fall	None	MATH
	ESS213	Continuum Mechanics	3		2 Fall	None	ESS
	PHY203-15	Mathematical Methods in Physics	4		2Fall	None	PHY
	ESS206	Fundamentals of Signal Processing and Data Analysis	4		2 Spr	None	ESS
	PHY205-15	Analytical Mechanics	3		2 Spr	None	PHY
	ESS205	Computational Methods	3		3 Spr	None	ESS
	Total		20	0			
Major Core Courses	ESS102	Principles of Geology	3		2 Fall	None	ESS
	ESS209	Principles of Geophysics	3		2Spr	None	ESS
	ESS214	Principles of Applied Geophysics	3		2 Spr	None	ESS
	ESS210	Fundamentals of Space Science and Technology	3		2 Spr	None	ESS
	ESS211	Fundamentals of Planetary Science	3		3 Fall	None	ESS
	ESS484	Research Methods and Innovative Training in Earth and Space Sciences	2	1	2 Fall /3 Fall	None	ESS
	Total		17	1			
Practice-based Courses	ESS491	Graduation Thesis/Projects	12	12	4 Spr	None	ESS
	Total		12	12			
Total			49	13			

Notes：
MAE203B Engineering Mechanics I – Statics and Dynamics can replace PHY205-15 Analytical Mechanics;
MAE314 Advanced Numerical Methods or MA305 Numerical Analysis can replace ESS205 Computational Methods ;
MA204 Mathematical Statistics can replace MA212 Probability and Statistics;
ESS207 Computational Methods(H) can replace ESS205 Computational Methods.

Table 2: Major Elective Courses

Program of Geophysics

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
ESS207	Discussion on Earth Sciences	1		2 Fall	None	ESS
PHY204	Thermodynamics and Statistical Physics I	3		2 Spr	College Physics II	PHY
ESS470	Geology Field Trips	2	2	2 Smr	Principles of Geology or Mineralogy or Geochemistry	ESS
ESS311	Principles of Seismology	3		3 Fall	Calculus I and Linear Algebra	ESS
ESS323	Seismic Exploration	3		3 Fall	Calculus I and Linear Algebra	ESS
ESS317	Fundamentals of Inverse Theory in Geophysics	3		3 Fall	None	ESS
PHY207-15	Electrodynamics I	3		3 Fall	Mathematical Methods in Physics	PHY
PHY201-15	Physics Laboratory II	2	2	3 Fall	College Physics I and Experiments of Fundamental Physics	PHY
PHY307	Modern Optics	3		3 Fall	College Physics II	PHY
MA201b	Ordinary Differential Equations B	4		3 Fall	Calculus II	MATH
OCE301	Introduction to Atmospheric Science	3		3 Fall	None	OCE
ESS202	Scientific Computing and Programming	3		3 Spr	None	ESS
ESS420	Frontiers of Planetary Science	3		3 Spr	Calculus II and College Physics II	ESS
ESS204	Fundamentals of Astronomy	3		3 Spr	None	ESS
OCE407	Mineralogy and Petrology	2		3 Spr		OCE
OCE408	Mineralogy and Petrology Laboratory	1	1	3 Spr	Mineralogy and Petrology	OCE
EE104	Fundamentals of Electric Circuits	2		2 Spr	Calculus I and Linear Algebra	EE
CS202	Computer Organization	3	1	2 Spr	Digital Logic or Digital Circuits	CSE
MA333	Introduction to Big Data Science	3		3 Spr	Probability and Statistics	MATH

ESS411	Computational Space Physics	2		3 Spr	Introduction to Computer Programming	ESS
ESS315	Geomagnetism, Geoelectricity, and Gravity	3		3 Spr	Calculus I	ESS
ESS414	Fundamentals of Geodynamics	3		3 Spr	Calculus I and College Physics I	ESS
ESS421	Gravity and Earth Tide	3		3 Spr	Calculus I and Linear Algebra	ESS
ESS324	Principles and Applications of Geophysical Instruments	2	2	3 Spr	None	ESS
PHY208	Electrodynamics II	3		3 Spr	Electrodynamics I	PHY
EE210	Fundamentals of Optics	3		3 Spr	None	EE
PHY210	Atomic Physics	3		3 Spr	College Physics II	PHY
PHY202	Physics Laboratory III	2	2	3 Spr	College Physics I and Experiments of Fundamental Physics	PHY
ESS310	Geophysical Experiments	3	2	3 Spr		ESS
ESS471	Geophysics Field Trips	2	2	3 Smr	Principles of Geophysics and Principles of Applied Geophysics	ESS
ESS303	Fundamentals of Space Geodetics	3		4 Fall	Calculus I and Linear Algebra	ESS
STA303	Artificial Intelligence B	3	1	4 Fall	Data Structures and Algorithm Analysis and Introduction to Computer Programming	STA
MA303	Partial Differential Equations	3		4 Fall	Ordinary Differential Equations B	MATH
ESS423	Scientific Application of Artificial Intelligence	3		4 Fall	I Linear Algebra	ESS
ESS415	Fundamentals of Tectonics	3		4 Fall	None	ESS
ESS418	Environment and Engineering Geophysics	3		4 Fall	None	ESS
MA325	Numerical Solution of Partial Differential Equations	3		3 Spr	Partial Differential Equations	MATH
Total		93	14			

Notes:
1.The minimum requirement is 21 credits for a student.
2.Mathematics and physics intensive courses taken by Science Exploration Elite Class that are not included in the Program are certified as credits for major elective courses.

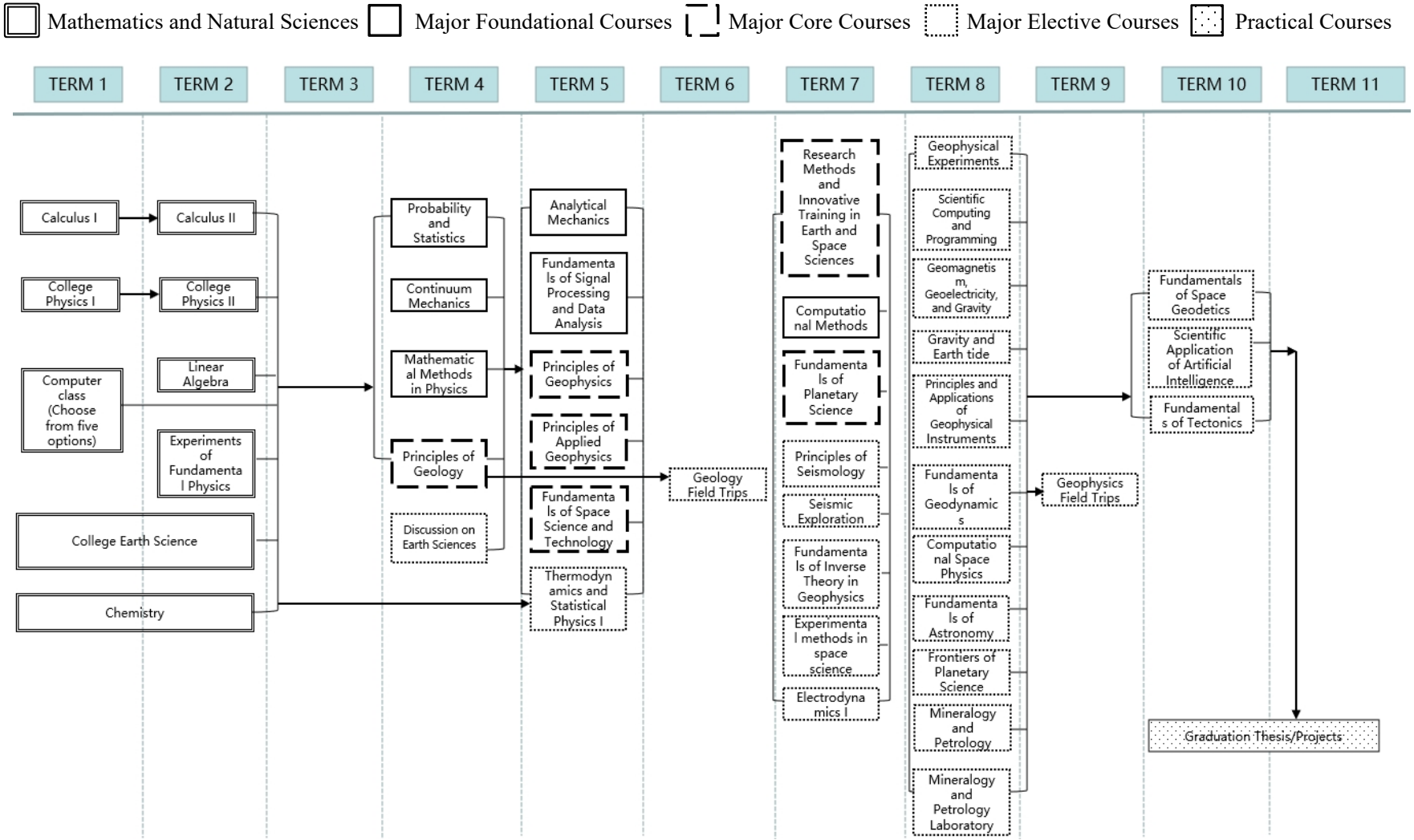
Table 3: Overview of Practice-based Learning

Program of Geophysics

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
CS109	Introduction to Computer Programming	3	1	1-2 Spring& Fall	None	CSE
CS110	Introduction to Java Programming	3	1	1-2 Spring& Fall	None	CSE
CS111	Introduction to C Programming	3	1	1-2 Spring& Fall	None	CSE
CS112	Introduction to Python Programming	3	1	1-2 Spring& Fall	None	CSE
CS113	Introduction to Matlab Programming	3	1	1-2 Spring& Fall	None	CSE
PHY104B	Experiments of FundamentalPhysics	2	2	1-2 Spring& Fall	None	PHY
CS202	Computer Organization	3	1	2 Spr	Digital Logic or Digital Circuits	CSE
ESS470	Geology Field Trips	2	2	2 Smr	Principles of Geology or Mineralogy and Petrology	ESS
ESS484	Research Methods and Innovative Training in Earth and Space Sciences	2	1	2 Fall/3 Fall	None	ESS

PHY201-15	Physics Laboratory II	2	2	3 Fall	College Physics I and Experiments of Fundamental Physics	PHY
ESS324	Principles and Applications of Geophysical Instruments	2	2	3 Spr	None	ESS
OCE408	Mineralogy and Petrology Laboratory	1	1	3 Spr	Mineralogy and Petrology	OCE
PHY202	Physics Laboratory III	2	2	3 Spr	College Physics I and Experiments of Fundamental Physics	PHY
ESS310	Geophysical Experiments	3	2	3 Spr	None	ESS
ESS471	Geophysics Field Trips	2	2	3 Smr	Principles of Geophysics and Principles of Applied Geophysics	ESS
STA303	Artificial Intelligence B	3	1	4 Fall	Data Structures and Algorithm Analysis and Introduction to Computer Programming	STA
ESS491	Graduation Thesis/Projects	12	12	4 Spr	None	ESS
Total		51	34			

Curriculum Structure of Geophysics



Department of Statistics and Data Sciences

Program of Statistics

for International Students (2026)

I. Introduction

Established in April 2019, the Department of Statistics and Data Science aims to build up a world-class educational training and research center. The department is committed to cultivating top-notch talents with solid scientific knowledge, active thoughts, innovative awareness, and global vision. We currently have 19 full-time and 4 jointly appointed faculty members. All faculty members of the department have extensive overseas study or working experiences, including an invited speaker at the International Congress of Mathematicians, two winners of the prestigious State Natural Science Award (2nd class), two Institute of Mathematical Statistics (IMS) Fellows, an IMS Council member, a Fellow of American Statistical Association, an IMS Medallion Lecturer, a Fellow of the Royal Statistics Society, a Fellow of the British Computer Society. At present, the department has two undergraduate programs, namely the Program of Statistics and the Program of Data Science and Big Data Technology, as well as two graduate programs (M.Phil. and Ph.D.), which cover a broad array of research areas including Biostatistics, Clinical Trial Design, High Dimensional Data Analysis, Random Matrix, Time Series Analysis, Bayesian Statistics, Financial Statistics, Limit Theory in Probability and Statistics, Data Science and Big Data Technology. Statistics is applied extensively in various disciplines, from natural sciences (like physics, chemistry, biomedicine, etc.) to social sciences and humanities, as well as business and government decision-making. The undergraduate program of Statistics focuses on applying probability theory to establish statistical models based on the collected data, conduct quantitative analysis, and make inferences and predictions to serve as the reference for decision-making.

Academic subject areas: Bachelor of Science in Statistics

Program code: 071201

II. Objectives and Learning Outcomes

1. Objectives

The objective for international undergraduates majoring in statistics is to cultivate professional talents who are interested in statistical research or data analysis. International undergraduates in this major will have a solid theoretical foundation in mathematics and statistics, proficient computer programming skills, and be good at statistical modeling and analysis of real data. Moreover, they will be able to conduct further research related to statistics or engage in data analysis, data mining, statistical investigation and statistical information management in enterprises and government departments. In the era of big data, statistics faces a wealth of opportunities and challenges. Graduates of statistics major will have a strong theoretical background in statistics and a broad range of knowledge to seize the opportunities and meet the challenges.

2. Learning Outcomes

2.1 Students should have a solid mathematical foundation, master the basic knowledge and theories of statistics, and understand the basics of natural science, social science, engineering technologies related to biomedical statistics, social economic statistics, industrial statistics, etc.

2.2 Students should be able to proficiently read statistical literature in English, master the principal methods of literature search, information retrieval, and data query with modern information technology.

2.3 Students should be equipped with the essential skills of applying statistical knowledge and principles to analyze and solve practical problems. These skills include but are not limited to experience in using computer (including commonly used tools, programming languages, and statistical software) and writing simple programs; design questionnaires, conduct survey, collect and process survey data; good communication skills and teamwork spirit.

III. Study Length, Degree and Graduation Requirements

1. Study Length

Four years.

2. Degree Conferred

Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in science.

3. The Minimum Credit Requirement for Graduation

146 credits. The specific requirements are as follows.

Module		Category	Minimum Credit Requirement
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12/14
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	11
		Major Core Courses	18
		Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	14
	Major Elective Courses	Major Elective Courses	24/22
Total			146
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Department
Mathematics	MA101a / MA117	Mathematical Analysis I / Calculus I	5/4	1 Fall	None	Mathematics
	MA102a / MA127	Mathematical Analysis II / Calculus II	5/4	1 Spring	MA101a/ MA117	Mathematics
	MA107 / MA113	Advanced Linear Algebra I / Linear Algebra	4	1 Fall /1 Fall-Spring	None	Mathematics
Physics	PHY101/ PHY105	General Physics I /College Physics I	5/4	1 Fall	None	Physics
	PHY102/ PHY106	General Physics II/College Physics II	5/4	1 Spring	PHY101/ PHY105	Physics
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	Physics
Chemistry	CH103/ CH105	General Chemistry/Chemistry: The Central Science	4/3	1-2 Spring & Fall	None	Chemistry
Geoscience + Life science	BIO103/ BIO102B/ EOE111	Principles of Biology/Introduction to Life Science/ College Earth Sciences	3	1-2 Spring & Fall	None	Biology/ ESS, OCE, ESE
Computer Programming	CS109/ CS110/ CS111/ CS112/ CS113	Introduction to Computer Programming/Introduction to Java Programming/Introduction to C Programming/Introduction to Python Programming/ Introduction to Matlab Programming	3	1-2 Spring & Fall	None	Computer Science and Engineering

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare Major at the End of the First Academic Year	MA101a/ MA117	Mathematical Analysis I/ Calculus I	None
	MA102a/MA127	Mathematical Analysis II/ Calculus II	MA101a
	MA107 / MA113	Advanced Linear Algebra I / Linear Algebra	None
	PHY101 / PHY105	General Physics I / College Physics I	None
	PHY102 / PHY106	General Physics II / College Physics II	PHY101 / PHY105
	CS109/CS110/CS111/ CS112/CS113	Introduction to Computer Programming/Introduction to Java Programming/Introduction to C Programming/Introduction to Python Programming/Introduction to Matlab Programming	None
Declare Major at the End of the Second Academic Year	MA101a / MA117	Mathematical Analysis I / Calculus I	None
	MA102a / MA127	Mathematical Analysis II / Calculus II	MA101a / MA117
	MA107 / MA113	Advanced Linear Algebra I / Linear Algebra	None
	PHY101 / PHY105	General Physics I / College Physics I	None
	PHY102 / PHY106	General Physics II / College Physics II	PHY101 / PHY105
	PHY104B	Experiments of Fundamental Physics	None
	CH103 / CH105	General Chemistry /Chemistry: The Central Science	None
	BIO103/BIO102B/ EOE111	Principles of Biology/Introduction to Life Science/ College Earth Sciences	None
	CS109/CS110/CS111/ CS112/CS113	Introduction to Computer Programming/Introduction to Java Programming/Introduction to C Programming/Introduction to Python Programming/Introduction to Matlab Programming	None

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI. Major Course Arrangement

Table 1: Major Required Courses

Program of Statistics

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	STA203	Foundation of Probability Theory	3	0	2 Fall	MA102a /MA127 & MA113	Statistics and Data Science
	MA203a /MA231 /MA213-16	Mathematical Analysis III / Mathematical Analysis III (H) /Mathematical Analysis	5	0	2 Fall	MA102a /MA127	Mathematics
	MA204	Mathematical Statistics	3	0	2 Spring	MA215 /STA203 /MA212	Statistics and Data Science
	Total		11	0			
Major Core Courses	STA201	Operational Research and Optimization	3	0	2 Spring	MA107 /MA113	Statistics and Data Science
	STA329	Regression Analysis	3	0	3 Fall	MA204 /MA212	Statistics and Data Science
	MA309	Time Series Analysis	3	0	3 Fall	MA204 /MA212	Statistics and Data Science
	MA308	Statistical Computation and Software	3	0	3 Fall	MA204 /MA212	Statistics and Data Science
	MA304	Multivariate Statistical Analysis	3	0	3 Spring	MA204 /MA212	Statistics and Data Science

	STA306	Bayesian Statistics	3	0	3 Spring	MA329	Statistics and Data Science
	Total		18	0			
Practice-based Courses	STA490	Undergraduate Thesis/Project	12	12	4 Fall & Spring		Statistics and Data Science
	STA480	Research Projects	2	2	Any semester after the first academic year		Statistics and Data Science
	STA470	Internship	2	2	Any summer after the first academic year		Statistics and Data Science
	Total		14	14			
Total			43	14			

Note:
Students are required to choose Research Projects (including all kinds of scientific research activities, scientific and technological innovation projects, wining prizes in competitions above the provincial level, publishing papers, engaging in advanced studies both at home and abroad as well as attending a certain number of seminars or public lectures, and related credits are identified by the Department) and one course in Internship to carry out practice.

Table 2: Major Elective Courses

Program of Statistics

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Department
STA204	Discrete Mathematics with Applications	3	0	2 Fall	MA102B\MA127\MA102a，MA107A\MA113	Statistics and Data Science
MA208	Applied Stochastic Processes	3	0	2Spring	MA203a/ MA213-16 & MA215/ MA212 &（MA109/MA111/ MA121）	Mathematics
STA205	Data Structures and Algorithms	3	1	2Spring	CS107 or CS109 or CS110 or CS111or CS112 or CS113	Statistics and Data Science
STA327	Generalized Linear Models	3	0	3 Spring	MA329	Statistics and Data Science
STA404	Network Science and Computing	3	0	3 Spring	MA204	Statistics and Data Science
MA302	Functional Analysis	3		3 Spring	MA301&MA202	Mathematics
CS306	Data Mining	3	1	3 Spring	CS203/STA205	Computer Science and Engineering
STA324	The Foundations and Applications of Large Language Models	3	1	3 Spring		Statistics and Data Science

STA323	Big Data Analysis Software and Application (Hadoop or Spark)	3	1	3 Spring	STA321	Statistics and Data Science
STA320	Statistical Learning	3		3 Spring	MA204	Statistics and Data Science
CS405	Machine Learning	3	1	4 Fall	MA107A & MA212	Computer Science and Engineering
MA405	Survival Analysis	3	0	4 Fall	MA329	Statistics and Data Science
Total		42	5			

Note:

1. Students who take the series of courses "Mathematical Analysis I, II, III" will earn 22 credits as elective courses in their major. Students who take the series of courses "Advanced Mathematics (Part I), Advanced Mathematics (Part II), and Comprehensive Analysis of Mathematics" will earn 24 credits as elective courses in their major.
2. After this training program is established, professional courses newly offered by the Department of Statistical Science can be recognized as elective credits for the Statistics major.
3. The offering semester of some professional elective courses may change. Please refer to the course schedule for the specific academic year.
4. Some graduate-level courses (open to undergraduates as electives) can also be recognized as elective credits. Students should decide whether to take these courses based on their abilities under the guidance of their academic advisor.
5. For detailed course selection recommendations, please refer to the course structure charts in the Appendix: Version A (Basic & Intensive) and Version B (Applied & Practical).
6. Students may take courses offered by the Department of Mathematics and the Department of Computer Science that are not listed in the above table upon the recommendation of their academic advisors. Credits earned from such courses can be recognized as elective credits for the Statistics major after being signed and confirmed by their academic advisors. For courses offered by departments other than Mathematics and Computer Science, recognition as elective credits shall be approved by the Undergraduate Teaching Committee following the signature of the academic advisor. A list of already approved courses is included in the Appendix to the Measures for the Management of Elective Course Credits of the Department of Statistics and Data Science, which is updated at the beginning of each semester. Courses on this list do not require repeated applications.
7. Courses with similar content are generally not eligible for duplicate credit recognition. For detailed rules regarding credit recognition, please refer to the "Elective Credit Management Rules" of the Department of Statistical Science. The Undergraduate Teaching Committee of the Department of Statistical Science is responsible for interpreting specific policies.

Table 3: Overview of Practice-based Courses

Program of Statistics

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
STA470/ STA480	Internship/Research Projects	2	2	Any summer after the first academic year		Statistics and Data Science
STA490	Undergraduate Thesis/Project	12	12	4 Fall & Spring		Statistics and Data Science
CS109/CS110/ CS111/CS112/ CS113	Introduction to Computer Programming/Introduction to Java Programming/Introduction to C Programming/Introduction to Python Programming/Introduction to Matlab Programming	3	1	1-2 Spring & Fall		Computer Science and Engineering
CS405	Machine Learning	3	1	4 Fall	MA107A & MA212	Computer Science and Engineering
PHY104B	Experiments of Fundamental Physics	2	2	1 Spring & Fall		Physics
Total		22	18			

Curriculum Structure of Statistics Major (Version A) Basic & Intensive Track

(For students who aim to build a solid foundation, broaden their knowledge scope, engage in research, and plan to pursue doctoral studies)

Core Philosophy: Consolidate mathematical foundations, cultivate abstract thinking and theoretical proof capabilities, and lay a solid groundwork for engaging in statistical theoretical research or transitioning to fields such as machine learning theory.

Semester	First Year	Second Year	Third Year	Third/Fourth Year
Fall	Mathematical Analysis I	Mathematical Analysis III	Regression Analysis	Survival Analysis
	Advanced Linear Algebra I / Linear Algebra	Foundation of Probability Theory	Time Series Analysis	Computational Statistics
		Discrete Mathematics and Its Applications	Statistical Computation and Software	High Dimensional Statistics
			Deep Neural Networks	Generalized Linear Model
			Real Analysis	Advanced Natural Language Processing
Spring	Mathematical Analysis II	Mathematical Statistics	Multivariate Statistical Analysis	Undergraduate Thesis/Project
	Linear Algebra	Operational Research and Optimization	Bayesian Statistics	Research Projects or Internship （Any summer after the first school year）
		Applied Stochastic Processes/ Advanced Stochastic Processes	Functional Analysis	Advanced Statistical Inference
			Statistical Learning	Nonparametric Statistics
				Topics in Probability and Statistics
				The Foundations and Applications of Large Language Models

Curriculum Structure of Statistics Major (Version B) Applied & Practical Track

(For students who prefer applied-oriented careers and plan to enter the industry after undergraduate or master's studies)

Core Philosophy: Oriented toward solving practical problems, build capabilities in "statistical thinking + domain knowledge + computational tools + visual communication", and align with industry requirements.

Semester	First Year	Second Year	Third Year	Third/Fourth Year
Fall	Mathematical Analysis I/ / Calculus I	Mathematical Analysis III / Mathematical Analysis	Regression Analysis	Survival Analysis
	Advanced Linear Algebra I / Linear Algebra	Foundation of Probability Theory	Time Series Analysis	Computational Statistics
		Discrete Mathematics and Its Applications	Statistical Computation and Software	Machine Learning
			Deep Neural Networks	Reinforcement Learning
			Advanced Natural Language Processing	Generalized Linear Model
Spring	Mathematical Analysis II/ / Calculus II	Mathematical Statistics	Multivariate Statistical Analysis	Undergraduate Thesis/Project
	Linear Algebra	Operational Research and Optimization	Bayesian Statistics	Research Projects or Internship （Any summer after the first school year）
	Fascinating Statistics	Data Structures and Algorithms	Big Data Analysis Software and Application (Hadoop or Spark)	Network Science and Computing
			The Foundations and Applications of Large Language Models	Financial Statistics
			Statistical Learning	Data Mining

Department of Statistics and Data Sciences

Program of Data Science and Big Data Technology

for International Students (2026)

I. Introduction

Established in April 2019, the Department of Statistics and Data Science aims to build up a world-class educational training and research center. The department is committed to cultivating top-notch talents with solid scientific knowledge, active thoughts, innovative awareness, and global vision. Until June 2023, the department has 18 full-time and 4 jointly appointed faculty members, including 3 Chair Professors, 4 Professors, 5 Associate Professors, 10 Tenure-track Assistant Professors. All faculty members have extensive overseas study or work experiences. One member is an invited speaker at the International Congress of Mathematics, and IMS Medallion Lecturer. Two members are the winners of the prestigious State Natural Science Award (2nd class). At present, the department has two undergraduate programs, namely the Program of Statistics and the Program of Data Science and Big Data Technology, as well as two graduate programs (M.Phil. and Ph.D.), which cover a broad array of research areas including Biostatistics, Clinical Trial Design, High Dimensional Data Analysis, Random Matrix, Time Series Analysis, Bayesian Statistics, Financial Statistics, Limit Theory in Probability and Statistics, Data Science and Big Data Technology. Statistics is applied extensively in various disciplines, from natural sciences (like physics, chemistry, biomedicine, etc.) to social sciences and humanities, as well as business and government decision-making. The undergraduate program of Statistics focuses on applying probability theory to establish statistical models based on the collected data, conduct quantitative analysis, and make inferences and predictions to serve as the reference for decision-making.

Academic subject areas: Data Science and Big Data TechnologyProfessional code: 080910T

II. Objectives and Learning Outcomes

1. Objectives

The objective for international undergraduates majoring in Data Science and Big Data Technology is to cultivate professional talents who are interested in data analysis and big data technology. International undergraduates in this major will have a solid theoretical foundation in mathematics, theoretical foundations in statistics and big data technology, skilled computer programming techniques, good at practical data collection, mining, modeling and analysis, algorithm design and data visualization, and strong social communication skills.

Moreover, they will be able to conduct further research related to artificial intelligence or engage in data analysis, data mining, information management in enterprises and government departments. Graduates can pursue further graduate studies as well as employment in a wide range of industries and sectors: government departments that need to engage in data analysis; financial departments such as banks, securities, and fund companies; communication, software, and robotics industries; market analysis, risk management, and quality management departments of small, medium, and large enterprises; higher and secondary schools and research institutes; survey companies, consulting companies, etc. Specialized agencies for data analysis, and various industrial sectors that generate demand for big data processing and analysis, etc. In the era of big data, data science faces a wealth of opportunities and challenges. Graduates of Data Science and Big Data Technology major will have a strong theoretical background and a broad range of knowledge to seize the opportunities and meet the challenges.

2. Learning Outcomes

2.1 Students should have a solid mathematical foundation, master the basic knowledge and theories of statistics, and understand the basics of computer science, etc.

2.2 Students should be able to proficiently read data science literature in English, master the principal methods of literature search, information retrieval, and data query with modern information technology.

2.3 Students should be equipped with the essential skills of applying data science knowledge and principles to analyze and solve practical problems.

III. Study Length, Degree and Graduation Requirements

1. Study Length

Four years. The academic credit system of SUSTech allows flexible study years, but not less than 3 years or more than 6 years.

2. Degree Conferred

Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in science.

3.The Minimum Credit Requirement for Graduation

146 credits. The specific requirements are as follows.

<table>
<tr><th colspan="2">Module</th><th>Category</th><th>Minimum Credit Requirement</th></tr>
<tr><td rowspan="14">General Education Courses</td><td rowspan="2">Chinese Language and Culture Module</td><td>Chinese Language and Culture</td><td>16</td></tr>
<tr><td rowspan="2">Arts and Physical Education Module</td><td>Physical Education</td><td>4</td></tr>
<tr><td>Arts</td><td>2</td></tr>
<tr><td rowspan="3">Competence Development Module</td><td>Computer Programming</td><td>3</td></tr>
<tr><td>Writing</td><td>2</td></tr>
<tr><td>Foreign Languages</td><td>14</td></tr>
<tr><td rowspan="2">Humanities and Social Sciences Module</td><td>Humanities</td><td>4</td></tr>
<tr><td>Social Sciences</td><td>4</td></tr>
<tr><td rowspan="4">Mathematics and Natural Sciences Module</td><td>Mathematics</td><td>12/14</td></tr>
<tr><td>Physics</td><td>10</td></tr>
<tr><td>Chemistry</td><td>3</td></tr>
<tr><td>Geoscience + Life science</td><td>3</td></tr>
<tr><td>Introduction to Majors Module</td><td>Introduction to Majors</td><td>2</td></tr>
<tr><td rowspan="4">Major Courses</td><td rowspan="3">Major Required Courses</td><td>Major Foundational Courses</td><td>15</td></tr>
<tr><td>Major Core Courses</td><td>15</td></tr>
<tr><td>Practice-based Learning(Undergraduate Thesis, Internships, Research Projects, etc.)</td><td>14</td></tr>
<tr><td>Major Elective Courses</td><td>Major Elective Courses</td><td>23/21</td></tr>
<tr><td colspan="3">Total</td><td>146</td></tr>
<tr><td colspan="4">Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.</td></tr>
</table>

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credit	Terms	Prerequisite	Department
Mathematics	MA101a/ MA117	Mathematical Analysis I / Calculus I	5/4	1 Fall	None	Mathematics
	MA102a/ MA127	Mathematical Analysis II / Calculus II	5/4	1 Spring	MA101a/ MA117	Mathematics
	MA107/ MA113	Advanced Linear Algebra I / Linear Algebra	4	1 Fall / 1 Fall-Spring	None	Mathematics
Physics	PHY101/ PHY105	General Physics I /College Physics I	5/4	1 Fall	None	Physics
	PHY102/ PHY106	General Physics II/College Physics II	5/4	1 Spring	PHY101/ PHY105	Physics
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	Physics
Chemistry	CH103/ CH105	General Chemistry/Chemistry: The Central Science	3	1-2 Spring & Fall	None	Chemistry
Geoscience + Life science	BIO103/ BIO102B/ EOE111	Principles of Biology/Introduction to Life Science/ College Earth Sciences	3	1-2 Spring & Fall	None	Biology/ ESS, OCE, ESE
Computer Programming	CS109/ CS110/ CS111/ CS112/ CS113	Introduction to Computer Programming/Introduction to Java Programming/ Introduction to C Programming/ Introduction to Python Programming/ Introduction to Matlab Programming	3	1-2 Spring & Fall	None	Computer Science and Engineering

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare Major at the End of the First Academic Year	MA101a/MA117	Mathematical Analysis I / Calculus I	
	MA102a/MA127	Mathematical Analysis II / Calculus II	MA101a/MA117
	MA107 / MA113	Advanced Linear Algebra I / Linear Algebra	
	PHY101 / PHY105	General Physics I / College Physics I	
	PHY102 / PHY106	General Physics II / College Physics II	PHY101 / PHY105
	CS109/CS110/ CS111/ CS112/ CS113	Introduction to Computer Programming/Introduction to Java Programming/ Introduction to C Programming/ Introduction to Python Programming/ Introduction to Matlab Programming	
Declare Major at the End of the Second Academic Year	MA101a / MA117	Mathematical Analysis I / Calculus I	None
	MA102a / MA127	Mathematical Analysis II / Calculus II	MA101a / MA117
	MA107 / MA113	Advanced Linear Algebra I / Linear Algebra	None
	PHY101 / PHY105	General Physics I / College Physics I	None
	PHY102 / PHY106	General Physics II / College Physics II	PHY101 / PHY105
	PHY104B	Experiments of Fundamental Physics	None
	CH103 / CH105	General Chemistry /Chemistry: The Central Science	None
	BIO103/BIO102B/ EOE111	Principles of Biology/Introduction to Life Science/ College Earth Sciences	None
	CS109/CS110/ CS111/ CS112/ CS113	Introduction to Computer Programming/Introduction to Java Programming/ Introduction to C Programming/ Introduction to Python Programming/ Introduction to Matlab Programming	None

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI. Major Course Arrangement

Table 1: Major Required Courses

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	STA203	Fundamentals of probability theory	3		2/ Autumn	MA102a/ MA127and MA113	Statistics
	MA204	Mathematical Statistics	3		2/ Spring 3/ Autumn	MA215/ MA212	Statistics
	STA201	Operational Research and Optimization	3		2/ Spring	MA107/ MA113	Statistics
	STA205	Data Structures and Algorithms	3	1	2/ Spring	CS109/ CS110/ CS111/ CS112/ CS113	Statistics
	STA204	Discrete Mathematics and Its Applications	3		2/Autumn	MA127and MA113	Statistics
	Total		15				
Major Core Courses	STA325	Deep Neural Networks	3	1	3/ Autumn		Statistics
	STA329	Regression Analysis	3		3/ Autumn	MA204/ MA212	Statistics
	MA304	Multivariate Statistical Analysis	3		3/ Spring	MA204/ MA212	Statistics

	STA328	Big Data Analysis and Applications	3	1	3/ Spring		Statistics
	STA324	The Foundations and Applications of Large Language Models	3	1	3/ Spring		Statistics
	Total		15	3			
Practice-based Courses	STA490	Thesis (Design)	12	12	4/ Spring		Statistics
	STA480	Research and innovation projects**	2	2	Any semester		Statistics
	STA470	Professional Internship**			Summer Vacation		Statistics
	Total		14	14			
Total			44	18			

Notes:

1. Students must choose one of the scientific research and innovation projects (including various scientific research activities, innovative projects in science and technology, winning competitions at the provincial level or above, publishing papers, further studies at home and abroad and attending a certain amount of seminars, etc., which will be recognized by the department for credit) and professional internship to carry out their practice. Students can choose to carry out their research and innovation projects and professional internship in any semester after the first academic year, with a minimum requirement of 4 weeks for professional internship.
2. Some courses are subject to change, so please take the corresponding courses in the actual semester of the course offering unit.

Table 2 Major Elective Courses

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
STA221	Database Systems	3	1	2/ Autumn		Statistics
STA217	Introduction to Data Science	3		2/ Autumn	MA102a/ MA127	Statistics
MA208	Applying Stochastic Processes	3		2/ Spring	MA213-16 and (MA215/ MA212) and (MA109/MA111/)(MA121)	Mathematics
STA308	Reinforcement Learning	3		3/ Autumn	CS109/CS110/ CS111/ CS112	Statistics
CS305	Computer Networks	3	1	3/ Autumn	CS109	Computer Science
STA306	Bayesian statistics	3		3/ Spring	MA329	Statistics
STA404	Network Science andComputing	3		3/ Spring	MA212	Statistics
CS405	Machine Learning	3	1	4/ Autumn	MA113 and MA212	Computer Science
Total		24	3			

Notes:

1. Students enrolled in Mathematical Analysis I and II will receive 21 credits of elective courses, and students enrolled in Advanced Mathematics I and II will receive 23 credits of elective courses.
2. After this training program is established, professional courses newly offered by the Department of Statistical Science can be recognized as elective credits for the Statistics major.
3. The offering semester of some professional elective courses may change. Please refer to the course schedule for the specific academic year.
4. Some graduate-level courses (open to undergraduates as electives) can also be recognized as elective credits. Students should decide whether to take these courses based on their abilities under the guidance of their academic advisor.
5. Advanced Natural Language Processing (Course Code: STA5007, a graduate-level course) is recommended for all students to take as an elective in the Fall semester of their third year.
6. Students may take courses offered by the Department of Mathematics and the Department of Computer Science that are not listed in the above table upon the recommendation of their academic advisors. Credits earned from such courses can be recognized as elective credits for the Statistics major after being signed and confirmed by their academic advisors. For courses offered by departments other than Mathematics and Computer Science, recognition as elective credits shall be approved by the Undergraduate Teaching Committee following the signature of the academic advisor. A list of already approved courses is included in the Appendix to the Measures for the Management of Elective Course Credits of the Department of Statistics and Data Science, which is updated at the beginning of each semester. Courses on this list do not require repeated applications.
7. Courses with similar content are generally not eligible for duplicate credit recognition. For detailed rules regarding credit recognition, please refer to the "Elective Credit Management Rules" of the Department of Statistical Science. The Undergraduate Teaching Committee of the Department of Statistical Science is responsible for interpreting specific policies.

Table 3 Overview of Practice-based Courses

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
STA470/ STA480	Professional Internship/ Research and innovation projects	2	2	Any semester	None	Statistics
STA490	Thesis (Design)	12	12	4/ Spring	None	Statistics
CS109/ CS110/ CS111/ CS112/ CS113	Introduction to Computer Programming/Introduction to Java Programming/ Introduction to C Programming/ Introduction to Python Programming/ Introduction to Matlab Programming	3	1	1-2 Spring & Fall	None	Computer Science
STA205	Data Structures and Algorithm	3	1	2/ Spring	CS109/CS110/ CS111/ CS112/ CS113	Statistics
STA221	Database Systems	3	1	2/Autumn		Statistics
CS405	Machine Learning	3	1	4/ Autumn	MA113, MA212	Computer Science
PHY104B	Experiments of Fundamental Physics	2	2	1 Spring & Fall		Physics
Total		28	20			

Data Science and Big Data Technology Program Curriculum Structure

Expected Learning Objectives: Consolidate mathematical foundations, develop problem modeling and theoretical reasoning capabilities; learn algorithms and tools for data computing and intelligent models; and lay a solid foundation for engaging in work in the fields of theory, methods, and applications of data science and artificial intelligence.

Time	First Year	Second Year	3rd grade	3rd/4th grade
Autumn	Mathematical Analysis I / Calculus I	Discrete Mathematics and Its Applications	Deep Neural Networks	Machine Learning / Computer Networks
	Advanced Linear Algebra I / Linear Algebra	Foundation of Probability Theory	Regression Analysis	
		Introduction to Data Science	Reinforcement Learning	
		Database Systems	Advanced Natural Language Processing	
Spring	Mathematical Analysis II / Calculus II	Mathematical Statistics	Big Data Analysis and Applications	Graduation design
	Linear Algebra	Operations and optimization	Multivariate Statistical Analysis	Professional internships or research and innovation projects (Conducted in any semester in grades 2, 3 and 4)
	Fascinating Statistics	Data Structures and Algorithms	The Foundations and Applications of Large Language Models	
		Applying Stochastic Processes	Network Science and Computing	
			Bayesian statistics	

Department of Mechanics and Aerospace Engineering

Program of Theoretical and Applied Mechanics

for International Students (2026)

I. Introduction

Academic subject areas: Mechanics

Program code: 080101

Theoretical and Applied Mechanics (TAM) is a basic while highly practical scientific discipline with long history, rapid development, and widespread applications. Its strong technical implications make TAM the foundation for many industries and various engineering areas such as aerospace engineering, ocean engineering, manufacturing, civil engineering, and astromechanics. Therefore, students with TAM training often become leaders with a holistic view of technology.

II. Objectives and Learning Outcomes

1. Objectives

Students majored in TAM will be equipped with necessary theory, knowledge and skills to become senior specialists for research, education, R&D and management in mechanics and related areas.

2. Learning Outcomes

(1) Morality and humanity. With patriotism and professionalism, a firm attitude of pursuing excellence, a sound personality, a sense of social responsibility and rich humanities and sciences accomplishment.

(2) Basic knowledge. Master the basic theoretical knowledge and skills of engineering such as mathematics, mechanics, physics, electronics, machinery and so on.

(3) Core knowledge

3.1 Master the knowledge of the core courses in basic disciplines such as mathematics, mechanics, physics, and information technology, and at the same time have strong computer and foreign language application capabilities.

3.2 Master the core knowledge of mechanics as the engineering foundation and the basic knowledge of mechanics or one other engineering (e.g. aviation, aerospace, machinery,

automobiles, energy, environment, etc.)

3.3 Have the basic laboratory and design skills in mechanics and engineering.

(4) Understand the frontier of the subject. Understand the development, theoretical frontier and application prospect of the mechanics and some major projects.

(5) Master the basic methods of literature retrieval and data query, and have the ability to engage in scientific research and practical work.

(6) Management ability and teamwork ability. Good organizational and management skills, good communication skills, as well as environmental adaptation, team work ability.

(7) International vision. Has the international vision and certain international exchange and cooperation ability.

(8) Lifelong learning. Have the consciousness of lifelong learning and self-learning ability, innovative consciousness and grasp the basic innovative methods.III. Study Length, Degree, and Graduation Requirements

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years. The academic credit system of SUSTech allows flexible study years, but not less than 3 years or more than 6 years

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Bachelor of Science

3. The minimum credit requirement for graduation: 155 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses 79 Credits	Chinese Language and Culture Module 16 Credits	Chinese Language and Culture	16
	Arts and Physical Education Module 6 Credits	Physical Education	4
		Arts	2
	Competence Development Module 19 Credits	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module 8 Credits	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module 28 Credits	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module 2 Credits	Introduction to Majors	2
Major Courses 76 Credits	Major Required Courses 58 Credits	Major Foundational Courses	17
		Major Core Courses	20
		Practice-based Learning (Undergraduate Thesis, Internships, Research projects, etc.)	21
	Major Elective Courses 18 Credits	Major Elective Courses	18
Total			155
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Computer Programming & Writing）, Humanities and Social Sciences Module, and Introduction to Majors Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1Fall	None	MA
	MA127	Calculus II	4	1Spring	Calculus I	MA
	MA113	Linear Algebra	4	1Spring /Fall	None	MA
Physics	PHY105	College Physics I	4	1Spring /Fall	None	PHY
	PHY106	College Physics II	4	1Spring /Fall	General Physics I	PHY
	PHY104B	Experiments of Fundamental Physics	2	1Spring /Fall	None	PHY
Chemistry	CH105	Chemistry：the Central Science	3	1Spring /Fall	None	CH
Biology	BIO102B	Introduction to Life Science	3	1Spring /Fall	None	BIO
Computer Programming	CS109	Introduction to Computer Programming	3	1Spring /Fall	None	CS

Note：
For Mathematics Category,students can take Mathematical Analysis I and II as alternatives to Calculus I and II;Advanced Linear Algebra I as an alternative to Linear Algebra.
For Physics Category,students can take General Physics I and II as alternatives to College Physics I and II.
For Chemistry Category,students can take General Chemistry as an alternative to Chemistry：the Central Science.
For Biology Category,students can take Principles of Biology or College Earth Sciences as an alternative to Introduction to Life Science.
For Computer Programming Category,students can choose any one of the five computer progeaming courses.
The above alternative courses are also applicable to “Prerequisites for Major Declaration”.

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	MA117	Calculus I	None
	MA127	Calculus II	Calculus I
	MA113	Linear Algebra	None
	PHY105	College Physics I	None
	PHY106	College Physics II	College Physics I
Declare major at the end of the second academic year	MA117	Calculus I	None
	MA127	Calculus II	Calculus I
	MA113	Linear Algebra	None
	PHY105	College Physics I	None
	PHY106	College Physics II	College Physics I

Note:
1.If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2.If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3.Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4.For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Theoretical and Applied Mechanics

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	ME102	CAD and Engineering Drawing	3	1.5	1Spring	None	ME
	MAE209	Foundations of Engineering Mathematics	4		2Fall	MA127 PHY106 MA113	MAE
	MAE203	Theoretical Mechanics I	3		2Fall	MA127、MA109 or MAE209	MAE
	MA212	Probability and Statistics	3		2Fall	MA127	MA
	MA201b	Ordinary Differential Equations B	4		2Fall	MA127	MA
	Total		17	1.5			
Major Core Courses	MAE202	Mechanics of Materials	3		2Spring	MAE203	MAE
	MAE204	Theoretical Mechanics II	3		2Spring	MA113 MA127（or MAE209）	MAE
	MAE303	Fluid Mechanics	4		3Fall	MA127 PHY106	MAE
	MAE304	Elasticity	4		3Spring	MAE203 MAE202 MAE209	MAE

	MAE302-16	Fluid Mechanics Lab	3	3	3Spring	MAE303	MAE
	MAE401-16	Solid Mechanics Lab	3	3	3Fall	MAE202	MAE
	Total		20	6			
Practice-based Courses	MAE499	Research and Innovation Project	2	2	4Fall	None	MAE
	ME103	Awareness Practice of Manufacturing Engineering	3	2	1-4Fall	None	ME
	MAE477	Cognitive Internship	2	2	2Summer	None	MAE
	MAE478	Practical Internship (Research and Production)	2	2	3Summer	None	MAE
	MAE488	Degree Thesis (or Design)	12	12	4Spring	None	MAE
	Total		21	20			
Total			58	27.5			

Note：
Note 1: "Theoretical Mechanics II MAE204" can be replaced by "Analytical Mechanics PHY205".
Note 2: "Fundamentals of Engineering Mathematics MAE209" can be replaced by "Linear Algebra in Detail MA109" and " Mathematical Methods in Physics PHY203-15".
Note 3: Science and technology innovation projects are carried out in any semester after the beginning of the second academic year, so they are not included in the specific weekly credit hour allocation table.
Note 4: The industrial internship is not fixed to a specific semester and therefore is not included in the specific weekly credit hour allocation table.

Table 2: Major Elective Courses

Program of Theoretical and Applied Mechanics

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
EE104/ SME103	Fundamentals of Electric Circuits	2		1Spring	MA127	EE/SME
MAE305	Engineering Thermodynamics	3		2Fall	MA127	MAE
CS203B	Data Structures and Algorithm Analysis B	3	1	2Fall	CS102A	CS
PHY221	Open Physics Laboratory II	1	1	2Fall	None	PHY
PHY201-15	Physics Laboratory II	2	2	2Fall	PHY103B	PHY
PHY207-15	Electrodynamics I	3		2Fall	PHY203-15	PHY
MAE208	Lectures on selected Engineering Software	2		2Spring /Fall	None	MAE
PHY202	Physics Laboratory III	2	2	2Spring	PHY103B	PHY
MAE323	Mordern Numerical Methods	3	1	2Spring	MA127 MA113	MAE
MA233	Introduction to MATLAB	4	1	2Spring	MA113	MA
MAE405	Aerodynamics	3		3Fall	MAE207 or MAE303	MAE
MAE309	General Principles of Transport Phenomena	3		3Fall	MA127	MAE
MAE312	Aircraft Flight Dynamics	3		3Fall	MA127	MAE
MAE307	Aircraft Structural Strength	3		3Fall	MAE202	MAE
MAE313	Aero Engine Structural Strength	3	1	3Fall	None	MAE
MA303	Partial Differential Equations	3		3Fall	MA201b	MA
MAE317	Mechanical Design	3		2Spring	MAE202 or MAE203B	MAE
ME331	Robot Modeling and Control	3		3Fall	MAE203B	ME
ME307	Fundamentals of Control Engineering	3	1	3Fall	EE104	ME
CS219	Advanced Programming	3	1	3Spring /Fall	CS109	CS
MAE318	Theory of Vibration	3		3Spring	MAE203B MA201b	MAE

MAE403	Computational Fluid Dynamics	3		3Fall	MAE207 or MAE303	MAE
MAE310	Computational Solid Mechanics	3		3Fall	MAE202	MAE
MAE325	Finite Element Method in Structural Analysis	3		3Spring	MAE202 or MAE304	MAE
MAE326	Rarefied Gas Dynamics	3		3Spring	MAE207 or MAE303 or MAE405	MAE
MAE322	Fundamentals of Combustion	3		3Fall	MA127 or MA102a	MAE
MAE320	Mechanism of Flight	3		3Spring	MAE405	MAE
MAE308	Heat Transfer	3		3Spring	MA127	MAE
MAE319	Interfacial Phenomena	3		3Spring	PHY106	MAE
MAE407	Jet and Propulsion	3		3Spring	MAE305 or PHY204	MAE
MAE321	Multiphase Flow	3		3Spring	MAE207	MAE
MAE410	Fracture Mechanics	3		3Spring	MAE202	MAE
ME310	Fundamentals of Measurement Technology	3		3Spring	ME307 EE205	ME
MAE417	Aircraft Design Group Practice	3	2	4Fall	MAE405 MAE307 MAE407	MAE
MAE419	Aerodynamic analysis and design of aircraft	2		4Fall	MAE403	MAE
MAE311	Principles of Turbomachinery	3		4Fall	MAE305 MAE405	MAE
Total		99	13			

Note
Note 1: The above courses should be taken for a minimum of 18 credits; the elective courses of the Department of Mechanics and Aerospace Engineering should be taken for a minimum of 12 credits.
Note 2: "Computational Fluid Dynamics MAE403" and "Computational Solid Mechanics MAE310" and "Finite Element Method in Structural Analysis MAE325" at least one of them.
Note 3:Choose at least one of the following directions to complete the requirements.
Engineering numerical simulation direction: "Computational Fluid Dynamics", "Computational Solid Mechanics", "Advanced Programming", "Mordern Numerical Methods", "Lectures on selected Engineering Software", "Introduction to MATLAB", at least 9 credits
New material mechanics: "Engineering Materials", "Computational Solid Mechanics", "Mechanics of Composite Materials", "Fracture Mechanics", "Theory of Vibration"," Mechanics of Soft Materials", at least 9 elective credits
Note 4: "Engineering Thermodynamics MAE305" can be replaced by "Thermodynamics and Statistical Physics I PHY204".

Table 3: Overview of Practice-based Learning

Program of Theoretical and Applied Mechanics

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
ME102	CAD and Engineering Drawing	3	1.5	1Spring	None	ME
MAE302-16	Fluid Mechanics Lab	3	3	3Spring	MAE303	MAE
MAE401-16	Solid Mechanics Lab	3	3	3Fall	MAE202	MAE
MAE499	Research and Innovation Project	2	2	4Fall	None	MAE
ME103	Awareness Practice of Manufacturing Engineering	3	2	1-4Fall	None	ME
MAE477	Cognitive Internship	2	2	2Summer	None	MAE
MAE478	Practical Internship (Research and Production)	2	2	3Summer	None	MAE
MAE488	Degree Thesis (or Design)	12	12	4Spring	None	MAE
Total		30	27.5			

Curriculum Structure of Theoretical and Applied Mechanics

Time	Freshman	Sophomore	Junior	Senior
Fall	Calculus I	Foundations of Engineering Mathematics	Fluid Mechanics	Major Elective Courses
	Linear Algebra	Theoretical Mechanics I	Solid Mechanics Lab	
	College Physics I	Probability and Statistics	Major Elective Courses	
	Chemistry：the Central Science	Ordinary Differential Equations B		
	Introduction to Computer Programming			
Spring	Calculus II	Mechanics of Materials	Elasticity	Research and Innovation Project
	College Physics II	Theoretical Mechanics II	Fluid Mechanics Lab	Degree Thesis (or Design)
	Experiments of Fundamental Physics	Awareness Practice of Manufacturing Engineering	Major Elective Courses	
	Introduction to Life Science			
	CAD and Engineering Drawing			
Summer		Cognitive Internship	Practical Internship (Research and Production)	

Department of Mechanics and Aerospace Engineering

Program of Aerospace Engineering

for International Students (2026)

I. Introduction

Academic subject areas: Aerospace

Program code: 082001

Aerospace Engineering is a modern area that exemplifies the need for interdisciplinary problem solving and the mind for innovation. Aerospace Engineering is also an area of national strategic importance and high priority for growth. The Aerospace Engineering bachelor program at SUSTech is led by the Member of Chinese National Academy of Engineering, and the faculty consists of several renowned scholars. Major areas include aircraft design and engineering, aircraft propulsion, and aircraft manufacturing. The design and analysis of Aerospace Engineering relies on solid grasp of broad subjects of mechanics, heat transfer, material science, and electronics; the proficient knowledge of these subjects are applicable in other areas such as mechanical engineering and civil engineering. The students trained by the Aerospace Engineering program are expected to establish solid foundations of mathematics and mechanics, as well as deep understanding of basic aircraft design theory, strong capabilities in structural analysis, and good hands-on skills.

II. Objectives and Learning Outcomes

1. Objectives

The Aerospace Engineering program at SUSTech is dedicated to train students of high calipers by empowering them with solid foundations of mathematics and mechanics, broad knowledge in aerospace engineering, good overall capability of aircraft design, and a mind for innovation. The students who successfully complete the program may perform consulting, research and development, planning, and management roles in the industries of aerospace engineering, mechanical engineering, and mechanics. They can also enter top universities and research institutes to pursue master or doctoral degrees.

2. Learning Outcomes

Morality and humanity. With professionalism, a firm attitude of pursuing excellence, a sound

personality, a sense of social responsibility and rich humanities and sciences accomplishment.

Basic knowledge. Master the basic theoretical knowledge and skills of engineering such as mathematics, mechanics, physics, electronics, machinery and so on.

Core knowledge

Have the necessary ability of drawing, computing, experimenting and testing in this major. Through the professional curriculum design, students can initially achieve the design, control, debugging and research abilities of aircraft application system. At the same time, they have strong computer and foreign language application abilities.

Master the complete basic knowledge system of aerospace engineering, including material mechanics, engineering thermodynamics, aircraft dynamics, aerodynamics, control principle, aircraft design, aircraft turbomachinery principle, aircraft structural strength and so on.

Master the general engineering design, aircraft design, Aerial engine Design and other design methods.

Understand the frontiers of the discipline. Understand the development trends, theoretical frontiers and application prospects in the field of aerospace.

Master the basic methods of literature retrieval and data query, and have the ability to engage in scientific research and practical work.

Management ability and teamwork ability. Good organizational and management skills, good communication skills, as well as environmental adaptation, team work ability.

International vision. Has the international vision and certain international exchange and cooperation ability.

Life long learning. Have the consciousness of lifelong learning and self-learning ability, innovative consciousness and grasp the basic innovative methods.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years. The academic credit system of SUSTech allows flexible study years, but not less than 3 years or more than 6 years

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Bachelor of Engineering

3. The minimum credit requirement for graduation: 160 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses 79 Credits	Chinese Language and Culture Module 16 Credits	Chinese Language and Culture	16
	Arts and Physical Education Module 6 Credits	Physical Education	4
		Arts	2
	Competence Development Module 19 Credits	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module 8 Credits	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module 28 Credits	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module 2 Credits	Introduction to Majors	2
Major Courses 81 Credits	Major Required Courses 64 Credits	Major Foundational Courses	24
		Major Core Courses	19
		Practice-based Learning (Undergraduate Thesis, Internships, Research projects, etc.)	21
	Major Elective Courses 17 Credits	Major Elective Courses	17
Total			160
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Computer Programming & Writing）, Humanities and Social Sciences Module, and Introduction to Majors Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1Fall	None	MA
	MA127	Calculus II	4	1Spring	Calculus I	MA
	MA113	Linear Algebra	4	1Spring /Fall	None	MA
Physics	PHY105	College Physics I	4	1Spring /Fall	None	PHY
	PHY106	College Physics II	4	1Spring /Fall	General Physics I	PHY
	PHY104B	Experiments of Fundamental Physics	2	1Spring /Fall	None	PHY
Chemistry	CH105	Chemistry：the Central Science	3	1Spring /Fall	None	CH
Biology	BIO102B	Introduction to Life Science	3	1Spring /Fall	None	BIO
Computer Programming	CS109	Introduction to Computer Programming	3	1Spring /Fall	None	CS

Note：
For Mathematics Category,students can take Mathematical Analysis I and II as alternatives to Calculus I and II;Advanced Linear Algebra I as an alternative to Linear Algebra.
For Physics Category,students can take General Physics I and II as alternatives to College Physics I and II.
For Chemistry Category,students can take General Chemistry as an alternative to Chemistry：the Central Science.
For Biology Category,students can take Principles of Biology or College Earth Sciences as an alternative to Introduction to Life Science.
For Computer Programming Category,students can choose any one of the five computer progeaming courses.
The above alternative courses are also applicable to “Prerequisites for Major Declaration”.

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	MA117	Calculus I	None
	MA127	Calculus II	Calculus I
	MA113	Linear Algebra	None
	PHY105	College Physics I	None
	PHY106	College Physics II	College Physics I
Declare major at the end of the second academic year	MA117	Calculus I	None
	MA127	Calculus II	Calculus I
	MA113	Linear Algebra	None
	PHY105	College Physics I	None
	PHY106	College Physics II	College Physics I

Note:
5.If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
6.If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
7.Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
8.For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Aerospace Engineering

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Majo Foundational Courses	ME102	CAD and Engineering Drawing	3	1.5	1Spring /Summer	None	ME
	EE104	Fundamentals of Electric Circuits	2		1Spring	MA113 MA117	EE
	MAE203B	Engineering Mechanics I - Statics and Dynamics	3		2Fall	MA113	MAE
	MAE209	Foundations of Engineering Mathematics	4		2Fall	MA127 PHY106 MA113	MAE
	MAE305	Engineering Thermodynamics	3		2Fall	MA127	MAE
	MAE207	Engineering Fluid Mechanics	3		2Fall	MA127	MAE
	MAE202	Mechanics of Materials	3		2Spring	MA113 MA127	MAE
	MAE317	Mechanical Design	3		2Spring	MAE202 或 MAE203B	MAE
	Total		24	1.5			
Major Core Courses	MAE405	Aerodynamics	3		3Fall	MAE207	MAE
	MAE307	Aircraft Structural Strength	3		3Fall	MAE202	MAE
	MAE315	Aero-Thermal Fluid Lab	2	2	3Fall	MAE207 or MAE303	MAE
	MAE322	Fundamentals of Combustion	3		3Fall	MAE305	MAE

	MAE316	Experiments in Aircraft Structural Mechanics	2	2	3Spring	MAE202	MAE
	MAE407	Jet and Propulsion	3		3Spring	MAE305 or PHY204	MAE
	MAE417	Aircraft Design Group Practice	3	2	4Fall	MAE405 MAE307 MAE407	MAE
	Total		19	6			
Practice-based Courses	MAE499	Research and Innovation Project	2	2	2-4Fall	None	MAE
	ME103	Awareness Practice of Manufacturing Engineering	3	2	1-4Fall	None	ME
	MAE477	Cognitive Internship	2	2	2Summer	None	MAE
	MAE478	Practical Internship (Research and Production)	2	2	3Summer	None	MAE
	MAE488	Degree Thesis (or Design)	12	12	4Spring	None	MAE
	Total		21	20			
Total			64	27.5			

Note：
Note 1: “Fundamentals of Electric Circuits EE104” can be replaced by "Fundamentals of Electric Circuits SME103"； “Mechanical Design MAE317” can be replaced by “Mechanical Design ME311”.
Note 2: "Engineering Mechanics I - Statics and Dynamics MAE203B" can be replaced by "Theoretical Mechanics I MAE203".
"Engineering Fluid Mechanics MAE207" can be replaced by "Fluid Mechanics MAE303".
"Engineering Thermodynamics MAE305" can be replaced by "Thermodynamics and Statistical Physics I PHY204".
Note3: Science and technology innovation projects are carried out in any semester after the beginning of the second academic year, so they are not included in the specific weekly credit hour allocation table.
Note 4: The industrial internship is not fixed to a specific semester and therefore is not included in the specific weekly credit hour allocation table.
Note 5: Students who have completed Comprehensive Design I (COE491) and Comprehensive Design II (COE492) are not required to take the graduation design (or thesis) (MAE488).

Table 2: Major Elective Courses

Program of Aerospace Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
MAE208	Lectures on selected Engineering Software	2		2Spring	None	MAE
MAE204	Theoretical Mechanics II	3		2Spring	MA113 MA127（or MAE209）	MAE
MAE323	Mordern Numerical Methods	3	1	2Spring	MA127 MA113	MAE
MAE312	Aircraft Flight Dynamics	3		3Fall	MA127	MAE
MAE313	Aero Engine Structure and Strength	3	1	3Fall	None	MAE
MAE309	General Principles of Transport Phenomena	3		3Fall	MA127	MAE
MAE304	Elasticity	4		3Spring	MAE203 MAE202 MAE209	MAE
MAE403	Computational Fluid Dynamics	3		3Spring	MAE207 Or MAE303	MAE
MAE310	Computational Solid Mechanics	3		3Spring	MAE202	MAE
MAE325	Finite Element Method in Structural Analysis	3		3Spring	MAE202 or MAE304	MAE
MAE326	Rarefied Gas Dynamics	3		3Spring	MAE207 or MAE303 or MAE405	MAE
MAE320	Mechanism of Flight Vehicle	3		3Spring	MAE405	MAE
MAE318	Theory of Vibration	3		3Spring	MAE203B MA201b	MAE
MAE319	Interfacial Phenomena	3		3Spring	PHY106	MAE
MAE410	Fracture Mechanics	3		3Spring	MAE202	MAE
MAE321	Multiphase Flow	3		3Spring	MAE207	MAE
MAE308	Heat Transfer	3		3Spring	MA127	MAE
MAE311	Principles of Turbomachinery	3		4Fall	MAE305 MAE405	MAE
MAE419	Aerodynamic analysis and design of aircraft	2		4Fall	MAE403	MAE
MA201b	Ordinary Differential Equations B	4		2Fall	MA127	MA

MA212	Probability and Statistics	3		2Fall	MA127	MA
MA233	Introduction to MATLAB	4	1	2Spring	MA113	MA
ME307	Fundamentals of Control Engineering	3	1	3Fall	EE104	ME
ME331	Robot Modeling and Control	3		3Fall	MAE203B	ME
ME310	Fundamentals of Measurement Technology	3		3Spring	ME307 EE205	ME
ME301	Dynamics and Vibration	3	1	3Spring	MA201b MAE203B	ME
EE205	Signals and Systems	3	1	2Fall	MA117	EE
EE201-17	Analog Circuits	3		2Fall	PHY106 EE104	EE
EE323	Digital Signal Processing	3	1	4Fall	EE205	EE
CS203B	Data Structures and Algorithm Analysis B	3	1	2Fall	CS109	CS
CS219	Advanced Programming	3	1	3Fall/Spring	CS109	CS
PHY221	Open Physics Laboratory II	1	1	2Fall	None	PHY
PHY201-15	Physics Laboratory II	2	2	2Fall	PHY105	PHY
PHY203-15	Mathematical Methods in Physics	4		2Fall	MA113 MA127	PHY
PHY202	Physics Laboratory III	2	2	2Spring	PHY105	PHY
PHY425	Modern Techniques in Materials Characterization	3	1	4Fall	PHY206-15	PHY
Total		106	15			

Note:
Note 1: The above courses should be taken for a minimum of 17 credits; the elective courses of the Department of Mechanics and Aerospace Engineering should be taken for a minimum of 12 credits.
Note 2: "Computational Fluid Mechanics MAE403" and "Computational Solid Mechanics MAE310" and "Finite Element Method in Structural Analysis MAE325" at least one of them.
Note 3:
Aircraft design direction: Aircraft Flight Dynamics MAE312, Mechanism of Flight Vehicle MAE320, Aerodynamic analysis and design of aircraft MAE419, at least one elective.
Aircraft dynamics direction: Principles of Turbomachinery MAE311, Aero Engine Structure and Strength MAE313 at least one elective.
Note 4: "Theory of Vibration MAE318" can be replaced by "Dynamics and Vibration ME301".

Table 3: Overview of Practice-based Learning

Program of Aerospace Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
ME102	CAD and Engineering Drawing	3	1.5	1Spring	None	ME
MAE315	Aero-Thermal Fluid Lab	2	2	3Fal	MAE207 Or MAE303	MAE
MAE316	Experiments in Aircraft Structural Mechanics	2	2	3Spring	MAE202	MAE
MAE417	Aircraft Design Group Practice	3	2	4Fal	MAE405 MAE307 MAE407	MAE
MAE499	Research and Innovation Projects	2	2	4Fal	None	MAE
ME103	Awareness Practice of Manufacturing Engineering	3	2	1-4Fal	None	ME
MAE477	Cognitive Internship	2	2	2Summer	None	MAE
MAE478	Practical Internship (Research and Production)	2	2	3Summer	None	MAE
MAE488	Degree Thesis(or Design)	12	12	4Spring	None	MAE
Total		31	27.5			

Curriculum Structure of Aerospace Engineering

Time	Freshman	Sophomore	Junior	Senior
Fall	Calculus I	Foundations of Engineering Mathematics	Aerodynamics	Aircraft Design Group Practice
	Linear Algebra	Theoretical Mechanics I-B	Aircraft Structural Strength	Major Elective Courses
	College Physics I	Engineering Thermodynamics	Aero-Thermal Fluid Lab	
	Chemistry：the Central Science	Engineering Fluid Mechanics	Fundamentals of Combustion	
	Introduction to Computer Programming			
Spring	Calculus II	Mechanics of Materials	Experiments in Aircraft Structural Mechanics	Research and Innovation Project
	College Physics II	Mechanical Design	Jet and Propulsion	Degree Thesis (or Design)
	Experiments of Fundamental Physics	Awareness Practice of Manufacturing Engineering	Major Elective Courses	
	Introduction to Life Science	Fundamentals of Electric Circuits		
	CAD and Engineering Drawing			
Summer		Cognitive Internship	Practical Internship (Research and Production)	

Department of Mechanical and Energy Engineering

Program of Mechanical Engineering

for International Students (2026)

I. Introduction

This academic program is designed to provide broad disciplinary subject training for the development of mechanical engineering. Department of Mechanical and Energy Engineering (MEE) of Southern University of Science and Technology (SUSTech) aims at becoming a world-leading center for engineering education and research. At the advanced stage of this program, three major directions are coherently blended into this program to open specialization options for students: (1) Advanced manufacturing and innovative design; (2) Equipment automation, robotics and artificial intelligence; and (3) Renewable energy engineering. More specifically, our research focuses include advanced and intelligent manufacturing methods, such as advanced forming, additive manufacturing, precision machining, multi-scale robotic mechanisms, control and automation, soft materials, and different battery engineering solutions. We cater for educating two streams of engineering talents: (1) the academic stream of talents who have strong theoretical foundation in research, interdisciplinary perspective and experience, and good humanistic understanding；(2) the engineering innovation stream talents with sharp insight into engineering problems，and strong leadership for solving them.

Academic subject areas: Mechanical Engineering

Program code: 080201

II. Objectives and Learning Outcomes

1. Objectives

The program integrates theoretical and technological education within mechanical engineering domain, and provides students with a set of solid scientific, and practically innovative courses as well as hands-on training in the field. The program aims to develop students into future leaders in the discipline with: (1) balanced training in broad fundamentals of mechanical engineering as well as yet selectively-specialized knowledge of interdisciplinary engineering; (2) outstanding ability in engineering practice, independent thinking, integrated application of engineering knowledge; and (3) innovation capability, humanistic understanding, and a global

vision.

2. Learning Outcomes

Master basic science theories, including mathematics, physics, mechanics, materials, electronics and computer science, management science, etc.

Understand and be able to apply well-established knowledge of mechanical engineering, including theories, the frontier technologies and development of the industry, scientific research methods, engineering design and manufacturing methods. Students should also appreciate the latest inter-disciplinary development of other related fields.

Be able to apply innovative thinking to understand, define, model, analyze and solve problems independently.

Develop an international vision and skills of cross-cultural communication and collaboration.

Acquire effective communication and leadership skills in multi-disciplinary teams.

Develop rigorous and realistic attitude towards science and research, effective engagement in pursuing excellence and commitment to serve humanity.

Have humanistic and social science literacy, and exercise social responsibility and professional engineering ethics.

Develop the ability of independent learning and the awareness of lifelong learning.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Engineering.

3. The minimum credit requirement for graduation: 157 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	28
		Major Core Courses	23
		Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	12
	Major Elective Courses	Major Elective Courses	15
Total			157
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA101a/ MA117	Mathematical Analysis I /Calculus I	5/4	1 Fall	None	MATH
	MA102a/ MA127	Mathematical Analysis II /Calculus II	5/4	1 Spring	Mathematical Analysis I /Calculus I	MATH
	MA113	Linear Algebra	4	1 Spring & Fall	None	MATH
Physics	PHY101/ PHY105	General Physics I / College Physics I	5/4	1 Fall	None	PHY
	PHY102/ PHY106	General Physics II / College Physics II	5/4	1 Spring	General Physics I / College Physics I	PHY
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	PHY
Chemistry	CH103/ CH105	General Chemistry / Chemistry: The Central Science	4/3	1-2 Spring & Fall	None	CHEM
Geoscience + Life science	BIO103/ BIO102B/ EOE111	Principles of Biology / Introduction to Life Science/ College Earth Sciences	3	1-2 Spring & Fall	None	BIO/ ESS, OCE,ESE
Computer Programming	CS109/ CS110/ CS111/ CS112/ CS113	Introduction to Computer Programming/Introduction to Java Programming/Introduction to C programming/Introduction to Python Programming /Introduction to Matlab Programming	3	1-2 Spring & Fall	None	CSE
Note: "/" means equivalent courses to be selected by students.						

V. Prerequisites for Major Declaration

<table>
<tr><th>Major Declaration Time</th><th>Course Code</th><th>Course Name</th><th>Prerequisite</th></tr>
<tr><td rowspan="5">Declare major at the end of the first academic year</td><td>MA101a/MA117</td><td>Mathematical Analysis I /Calculus I</td><td>None</td></tr>
<tr><td>MA102a/MA127</td><td>Mathematical Analysis II /Calculus II</td><td>Mathematical Analysis I /Calculus I</td></tr>
<tr><td>PHY101/PHY105</td><td>General Physics I /College Physics I</td><td>None</td></tr>
<tr><td>PHY102/PHY106</td><td>General Physics II /College Physics II</td><td>General Physics I / College Physics I</td></tr>
<tr><td colspan="3">Note:
The above courses are required to be completed. In addition, at least one of the following Course Category should be passed:
1. Mathematics: MA113 Linear Algebra.
2. Physics: PHY104B Experiments of Fundamental Physics.
3. Chemistry: CH103 General Chemistry / CH105 Chemistry: The Central Science.
4. Geoscience + Life science: BIO103 Principles of Biology /BIO102B Introduction to Life Science/EOE111College Earth Sciences.
5. Computer Programming: CS109 Introduction to Computer Programming /CS110Introduction to Java Programming/CS111Introduction to C programming /CS112Introduction to Python Programming / CS113Introduction to Matlab Programming. （ “/”means equivalent courses to be selected by students. ）</td></tr>
<tr><td rowspan="3">Declare major at the end of the second academic year</td><td>MA101a/MA117</td><td>Mathematical Analysis I /Calculus I</td><td>None</td></tr>
<tr><td>MA102a/MA127</td><td>Mathematical Analysis II /Calculus II</td><td>Mathematical Analysis I /Calculus I</td></tr>
<tr><td>PHY101/PHY105</td><td>General Physics I /College Physics I</td><td>None</td></tr>
</table>

	PHY102/PHY106	General Physics II /College Physics II	General Physics I / College Physics I
	MA113	Linear Algebra	None
	Note: The above courses are required to be completed. In addition, at least one of the following Course Category should be passed: 1. Physics: PHY104B Experiments of Fundamental Physics. 2. Chemistry: CH103 General Chemistry / CH105 Chemistry: The Central Science. 3. Geoscience + Life science: BIO103 Principles of Biology /BIO102B Introduction to Life Science/EOE111College Earth Sciences. 4. Computer Programming: CS109 Introduction to Computer Programming /CS110Introduction to Java Programming/CS111Introduction to C programming /CS112Introduction to Python Programming / CS113Introduction to Matlab Programming.（"/"means equivalent courses to be selected by students.）		

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Mechanical Engineering

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	ME102	CAD and Engineering Drawing	3	1.5	2 Spring &Fall		MEE
	ME103	Awareness Practice of Manufacturing Engineering	3	2	1-2 Spring &Fall		MEE
	MAE203B	Engineering Mechanics I – Statics and Dynamics	3		2/Fall	MA113	MAE
	ME212	Mechanics of Materials M	3		2/Fall	MA127	MEE
	MA201b	Ordinary Differential Equations B	4	1	2/Fall	MA127	MATH
	ME271	Fundamentals of Thermodynamics and Heat Transfer	4		2/Fall	MA127	MEE
	EE104	Fundamentals of Electric Circuits	2		2/Spring	MA117, MA113	EE
	ME261	Engineering Materials - Science, Processing and Design	3		2/Spring	PHY106, CH103/ CH105	MEE
	MAE207	Engineering Fluid Mechanics	3		2/Spring	MA127	MAE
	Total		28	4.5			

Major Core Courses	ME213	Principles of Machinery	3		2/Spring&Fall		MEE
	ME311	Mechanical Design	3		3/Fall		MEE
	ME316	Machinery and Mechanical Design Labs	2	2	3 Spring &Fall		MEE
	ME302	Fundamentals of Manufacturing	3		3/Fall	ME103	MEE
	ME307	Fundamentals of Control Engineering	3	0.5	3/Spring	EE104	MEE
	ME301	Dynamics and Vibration	3	1	3/Spring	MAE203B, MA201b	MEE
	ME357	Intelligent Manufacturing System Technology	3		3/Spring		MEE
	ME405	Innovative Design Theory and Practice	3	1	4/Fall		MEE
	Total		23	4.5			
Practice-based Courses	ME498	Senior Project	12	12	4/Spring		MEE
	Total		12	12			
Total			63	21			

Table 2: Major Elective Courses

Program of Mechanical Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
MA212	Probability and Statistics	3		2/Fall	MA127	MATH
ME211	Advanced Graphics and Computer Aided Design	2	1	2/ Spring	ME102	MEE
ME112	Introduction to Matlab	2	1	2/Spring		MEE
PHY203-15	Mathematical Methods in Physics	4		2/Spring	PHY106, MA127, MA113	PHY
ME273	Introduction to Energy Science	3		2/Spring	PHY106, CH105/ CH103，ME271	MEE
ME315	Mechanisms and Applications	3		3/Spring	MA127, MA113	MEE
ME331	Robot Modeling and Control	3		3/Fall	MAE203B	MEE
ME332	Robot Operating System	3	1	3/Fall	CS109/ CS110/ CS111/ CS112/ CS113	MEE
ME354	Manufacturing Process Simulation and Data Analysis	2	1	3/Fall	ME103	MEE
ME364	3D Printing of Functional Soft Materials: Fundamentals, Engineering and Applications	3		3/Fall	PHY105B/MA127	MEE
SDM274	Artificial Intelligence and Machine Learning	3		3/Fall	MA127, MA113	AiM
ME310	Fundamentals of Measurement Technology	3		3/Spring	ME307	MEE
ME313	Product Design Practice	3	1	3/Spring	ME213/ ME311/ ME316/ ME331	MEE

ME314	Finite Element Theory and Its Engineering Applications	3		3/Spring	MA113	MEE
ME323	Fundamentals of Sensing Technology	3	0.5	3/Spring	EE104, EE205	MEE
ME333	Mechatronic Systems	3	1	3/Spring	ME331	MEE
ME361	Fundamentals of Additive Manufacturing of Metals	3		3/Spring	ME261	MEE
ME402	Theory and Practice of Project Management	3		3/Spring		MEE
ME340	Physics of Machine Learning	3		3/Spring	PHY105B	MEE
ME378	Characterization Technique of Energy Materials	3		3/Spring	ME273	MEE
ME322	Robotic Actuation System	3	1	4/Fall	MA127, ME307	MEE
ME462	Additive Manufacturing and Design	3		4/Fall		MEE
ME338	Machine Learning for Engineering	3		4/Spring	CS109/ CS110/ CS111/ CS112/ CS113, MA107/ MA113, MA212	MEE
ME491	Practice	3	3	1-3 Spring &Fall&Summer, 4 Spring &Fall		MEE
Total		70	10.5			

Note:
1. The minimum requirement for graduation in this module is 15 credits.
2. Major elective courses selected by a student during any specific semester may be changed according to the loading situation.
3. The number and contents of major elective courses offered by the department may be adjusted according to the development of curriculum construction.

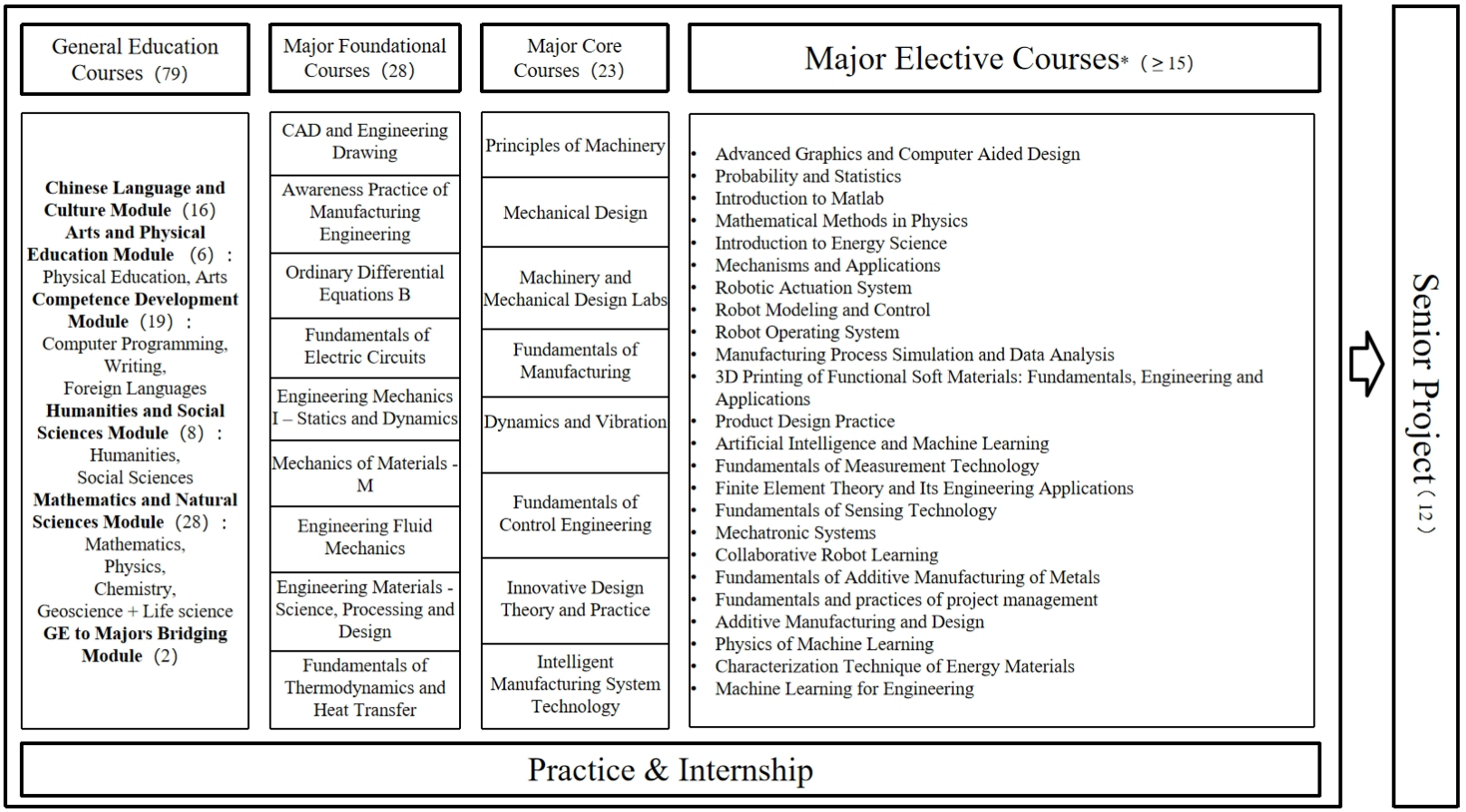
Table 3: Overview of Practice-based Learning

Program of Mechanical Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
CS109	Introduction to Computer Programming	3	1	1-2 Spr. &Fall	NA	CSE
CS110	Introduction to Java Programming	3	1	1-2 Spr. &Fall	NA	CSE
CS111	Introduction to C Programming	3	1	1-2 Spr. &Fall	NA	CSE
CS112	Introduction to Python Programming	3	1	1-2 Spr. &Fall	NA	CSE
CS113	Introduction to Matlab Programming	3	1	1-2 Spr. &Fall	NA	CSE
PHY104B	Experiments of Fundamental Physics	2	2	1-2 Spr. &Fall	NA	PHY
ME102	CAD and Engineering Drawing	3	1.5	2 Spring &Fall		MEE
ME103	Awareness Practice of Manufacturing Engineering	3	2	1-2 Spring &Fall		MEE
MA201b	Ordinary Differential Equations B	4	1	2/Fall	MA127	MATH
ME316	Machinery and Mechanical Design Labs	2	2	3 Spring &Fall		MEE
ME307	Fundamentals of Control Engineering	3	0.5	3/Spring	EE104	MEE
ME301	Dynamics and Vibration	3	1	3/Spring	MAE203B, MA201b	MEE

ME405	Innovative Design Theory and Practice	3	1	4/Fall		MEE
ME211	Advanced Graphics and Computer Aided Design	2	1	2/Spring	ME102	MEE
ME112	Introduction to Matlab	2	1	2/Spring		MEE
ME332	Robot Operating System	3	1	3/Fall	CS109/ CS110/ CS111/ CS112/ CS113	MEE
ME354	Manufacturing Process Simulation and Data Analysis	2	1	3/Fall	ME103	MEE
ME313	Product Design Practice	3	1	3/Spring	ME213/ ME311/ ME316/ ME331	MEE
ME323	Fundamentals of Sensing Technology	3	0.5	3/Spring	EE104, EE205	MEE
ME333	Mechatronic Systems	3	1	3/Spring	ME331	MEE
ME322	Robotic Actuation System	3	1	4/Fall	MA127, ME307	MEE
ME491	Practice	3	3	1-3 Spring &Fall&Summer, 4 Spring &Fall		MEE
ME498	Senior Project	12	12	4/Spring		MEE
Total		74	38.5			

Curriculum Structure of Mechanical Engineering



Note*: Here only list some of the major elective courses. The full list is detailed in the program of Mechanical Engineering for International Students.

Department of Mechanical and Energy Engineering

Program of Robotics Engineering

for International Students (2026)

I. Introduction

Robotics Engineering is an interdisciplinary program that integrates the learning of mechanical, electronic, and computer technologies. The aim of the program is to cultivate leading talents with solid scientific foundation, excellent innovative practical ability and broad international vision, who are good at comprehensive application of theories and methods of robotics and related disciplines, and who can solve engineering problems with the latest scientific development for the future. In terms of research, its directions cover industrial robots, bionic robots, medical robots, field robots, robot software, microrobots and emerging frontier areas of science and technology such as artificial intelligence, autonomous system, supporting the national economic development plan and Shenzhen's local informatization, intellectualization and manufacturing comprehensive upgrade.

Academic subject areas: Automation

Program code: 080803T

II. Objectives and Learning Outcomes

1. Objectives

This program bases its objectives on the future development of robotics engineering and serves the human resource demand of the field in the background of the national mid and long term development planning. The program is committed to fostering students with a solid scientific foundation, excellent innovation capacity, broad international vision, integrated use of robotics theories and related disciplines, and skills of solving the engineering problems for the future with the latest science development.

2. Learning Outcomes

Solid and broad basic theoretical knowledge (including mathematics, physics, machinery, automation, electronics, computer, etc.), as well as subject knowledge in robot engineering.

Master the robotics theories, research and engineering design methods of robot engineering,

and have a good knowledge of engineering technology and frontier development of the industry. Robotics Engineering is a multidisciplinary and interdisciplinary program and foster its students to become leading cross-disciplinary talents for the future.

Develop students with rigorous and practical attitude toward science and research, engagement in pursuing excellence, a strong sense of social responsibility and mission, and good communication skills.

Develop students with innovative thinking and the ability to independently identify, understand and solve problems in the real world with the application of robotics via the learning of the program.

Develop the international outlook and skills of communication and collaboration with international professionals of the related industry.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Engineering.

3. The minimum credit requirement for graduation: 152 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	26
		Major Core Courses	20
		Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	12
	Major Elective Courses	Major Elective Courses	15
Total			152
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA101a/ MA117	Mathematical Analysis I /Calculus I	5/4	1 Fall	None	MATH
	MA102a/ MA127	Mathematical Analysis II /Calculus II	5/4	1 Spring	Mathematica l Analysis I /Calculus I	MATH
	MA107/ MA113	Advanced Linear Algebra I / Linear Algebra	4	1 Spring & Fall	None	MATH
Physics	PHY101/ PHY105	General Physics I / College Physics I	5/4	1 Fall	None	PHY
	PHY102/ PHY106	General Physics II / College Physics II	5/4	1 Spring	General Physics I / College Physics I	PHY
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	PHY
Chemistry	CH103/ CH105	General Chemistry / Chemistry: The Central Science	4/3	1-2 Spring & Fall	None	CHEM
Geoscience + Life science	BIO103/ BIO102B/ EOE111	Principles of Biology / Introduction to Life Science/ College Earth Sciences	3	1-2 Spring & Fall	None	BIO, ESS, OCE,ESE
Computer Programming	CS109/ CS110/ CS111/ CS112/ CS113	Introduction to Computer Programming/Introduction to Java Programming/Introduction to C programming/Introduction to Python Programming /Introduction to Matlab Programming	3	1-2 Spring & Fall	None	CSE
Note: "/"means equivalent courses to be selected by students.						

V. Prerequisites for Major Declaration

<table>
<tr><th>Major Declaration Time</th><th>Course Code</th><th>Course Name</th><th>Prerequisite</th></tr>
<tr><td rowspan="5">Declare major at the end of the first academic year</td><td>MA101a/MA117</td><td>Mathematical Analysis I /Calculus I</td><td>None</td></tr>
<tr><td>MA102a/MA127</td><td>Mathematical Analysis II /Calculus II</td><td>Mathematical Analysis I /Calculus I</td></tr>
<tr><td>PHY101/PHY105</td><td>General Physics I /College Physics I</td><td>None</td></tr>
<tr><td>PHY102/PHY106</td><td>General Physics II /College Physics II</td><td>General Physics I / College Physics I</td></tr>
<tr><td colspan="3">Note:
The above courses are required to be completed. In addition, at least one of the following Course Category should be passed:
1. Mathematics: MA107 Advanced Linear Algebra I / MA113 Linear Algebra.
2. Physics: PHY104B Experiments of Fundamental Physics.
3. Chemistry: CH103 General Chemistry / CH105 Chemistry: The Central Science.
4. Geoscience + Life science: BIO103 Principles of Biology / BIO102B Introduction to Life Science/ EOE111 College Earth Sciences.
5. Computer Programming: CS109 Introduction to Computer Programming/ CS110 Introduction to Java Programming/CS111 Introduction to C programming /CS112 Introduction to Python Programming /CS113 Introduction to Matlab Programming.（“/”means equivalent courses to be selected by students.）</td></tr>
<tr><td rowspan="5">Declare major at the end of the second academic year</td><td>MA101a/MA117</td><td>Mathematical Analysis I /Calculus I</td><td>None</td></tr>
<tr><td>MA102a/MA127</td><td>Mathematical Analysis II /Calculus II</td><td>Mathematical Analysis I /Calculus I</td></tr>
<tr><td>PHY101/PHY105</td><td>General Physics I /College Physics I</td><td>None</td></tr>
<tr><td>PHY102/PHY106</td><td>General Physics II /College Physics II</td><td>General Physics I / College Physics I</td></tr>
<tr><td>MA107/MA113</td><td>Advanced Linear Algebra I / Linear Algebra</td><td>None</td></tr>
<tr><td colspan="3">Note:
The above courses are required to be completed. In addition, at least one of the following Course Category should be passed: CS109 Introduction to Computer Programming/ CS110 Introduction to Java Programming/CS111 Introduction to C programming /CS112 Introduction to Python Programming /CS113 Introduction to Matlab Programming.（“/”means equivalent courses to be selected by students.）</td></tr>
<tr><td colspan="4">Note:
1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students’ suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students’ suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).</td></tr>
</table>

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Robotics Engineering

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	ME103	Awareness Practice of Manufacturing Engineering	3	2	1-2 Spring &Fall		MEE
	ME102	CAD and Engineering Drawing	3	1.5	2 Spring &Fall		MEE
	EE104	Fundamentals of Electric Circuits	2		2 Spring &Fall	MA117, MA113	EE
	MAE203B	Engineering Mechanics I – Statics and Dynamics	3		2/Fall	MA113	MAE
	MA212	Probability and Statistics	3		2 Spring &Fall	MA127	MATH
	ME212	Mechanics of Materials M	3		2/Fall	MA127	MEE
	ME307	Fundamentals of Control Engineering	3	0.5	2/Spring	EE104	MEE
	ME213	Principles of Machinery	3		2/Spring		MEE
	EE205	Signals and Systems	3	1	3/Spring	MA117	EE
	Total		26	5			

Major Core Courses	ME311	Mechanical Design	3		2/Spring &Fall		MEE
	ME316	Machinery and Mechanical Design Labs	2	2	3/Spring &Fall		MEE
	ME331	Robot Modeling and Control	3		3/Fall	MAE203B	MEE
	ME322	Robotic Actuation System	3	1	3/Fall	MA127, ME307	MEE
	ME323	Fundamentals of Sensing Technology	3	0.5	3/Spring	EE104, EE205	MEE
	ME333	Mechatronic Systems	3	1	3/Spring	ME331	MEE
	ME338	Machine Learning for Engineering	3		3/Spring	CS109/ CS110/ CS111/ CS112/ CS113, MA107/ MA113, MA212	MEE
	Total		20	4.5			
Practice-based Courses	ME498	Senior Project	12	12	4/Spring		MEE
	Total		12	12			
Total			58	21.5			

Table 2: Major Elective Courses

Program of Robotics Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
ME332	Robot Operating System	3	1	2/Fall	CS109/ CS110/ CS111/ CS112/ CS113	MEE
MA201b	Ordinary Differential Equations B	4	1	2/Fall	MA127	MATH
ME211	Advanced Graphics and Computer Aided Design	2	1	2/ Spring	ME102	MEE
CS219	Advanced Programming	3	1	2/Spring	CS109	CSE
EE202-17	Digital Circuits	3		2 Spring &Fall	PHY106	EE
EE202-17L	Digital Circuits Laboratory	1	1	2 Spring &Fall	EE202-17	EE
ME315	Mechanisms and Applications	3		3/Spring	MA127, MA113	MEE
ME354	Manufacturing Process Simulation and Data Analysis	2	1	3/Fall	ME103	MEE
ME374	Science and Ethics	2		3/Fall		MEE
ME364	3D Printing of Functional Soft Materials: Fundamentals, Engineering and Applications	3		3/Fall	PHY105B/ MA127	MEE
CS308	Computer Vision	3	1	3/Fall		CSE
EE211	Robotic Perception and Intelligence	3	1	3/Fall		EE
SDM252	Introduction to C/C++ Programming	3	1	3/Fall		AIM

EE201-17	Analog Circuits	3		3/Spring &Fall	PHY106, EE104	EE
EE201-17L	Analog Circuit System Design	1	1	3/Spring &Fall	EE201-17	EE
MAE209	Foundations of Engineering Mathematics	4		3/Fall	PHY106, MA127, MA113	MAE
MSE207	Engineering Mathematical Physics	3		3/Fall	MA127, MA113	MSE
ESS205	Computational Methods	3		3/Spring		ESS
ME301	Dynamics and Vibration	3	1	3/Spring	MAE203B, MA201b	MEE
ME302	Fundamentals of Manufacturing	3		3/Spring	ME103	MEE
ME313	Product Design Practice	3	1	3/Spring	ME213/ ME311/ ME316/ ME331	MEE
ME314	Finite Element Theory and Its Engineering Applications	3		3/Spring	MA113	MEE
ME357	Intelligent Manufacturing System Technology	3		3/Spring		MEE
ME361	Fundamentals of Additive Manufacturing of Metals	3		3/Spring	ME261	MEE
ME402	Theory and Practice of Project Management	3		3/Spring		MEE
ME340	Physics of Machine Learning	3		3/Spring	PHY106	MEE
CS203	Data Structures and Algorithm Analysis	3	1	3/Spring	CS109	CSE
CS401	Intelligent Robotics	3	1	3/Spring	MA212, CS102B, CS203	CSE

SDM278	Reinforcement Learning for Humanoids	3	1	3/Spring	CS109/CS110/CS111/CS112/CS113, MA127, MA212	AIM
SDM271	System Modelling and Simulation	3	1	3/Spring	EE205, PHY106, EE104	AIM
SDM359	Advanced Machine Learning	3		3/Spring	MA113	AIM
ME405	Innovative Design Theory and Practice	3	1	4/Fall		MEE
ME462	Additive Manufacturing and Design	3		4/Fall		MEE
SDM357	Computer Networking and its Industrial Application	3	0.5	4/Fall		AIM
SDM364	Multi-variable Control and Applications	3		4/Fall	EE207/SDM234, EE205, SDM263 or EE371	AIM
SDM371	Big Data	3	1	4/Fall	MA113	AIM
CS303	Artificial Intelligence	3	1	4/Fall	CS109, MA212, CS203	CSE
CS305	Computer Networks	3	1	4/Fall	CS109	CSE
SDM366	Optimal Control and Estimation	3		4/Spring	SDM263/EE371	AIM
ME491	Practice	3	3	1-3 Spring & Fall&Summer, 4 Spring &Fall		MEE
Total		115	23.5			

Note：
1. The minimum requirement for graduation in this module is 15 credits.
2. Major elective courses selected by a student during any specific semester may be changed according to the loading situation.
3. The number and contents of major elective courses offered by the department may be adjusted according to the development of curriculum construction.

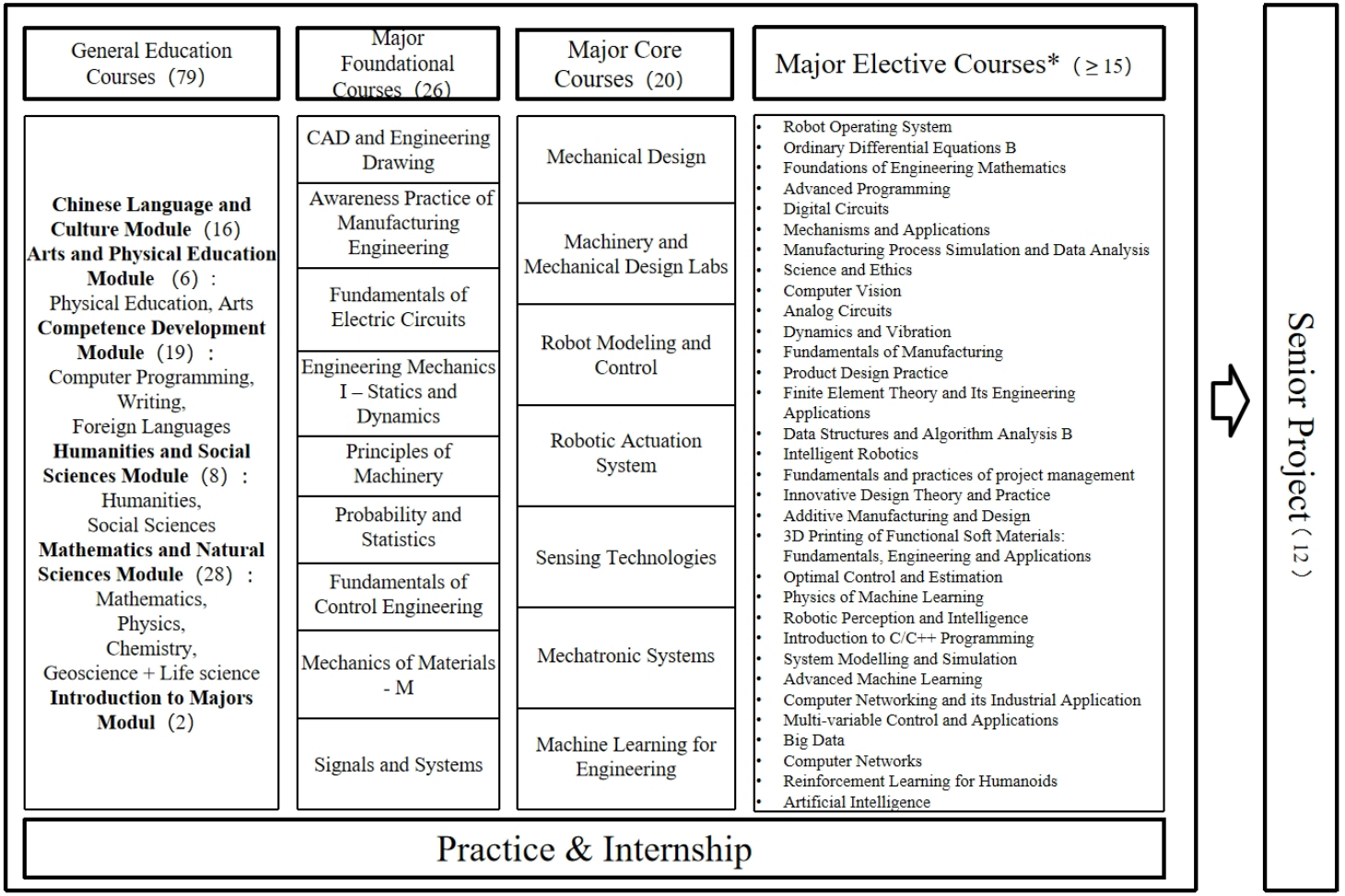
Table 3: Overview of Practice-based Learning

Program of Robotics Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
CS109	Introduction to Computer Programming	3	1	1-2 Spr.&Fall	NA	CSE
CS110	Introduction to Java Programming	3	1	1-2 Spr.&Fall	NA	CSE
CS111	Introduction to C Programming	3	1	1-2 Spr.&Fall	NA	CSE
CS112	Introduction to Python Programming	3	1	1-2 Spr.&Fall	NA	CSE
CS113	Introduction to Matlab Programming	3	1	1-2 Spr.&Fall	NA	CSE
PHY104B	Experiments of Fundamental Physics	2	2	1-2 Spr.&Fall	NA	PHY
ME103	Awareness Practice of Manufacturing Engineering	3	2	1-2 Spring &Fall		MEE
ME102	CAD and Engineering Drawing	3	1.5	2 Spring &Fall		MEE
ME307	Fundamentals of Control Engineering	3	0.5	2/Spring	EE104	MEE
EE205	Signals and Systems	3	1	3/Spring	MA117	EE
ME316	Machinery and Mechanical Design Labs	2	2	3/Spring &Fall		MEE
ME322	Robotic Actuation System	3	1	3/Fall	MA127, ME307	MEE
ME323	Fundamentals of Sensing Technology	3	0.5	3/Spring	EE104, EE205	MEE
ME333	Mechatronic Systems	3	1	3/Spring	ME331	MEE
ME332	Robot Operating System	3	1	2/Fall	CS109/ CS110/ CS111/ CS112/ CS113	MEE
MA201b	Ordinary Differential Equations B	4	1	2/Fall	MA127	MATH
ME211	Advanced Graphics and Computer Aided Design	2	1	2/ Spring	ME102	MEE
CS219	Advanced Programming	3	1	2/Spring	CS109	CSE
EE202-17L	Digital Circuits Laboratory	1	1	2 Spring &Fall	EE202-17	EE

ME354	Manufacturing Process Simulation and Data Analysis	2	1	3/Fall	ME103	MEE
CS308	Computer Vision	3	1	3/Fall		CS
EE211	Robotic Perception and Intelligence	3	1	3/Fall		EE
SDM252	Introduction to C/C++ Programming	3	1	3/Fall		AIM
EE201-17L	Analog Circuit System Design	1	1	3/Spring &Fall	EE201-17	EE
ME301	Dynamics and Vibration	3	1	3/Spring	MAE203B, MA201b	MEE
ME313	Product Design Practice	3	1	3/Spring	ME213/ ME311/ ME316/ ME331	MEE
CS203	Data Structures and Algorithm Analysis	3	1	3/Spring	CS109	CSE
CS401	Intelligent Robotics	3	1	3/Spring	MA212, CS102B, CS203	CSE
SDM278	Reinforcement Learning for Humanoids	3	1	3/Spring	CS109/CS110/CS111/CS112/CS113, MA127, MA212	AIM
SDM271	System Modelling and Simulation	3	1	3/Spring	EE205, PHY106, EE104	AIM
ME405	Innovative Design Theory and Practice	3	1	4/Fall		MEE
SDM357	Computer Networking and its Industrial Application	3	0.5	4/Fall		AIM
SDM371	Big Data	3	1	4/Fall	MA113	AIM
CS303	Artificial Intelligence	3	1	4/Fall	CS109, MA212, CS203	CSE
CS305	Computer Networks	3	1	4/Fall	CS109	CSE
ME491	Practice	3	3	1-3 Spring &Fall&Summer, 4 Spring &Fall		MEE
ME498	Senior Project	12	12	4/Spring		MEE
Total		113	52			

Curriculum Structure of Robotics Engineering



Note*: Here only list some of the major elective courses. The full list is detailed in the program of Robotics Engineering for International Students.

Department of Mechanical and Energy Engineering

Program of Science and Engineering for Renewables for International Students (2026)

I. Introduction

Oriented to the future development of mechanical engineering, the Department of Mechanical and Energy Engineering (MEE) of Southern University of Science and Technology (SUSTech) aims at becoming a world-leading center for engineering education and research. The disciplines of the department include innovative design and advanced manufacturing, robotics, and automation, and new energy engineering with research focus on intelligent manufacturing, advanced forming and additive manufacturing, precision machining, robotics and automation, and energy engineering. There are three teaching and practice platforms in our department: advanced manufacturing, innovative design, and automation, robotics and artificial intelligence. We focus on educating two types of engineering talents: the academic talents who have solid science foundation in research, interdisciplinary perspective and experience, and good humanistic understanding, and insight into engineering problems, and the innovative talents with strong engineering leadership for solving important engineering problems.

The development and utilization of renewable energy is an important part of the national energy strategy and a key technology related to Chinese realization of the carbon peak in 2030 and carbon neutrality in 2060. In this context, the Ministry of Education has added a new major of science and engineering for renewable energy. This major involves the acquisition, storage, conversion, and utilization of renewable energy, such as solar energy, wind energy, geothermal energy and biomass energy. It is mainly oriented to the national energy development strategy and the new development trend of energy dynamics. It cultivates the basic knowledge of energy engineering, engineering thermodynamics, heat transfer and so on, and masters the principles of renewable energy conversion and utilization, photoelectric and photochemical conversion Professional knowledge in the field of new energy science in the direction of renewable energy heat utilization and thermal power generation principles and systems, energy storage science and technology, and senior applied talents who can carry out teaching, scientific research, technology development, engineering application, operation and management in the field of national new energy science and engineering.

Academic subject areas: Energy and Power

Program code: 080503T

II. Objectives and Learning Outcomes

1. Objectives

The major cultivates interdisciplinary compound senior professionals with renewable energy scientific knowledge and engineering technology. The students need to master the basic theoretical knowledge of renewable energy science and engineering discipline, as well as various specialized technologies related to the major of this major, and be competent for the related technology development, engineering design, operation management, science and technology education and teaching in the field of renewable energy science and engineering. Graduates can engage in research, teaching, design, development, management, and other work in renewable energy utilization, energy conservation and emission reduction, carbon neutralization and other related directions in energy and power, chemical industry, metallurgy, electronics, automobile, machinery and other departments. Senior professionals with common sense of social responsibility, world-class vision, innovative spirit, practical ability and competitiveness.

The qualities that graduates of this major should have:

Professional capability: in the field of renewable energy science and engineering, the graduates have the technical ability to engage in research and development in academia and industry.

Engineering concept: the graduates have creative thinking and critical thinking. The graduates should be able to find and solve engineering and non-engineering problems in work based on engineering principles, and use the thinking mode of professional analysis to synthesize the obtained information, make reasonable judgments and propose innovative solutions.

Attitude: the graduates should be proactive, keep learning and keep pace with the times. The graduates should be honest, responsible, optimistic and calm in the face of difficulties, and have a world-class vision and make positive contributions to their posts.

Leadership: the graduates should be good at communication, gradually cultivate leadership ability in team cooperation, and lead the team to achieve goals.

2. Learning Outcomes

Engineering knowledge: systematically master the basic technical theories necessary for this major, mainly including the basic theories and knowledge of thermodynamics, heat transfer, new energy acquisition and storage, energy conversion and utilization, energy management and other

directions; Master the basic principles and professional skills of the whole process of new energy acquisition, storage, utilization and management; Be able to use the basic theory and engineering knowledge learned to identify, formulate and solve complex engineering problems.

Experiment and data analysis: be able to design and complete new energy related experiments, analyze and interpret data, and draw reasonable and effective conclusions based on professional judgment of engineering knowledge.

Engineering solutions: be able to apply the engineering design concept to design solutions that meet specific needs, and consider several factors such as energy, environment, and economy in the design process.

Communication: have certain basic theoretical knowledge of humanities, social sciences, and natural sciences, and be able to effectively communicate with the audience.

Professional ethics and responsibility: be able to follow the engineering professional ethics and norms in engineering practice and perform professional duties; Have a good sense of social responsibility, be able to synthesize the information obtained and make reasonable and effective judgments.

Teamwork: be able to show leadership in team projects, create a collaborative and inclusive work environment, set goals, make plans, and achieve goals.

Independent learning: have a rigorous and realistic scientific attitude, the spirit of pursuing excellence, have good self-control and self-study ability, and the lifelong learning ability to constantly learn and adapt to new energy science and engineering.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Engineering.

3. The minimum credit requirement for graduation: 152 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	28
		Major Core Courses	18
		Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	12
	Major Elective Courses	Major Elective Courses	15
Total			152
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA101a/MA117	Mathematical Analysis I /Calculus I	5/4	1 Fall	None	MATH
	MA102a/MA127	Mathematical Analysis II /Calculus II	5/4	1 Spring	Mathematical Analysis I /Calculus I	MATH
	MA107/MA113	Advanced Linear Algebra I / Linear Algebra	4	1 Spring & Fall	None	MATH
Physics	PHY101/PHY105	General Physics I / College Physics I	5/4	1 Fall	None	PHY
	PHY102/PHY106	General Physics II / College Physics II	5/4	1 Spring	General Physics I / College Physics I	PHY
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	PHY
Chemistry	CH103/CH105	General Chemistry / Chemistry: The Central Science	4/3	1-2 Spring & Fall	None	CHEM
Geoscience + Life science	BIO103/BIO102B/EOE111	Principles of Biology / Introduction to Life Science/ College Earth Sciences	3	1-2 Spring & Fall	None	BIO, ESS, OCE,ESE
Computer Programming	CS109/ CS110/ CS111/ CS112/CS113	Introduction to Computer Programming/Introduction to Java Programming/Introduction to C programming/Introduction to Python Programming /Introduction to Matlab Programming	3	1-2 Spring & Fall	None	CSE
Note: "/"means equivalent courses to be selected by students.						

V. Prerequisites for Major Declaration

<table>
<tr><th>Major Declaration Time</th><th>Course Code</th><th>Course Name</th><th>Prerequisite</th></tr>
<tr><td rowspan="5">Declare major at the end of the first academic year</td><td>MA101a/MA117</td><td>Mathematical Analysis I /Calculus I</td><td>None</td></tr>
<tr><td>MA102a/MA127</td><td>Mathematical Analysis II /Calculus II</td><td>Mathematical Analysis I /Calculus I</td></tr>
<tr><td>PHY101/PHY105</td><td>General Physics I /College Physics I</td><td>None</td></tr>
<tr><td>PHY102/PHY106</td><td>General Physics II /College Physics II</td><td>General Physics I / College Physics I</td></tr>
<tr><td colspan="3">Note:
1. Mathematics: MA107 Advanced Linear Algebra I / MA113 Linear Algebra.
2. Physics: PHY104B Experiments of Fundamental Physics.
3. Chemistry: CH103 General Chemistry / CH105 Chemistry: The Central Science.
4. Geoscience + Life science: BIO103 Principles of Biology / BIO102B Introduction to Life Science/ EOE111 College Earth Sciences.
5. Computer Programming: CS109 Introduction to Computer Programming/ CS110 Introduction to Java Programming/CS111 Introduction to C programming /CS112 Introduction to Python Programming /CS113 Introduction to Matlab Programming.
（“/”means equivalent courses to be selected by students.）</td></tr>
<tr><td rowspan="2">Declare major at the end of the second academic year</td><td>MA101a/MA117</td><td>Mathematical Analysis I /Calculus I</td><td>None</td></tr>
<tr><td>MA102a/MA127</td><td>Mathematical Analysis II /Calculus II</td><td>Mathematical Analysis I /Calculus I</td></tr>
</table>

	PHY101/PHY105	General Physics I /College Physics I	None
	PHY102/PHY106	General Physics II /College Physics II	General Physics I / College Physics I
	MA107/MA113	Advanced Linear Algebra I / Linear Algebra	None
	Note: The above courses are required to be completed. In addition, at least one of the following Course Category should be passed: 1. Physics: PHY104B Experiments of Fundamental Physics. 2. Chemistry: CH103 General Chemistry / CH105 Chemistry: The Central Science. 3. Geoscience + Life science: BIO103 Principles of Biology / BIO102B Introduction to Life Science/ EOE111 College Earth Sciences. 4. Computer Programming: CS109 Introduction to Computer Programming/ CS110 Introduction to Java Programming/CS111 Introduction to C programming /CS112 Introduction to Python Programming /CS113 Introduction to Matlab Programming. （"/"means equivalent courses to be selected by students.）		

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Science and Engineering for Renewables

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	ME271	Fundamentals of Thermodynamics and Heat Transfer	4	0	2/Fall	MA127	MEE
	ME102	CAD and Engineering Drawing	3	1.5	2/Fall		MEE
	EE104	Fundamentals of Electric Circuits	2	0	2/Fall	MA101B, MA113	EE
	MAE207	Engineering Fluid Mechanics	3	0	2/Fall	MA127	MAE
	MSE202	Physical Chemistry	3	0	2/Spring	CH105/ CH103, MA127	MSE
	MSE204	Physical Chemistry Experiments	1	1	2/Spring	MSE202	MSE
	ME272	Semiconductor Physics for Energy Devices	3	0	2/Spring	PHY106	MEE
	ME261	Engineering Materials - Science, Processing and Design	3	0	2/Spring	PHY106, CH105/ CH103	MEE
	ME273	Introduction to Energy Science	3	0	2/Spring	PHY106, CH105/ CH103，ME271	MEE
	ME103	Awareness Practice of Manufacturing Engineering	3	2	2-3 Spring &Fall		MEE

	Total		28	4.5			
Major Core Courses	ME371	Principle of Solar to Electricity and Solar Photochemistry Conversion	3	0	3/Fall	ME272	MEE
	ME372	Principles of Electrochemistry	3	0	3/Fall	MSE202, MSE204	MEE
	ME373	Energy Materials Chemistry	3	0	3/Fall	ME273	MEE
	ME376	Fundamentals of Energy Catalysis	3	0	3/Spring	ME273	MEE
	ME377	Fundamentals of Energy Storage Science	3	0	3/Spring	ME273	MEE
	ME378	Characterization Technique of Energy Materials	3	0	3/Spring	ME273	MEE
	Total		18	0			
Practice-based Courses	ME498	Senior Project	12	12	4/Spring		MEE
	Total		12	12			
Total			58	16.5			

Table 2: Major Elective Courses

Program of Science and Engineering for Renewables

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Elective Courses of Professional Capability	ME381	Photovoltaic Power Generation Technology	3	0	3/Fall	ME273	MEE
	ME382	Artificial Light Synthesis Fuel Technology	3	0	3/Fall	ME273	MEE
	ME383	Grid Connection Technology of New Energy Power Generation	3	1	3/Fall	ME273	MEE
	ME385	Photoelectric Conversion Films and Devices	2	0	3/Spring	ME273	MEE
	ME384	Electrochemical Measurement	3	2	3/Spring	ME372	MEE
	ME387	Solid State Electrochemistry and All Solid State Battery	3	0	3/Spring	ME372	MEE
	ME386	Advanced Batteries for Electrical Vehicles	3	0	3/Spring	PHY106	MEE
	ME487	Hydrogen Energy	3	0	3-4/Fall		MEE
Elective Courses of Engineering Basic	ME212	Mechanics of Materials M	3	0	2/Fall	MA127	MEE
	ME374	Science and Ethics	2	0	3/Fall		MEE
	SDM274	Artificial Intelligence and Machine Learning	3	0	3/Fall	MA127, MA113	AiM

	ME364	3D Printing of Functional Soft Materials: Fundamentals, Engineering and Applications	3	0	3/Fall	PHY105B, MA127	MEE
	ME361	Fundamentals of Additive Manufacturing of Metals	3	0	3/Spring	ME261	MEE
	ME388	Energy System for Electric Vehicle	3	1	3/Spring	ME372	MEE
	ME485	Energy Policy	1	0	3/Spring	ME273	MEE
	ME486	Comprehensive Experiment for Energy Engineering	2	2	3/Spring		MEE
	ME402	Theory and Practice of Project Management	3	0	3/Spring		MEE
	ME462	Additive Manufacturing and Design	3	0	4/Fall		MEE
	ME471	Photoelectric conversion and measurement	3	2	4/Fall	ME371	MEE
	ME405	Innovative Design Theory and Practice	3	1	4/Fall		MEE
	ME491	Practice	3	3	1-3 Spring &Fall&Summer, 4 Spring &Fall		MEE
Total			58	12			

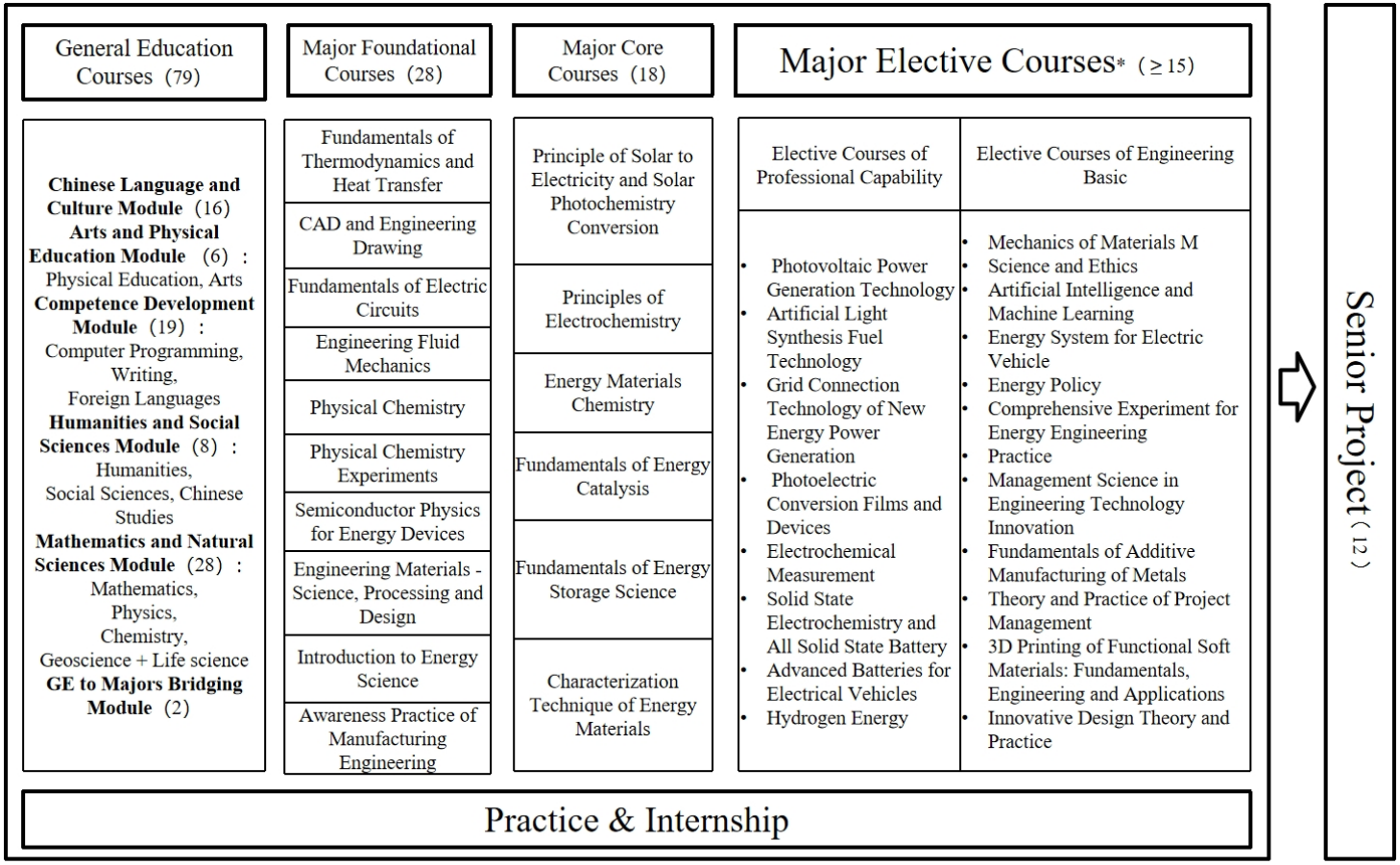
Note：
1. The minimum requirement for graduation in this module is 15 credits.
2. Major elective courses selected by a student during any specific semester may be changed according to the loading situation.
3. The number and contents of major elective courses offered by the department may be adjusted according to the development of curriculum construction.

Table 3: Overview of Practice-based Learning

Program of Science and Engineering for Renewables

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
CS109	Introduction to Computer Programming	3	1	1-2 Spr.&Fall	NA	CSE
CS110	Introduction to Java Programming	3	1	1-2 Spr.&Fall	NA	CSE
CS111	Introduction to C Programming	3	1	1-2 Spr.&Fall	NA	CSE
CS112	Introduction to Python Programming	3	1	1-2 Spr.&Fall	NA	CSE
CS113	Introduction to Matlab Programming	3	1	1-2 Spr.&Fall	NA	CSE
PHY104B	Experiments of Fundamental Physics	2	2	1-2 Spr.&Fall	NA	PHY
ME102	CAD and Engineering Drawing	3	1.5	2/Fall		MEE
MSE204	Physical Chemistry Experiments	1	1	2/Spring	MSE202	MSE
ME103	Awareness Practice of Manufacturing Engineering	3	2	2-3 Spring &Fall		MEE
ME383	Grid Connection Technology of New Energy Power Generation	3	1	3/Fall	ME273	MEE
ME384	Electrochemical Measurement	3	2	3/Spring	ME372	MEE
ME388	Energy System for Electric Vehicle	3	1	3/Spring	ME372	MEE
ME471	Photoelectric conversion and measurement	3	2	4/Fall	ME371	MEE
ME486	Comprehensive Experiment for Energy Engineering	2	2	3/Spring	ME273	MEE
ME405	Innovative Design Theory and Practice	3	1	4/Fall		MEE
ME491	Practice	3	3	1-3 Spring &Fall&Summer, 4 Spring &Fall		MEE
ME498	Senior Project	12	12	4/Spring		MEE
Total		56	35.5			

Curriculum Structure of Science and Engineering for Renewables



Note*: Here only list some of the major elective courses. The full list is detailed in the program of Science and Engineering for Renewables for International Students.

Department of Materials Science and Engineering

Program of Materials Science and Engineering for International Students (2026)

I. Introduction

The major of Materials Science and Engineering is a discipline, which systematically studies fundamental theories and experiment skills of materials science and engineering as well as applies these knowledge/abilities for materials' syntheses, preparation, structure characterization/ evaluation, and performance controlling in various broad fields based on the principles of materials science, chemistry, and physics. Materials Science and Engineering is an integrated discipline for application science closely related to engineering technology. Materials are the bases for human survival and development. In the 1970s, people viewed information, materials, and energy as the mainstay of social civilization. In the 1980s, with the rise of high technologies, materials science, information technology, and biotechnology were listed as important symbols of the new technology revolution. Nowadays, materials have become important parts of the national economy, national defense, and people's livelihood.

Academic subject areas: Materials

Program code: 080401

II. Objectives and Learning Outcomes

Materials Science and Engineering (MSE) will cultivate high-quality science and technology talents with firm theoretical knowledge of Materials Science and Engineering, abilities of mastering frontier materials' R&D and characterization techniques, and capabilities of utilizing English and computer technology very well for high-tech R&D in interdisciplinary fields. These trained students possess the capability not only for researching in their disciplines and related fields, designing and developing new materials, teaching and managing, but also for practice innovation, cooperation, and leadership. These graduates can not only engage in conventional material industrial production, new materials creation, and development of new processes and technologies, but also continue their postgraduate studies in Materials Science and Engineering and serve in the research, development, and management in top-ranked corporations, scientific research institutes, colleges, and government.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in engineering.

3. The minimum credit requirement for graduation: 161 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	33
		Major Core Courses	17
		Practice-based Learning (Undergraduate Thesis, Internships, Research projects, etc.)	16
	Major Elective Courses	Major Elective Courses	16
Total			161

Note:
please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1 Fall	None	MATH
	MA127	Calculus II	4	1 Spring	Calculus I	
	MA113	Linear Algebra	4	1 Spring & Fall	None	
Physics	PHY105	College Physics I	4	1 Fall	None	PHY
	PHY106	College Physics II	4	1 Spring	College Physics I	
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	
Chemistry	CH103/CH105	General Chemistry/Chemistry: the Central Science	4/3	1-2 Spring & Fall	None	CHEM
Geoscience + Life science	BIO103/BIO102B/EOE111	Principles of Biology/Introduction to Life Science/ College Earth Sciences	3	1-2 Spring & Fall	None	DBIO/ESS, OCE,ESE
Computer Programming	CS109/CS110/ CS111/CS112/ CS113	Introduction to Computer Programming / Introduction to Java Programming / Introduction to C Programming /Introduction to Python Programming /Introduction to Matlab Programming	3	1-2 Spring & Fall	None	CSE

V. Prerequisites for Major Declaration

<table>
<tr><th>Major Declaration Time</th><th>Course Code</th><th>Course Name</th><th>Prerequisite</th></tr>
<tr><td rowspan="9">Declare major at the end of the first academic year</td><td>MA117</td><td>Calculus I</td><td>None</td></tr>
<tr><td>MA127</td><td>Calculus II</td><td>Calculus I</td></tr>
<tr><td>MA113</td><td>Linear Algebra</td><td>None</td></tr>
<tr><td>PHY105</td><td>College Physics I</td><td>None</td></tr>
<tr><td>PHY106</td><td>College Physics II</td><td>College Physics I</td></tr>
<tr><td>PHY104B</td><td>Experiments of Fundamental Physics</td><td>None</td></tr>
<tr><td>CH103/CH105</td><td>General Chemistry/ Chemistry：the Central Science</td><td>None</td></tr>
<tr><td colspan="3">Notes: At least 5 of the above courses will be completed in the first year, and the results should be qualified. For Mathematics, students who have completed MA101a & MA102a are not required to take MA117 & MA127. For Physics, students who have completed PHY101 & PHY102 are not required to take PHY105 & PHY106.</td></tr>
<tr><td rowspan="10">Declare major at the end of the second academic year</td><td>MA117</td><td>Calculus I</td><td>None</td></tr>
<tr><td>MA127</td><td>Calculus II</td><td>Calculus I</td></tr>
<tr><td>MA113</td><td>Linear Algebra</td><td>None</td></tr>
<tr><td>PHY105</td><td>College Physics I</td><td>None</td></tr>
<tr><td>PHY106</td><td>College Physics II</td><td>College Physics I</td></tr>
<tr><td>PHY104B</td><td>Experiments of Fundamental Physics</td><td>None</td></tr>
<tr><td>CH103/CH105</td><td>General Chemistry/ Chemistry：the Central Science</td><td>None</td></tr>
<tr><td>BIO103/BIO102B/ EOE111</td><td>Principles of Biology/ Introduction to Life Science/College Earth Sciences</td><td>None</td></tr>
<tr><td>CS109/CS110/CS111/CS112/CS113</td><td>Introduction to Computer Programming/ Introduction to Java Programming/Introduction to C Programming/ Introduction to Python Programming/ Introduction to Matlab Programming</td><td>None</td></tr>
<tr><td colspan="3">Notes: All of the above courses should be completed in the second year, and the results should be qualified. For Mathematics, students who have completed MA101a & MA102a are not required to take MA117 & MA127. For Physics, students who have completed PHY101 & PHY102 are not required to take PHY105 & PHY106.</td></tr>
<tr><td colspan="4">Note:
If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).</td></tr>
</table>

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Materials Science and Engineering

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	ME102	CAD Engineering Drawing	3	1.5	1 Spring	None	MEE
	MSE001	Fundamentals of Materials Science and Engineering*	3		2 Fall	PHY106CH103/ CH105	MSE
	MSE002	Experiments for Fundamentals of Materials Science and Engineering*	1	1	2 Fall	PHY106CH103/ CH105	MSE
	MSE205	Fundamentals of Circuits and Electronics	3		2 Fall	MA127PHY106	MSE
	MSE203	Crystallography	2		2 Fall	None	MSE
	MSE213	Mechanics of Materials B	3		2 Spring	None	MSE
	MSE202	Physical Chemistry*	3		2 Spring	MA127CH103/ CH105	MSE
	MSE204	Physical Chemistry Experiments*	1	1	2 Spring	MA127CH103/ CH105	MSE
	MSE301	Materials Chemistry	3		3 Fall	MSE001MSE002	MSE
	MSE307	Comprehensive Experiments of Materials I	4	4	3 Fall	MSE001MSE002	MSE
	MSE328	Physics of Materials	3		3 Spring	MA127MSE001	MSE
	MSE304	Comprehensive Experiments of Materials II	4	4	3 Spring	MSE307	MSE
	Total		33	11.5			
	Note: *Please choose MSE001 and MSE002 at the same semester; Please choose MSE202 and MSE204 at the same semester.						

Major Core Courses	MSE306	Materials Characterization Techniques	3		2 Spring	MSE001	MSE
	MSE313	Polymer Materials	3		2 Spring	MSE001	MSE
	MSE319	Physical Metallurgy A	3		3 Fall	MSE001 MSE002	MSE
	MSE317	Ceramic Materials	3		3 Fall	MSE001	MSE
	MSE345	Experiments for Advanced Materials Science and Engineering I	1	1	3 Fall	MSE002	MSE
	MSE311	Thermodynamics of Materials	3		3 Spring	MSE001	MSE
	MSE346	Experiments for Advanced Materials Science and Engineering II	1	1	3 Spring	MSE345	MSE
	Total		17	2			
Practice-based Courses	MSE470-17	Industrial Practice	4	4	3 Summer	None	MSE
	MSE492	Thesis (Graduation Project) *	12	12	4 Spring	None	MSE
	Total		16	16			
	Note: *Students who have completed Comprehensive Design I&II（COE493 & COE494）are not required to take the MSE492 Thesis (Graduation Project).						
Total			66	29.5			

Table 2: Major Elective Courses

Program of Materials Science and Engineering

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Restricted Electives Courses	Materials Chemistry						
	MSE210	General Organic Chemistry*	3		2 Spring	CH103/CH105	MSE
	MSE212	Basic Experiments for Organic Chemistry*	1	1	2 Spring	CH103/CH105	MSE
	MSE332	Fundamentals of Electrochemisty	3		3 Fall	None	MSE
	MSE325	Functional Polymers	3		3 Fall	None	MSE
	MSE338	Biomaterials*	2		3 Spring	MSE001	MSE
	MSE340	Experiments for Biomaterials*	2	2	3 Spring	MSE002	MSE
	Total		14	3			
	Materials Physics						
	MSE344	Applied Quantum Mechanics	3		2 Spring	PHY106	MSE
	MSE335	Applied Solid State Physics	3		3 Fall	MSE344	MSE
	MSE310	Semiconducting Materials, Devices and Technology	3		3 Spring	MSE001	MSE
	MSE338	Biomaterials*	2		3 Spring	MSE001	MSE
	MSE340	Experiments for Biomaterials*	2	2	3 Spring	MSE002	MSE

	Total		13	2			
	Microstructural Science and Engineering of Materials						
	MSE339	Optical Materials and Devices	3		3 Spring	PHY106	MSE
	MSE358	Introduction to Applied Optics and Electromagnetics	3		3 Spring	PHY106	MSE
	MSE359	Fundamentals and Techniques of Microscopy	3		3 Spring	MSE001	MSE
	MSE360	Principles and Techniques of Imaging	3		3 Spring	MSE001	MSE
	MSE418	Microscopic Analysis of Materials	3		4 Fall	MSE306	MSE
	MSE416	Advanced Lectures on Frontiers in Materials Microscopy and Applications	1		4 Fall	None	MSE
	MSE404	Electronic Component Reliability and Failure Analysis	3		4 Spring	MSE306	MSE
	Total		18				
	Note: The Restricted Electives Courses are divided into 3 tracks： Materials Physics , Materials Chemistry and Microstructural Science and Engineering of Materials. Under the guidance of the research tutor, the students should choose at least 8 credits in one track. MSE210 & MSE212 , MSE338 & MSE340 are co-required courses, please take them in the same semester. Both courses co-required must be completed, and their credits can count as Restricted Electives Courses.						
Unrestricted Electives Courses	MSE103	Magic Materials	1	1	1 Fall	None	MSE
	MA212	Probability and Statistics	3		2 Fall	MA127	MATH
	MSE207	Engineering Mathematical Physics	3		2 Fall	MA127MA113	MSE
	MSE209	Heat and Mass Transfer	3		2 Spring	MA127PHY106	MSE

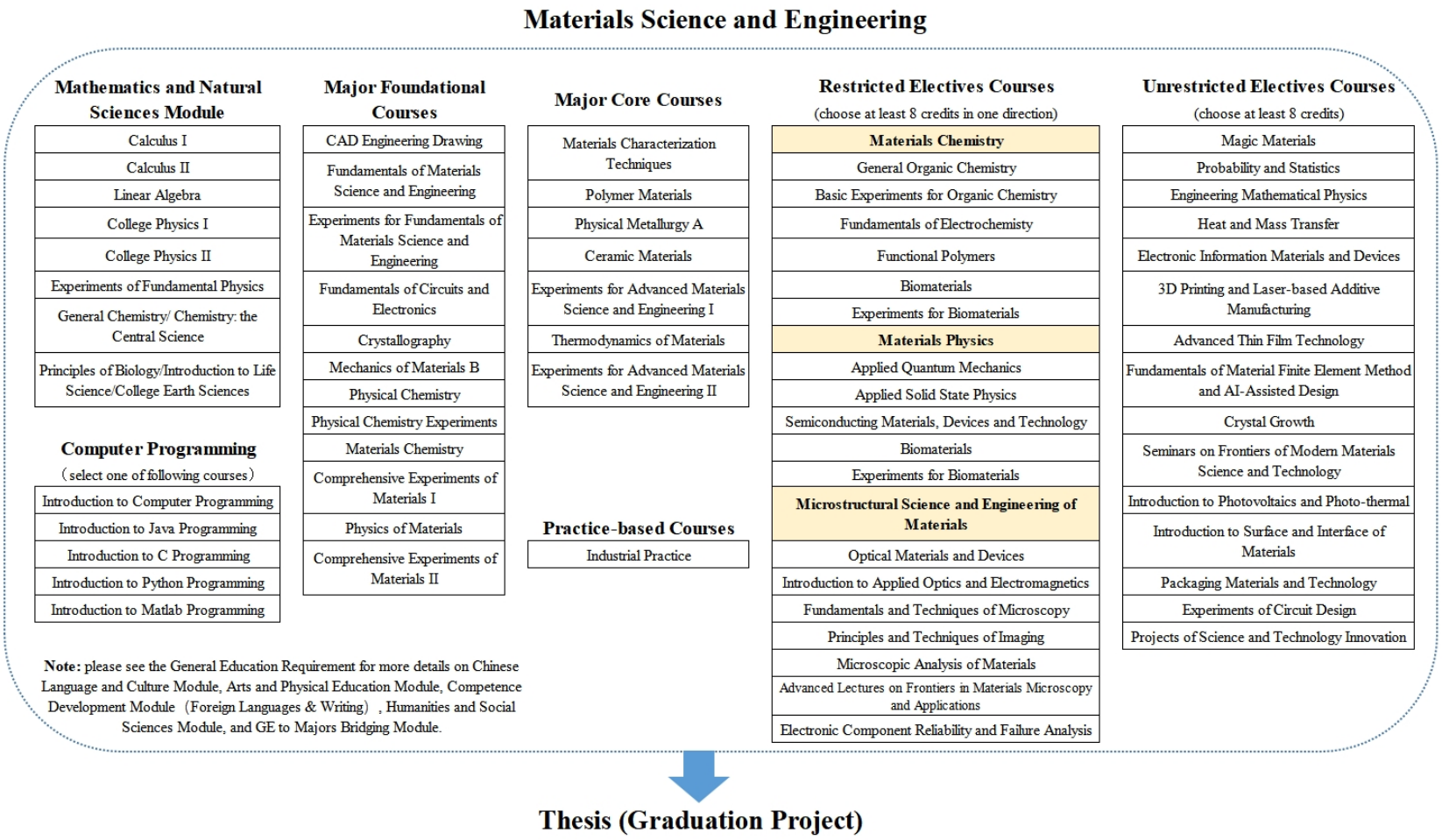
	MSE356	Electronic Information Materials and Devices	3		3 Fall	MSE001	MSE
	MSE413	3D Printing and Laser-based Additive Manufacturing	3		3 Fall	None	MSE
	MSE407	Advanced Thin Film Technology	3		3 Fall	None	MSE
	MSE406	Fundamentals of Material Finite Element Method and AI-Assisted Design	3		3 Fall	MA127 MA113	MSE
	MSE337	Crystal Growth	3		3 Spring	MSE001	MSE
	MSE347	Seminars on Frontiers of Modern Materials Science and Technology	3		3 Spring	None	MSE
	MSE320	Introduction to Photovoltaics and Photo-thermal	3		3 Spring	None	MSE
	MSE350	Introduction to Surface and Interface of Materials	3		3 Spring	CH103/CH105P HY102/PHY106	MSE
	MSE410	Packaging Materials and Technology	3		4 Fall	MSE001	MSE
	MSE412	Experiments of Circuit Design	2	2	4 Fall	MSE205	MSE
	MSE480	Projects of Science and Technology Innovation	2	2	3-4 Spring & Fall	None	MSE
	Total		39	5			
	Notes: At least 8 credits are required for Unrestricted Electives Courses.						

Table 3: Overview of Practice-based Learning

Program of Materials Science and Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
MSE103	Magic Materials	1	1	1 Fall	None	MSE
ME102	CAD Engineering Drawing	3	1.5	1 Spring	None	MEE
MSE002	Experiments for Fundamentals of Materials Science and Engineering	1	1	2 Fall	PHY106CH103/ CH105	MSE
MSE204	Physical Chemistry Experiments	1	1	2 Spring	MA127CH103/CH105	MSE
MSE212	Basic Experiments for Organic Chemistry	1	1	2 Spring	CH103/CH105	MSE
MSE307	Comprehensive Experiments of Materials I	4	4	3 Fall	MSE001MSE002	MSE
MSE345	Experiments for Advanced Materials Science and Engineering I	1	1	3 Fall	MSE002	MSE
MSE304	Comprehensive Experiments of Materials II	4	4	3 Spring	MSE307	MSE
MSE346	Experiments for Advanced Materials Science and Engineering II	1	1	3 Spring	MSE345	MSE
MSE340	Experiments for Biomaterials	2	2	3 Spring	MSE002	MSE
MSE412	Experiments of Circuit Design	2	2	4 Fall	MSE205	MSE
MSE480	Projects of Science and Technology Innovation	2	2	3-4 Spring & Fall	None	MSE
MSE470-17	Industrial Practice	4	4	3 Summer	None	MSE
MSE492	Thesis (Graduation Project)	12	12	4 Spring	None	MSE
Total		39	37.5			

Curriculum Structure of Materials Science and Engineering



Department of Materials Science and Engineering

Program of Electronic and Photonic Materials and Devices for International Students (2026)

I. Introduction

The major of Electronic and Photonic Materials and Devices is based on the principles of materials science and engineering, chemistry and physics, and integrates with electronics, photons, integrated circuits, information, and other disciplines. It focuses on various materials related to electronic science and engineering, information science and engineering, including semiconductor materials, photons and electromagnetic materials, functional and sensing materials, quantum information materials, and other core and key materials required for information processing and transmission. And materials' structure characterization/evaluation, performance test, process technology, manufacturing equipment, and device application. Cultivate new engineering talents with basic knowledge and application ability in the fields of materials and electronics, photonics, information, etc.

Academic subject areas: Materials

Program code: 080418T

II. Objectives and Learning Outcomes

The major of Electronic and Photonic Materials and Devices will cultivate high-quality science and technology talents with firm theoretical knowledge of Electronic and Photonic Materials and Devices, abilities of mastering frontier materials' R&D and characterization techniques, and capabilities of utilizing English and computer technology very well for high-tech R&D in interdisciplinary fields. These trained students possess the capability not only for research in the fields of materials and electronics, photonics, and information, for designing and developing new materials and devices, for teaching and managing, but also for practice innovation, cooperation, and leadership. These graduates can not only engage in conventional material industrial production, new materials creation, and development of new processes and technologies, but also continue their postgraduate studies in the fields of materials, electronics, photonics and information, and serve in the research, development and management in top-ranked corporations, scientific research institutes, colleges, and government.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in engineering.

3. The minimum credit requirement for graduation: 161 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	24
		Major Core Courses	20
		Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	16
	Major Elective Courses	Major Elective Courses	22
Total			161
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1 Fall	None	MATH
	MA127	Calculus II	4	1 Spring	Calculus I	
	MA113	Linear Algebra	4	1 Spring & Fall	None	
Physics	PHY105	College Physics I	4	1 Fall	None	PHY
	PHY106	College Physics II	4	1 Spring	College Physics I	
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	
Chemistry	CH103/CH105	General Chemistry/Chemistry : the Central Science	4/3	1-2 Spring & Fall	None	CHEM
Geoscience + Life Science	BIO103/BIO102B/EOE111	Principles of Biology/Introduction to Life Science/ College Earth Sciences	3	1-2 Spring & Fall	None	DBIO/ESS, OCE,ESE
Computer Programming	CS109/CS110/ CS111/CS112/ CS113	Introduction to ComputerProgramming / Introduction to JavaProgramming / Introduction to C Programming /Introduction to Python Programming /Introduction toMatlab Programming	3	1-2 Spring & Fall	None	CSE

V. Prerequisites for Major Declaration

<table>
<tr><th>Major Declaration Time</th><th>Course Code</th><th>Course Name</th><th>Prerequisite</th></tr>
<tr><td rowspan="9">Declare major at the end of the first academic year</td><td>MA117</td><td>Calculus I</td><td>None</td></tr>
<tr><td>MA127</td><td>Calculus II</td><td>Calculus I</td></tr>
<tr><td>MA113</td><td>Linear Algebra</td><td>None</td></tr>
<tr><td>PHY105</td><td>College Physics I</td><td>None</td></tr>
<tr><td>PHY106</td><td>College Physics II</td><td>College Physics I</td></tr>
<tr><td>PHY104B</td><td>Experiments of Fundamental Physics</td><td>None</td></tr>
<tr><td>CH103/CH105</td><td>General Chemistry/ Chemistry：the Central Science</td><td>None</td></tr>
<tr><td colspan="3">Notes: At least 5 of the above courses will be completed in the first year, and the results should be qualified. For Mathematics, students who have completed MA101a & MA102a are not required to take MA117 & MA127. For Physics, students who have completed PHY101 & PHY102 are not required to take PHY105 & PHY106.</td></tr>
<tr><td rowspan="10">Declare major at the end of the second academic year</td><td>MA117</td><td>Calculus I</td><td>None</td></tr>
<tr><td>MA127</td><td>Calculus II</td><td>Calculus I</td></tr>
<tr><td>MA113</td><td>Linear Algebra</td><td>None</td></tr>
<tr><td>PHY105</td><td>College Physics I</td><td>None</td></tr>
<tr><td>PHY106</td><td>College Physics II</td><td>College Physics I</td></tr>
<tr><td>PHY104B</td><td>Experiments of Fundamental Physics</td><td>None</td></tr>
<tr><td>CH103/CH105</td><td>General Chemistry/ Chemistry：the Central Science</td><td>None</td></tr>
<tr><td>BIO103/BIO102B/EOE111</td><td>Principles of Biology/ Introduction to Life Science/ College Earth Sciences</td><td>None</td></tr>
<tr><td>CS109/CS110/CS111/ CS112/CS113</td><td>Introduction to Computer Programming/Introduction to Java Programming/Introduction to C Programming/ Introduction to Python Programming/ Introduction to Matlab Programming</td><td>None</td></tr>
<tr><td colspan="3">Notes: All of the above courses should be completed in the second year, and the results should be qualified. For Mathematics, students who have completed MA101a & MA102a are not required to take MA117 & MA127. For Physics, students who have completed PHY101 & PHY102 are not required to take PHY105 & PHY106.</td></tr>
<tr><td colspan="4">Note:
If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).</td></tr>
</table>

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Electronic and Photonic Materials and Devices

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	MSE001	Fundamentals of Materials Science and Engineering*	3		2 Fall	PHY106CH103/ CH105	MSE
	MSE002	Experiments for Fundamentals of Materials Science and Engineering*	1	1	2 Fall	PHY106CH103/ CH105	MSE
	MSE205	Fundamentals of Circuits and Electronics	3		2 Fall	MA127PHY106	MSE
	MSE203	Crystallography	2		2 Fall	None	MSE
	MSE207	Engineering Mathematical Physics	3		2 Fall	MA127MA113	MSE
	MSE344	Applied Quantum Mechanics	3		2 Spring	PHY106	MSE
	MSE213	Mechanics of Materials B	3		2 Spring	None	MSE
	MSE335	Applied Solid State Physics	3		3 Fall	MA127PHY106	MSE
	MSE301	Materials Chemistry	3		3 Fall	MSE001MSE002	MSE
	Total		24	1			
	Note: *Please choose MSE001 and MSE002 at the same semester.						

Major Core Courses	MSE306	Materials Characterization Techniques	3		2 Spring	MSE001	MSE
	MSE209	Heat and Mass Transfer	3		2 Spring	MA127PHY106	MSE
	MSE333	Comprehensive Experiments of Electronic and Photonic Materials and Devices I	4	4	3 Fall	MSE001MSE002	MSE
	MSE311	Thermodynamics of Materials	3		3 Spring	MSE001	MSE
	MSE337	Crystal Growth	3		3 Spring	MSE001	MSE
	MSE357	Comprehensive Experiments of Electronic and Photonic Materials and Devices II	4	4	3 Spring	MSE333	MSE
	Total		20	8			
Practice-based Courses	MSE470-17	Industrial Practice	4	4	3 Summer	None	MSE
	MSE492	Thesis (Graduation Project)*	12	12	4 Spring	None	MSE
	Total		16	16			
	Note: *Students who have completed Comprehensive Design I&II（COE493 & COE494）are not required to take the MSE492 Thesis (Graduation Project).						
Total			60	25			

Table 2: Major Elective Courses

Program of Electronic and Photonic Materials and Devices

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Restricted Electives Courses	MSE407	Advanced Thin Film Technology	3		3 Fall	None	MSE
	MSE356	Electronic Information Materials and Devices	3		3 Fall	MSE001	MSE
	MSE339	Optical Materials and Devices	3		3 Spring	PHY106	MSE
	MSE310	Semiconducting Materials, Devices and Technology	3		3 Spring	None	MSE
	SME305	VLSI Fabrication Technology	3	1	3 Spring	None	SME
	MSE404	Electronic Component Reliability and Failure Analysis	3		4 Fall	MSE306	MSE
	MSE410	Packaging Materials and Technology	3		4 Fall	MSE001	MSE
	Total		21	1			
	Note: At least 12 credits are required for Restricted Electives Courses.						
Unrestricted Electives Courses	MSE103	Magic Materials	1	1	1 Fall	None	MSE
	MSE313	Polymer Materials	3		2 Spring	MSE001	MSE
	MSE202	Physical Chemistry*	3		2 Spring	MA127CH103/ CH105	MSE
	MSE204	Physical Chemistry Experiments*	1	1	2 Spring	MA127CH103/ CH105	MSE
	MSE210	General Organic Chemistry*	3		2 Spring	CH103/CH105	MSE
	MSE212	Basic Experiments for Organic Chemistry*	1	1	2 Spring	CH103/CH105	MSE
	MSE319	Physical Metallurgy A	3		3 Fall	MSE001 MSE002	MSE
	MSE332	Fundamentals of Electrochemisty	3		3 Fall	None	MSE

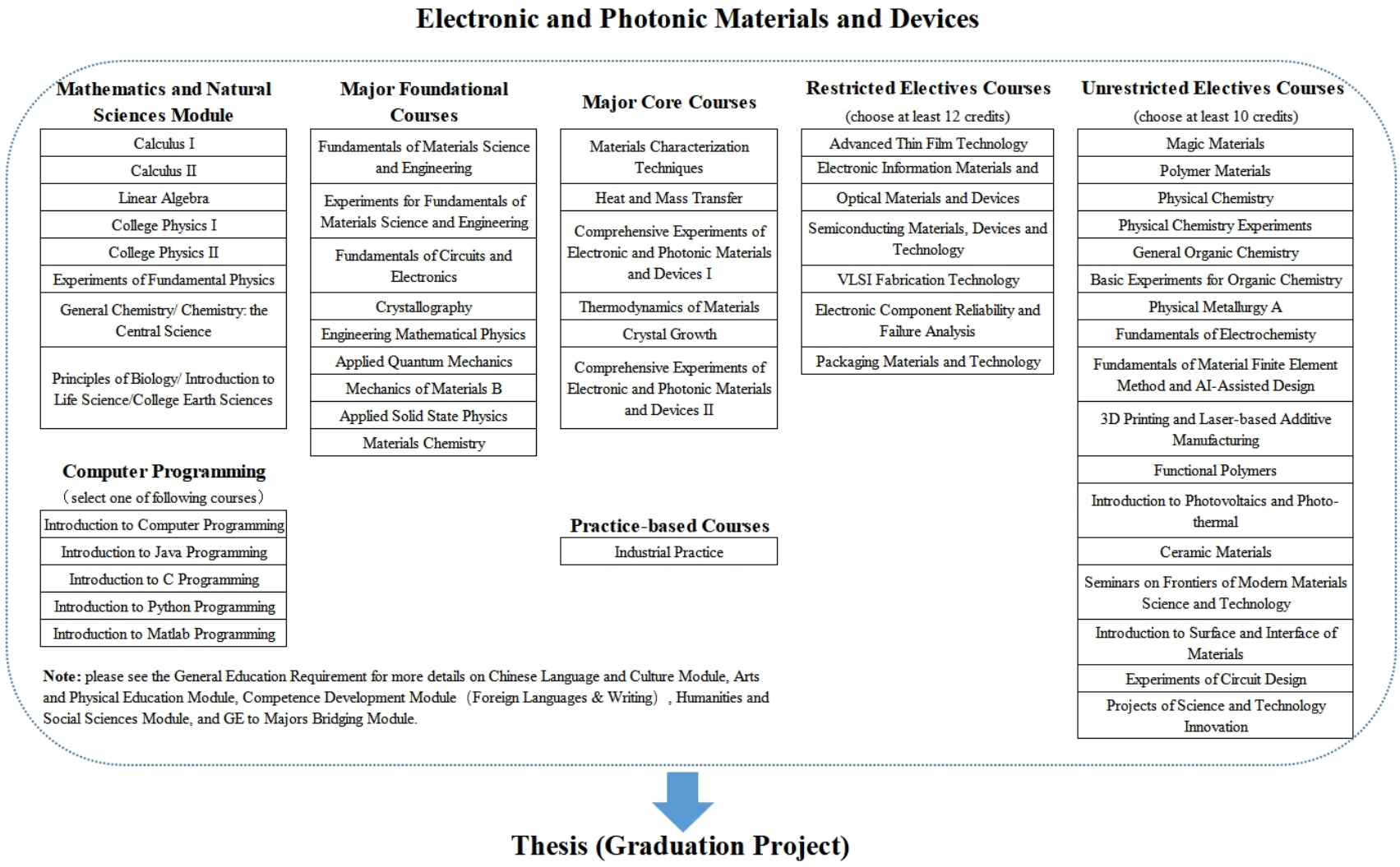
	MSE317	Ceramic Materials	3		3 Fall	MSE001	MSE
	MSE406	Fundamentals of Material Finite Element Method and AI-Assisted Design	3		3 Fall	MA127 MA113	MSE
	MSE413	3D Printing and Laser-based Additive Manufacturing	3		3 Fall	None	MSE
	MSE325	Functional Polymers	3		3 Fall	None	MSE
	MSE320	Introduction to Photovoltaics and Photo-thermal	3		3 Spring	None	MSE
	MSE328	Physics of Materials	3		3 Spring	MA127MSE001	MSE
	MSE347	Seminars on Frontiers of Modern Materials Science and Technology	3		3 Spring	None	MSE
	MSE358	Introduction to Applied Optics and Electromagnetics	3		3 Spring	PHY106	MSE
	MSE359	Fundamentals and Techniques of Microscopy	3		3 Spring	PHY106	MSE
	MSE360	Principles and Techniques of Imaging	3		3 Spring	MSE001	MSE
	MSE350	Introduction to Surface and Interface of Materials	3		3 Spring	CH103/CH105P HY102/PHY106	MSE
	MSE412	Experiments of Circuit Design	2	2	4 Fall	MSE205	MSE
	MSE418	Microscopic Analysis of Materials	3		4 Fall	MSE306	MSE
	MSE416	Advanced Lectures on Frontiers in Materials Microscopy and Applications	1		4 Fall	None	MSE
	MSE480	Projects of Science and Technology Innovation	2	2	3-4 Spring & Fall	None	MSE
	Total		56	7			
	Note: At least 10 credits are required for Unrestricted Electives Courses. MSE202 & MSE204, MSE210 & MSE212 are co-required courses, please take them in the same semester. Both courses co-required must be completed, and their credits can count as Restricted Electives Courses.						

Table 3: Overview of Practice-based Learning

Program of Electronic and Photonic Materials and Devices

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
MSE103	Magic Materials	1	1	1 Fall	None	MSE
MSE002	Experiments for Fundamentals of Materials Science and Engineering	1	1	2 Fall	PHY106CH103/ CH105	MSE
MSE333	Comprehensive Experiments of Electronic and Photonic Materials and Devices I	4	4	3 Fall	MSE001MSE002	MSE
MSE357	Comprehensive Experiments of Electronic and Photonic Materials and Devices II	4	4	3 Spring	MSE333	MSE
SME305	VLSI Fabrication Technology	3	1	3 Spring	None	SME
MSE204	Physical Chemistry Experiments	1	1	2 Spring	MA127CH103/ CH105	MSE
MSE212	Basic Experiments for Organic Chemistry	1	1	2 Spring	CH103/CH105	MSE
MSE412	Experiments of Circuit Design	2	2	4 Fall	MSE205	MSE
MSE480	Projects of Science and Technology Innovation	2	2	3-4 Spring & Fall	None	MSE
MSE470-17	Industrial Practice	4	4	3 Summer	None	MSE
MSE492	Thesis (Graduation Project)	12	12	4 Spring	None	MSE
Total		35	33			

Curriculum Structure of Electronic and Photonic Materials and Devices



Department of Electrical and Electronic Engineering

Program of Communication Engineering

for International Students (2026)

I. Introduction

Communication engineering, especially wireless communications engineering, has become extremely important throughout the world and in particular for Shenzhen, which is recognized as a world-class center of communication industry. With the increasing demand on mobile data access, the development of next generation broadband communication systems has been initiated, which would boost up career opportunity in related academic and industrial fields. The offered 4-year undergraduate program on communication engineering is tailored for the most cutting-edge areas in communication engineering. In addition to lecturers and labs, students are also encouraged to work with supervisors on real research problems as early as the second year of the program. The key areas under study include: classic and modern communication theory, microwave engineering, wireless communications, optical communications, computer networks, embedded systems, microwave imaging, etc.

Academic subject areas: Electronic Information

Program code: 080703

II. Objectives and Learning Outcomes

1. Objectives

Attributes that alumni of Communication Engineering should demonstrate 3-5 years after graduation include 4 aspects. Alumni are:

Technical Skills: technically competent to conduct research and development in the industry and universities in the broad fields of Electronics and Information Engineering in general, and Communication Engineering in particular.

Engineering Ethos: able to think critically and creatively, able to use engineering principles to embrace challenging engineering and non-engineering problems encountered at work, able to apply an analytic mindset, make informed decisions and able to provide innovative solutions.

Attitude: self-motivated with a desire for lifelong learning to adapt to the fast changing

environment, able to operate with integrity and responsibility, having optimism and composure under tight schedule, and committed to make a positive impact on society locally and globally.

Leadership: effective communicators, well-prepared to advance towards leadership positions, able to capitalize the individual strengths of team members, and able to nurture the team to achieve goals.

2. Learning Outcomes

Student Outcomes (SOs) that prepare graduates to enter the professional practice of engineering:

SO 1: an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

SO 2: an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

SO 3: an ability to communicate effectively with a range of audiences.

SO 4: an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

SO 5: an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

SO 6: an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

SO 7: an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

SO 8: knowledge of probability and statistics including applications, differential and integral calculus, sciences, engineering sciences and computing science and application to analyze and design complex electrical and electronic devices, software, and systems containing hardware and software components.

SO 9: knowledge and application of advanced mathematics, such as differential equations, linear algebra, and complex variables.

SO 10: knowledge and application of communication theory and systems, and computer

networks.

SO 11: an ability of analyze, design and develop communication systems and computer networks.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Engineering

3. The minimum credit requirement for graduation: 152 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	26
		Major Core Courses	15
		Practice-based Learning(Undergraduate Thesis, Internships.)	14
	Major Elective Courses	Major Elective Courses	18
Total			152
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1 Fall	None	MA
	MA127	Calculus II	4	1 Spring	MA117	
	MA113	Linear Algebra	4	1 Spring & Fall	None	
Physics	PHY105	College Physics I	4	1 Fall	None	PHY
	PHY106	College Physics II	4	1 Spring	PHY105	
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	
Chemistry	CH105	Chemistry: The Central Science	3	1-2 Spring & Fall	None	CH
Geoscience + Life Science	BIO102B	Introduction to Life Science	3	1-2 Spring & Fall	None	BIO
Computer Programming	CS111	Introduction to C programming	3	1-2 Spring & Fall	None	CS

Note:
1. The course of Calculus I and II can be replaced by Mathematical Analysis I and II.
2. The course of Linear Algebra can be replaced by Advanced Linear Algebra I.
3. The course of College Physics I and II can be replaced by General Physics I and II
4. The course of Chemistry: the Central Science can be replaced by General Chemistry.
5. The course of Introduction to Life Science can be replaced by Principles of Biology or College Earth Sciences.
6. The course of Introduction to C programming can be replaced by Introduction to Computer Programming/ Introduction to Java Programming/Introduction to Python Programming/Introduction to Matlab Programming.
7. The above alternatives are also applicable to "Prerequisites for Major Declaration."

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	MA117	Calculus I	None
	MA127	Calculus II	MA117
	MA113	Linear Algebra	None
	PHY105	College Physics I	None
	PHY106	College Physics II	PHY105
	PHY104B	Experiments of Fundamental Physics	None
	CS111	Introduction to C programming	None
Declare major at the end of the second academic year	MA117	Calculus I	None
	MA127	Calculus II	MA117
	MA113	Linear Algebra	None
	PHY105	College Physics I	None
	PHY106	College Physics II	PHY105
	PHY104B	Experiments of Fundamental Physics	None
	CH105	Chemistry: The Central Science	None
	BIO102B	Introduction to Life Science	None
	CS111	Introduction to C programming	None

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Communication Engineering

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	EE104	Fundamentals of Electric Circuits	2	0	1 Spring	MA117, MA113	EE
	EE201-17	Analog Circuits	3	0	2 Fall	PHY106, EE104	EE
	EE201-17L	Analog Circuits Laboratory	1	1	2 Fall	EE201-17	EE
	EE205	Signals and Systems	3	1	2 Fall	MA117	EE
	EE207	Engineering Mathematics	4	0	2 Fall	MA127, PHY106, MA113	EE
	EE202-17	Digital Circuits	3	0	2 Spring	PHY106	EE
	EE202-17L	Digital Circuits Laboratory	1	1	2 Spring	EE202-17	EE
	EE208	Engineering Electromagnetics	3	1	2 Spring	MA113, EE104	EE
	MA212	Probability and Statistics	3	0	2 Spring	MA127	MA
	EE351	Microprocessors and Microsystems	3	1	3 Fall	EE201-17, EE202-17	EE
	Total		26	5			

Major Core Courses	EE206	Communication Principles	3	1	2 Spring	EE205	EE
	EE317	Advanced Electronic Science Experiment I	1	1	2 Spring	EE201-17 or EE202-17	EE
	EE313	Wireless Communications	3	1	3 Fall	EE206	EE
	EE316	Microwave Engineering	3	1	3 Fall	EE201-17, EE208	EE
	EE318	Advanced Electronic Science Experiment II	1	1	3 Fall	EE317	EE
	EE307	Antennas and Radio Propagation	3	1	3 Spring	EE208, EE104	EE
	EE405	Advanced Electronic Science Experiment III	1	1	3 Spring	EE318	EE
	Total		15	7			
Practice-based Courses	EE470	Internship	2	2	3 Summer	None	EE
	EE492	Undergraduate Thesis/Projects	12	12	4 Spring	None	EE
	Total		14	14			
Total			55	26			
Note: The course of Engineering Mathematics can be replaced by Mathematical Methods in Physics.							

Table 2: Major Elective Courses

Program of Communication Engineering

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Module A	CS203	Data Structures and Algorithm Analysis	3	1	2 Fall	CS109	CS
	EE305	Introduction to VLSI Technology	3	1	3 Fall	EE203	EE
	EE315	Data communications and networking	3	1	3 Fall	None	EE
	MA305	Numerical Analysis	3	0	3 Fall	MA203A or MA213	MA
	EE308	Fiber Communication Principles and Techniques	3	1	3 Spring	None	EE
	EE332	Digital System Design	3	1	3 Spring	EE202-17	EE
	EE350	Design of Modern Communication Systems Experiment	2	2	3 Spring	EE206,EE313	EE
	ME340	Physics of Machine Learning	3	0	3 Spring	PHY106	MEE
	CS405	Machine Learning	3	1	3 Spring	MA212	CS
	EE411	Information Theory and Coding	2	0	4 Fall	MA212	EE
Module B	EE203	Solid-state Electronics	3	0	2 Fall	PHY106	EE
	EE211	Robotic Perception and Intelligence	3	1	2 Fall	None	EE
	EE204	Introduction to Semiconductor Devices	3	1	2 Spring	EE203	EE
	EE210	Fundamentals of Optics	3	0	2 Spring	None	EE
	EE303	Fundamentals of Optoelectronic Technology	3	1	3 Fall	PHY106	EE
	EE309	Introduction to Semiconductor Optics	3	0	3 Fall	None	EE

	EE323	Digital Signal Processing	3	1	3 Fall	EE205	EE
	EE335	Liquid crystal optoelectronics	3	1	3 Fall	EE210	EE
	EE342	Sensors and Applications	3	0	3 Fall	None	EE
	EE345	Introduction of Wide Bandgap Semiconductors	3	0	3 Fall	EE203 or EE204	EE
	EE373	Optical System Design Experiment	1	1	3 Fall	None	EE
	CS307	Principles of Database Systems	3	1	3 Fall	CS109	CS
	EE310	Principles and Technologies of Lasers	3	0	3 Spring	None	EE
	EE322	Optoelectronics Devices Fabrication Laboratory	2	1	3 Spring	None	EE
	EE326	Digital Image Processing	3	1	3 Spring	EE205	EE
	EE328	Speech Signal Processing	3	1	3 Spring	EE323	EE
	EE336	Fundamentals of Photovoltaics	3	1	3 Spring	EE204	EE
	EE340	Statistical Learning for Data Science	3	0	3 Spring	MA113	EE
	EE348	Modern sensing technology	3	0	3 Spring	None	EE
	EE368	Robotic Motion and Control	3	1	3 Spring	EE205	EE
	BMEB 315	Biomedical Optics	2	0	3 Spring	None	BME
	SDM3 78	Computer Vision and Application	3	1	3 Spring	MA127,MA 113	AiM
Total			90	21			
Note: At least 18 credits are required , and at least three courses from Module A are required.							

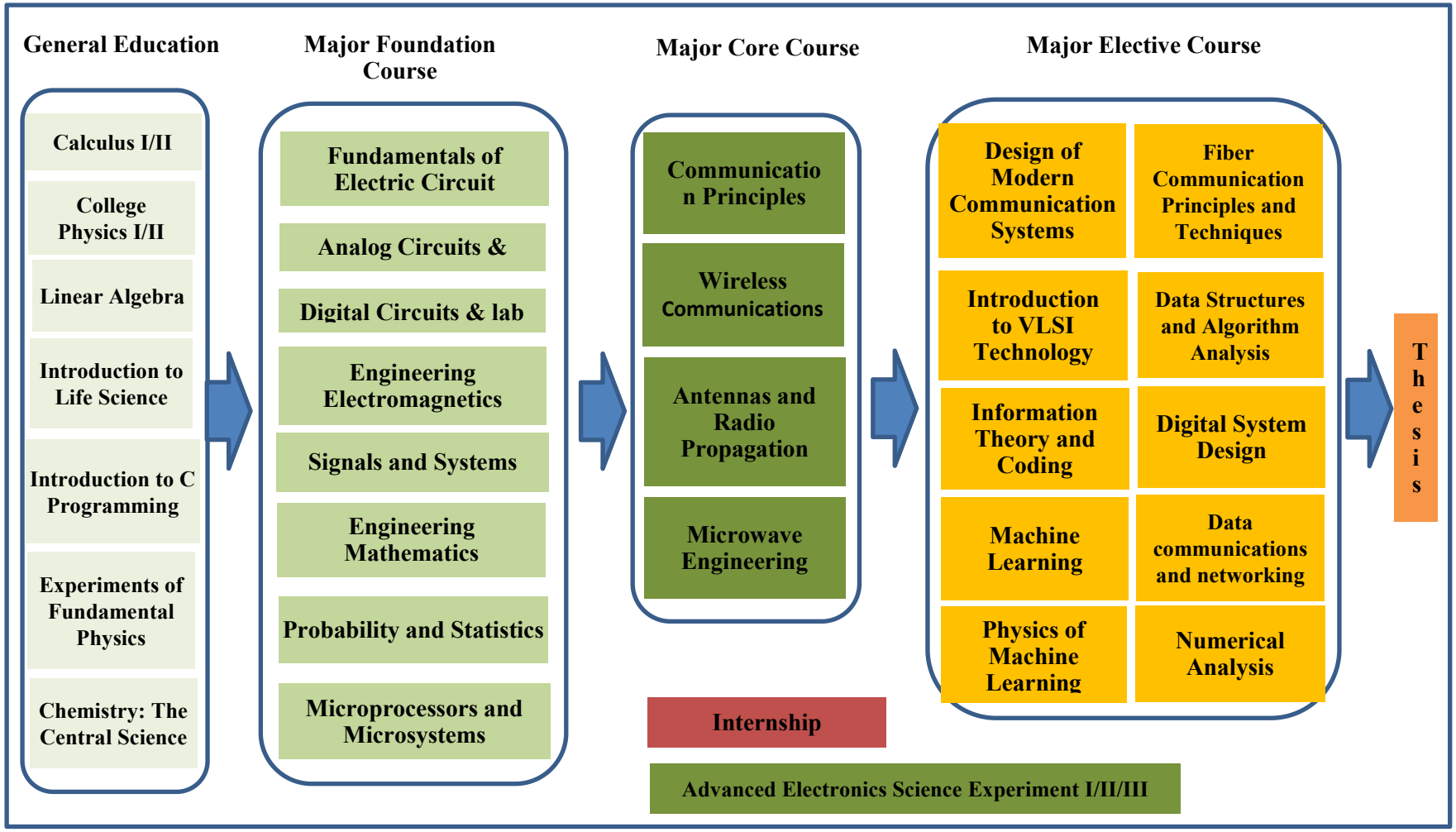
Table 3: Overview of Practice-based Learning

Program of Communication Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
EE201-17L	Analog Circuits Laboratory	1	1	2 Fall	EE201-17	EE
EE205	Signals and Systems	3	1	2 Fall	MA117	EE
EE211	Robotic Perception and Intelligence	3	1	2 Fall	None	EE
CS203	Data Structures and Algorithm Analysis	3	1	2 Fall	CS109	CS
EE202-17L	Digital Circuits Laboratory	1	1	2 Spring	EE202-17	EE
EE204	Introduction to Semiconductor Devices	3	1	2 Spring	EE203	EE
EE206	Communication Principles	3	1	2 Spring	EE205	EE
EE208	Engineering Electromagnetics	3	1	2 Spring	MA113,EE104	EE
EE317	Advanced Electronic Science Experiment I	1	1	2 Spring	EE201-17 or EE202-17	EE
EE303	Fundamentals of Optoelectronic Technology	3	1	3 Fall	PHY106	EE
EE305	Introduction to VLSI Technology	3	1	3 Fall	EE203	EE
EE313	Wireless Communications	3	1	3 Fall	EE206	EE
EE315	Data communications and networking	3	1	3 Fall	None	EE
EE316	Microwave Engineering	3	1	3 Fall	EE201-17,EE208	EE
EE318	Advanced Electronic Science Experiment II	1	1	3 Fall	EE317	EE
EE323	Digital Signal Processing	3	1	3 Fall	EE205	EE
EE335	Liquid crystal optoelectronics	3	1	3 Fall	EE210	EE
EE351	Microprocessors and Microsystems	3	1	3 Fall	EE201-17,EE202-17	EE

EE373	Optical System Design Experiment	1	1	3 Fall	None	EE
CS307	Principles of Database Systems	3	1	3 Fall	CS109	CS
EE307	Antennas and Radio Propagation	3	1	3 Spring	EE208,EE104	EE
EE308	Fiber Communication Principles and Techniques	3	1	3 Spring	None	EE
EE322	Optoelectronics Devices Fabrication Laboratory	2	1	3 Spring	None	EE
EE326	Digital Image Processing	3	1	3 Spring	EE205	EE
EE328	Speech Signal Processing	3	1	3 Spring	EE323	EE
EE332	Digital System Design	3	1	3 Spring	EE202-17	EE
EE336	Fundamentals of Photovoltaics	3	1	3 Spring	EE204	EE
EE350	Design of Modern Communication Systems Experiment	2	2	3 Spring	EE206,EE313	EE
EE368	Robotic Motion and Control	3	1	3 Spring	EE205	EE
EE405	Advanced Electronic Science Experiment III	1	1	3 Spring	EE318	EE
SDM378	Computer Vision and Application	3	1	3 Spring	MA127,MA113	AiM
CS405	Machine Learning	3	1	3 Spring	MA212	CS
EE470	Internship	2	2	3 Summer	None	EE
EE492	Undergraduate Thesis/Projects	12	12	4 Spring	None	EE
Total		96	47			

Curriculum Structure of Communication Engineering



Note: The Subject Elective course lists include only part of the courses, see more in Program.

Department of Electrical and Electronic Engineering

Program of Optoelectronic Information Science and Engineering for International Students (2026)

I. Introduction

Optoelectronic Information Science and Engineering is a comprehensive technology, which is composed of optics, optoelectronics, microelectronics and other technologies. It is a new cross-subject with strong practical application, and is widely used in the national economy and defense. The professional training includes the theoretical knowledge of optoelectronics, flat panel display, lighting, solar energy, optical design and optical communication technology. At the same time, English and computer application training are important. Graduated students will be engaged in the field of optoelectronic information, optical communication, photoelectric detection, optoelectronic devices, new display and lighting technology, new energy, and new technology research and development. They are also suitable for the research and development of optoelectronic devices and related high-tech disciplines, scientific research institutions, universities and institutions engaged in scientific research, development, teaching and management.

Academic subject areas: Electronic Information

Program code: 080705

II. Objectives and Learning Outcomes

1. Objectives

Attributes that alumni of Optoelectronic Information Science and Engineering should demonstrate 3-5 years after graduation include 4 aspects. Alumni are:

Technical Skills: technically competent to conduct research and development in the industry and universities in the broad fields of Electronics and Information Engineering in general, and Communication Engineering in particular.

Engineering Ethos: able to think critically and creatively, able to use engineering principles to embrace challenging engineering and non-engineering problems encountered at work, able to apply an analytic mindset, make informed decisions and able to provide innovative solutions.

Attitude: self-motivated with a desire for lifelong learning to adapt to the fast changing environment, able to operate with integrity and responsibility, having optimism and composure under tight schedule, and committed to make a positive impact on society locally and globally.

Leadership: effective communicators, well-prepared to advance towards leadership positions, able to capitalize the individual strengths of team members, and able to nurture the team to achieve goals.

2. Learning Outcomes

Student Outcomes (SOs) that prepare graduates to enter the professional practice of engineering:

SO 1: an ability to identify, formulate, and solve complex engineering problems1 by applying principles of engineering, science, and mathematics.

SO 2: an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

SO 3: an ability to communicate effectively with a range of audiences.

SO 4: an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

SO 5: an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

SO 6: an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

SO 7: an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

SO 8: knowledge of probability and statistics including applications, differential and integral calculus, sciences, engineering sciences, and computing science and application to analyze and design complex electrical and electronic devices, software, and systems containing hardware and software components.

SO 9: knowledge and application of advanced mathematics, such as differential equations, linear algebra, and complex variables.

SO 10: knowledge and application of and appropriate laboratory experience in: geometrical optics, physical optics, optical materials, and optical and/or photonic devices and systems.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Engineering.

3. The minimum credit requirement for graduation: 152 credits. The specific requirements are as follows.

<table>
<tr><th colspan="2">Module</th><th>Category</th><th>Minimum Credit Requirement</th></tr>
<tr><td rowspan="13">General Education Courses</td><td>Chinese Language and Culture Module</td><td>Chinese Language and Culture</td><td>16</td></tr>
<tr><td rowspan="2">Arts and Physical Education Module</td><td>Physical Education</td><td>4</td></tr>
<tr><td>Arts</td><td>2</td></tr>
<tr><td rowspan="3">Competence Development Module</td><td>Computer Programming</td><td>3</td></tr>
<tr><td>Writing</td><td>2</td></tr>
<tr><td>Foreign Languages</td><td>14</td></tr>
<tr><td rowspan="2">Humanities and Social Sciences Module</td><td>Humanities</td><td>4</td></tr>
<tr><td>Social Sciences</td><td>4</td></tr>
<tr><td rowspan="4">Mathematics and Natural Sciences Module</td><td>Mathematics</td><td>12</td></tr>
<tr><td>Physics</td><td>10</td></tr>
<tr><td>Chemistry</td><td>3</td></tr>
<tr><td>Geoscience + Life science</td><td>3</td></tr>
<tr><td>GE to Majors Bridging Module</td><td>Introduction to Majors</td><td>2</td></tr>
<tr><td rowspan="4">Major Courses</td><td rowspan="3">Major Required Courses</td><td>Major Foundational Courses</td><td>26</td></tr>
<tr><td>Major Core Courses</td><td>15</td></tr>
<tr><td>Practice-based Learning(Undergraduate Thesis, Internships.)</td><td>14</td></tr>
<tr><td>Major Elective Courses</td><td>Major Elective Courses</td><td>18</td></tr>
<tr><td colspan="3">Total</td><td>152</td></tr>
<tr><td colspan="4">Note:
please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.</td></tr>
</table>

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1 Fall	None	MA
	MA127	Calculus II	4	1 Spring	MA117	
	MA113	Linear Algebra	4	1 Spring & Fall	None	
Physics	PHY105	College Physics I	4	1 Fall	None	PHY
	PHY106	College Physics II	4	1 Spring	PHY105	
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	
Chemistry	CH105	Chemistry: The Central Science	3	1-2 Spring & Fall	None	CH
Geoscience + Life Science	BIO102B	Introduction to Life Science	3	1-2 Spring & Fall	None	BIO
Computer Programming	CS111	Introduction to C programming	3	1-2 Spring & Fall	None	CS

Note:
1. The course of Calculus I and II can be replaced by Mathematical Analysis I and II.
2. The course of Linear Algebra can be replaced by Advanced Linear Algebra I.
3. The course of College Physics I and II can be replaced by General Physics I and II
4. The course of Chemistry: the Central Science can be replaced by General Chemistry.
5. The course of Introduction to Life Science can be replaced by Principles of Biology or College Earth Sciences.
6. The course of Introduction to C programming can be replaced by Introduction to Computer Programming/ Introduction to Java Programming/Introduction to Python Programming/Introduction to Matlab Programming.
7. The above alternatives are also applicable to "Prerequisites for Major Declaration."

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	MA117	Calculus I	None
	MA127	Calculus II	MA117
	MA113	Linear Algebra	None
	PHY105	College Physics I	None
	PHY106	College Physics II	PHY105
	PHY104B	Experiments of Fundamental Physics	None
	CS111	Introduction to C programming	None
Declare major at the end of the second academic year	MA117	Calculus I	None
	MA127	Calculus II	MA117
	MA113	Linear Algebra	None
	PHY105	College Physics I	None
	PHY106	College Physics II	PHY105
	PHY104B	Experiments of Fundamental Physics	None
	CH105	Chemistry: The Central Science	None
	BIO102B	Introduction to Life Science	None
	CS111	Introduction to C programming	None

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Optoelectronic Information Science and Engineering

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	EE104	Fundamentals of Electric Circuits	2	0	1 Spring	MA117, MA113	EE
	EE201-17	Analog Circuits	3	0	2 Fall	PHY106, EE104	EE
	EE201-17L	Analog Circuits Laboratory	1	1	2 Fall	EE201-17	EE
	EE205	Signals and Systems	3	1	2 Fall	MA117	EE
	EE207	Engineering Mathematics	4	0	2 Fall	MA127, PHY106, MA113	EE
	EE202-17	Digital Circuits	3	0	2 Spring	PHY106	EE
	EE202-17L	Digital Circuits Laboratory	1	1	2 Spring	EE202-17	EE
	EE208	Engineering Electromagnetics	3	1	2 Spring	MA113, EE104	EE
	MA212	Probability and Statistics	3	0	2 Spring	MA127	MA
	EE351	Microprocessors and Microsystems	3	1	3 Fall	EE201-17, EE202-17	EE
	Total		26	5			

Major Core Courses	EE204	Introduction to Semiconductor Devices	3	1	2 Spring	EE203	EE
	EE210	Fundamentals of Optics	3	0	2 Spring	None	EE
	EE317	Advanced Electronic Science Experiment I	1	1	2 Spring	EE201-17 or EE202-17	EE
	EE309	Introduction to Semiconductor Optics	3	0	3 Fall	None	EE
	EE318	Advanced Electronic Science Experiment II	1	1	3 Fall	EE317	EE
	EE310	Principles and Technologies of Lasers	3	0	3 Spring	None	EE
	EE405	Advanced Electronic Science Experiment III	1	1	3 Spring	EE318	EE
	Total		15	4			
Practice-based Courses	EE470	Internship	2	2	3 Summer	None	EE
	EE492	Undergraduate Thesis/Projects	12	12	4 Spring	None	EE
	Total		14	14			
Total			55	23			

Note:
The course of Engineering Mathematics can be replaced by Mathematical Methods in Physics.

Table 2: Major Elective Courses

Program of Optoelectronic Information Science and Engineering

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Module A	EE203	Solid-state Electronics	3	0	2 Fall	PHY106	EE
	EE303	Fundamentals of Optoelectronic Technology	3	1	3 Fall	PHY106	EE
	EE305	Introduction to VLSI Technology	3	1	3 Fall	EE203	EE
	EE335	Liquid crystal optoelectronics	3	1	3 Fall	EE210	EE
	EE345	Introduction of Wide Bandgap Semiconductors	3	0	3 Fall	EE203 or EE204	EE
	EE373	Optical System Design Experiment	1	1	3 Fall	None	EE
	EE308	Fiber Communication Principles and Techniques	3	1	3 Spring	None	EE
	EE322	Optoelectronics Devices Fabrication Laboratory	2	1	3 Spring	None	EE
	EE336	Fundamentals of Photovoltaics	3	1	3 Spring	EE204	EE
	BMEB315	Biomedical Optics	2	0	3 Spring	None	BME
Module B	EE211	Robotic Perception and Intelligence	3	1	2 Fall	None	EE
	CS203	Data Structures and Algorithm Analysis B	3	1	2 Fall	CS109	CS
	EE206	Communication Principles	3	1	2 Spring	EE205	EE
	EE313	Wireless Communications	3	1	3 Fall	EE206	EE
	EE315	Data communications and networking	3	1	3 Fall	None	EE
	EE316	Microwave Engineering	3	1	3 Fall	EE201-17 EE208	EE

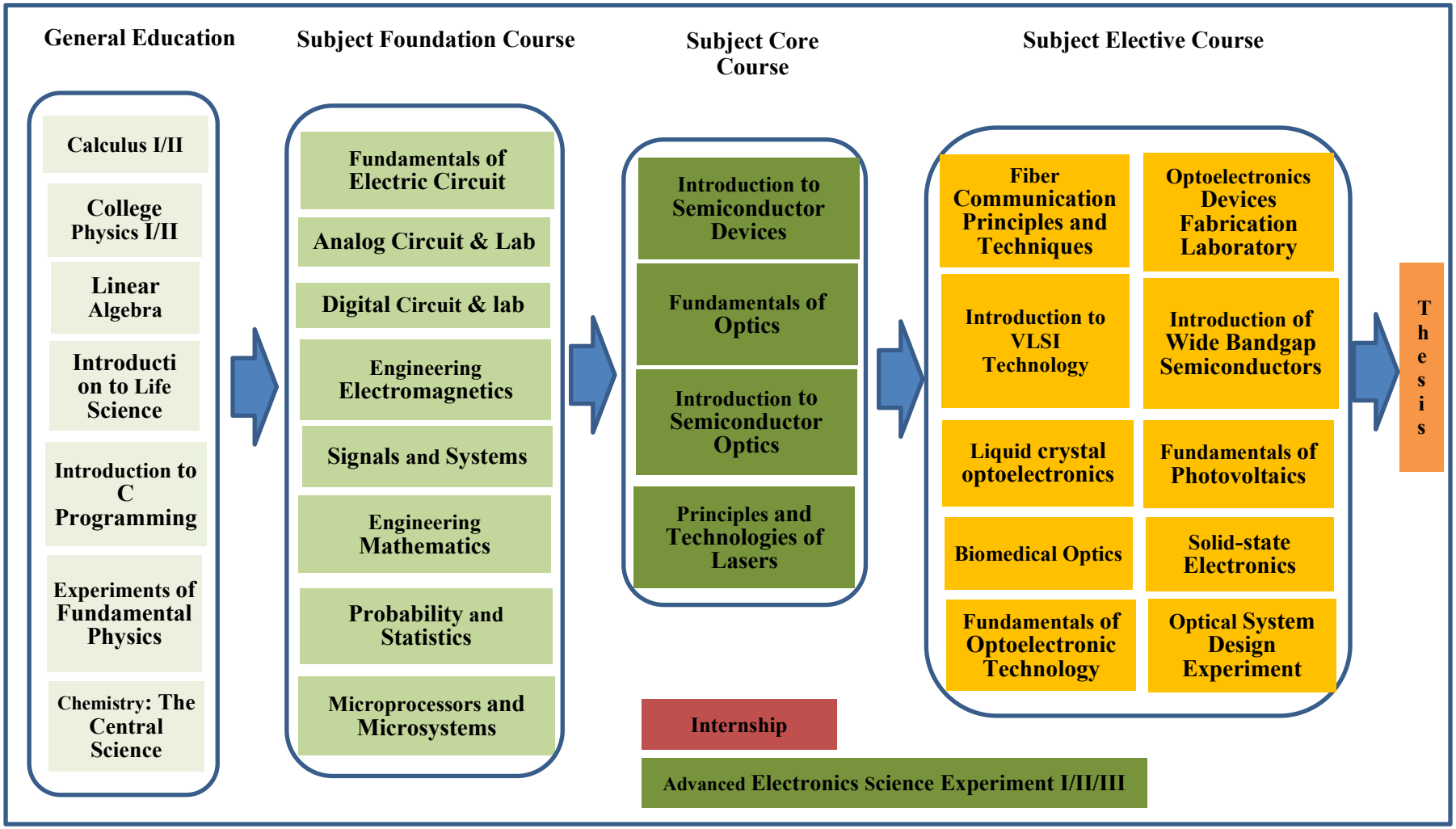
	EE323	Digital Signal Processing	3	1	3 Fall	EE205	EE
	EE342	Sensors and Applications	3	0	3 Fall	None	EE
	CS307	Principles of Database Systems	3	1	3 Fall	CS109	CS
	MA305	Numerical Analysis	3	0	3 Fall	MA203A or MA213	MA
	EE307	Antennas and Radio Propagation	3	1	3 Spring	EE208 EE104	EE
	EE326	Digital Image Processing	3	1	3 Spring	EE205	EE
	EE328	Speech Signal Processing	3	1	3 Spring	EE323	EE
	EE332	Digital System Design	3	1	3 Spring	EE202-17	EE
	EE340	Statistical Learning for Data Science	3	0	3 Spring	MA113	EE
	EE348	Modern sensing technology	3	0	3 Spring	None	EE
	EE350	Design of Modern Communication SystemsExperiment	2	2	3 Spring	EE206 EE313	EE
	EE368	Robotic Motion and Control	3	1	3 Spring	EE205	EE
	ME340	Physics of Machine Learning	3	0	3 Spring	PHY106	MEE
	SDM378	Computer Vision and Application	3	1	3 Spring	MA127, MA113	AiM
	CS405	Machine Learning	3	1	3 Spring	MA212 Or STA219	CS
	EE411	Information Theory and Coding	2	0	4 Fall	MA212	EE
Total			90	24			
Note: At least 18 credits are required , and at least three courses from Module A are required.							

Table 3: Overview of Practice-based Learning Program of Optoelectronic Information Science and Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
EE201-17L	Analog Circuits Laboratory	1	1	2 Fall	EE201-17	EE
EE205	Signals and Systems	3	1	2 Fall	MA117	EE
EE211	Robotic Perception and Intelligence	3	1	2 Fall	None	EE
CS203	Data Structures and Algorithm Analysis	3	1	2 Fall	CS109	CS
EE202-17L	Digital Circuits Laboratory	1	1	2 Spring	EE202-17	EE
EE204	Introduction to Semiconductor Devices	3	1	2 Spring	EE203	EE
EE206	Communication Principles	3	1	2 Spring	EE205	EE
EE208	Engineering Electromagnetics	3	1	2 Spring	MA113,EE104	EE
EE317	Advanced Electronic Science Experiment I	1	1	2 Spring	EE201-17 or EE202-17	EE
EE303	Fundamentals of Optoelectronic Technology	3	1	3 Fall	PHY106	EE
EE305	Introduction to VLSI Technology	3	1	3 Fall	EE203	EE
EE313	Wireless Communications	3	1	3 Fall	EE206	EE
EE315	Data communications and networking	3	1	3 Fall	None	EE
EE316	Microwave Engineering	3	1	3 Fall	EE201-17,EE208	EE
EE318	Advanced Electronic Science Experiment II	1	1	3 Fall	EE317	EE
EE323	Digital Signal Processing	3	1	3 Fall	EE205	EE
EE335	Liquid crystal optoelectronics	3	1	3 Fall	EE210	EE

EE351	Microprocessors and Microsystems	3	1	3 Fall	EE201-17,EE202-17	EE
EE373	Optical System Design Experiment	1	1	3 Fall	None	EE
CS307	Principles of Database Systems	3	1	3 Fall	CS109	CS
EE307	Antennas and Radio Propagation	3	1	3 Spring	EE208,EE104	EE
EE308	Fiber Communication Principles and Techniques	3	1	3 Spring	None	EE
EE322	Optoelectronics Devices Fabrication Laboratory	2	1	3 Spring	None	EE
EE326	Digital Image Processing	3	1	3 Spring	EE205	EE
EE328	Speech Signal Processing	3	1	3 Spring	EE323	EE
EE332	Digital System Design	3	1	3 Spring	EE202-17	EE
EE336	Fundamentals of Photovoltaics	3	1	3 Spring	EE204	EE
EE350	Design of Modern Communication Systems Experiment	2	2	3 Spring	EE206,EE313	EE
EE368	Robotic Motion and Control	3	1	3 Spring	EE205	EE
EE405	Advanced Electronic Science Experiment III	1	1	3 Spring	EE318	EE
SDM378	Computer Vision and Application	3	1	3 Spring	MA127,MA113	AiM
CS405	Machine Learning	3	1	3 Spring	MA212	CS
EE470	Internship	2	2	3 Summer	None	EE
EE492	Undergraduate Thesis/Projects	12	12	4 Spring	None	EE
Total		96	47			

Curriculum Structure of Optoelectronic Information Science and Engineering



Note: The Subject Elective course lists include only part of the courses, see more in Program.

Department of Electrical and Electronic Engineering

Program of Information Engineering

for International Students (2026)

I. Introduction

Information Engineering is a new and promising discipline. It is developed as multiple areas involving signal and information processing technology, communication technology, and computer science rapidly penetrate into traditional information technology (IT) industries. In China, information technology industry is currently the most active and fast-growing profession. This area is deeply involved in international technology competition now, and has also globally become the most vital engine of social and economic productivity and development. Recently, with the increasing demand on the eco-friendly, integrated, and smart information system, professional talents in information engineering are deeply in need.

Academic subject areas: Electronic Information

Program code: 080706

II. Objectives and Learning Outcomes

1. Objectives

Attributes that alumni of Information Engineering should demonstrate 3-5 years after graduation include 4 aspects. Alumni are:

Technical Skills: technically competent to conduct research and development in the industry and universities in the broad fields of Electronics and Information Engineering in general, and Communication Engineering in particular.

Engineering Ethos: able to think critically and creatively, able to use engineering principles to embrace challenging engineering and non-engineering problems encountered at work, able to apply an analytic mindset, make informed decisions and able to provide innovative solutions.

Attitude: self-motivated with a desire for lifelong learning to adapt to the fast changing environment, able to operate with integrity and responsibility, having optimism and composure under tight schedule, and committed to make a positive impact on society locally and globally.

Leadership: effective communicators, well-prepared to advance towards leadership positions,

able to capitalize the individual strengths of team members, and able to nurture the team to achieve goals.

2. Learning Outcomes

Student Outcomes (SOs) that prepare graduates to enter the professional practice of engineering:

SO 1: an ability to identify, formulate, and solve complex engineering problems1 by applying principles of engineering, science, and mathematics.

SO 2: an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

SO 3: an ability to communicate effectively with a range of audiences.

SO 4: an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

SO 5: an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

SO 6: an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

SO 7: an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

SO 8: knowledge of probability and statistics including applications, differential and integral calculus, sciences, engineering sciences and computing science and application to analyze and design complex information engineering systems.

SO 9: knowledge and application of advanced mathematics, such as differential equations, linear algebra, and complex variable.

SO 10: knowledge and application of information processing methods.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Engineering.

3. The minimum credit requirement for graduation: 152 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	26
		Major Core Courses	15
		Practice-based Learning (Undergraduate Thesis, Internships.)	14
	Major Elective Courses	Major Elective Courses	18
Total			152
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1 Fall	None	MA
	MA127	Calculus II	4	1 Spring	MA117	
	MA113	Linear Algebra	4	1 Spring & Fall	None	
Physics	PHY105	College Physics I	4	1 Fall	None	PHY
	PHY106	College Physics II	4	1 Spring	PHY105	
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	
Chemistry	CH105	Chemistry: The Central Science	3	1-2 Spring & Fall	None	CH
Geoscience + Life Science	BIO102B	Introduction to Life Science	3	1-2 Spring & Fall	None	BIO
Computer Programming	CS111	Introduction to C programming	3	1-2 Spring & Fall	None	CS

Note:
1. The course of Calculus I and II can be replaced by Mathematical Analysis I and II.
2. The course of Linear Algebra can be replaced by Advanced Linear Algebra I.
3. The course of College Physics I and II can be replaced by General Physics I and II
4. The course of Chemistry: the Central Science can be replaced by General Chemistry.
5. The course of Introduction to Life Science can be replaced by Principles of Biology or College Earth Sciences.
6. The course of Introduction to C programming can be replaced by Introduction to Computer Programming/ Introduction to Java Programming/Introduction to Python Programming/Introduction to Matlab Programming.
7. The above alternatives are also applicable to "Prerequisites for Major Declaration."

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	MA117	Calculus I	None
	MA127	Calculus II	MA117
	MA113	Linear Algebra	None
	PHY105	College Physics I	None
	PHY106	College Physics II	PHY105
	PHY104B	Experiments of Fundamental Physics	None
	CS111	Introduction to C programming	None
Declare major at the end of the second academic year	MA117	Calculus I	None
	MA127	Calculus II	MA117
	MA113	Linear Algebra	None
	PHY105	College Physics I	None
	PHY106	College Physics II	PHY105
	PHY104B	Experiments of Fundamental Physics	None
	CH105	Chemistry: The Central Science	None
	BIO102B	Introduction to Life Science	None
	CS111	Introduction to C programming	None

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Information Engineering

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	EE104	Fundamentals of Electric Circuits	2	0	1 Spring	MA117,MA113	EE
	EE201-17	Analog Circuits	3	0	2 Fall	PHY106,EE104	EE
	EE201-17L	Analog Circuits Laboratory	1	1	2 Fall	EE201-17	EE
	EE205	Signals and Systems	3	1	2 Fall	MA117	EE
	EE207	Engineering Mathematics	4	0	2 Fall	MA127,PHY106,MA113	EE
	EE202-17	Digital Circuits	3	0	2 Spring	PHY106	EE
	EE202-17L	Digital Circuits Laboratory	1	1	2 Spring	EE202-17	EE
	EE208	Engineering Electromagnetics	3	1	2 Spring	MA113,EE104	EE
	MA212	Probability and Statistics	3	0	2 Spring	MA127	MA
	EE351	Microprocessors and Microsystems	3	1	3 Fall	EE201-17,EE202-17	EE
	Total		26	5			

Major Core Courses	EE206	Communication Principles	3	1	2 Spring	EE205	EE
	EE317	Advanced Electronic Science Experiment I	1	1	2 Spring	EE201-17 or EE202-17	EE
	EE315	Data communications and networking	3	1	3 Fall	None	EE
	EE318	Advanced Electronic Science Experiment II	1	1	3 Fall	EE317	EE
	EE323	Digital Signal Processing	3	1	3 Fall	EE205	EE
	EE340	Statistical Learning for Data Science	3	0	3 Spring	MA113	EE
	EE405	Advanced Electronic Science Experiment III	1	1	3 Spring	EE318	EE
	Total		15	6			
Practice-based Courses	EE470	Internship	2	2	3 Summer	None	EE
	EE492	Undergraduate Thesis/Projects	12	12	4 Spring	None	EE
	Total		14	14			
Total			55	25			
Note: The course of Engineering Mathematics can be replaced by Mathematical Methods in Physics.							

Table 2: Major Elective Courses

Program of Information Engineering

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Module A	EE211	Robotic Perception and Intelligence	3	1	2 Fall	None	EE
	EE342	Sensors and Applications	3	0	3 Fall	None	EE
	CS307	Principles of Database Systems	3	1	3 Fall	CS109	CS
	EE326	Digital Image Processing	3	1	3 Spring	EE205	EE
	EE328	Speech Signal Processing	3	1	3 Spring	EE323	EE
	EE332	Digital System Design	3	1	3 Spring	EE202-17	EE
	EE348	Modern sensing technology	3	0	3 Spring	None	EE
	EE368	Robotic Motion and Control	3	1	3 Spring	EE205	EE
	SDM378	Computer Vision and Application	3	1	3 Spring	MA127, MA113	AiM
	CS405	Machine Learning	3	1	3 Spring	MA212	CS
Module B	EE203	Solid-state Electronics	3	0	2 Fall	PHY106	EE
	CS203	Data Structures and Algorithm Analysis B	3	1	2 Fall	CS109	CS
	EE204	Introduction to Semiconductor Devices	3	1	2 Spring	EE203	EE
	EE210	Fundamentals of Optics	3	0	2 Spring	None	EE
	EE303	Fundamentals of Optoelectronic Technology	3	1	3 Fall	PHY106	EE
	EE305	Introduction to VLSI Technology	3	1	3 Fall	EE203	EE

	EE309	Introduction to Semiconductor Optics	3	0	3 Fall	None	EE
	EE313	Wireless Communications	3	1	3 Fall	EE206	EE
	EE316	Microwave Engineering	3	1	3 Fall	EE201-17, EE208	EE
	EE335	Liquid crystal optoelectronics	3	1	3 Fall	EE210	EE
	EE345	Introduction of Wide Bandgap Semiconductors	3	0	3 Fall	EE203 or EE204	EE
	EE373	Optical System Design Experiment	1	1	3 Fall	None	EE
	MA305	Numerical Analysis	3	0	3 Fall	MA203A or MA213	MA
	EE307	Antennas and Radio Propagation	3	1	3 Spring	EE208, EE104	EE
	EE308	Fiber Communication Principles and Techniques	3	1	3 Spring	None	EE
	EE310	Principles and Technologies of Lasers	3	0	3 Spring	None	EE
	EE322	Optoelectronics Devices Fabrication Laboratory	2	1	3 Spring	None	EE
	EE336	Fundamentals of Photovoltaics	3	1	3 Spring	EE204	EE
	EE350	Design of Modern Communication Systems Experiment	2	2	3 Spring	EE206, EE313	EE
	ME340	Physics of Machine Learning	3	0	3 Spring	PHY106	MEE
	BMEB315	Biomedical Optics	2	0	3 Spring	None	BME
	EE411	Information Theory and Coding	2	0	4 Fall	MA212	EE
Total			90	22			
Note: At least 18 credits are required, and at least three courses from Module A are required.							

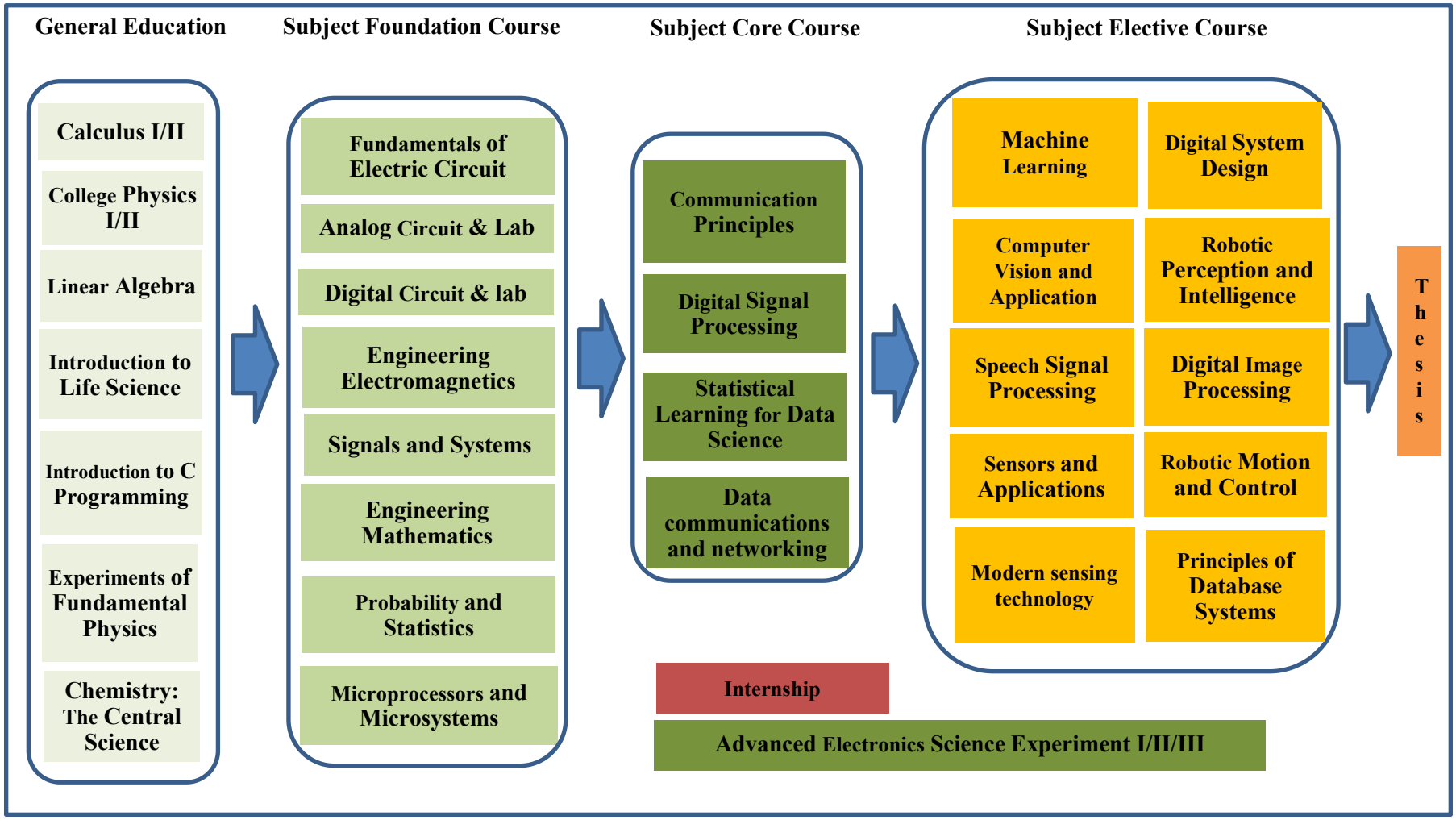
Table 3: Overview of Practice-based Learning

Program of Information Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
EE201-17L	Analog Circuits Laboratory	1	1	2 Fall	EE201-17	EE
EE205	Signals and Systems	3	1	2 Fall	MA117	EE
EE211	Robotic Perception and Intelligence	3	1	2 Fall	None	EE
CS203	Data Structures and Algorithm Analysis	3	1	2 Fall	CS109	CS
EE202-17L	Digital Circuits Laboratory	1	1	2 Spring	EE202-17	EE
EE204	Introduction to Semiconductor Devices	3	1	2 Spring	EE203	EE
EE206	Communication Principles	3	1	2 Spring	EE205	EE
EE208	Engineering Electromagnetics	3	1	2 Spring	MA113,EE104	EE
EE317	Advanced Electronic Science Experiment I	1	1	2 Spring	EE201-17 or EE202-17	EE
EE303	Fundamentals of Optoelectronic Technology	3	1	3 Fall	PHY106	EE
EE305	Introduction to VLSI Technology	3	1	3 Fall	EE203	EE
EE313	Wireless Communications	3	1	3 Fall	EE206	EE
EE315	Data communications and networking	3	1	3 Fall	None	EE
EE316	Microwave Engineering	3	1	3 Fall	EE201-17,EE208	EE
EE318	Advanced Electronic Science Experiment II	1	1	3 Fall	EE317	EE
EE323	Digital Signal Processing	3	1	3 Fall	EE205	EE
EE335	Liquid crystal optoelectronics	3	1	3 Fall	EE210	EE

EE351	Microprocessors and Microsystems	3	1	3 Fall	EE201-17,EE202-17	EE
EE373	Optical System Design Experiment	1	1	3 Fall	None	EE
CS307	Principles of Database Systems	3	1	3 Fall	CS109	CS
EE307	Antennas and Radio Propagation	3	1	3 Spring	EE208,EE104	EE
EE308	Fiber Communication Principles and Techniques	3	1	3 Spring	None	EE
EE322	Optoelectronics Devices Fabrication Laboratory	2	1	3 Spring	None	EE
EE326	Digital Image Processing	3	1	3 Spring	EE205	EE
EE328	Speech Signal Processing	3	1	3 Spring	EE323	EE
EE332	Digital System Design	3	1	3 Spring	EE202-17	EE
EE336	Fundamentals of Photovoltaics	3	1	3 Spring	EE204	EE
EE350	Design of Modern Communication Systems Experiment	2	2	3 Spring	EE206,EE313	EE
EE368	Robotic Motion and Control	3	1	3 Spring	EE205	EE
EE405	Advanced Electronic Science Experiment III	1	1	3 Spring	EE318	EE
SDM378	Computer Vision and Application	3	1	3 Spring	MA127,MA113	AiM
CS405	Machine Learning	3	1	3 Spring	MA212	CS
EE470	Internship	2	2	3 Summer	None	EE
EE492	Undergraduate Thesis/Projects	12	12	4 Spring	None	EE
Total		96	47			

Curriculum Structure of Information Engineering



Note: The Subject Elective course lists include only part of the courses, see more in Program.

Department of Computer Science and Engineering

Program of Computer Science and Technology for International Students (2026)

I. Introduction

Computer science is one of the most dynamic and influential disciplines today. Its development and application level have become key indicators of national and regional competitiveness. In 2019, the Central Committee of the Communist Party of China and the State Council issued the Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area, which explicitly proposed building a high-level education and talent hub and establishing an international technology innovation center in the region. Computer science underpins advanced industries such as artificial intelligence, software, and information services. These industries are not only core pillars of Shenzhen and the Greater Bay Area but also play a leading role in driving high-tech development in China and globally. This program aims to cultivate top-tier innovative talents for the new era by emphasizing both a solid theoretical foundation and the enhancement of innovative applications. It also highlights interdisciplinary integration and an international perspective, contributing to the development of a talent hub in the Guangdong-Hong Kong-Macao Greater Bay Area and the advancement of national scientific and technological self-reliance.

Established with approval from the Ministry of Education in 2016, this program was selected as a National First-Class Undergraduate Program in 2022. In 2024, the discipline of Computer Science and Technology (0812) was approved as a doctoral degree program, forming a comprehensive undergraduate-to-doctorate training system.

Curriculum

The curriculum covers various fields, including theoretical computer science, computer system architecture, computer software, computer networks and security, artificial intelligence, and computer application technology. Students are required to complete core courses such as Data Structures and Algorithm Analysis, Digital Logic, Probability and Statistics, Discrete Mathematics, Computer Organization, Algorithm Design and Analysis, Computer Networks, Operating Systems, and Compilers. Based on personal interests and career plans, students can choose to specialize in specific areas. Elective courses are categorized into four major groups: Computer Systems, Networks, and Security; Artificial Intelligence; Computer Software and Theory; Computer Application Technology. Additionally, interdisciplinary courses related to emerging applications

are available.

Cutting-Edge Research and Innovation Practice

While emphasizing theoretical foundations, the program also focuses on strengthening practical and innovative capabilities. It offers problem-oriented and project-driven courses related to cutting-edge research projects, university-industry collaborations, and open-source projects. Through a "Project - Student Team - Academic Advisor" dual-selection mechanism, students gain experience in literature review, problem-solving, teamwork, and academic writing, enhancing their research and innovation capabilities. The program provides multiple platforms, such as frontier lecture series and academic competitions, and academic exchanges, to stimulate students' curiosity and improve their overall competence. Industrial internships and undergraduate thesis projects further enhance students' competitiveness in the job market.

Bilingual and Internationalized Education

Most courses are taught in English or in a bilingual format (Chinese and English). Course materials and content align with international standards, and integrating thoughtfully designed course projects and laboratory sessions to establish a comprehensive curriculum with a distinct global perspective.

Academic subject areas: Computer

Program code: 080901

II. Objectives and Learning Outcomes

1. Objectives

This program aims to cultivate top-tier innovative talents with a solid theoretical foundation, strong engineering capabilities, and an international vision. It emphasizes students' ability to meet national and regional development needs, fostering a sense of responsibility and mission to drive technological progress. The program also nurtures independent thinking and innovation skills, encouraging lifelong learning and continuous exploration. Graduates are expected to make significant contributions in academia, industry, and interdisciplinary fields.

2. Learning Outcomes

(1) Professional Knowledge and Application

Master essential knowledge in mathematics, physics, computer theory, software, and hardware.

Proficiently use modern tools, resources, and technologies.

Apply scientific methods and systematic thinking to solve real-world research and engineering problems, including literature review, algorithm design, experimental analysis, and information synthesis.

(2) Innovative Thinking

Develop the ability to distill problems and propose new methods, models, or systems.

Design, implement, and evaluate solutions while considering real-world constraints.

(3) Teamwork and Communication

Effectively collaborate in multidisciplinary and diverse teams.

Communicate efficiently to achieve common goals.

(4) International Perspective

Understand global trends and developments in the field.

Recognize the impact of technological innovations on the economy, society, and environment.

Engage in international collaborations and exchanges.

(5) Self-Driven and Lifelong Learning

Develop a proactive learning attitude and the ability to quickly grasp evolving technologies.

Explore new fields and adapt to emerging challenges.

(6) Comprehensive Competence and Social Responsibility

Possess strong humanities literacy and professional ethics.

Uphold a sense of social responsibility and contribute to the community.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Engineering.

3. The minimum credit requirement for graduation: 150 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required	Major Required Courses	27
		Practice-based Learning (Undergraduate Thesis, Internships)	14
	Major Elective	Major Elective Courses	30
Total			150

Note:
please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1 Fall	None	MATH
	MA127	Calculus II	4	1Spr	Calculus I	
	MA113	Linear Algebra	4	1 Spr/Fall	None	
Physics	PHY105	College Physics I	4	1 Fall	None	PHY
	PHY106	College Physics II	4	1Spr	College Physics I	
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spr/Fall	None	
Chemistry	CH105	Chemistry：the Central Science	3	1-2 Spr/Fall	None	CHM
Geoscience + Life Science	BIO102B	Introduction to Life Science	3	1-2 Spr/Fall	None	BIO
	EOE111	College Earth Sciences	3	1-2 Spr/Fall	None	ESS, OCE, ESE
Computer Programming	CS109	Introduction to Computer Programming	3	1-2 Spr/Fall	None	CSE

Note:
Students can take Mathematical Analysis I II as an alternative to Calculus I II.
Students can take Advanced Linear Algebra I as an alternative to Linear Algebra.
Students can take General Physics I II as an alternative to College Physics I II.
Students can take General Chemistry as an alternative to Chemistry：the Central Science.
Students can take Introduction to Life Science or College Earth Sciences.
Students can take Principles of Biology as an alternative to Introduction to Life Science.
The above alternatives are also applicable to "Prerequisites for Major Declaration."

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	MA117	Calculus I	None
	MA127	Calculus II	Calculus I
	MA113	Linear Algebra	None
	PHY105	College Physics I	None
	PHY106	College Physics II	College Physics I
	PHY104B	Experiments of Fundamental Physics	None
	CH105	Chemistry：the Central Science	None
	BIO102B/ EOE111	Introduction to Life Science/College Earth Sciences	None
	CS109	Introduction to Computer Programming	None
Declare major at the end of the second academic year	MA117	Calculus I	None
	MA127	Calculus II	Calculus I
	MA113	Linear Algebra	None
	PHY105	College Physics I	None
	PHY106	College Physics II	College Physics I
	PHY104B	Experiments of Fundamental Physics	None
	CH105	Chemistry：the Central Science	None
	BIO102B/ EOE111	Introduction to Life Science/College Earth Sciences	None
	CS109	Introduction to Computer Programming	None

Note:
If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Computer Science and Technology

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Required Courses	CS203	Data Structures and Algorithm Analysis	3	1	2 / Fall	CS109	CSE
	CS207	Digital Logic	3	1	2 / Fall	None	CSE
	MA212	Probability and Statistics	3		2 / Fall	MA127	MATH
	CS201	Discrete Mathematics	3		2 / Spr	MA127, MA113	CSE
	CS202	Computer Organization	3	1	2 / Spr	CS207	CSE
	CS208	Algorithm Design and Analysis	3	1	2 / Spr	CS203	CSE
	CS305	Computer Networks	3	1	3 / Fall	CS109	CSE
	CS302	Operating Systems	3	1	3 / Spr	CS203, CS202	CSE
	CS323	Compilers	3	1	4 / Fall	CS202	CSE
	Total		27	7			
Practice-based Courses	CS470	Industrial Practice	2	2	The earliest 2 /Summer	None	CSE
	CS491	Undergraduate Thesis/Projects	12	12	4 / Spr	None	CSE
	Total		14	14			
Total			41	21			

Table 2: Major Elective Courses

Program of Computer Science and Technology

Groups	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Computer Systems, Networks, and Security	CS301	Embedded System and Microcomputer Principle	3	1	3 / Fall	CS207	CSE
	CS315	Computer Security	3	1	3 / Fall	CS109	CSE
	CS401	Intelligent Robotics	3	1	3 / Spr	CS203, MA212	CSE
	CS314	Internet of Things	3	1	3 / Spr	CS305	CSE
	CS328	Distributed and Cloud Computing	3	1	4 / Fall	CS305	CSE
Artificial Intelligence	CS325	Multi-Agent Systems	3	1	3 / Fall	CS203	CSE
	CS303	Artificial Intelligence	3	1	3 / Fall	CS203, MA212	CSE
	CS308	Computer Vision	3	1	3 / Spr	CS203, MA127, MA113	CSE
	CS310	Natural Language Processing	3	1	3 / Spr	CS303	CSE
	CS340	Computational Ethics	3	1	3 / Spr	CS303	CSE
	CS405	Machine Learning	3	1	3 / Spr	MA212	CSE
	CS324	Deep Learning	3	1	4 / Fall	CS303	CSE
Computer Software and Theory	CS104	Introduction to Mathematical Logic	2		1 / Spr	None	CSE
	CS221	Applied Programming and System Design	3	1	2 / Fall	CS109	CSE
	CS219	Advanced Programming	3	1	2 / Spr	CS109	CSE
	CS309	Object-oriented Analysis and Design	3	1	3 / Fall	CS203	CSE

	CS342	Optimization Methods	3	1	3 / Spr	None	CSE
	CS338	Introduction to Theory of Computation	3	1	3 / Spr	CS203	CSE
	CS304	Software Engineering	3	1	3 / Spr	CS203	CSE
	CS409	Software Testing	3	1	4 / Fall	CS304	CSE
	EE411	Information Theory and Coding	2		4 / Fall	MA212	EE
Computer Application Technology	CS307	Principles of Database Systems	3	1	2 / Fall	CS109	CSE
	CS306	Data Mining	3	1	2 / Spr	CS203	CSE
	EE326	Digital Image Processing	3	1	3 / Spr	EE205	EE
	CS330	Multimedia Information Processing	3	1	3 / Spr	None	CSE
	CS332	Information Retrieval	3	1	3 / Spr	CS203	CSE
	CS312	Computer Graphics	3	1	3 / Spr	None	CSE
Interdisciplinary	SDM216	CAD:3D Modeling and Programming	3	3	2 / Fall	None	AiM
	MA209-16	Elementary Number Theory	3		2 / Fall	MA109	MATH
	EE205	Signals and Systems	3	1	2 / Fall	MA117	EE
	EE207	Engineering Mathematics	4		2 / Fall	MA127, PHY106, MA113	EE
	MA214	Abstract Algebra	3		2 / Spr	MA109	MATH
	MA202	Complex Analysis	3		2 / Spr	MA213-16	MATH
	MA208	Applied Stochastic Processes	3		2 / Spr	MA213-16 &(MA215/ MA212) & MA109	MATH

	EE206	Communication Principles	3	1	2 / Spr	EE205	EE
	MA309	Time Series Analysis	3		3 / Fall	MA204/ MA212	STA
	BMEB 316	Medical image processing	3	1	3 / Fall	None	BME
	FMA301	Econometrics	3		3 / Spr	MA236/ MA212	MATH
	MA304	Multivariate Statistical Analysis	3		3 / Spr	MA212	STA
	STA306	Bayesian Statistics	3		3 / Spr	MA329	STA
	SDM354	Human Factors Engineering	3	1	3 / Spr	CS112/ CS109	AiM
	MIS332	Blockchain Essentials and Practices	3	1	3 / Spr	None	MIS
	ESE407	Introduction to Numerical Simulation Methods	3	0	4/Fall	MA127, MA113	ESE
Seminars and Group Projects	CS317	Frontier Seminars in Computer Science and Technology I	1		3 / Fall	None	CSE
	CS318	Frontier Seminars in Computer Science and Technology II	1		3 / Spr	None	CSE
	CS321	Group Projects I	2	2	3 / Fall	None	CSE
	CS326	Group Projects II	2	2	3 / Spr	None	CSE
Total			134	37			

Note:
1Take at least one course in each of the four groups (Computer Systems, Networks, and Security; Artificial Intelligence; Computer Software and Theory; Computer Application Technology).
Up to 6 credits can be credited for interdisciplinary group.

Table 3: Overview of Practice-based Learning

Program of Computer Science and Technology

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
CS203	Data Structures and Algorithm Analysis	3	1	2 / Fall	CS109	CSE
CS207	Digital Logic	3	1	2 / Fall	None	CSE
CS202	Computer Organization	3	1	2 / Spr	CS207	CSE
CS208	Algorithm Design and Analysis	3	1	2 / Spr	CS203	CSE
CS305	Computer Networks	3	1	3 / Fall	CS109	CSE
CS302	Operating Systems	3	1	3 / Spr	CS203, CS202	CSE
CS323	Compilers	3	1	4 / Fall	CS202	CSE
CS301	Embedded System and Microcomputer Principle	3	1	3 / Fall	CS207	CSE
CS315	Computer Security	3	1	3 / Fall	CS109	CSE
CS401	Intelligent Robotics	3	1	3 / Spr	CS203, MA212	CSE
CS314	Internet of Things	3	1	3 / Spr	CS305	CSE
CS328	Distributed and Cloud Computing	3	1	4 / Fall	CS305	CSE
CS325	Multi-Agent Systems	3	1	3 / Fall	CS203	CSE
CS303	Artificial Intelligence	3	1	3 / Fall	CS203, MA212	CSE
CS308	Computer Vision	3	1	3 / Spr	CS203, MA127, MA113	CSE
CS310	Natural Language Processing	3	1	3 / Spr	CS303	CSE
CS340	Computational Ethics	3	1	3 / Spr	CS303	CSE
CS405	Machine Learning	3	1	3 / Spr	MA212	CSE
CS324	Deep Learning	3	1	4 / Fall	CS303	CSE
CS221	Applied Programming and System Design	3	1	2 / Fall	CS109	CSE
CS219	Advanced Programming	3	1	2 / Spr	CS109	CSE

CS309	Object-oriented Analysis and Design	3	1	3 / Fall	CS203	CSE
CS342	Optimization Methods	3	1	3 / Spr	None	CSE
CS338	Introduction to Theory of Computation	3	1	3 / Spr	CS203	CSE
CS304	Software Engineering	3	1	3 / Spr	CS203	CSE
CS409	Software Testing	3	1	4 / Fall	CS304	CSE
CS307	Principles of Database Systems	3	1	2 / Fall	CS109	CSE
CS306	Data Mining	3	1	2 / Spr	CS203	CSE
EE326	Digital Image Processing	3	1	3 / Spr	EE205	EE
CS330	Multimedia Information Processing	3	1	3 / Spr	None	CSE
CS332	Information Retrieval	3	1	3 / Spr	CS203	CSE
CS312	Computer Graphics	3	1	3 / Spr	None	CSE
SDM216	CAD:3D Modeling and Programming	3	3	2 / Fall	None	AiM
EE205	Signals and Systems	3	1	2 / Fall	MA117	EE
EE206	Communication Principles	3	1	2 / Spr	EE205	EE
BMEB316	Medical image processing	3	1	3 / Fall	None	BME
SDM354	Human Factors Engineering	3	1	3 / Spr	CS112/CS109	AiM
MIS332	Blockchain Essentials and Practices	3	1	3 / Spr	None	MIS
CS321	Group Projects I	2	2	3 / Fall	None	CSE
CS326	Group Projects II	2	2	3 / Spr	None	CSE
CS470	Industrial Practice	2	2	The earliest 2 /Summer	None	CSE
CS491	Undergraduate Thesis/Projects	12	12	4 / Spr	None	CSE
Total		132	58			

Curriculum Structure of Computer Science and Technology

<table>
<tr><th colspan="2">Terms</th><th>1 / Fall</th><th>1 / Spr</th><th>2 / Fall</th><th>2 / Spr</th><th>3 / Fall</th><th>3 / Spr</th><th>4 / Fall</th><th>4 / Spr</th></tr>
<tr><td colspan="2" rowspan="3">Major Required Courses</td><td></td><td></td><td>Data Structures and Algorithm Analysis</td><td>Discrete Mathematics</td><td>Computer Networks</td><td>Operating Systems</td><td>Compilers</td><td></td></tr>
<tr><td></td><td></td><td>Digital Logic</td><td>Computer Organization</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>Probability and Statistics</td><td>Algorithm Design and Analysis</td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="6">Major Elective Courses</td><td>Computer Systems, Networks, and Security (Take at least one course)</td><td colspan="8">Embedded System and Microcomputer Principle Computer Security Intelligent Robotics Internet of Things Distributed and Cloud Computing</td></tr>
<tr><td>Artificial Intelligence (Take at least one course)</td><td colspan="8">Multi-Agent Systems Artificial Intelligence Computer Vision Natural Language Processing Computational Ethics Machine Learning Deep Learning</td></tr>
<tr><td>Computer Software and Theory (Take at least one course)</td><td colspan="8">Introduction to Mathematical Logic Applied Programming and System Design Advanced Programming Object-oriented Analysis and Design Optimization Methods Introduction to Theory of Computation Software Engineering Software Testing Information Theory and Coding</td></tr>
<tr><td>Computer Application Technology (Take at least one course)</td><td colspan="8">Principles of Database Systems Data Mining Digital Image Processing Multimedia Information Processing Information Retrieval Computer Graphics</td></tr>
<tr><td>Interdisciplinary (Up to 6 credits can be credited)</td><td colspan="8">CAD:3D Modeling and Programming Elementary Number Theory Signals and Systems Engineering Mathematics Abstract Algebra Complex Analysis Applied Stochastic Processes Communication Principles Time Series Analysis Medical image processing Econometrics Multivariate Statistical Analysis Bayesian Statistics Human Factors Engineering Blockchain Essentials and Practices Introduction to Numerical Simulation Methods</td></tr>
<tr><td>Seminars and Group Projects</td><td colspan="8">Frontier Seminars in Computer Science and Technology (Up to 2 credits can be credited)
Group Projects (Up to 4 credits can be credited)</td></tr>
<tr><td colspan="6">Practice-based Courses (Required)</td><td colspan="4">Industrial Practice Undergraduate Thesis/Projects</td></tr>
</table>

Department of Computer Science and Engineering

Program of Intelligence Science and Technology

for International Students (2026)

I. Introduction

In 2019, the Central Committee of the Communist Party of China and the State Council issued the Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area, which explicitly proposed building a high-level education and talent hub and establishing an international technology innovation center in the region. Intelligent Science and Technology, classified under the computer science discipline, is closely associated with key industry clusters such as artificial intelligence, robotics, intelligent sensing, intelligent networking, and smart terminals. These industries are not only core pillars of Shenzhen and the Greater Bay Area but also play a leading role in driving high-tech development in China and globally. This program aims to cultivate top-tier innovative talents for the new era of artificial intelligence, by emphasizing both a solid theoretical foundation and innovative applications. It also highlights interdisciplinary integration and an international perspective, contributing to the development of a talent hub in the Greater Bay Area and the advancement of national scientific and technological self-reliance.

The Intelligent Science and Technology major is a fundamental undergraduate program that explores the mechanisms of natural intelligence and the theories, methods, and applications of artificial intelligence. It plays a crucial role in advancing society from the information age to the intelligent age. This program is an emerging discipline characterized by interdisciplinary integration, evolving from foundations in computer science and technology, mathematics, physics, psychology, and cognitive science. It primarily covers research areas such as cognition and reasoning, computer vision, natural language processing, machine learning, embodied intelligence, multi-agent systems, intelligent data analysis, robotics, and brain-inspired intelligence.

Established with approval from the Ministry of Education in 2019. In 2024, the discipline of Computer Science and Technology (0812) was approved as a doctoral degree program, forming a comprehensive undergraduate-to-doctorate training system.

Curriculum

The core curriculum of this program includes Introduction to Mathematical Logic, Data Structures and Algorithm Analysis, Probability and Statistics, Algorithm Design and Analysis,

Machine Learning, Artificial Intelligence, Deep Learning, Computer Vision, and Natural Language Processing. In addition to core courses, the program offers specialized elective courses categorized into three groups: Fundamental Computer Science; Fundamental Artificial Intelligence; Applied Artificial Intelligence. Furthermore, interdisciplinary elective courses are available for students interested in cross-domain applications.

Cutting-Edge Research and Innovation Practice

While emphasizing theoretical foundations, the program also focuses on strengthening practical and innovative capabilities. It offers problem-oriented and project-driven courses related to cutting-edge research projects, university-industry collaborations, and open-source projects. Through a "Project - Student Team - Academic Advisor" dual-selection mechanism, students gain experience in literature review, problem-solving, teamwork, and academic writing, enhancing their research and innovation capabilities. The program provides multiple platforms, such as frontier lecture series and academic competitions, and academic exchanges, to stimulate students' curiosity and improve their overall competence. Industrial internships and undergraduate thesis projects further enhance students' competitiveness in the job market.

Bilingual and Internationalized Education

Most courses are taught in English or in a bilingual format (Chinese and English). Course materials and content align with international standards, and specially designed projects and lab courses help students gain a global perspective in computing.

Academic subject areas: Computer

Program code: 080907T

II. Objectives and Learning Outcomes

1. Objectives

In the new era of artificial intelligence, this program aims to cultivate top-tier innovative talents with a solid theoretical foundation, strong engineering capabilities, and an international vision. It emphasizes students' ability to meet national and regional development needs, fostering a sense of responsibility and mission to drive technological progress. The program also nurtures independent thinking and innovation skills, encouraging lifelong learning and continuous exploration. Graduates are expected to make significant contributions in academia, industry, and interdisciplinary fields.

2. Learning Outcomes

(1) Professional Knowledge and Application

Master essential knowledge in mathematics, physics, theoretical basis of intelligent science and technology, software, and hardware.

Proficiently use modern tools, resources, and technologies.

Apply scientific methods and systematic thinking to solve real-world research and engineering problems, including literature review, algorithm design, experimental analysis, and information synthesis.

(2) Innovative Thinking

Develop the ability to distill problems and propose new methods, models, or systems.

Design, implement, and evaluate solutions while considering real-world constraints.

(3) Teamwork and Communication

Effectively collaborate in multidisciplinary and diverse teams.

Communicate efficiently to achieve common goals.

(4) International Perspective

Understand global trends and developments in the field.

Recognize the impact of technological innovations on the economy, society, and environment.

Engage in international collaborations and exchanges.

(5) Self-Driven and Lifelong Learning

Develop a proactive learning attitude and the ability to quickly grasp evolving technologies.

Explore new fields and adapt to emerging challenges.

(6) Comprehensive Competence and Social Responsibility

Possess strong humanities literacy and professional ethics.

Uphold a sense of social responsibility and contribute to the community.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the

undergraduate program will be awarded a bachelor's degree in Engineering

3. The minimum credit requirement for graduation: 149 credits. The specific requirements are as follows.

<table>
<tr><th colspan="2">Module</th><th>Category</th><th>Minimum Credit Requirement</th></tr>
<tr><td rowspan="12">General Education Courses</td><td>Chinese Language and Culture Module</td><td>Chinese Language and Culture</td><td>16</td></tr>
<tr><td rowspan="2">Arts and Physical Education Module</td><td>Physical Education</td><td>4</td></tr>
<tr><td>Arts</td><td>2</td></tr>
<tr><td rowspan="3">Competence Development Module</td><td>Computer Programming</td><td>3</td></tr>
<tr><td>Writing</td><td>2</td></tr>
<tr><td>Foreign Languages</td><td>14</td></tr>
<tr><td rowspan="2">Humanities and Social Sciences Module</td><td>Humanities</td><td>4</td></tr>
<tr><td>Social Sciences</td><td>4</td></tr>
<tr><td rowspan="4">Mathematics and Natural Sciences Module</td><td>Mathematics</td><td>12</td></tr>
<tr><td>Physics</td><td>10</td></tr>
<tr><td>Chemistry</td><td>3</td></tr>
<tr><td>Geoscience + Life science</td><td>3</td></tr>
<tr><td>GE to Majors Bridging Module</td><td>Introduction to Majors</td><td>2</td></tr>
<tr><td rowspan="3">Major Courses</td><td rowspan="2">Major Required</td><td>Major Required Courses</td><td>26</td></tr>
<tr><td>Practice-based Learning (Undergraduate Thesis, Internships)</td><td>14</td></tr>
<tr><td>Major Elective</td><td>Major Elective Courses</td><td>30</td></tr>
<tr><td colspan="3">Total</td><td>149</td></tr>
<tr><td colspan="4">Note:
please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.</td></tr>
</table>

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1 Fall	None	MATH
	MA127	Calculus II	4	1Spr	Calculus I	
	MA113	Linear Algebra	4	1 Spr/Fall	None	
Physics	PHY105	College Physics I	4	1 Fall	None	PHY
	PHY106	College Physics II	4	1Spr	College Physics I	
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spr/Fall	None	
Chemistry	CH105	Chemistry：the Central Science	3	1-2 Spr/Fall	None	CHM
Geoscience + Life Science	BIO102B	Introduction to Life Science	3	1-2 Spr/Fall	None	BIO
	EOE111	College Earth Sciences	3	1-2 Spr/Fall	None	ESS, OCE, ESE
Computer Programming	CS109	Introduction to Computer Programming	3	1-2 Spr/Fall	None	CSE

Note:
Students can take Mathematical Analysis I II as an alternative to Calculus I II.
Students can take Advanced Linear Algebra I as an alternative to Linear Algebra.
Students can take General Physics I II as an alternative to College Physics I II.
Students can take General Chemistry as an alternative to Chemistry：the Central Science.
Students can take Introduction to Life Science or College Earth Sciences.
Students can take Principles of Biology as an alternative to Introduction to Life Science.
The above alternatives are also applicable to "Prerequisites for Major Declaration."

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	MA117	Calculus I	None
	MA127	Calculus II	Calculus I
	MA113	Linear Algebra	None
	PHY105	College Physics I	None
	PHY106	College Physics II	College Physics I
	PHY104B	Experiments of Fundamental Physics	None
	CH105	Chemistry：the Central Science	None
	BIO102B/ EOE111	Introduction to Life Science/College Earth Sciences	None
	CS109	Introduction to Computer Programming	None
Declare major at the end of the second academic year	MA117	Calculus I	None
	MA127	Calculus II	Calculus I
	MA113	Linear Algebra	None
	PHY105	College Physics I	None
	PHY106	College Physics II	College Physics I
	PHY104B	Experiments of Fundamental Physics	None
	CH105	Chemistry：the Central Science	None
	BIO102B/ EOE111	Introduction to Life Science/College Earth Sciences	None
	CS109	Introduction to Computer Programming	None

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Intelligence Science and Technology

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Required Courses	CS104	Introduction to Mathematical Logic	2		1 / Spr	None	CSE
	CS203	Data Structures and Algorithm Analysis	3	1	2 / Fall	CS109	CSE
	MA212	Probability and Statistics	3		2 / Fall	MA127	MATH
	CS208	Algorithm Design and Analysis	3	1	2 / Spr	CS203	CSE
	CS405	Machine Learning	3	1	2 / Spr	MA212	CSE
	CS303	Artificial Intelligence	3	1	3 / Fall	CS203, MA212	CSE
	CS324	Deep Learning	3	1	3 / Fall	CS303	CSE
	CS308	Computer Vision	3	1	3 / Spr	CS203, MA127, MA113	CSE
	CS310	Natural Language Processing	3	1	3 / Spr	CS303	CSE
	Total		26	7			
Practice-based Courses	CS470	Industrial Practice	2	2	The earliest 2 /Summer	None	CSE
	CS491	Undergraduate Thesis/Projects	12	12	4 / Spr	None	CSE
Total			40	21			

Table 2: Major Elective Courses

Program of Intelligence Science and Technology

Groups	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Fundamental Computer Science	CS221	Applied Programming and System Design	3	1	2 / Fall	CS109	CSE
	CS207	Digital Logic	3	1	2 / Fall	None	CSE
	CS307	Principles of Database Systems	3	1	2 / Fall	CS109	CSE
	CS219	Advanced Programming	3	1	2 / Spr	CS109	CSE
	CS202	Computer Organization	3	1	2 / Spr	CS207	CSE
	CS305	Computer Networks	3	1	3 / Fall	CS109	CSE
	CS309	Object-oriented Analysis and Design	3	1	3 / Fall	CS203	CSE
	CS301	Embedded System and Microcomputer Principle	3	1	3 / Fall	CS207	CSE
	CS315	Computer Security	3	1	3 / Fall	CS109	CSE
	CS302	Operating Systems	3	1	3 / Spr	CS203, CS202	CSE
	CS304	Software Engineering	3	1	3 / Spr	CS203	CSE
	CS314	Internet of Things	3	1	3 / Spr	CS305	CSE
	CS323	Compilers	3	1	4 / Fall	CS202	CSE
	CS409	Software Testing	3	1	4 / Fall	CS304	CSE
	CS328	Distributed and Cloud Computing	3	1	4 / Fall	CS305	CSE

Fundamental Artificial Intelligence	CS201	Discrete Mathematics	3		2 / Spr	MA127, MA113	CSE
	CS325	Multi-Agent Systems	3	1	3 / Fall	CS203	CSE
	CS338	Introduction to Theory of Computation	3	1	3 / Spr	CS203	CSE
	CS342	Optimization Methods	3	1	3 / Spr	None	CSE
	EE411	Information Theory and Coding	2		4 / Fall	MA212	EE
Applied Artificial Intelligence	CS306	Data Mining	3	1	2 / Spr	CS203	CSE
	EE326	Digital Image Processing	3	1	3 / Spr	EE205	EE
	CS330	Multimedia Information Processing	3	1	3 / Spr	None	CSE
	CS332	Information Retrieval	3	1	3 / Spr	CS203	CSE
	CS312	Computer Graphics	3	1	3 / Spr	None	CSE
	CS340	Computational Ethics	3	1	3 / Spr	CS303	CSE
	CS401	Intelligent Robotics	3	1	3 / Spr	CS203, MA212	CSE
Interdisciplinary	SDM216	CAD:3D Modeling and Programming	3	3	2 / Fall	None	AiM
	EE211	Robotic Perception and Intelligence	3	1	2 / Fall	None	EE
	EE205	Signals and Systems	3	1	2 / Fall	MA117	EE
	EE207	Engineering Mathematics	4		2 / Fall	MA127, PHY106, MA113	EE
	MA210	Operations Research	3		2 / Spr	MA203a	MATH
	MA208	Applied Stochastic Processes	3		2 / Spr	MA213-16 &(MA215/ MA212) & MA109	MATH
	EE206	Communication Principles	3	1	2 / Spr	EE205	EE

	MA309	Time Series Analysis	3		3 / Fall	MA204/ MA212	STA
	BMEB333	Neural Engineering and Brain-computer Interface	3		3 / Fall	MA113	BME
	BMEB316	Medical image processing	3	1	3 / Fall	None	BME
	FMA301	Econometrics	3		3 / Spr	MA236/ MA212	MATH
	MA304	Multivariate Statistical Analysis	3		3 / Spr	MA212	STA
	STA306	Bayesian Statistics	3		3 / Spr	MA329	STA
	STA320	Statistical Learning	3		3 / Spr	MA204	STA
	BMEB331	Medical Big Data	3	1	3 / Spr	MA127, MA113, MA212	BME
	BIO306	Bioinformatics	4	2	3 / Spr	None	BIO
	SDM354	Human Factors Engineering	3	1	3 / Spr	CS112/ CS109	AiM
	MIS332	Blockchain Essentials and Practices	3	1	3 / Spr	None	MIS
Seminars and Group Projects	CS317	Frontier Seminars in Computer Science and Technology I	1		3 / Fall	None	CSE
	CS318	Frontier Seminars in Computer Science and Technology II	1		3 / Spr	None	CSE
	CS321	Group Projects I	2	2	3 / Fall	None	CSE
	CS326	Group Projects II	2	2	3 / Spr	None	CSE
Total			142	41			

Note:
Take at least one course in each of the three groups (Fundamental Computer Science, Fundamental Artificial Intelligence, Applied Artificial Intelligence).
Up to 6 credits can be credited for interdisciplinary group.

Table 3: Overview of Practice-based Learning

Program of Intelligence Science and Technology

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
CS203	Data Structures and Algorithm Analysis	3	1	2 / Fall	CS109	CSE
CS208	Algorithm Design and Analysis	3	1	2 / Spr	CS203	CSE
CS405	Machine Learning	3	1	2 / Spr	MA212	CSE
CS303	Artificial Intelligence	3	1	3 / Fall	CS203, MA212	CSE
CS324	Deep Learning	3	1	3 / Fall	CS303	CSE
CS308	Computer Vision	3	1	3 / Spr	CS203, MA127, MA113	CSE
CS310	Natural Language Processing	3	1	3 / Spr	CS303	CSE
CS221	Applied Programming and System Design	3	1	2 / Fall	CS109	CSE
CS207	Digital Logic	3	1	2 / Fall	None	CSE
CS307	Principles of Database Systems	3	1	2 / Fall	CS109	CSE
CS219	Advanced Programming	3	1	2 / Spr	CS109	CSE
CS202	Computer Organization	3	1	2 / Spr	CS207	CSE
CS305	Computer Networks	3	1	3 / Fall	CS109	CSE
CS309	Object-oriented Analysis and Design	3	1	3 / Fall	CS203	CSE
CS301	Embedded System and Microcomputer Principle	3	1	3 / Fall	CS207	CSE
CS315	Computer Security	3	1	3 / Fall	CS109	CSE
CS302	Operating Systems	3	1	3 / Spr	CS203, CS202	CSE
CS304	Software Engineering	3	1	3 / Spr	CS203	CSE
CS314	Internet of Things	3	1	3 / Spr	CS305	CSE
CS323	Compilers	3	1	4 / Fall	CS202	CSE
CS409	Software Testing	3	1	4 / Fall	CS304	CSE
CS328	Distributed and Cloud Computing	3	1	4 / Fall	CS305	CSE

CS325	Multi-Agent Systems	3	1	3 / Fall	CS203	CSE
CS338	Introduction to Theory of Computation	3	1	3 / Spr	CS203	CSE
CS342	Optimization Methods	3	1	3 / Spr	None	CSE
CS306	Data Mining	3	1	2 / Spr	CS203	CSE
EE326	Digital Image Processing	3	1	3 / Spr	EE205	EE
CS330	Multimedia Information Processing	3	1	3 / Spr	None	CSE
CS332	Information Retrieval	3	1	3 / Spr	CS203	CSE
CS312	Computer Graphics	3	1	3 / Spr	None	CSE
CS340	Computational Ethics	3	1	3 / Spr	CS303	CSE
CS401	Intelligent Robotics	3	1	3 / Spr	CS203, MA212	CSE
SDM216	CAD:3D Modeling and Programming	3	3	2 / Fall	None	AiM
EE211	Robotic Perception and Intelligence	3	1	2 / Fall	None	EE
EE205	Signals and Systems	3	1	2 / Fall	MA117	EE
EE206	Communication Principles	3	1	2 / Spr	EE205	EE
BMEB316	Medical image processing	3	1	3 / Fall	None	BME
BMEB331	Medical Big Data	3	1	3 / Spr	MA127, MA113, MA212	BME
BIO306	Bioinformatics	4	2	3 / Spr	None	BIO
SDM354	Human Factors Engineering	3	1	3 / Spr	CS112/CS109	AiM
MIS332	Blockchain Essentials and Practices	3	1	3 / Spr	None	MIS
CS321	Group Projects I	2	2	3 / Fall	None	CSE
CS326	Group Projects II	2	2	3 / Spr	None	CSE
CS470	Industrial Practice	2	2	The earliest 2 /Summer	None	CSE
CS491	Undergraduate Thesis/Projects	12	12	4 / Spr	None	CSE
Total		142	62			

Curriculum Structure of Intelligence Science and Technology

<table>
<tr><th colspan="2">Terms</th><th>1 / Fall</th><th>1 / Spr</th><th>2 / Fall</th><th>2 / Spr</th><th>3 / Fall</th><th>3 / Spr</th><th>4 / Fall</th><th>4 / Spr</th></tr>
<tr><td colspan="2" rowspan="2">Major Required Courses</td><td></td><td>Introduction to Mathematical Logic</td><td>Data Structures and Algorithm Analysis</td><td>Algorithm Design and Analysis</td><td>Artificial Intelligence</td><td>Computer Vision</td><td></td><td></td></tr>
<tr><td></td><td></td><td>Probability and Statistics</td><td>Machine Learning</td><td>Deep Learning</td><td>Natural Language Processing</td><td></td><td></td></tr>
<tr><td rowspan="5">Major Elective Courses</td><td>Fundamental Computer Science
(Take at least one course)</td><td colspan="8">Applied Programming and System Design Digital Logic Principles of Database Systems Advanced Programming
Computer Organization Computer Networks Object-oriented Analysis and Design Embedded System and Microcomputer Principle
Computer Security Operating Systems Software Engineering Internet of Things Compilers Software Testing
Distributed and Cloud Computing</td></tr>
<tr><td>Fundamental Artificial Intelligence
(Take at least one course)</td><td colspan="8">Discrete Mathematics Multi-Agent Systems Introduction to Theory of Computation Optimization Methods
Information Theory and Coding</td></tr>
<tr><td>Applied Artificial Intelligence
(Take at least one course)</td><td colspan="8">Data Mining Digital Image Processing Multimedia Information Processing Information Retrieval Computer Graphics
Computational Ethics Intelligent Robotics</td></tr>
<tr><td>Interdisciplinary
(Up to 6 credits can be credited)</td><td colspan="8">CAD:3D Modeling and Programming Robotic Perception and Intelligence Signals and Systems Engineering Mathematics
Operations Research Applied Stochastic Processes Communication Principles Time Series Analysis
Neural Engineering and Brain-computer Interface Medical image processing Econometrics Multivariate Statistical Analysis
Bayesian Statistics Statistical Learning Medical Big Data Bioinformatics Human Factors Engineering Blockchain Essentials and Practices</td></tr>
<tr><td>Seminars and Group Projects</td><td colspan="8">Frontier Seminars in Computer Science and Technology (Up to 2 credits can be credited)
Group Projects (Up to 4 credits can be credited)</td></tr>
<tr><td colspan="6">Practice-based Courses</td><td colspan="4">Industrial Practice Undergraduate Thesis/Projects</td></tr>
</table>

Department of Ocean Science and Engineering

Program of Oceanography

for International Students (2026)

I. Introduction

Marine science is based on the basic theories and knowledge of mathematics, physics, chemistry, biology, geology, geophysics and Marine science, learning professional knowledge in specific fields of Marine science, and receiving basic training in Marine investigation, ocean observation, data analysis and research of Marine science problems. Students will master the working methods of a specific professional field of Marine science and have the basic ability to carry out experimental design, data collection, research scientific problems and solve applied problems in a specific professional field of Marine science. At present, with the establishment of national Marine strategy, Marine science has become an important subject direction in our economy and national defense construction.

Academic subject areas: Marine science;

Program code:070701

II. Objectives and Learning Outcomes

1. Objectives

This major cultivates high quality science and technology professionals with good ideological and moral quality, high humanistic quality, and international vision. Students will learn the basic energy theory, basic knowledge and basic skills of Marine science in a comprehensive way. Systematically master professional knowledge and special skills in specific fields of Marine science; After graduation, they are qualified for scientific research, teaching, management and technical research and development in Marine science and related fields, and have an international vision of high-quality technical professionals.

2. Learning Outcomes

Graduates should acquire knowledge and abilities in the following aspects:

1. Have scientific spirit, professional spirit and ocean consciousness, have a sense of social responsibility, have the spirit of unity and cooperation and humanities literacy;

2. Master basic theories and basic knowledge in mathematics, physics, chemistry, biology, geology, geophysics and Marine science (earth system science), master specialized system knowledge in specific fields of Marine science;

3. To master the basic methods of Marine survey, observation and analytical research, as well as the general methods and expertise for carrying out work in specific fields of Marine science;

4. Basic ability to undertake routine Marine surveys and specialized work in specific fields of Marine science;

5. Understand the basic knowledge of relevant disciplines, major academic issues, frontier academic achievements and international academic research trends in specific fields of Marine science;

6. Have the ability to design experimental programs, create experimental conditions, and conduct Marine scientific research by means of observation, simulation, experiment and analysis, and be able to write academic papers scientifically and standardized and participate in academic exchange activities;

7. Familiar with national Marine science and technology policies and international cooperative research management of Marine science, able to participate in Marine investigation and research work of different teams at home and abroad in different sea areas within the framework of relevant policies, laws and regulations such as intellectual property rights, information security and international cooperation agreements;

8. Good quality and ability to receive further education.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Science.

3. The minimum credit requirement for graduation: 150 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	3
		Major Core Courses	30
		Practice-based Learning (Undergraduate Thesis, Internships, Research projects, etc.)	18
	Major Elective Courses	Major Elective Courses	20
Total			150
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

CourseCategory	CourseCode	Course Name		Credits	Terms	Prerequisite	Dept.
Mathematics	MA101a	Mathematical Analysis I	Category A	5	1 Fall		METH
	MA102a	Mathematical Analysis II		5	1 Spring	MA101a	
	MA117	Calculus I	Category B	4	1 Fall		
	MA127	Calculus II		4	1 Spring	MA117	
	MA118	Advanced calculus II	Category C	4	1 Fall		
	MA128	Advanced calculus II		4	1 Spring	MA118	
	MA107	Advanced Linear Algebra I		4	1 Fall		
	MA113	Linear Algebra		4	1 Spring&Fall		
Physics	PHY101	General Physics I	Category A	5	1 Fall		PHY
	PHY102	General Physics II		5	1 Spring	PHY101	
	PHY105	College Physics I	Category B	4	1 Fall		
	PHY106	College Physics II		4	1 Spring	PHY105	

	PHY104B	Experiments of Fundamental Physics	2	1-2Spring & Fall		
Chemistry	CH103	General Chemistry	4	1-2Spring& Fall		CH
	CH105	College Chemistry	3	1-2Spring& Fall		
Geoscience+ Life Science	EOE111	College Earth Science	3	1-2Spring& Fall		ESS, OCE,ESE
Computer Programming	CS109	Introduction toComputer Programming	3	1-2Spring & Fall		CSE
	CS110	Introduction to JavaProgramming	3	1-2Spring & Fall		
	CS111	Introduction to C programming	3	1-2Spring & Fall		
	CS112	Introduction to Python Programming	3	1-2Spring & Fall		
	CS113	Introduction to MATLAB Programming	3	1-2Spring & Fall		

Note:
1. For Mathematics, students must select one of the A, B, or C course categories (at least 8 credits) and complete the course Advanced Linear Algebra I or Linear Algebra for 4 credits.
2. For Physics, students must select either course category A or B (at least 8 credits) and complete the course Experiments of Fundamental Physics for 2 credits.
3. For Chemistry, students must choose one of the listed courses to receive at least 3 credits.
4. For Computer Programming, students must choose one of the listed courses to receive at least 3 credits.

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	EOE111	College Earth Sciences	EOE111
	MA101a\MA117	Mathematical Analysis I/ Calculus I	
	Complete two courses from the following four courses simultaneously		
	PHY101\PHY105	General Physics I/ College Physics I	
	CH103/CH105	General Chemistry/College Chemistry	
Declare major at the end of the second academic year	EOE111	College Earth Sciences	EOE111
	MA101a\MA117	Mathematical Analysis I/ Calculus I	
	MA102a\MA127	Mathematical Analysis II / Calculus II	
	Complete three courses from the following seven courses simultaneously		
	PHY101\PHY105	General Physics I/ College Physics I	
	CH103/CH105	General Chemistry/College Chemistry	
	PHY102\PHY106	General Physics II / College Physics II	
	PHY104B	Experiments of Fundamental Physics	

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Course

Program of Oceanography

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	OCE100	Introductionto Marine Science	3	0	1/Spring		OCE
	Total		3	0			
Major Core Courses	OCE203	Marine Biology	3	0	2/Spring		OCE
	OCE305	Physical Oceanography	3	0	2/Spring		OCE
	OCE301	Introduction to AtmosphericScience	3	0	3/Fall		OCE
	OCE306	Marine Geology	3	0	3/Fall		OCE
	OCE307	ChemicalOceanography	3	0	3/Fall		OCE
	OCE401	Marine Geophysics	3	0	3/Fall		OCE
	OCE304	Introduction toComputational Oceanography	3	0	3/Spring	CS109/ CS110/ CS111/ CS112/ CS113	OCE
	OCE308	Microbial Oceanography	3	0	3/Spring		OCE
	OCE340	Multidimensional Data Analysis in Geosciences	3	0	3/Fall	MA113	OCE
	OCE423	Biological Isotopes	3	0	3/Fall		OCE
	Total		30	0			
Practice-based Courses	OCE470	GeologyField Trip	2	2	2/ Summer		OCE
	OCE471	MarineCruises	2	2	3/ Summer		OCE
	OCE480	Projects of Science and TechnologyInnovation	2	2	4/Fall		OCE
	OCE491	Thesis （Graduation Project）	12	12	4/Spring		OCE
	Total		18	18			
Total			51	18			

Table 2: Major Elective Courses

Program of Oceanography

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Marine science course						
OCE204	The Taste of Ocean	1	0	1/ Fall		OCE
OCE210	Intelligent Ocean Exploration	3	0	2/Spring		OCE
OCE216	Ocean Environment and Disasters	2	0	3/Fall		OCE
OCE214	Engineering Mathematics and Numerical Computation	4	0	2/Fall	MA101a/ MA117	OCE
OCE345	Marine resource exploitation technologies	2	0	3/Spring		OCE
OCE217	Fluid Mechanics For Offshore Engineering	3	0	2/Spring		OCE
OCE419	Ocean Renewable Energy	2	0	3/Fall		OCE
Marine geophysics courses						
ESS201	Introduction to Earth and Space Sciences	3	0	2/Fall		ESS
PHY203-15	Mathematical Methods in Physics	4	0	2/Fall	PHY102/ PHY106& MA113& MA127/ MA102a	PHY
ESS205	Computational Methods	3	0	2/Spring		ESS
EE205	Signals and Systems	3	1	3/Fall	MA117/ MA101a	EE
EE323	Digital Signal Processing	3	1	3/Fall	EE205	EE
ESS308	Fundamentals of Geophysics I (Seismology)	3	0	3/Fall	MA113& MA117/ MA101a	ESS
ESS309	Fundamentals of Geophysics II (Geomagnetism, Geoelectricity, Geothermicsand Gravity)	4	0	3/Fall	MA101a	ESS
ESS310	Geophysical Experiments	3	1	3/Spring	ESS201	ESS

ESS421	Gravity and Earth tide	3	0	3/Spring	MA117/ MA101a	ESS
OCE402	Fundamental of Marine Seismology Observations	3	0	4/Fall	OCE304	OCE
ESS209	Principles of Geophysics	3	0	2/Spring	MA117/ MA101a	ESS
ESS211	Fundamentals of Planetary Science	3	0	2/Spring		ESS
ESS213	Continuum Mechanics	3	0	2/Spring	MA117/ MA101a	ESS
ESS214	Principles of Applied Geophysics	3	0	2/Spring		ESS
PHY204	Thermodynamics and Statistical Physics I	3	0	2/Spring	PHY106	PHY
ESS313	Introduction to Space Physics	3	0	3/Fall	PHY203-15	ESS
ESS317	Fundamentals of Inverse Theory in Geophysics	3	0	3/Fall	MA212	ESS
Marine geology courses						
OCE105	Principle of coastal landform	3	0	2/Fall		OCE
ESS102	Principle of Geological	3	0	2/Fall		ESS
ESE329	Principles of Remote Sensing	3	0	2/Spring	PHY106& MA127	ESE
OCE309	Paleomagnetism and Environmental Magnetism	3	0	3/Fall		OCE
ESE317	Application of GIS & RS	3	0.5	3/Fall		ESE
ESS406	Geochemistry	2	0	4/Fall		ESS
OCE407	Mineralogy and Petrology	2	0	3/Spring		OCE
OCE408	Mineralogy and Petrology Laboratory	1	1	3/Spring	OCE407	OCE
OCE303	Physical Geology	3	0	2/Fall		OCE
Marine microbiology courses						
BIO104	General Biology Laboratory	2	2	1/Spring	BIO103	BIO

OCE205	Biology of the Marine Environment Lab	2	2	2/Spring		OCE
OCE472	Field Trip of Life in Extreme Environments	2	2	2/Summer	OCE308 / OCE411	OCE
OCE475	Field Trip of Microbial Oceanography	2	2	2/Summer		OCE
BIO309	Computational Biology	3	1	3/Fall		BIO
OCE318	Marine Molecular Biology Lab	2	2	3/Fall		OCE
OCE411	Life in Extreme Environments	2	0	3/Fall		OCE
OCE316	Marine Microbiology Laboratory	2	2	3/Spring	OCE308	OCE
OCE330	Evolution	3	0	3/Spring		OCE
BIO306	Bioinformatics	4	2	3/Spring	BIO309	BIO
OCE409	Marine Organic Biogeochemistry	3	0	4/Fall		OCE
OCE410	Geomicrobiology	3	0	4/Fall		OCE
BIO203	Microbiology	3	0	2/Fall		BIO
BIO103	Principles of Biology	3	0	1/Fall		BIO
BIO201	Biochemistry (Macromolecules)	3	0	2/Fall	CH103/ CH105& BIO103	BIO
BIO202	Biochemistry II (Metabolism)	3	0	2/Fall	BIO201	BIO
BIO206	Cell Biology	3	0	2/Fall	BIO10	BIO
BIO210	Biostatistics	3	0	2/Fall	MA101a/ MA117	BIO
BIO320	Molecular Biology	3	0	3/Fall	BIO103	BIO
Marine chemistry courses						
CH102-17	General Chemistry Laboratory A	1.5	1.5	1/Spring	CH103	CH
CH203	Organic Chemistry I	4	0	2/Fall	CH103/ CH105	CH

CH206	Organic Chemistry II	4	0	2/Spring	CH203	
CH208	Organic Chemistry Laboratory	2	2	2/Spring	CH102-17	CH
CH301	Physical Chemistry I	4	0	3/Fall	CH103/ CH105& PHY102/ PHY106& MA102a/ MA127	
CH302	Physical Chemistry II	4	0	3/Fall	CH301	
CH303	Physical Chemistry Laboratory	2	2	2/Fall		CH
ESE206	Environmental Chemistry	3	0	2/Spring	CH103/ CH105	ESE
ESE212	Environment Monitoring	2	0	2/Spring	CH103/ CH105& PHY102/ PHY106& CH102-17	ESE
ESE214	Environment Monitoring Laboratory	1	1	2/Spring	ESE212	ESE
OCE311	Seawater Analysis*	3	0	3/Spring		OCE
OCE312	Seawater Analysis Laboratory**	2	2	3/Spring		OCE
CH216	Analytical Chemistry I	3	0	3/Spring	CH103/ CH105	CH
ESE336	Environmental analytical chemistry	3	0	2/Fall		ESE
Physical Oceanography courses						
ME112	Introduction to Matlab	2	1	1/Spring		ME
ESE204	Principles of Environmental Engineering	2	0	2/Fall	PHY102/ PHY106	ESE
ESE319	Global Climate Change	3	0	2/Spring		ESE
MSE202	Physical Chemistry	3	0	2/Spring	CH103/ CH105& MA102a/ MA117	MSE
ESE205	Fundamentals of Physical Chemistry	3	0	2/Spring		ESE
MA201b	Ordinary Differential Equations B	4	0	2/Spring	MA102a/ MA127	MATH

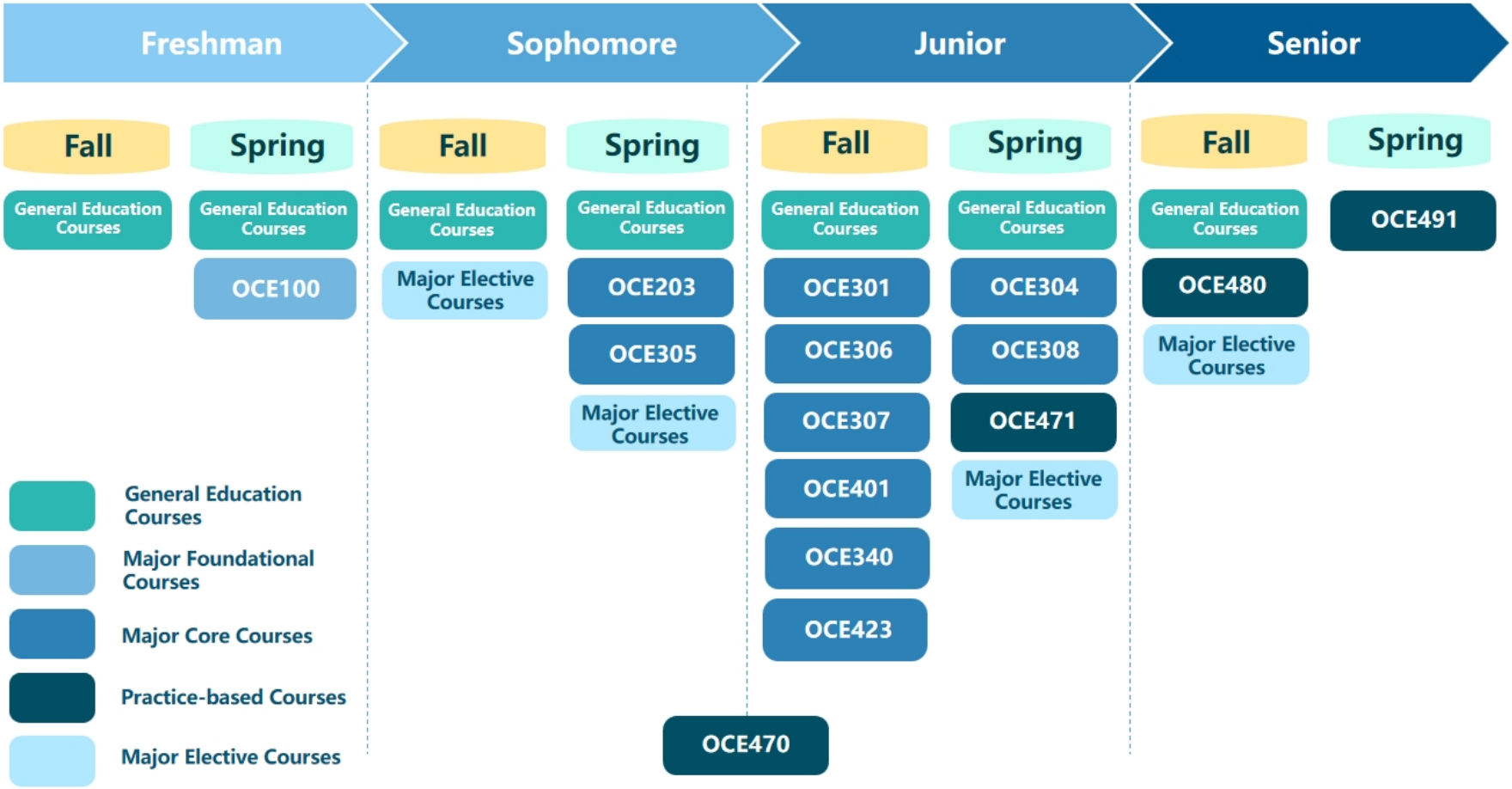
OCE314	Satellite Oceanography	3	0	3/Spring		OCE
ESE304	Atmospheric Pollution Prevention and Control	3	0	3/Spring	ESE205/ ESE206/ MSE202	ESE
ESS405	Signal Processing and Data Processing	3	0	3/Spring	MA117& MA113/ MA107	ESS
OCE406	Natural Hazards and Monitoring	2	0	4/Fall		OCE
Artificial Intelligence courses						
MA215 / STA203	Probability Theory / Foundation of Probability Theory	3	0	2 Fall	MA102a/ MA127& MA113	MATH/ STA
MA212	Probability and Statistics	3	0	2/Fall	MA102a/ MA127	MATH
SDM274	AI and Machine Learning	3	0	2/Fall	MA102a/ MA127/ MA107/ MA113	SDM
CS303	Artificial intelligence	3	1	3 Fall	CS109 & CS203/ MA215/ STA203/ MA212	CSE
COE101	AI and Applications	4	0	1 Spring	MA117/ MA101a	COE
STA201	Operational Research andOptimization	3	0	2 Spring	MA107 / MA113	STA
CS203	Data Structures andAlgorithm Analysis	3	1	2/Fall	CS109	CSE
CS201/ MA205	Discrete mathematics	3	0	2 Spring	MA127/ MA113	CS/MA TH
MA203a/MA213-16	Mathematical Analysis III /Mathematical Analysis	5	0	2 Fall	MA102a/ MA127	MATH
STA321	Distributed Storage and Parallel Computing	3	1	3 Fall	CS217/ CS203	STA
STA323	Distributed storage and parallel computing	3	1	3 Spring	STA321	STA
Total		249.5	32			
NOTE: Minimum requirement 20 credits.						

Table 3: Overview of Practice-based Learning

Program of Oceanography

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
BIO104	General BiologyLaboratory	2	2	1/Spring	BIO103	BIO
ME112	Introduction to Matlab	2	1	1/Spring		ME
CH102-17	General ChemistryLaboratory A	1.5	1.5	1/Spring	CH103	CH
OCE205	Biology of theMarine Environment Lab	2	2	2/Spring		OCE
CH208	Organic ChemistryLaboratory	2	2	2/Spring	CH102-17	CH
ESE214	EnvironmentMonitoring Laboratory	1	1	2/Spring	ESE212	ESE
OCE470	Geology Field Trip	2	2	2/Summer		OCE
OCE472	Field Trip of Life inExtreme Environments	2	2	2/Summer	OCE308/ OCE411	OCE
OCE475	Field Trip of MicrobialOceanography	2	2	2/Summer		OCE
OCE318	Marine MolecularBiology Lab	2	2	3/Fall		OCE
OCE408	Mineralogy and Petrology Laboratory	1	1	3/Spring	OCE407	OCE
EE205	Signals and Systems	3	1.5	3/Fall	MA117/MA101a	EE
EE323	Digital Signal Processing	3	1.5	3/Fall	EE205	EE
BIO309	Computational Biology	3	1.5	3/Fall		BIO
OCE316	MarineMicrobiology Laboratory	2	2	3/Spring	OCE308	OCE
OCE312	Seawater AnalysisLaboratory	2	2	3/Spring		OCE
CH303	Physical ChemistryLaboratory	2	2	2/Fall	CH103/CH105	CH
ESS310	GeophysicalExperiments	3	1	3/Spring	ESS201	ESS
OCE471	Marine Cruises	2	2	3/ Spring		OCE
OCE480	Projects of Science and TechnologyInnovation	2	2	4/Fall		OCE
OCE490	Thesis（Graduation Project）	12	12	4/Spring		OCE
Total		53.5	46			

Curriculum Structure of Oceanography



Department of Ocean Science and Engineering

Program of Offshore Engineering and Technology for International Students (2026)

I. Introduction

Offshore Engineering and Technology is an emerging comprehensive discipline that is to effectively develop and utilize marine resources. It provides support for the marine engineering facilities survey, design, construction, offshore installation and maintenance. The subject tackles the talent shortage in high-tech offshore engineering industry, has a vital impact on advancing the Marine Power Strategy and the Marine Power Construction.

Under the guidance of the "New Engineering" construction, this major is characterized by multi-discipline cross-integration, combination of teaching and practice and comprehensive curriculum. It highlights the cultivation of independent thinking, creative spirit and the practical ability of students with higher international competitiveness.

Academic subject areas: Ocean engineering (0819)

Program code: Offshore Engineering and Technology (081902T)

II. Objectives and Learning Outcomes

1. Objectives

Our program aims to train the students with good moral and humanism, and systematically master specific professional knowledge and special skills of offshore engineering and technology. When graduating, students will gain special high-quality scientific and technological talents with international vision and necessary knowledge of ocean engineering, and have the ability to engage in scientific research, management, design, construction and technology research and development in ocean engineering, marine high-end technology and related fields.

2. Learning Outcomes

1) Master the relevant knowledge of mathematics, natural sciences, humanities and social sciences required for program demonstration, design, construction and engineering issues research;

2) Master the professional knowledge and skills required for offshore engineering and

technology program demonstration, design, construction and engineering issues research. Including knowledge of mechanics related ocean engineering, knowledge of engineering materials suitable for the needs and development of emerging ocean engineering, and knowledge of processing, assembly, quality control and drawing;

3) Master the engineering technology theories and methods in the field of ocean engineering. Including ocean engineering design, construction, development and frontier fields, related knowledge of new materials, processes and equipment. And have the ability to learn and master relevant regulations in the field of ocean engineering, have a broad and in-depth understanding of the cross-technology in ocean engineering, have a unique view of modern social issues, the relationship between engineering and the world and society;

4) Have knowledge of foreign languages and international engineering management suitable for the international development of modern ocean engineering. Including mastering at least 1 foreign language, being familiar with international project management knowledge, etc;

5) Have the ability to learn and accumulate knowledge suitable for the development of ocean engineering. To operate equipment proficiently and improve numerical simulation skills. To acquire knowledge independently, pursue lifelong learning;

6) Have the ability to engage in the design and construction of large marine projects and solve practical engineering problems. To plan systematically, analyze comprehensively, solve practical engineering problems effectively, and work properly and orderly under the ocean engineering industry rules and relevant laws and regulations;

7) Have the ability to manage and implement ocean engineering projects. Including integrate necessary finance, staff and enforce; adapt to changes in technology and management; cope with emergencies in engineering projects design, organization, coordination, and management;

8) Being a critical and creative thinker suitable for the development of ocean engineering. Introduce or use new ideas to solve ocean engineering problems with critical thinking and analytical skills;

9) Have good professional ethics, physical and psychological quality that are suitable for the needs of ocean engineering;

10) Be good at expression and communication with some interpersonal and leadership skills.

III. Study Length, Degree, and Gradu++ation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Science.

3. The minimum credit requirement for graduation: 156 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	25
		Major Core Courses	20
		Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	20
	Major Elective Courses	Major Elective Courses	12
Total			156
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

CourseCategory	CourseCode	Course Name		Credits	Terms	Prerequisite	Dept.
Mathematics	MA101a	Mathematical Analysis I	Category A	5	1 Fall		METH
	MA102a	Mathematical Analysis II		5	1 Spring	MA101a	
	MA117	Calculus I	Category B	4	1 Fall		
	MA127	Calculus II		4	1 Spring	MA117	
	MA107	Advanced Linear Algebra I		4	1 Fall		
	MA113	Linear Algebra		4	1 Spring&Fall		
Physics	PHY101	General Physics I	Category A	5	1 Fall		PHY
	PHY102	General Physics II		5	1 Spring	PHY101	
	PHY105	College Physics I	Category B	4	1 Fall		
	PHY106	College Physics II		4	1 Spring	PHY105	
	PHY104 B	Experiments of Fundamental Physics		2	1-2Spring & Fall		
Chemistry	CH103	General Chemistry		4	1-2Spring& Fall		CH

	CH105	College Chemistry	3	1-2Spring& Fall		
Geoscience+ Life Science	BIO102B	Introduction to Life Science	3	1-2Spring& Fall		BIO
	BIO103	Principles of Biology	3	1-2Spring& Fall		
	EOE111	College Earth Science	3	1-2Spring& Fall		ESS, OCE,ESE
Computer Programming	CS109	Introduction toComputer Programming	3	1-2Spring & Fall		CSE
	CS110	Introduction to JavaProgramming	3	1-2Spring & Fall		
	CS111	Introduction to C programming	3	1-2Spring & Fall		
	CS112	Introduction to Python Programming	3	1-2Spring & Fall		
	CS113	Introduction to MATLAB Programming	3	1-2Spring & Fall		

Note:
1. For Mathematics, students must select one of the A,or B course categories (at least 8 credits) and complete the course Advanced Linear Algebra I or Linear Algebra for 4 credits.
2. For Physics, students must select either course category A or B (at least 8 credits) and complete the course Experiments of Fundamental Physics for 2 credits.
3. For Chemistry, students must choose one of the listed courses to receive at least 3 credits.
4. For Geoscience + Life science, students must choose one of the listed courses to receive 3 credits.
5. For Computer Programming, students must choose one of the listed courses to receive at least 3 credits.

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	MA101a\MA117	Mathematical Analysis I/ Calculus I	
	MA102a\MA127	Mathematical Analysis II / Calculus II	MA101a\MA117
	PHY101\PHY105	General Physics I/ College Physics I	
	PHY102\PHY106	General Physics II / College Physics II	PHY101\PHY105
	MA113	Linear Algebra	
Declare major at the end of the second academic year	MA101a\MA117	Mathematical Analysis I/ Calculus I	
	MA102a\MA127	Mathematical Analysis II / Calculus II	MA101a\MA117
	PHY101\PHY105	General Physics I/ College Physics I	
	PHY102\PHY106	General Physics II / College Physics II	PHY101\PHY105
	MA113	Linear Algebra	

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Offshore Engineering and Technology

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	ME102	CAD and Engineering Drawing	3	2	1/Fall		ME
	SDM274	AI and Machine Learning	3		2/ Fall	MA102a/MA127/MA107/MA113/CS112	EE
	OCE214	Engineering Mathematics and Numerical Computation	4		2/ Fall	MA101A/MA117	OCE
	OCE215	Engineering Mechanics	4		2/ Fall	MA101A/MA117	OCE
	OCE216	Ocean Environment and Disasters	2		2/ Fall		OCE
	OCE217	Fluid Mechanics	3		2/Spr		OCE
	OCE220	Soil Mechanics and Foundation	3		2/ Spr		OCE
	OCE323	Structure Analysis	3		3/ Fall		OCE
	Total		25	2			
Major Core Courses	OCE219	Engineering Materials and Corrosion	3		2/ Spr		OCE
	OCE341	Ocean Engineering Structure Design and Planning	3		3/ Fall		OCE
	OCE342	Project Management and Intelligent Construction	3		3/ Fall		OCE

	OCE343	Offshore Technology	3		3/ Spr		OCE
	OCE344	Offshore and Subsea Engineering	3		3/ Spr		OCE
	OCE345	Marine resource exploitation technologies	2		3/ Spr		OCE
	OCE328	Hydrodynamics Lab	1	1	3/ Spr		OCE
	OCE324	Ocean Engineering Materials and Structures Lab Sessions	1	1	3/ Spr		OCE
	OCE327	Soil Mechanics Lab	1	1	3/ Fall	OCE220	OCE
	Total		20	3			
Practice-based Courses	OCE473	Production Practice	2	2	2/Sum		OCE
	OCE471	Marine Cruises	2	2	3/Sum		OCE
	OCE474	Fieldwork	2	2	3/Sum		OCE
	OCE480	Projects of Science and Technology Innovation	2	2	4/ Fall		OCE
	OCE491	Degree Thesis (Design)	12	12	4/Spr		OCE
	Total		20	20			
Total			65	25			

Table 2: Major Elective Courses

Program of Offshore Engineering and Technology

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
OCE100	Principles of Oceanography	3		Elect One		OCE
OCE305	Physical Oceanography	3				OCE
OCE304	Introduction to Computational Oceanography	3			CS109/CS111/CS 1120	OCE
OCE340	Multidimensional Data Analysis in Geosciences	3			MA113	OCE
MAE304	Elasticity	4		Elect One	OCE214 +OCE215orMAE 203 +MAE204 +MAE209 +MAE202	MAE
MA220-21	Finite Element Method	2			MA107	MA
MAE102	Flight Simulating Experiment	1	1			MAE
MAE208	Lectures On Selected Engineering Software	2	2			MAE
OCE419	Ocean Renewable Energy	2		Elect One		OCE
OCE346	Dynamic System	3				OCE
OCE347	Engineering, Sustainability and Environment	2				OCE

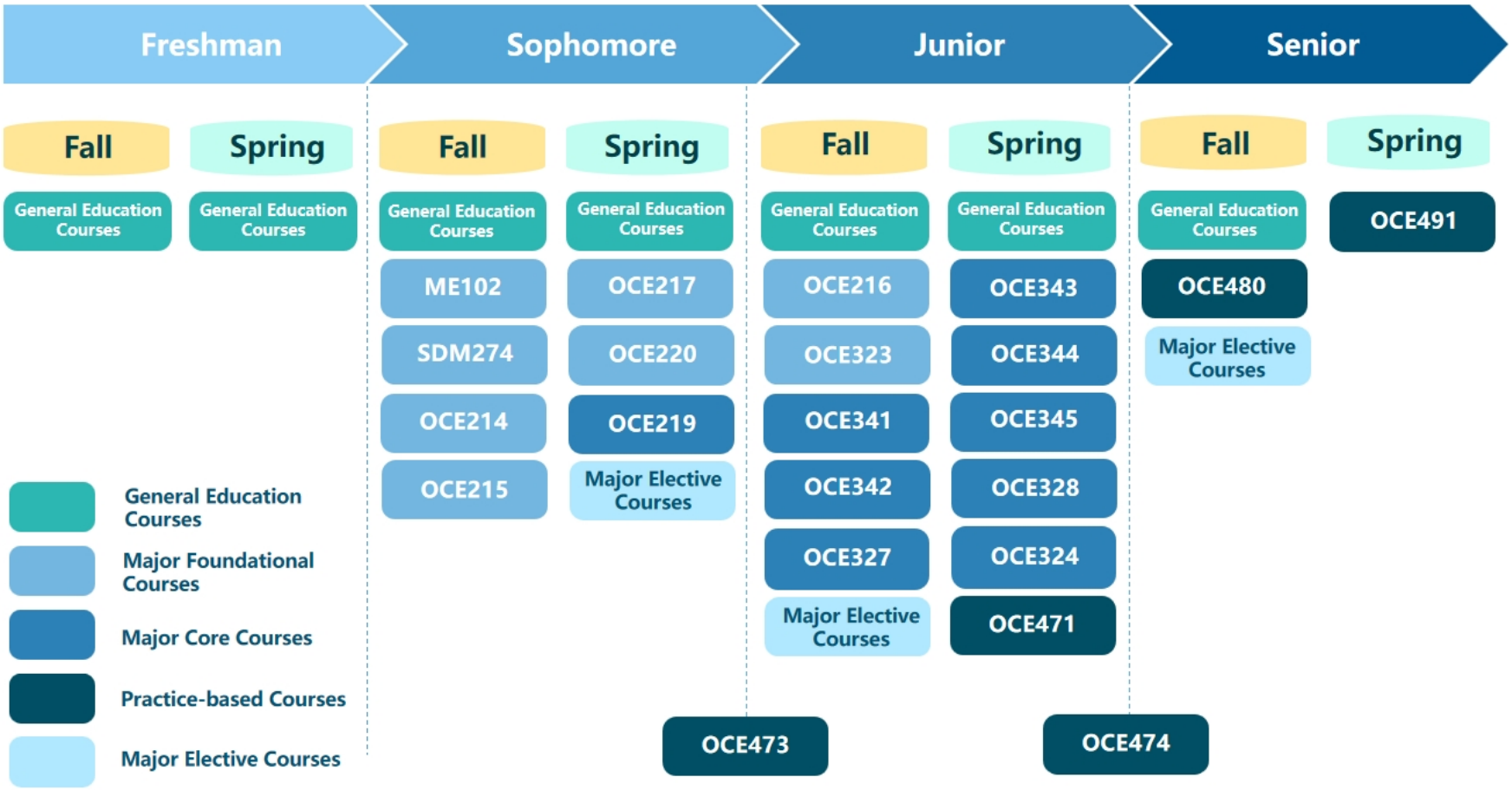
OCE348	Offshore Structure Dynamics	3				OCE
ME307	Fundamentals of Control Engineering	3	0.5	Elect One	EE104	ME
EE104	Fundamentals of Electric Circuits	2			MA117/MA101a	EE
SME206	Signals and Systems	3			MA117/MA101a	SME
MA212	Probability and Statistics	3			MA117/MA102a	MA
ME332	Robot Operating System	3	1.5		CS109/CS110/CS111/CS112/ CS113	ME
STA217	Introduction to Data Science	3			MA102a/ MA127	STA
CS103	Introduction to Artificial Intelligence	2				CS
EE111	Electronic Information Science and Technology in the AI Era	1				EE
Total		54	4.5			
Note: One takes at least 12 credits among which 8 credits are from OCE.						

Table 3: Overview of Practice-based Learning

Program of Offshore Engineering and Technology

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
ME102	CAD and Engineering Drawing	3	2	1/Fall		ME
MAE102	Flight Simulating Experiment	1	1			
MAE208	Lectures On Selected Engineering Software	2	2			
OCE324	Ocean Engineering Materials and Structures Lab Sessions	1	1	2/ Spr	OCE322	OCE
OCE473	Production Practice	2	2	2/ Spr		OCE
OCE327	Soil Mechanics Lab	1	1	3/ Fall	OCE220	OCE
OCE328	Hydrodynamics Lab	1	1	3/ Spr		OCE
OCE471	Marine Cruises	2	2	3/Sum		OCE
OCE474	Fieldwork	2	2	3/Sum		OCE
OCE480	Projects of Science and Technology Innovation	2	2	4/ Fall		OCE
OCE490	Degree Thesis (Design)	12	12	4/Spr		OCE
Total		29	28			

Curriculum Structure of Offshore Engineering and Technology



Department of Biomedical Engineering

Program of Biomedical Engineering

for International Students (2026)

I. Introduction

The department of biomedical engineering was established in June 2016. The department currently has 26 core faculty members. Research areas in the department include mechanomedicine, wearable devices and wireless health monitoring, de novo regenerative engineering, multiscale and multimodal biomedical imaging, computational medicine for big data and health informatics, biomedical MEMS.

The department of biomedical engineering receives strong support from the department of biomedical engineering at Columbia University and has formed its own undergraduate curricula based on the BME curricula of Columbia University. The major core courses and the capstone course 'biomedical engineering design' were introduced and adapted.

The SUSTech Biomedical Engineering programme train students in the field of engineering and applied sciences to address problems in biology, medicine and life sciences. This skill is crucial for the students to better understand the living systems and their behavior for the development of biomedical systems and devices. Through complex and sophisticated analysis, modern engineering adapts data acquisition and variable measurements to resolve questions that are currently unanswered. These analysis includes simulation and systems development within individual cells, organs, complex organisms and populative studies. The emphasis of the BME programme is to endow students with the understanding of basic engineering science and applied engineering (in both the physical and biological fields). The BME programme aspires to provide students with professional training in biomedical engineering, preparing them for employment or post-graduate studies in the relevant discipline.

Academic subject areas: Biomedical Engineering

Program code: 082601

II. Objectives and Learning Outcomes

1. Objectives

(1) Professional employment in areas such as the medical device industry, engineering consulting, and biotechnology;

(2) Graduate studies in biomedical engineering or related fields;

(3) Attendance at medical, dental, or other professional schools.

2. Learning Outcomes

An ability to apply knowledge of mathematics, science, and engineering;

An ability to design and conduct experiments, as well as to analyze and interpret data;

An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability;

An ability to function on multidisciplinary teams;

An ability to identify, formulate, and solve engineering problems;

An understanding of professional and ethical responsibility;

An ability to communicate effectively;

The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context;

A recognition of the need for, and an ability to engage in life-long learning;

A knowledge of contemporary issue;

An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice;

An understanding of biology and physiology;

The capability to apply advanced mathematics (including differential equations and statistics), science, and engineering, to solve the problems at the interface of engineering and biology;

The ability to make measurements on and interpret data from living systems, addressing the problems associated with the interaction between living and nonliving materials and systems.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Engineering.

3. The minimum credit requirement for graduation: 155 credits. The specific requirements are as follows.

Module	Category	Credits
Chinese Language and Culture Module 16 Credits	Chinese Language and Culture	16
Arts and Physical Education Module 6 Credits	Physical Education	4
	Arts	2
Competence Development Module 19 Credits	Computer Programming	3
	Writing	2
	Foreign Languages	14
Humanities and Social Sciences Module 8 Credits	Humanities	4
	Social Sciences	4
Mathematics and Natural Sciences Module 28 Credits	Mathematics	12
	Physics	10
	Chemistry	3
	Geoscience + Life science	3
GE to Majors Bridging Module 2 Credits	Introduction to Majors	2
Major Required Courses 57 Credits	Major Foundational Courses	15
	Major Core Courses	26
	Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	16
Major Elective Courses 19 Credits	Major Elective Courses	19 (including a minimum of 6 lab credits)
Total		155
Note: A total of 10 credits in Arts, Humanities, and Social Sciences is sufficient.		

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117/ MA101a	Calculus I/Mathematical Analysis I	4/5	1 Fall	None	Department of Mathematics
	MA127/ MA102a	Calculus II/Mathematical Analysis II	4/5	1 Spring	Calculus I/Mathematica l Analysis I	
	MA113/ MA107	Linear Algebra/Advanced Linear Algebra I	4	1 Spring &Fall	None	
Physics	PHY105/ PHY101	College Physics I/General Physics I	4/5	1 Fall	None	Department of Physics
	PHY106/ PHY102	College Physics II/General Physics II	4/5	1 Spring	College Physics I/General Physics I	
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	
Chemistry	CH105/ CH103	Chemistry: The Central Science/General Chemistry	3/4	1-2 Spring & Fall	None	Department of Chemistry
Geo science + Life science	BIO103	Principles of Biology	3	1-2 Spring & Fall	None	Department of Biology
Computer Programming ①	CS109	Introduction to Computer Programming	3	1-2 Spring & Fall	None	Department of Computer Science and Engineering
	CS110	Introduction to Java Programming	3	1-2 Spring & Fall	None	
	CS111	Introduction to C programming	3	1-2 Spring & Fall	None	
	CS112	Introduction to Python Programming	3	1-2 Spring & Fall	None	
	CS113	Introduction to Matlab Programming	3	1-2 Spring & Fall	None	
	①NOTES: You are required to complete and pass at least 1 course in the part of Computer Programming.					

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	MA117/MA101a	Calculus I/Mathematical Analysis I	None
	MA127/MA102a	Calculus II/Mathematical Analysis II	MA117/MA101a
	MA113/MA107	Linear Algebra/Advanced Linear Algebra I	None
	PHY105/PHY101	College Physics I/General Physics I	None
	PHY106/PHY102	College Physics II/General Physics II	PHY105/PHY102
	CH105/CH103	Chemistry: The Central Science/General Chemistry	None
	CS109/CS110/CS111/CS112/CS113	Computer Programming①	None
	BIO103	Principles of Biology	None
	PHY104B	Experiments of Fundamental Physics	None
	Notes: There are 9 courses in the list of Pre-requisites courses at the end of First Year and you are required to complete and pass at least 4 courses of them. ① For the Computer Programming, you are required to complete and pass at least 1 course.		
Declare major at the end of the second academic year	MA117/MA101a	Calculus I/Mathematical Analysis I	None
	MA127/MA102a	Calculus II/Mathematical Analysis II	MA117/MA101a
	MA113/MA107	Linear Algebra/Advanced Linear Algebra I	None

	PHY105/PHY101	College Physics I/General Physics I	None
	PHY106/PHY102	College Physics II/General Physics II	PHY105/PHY102
	CH105/CH103	Chemistry: The Central Science/General Chemistry	None
	CS109/CS110/CS111/CS112/CS113	Computer Programming①	None
	BIO103	Principles of Biology	None
	PHY104B	Experiments of Fundamental Physics	None
	Notes: There are 9 courses in the list of Pre-requisites courses at the end of Second Year and you are required to complete and pass at least 7 courses of them. ① For the Computer Programming, you are required to complete and pass at least 1 course.		

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Biomedical Engineering

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	BMEB111	Principles of Electric Circuits	3		2/ Fall		BME
	BMEB220	Signals and Systems	3	1	2/Spring & Fall		BME
	BMEB217	Fundamentals of Engineering Mechanics	3		2/Fall		BME
	BMEB214	Fundamentals of Biomedical Materials	3		2/Spring & Fall		BME
	BMEB218	Molecular Cell Biology①	3		2/Fall	BIO103	BME
	Total		15	1			
Major Core Courses	BMEB315	Biomedical Optics	2		2/Spring		BME
	BMEB311	Quantitative Physiology I	3		3/Fall		BME
	BMEB318	Biomechanics	3		3/Fall		BME
	BMEB317	Principles of Medical Imaging Systems	3		3/Fall	BMEB111, BMEB220	BME

	BMEB321	Biomedical Engineering Lab I	3	3	3/Fall		BME
	BMEB332	Intelligent Sensing Technology	3		3/Spring		BME
	BMEB312	Quantitative Physiology II	3		3/Spring	BMEB311	BME
	BMEB319	Biomaterials and Tissue Engineering	3		3/Spring		BME
	BMEB322	Biomedical Engineering Lab II	3	3	3/Spring	BMEB321	BME
	Total		26	6			
Practice-based Courses	BMEB121*	Projects of Science and Technology Innovation	2	2	Start from 1 Spring		BME
	BMEB470	Professional Practice	2	2	Summer		BME
	BMEB491	Degree Thesis (Design)	12	12	4/Spring		BME
	Total		16	16			
Total			57	23			

Note：
① Students who have completed BIO206 are not required to take the BMEB218.

Table 2: Major Elective Courses

Program of Biomedical Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
BMEB211	Introduction to Nanobiomedicine	3		1/Spring		BME
BMEB213	Medical Materials and Devices	3		2/Fall		
BMEB324	Biomedical Optics Laboratory	2	2	2/Spring	BMEB315	
BMEB215	Machine Learning and its Medical Engineering Applications	3		2/Spring	MA113,MA212	
BMEB216	Anatomy and Physiology	3		2/Spring		
BMEB326	Clinical Perception for Biomedical Engineering I	2		2/Fall		
BMEB219	Analog Circuits	3		2/Spring	BMEB111	
BMEB327	Clinical Perception for Biomedical Engineering II	2	2	2/Summer	BMEB326	
BMEB316	Medical Image Processing	3	1	3/Fall		
BMEB333	Neural Engineering and Brain-computer Interface	3		3/Fall	MA113	
BMEB335	Digital Signal Processing	3	1	3/Fall	BMEB220	
BMEB334	Biomaterials and Tissue Engineering Laboratory	2	2	3/ Spring		
BMEB330	Medical Robotics	3		3/Spring	MA113	
BMEB331	Medical Big Data	3	1	3/Spring		
BMEB325	Medical Imaging Systems Laboratory	2	2	3/Fall	BMEB317	
EE202-17	Digital Circuits	3		2/Spring	PHY105	EE
EE202-17L	Digital Circuits Laboratory	1	1	2/Spring	EE202-17	
EE303	Fundamentals of Optoelectronic Technology	3	1	3/Fall	PHY105	
EE306	Introduction to MEMS	3	1	3/Spring	PHY105	
BIO104	General Biology Laboratory	2	2	1Spring	BIO103	BIO
BIO320	Molecular Biology	3		2/Fall	BIO103	

BIO201	Biochemistry（Macromolecules）	3		2/Fall	BIO103,CH103	
BIO222	Biochemistry and Molecular Biology Laboratory	2	2	2/Spring	BIO201,BIO104	
BIO202	Biochemistry II (metabolism)	3		2/Spring	BIO201	
BIO203	Microbiology	3		2/Spring		
BIO208	Cell biology laboratory	2	2	2/Spring	BIO206-15	
BIO304	Systems Biology	3		3/Spring	BIO103,MA212	
BIO310	Neurobiology	3		3/Spring	BIO201	
BIO332	Stem Cell and Regenerative Biology	2		3/Spring	BIO206-15	
BIO306	Bioinformatics	4	2	3/Spring	BIO309	
BIO309	Computational Biology	3	1	3/Spring		
BIO405	Immunology	3		4/Fall	BIO206-15	
CS201	Discrete Mathematics	3		2/Fall	MA127, MA113	CS
CS202	Computer Organization	3	1	2/Spring	EE202-17EE202-17LCS207	
CS207	Digital Logic	3	1	2/Spring		
CS301	Embedded System and Microcomputer Principle	3	1	3/Fall	EE202-17EE202-17LCS207	
MED103	History of Medicine	2		2/Fall		MED
MED306	Histology and Embryology	3	1	3/Fall		
MED404	Medical Genetics	3		3/Fall		
MED309	Medical Neurobiology	3		3/Fall		
MED307	Pathology	3		3/Spring	MED306	
MA212	Probability and Statistics	3		2/Spring	MA127	MA
MA305	Numerical Analysis	3		3/Fall	MA203a orMA213	
ME102	CAD and Engineering Drawing	3	1.5	1/Fall		ME
CH216	Analytical Chemistry I	3		2/Fall	CH101	CH
CH315	Polymer Chemistry	3		3/Spring		
Total		127	28.5			

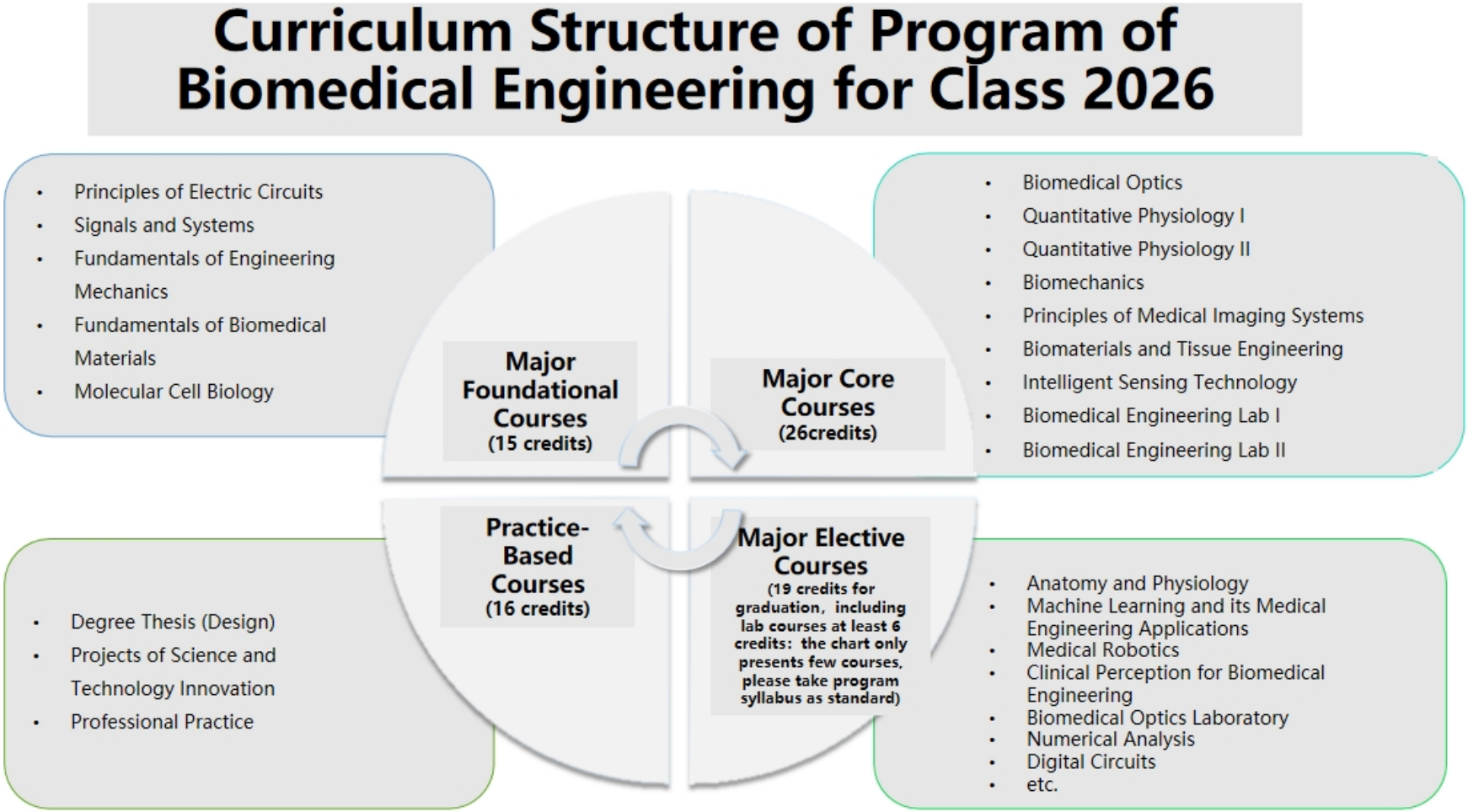
Note:
1. A minimum of 19 credits are required from Major Elective Courses (including a minimum of 6 lab credits).
2. If students have completed the part of Introduction to Majors and have more credits, you can use the course of “Introduction to Biomedical Engineering” to exchange the major elective credits.

Table 3: Overview of Practice-based Learning

Program of Biomedical Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
BMEB121*	Projects of Science and Technology Innovation	2	2	Start from 1 Spring		BME
BMEB470	Professional Practice	2	2	3/Summer		
BMEB491	Degree Thesis (Design)	12	12	4/Spring		
BMEB321	Biomedical Engineering Lab I	3	3	3/Fall		
BMEB322	Biomedical Engineering Lab II	3	3	3/Spring	BMEB321	
BMEB324	Biomedical Optics Laboratory	2	2	3/Spring	BMEB315	
BMEB325	Medical Imaging Systems Laboratory	2	2	3/Spring	BMEB317	
BMEB334	Biomaterials and Tissue Engineering Laboratory	2	2	3/ Fall		
BMEB316	Medical image processing	3	1	3/Fall		
BMEB335	Digital Signal Processing	3	1	3/Fall	BMEB220	
BMEB327	Clinical Perception for Biomedical Engineering II	2	2	2/Summer	BMEB326	
BMEB220	Signals and Systems	3	1	2/Fall		
EE202-17L	Digital Circuit Laboratory	1	1	2/Spring	EE202-17	EE
EE303	Fundamental of Optoelectronic Technology	3	1	3/Fall	PHY105	
EE306	Introduction to MEMS	3	1	3/Spring	PHY105	
BIO222	Biochemistry and Molecular Biology Laboratory	2	2	2/Spring	BIO201 BIO104	BIO
BIO208	Cell biology laboratory	2	2	2/Spring	BIO206-15	
BIO306	Bioinformatics	4	2	3/Spring	BIO309	
BIO309	Computational Biology	3	1	3/Spring		
BIO104	General Biology Laboratory	2	2	1/Spring	BIO103	
MED306	Histology and Embryology	3	1	3/Fall		MED
CS301	Embedded System and Microcomputer Principle	3	1	3/Fall	EE202-17 EE202-17L	CS
CS202	Computer Organization	3	1	2/Spring	EE202-17 EE202-17 LCS207	
CS207	Digital Logic	3	1	2/Spring		
ME102	CAD and Engineering Drawing	3	1.5	1/Fall		ME
Total		74	50.5			

Curriculum Structure of Biomedical Engineering



Department of Biomedical Engineering

Program of Intelligent Medical Engineering

for International Students (2026)

I. Introduction

The department of biomedical engineering was established in June 2016. Research areas in the department include MechanoMedicine, wearable devices and wireless health monitoring, de novo regenerative engineering, multiscale and multimodal biomedical imaging, computational medicine for big data and health informatics, biomedical MEMS.

The core knowledge base of Intelligent Medical Engineering is obtained through enormous quantities of medical data by applying intelligent perception, big data analysis, intelligent decision making, precision medicine and medical human-machine interface; as well as the investigation of working principles in intelligent biological systems such as the nervous system. Students in the Intelligent Medical Engineering program would also master the fundamentals of Basic Medicine and Clinical Medicine. Graduates of the program are well-equipped for careers not only in general and clinical medical research at large general hospitals, they are also excellent candidates at universities, research institutes, and industries in the fields of artificial intelligence and intelligent medicine for careers in research, development and project management.

Intelligent Medicine is poised to define the future direction of medicine. It is an emerging interdisciplinary field based on theories of modern medicine and natural sciences, while applying the advancement in neuroscience, big data, cloud computing, artificial intelligence, intelligent perception, and robotics, etc. This field of study aims to discover the principles of human life and diseases, and explore intelligent diagnosis and treatment methods through human-machine collaborations. Research in Intelligent Medicine will be conducted through close integration of health care and emerging industries such as artificial intelligence, robotics, and big data. Clinical needs will be the motivation and end-point of Intelligent Medicine research. By building a bridge between the laboratory and the operating table, this field is positioned for the integration of medicine and intelligent technologies, translation of research findings, and innovations in engineering. The emphasis of the Intelligent Medical Engineering program is the application of emerging intelligent technologies in medicine, including intelligent perception, analysis, and decision-making based on medical data. The objectives of research in Intelligent Medical Engineering include drug discovery, medical robots, intelligent diagnosis and treatment, intelligent

image recognition, intelligent health data management, etc. The Intelligent Medical Engineering program aims to become an interdisciplinary, diversified teaching and research platform that promotes the integration of multiple disciplines, and fosters well-rounded, high-quality talents that are able to adapt to future developments.

Academic subject areas: Interdisciplinary（14）

Program code: 140007T

II. Objectives and Learning Outcomes

1. Objectives

(1) Intelligent Medical Engineering is a highly interdisciplinary field that integrates medicine, science, and engineering. In direct response to the needs of the major national initiative “Healthy China 2030”, this program aims to train top-notch, innovative talents with solid background in medicine in addition of possessing strong practical engineering capabilities.

(2) Training of professional talents with vision in modern medicine, comprehensive data thinking, strong engineering skills and innovative capabilities.

2. Learning Outcomes

(1) Flexibly apply basic sciences such as mathematics, artificial intelligence and modern engineering technologies.

(2) Master basic medical knowledge.

(3) Design and conduct experiments, analyze and interpret data.

(4) Effectively contribute to a multidisciplinary team.

(5) Full understanding of professional and ethical responsibilities.

(6) Strong self-learning ability and capacity to grasp new technologies.

(7) The ability to utilize technologies, techniques and modern tools that are required for engineering practice.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Engineering.

3. The minimum credit requirement for graduation: 155 credits. The specific requirements are as follows.

Module	Category	Credits
Chinese Language and Culture Module 16 Credits	Chinese Language and Culture	16
Arts and Physical Education Module 6 Credits	Physical Education	4
	Arts	2
Competence Development Module 19 Credits	Computer Programming	3
	Writing	2
	Foreign Languages	14
Humanities and Social Sciences Module 8 Credits	Humanities	4
	Social Sciences	4
Mathematics and Natural Sciences Module 28 Credits	Mathematics	12
	Physics	10
	Chemistry	3
	Geoscience + Life science	3
GE to Majors Bridging Module 2 Credits	Introduction to Majors	2
Major Required Courses 56 Credits	Major Foundational Courses	15
	Major Core Courses	25
	Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	16
Major Elective Courses 20 Credits	Major Elective Courses	20 (including a minimum of 6 lab credits)
Total		155
Note: A total of 10 credits in Arts, Humanities, and Social Sciences is sufficient.		

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117/MA101a	Calculus I/Mathematical Analysis I	4/5	1 Fall	None	Department of Mathematics
	MA127/MA102a	Calculus II/Mathematical Analysis II	4/5	1 Spring	Calculus I/Mathematical Analysis I	
	MA113/MA107	Linear Algebra/Advanced Linear Algebra I	4	1 Spring &Fall	None	
Physics	PHY105/PHY101	College Physics I/General Physics I	4/5	1 Fall	None	Department of Physics
	PHY106/PHY102	College Physics II/General Physics II	4/5	1 Spring	College Physics I/General Physics I	
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	
Chemistry	CH105/ CH103	Chemistry: The Central Science/General Chemistry	3/4	1-2 Spring & Fall	None	Department of Chemistry
Geo science + Life science	BIO103	Principles of Biology	3	1-2 Spring& Fall	None	Department of Biology
Computer Programming①	CS109	Introduction to Computer Programming	3	1-2 Spring & Fall	None	Department of Computer Science and Engineering
	CS110	Introduction to Java Programming	3	1-2 Spring & Fall	None	
	CS111	Introduction to C programming	3	1-2 Spring & Fall	None	
	CS112	Introduction to Python Programming	3	1-2 Spring & Fall	None	
	CS113	Introduction to Matlab Programming	3	1-2 Spring & Fall	None	
	①NOTES: You are required to complete and pass at least 1 course in the part of Computer Programming.					

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	MA117/MA101a	Calculus I/Mathematical Analysis I	None
	MA127/MA102a	Calculus II/Mathematical Analysis II	MA117/MA101a
	MA113/MA107	Linear Algebra/Advanced Linear Algebra I	None
	PHY105/PHY101	College Physics I/General Physics I	None
	PHY106/PHY102	College Physics II/General Physics II	PHY105/PHY102
	CH105/CH103	Chemistry: The Central Science/General Chemistry	None
	CS109/CS110/CS111/CS112/CS113	Computer Programming①	None
	BIO103	Principles of Biology	None
	PHY104B	Experiments of Fundamental Physics	None
	Notes: There are 9 courses in the list of Pre-requisites courses at the end of First Year and you are required to complete and pass at least 4 courses of them. ① For the Computer Programming, you are required to complete and pass at least 1 course.		
Declare major at the end of the second academic year	MA117/MA101a	Calculus I/Mathematical Analysis I	None
	MA127/MA102a	Calculus II/Mathematical Analysis II	MA117/MA101a

	MA113/MA107	Linear Algebra/Advanced Linear Algebra I	None
	PHY105/PHY101	College Physics I/General Physics I	None
	PHY106/PHY102	College Physics II/General Physics II	PHY105/PHY102
	CH105/CH103	Chemistry: The Central Science/General Chemistry	None
	CS109/CS110/CS111/CS112/CS113	Computer Programming①	None
	BIO103	Principles of Biology	None
	PHY104B	Experiments of Fundamental Physics	None
	Notes: There are 9 courses in the list of Pre-requisites courses at the end of Second Year and you are required to complete and pass at least 7 courses of them. ① For the Computer Programming, you are required to complete and pass at least 1 course.		

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Intelligent Medical Engineering

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	BMEB111	Principles of Electric Circuits	3		2/ Fall		BME
	BMEB220	Signals and Systems	3	1	2/Spring & Fall		BME
	MA212	Probability and Statistics	3		2/Spring & Fall	MA127	MA
	BMEB215	Machine Learning and its Medical Engineering Applications	3		2/Spring	MA113,MA212	BME
	BMEB222	Data Structures and Algorithm Analysis①	3		2/Spring		BME
	Total		15	1			
Major Core Courses	BMEB316	Medical Image Processing	3	1	3/Fall		BME
	BMEB317	Principles of Medical Imaging Systems	3		3/Fall	BMEB111, BMEB220	BME
	BMEB333	Neural Engineering and Brain-computer Interface	3		3/Fall	MA113	BME
	BMEB330	Medical Robotics	3		3/Spring	MA113	BME

	BMEB336	Computer Vision and its Medical Applications	3		3/Spring		BME
	BMEB331	Medical Big Data	3	1	3/Spring		BME
	BMEB332	Intelligent Sensing Technology	3		3/Spring		BME
	BMEB328	Experiment on Intelligence Medical Engineering I	2	2	3/Fall	BMEB220	BME
	BMEB329	Experiment on Intelligence Medical Engineering II	2	2	3/Spring		BME
	Total		25	6			
Practice-based Courses	BMEB121*	Projects of Science and Technology Innovation	2	2	Start from 1 Spring		BME
	BMEB470	Professional Practice	2	2	Summer		BME
	BMEB491	Degree Thesis (Design)	12	12	4/Spring		BME
	Total		16	16			
Total			56	23			

Note:
① Students who have completed CS203 are not required to take the BMEB222.

Table 2: Major Elective Courses

Program of Intelligent Medical Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
BMEB211	Introduction to Nanobiomedicine	3		1/ Spring		BME
BMEB216	Anatomy and Physiology	3		2/ Spring		
BMEB315	Biomedical Optics	2		2/ Spring		
BMEB324	Biomedical Optics Laboratory	2	2	2/ Spring	BMEB315	
BMEB219	Analog Circuits	3		2/Spring	BMEB111	
BMEB326	Clinical Perception for Biomedical Engineering I	2		2/ Fall		
BMEB214	Fundamentals of Biomedical Materials	3		2/Fall		
BMEB217	Fundamentals of Engineering Mechanics	3		2/Fall		
BMEB218	Molecular Cell Biology	3		2/Fall		
BMEB213	Medical Materials and Devices	3		2/ Fall		
BMEB327	Clinical Perception for Biomedical Engineering II	2	2	2/ Summer	BMEB326	
BMEB318	Biomechanics	3		3/ Fall		
BMEB311	Quantitative Physiology I	3		3/ Fall		
BMEB335	Digital Signal Processing	3	1	3/Fall	BMEB220	
BMEB325	Medical Imaging Systems Laboratory	2	2	3/Fall	BMEB317	

BMEB312	Quantitative Physiology II	3		3/ Spring	BMEB311	
BMEB319	Biomaterials and Tissue Engineering	3		3/ Spring		
BMEB334	Biomaterials and Tissue Engineering Laboratory	2	2	3/Spring		
BIO104	General Biology Laboratory	2	2	1/ Spring	BIO103 or BIO102B	BIO
BIO201	Biochemistry (Macromolecules)	3		2/Fall	BIO103，CH103	
BIO306	Bioinformatics	4	2	3/ Spring	BIO309	
BIO304	Systems Biology	3		3/ Spring	BIO103,MA212	
BIO310	Neurobiology	3		3/ Spring	BIO201	
BIO309	Computational Biology	3	1	3/ Fall		
BIO405	Immunology	3		4/ Fall	BIO206-15	
EE202-17	Digital Circuits	3		2/ Spring	PHY105	EE
EE202-17L	Digital Circuits Laboratory	1	1	2/ Spring	EE202-17	
EE303	Fundamentals of Optoelectronic Technology	3	1	3/ Fall	PHY105	
EE332	Digital System Design	3	1	3/ Spring	EE202-17	
EE342	Sensors and Applications	3		3/ Spring		
CS205	C/C++ Programming Design	3	1	1/Spring		CS
CS201	Discrete Mathematics	3		2/Fall	MA127, MA113	
CS202	Computer Organization	3	1	2/Spring	EE202-17 EE202-17LCS207	

CS207	Digital Logic	3	1	2/Spring		
CS401	Intelligent Robots	3	1	3/ Spring	CS109; CS203; MA212	
CS308	Computer Vision	3	1	3/ Spring		
CS301	Embedded System and Microcomputer Principle	3	1	3/ Fall	EE202-17EE202-17LCS207	
CS306	Data Mining	3	1	3/ Spring	CS203	
MA305	Numerical Analysis	3		3/ Fall	MA203a orMA213	MA
MED103	History of Medicine	2		2/ Fall		MED
MED306	Histology and Embryology	3	1	3/ Fall		
MED404	Medical Genetics	3		3/ Fall		
MED309	Medical Neurobiology	3		3/ Fall		
MED307	Pathology	3	1	3/ Spring	MED306	
ME112	Introduction to Matlab	2	1	1/Spring		ME
ME232	Prolegomenon to Robotics	3		1/Spring		
ME102	CAD and Engineering Drawing	3	1.5	1/Fall		
ME331	Robot Modeling and Control	3		3/ Fall	MAE203B	
Total		134	28.5			

Note:
1. A minimum of 20 credits are required from Major Elective Courses (including a minimum of 6 lab credits).
2. If students have completed the part of Introduction to Majors and have more credits, you can use the course of “Introduction to Biomedical Engineering” to exchange the major elective credits.

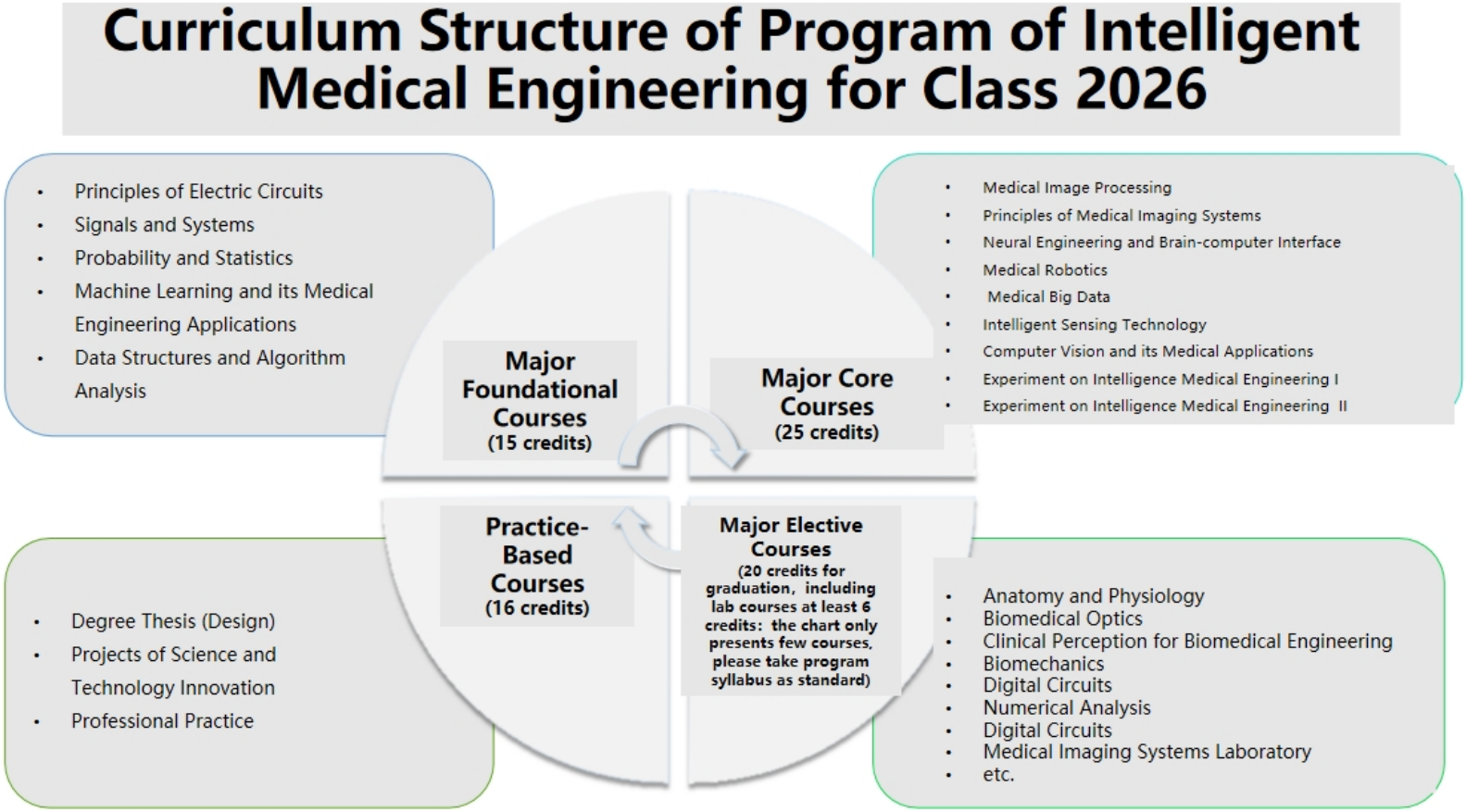
Table 3: Overview of Practice-based Learning

Program of Intelligent Medical Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
BMEB121*	Projects of Science and Technology Innovation	2	2	Start from 1 Spring		BME
BMEB470	Professional Practice	2	2	3/Summer		BME
BMEB491	Undergraduate Thesis	12	12	4/Spring		BME
BMEB316	Medical image processing	3	1	3/Fall		BME
BMEB328	Experiment on Intelligence Medical Engineering I	2	2	3/Fall	BMEB220	BME
BMEB329	Experiment on Intelligence Medical Engineering II	2	2	3/Spring	BMEB328	BME
BMEB324	Biomedical Optics Laboratory	2	2	3/Spring	BMEB315	BME
BMEB325	Medical Imaging Systems Laboratory	2	2	3/Fall	BMEB317	BME
BMEB327	Clinical Perception for Biomedical Engineering II	2	2	2/Summer	BMEB326	BME
BMEB334	Biomaterials and Tissue Engineering Laboratory	2	2	3/ Spring		BME
BMEB220	Signals and Systems	3	1	2/Fall		BME
BMEB335	Digital Signal Processing	3	1	3/Fall	BMEB220	BME
BIO306	Bioinformatics	4	2	3/Spring	BIO309	BIO
BIO104	General Biology Laboratory	2	2	1/Spring	BIO103 or BIO102B	BIO
BIO309	Computational Biology	3	1	3/Fall		BIO

EE202-17L	Digital Circuit Laboratory	1	1	2/Spring	EE202-17	EE
EE303	Fundamental of Optoelectronic Technology	3	1	3/Fall	PHY105	EE
EE332	Digital System Design	3	1	3/ Spring	EE202-17	EE
CS202	Computer Organization	3	1	2/Spring	EE202-17 EE202-17LCS 207	
CS205	C/C++ Programming Design	3	1	1/Spring		CS
CS301	Embedded System and Microcomputer Principle	3	1	3/Fall	EE202-17EE20 2-17LCS207	CS
CS207	Digital Logic	3	1	2/Spring		CS
CS401	Intelligent Robots	3	1	3/Spring	CS109; CS203; MA212	CS
CS308	Computer Vision	3	1	3/Spring		CS
CS306	Data Mining	3	1	3/Spring	CS203	CS
MED307	Pathology	3	1	3/Spring	MED204;MED 205;MED306	MED
MED306	Histology and Embryology	3	1	3/Fall		MED
ME112	Introduction to Matlab	2	1	1/Spring		ME
ME102	CAD and Engineering Drawing	3	1.5	1/Fall		ME
Total		85	50.5			

Curriculum Structure of Intelligent Medical Engineering



School of Environmental Science and Engineering

Program of Environmental Science and Engineering for International Students (2026)

I. Introduction

SUSTech established the School of Environmental Science and Engineering (hereafter referred to as "the School") in 2015 as a platform to foster top talents in the field of environmental science and engineering in China. The School's teaching and research mainly focus on water science and technology, resources recycling, atmospheric environment and earth system science.

Environmental Science and Engineering is the first bachelor degree program of the school. This Major cover important environmental issues such as water pollution control, air pollution control, solid waste disposal, treatment and recycling, ecological conservation, environmental monitoring, environmental quality assessment, environmental planning, natural resources management, etc. At present, the School has faculty consists of 55 full-time and 2 part-time members. The academic hierarchy includes 6 Chair Professors, 8 Professors/Research Professors, 21 Associate Professors/Research Associate Professors, and 20 Assistant Professors/Research Assistant Professors. The faculty is distinguished by numerous high-level honors. The team includes one Academician of the Chinese Academy of Sciences, one Member of the U.S. National Academy of Engineering, and two Fellows of the American Geophysical Union (AGU). Furthermore, the School is home to 4 Ministry of Education Chair Professors, 3 Recipients of the State Council Expert Special Allowance, 6 National Natural Science Foundation of China (NSFC) Outstanding Scientist Award Recipients, and 5 NSFC Excellent Young Scientist Award Recipients, 4 Recipients of the Ministry of Education Junior Faculty Award, and 13 Recipients of National Awards Programs in Recognition of Individual Scholarship.

This degree program especially emphasizes the integration of theory and practice. The Engineering Innovation Center (Beijing) of SUSTech is the School's platform for industry-university-research cooperation, which will provide training opportunities for students to practice what they learned in classes.

The School strives to make Environmental Science and Engineering an internationally recognized degree program, which is unique in the following aspects:

a. Innovation of engineering science.

b. Coupling of resources, environment and society.

c. New environmental industries, products, and services targeted.

Academic subject areas: Environmental Science and Engineering

Program code: 082501

II. Objectives and Learning Outcomes

1. Objectives

The major aim of the program is to train talents with firm fundamental knowledge, broaden their vision, and build the innovation ability. Most of the graduates will continue their study in leading universities at home and abroad; while the other will enter government or international organizations for works related to environment management.

2. Learning Outcomes

The School's graduates should have:

A solid foundation of theoretic knowledge (including math, physics, chemistry, biology, geoscience, et al.), as well as professional knowledge on environmental science and engineering.

Capability to do scientific research and engineering design, knowing the tendency of environmental science and technology, and be familiar with the standards, guidelines, policies, laws and regulations in the field of environmental protection.

A rigorous attitude, a desire for excellence, the social responsibility and good communication skills.

Innovative thinking, and capability to solve problems independently.

An international vision, fluency in at least one foreign language.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Engineering.

3. The minimum credit requirement for graduation: 164 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	4
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	19
		Major Core Courses	21
		Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	18
	Major Elective Courses	Major Elective Courses	Specialty Tracks-Restricted Electives Courses: 20Electives Courses: 6
Total			164
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1 Fall	None	Department of Mathematics
	MA127	Calculus II	4	1 Spring	Calculus I	
	MA113	Linear Algebra	4	1 Spring & Fall	None	
Physics	PHY105	College Physics I	4	1 Fall	None	Department of Physics
	PHY106	College Physics II	4	1 Spring	College Physics I	
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	
Chemistry	CH103	General Chemistry	4	1-2 Spring & Fall	None	Department of Chemistry
Geoscience + Life science	Complete any one of the following courses					
	BIO102B	Introduction to Life Science	3	1-2 Spring & Fall	None	Department of Biology
	EOE111	College Earth Sciences	3	1-2 Spring & Fall	None	ESS, OCE, ESE
Computer Programming	Complete any one of the following courses					
	CS109	Introduction to Computer Programming	3	1-2 Spring & Fall	None	Dept. of Computer Science and Engineering
	CS110	Introduction to Java Programming	3	1-2 Spring & Fall	None	
	CS111	Introduction to C programming	3	1-2 Spring & Fall	None	
	CS112	Introduction to Python Programming	3	1-2 Spring & Fall	None	
	CS113	Introduction to Matlab Programming	3	1-2 Spring & Fall	None	

Note:
1. 《Calculus I》and《Calculus II）》can be replaced by《Mathematical Analysis I》and《Mathematical Analysis II》；
2. 《Linear Algebra》can be replaced by《Advanced Linear Algebra I》；
3. 《College Physics I》和《College Physics II》can be replaced by《General Physics I》和《General Physics II》;
4. 《Introduction to Life Science》can be replaced by《Principles of Biology》；
5. The above alternative courses are also applicable to V.

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	MA117	Calculus I	None
	MA127	Calculus II	Calculus I
	PHY105	College Physics I	None
	CH103	General Chemistry	None
Declare major at the end of the second academic year	MA117	Calculus I	None
	MA127	Calculus II	Calculus I
	MA113	Linear Algebra	None
	PHY105	College Physics I	None
	PHY106	College Physics II	College Physics I
	PHY104B	Experiments of Fundamental Physics	None
	CH103	General Chemistry	None
	Geoscience + Life science		
	Computer Programming		

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Course

Program of Environmental Science and Engineering

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	CH102-15	General Chemistry Laboratory	2	2	1	General Chemistry / Chemistry: The Central Science	Department of Chemistry
	ESE202	Introduction to Environmental Sciences	2		1-2	None	School of Environment
	ESE203	Fundamentals of Geology	3	0	2/Fall	None	School of Environment
	ESE204	Principles of Environmental Engineering	2	0	2/Fall	General Chemistry, College Physics II	School of Environment
	MA201b	Ordinary Differential Equations B	4	1	2/Fall	Calculus II	Department of Mathematics
	ESE205	Physical Chemistry	3		2/Spr.	Calculus II, General Chemistry	School of Environment
	MA212	Probability and Mathematical Statistics	3		2	Calculus II	Department of Mathematics
	Total		19	3			
Major Core Courses	ESE206	Environmental Chemistry	3	0	2/Spr.	General Chemistry/ Chemistry: The Central Science	School of Environment
	ESE212	Environment Monitoring	2		2/Spr.	None	School of Environment
	ESE214	Environment Monitoring Laboratory	1	1	2/Spr.	Environment Monitoring	School of Environment
	ESE303	Water Treatment Engineering	4		3/Fall	Principles of Environmental Engineering, Environmental Chemistry, Environment Monitoring	School of Environment

	ESE305	Environmental Science and Engineering Laboratory I	1	1	3/Fall	Water Treatment Engineering, Environment Monitoring Laboratory	School of Environment
Major Core Courses	ESE406	Environmental Transport Process	3	0	3/Fall	None	School of Environment
	ESE302	Solid Waste Treatment, Disposal and Recycling	3		3/Spr.	Physical Chemistry, Environmental Chemistry	School of Environment
	ESE304	Atmospheric Pollution Prevention and Control	3		3/Spr.	Physical Chemistry, Environmental Chemistry	School of Environment
	ESE310	Environmental Science and Engineering Laboratory II	1	1	3/Spr.	Solid Waste Treatment, Disposal and Recycling, Atmospheric Pollution Prevention and Control	School of Environment
	Total		21	3			
Practice-based Courses	ESE370	Projects of Science and Technology Innovation*	0	0	2/Smr.	None	School of Environment
	ESE470	Cognition Practice	2	2	4/Fall	Environmental Chemistry, Environment Monitoring	School of Environment
	ESE480	Innovative Design	4	4	4/Spr.	None	School of Environment
	ESE491	Degree Thesis (or Design)	12	12			
	Total		18	18			
Total			58	24			

Note：
Students can choose to carry out this course in any semester after the beginning of the second academic year.

Students should follow the rules below to select the Major Elective Courses. Credits for these courses should be not less than 26.

Special Track- Restrict Elective Courses

There are two Special Tracks as shown in Table 2. Students are required to select at least one track and complete courses of no less than 20 credits.

Elective Courses

No less than 6 credits are required.

a. Students may select elective courses from Table 2 that do not belong to Special Track-Restrict Elective courses.

b. Students can select courses from Table 3.

c. Besides the Major Required Courses for Environmental Science and Engineering, students may select course(s) from other majors in the School, such as the degree program of Hydrology and Water Resources Engineering.

Table 2: Major Elective Courses

Program of Environmental Science and Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Track I Environmental Science (Not less than 20 credits are required)						
CH209	Inorganic Chemistry I	4	0	2/Fall	None	Department of Chemistry
CH106	Organic Chemistry B	3	0	2.	General Chemistry	Department of Chemistry
ESE336	Environmental Analytical Chemistry	3	0	2/ Fall	None	School of Environment
ESE207	Environmental Chemistry Laboratory	1	1	2/Spr.	Environmental Chemistry	School of Environment
ESE308	Environmental Economics	3	0	3/Fall	None	School of Environment
ESE313	Introduction to Ecology	3	0	3/Fall	None	School of Environment
ESE317	Application of GIS & RS	3	0.5	3/Fall	None	School of Environment
ESE335	Environmental Data Analysis	3	0	3/Spr.	None	School of Environment

ESE332	Soil Science	3	0	3/Spr.	Calculus II, General Chemistry, College Physics II	School of Environment
ESE405	Environmental Impact Assessment	3	0	4/Fall	None	School of Environment
ESE5095	Atmospheric Chemistry	3	0	3/Fall	None	School of Environment
Total		32	1.5			
Track II Environmental Engineering (Not less than 20 credits are required)						
ME102	CAD& Engineering Drawing	3	1.5	1-2	None	Department of Mechanical and Energy Engineering
CH209	Inorganic Chemistry I	4	0	2/Fall	None	Department of Chemistry
CH106	Organic Chemistry B	3	0	2/Spr.	General Chemistry	Department of Chemistry
ESE336	Environmental Analytical Chemistry	3	0	3/Spr.	None	School of Environment
ESE301	Environmental Microbiology	3	0	3/Fall	None	School of Environment
ESE309	Environmental Microbiological Experiments	1	1	3/Fall	None	School of Environment
ESE317	Application of GIS & RS	3	0.5	3/Fall	None	School of Environment
MAE207	Engineering Fluid Mechanics	3	0	3/Fall	Calculus II	School of Environment
ESE412	Ecological Restoration	3	0	3/Fall	None	School of Environment
ESE306	Soil and Groundwater Contamination	3	0	3/Spr.	None	School of Environment
ESE335	Environmental Data Analysis	3	0	3/Spr.	None	School of Environment
ESE405	Environmental Impact Assessment	3	0	4/Fall	None	School of Environment
Total		35	3			
(The course list is subject to change)						

Table 3: Elective Course

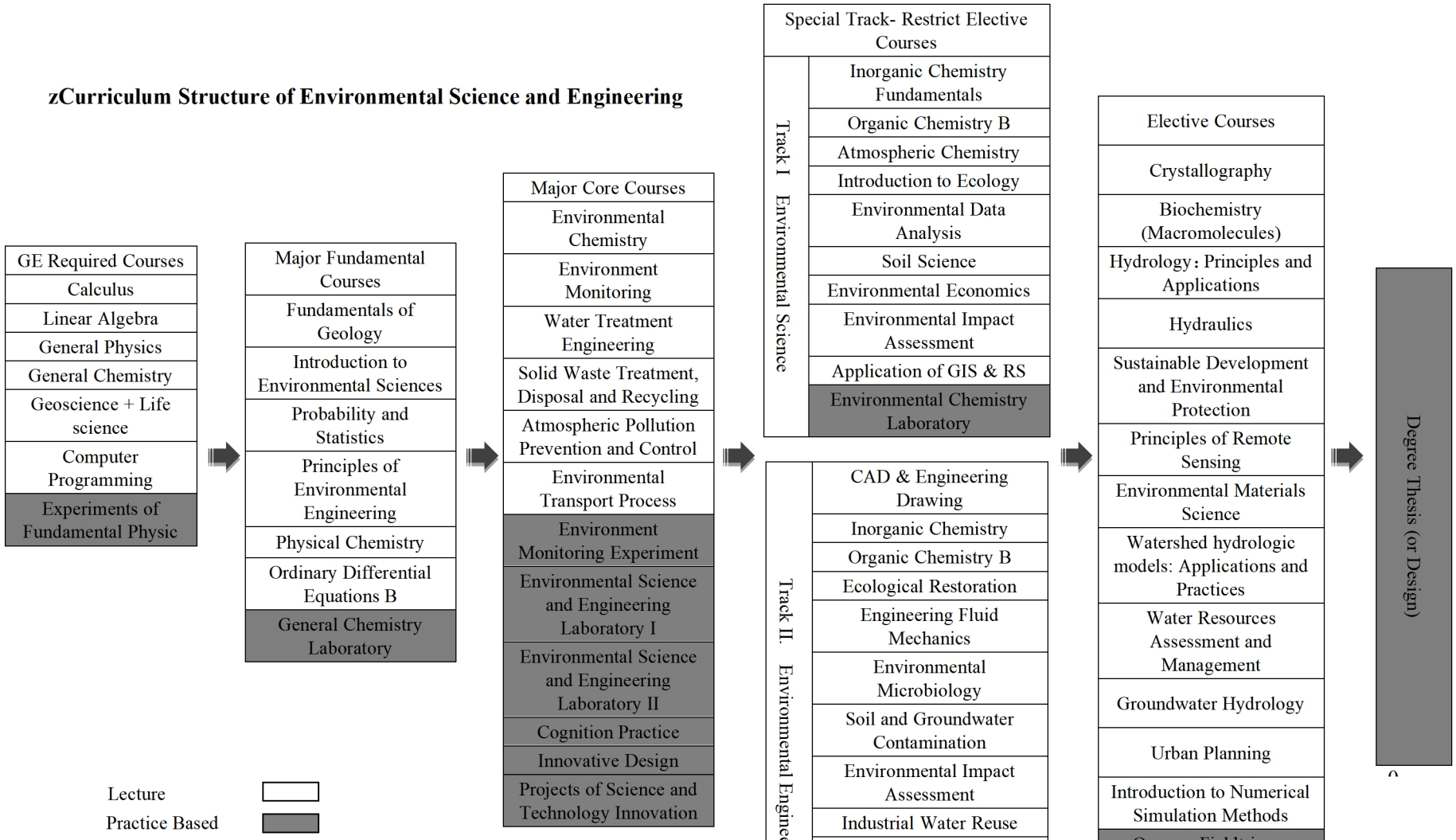
Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
BIO201	Biochemistry (Macromolecules)	3	0	2/Fall	Introduction to Life Science, General Chemistry	Department of Biology
MSE203	Crystallography	2	0	2/Fall	None	Department of Materials Science and Engineering
ESE307	Hydrology: Principles and Applications	3	0	2/Fall	Calculus II	School of Environment
ESE216	Hydraulics	3	0	2/Spr.	Calculus II, College Physics II	School of Environment
ESE224	Sustainable Development and Environmental Protection	1	0	2/Spr.	None	School of Environment
ESE329	Principles of Remote Sensing	3	0	2/Spr.	None	School of Environment
ESE211	Oversea Fieldtrip on Water and Environmental Management	2	2	2/Smr.	None	School of Environment
ESE314	Environmental Materials Science	3	0	3/Spr.	None	School of Environment
ESE316	Water Resources Assessment and Management	3	0	3/Spr.	None	School of Environment
ESE318	Groundwater Hydrology	3	0	3/Spr.	Fundamentals of Geology	School of Environment
ESE321	Scientific Presentation	2	0	3/Spr.	None	School of Environment
ESE337	Environmental Psychology and Design Application	3	0	3/Spr.	None	School of Environment
ESE221	Urban Planning	3	0	2/Fall	None	School of Environment
ESE407	Introduction to Numerical Simulation Methods	3	0	4/Fall	Calculus II, Linear Algebra	School of Environment
ESE415	Watershed hydrologic models: Applications and Practices	3	0	4/Fall	Calculus II	School of Environment
Total		40	2			
(The course list is subject to change)						

Table 4: Overview of Practice-based Learning

Program of Environmental Science and Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
CH102-15	General Chemistry Laboratory	2	2	1	General Chemistry / Chemistry: The Central Science	Department of Chemistry
ME102	CAD & Engineering Drawing	3	1.5	1-2.	None	Department of Chemistry
MA201b	Ordinary Differential Equations B	4	1	2/Fall.	Calculus II	Department of Mathematics
ESE207	Environmental Chemistry Laboratory	1	1	2/Spr.	Environmental Chemistry	School of Environment
ESE214	Environment Monitoring Experiment	1	1	2/Spr.	Environment Monitoring	School of Environment
ESE211	The overseas field-trip in water and environmental management	2	2	2/Sum.	None	School of Environment
ESE470	Cognition Practice	2	2	2/ Sum.	Environmental Chemistry, Environment Monitoring	School of Environment
ESE305	Environmental Science and Engineering Laboratory I	1	1	3/Fall	Water Treatment Engineering，Environment Monitoring Laboratory	School of Environment
ESE309	Environmental Microbiological Experiments	1	1	3/Fall	None	School of Environment
ESE317	Application of GIS & RS	3	0.5	3/Fall	None	School of Environment
ESE310	Environmental Science and Engineering Laboratory II	1	1	3/Spr.	Solid Waste Treatment, Disposal and Recycling, Atmospheric Pollution Prevention and Control	School of Environment
ESE370	Projects of Science and Technology Innovation	0	0		None	School of Environment
ESE480	Innovative Design	4	4	4/Fall	None	School of Environment
ESE491	Degree Thesis (or Design)	12	12	4/Spr.		School of Environment
Total		37	30			

zCurriculum Structure of Environmental Science and Engineering



School of Environmental Science and Engineering

Program of Hydrology and Water Resources Engineering

for International Students (2026)

I. Introduction

SUSTech established the School of Environmental Science and Engineering (hereafter referred to as "the School") in 2015 as a platform to foster top talents in the field of environmental science and engineering in China. The School's teaching and research mainly focus on the water science and technology, resources circular using, atmospheric environment and earth system science.

At present, the School has faculty consists of 55 full-time and 2 part-time members. The academic hierarchy includes 6 Chair Professors, 8 Professors/Research Professors, 21 Associate Professors/Research Associate Professors, and 20 Assistant Professors/Research Assistant Professors. The faculty is distinguished by numerous high-level honors. The team includes one Academician of the Chinese Academy of Sciences, one Member of the U.S. National Academy of Engineering, and two Fellows of the American Geophysical Union (AGU). Furthermore, the School is home to 4 Ministry of Education Chair Professors, 3 Recipients of the State Council Expert Special Allowance, 6 National Natural Science Foundation of China (NSFC) Outstanding Scientist Award Recipients, and 5 NSFC Excellent Young Scientist Award Recipients, 4 Recipients of the Ministry of Education Junior Faculty Award, and 13 Recipients of National Awards Programs in Recognition of Individual Scholarship. All faculty members have prior experiences studying and/or working abroad. The program will be unique in the following aspects:

a. Integration of surface water and groundwater protection.

b. The science of water from molecular to global.

c. The system coupling of water resources, water environment, and social economy.

Academic subject areas: Water Conservancy

Program code: 801102

II. Objectives and Learning Outcomes

1. Objectives

The major aims to train talents for Hydrology and Water Resources Engineering field with firm fundamental knowledge, broad vision and outstanding innovation. Most students will continue their education in domestic and overseas famous universities; and other students will enter government and international organizations for work related to environment and water resources management.

2. Learning Outcomes

The School's graduates should have:

A solid and broad theoretic basis (including mathematics, physics, chemistry, biology, geoscience, et al.) as well as specialized knowledge in hydrology, water resources, and water environment protection.

Capacity to do research on water resource and water environment. Mastering methods of water resource assessment, planning, management, and protection, and be familiar with the standards, guidelines, policies, laws, and regulations in the field of water resources.

A rigorous attitude, a desire for excellence, a sense of social responsibility and good communication skills.

Innovative thinking and capable to solve problems independently.

An international vision and fluency in at least one foreign language.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Engineering.

3. The minimum credit requirement for graduation: 158.5credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	15
		Major Core Courses	27.5
		Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	20
	Major Elective Courses	Major Elective Courses	17
Total			158.5
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1 Fall	None	Department of Mathematics
	MA127	Calculus II	4	1 Spring	Calculus I	
	MA113	Linear Algebra	4	1 Spring & Fall	None	
Physics	PHY105	College Physics I	4	1 Fall	None	Department of Physics
	PHY106	College Physics II	4	1 Spring	College Physics I	
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	
Chemistry	CH105	Chemistry: The CentralScience	3	1-2 Spring & Fall	None	Department ofChemistry
Geoscience + Life science	Complete any one of the following courses					
	BIO102B	Introduction to Life Science	3	1-2 Spring & Fall	None	Department of Biology
	EOE111	College Earth Sciences	3	1-2 Spring & Fall	None	ESS, OCE,ESE
Computer Programming	Complete any one of the following courses					
	CS109	Introduction to Computer Programming	3	1-2 Spring & Fall	None	Dept. of Computer Science and Engineering
	CS110	Introduction to Java Programming	3	1-2 Spring & Fall	None	
	CS111	Introduction to C programming	3	1-2 Spring & Fall	None	
	CS112	Introduction to Python Programming	3	1-2 Spring & Fall	None	
	CS113	Introduction to Matlab Programming	3	1-2 Spring & Fall	None	

Note:
1.《Calculus I》and《Calculus II）》can be replaced by《Mathematical Analysis I》and《Mathematical Analysis II》；
2.《Linear Algebra》can be replaced by《Advanced Linear Algebra I》；
3.《College Physics I》和《College Physics II》can be replaced by《General Physics I》和《General Physics II》;
4.《Chemistry: The Central Science》can be replaced by《General Chemistry》；
5.《Introduction to Life Science》can be replaced by《Principles of Biology》；
6. The above alternative courses are also applicable to V.

V. Prerequisites for Major Declaration

<table>
<tr><th>Major Declaration Time</th><th>Course Code</th><th>Course Name</th><th>Prerequisite</th></tr>
<tr><td rowspan="4">Declare major at the end of the first academic year</td><td>MA117</td><td>Calculus I</td><td>None</td></tr>
<tr><td>MA127</td><td>Calculus II</td><td>Calculus I</td></tr>
<tr><td>PHY105</td><td>College Physics I</td><td>None</td></tr>
<tr><td>CH105</td><td>Chemistry: The Central Science</td><td>None</td></tr>
<tr><td rowspan="10">Declare major at the end of the second academic year</td><td>MA117</td><td>Calculus I</td><td>None</td></tr>
<tr><td>MA127</td><td>Calculus II</td><td>Calculus I</td></tr>
<tr><td>MA113</td><td>Linear Algebra</td><td>None</td></tr>
<tr><td>PHY105</td><td>College Physics I</td><td>None</td></tr>
<tr><td>PHY106</td><td>College Physics II</td><td>College Physics I</td></tr>
<tr><td>PHY104B</td><td>Experiments of Fundamental Physics</td><td>None</td></tr>
<tr><td>CH105</td><td>Chemistry: The Central Science</td><td>None</td></tr>
<tr><td colspan="3">Geoscience + Life science</td></tr>
<tr><td colspan="3">Computer Programming</td></tr>
<tr><td colspan="4">Note:
1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).</td></tr>
</table>

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Hydrology and Water Resources Engineering

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	ME102	CAD & Engineering Drawing	3	1.5	1-2	None	Department of Mechanical and Energy Engineering
	ESE203	Fundamentals of Geology	3	0	2/Fall.	None	School of Environment
	ESE202	Introduction to Environmental Sciences	2	0	1-2	None	School of Environment
	MA212	Probability and Statistics	3	0	2.	Calculus II	Department of Mathematics
	MA201b	Ordinary Differential Equations B	4	1	2/Fall	Calculus II	Department of Mathematics
	Total		15	2.5			
Major Core Courses	ESE307	Hydrology: Principles and Applications	3	0	2/Fall	Calculus II	School of Environment
	ESE206	Environmental Chemistry	3	0	2/Spr..	General Chemistry/ Chemistry: The Central Science	School of Environment
	ESE216	Hydraulics	3	0	2/Spr.	Calculus II, College Physics II	School of Environment
	ESE218	Hydraulics Basic Experiment	0.5	0.5	2/Spr.	Hydraulics	School of Environment
	ESE315	Meteorology and Climatology	3	0	3/Fall	None	School of Environment
	ESE313	Introduction to Ecology	3	0	3/Fall	None	School of Environment

	ESE317	Application of GIS & RS	3	0.5	3/Fall	None	School of Environment
	ESE316	Water Resources Assessment and Management	3	0	3/Spr.	None	School of Environment
	ESE318	Groundwater Hydrology	3	0	3/Spr.	Fundamentals of Geology	School of Environment
	ESE332	Soil Science	3	0	3/Spr.	Calculus II, College Physics II,Chemistry: The Central Science	School of Environment
	Total		27.5	1			
Practice-based Courses	ESE471	Earth Science Practice	2	2	3/Smr.	Fundamentals of Geology, Hydraulics	School of Environment
	ESE472	Hydrology and Water Resources Practice	2	2	4/Fall	Hydrology: Principles and Applications, Groundwater Hydrology	School of Environment
	ESE480	Innovative Design	4	4	4/Spr.	None	School of Environment
	ESE491	Degree Thesis (or Design)	12	12			
	Total		20	20			
Total			62.5	23.5			

To choose Major Elective Courses, students should follow the rules below:

a. The credits of Major Elective Courses should not be less than 17. Besides the Major Elective Courses, students may select courses from other majors in the school, such as the degree program of Environmental Science and Engineering.

b. Students can also select courses from other departments. However, an approval from the school is needed. In addition, for the 2019 class, such credits should be no more than 6.

Table 2: Major Elective Courses

Program of Hydrology and Water Resources Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
CH102-15	General Chemistry Laboratory	2	2	1.	General Chemistry / Chemistry: The Central Science	Department of Chemistry
PHY203-15	Mathematical Methods in Physics	4	0	2/Fall	Calculus II, College Physics II,Linear Algebra	Department of Physics
ESE221	Urban Planning	3	0	2/Fall	None	School of Environment
ESE336	Environmental Analytical Chemistry	3	0	2/ Fall	None	School of Environment
ESE220	Physical Geography	3	0	2/Spr.	None	School of Environment
ESE212	Environment Monitoring	2	0	2/Spr.	None	School of Environment
ESE214	Environment Monitoring Experiment	1	1	2/Spr.	Environment Monitoring	School of Environment
ESE329	Principles of Remote Sensing	3	0	2/Spr.	None	School of Environment
ESE224	Sustainable Development and Environmental Protection	1	0	2/Spr.	None	School of Environment
ESE211	The overseas field-trip in water and environmental management	2	2	2/Smr.	None	School of Environment
ESS303	Fundamentals of Space Geodetics	3	0	3/Fall	Calculus II,Linear Algebra	ESS
ESE308	Environmental Economics	3	0	3/Fall	None	School of Environment
ESE412	Ecological Restoration	3	0	3/Fall	None	School of Environment
ESE303	Water Treatment Engineering	4	0	3/Fall	Principles of Environmental Engineering,Environmental Chemistry,Environment Monitoring	School of Environment

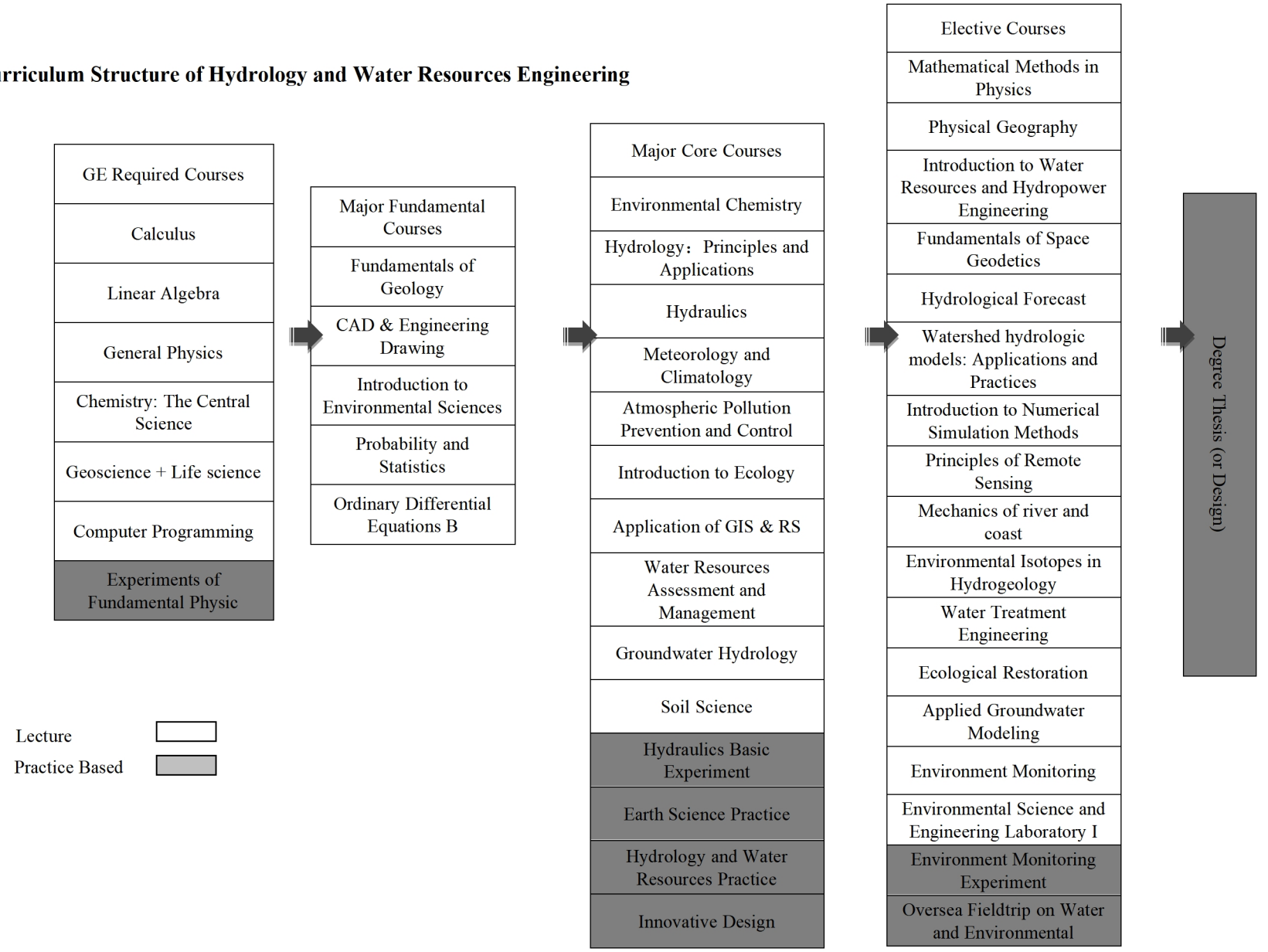
ESE305	Environmental Science and Engineering Laboratory I	1	1	3/Fall	Water Treatment Engineering，Environment Monitoring Laboratory	School of Environment
ESE323	Introduction to Water Resources and Hydropower Engineering	3	0	3/Fall	None	School of Environment
ESE306	Soil and Groundwater Contamination	3	0	3/Spr.	None	School of Environment
ESE335	Environmental Data Analysis	3	0	3/Spr.	None	School of Environment
ESE321	Scientific Presentation	2	0	3/Spr.	None	School of Environment
ESE326	Hydrological Forecast	3	0	3/Spr..	None	School of Environment
ESE338	Mechanics of river and coast	3	0	3/Spr	None	School of Environment
ESS202	Scientific Computing and Programming	3	0	3/Spr	None	ESS
ESE402	Lake & Wetland Hydrology	3	0	4/Fall		School of Environment
ESE407	Introduction to Numerical Simulation Methods	3	0	4/Fall	Calculus II,Linear Algebra	School of Environment
ESE409	Environmental Isotopes in Hydrogeology	3	0	4/Fall		School of Environment
ESE415	Watershed hydrologic models: Applications and Practices	3	0	4/Fall	Calculus II	School of Environment
ESE418	Applied Groundwater Modeling	3	0	4/Fall		School of Environment
Total		73	6			
(The course list is subject to change)						

Table 3: Overview of Practice-based Learning

Program of Hydrology and Water Resources Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
CH102-15	General Chemistry Laboratory	2	2	1	General Chemistry / Chemistry: The Central Science	Department of Chemistry
ME102	CAD & Engineering Drawing	3	1.5	1-2	None	Department of Mechanical and Energy Engineering
MA201b	Ordinary Differential Equations B	4	1	2/Fall	Calculus II	Department of Mathematics
ESE218	Hydraulics Basic Experiment	0.5	0.5	2/Spr.	Hydraulics	School of Environment
ESE214	Environment Monitoring Laboratory	1	1	2/Spr.	Environment Monitoring	School of Environment
ESE471	Earth Sciences Practice	2	2	2/Smr.	Fundamentals of Geology, Hydraulics	School of Environment
ESE211	Oversea Fieldtrip on Water and Environmental Management	2	2	2/Smr.	None	School of Environment
ESE317	Application of GIS & RS	3	0.5	3/Fall	None	School of Environment
ESE305	Environmental Science and Engineering Laboratory I	1	1	3/Fall	Water Treatment Engineering，Environment Monitoring Laboratory	School of Environment
ESE472	Hydrology and Water Resources Practice	2	2	3/Smr.	Hydrology: Principles and Applications, Groundwater Hydrology	School of Environment
ESE480	Innovative Design	4	4	4/Fall	None	School of Environment
ESE491	Degree Thesis (or Design)	12	12	4/Spr.		School of Environment
Total		36.5	29.5			

Curriculum Structure of Hydrology and Water Resources Engineering



School of Microelectronics

Program of Microelectronics Science and Engineering for International Students (2026)

I. Introduction

Academic subject areas:

The main objective of the School of Microelectronics is in the direction of integrated circuit chip design and manufacturing, and fosters innovative leading talents oriented to internationalization and industrialization. This discipline is a new engineering discipline developed on many basic disciplines. It is the pioneer and foundation of electronic science and information technology in the 21st century. It is also an important foundation for the development of modern high-tech and national economic modernization. Mainly researching the design and manufacturing technology of semiconductor devices and VLSI, and closely integrating with the industry. The School of Microelectronics will cooperate with the four research directions of EDA, VLSI-SoC, wide WBG semiconductor, and future communication. Therefore, the project is different from the existing microelectronics disciplines, and will further explore new engineering construction oriented by internationalization and industrialization.

Program code: 080704

II. Objectives and Learning Outcomes

1. Objectives

The Microelectronics Science and Engineering major aims to provide students not only solid theoretical knowledge in semiconductor materials and devices, but also intends to the cultivate innovative leading talents capable of manufacturing and designing integrated circuit chips.The students can participate in microelectronics science and engineering courses offered by university teachers in Hong Kong and Macau at SUSTech, as well as internship courses. After graduating, the students can work in the design of electronic components manufacturing, integrated circuits and systems in various related enterprises, or they can continue their studies or research in famous universities in the Great Bay Area.

2.Educational Requirements

Undergraduate graduates majoring in Microelectronic Science and Engineering should

possess the following knowledge and abilities:

1） The ability to apply knowledge of mathematics, science, and engineering in the field of microelectronics;

2） The ability to design experiments for integrated circuits, semiconductor devices, and integrated circuit processes, to conduct them, and to analyze and interpret the data generated during the experiments;

3） The ability to design integrated circuits, semiconductor devices, and integrated circuit processes while considering real-world constraints such as economic, environmental, legal, health, safety, and ethical factors;

4） The ability to identify, formulate, and solve engineering problems in the field of microelectronics;

5）Possess a broad knowledge base sufficient to understand the implications of engineering solutions in global, economic, environmental, and societal contexts;

6）The ability to comprehensively apply techniques, skills, and modern engineering tools to engineering practice in the field of microelectronics.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Engineering

3. The minimum credit requirement for graduation: 156 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	20
		Major Core Courses	22
		Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	14
	Major Elective Courses	Major Elective Courses	21
Total			156
Note: Please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1Fall	NA	MATH
	MA127	Calculus II	4	1Spr	Ma117	MATH
	MA113	Linear Algebra	4	1Spr/Fall	NA	MATH
Physics	PHY105	College Physics I	4	1Fall	NA	PHY
	PHY106	College Physics II	4	1Spr	PHY105	PHY
	PHY104B	Experiments of Fundamental Physics	2	1-2Spr/Fall	NA	PHY
Chemistry	CH103	General Chemistry	4	1-2Spr/Fall	NA	CH
	CH105	Chemistry: The Central Science	3	1-2Spr/Fall	NA	CH
Geoscience + Life science	BIO103	Principles of Biology	3	1-2Spr/Fall	NA	BIO
	BIO102B	Introduction to Life Science	3	1-2Spr/Fall	NA	BIO
	EOE111	College Earth Sciences	3	1-2Spr/Fall	NA	ESS/OCE/ESE
Computer Programming	CS109	Introduction to Computer Programming	3	1-2Spr/Fall	NA	CS
	CS110	Introduction to Java Programming	3	1-2Spr/Fall	NA	CS
	CS111	Introduction to C Programming	3	1-2Spr/Fall	NA	CS
	CS112	Introduction to Python Programming	3	1-2Spr/Fall	NA	CS
	CS113	Introduction to Matlab Programming	3	1-2Spr/Fall	NA	CS

Note：
1. Mathematics: MA101a Mathematical Analysis I and MA102a Mathematical Analysis II can replace MA117 Calculus I and MA127 Calculus II; MA118 Single-variable Calculus can replace MA113 Linear Algebra.
2. Physics: PHY101 General Physics I and PHY102 General Physics II can replace PHY105 College Physics I and PHY106 College Physics II.
3. Chemistry: Choose one of CH103 /CH105.
4. Biology: Choose one of BIO103/BIO102B/EOE111.
5. Computer: Choose one of CS109/CS110CS111/CS112CS113.
6. The policy above is also applicable to the " Prerequisites for Major Declaration ".

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	MA117	Calculus I	NA
	MA127	Calculus II	Calculus I
	MA113	Linear Algebra	NA
	PHY105	College Physics I	NA
	PHY106	College Physics II	College Physics II
	PHY104B	Experiments of Fundamental Physics	NA
	CS109/CS110/ CS111/CS112/ CS113	Introduction to Computer Programming/Introduction to Java Programming/Introduction to C programming/Introduction to Python Programming/Introduction to Matlab Programming	NA
	CH103/CH105	General Chemistry/ Chemistry: The Central Science	NA
	BIO103/BIO102B /EOE111	Principles of Biology/ Introduction to Life Science/ College Earth Sciences	NA
Declare major at the end of the second academic year	MA117	Calculus I	NA
	MA127	Calculus II	Calculus I
	MA113	Linear Algebra	NA
	PHY105	College Physics I	NA
	PHY106	College Physics II	College Physics I
	PHY104B	Experiments of Fundamental Physics	NA
	CS109/CS110/ CS111/CS112/ CS113	Introduction to Computer Programming/Introduction to Java Programming/Introduction to C programming/Introduction to Python Programming/Introduction to Matlab Programming	NA
	CH103/CH105	General Chemistry/ Chemistry: The Central Science	NA
	BIO103/BIO102B /EOE111	Principles of Biology/ Introduction to Life Science/ College Earth Sciences	NA

Note:
If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Microelectronics Science and Engineering

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	SME105	Fundamentals of Circuit Analysis	3		2 Fall/Spr	MA117	SME
	SME211	Analog Integrated Circuit	4	1	2 Fall/Spr	SME105	SME
	SME212	Digital Integrated Circuit	4	1	2 Fall/Spr	SME105or PHY106	SME
	SME213	Semiconductor Material Physics	3		2 Fall/Spr	SME105or PHY106	SME
	SME206	Signals and Systems	3	1	2-3 Fall/Spr	MA117	SME
	MA212	Probability and Statistics	3		2 Fall/Spr	MA127	MATH
	Total		20	3			
Major Core Courses	SME303	Advanced Microelectronics Experiment I	1	1	2 Fall	NA	SME
	SME214	Semiconductor Device Physics	3	1	3 Fall/Spr	SME213	SME
	SME205	Electromagnetic Field and Electromagnetic Wave	3		3Fall/Spr	PHY106	SME
	SME305	VLSI Fabrication Technology	3	1	3 Spr	NA	SME
	SME306	Advanced Digital CMOS IC Design	3	2	3 Spr	SME212	SME
	SME307	CMOS Analog Integrated Circuit Design	3	1	3 Fall	SME211	SME
	SME309	Microprocessor Design	3	1	3 Fall	SME212	SME
	SME319	Fundamentals of Semiconductor Devices and Packaging	3		3 Spr	SME214	SME
	Total		22	7			
	Note: One of the SME303/304/403 should be counted as core course credit, while major elective course credit others.						
Practice-based Courses	SME470	Internship	2	2	3Smr	NA	SME
	SME491	Graduation Projects/Thesis	12	12	4Spr	NA	SME
	Total		14	14			
Total			56	24			

Table 2: Major Elective Courses

Program of Microelectronics Science and Engineering-Restricted

Distributional	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Distributional Electives I	SME312	Electronic Design Automation (EDA) Basics	3	1	3Spr	SME105 MA127 MA113	SME
	SME316	Design of Radio Frequency Integrated Circuits	3	0.5	3Spr	SME307	SME
Distributional Electives II	SME318	Introduction to MEMS and NEMS	3	1	3 Spr	PHY106	SME
	SME321	Introduction to GaN Semiconductor Materials and Devices	3		3 Fall	NA	SME
Total			12	2.5			
Note: At least complete one course of the Distributional Electives I and II,6credits.							

Program of Microelectronics Science and Engineering- Elective

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
SME208	Chip Application Practice	1	1	2Spr	NA	SME
SME301	Frontier Seminars in Microelectronicsand IC Designs I	1		3Fall	NA	SME
SME302	Frontier Seminars in Microelectronics and IC Designs II	1		3Spr	NA	SME
SME304	Advanced Microelectronics Experiment II	1	1	2Fall/Spr	NA	SME
SME308	Advanced Semiconductor Fabrication Laboratory	3	1.5	3Fall/Spr	SME214	SME
SME310	Deep Learning on Chip	3	1	3Spr	SME212	SME
SME311	The Foundation of IC Layout Design	1	1	3Spr	SME306	SME
SME314	Biosensor Basics and DNA Sequencing Application	3		3Spr	SME214or CH105	SME
SME315	Design of Micro and Nano Sensors	3		3Fall	PHY106	SME
SME317	System-on-a-Chip Design	3	1	3Fall	SME212	SME
SME323	Principle of Nano-optics	3		3Fall	NA	SME
SME325	Introduction to Power Electronics	3		3Fall	SME211	SME
SME401	Frontier Seminars in Microelectronics and IC Designs III	1		4Fall	NA	SME
SME402	Frontier Seminars in Microelectronics and IC Designs IV	1		4Spr	NA	SME
SME403	Advanced Microelectronics Experiment III	1	1	4Fall	NA	SME

SME480	Projects of Science and Technology Innovation	2	2	4Fall	NA	SME
SMES202	Patent Basics for Scientists and Engineers	1		2Fall	NA	SME
SMES208	Analysis Practice of Integrated Circuit Dissection	1	1	2Smr	SME214	SME
SMES209	Digital Circuit Practice for Machine Vision	1	1	2Smr	Cs207orSME 212	SME
SMES210	Training for transfer of creative achievements in IC	1	1	2Smr	SME214	SME
EE313	Wireless Communications	3	1	3Fall	EE206	EE
EE316	Microwave Engineering	3	1	3Fall	EE104 EE201-17 EE208	EE
EE322	Optoelectronic Devices Fabrication	2	1	3Spr	EE204	EE
EE323	Digital Signal Processing	3	1	3Fall	EE205	EE
EE326	Digital Image Processing	3	1	3Spr	EE205	EE
EE332	Digital System Design	3	1	3Spr	EE202-17	EE
EE345	Introduction of Wide Bandgap Semiconductors	3		3Fall	EE203or EE204	EE
EE404	Organic Electronics	2		4Spr	NA	EE
EE411	Information Theory and Coding	2		4Fall	MA212	EE
MSE207	Engineering Mathematical Physics	3		3Fall	MA127 MA113	MSE
MSE209	Heat and Mass Transfer	3		3Spr	MA127 PHY106	MSE
MSE311	Thermodynamics of Materials	3		3Spr	MSE001	MSE

MSE320	Introduction to Photovoltaic Thermal Technology	3		3Spr	PHY106 EE201-17 EE204	MSE
MSE335	Applied Solid State Physics	3		3Fall	MA127 PHY106	MSE
MSE356	Electronic Information Materials and Devices	3		4Fall	MSE001	MSE
MSE404	Electronic Component Reliability and Failure Analysis	3		4Fall	MSE306	MSE
MSE407	Advanced Thin Film Technology	3		3Fall	NA	MSE
MSE410	Packaging Materials and Technology	3		4Fall	MSE001	MSE
MSE413	3D Printing and Laser-based Advanced Manufacturing	3		3Fall	NA	MSE
CH212-16	Advanced Instrumentation Systems I	4	2	2-3Spr	CH103	CH
CH306	Laboratory for Micro-Nano Synthesis, Technology and Application	2	2	3Spr	CH202CH302	CH
ESE212	Environment Monitoring	2		2Spr	NA	ESE
ME102	CAD and Engineering Drawing	3	1.5	1Fall/Spr	NA	ME
ME310	Fundamentals of Measurement Technology	3		3Spr	EE205 ME307	ME
CS205	C/C++Program Design	3	1	2Fall	NA	CS
CS203B	Data Structures and Algorithm Analysis B	3	1	2Fall	CS109or CS110	CS
CS401	Intelligent Robot	3	1	3Spr	CS109 CS203 BBMA212	CS
MAE202	Mechanics of Materials	3		2Spr	MAE203	MAE

MAE303	Fluid Mechanics	4		3Fall	MAE204	MAE
MAE305	Engineering Thermodynamics	3		3Fall	NA	MAE
MA233	Introduction to MATLAB	4	1	1Spr	MA113	MA
MA201b	Ordinary Differential Equations B	4		2 Fall	MA102B	MA
MA202	Complex Analysis	3		2Spr	MA203a or MA213	MA
MA206	Mathematical Modelling	3	1	2Spr	MA203a or MA213	MA
MA303	Partial Differential Equations	3		3Fall	MA201A	MA
MA305	Numerical Analysis	3		3Fall	MA203a or MA213	MA
PHY206-15	Quantum Mechanics I	3		2Spr	PHY205-15P HY203-15	PHY
PHY324	Laser Fundamentals	3		3 Spr	PHY307 PHY210	PHY
PHY328	Low Temperature Physics	3	1	3 Spr	PHY204	PHY
PHY340	Semiconductor Physics	4		3 Spr	PHY321-15	PHY
PHY360	Quantum Materials	3		3 Spr	PHY305 PHY321-15	PHY
Total		158	30			

Note:
1. A minimum of 21 credits of restricted and elective MUST be taken to fulfill Major Requirements.
2. Courses set up beyond the program from SME can be recognized as elective credits. Other professional courses similar to microelectronics can be transferred as professional electives by the teaching committee of the SME with the consent of the academic supervisor.

Table 3: Overview of Practice-based Learning

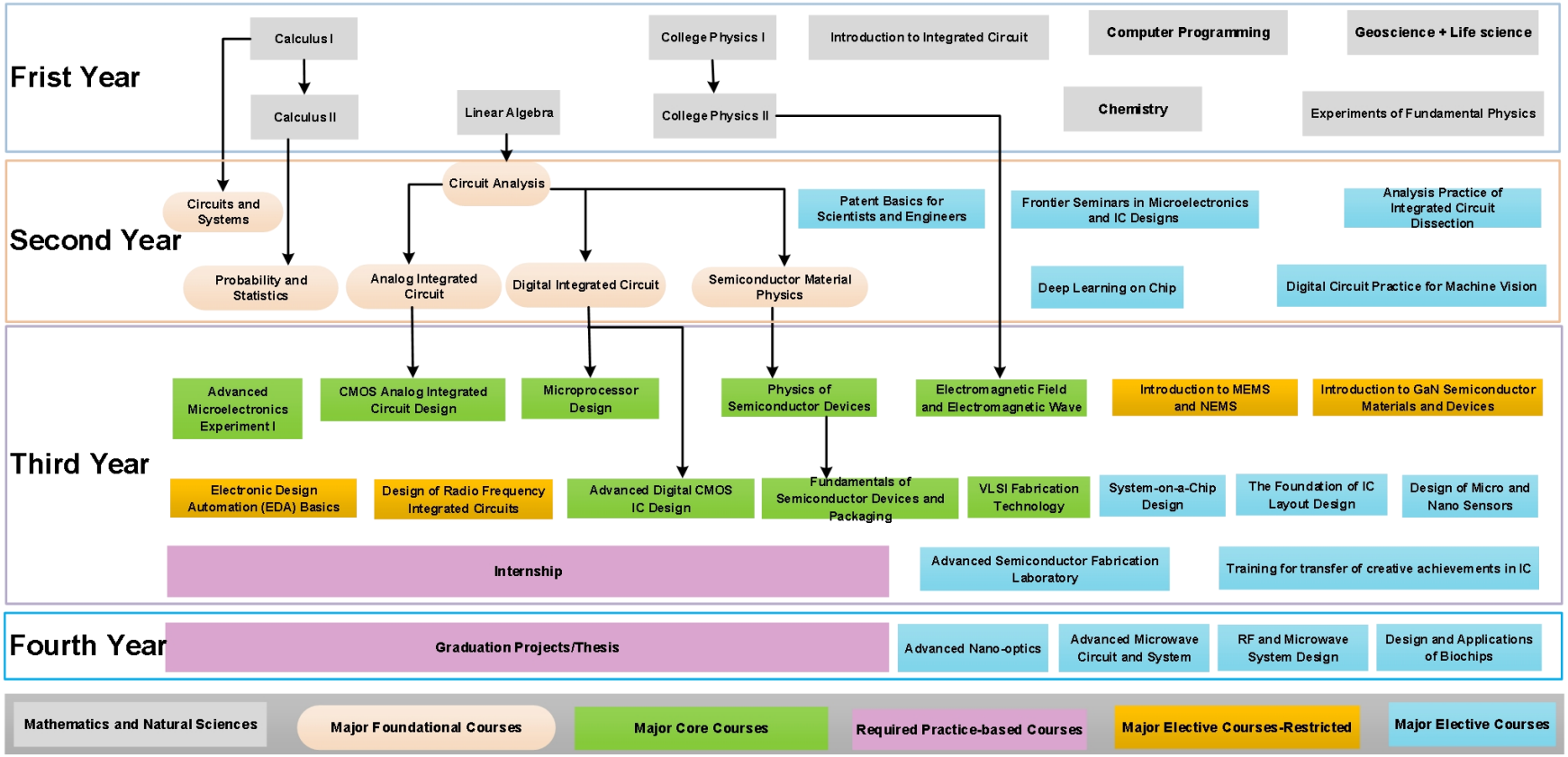
Program of Microelectronics Science and Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
PHY104B	Experiments of Fundamental Physics	2	2	1-2Spr/Fall	NA	PHY
CS109	Introduction to Computer Programming	3	1	1-2Spr/Fall	NA	CS
CS110	Introduction to Java Programming	3	1	1-2Spr/Fall	NA	CS
CS111	Introduction to C Programming	3	1	1-2Spr/Fall	NA	CS
CS112	Introduction to Python Programming	3	1	1-2Spr/Fall	NA	CS
CS113	Introduction to Matlab Programming	3	1	1-2Spr/Fall	NA	CS
SME208	Chip Application Practice	1	1	2Spr	NA	SME
SME211	Analog Integrated Circuit	4	1	2 Fall/Spr	SME103 PHY106	SME
SME212	Digital Integrated Circuit	4	1	2 Fall/Spr	SME103 PHY106	SME
SME214	Semiconductor Device Physics	3	1	2 Fall/Spr	SME213	SME
SME206	Circuits and Systems	3	1	2 Fall/Spr	MA127MA113 SME103	SME
SME303	Advanced Microelectronics Experiment I	1	1	2Fall	NA	SME
SME304	Advanced Microelectronics Experiment II	1	1	2Fall/Spr	NA	SME
SME305	VLSI Fabrication Technology	3	1	3 Fall/Spr	NA	SME
SME306	Advanced Digital CMOS IC Design	3	2	3 Spr	SME212 SME214	SME

SME307	CMOS Analog Integrated Circuit Design	3	1	3 Fall	SME211 SME214	SME
SME308	Advanced Semiconductor Fabrication Laboratory	3	1.5	3Fall/Spr	SME214	SME
SME309	Microprocessor Design	3	1	3 Fall	SME212	SME
SME310	Deep learning on chip	3	1	3Spr	SME212	SME
SME311	The Foundation of IC Layout Design	1	1	3Spr	SME306	SME
SME312	Electronic Design Automation (EDA) Basics	3	1	3Spr	SME103	SME
SME316	Design of Radio Frequency Integrated Circuits	3	0.5	3Spr	SME307	SME
SME317	System-on-a-Chip Design	3	1	3Fall	SME212	SME
SME318	Micro and Nano Electromechanical Systems	3	1	3 Spr	PHY106	SME
SME403	Advanced Microelectronics Experiment III	1	1	4Fall	NA	SME
SME470	Internship	2	2	3Smr	NA	SME
SME480	Projects of Science and Technology Innovation	2	2	4Fall	NA	SME
SME491	Graduation Projects/Thesis	12	12	4Spr	NA	SME
SMES208	Analysis Practice of Integrated Circuit Dissection	1	1	2Smr	SME214	SME
SMES209	Digital Circuit Practice for Machine Vision	1	1	2Smr	Cs207or SME212	SME
SMES210	Training for transfer of creative achievements in IC	1	1	2Smr	SME214	SME
EE313	Wireless Communications	3	1	3Fall	EE206	EE

EE316	Microwave Engineering	3	1	3Fall	EE104 EE201-17 EE208	EE
EE322	Optoelectronic Devices Fabrication	2	1	3Spr	EE204	EE
EE323	Digital Signal Processing	3	1	3Fall	EE205	EE
EE326	Digital Image Processing	3	1	3Spr	EE205	EE
EE332	Digital System Design	3	1	3Spr	EE202-17	EE
CH212-16	Advanced Instrumentation Systems I	4	2	2-3Spr	CH103	CH
CH306	Laboratory for Micro-Nano Synthesis, Technology and Application	2	2	3 Spr	CH202 CH302	CH
ME102	CAD and Engineering Drawing	3	1.5	1Fall/Spr	NA	ME
CS205	C/C++Program Design	3	1	2Fall	NA	CS
CS203B	Data Structures and Algorithm Analysis B	3	1	2Fall	CS109or CS110	CS
CS401	Intelligent Robot	3	1	3Spr	CS109 CS203B MA212	CS
MA233	Introduction to MATLAB	4	1	1Spr	MA113	MA
MA206	Mathematical Modelling	3	1	2Spr	MA203a or MA213	MA
PHY328	Low Temperature Physics	3	1	3 Spr	PHY204	PHY
Total		130	63.5			

Curriculum Structure of Microelectronics Science and Engineering



School of Automation and Intelligent Manufacturing

Program of Automation

for International Students (2026)

I. Introduction

The Automation major is an engineering discipline centered on Control Science and Engineering, integrating multidisciplinary knowledge systems such as electronic technology, computer science, and artificial intelligence. This major is based on mathematics and natural sciences, with information theory, control theory, system theory, and intelligent science forming its knowledge framework. It is dedicated to cultivating versatile talents with solid mathematical and scientific foundations, systematic professional knowledge, innovative practical abilities, and international competitiveness.

As a crucial pillar in the field of information science and technology, automation focuses on cutting-edge directions such as intelligent perception, system optimization, and autonomous control. It is deeply applied in national strategic areas like intelligent manufacturing, aerospace, and smart cities, providing technical support and talent assurance for the high-quality development of the social economy. The talent cultivation program of this major adheres to the educational philosophy of "solid foundation, strong practice, and emphasis on innovation," constructing a tripartite training system of "theoretical teaching-experimental training-scientific research innovation." It aims to cultivate students' engineering literacy, systematic thinking, and ability to solve complex engineering problems.

With the deep integration of new-generation information technology and the real economy, automation technology shows broad application prospects in emerging fields such as industrial internet, robotics engineering, and new energy systems. The professional curriculum system is closely aligned with national strategic needs and technological development trends. Through characteristic course modules such as AI and machine learning fundamentals, automatic control theory, signal and linear system analysis, industrial internet and applications, and optimal control and estimation, students' professional advantages in digitalization, networking, and intelligentization are strengthened. Graduates can engage in system development, technical management, and innovative applications in research institutes, high-tech enterprises, and interdisciplinary fields, meeting the continuous demand for high-end automation talents in future society.

Academic subject areas: Automation

Program code: 080801

II. Objectives and Learning Outcomes

1. Objectives

This major is dedicated to cultivating high-quality engineering talents with "international vision and patriotic sentiment," a solid foundation in mathematics and science, and strong engineering practical abilities. Students will systematically master the fundamental theories, professional knowledge, and advanced technologies in the field of automation, enabling them to engage in system analysis, design and development, and technical management in strategic emerging industries such as intelligent manufacturing, intelligent systems, and industrial internet, as well as related fields.

Graduates are expected to achieve the following goals within approximately five years of professional development

Professional Competence: Able to independently complete the demand analysis, solution design, and engineering implementation of complex control systems by comprehensively applying multidisciplinary knowledge in the field of automation, demonstrating technological innovation and cross-disciplinary engineering practice capabilities.

Engineering Literacy: Adhere to engineering ethics and professional standards, reflect awareness of sustainable development and social responsibility in engineering practice, and systematically consider the economic feasibility, safety, and environmental impact of technical solutions.

Development Potential: Possess an international perspective and lifelong learning ability, stay abreast of cutting-edge technological advancements in the field, demonstrate organizational coordination and cross-cultural communication skills in team collaboration, and grow into technical leaders or project managers.

2. Learning Outcomes

Through the training provided by this major, graduates are expected to meet the following 12 competency requirements:

1. Application of Engineering Knowledge:

Able to apply mathematics, natural sciences, engineering fundamentals, and professional

knowledge to identify and characterize complex engineering problems in the field of automation.

2. Problem Modeling and Analysis:

Capable of using the basic principles of control science to conduct mathematical modeling and quantitative analysis of complex control systems through literature research, deriving valid conclusions.

3. System Design and Development:

Able to design automation system solutions that meet specific requirements, demonstrating innovative thinking in system architecture, control algorithms, and hardware implementation, while considering social, legal, and environmental constraints.

4. Scientific Research Capability:

Capable of conducting experimental research based on control theory, including designing experimental plans, building testing platforms, analyzing and processing data, and synthesizing information to produce technical reports.

5. Use of Modern Tools:

Able to select and develop specialized tools for automation to perform system simulation, algorithm verification, and performance optimization.

6. Awareness of Sustainable Development:

Able to evaluate the impact of automation engineering practices on environmental ecology and energy consumption, and propose improvement solutions aligned with green manufacturing principles.

7. Professional Ethics and Standards:

Understand the social responsibilities of engineers, consciously adhere to professional norms and industry standards in engineering decision-making, and practice core socialist values.

8. Team Collaboration Skills:

Able to take on different roles in multidisciplinary teams, demonstrating organizational capabilities in project coordination, progress management, and technical integration.

9. Engineering Communication Skills:

Able to write standardized engineering technical documents, deliver professional presentations, and engage in academic exchanges, with the ability to read English technical

literature and participate in international academic dialogues.

10. Engineering Economics and Management:

Master engineering economic analysis methods, capable of conducting cost accounting, risk assessment, and benefit analysis during system design.

11. Cross-Cultural Adaptability:

Understand international trends in automation technology development and adapt to engineering collaboration and technological competition in multicultural contexts.

12. Lifelong Learning Ability:

Possess self-directed learning and knowledge-updating awareness, able to continuously enhance professional capabilities through continuing education and technical training.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Engineering.

3. The minimum credit requirement for graduation: 154 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	22
		Major Core Courses	12
		Practice-based Learning (Undergraduate Thesis, Internships, Research projects, etc.)	17
	Major Elective Courses	Major Elective Courses	24
Total			154
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1 Fall	None	MA
	MA127	Calculus II	4	1 Spring	MA117	
	MA113	Linear Algebra	4	1 Spring & Fall	None	
Physics	PHY105	College Physics I	4	1 Fall	None	PHY
	PHY106	College Physics II	4	1 Spring	PHY105	
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	
Chemistry	CH105	Chemistry: The Central Science	3	1-2 Spring & Fall	None	CH
Geoscience + Life science	BIO103	Principles of Biology	3	1-2 Spr. &Fall	None	BIO
	BIO102B	Introduction to Life Science	3	1-2 Spring &Fall	None	
	EOE100	Introduction to Earth Sciences	3	1-2 Spr. &Fall	None	ESS, OCE, ESE
Computer Programming	CS109	Introduction to Computer Programming	3	1-2 Spr. &Fall	None	CSE
	CS110	Introduction to Java Programming	3	1-2 Spr. &Fall	None	
	CS111	Introduction to C Programming	3	1-2 Spr. &Fall	None	
	CS112	Introduction to Python Programming	3	1-2 Spr. &Fall	None	
	CS113	Introduction to Matlab Programming	3	1-2 Spr. &Fall	None	

Note:
1. Calculus I and II can be replaced by Mathematical Analysis I and II.
2. Linear Algebra can be replaced by Advanced Linear Algebra I.
3. College Physics I and II can be replaced by General Physics I and II.
4. The Central Science can be replaced by General Chemistry.
5. Students are required to choose one course from the Geoscience + Life Science Category.
6. Students are required to choose one course from the Computer Programming, Introduction to C Programming can be replaced by Introduction to Computer Programming or Introduction to Java Programming or Introduction to Python Programming or Introduction to Matlab Programming.
7. The above alternative courses are also applicable to the " Prerequisites for Major Declaration ".
8. The above alternative courses also apply to the prerequisite course requirements.

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	MA117	Calculus I	None
	MA127	Calculus II	MA117
	MA113	Linear Algebra	None
	PHY105	College Physics I	None
	PHY106	College Physics II	PHY105
	PHY104B	Experiments of Fundamental Physics	None
	CS111	Introduction to C Programming	None
Declare major at the end of the second academic year	MA117	Calculus I	None
	MA127	Calculus II	MA117
	MA113	Linear Algebra	None
	PHY105	College Physics I	None
	PHY106	College Physics II	PHY105
	PHY104B	Experiments of Fundamental Physics	None
	CH105	Chemistry: The Central Science	None
	BIO103/ BIO102B/ EOE100	Principles of Biology/Introduction to Life Science/Introduction to Earth Sciences	None
	CS111	Introduction to C Programming	None

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Automation

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	EE104	Fundamentals of Electric Circuits	2	0	1 Spring	MA117 MA113	EE
	SDM244	Electronic Circuit Principles and Design	4	1	2 Fall	PHY106 EE104	AiM
	SDM252	Introduction to C++ Programming	3	1	2 Fall	None	AiM
	SDM246	Signals and Linear System Analysis	3	0	2 Fall	MA127 EE104	AiM
	SDM234	Mathematical Foundations of Control Engineering	4	0	2 Fall	MA127 PHY106 MA113	AiM
	MA212	Probability and Statistics	3	0	2 Spring	MA127	MA
	SDM358	Microcomputer and Embedded Systems	3	1	3 Spring	None	AiM
	Total		22	3			
	SDM271	System Modeling and Simulation	3	1	2 Spring	SDM234	AiM

	SDM263	Feedback Control Theory	3	0	2 Spring	EE104	AiM
	SDM276	AI Machine Learning Fundamentals	3	1	3 Fall	CS112 MA127 MA113	AiM
	SDM364	Multi-variable Control and Applications	3	0	3 Fall	SDM234 SDM246 SDM263	AiM
	Total		12	2			
Practice-based Courses	SDM301	Innovative Practice for Intelligent Control Science I	1	1	2 Spring	None	AiM
	SDM302	Innovative Practice for Intelligent Control Science II	1	1	3 Fall	None	AiM
	SDM303	Innovative Practice for Intelligent Control Science III	1	1	3 Spring	None	AiM
	SDM403	Internship	2	2	3 Summer	None	AiM
	SDM492	Thesis (Graduation Project)	12	12	4 Spring	None	AiM
	Total		17	17			
Total			51	21			

Table 2: Major Elective Courses

Program of Automation

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Module A	EE211	Robotic Perception and Intelligence	3	1	2 Fall	None	EE
	CS203B	Data Structures and Algorithm Analysis B	3	1	2 Fall	CS102A	CS
	SDM216	CAD:3D Modeling and Programming	3	3	2 Fall	None	AiM
	SDM214	Fundamentals of Industrial Design	3	1	2 Fall	None	AiM
	SDM213	Industrial Design History	3	1	2 Fall	None	AiM
	SDM283	Mechanics for Design	3	1	2 Fall	MA127	AiM
	SDM218	Design Psychology and Aesthetics	3	1	2 Fall	None	AiM
	SDM224	Fundamentals of System Engineering	3	1	2 Fall	None	AiM
	SDM273	Intelligent Sensors and Signal Processing	3	1	2 Spring	EE104	AiM
	EE326	Digital Image Processing	3	1	2 Spring	SDM246/EE205	EE
	SDM359	Advanced Machine Learning	3	0	2 Spring	MA113	AiM
	SDM241	Electronic System Design	3	1	2 Spring	PHY106	AiM
	SDM262	Fundamentals of Materials Engineering	3	1	2 Spring	None	AiM
	SDM275	Rapid Prototyping for Product Development	3	1	2 Spring	None	AiM
	SDM212	Design Thinking and Engineering	3	1	2 Spring	None	AiM
	SDM232	Mechanical Design and Manufacturing I	3	1	2 Spring	None	AiM
	SDM5006	System Identification and Adaptive Control	3	0	3 Fall	SDM263	AiM

	SDM357	Computer Networking and its Industrial Application	3	0.5	3 Fall	None	AiM
	SDM5007	Engineering Optimization Methods	3	0	3 Fall	MA127 MA113 MA212	AiM
	SDM371	Big Data	3	1	3 Fall	Linear Algebra	AiM
	SDM5002	Intelligent Sensing Systems in Mobile Robots	3	1	3 Fall	Introduction to Python Programming, Fundamental of Electric Circuits	AiM
	EE346	Mobile Robot Navigation and Control	3	1	3 Fall	SDM246/EE205 MA212	EE
	SDM322	Product Quality Management	3	1	3 Fall	None	AiM
	SDM313	Design for Intelligent Manufacturing	3	1	3 Fall	None	AiM
	SDM315	Computational Design	3	1	3 Fall	None	AiM
	ME336	Collaborative Robot Learning	3	1	3 Spring	ME306/ME331	ME
	CS314	Internet of Things	3	1	3 Spring	CS305	CS
	EE332	Digital System Design	3	1	3 Spring	EE202-17	EE
	SDM365	Robot Motion Control	3	1	3 Spring	MA127 MA113	AiM
	EE368	Robotic Motion and Control	3	1	3 Spring	SDM246/EE205	EE
	SDM5009	Discrete Time System Control	3	0	3 Spring	SDM271 SDM263	AiM
	SDM366	Optimal Control and Estimation	3	0	3 Spring	SDM263	AiM
	SDM374	Machine Learning System Design	3	1	3 Spring	Linear Algebra	AiM
	SDM378	Computer Vision and Application	3	1	3 Spring	Introduction to Python Programming, Calculus II, Linear Algebra	AiM
	SDM375	Intelligent Robot Design	3	1	3 Spring	Introduction to Python Programming	AiM

	SDM373	Sensor and Intelligent Detection Technology	3	1	3 Spring	None	AiM
	SDM352	Computer Simulation and Design	3	1	3 Spring	None	AiM
	SDM311	Thematic Product Design	3	1	3 Spring	SDM216 SDM114	AiM
	SDM314	Fundamentals of Control Engineering and Design	3	1	3 Spring	SDM283	AiM
	SDM354	Human Factors Engineering	3	1	3 Spring	CS112/CS109	AiM
	SDM5008	Advanced Robot Control	3	1	4 Fall	SDM271 SDM263	AiM
	SDM368	Convex optimization and its application in machine learning	3	0	4 Spring	None	AiM
	SDM471	AR / VR and Its Application	3	1	4 Spring	Introduction to Python Programming	AiM
Module B	EE206	Communication Principles	3	1	2 Spring	SDM246/EE205	EE
	CS208	Algorithm Design and Analysis	3	1	2 Spring	CS109 CS203B	CS
	EE313	Wireless Communications	3	1	3 Fall	EE206	EE
	EE323	Digital Signal Processing	3	1	3 Fall	SDM246/EE205	EE
	EE342	Sensors and Applications	3	0	3 Fall	None	EE
	CS303B	Artificial Intelligence B	3	1	3 Fall	CS203B CS109 MA212	CS
	CS307	Principles of Database Systems	3	1	3 Fall	None	CS
	MA305	Numerical Analysis	3	0	3 Fall	MA203A/MA213	MA
	CS405	Machine Learning	3	1	4 Fall	MA212 MA113	CS
	Total		156	45.5			

Note:
At least 24 credits are required , and at least five courses from Module A are required.

Table 3: Overview of Practice-based Learning

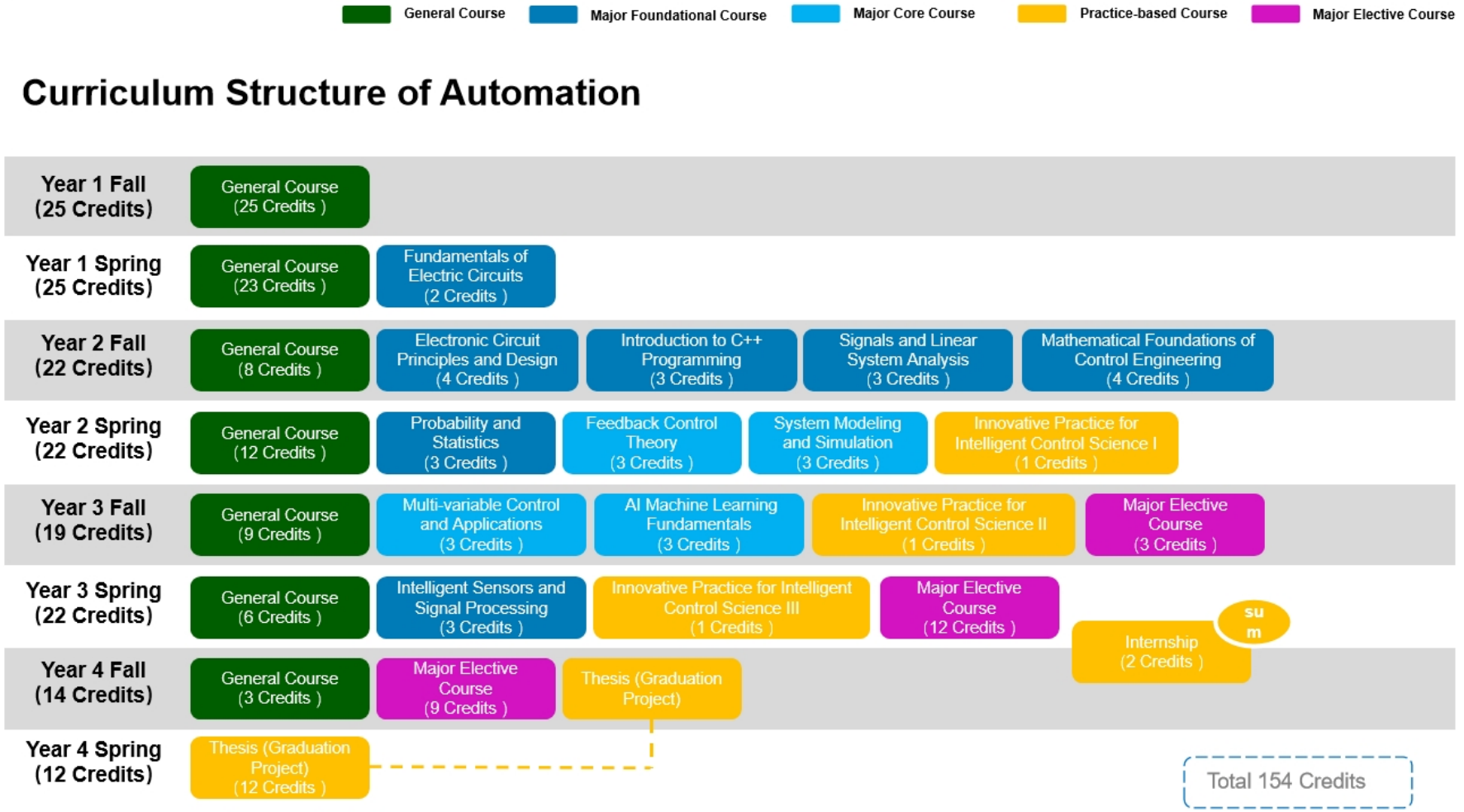
Program of Automation

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
SDM244	Electronic Circuit Principles and Design	4	1	2 Fall	PHY106 EE104	AiM
SDM252	Introduction to C++ Programming	3	1	2 Fall	None	AiM
EE211	Robotic Perception and Intelligence	3	1	2 Fall	E	EE
CS203B	Data Structures and Algorithm Analysis B	3	1	2 Fall	CS102A	CS
SDM216	CAD:3D Modeling and Programming	3	3	2 Fall	None	AiM
SDM214	Fundamentals of Industrial Design	3	1	2 Fall	None	AiM
SDM213	Industrial Design History	3	1	2 Fall	None	AiM
SDM283	Mechanics for Design	3	1	2 Fall	MA127	AiM
SDM218	Design Psychology and Aesthetics	3	1	2 Fall	None	AiM
SDM224	Fundamentals of System Engineering	3	1	2 Fall	None	AiM
EE206	Communication Principles	3	1	2 Spring	SDM246/EE205	EE
SDM271	System Modeling and Simulation	3	1	2 Spring	SDM234	EE
SDM273	Intelligent Sensors and Signal Processing	3	1	2 Spring	EE104	AiM
SDM301	Innovative Practice for Intelligent Control Science I	1	1	2 Spring	None	AiM
CS208	Algorithm Design and Analysis	3	1	2 Spring	CS109 CS203B	CS
SDM241	Electronic System Design	3	1	2 Spring	PHY106	AiM
SDM262	Fundamentals of Materials Engineering	3	1	2 Spring	None	AiM
SDM275	Rapid Prototyping for Product Development	3	1	2 Spring	None	AiM

SDM212	Design Thinking and Engineering	3	1	2 Spring	None	AiM
SDM232	Mechanical Design and Manufacturing I	3	1	2 Spring	None	AiM
SDM276	AI Machine Learning Fundamentals	3	1	3 Fall	CS112 MA127 MA113	AiM
EE313	Wireless Communications	3	1	3 Fall	EE206	EE
SDM302	Innovative Practice for Intelligent Control Science II	1	1	3 Fall	None	EE
EE323	Digital Signal Processing	3	1	3 Fall	SDM246/EE205	EE
CS303B	Artificial Intelligence B	3	1	3 Fall	CS203B CS109 MA212	CS
CS307	Principles of Database Systems	3	1	3 Fall	None	CS
SDM357	Computer Networking and its Industrial Application	3	0.5	3 Fall	None	AiM
EE346	Mobile Robot Navigation and Control	3	1	3 Fall	SDM246/EE205 MA212	EE
SDM5002	Intelligent Sensing Systems in Mobile Robots	3	1	3 Fall	Introduction to Python Programming, Fundamental of Electric Circuits	AiM
SDM371	Big Data	3	1	3 Fall	Linear Algebra	AiM
SDM322	Product Quality Management	3	1	3 Fall	None	AiM
SDM313	Design for Intelligent Manufacturing	3	1	3 Fall	None	AiM
SDM315	Computational Design	3	1	3 Fall	None	AiM
SDM374	Machine Learning System Design	3	1	3 Spring	Linear Algebra	AiM
SDM378	Computer Vision and Application	3	1	3 Spring	Introduction to Python Programming, Calculus II, Linear Algebra	AiM
SDM375	Intelligent Robot Design	3	1	3 Spring	Introduction to Python Programming	AiM

SDM373	Sensor and Intelligent Detection Technology	3	1	3 Spring	None	AiM
SDM358	Microcomputer and Embedded Systems	3	1	3 Spring	None	AiM
ME336	Collaborative Robot Learning	3	1	3 Spring	ME306 或 ME331	ME
CS314	Internet of Things	3	1	3 Spring	CS305	CS
EE326	Digital Image Processing	3	1	3 Spring	SDM246/EE205	EE
EE332	Digital System Design	3	1	3 Spring	EE202-17	EE
SDM365	Robot Motion Control	3	1	3 Spring	MA127 MA113	AiM
EE368	Robotic Motion and Control	3	1	3 Spring	SDM246/EE205	EE
SDM303	Innovative Practice for Intelligent Control Science III	1	1	3 Spring	None	AiM
SDM352	Computer Simulation and Design	3	1	3 Spring	None	AiM
SDM311	Thematic Product Design	3	1	3 Spring	SDM216 SDM114	AiM
SDM314	Fundamentals of Control Engineering and Design	3	1	3 Spring	SDM283	AiM
SDM354	Human Factors Engineering	3	1	3 Spring	CS112/CS109	AiM
SDM403	Internship	2	2	3 Summer	None	AiM
SDM5008	Advanced Robot Control	3	1	4 Fall	SDM271 SDM263	AiM
CS405	Machine Learning	3	1	4 Fall	MA212 MA113	CS
SDM471	AR / VR and Its Application	3	1	4 Spring	Introduction to Python Programming	AiM
SDM492	Thesis (Graduation Project)	12	12	4 Spring	None	AiM
Total		165	67.5			

Curriculum Structure of Automation



School of Life Sciences

Program of Biological Sciences

for International Students (2026)

I. Introduction

Life science has been central to the development of the 21st century natural sciences, and its development is related to people's health and well-being. Today, life and health industry has become a new driving force to promote the development of the world economy. Therefore, the central and local governments set the strategic priorities to foster advancing emerging life science related industries.

Life science is one of the key disciplines of the Southern University of Science and Technology (SUSTech). Founded in 2012, the Department of Biology is among the first established academic departments in the university. The College of Life Sciences was established in 2020. Since its founding, the school has assembled groups of faculty members with diverse research interests and expertise to tackle fundamental problems of life science. All of the faculty members had prior research experience at top internationally-acclaimed universities before joining SUSTech and some of them had been awarded tenures in these universities or research institutions worldwide.

The faculty of the school are supported by the state-of-the-art scientific research platform facilities and talent recruitment programs, such as the Guangdong Provincial Key Laboratory of Cellular Microenvironment and Disease Research, Key Laboratory of Molecular Design for Plant Cell Factory of Guangdong Higher Education Institutes, Guangdong Provincial "Pearl River Talent Program" for Innovation and Entrepreneurship, Cryo-EM Center, Plant and Food Research Institute, SUSTech-UQ Joint Centre for Neuroscience and Neural Engineering and Experimental Animal Center. Concentrated on a number of major areas, namely molecular cell biology, neurobiology, plant biology, systems biology and structural biology, chemical biology, immunology and microbiology, their research focuses on the frontiers of life science and high-impact human health issues, with cross-disciplinary approaches.

The life science program in the school was approved as a key discipline at the provincial level (Guangdong) in 2016. In 2018, the school was authorized to confer doctorate and master's degrees to graduate students, and was designated as a postdoctoral workstation in 2019. These developments set the school on track to be developed as a top-tier academic institution of

Guangdong province.

On this basis, we established a major in Biological Sciences, aiming to inspire students to understand the nature of life at different levels, such as molecules, cells, individuals, etc., through extensive basic training in modern biology and a research-oriented learning environment, while improving students' ability to solve problems by means of scientific methods. What's more, the major of Biological Sciences was approved as a national first-class undergraduate major construction site in 2022.

Academic subject areas: Biological Sciences

Program code: 071001

II. Objectives and Learning Outcomes

1. Objectives

In teaching, the major emphasizes the core basic concept of biological science and the concept of applied science, and applies modern scientific methods to encourage students to study biochemistry, microbiology, molecular biology, cell biology, genetics, and animal physiology through theoretical courses, experiments and seminars. Meanwhile, students will learn how to critically evaluate original research literature by means of paper reading and class discussion. Through various ways of learning, students will master valuable analytical, organizational, and communication skills to become professionals who will be competent in a variety of careers or continue their studies.

2. Learning Outcomes

Mastering the basic theoretical knowledge of mathematics, physics, chemistry and life science, and forming a relatively systematic scientific world view and methodology.

Having the ability to write scientific and technological papers in English and to do academic presentations in English.

Understanding the latest developments in the biological science and carrying out scientific research in the laboratory.

Having the comprehensive ability to apply the theoretical knowledge and skills and engaging in research in biological science and related sciences.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Science

3. The minimum credit requirement for graduation: 151 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	4
		Geoscience + Life Sciences	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	19
		Major Core Courses	14
		Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	16
	Major Elective Courses	Major Elective Courses	22
Total			151
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name		Requirement	Credits	Terms	Prerequisite	Dept.
Mathematics	MA101a	Mathematical Analysis I	Category A	Required Choose one set from three sets	5	1/Fall	None	Department of Mathematics
	MA102a	Mathematical Analysis II			5	1/Spr	Mathematical Analysis I	
	MA117	Calculus I	Category B		4	1/Fall	None	
	MA127	Calculus II			4	1/Spr	Calculus I	
	MA118	Single-variable Calculus	Category C		4	1/Fall	None	
	MA128	Multivariable Calculus			4	1/Spr	Single-variable Calculus	
	MA107	Advanced Linear Algebra I		Required Choose one from two	4	2/Fall	None	
	MA113	Linear Algebra			4	2/Fall	None	

Physics	PHY101	General Physics I	Category A	Required Choose one set from two sets	5	1/Fall	None	Department of Physics
	PHY102	General Physics II			5	1/Spr	General Physics I	
	PHY105	College Physics I	Category B		4	1/Fall	None	
	PHY106	College Physics II			4	1/Spr	College Physics I	
	PHY104 B	Experiments of Fundamental Physics		Required	2	2/Spr	None	
Chemistry	CH103	General Chemistry		Required	4	1/Fall	None	Department of Chemistry
Geoscience + Life Sciences	BIO103	Principles of Biology		Required	3	1/Fall	None	Department of Biology
Computer Programming	CS109	Introduction to Computer Programming		Required Choose one from five	3	1/Fall	None	Dept. of Computer Science and Engineering
	CS110	Introduction to Java Programming			3	1/Fall	None	
	CS111	Introduction to C programming			3	1/Fall	None	
	CS112	Introduction to Python Programming			3	1/Fall	None	
	CS113	Introduction to Matlab Programming			3	1/Fall	None	

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name		Prerequisite
Declare major at the end of the first academic year	MA101a	Mathematical Analysis I	Choose one from three	None
	MA117	Calculus I		None
	MA118	Single-variable Calculus		None
	MA102a	Mathematical Analysis II	Choose one from three	Mathematical Analysis I
	MA127	Calculus II		Calculus I
	MA128	Multivariable Calculus		Single-variable Calculus
	CH103	General Chemistry		None
	BIO103	Principles of Biology		None
Declare major at the end of the second academic year	MA101a	Mathematical Analysis I	Choose one from three	None
	MA117	Calculus I		None
	MA118	Single-variable Calculus		None
	MA102a	Mathematical Analysis II	Choose one from three	Mathematical Analysis I
	MA127	Calculus II		Calculus I
	MA128	Multivariable Calculus		Single-variable Calculus
	CH103	General Chemistry		None
	BIO103	Principles of Biology		None
	PHY101	General Physics I	Choose one from two	None
	PHY105	College Physics I		None
	PHY102	General Physics II	Choose one from two	General Physics I
	PHY106	College Physics II		College Physics I

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course ArrangementTable 1: Major Required Courses Program of Biological Sciences

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	BIO104	General Biology Laboratory	2	2	1/Spr	Principles of Biology	BIO
	CH106	Organic Chemistry B	3		1/Spr	General Chemistry	CH
	BIO201	Biochemistry（Macromolecules）	3		2/Fall	Principles of Biology, General Chemistry	BIO
	BIO203	Microbiology	3		2/Fall	None	BIO
	BIO202	Biochemistry II（Metabolism）	3		2/Spr	Biochemistry（Macromolecules）	BIO
	BIO222	Biochemistry and Molecular Biology Laboratory	2	2	2/Spr	General Biology Laboratory, Biochemistry（Macromolecules）	BIO
	BIO210	Biostatistics	3		2/Spr	Mathematical Analysis I orCalculus I orSingle-variable Calculus	BIO
	Total		19	4			
Major Core Courses	BIO301	Genetics	3		2/Spr	None	BIO
	BIO206	Cell Biology	3		3/Fall	Principles of Biology	BIO
	BIO208	Cell Biology Laboratory	2	2	3/Fall	Cell Biology	BIO
	BIO311-14	Animal Physiology	3		3/Fall	None	BIO
	BIO320	Molecular Biology	3		3/Spr	Biochemistry（Macromolecules）	BIO
	Total		14	2			
Practice-based Courses	BIO461	Integrated Biological Experimentation and Research Practice I	2	2	2/Fall	Principles of BiologyGeneral Biology Laboratory	SLS
	BIO462	Integrated Biological Experimentation and Research Practice II	2	2	2/Spr	Integrated Biological Experimentation and Research Practice I	SLS
	BIO492	Thesis	12	12	4/ Fall-Spr.	Integrated Biological Experimentation and Research Practice II	SLS
	Total		16	16			
Total			49	22			
Note：CH106 Organic Chemistry I can be equivalent to CH 203 Organic Chemistry B.							

Table 2: Major Elective Courses

Program of Biological Sciences, 22 credits

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Elective Courses offered by Department of Non-Biology						
CH102-15	General Chemistry Laboratory	2	2	1/Spr	General Chemistry	CHEM
CH208	Organic Chemistry Laboratory	2	2	2/Fall	General Chemistry Laboratory	CHEM
CH216	Analytical Chemistry I	3		2/Fall	General Chemistry	CHEM
CH217	Analytical Chemistry Laboratory I	2	2	2/Spring	General Chemistry	CHEM
CH313	Chemical Biology	3		3/Fall	General Chemistry	CHEM
CH317	Medicinal Chemistry	3		4/Fall	None	CHEM
ESE313	Introduction to Ecology	3		3/Fall	None	ESE
OCE203	Marine Biology	3		2/Spr	None	OCE
Major Elective Courses offered by Department of Biology, School of Life Sciences						
BIO205	Microbiology Laboratory	2	2	2/Fall	General Biology Laboratory	BIO
BIO207-15	Plant Physiology	3		2/Fall	Principles of Biology	BIO
BIO209-15	Plant Physiology Laboratory	2	2	2/Fall	General Biology Laboratory	BIO
BIO217	Biological Psychology	3		2/Fall	Principles of Biology	BIO
BIO224	Basic Synthetic Biology	3		2/Spr	Principles of BiologyOr Introduction to Life Science	SLS
BIO226	Introduction to Species Evolution and Ecology	3		2/Spr	Principles of Biology	SLS
BIO303	Genetics Laboratory	2	2	2/Spr	General Biology Laboratory	BIO
BIO308	Frontier in Life Sciences Seminar and Journal Club	2		2/Spr	None	BIO
BIO463	Integrated Biological Experimentation and Research Practice III	2	2	2/Smr	Integrated Biological Experimentation and Research Practice II	SLS
BIO309	Computational Biology	3	1	3/Fall	None	BIO
BIO313-15	Animal Physiology	2	2	3/Fall	General Biology	BIO

	Laboratory				Laboratory	
BIO336	The Biology of Cancer	3		3/Fall	None	BIO
BIO340	Protein Engineering	3		3/Fall	Biochemistry (Macromolecules)	BIO
BIO347	Basic Principles of Biophysics	3		3/Fall	Biochemistry (Macromolecules)	BIO
BIO401-16	Genetic Engineering	3		3/Fall	Biochemistry (Macromolecules)	BIO
BIO302	Modern Biotechnology	3		3/Spr	Biochemistry (Macromolecules)	BIO
BIO304	Systems Biology	3		3/Spr	Principles of Biology,Biostatistics or Probability and Statistics	BIO
BIO305	Model Organism and Developmental Biology	3		3/Spr	Principles of Biology	BIO
BIO306	Bioinformatics	4	2	3/Spr	None	BIO
BIO307	Model organism and Developmental Biology Laboratory	1	1	3/Spr	General Biology Laboratory	BIO
BIO310	Neurobiology	3		3/Spr	Biochemistry (Macromolecules)	BIO
BIO331	Protein Structure and Function	3	1	3/Spr	Biochemistry (Macromolecules)	BIO
BIO332	Stem Cell and Regenerative Medicine	2		3/Spr	Cell Biology	BIO
BIO344	Modern Biotechnology Laboratory	2	2	3/Spr	General Biology Laboratory	BIO
BIO350	Genomics	3		3/Spr	Principles of Biology	BIO
BIO405	Immunology	3		4/Fall	Cell Biology	BIO
BIO348	Scientific Writing and Communication	1		4/Spr	None	BIO
BIO470	Summer Off-Campus Internship	2	2	1,2,3/Smr	None	BIO
BIO471	Field Trips I	1	1	1/Smr	None	BIO
BIO472	Field Trips II	1	1	2,3/Smr	None	BIO
BIO473	Field Trips III	1	1	3/Smr	None	BIO
Total		96	28			

Note:
A minimum of 22 credits (include at least 4 lab credits) MUST be taken to fulfill Major Requirements.

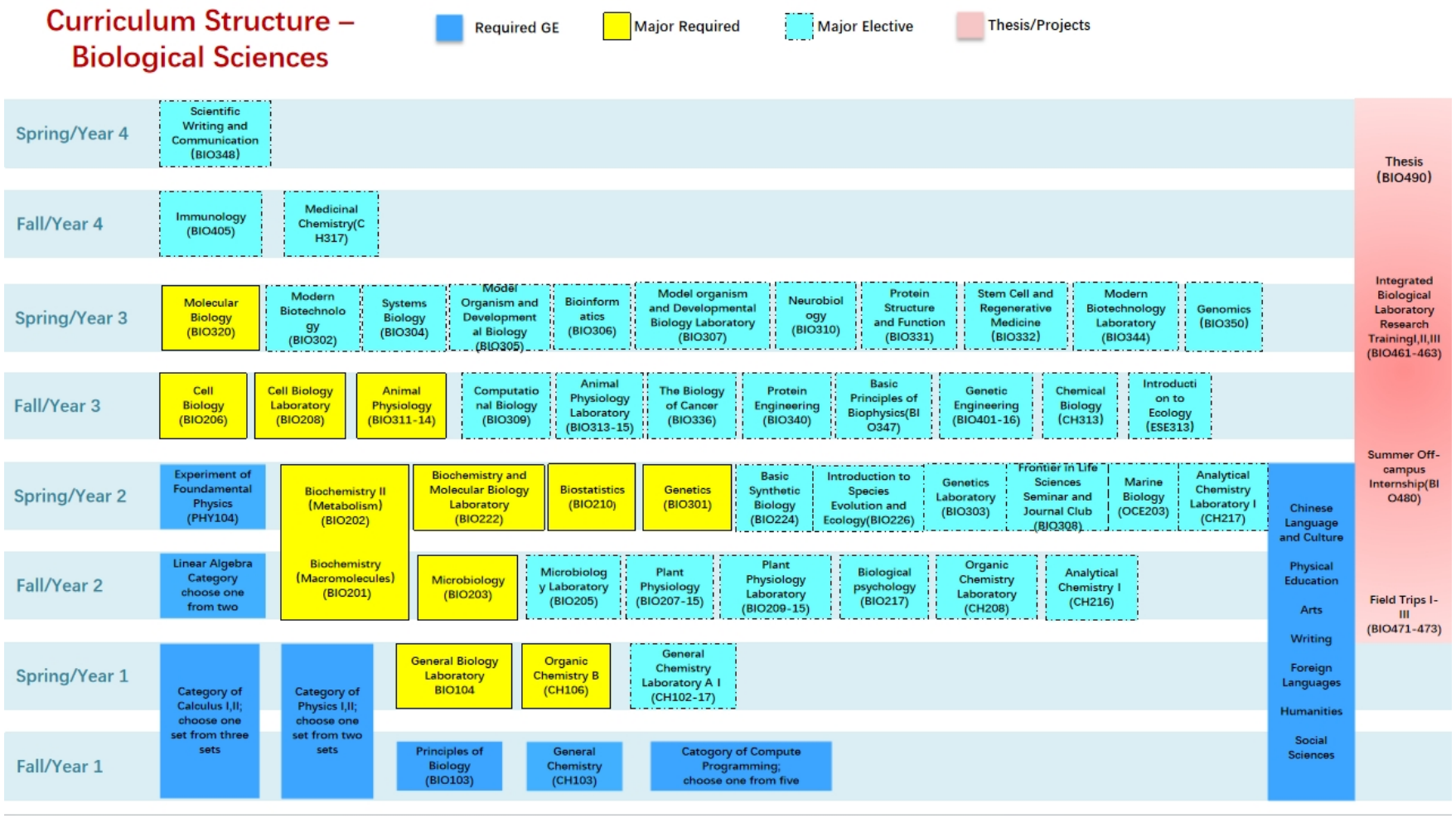
Table 3: Overview of Practice-based Learning

Program of Biological Sciences

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
CS109	Introduction to Computer Programming	3	1	1/Fall	None	CSE
CS110	Introduction to Java Programming	3	1	1/Fall	None	CSE
CS111	Introduction to C programming	3	1	1/Fall	None	CSE
CS112	Introduction to Python Programming	3	1	1/Fall	None	CSE
CS113	Introduction to Matlab Programming	3	1	1/Fall	None	CSE
CH102-15	General Chemistry Laboratory A	2	2	1/Spr	General Chemistry	CHEM
CH208	Organic Chemistry Laboratory	2	2	2/Fall	General Chemistry Laboratory A，Organic Chemistry B	CHEM
CH217	Analytical Chemistry Laboratory I	2	2	2/Sping	Analytical ChemistryI	CHEM
PHY104B	Experiments of Fundamental Physics	2	2	2/Spr	None	PHY
BIO104	General Biology Laboratory	2	2	1/Spr	Principles of Biology	BIO
BIO205	Microbiology Laboratory	2	2	2/Fall	General Biology Laboratory	BIO
BIO209-15	Plant Physiology Laboratory	2	2	2/Fall	General Biology Laboratory	BIO
BIO461	Integrated Biological Experimentation and Research Practice I	2	2	2/Fall	Principles of BiologyGeneral Biology Laboratory	SLS
BIO222	Biochemistry and Molecular Biology Laboratory	2	2	2/Spr	General Biology Laboratory,Biochemistry（Macromolecules）	BIO
BIO303	Genetics Laboratory	2	2	2/Spr	General Biology Laboratory	BIO

BIO462	Integrated Biological Experimentation and Research Practice II	2	2	2/Spr	Integrated Biological Experimentation and Research Practice I	SLS
BIO463	Integrated Biological Experimentation and Research Practice III	2	2	2/Smr	Integrated Biological Experimentation and Research Practice II	SLS
BIO208	Cell Biology Laboratory	2	2	3/Fall	Cell Biology	BIO
BIO309	Computational Biology	3	1	3/Fall	None	BIO
BIO313-15	Animal Physiology Laboratory	2	2	3/Fall	General Biology Laboratory	BIO
BIO306	Bioinformatics	4	2	3/Spr	None	BIO
BIO307	Model organism and Developmental Biology Laboratory	1	1	3/Spr	General Biology Laboratory	BIO
BIO331	Protein Structure and Function	3	1	3/Spr	Biochemistry (Macromolecules)	BIO
BIO344	Modern Biotechnology Laboratory	2	2	3/Spr	General Biology Laboratory	BIO
BIO470	Summer Off-Campus Intenrship	2	2	1,2,3/Smr	None	BIO
BIO471	Field Trips I	1	1	1/Smr	None	BIO
BIO472	Field Trips II	1	1	2,3/Smr	None	BIO
BIO473	Field Trips III	1	1	3/Smr	None	BIO
BIO492	Thesis	12	12	4/Fall-Spr.	Integrated Biological Experimentation and Research Practice II	SLS
Total		73	57			

Curriculum Structure of Biological Sciences



School of Life Sciences

Program of Bioinformatics

for International Students (2026)

I. Introduction

Life science has been central to the development of the 21st century natural sciences, and its development is related to people's health and well-being. Today, life and health industry has become a new driving force to promote the development of the world economy. Therefore, the central and local governments set the strategic priorities to foster advancing emerging life science related industries.

Life science is one of the key disciplines of the Southern University of Science and Technology (SUSTech). Founded in 2012, the Department of Biology is among the first established academic departments in the university. The College of Life Sciences was established in 2020. Since its founding, the school has assembled groups of faculty members with diverse research interests and expertise to tackle fundamental problems of life science. All of the faculty members had prior research experience at top internationally-acclaimed universities before joining SUSTech and some of them had been awarded tenures in these universities or research institutions worldwide.

The faculty of the school are supported by the state-of-the-art scientific research platform facilities and talent recruitment programs, such as the Guangdong Provincial Key Laboratory of Cellular Microenvironment and Disease Research, Key Laboratory of Molecular Design for Plant Cell Factory of Guangdong Higher Education Institutes, Guangdong Provincial "Pearl River Talent Program" for Innovation and Entrepreneurship, Cryo-EM Center, Plant and Food Research Institute, SUSTech-UQ Joint Centre for Neuroscience and Neural Engineering and Experimental Animal Center. Concentrated on a number of major areas, namely molecular cell biology, neurobiology, plant biology, systems biology and structural biology, chemical biology, immunology and microbiology, their research focuses on the frontiers of life science and high-impact human health issues, with cross-disciplinary approaches.

The life science program in the school was approved as a key discipline at the provincial level (Guangdong) in 2016. In 2018, the school was authorized to confer doctorate and master's degrees to graduate students, and was designated as a postdoctoral workstation in 2019. These developments set the school on track to be developed as a top-tier academic institution of

Guangdong province.

On this basis, we set up a special major in Bioinformatics to meet the urgent needs of the society for talents in this field. With the strength of its excellent basis and faculty in bioinformatics research, the School of Life Sciences is committed to cultivating excellent comprehensive and innovative talents with strong biological information research and practical abilities.

Academic subject areas: Biological Sciences

Program code: 071003

II. Objectives and Learning Outcomes

1. Objectives

It aims to cultivate high-level comprehensive and innovative talents with complete moral, intellectual and physical development, who master the basic knowledge of biological science, systematically master the basic theory, knowledge and skills of computer science and biological information, and have strong practical and research ability in the acquisition, processing, development and utilization of biological information. We focus on developing students' creative ability, independent thinking and scientific research capabilities, so that students will become scientists in the field of bioinformatics in the future, or core technology developers in enterprises.

2. Learning Outcomes

Mastering the basic theoretical knowledge of mathematics, physics and life science.

Mastering the basic theories, knowledge and skills of computer science and biological information; understanding the frontiers and latest developments in bioinformatics.

Having the ability to independently design experiments, conduct experiments, collect and analyze experimental results, and write reports; having internationalized version with the ability to write, communicate and present scientific results in English.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor’s degree in Science

3. The minimum credit requirement for graduation: 151 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life Sciences	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	14
		Major Core Courses	19
		Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	16
	Major Elective Courses	Major Elective Courses	23
Total			151
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Category	Course Code	Course Name		Requirement	Credits	Terms	Prerequisite	Dept.
Mathematics	MA101a	Mathematical Analysis I	Category A	Required Choose one set from two sets	5	1/Fall	None	Department of Mathematics
	MA102a	Mathematical Analysis II			5	1/Spr	Mathematical Analysis I	
	MA117	Calculus I	Category B		4	1/Fall	None	
	MA127	Calculus II			4	1/Spr	Calculus I	
	MA107	Advanced Linear Algebra I		Required Choose one from two	4	1/Spr	None	
	MA113	Linear Algebra			4	1/Fall Spr	None	
Physics	PHY101	General Physics I	Category A	Required Choose one set from two sets	5	1/Fall	None	Department of Physics
	PHY102	General Physics II			5	1/Spr	General Physics I	
	PHY105	College Physics I	Category B		4	1/Fall	None	
	PHY106	College Physics II			4	1/Spr	College Physics I	

	PHY104B	Experiments of Fundamental Physics	Required	2	2/Fall	None	
Chemistry	CH103	General Chemistry	Required Choose one from two	4	1/Fall	None	Department of Chemistry
	CH105	Chemistry: The Central Science		3	1/Fall	None	
Geoscience + Life Sciences	BIO103	Principles of Biology	Required	3	1/Fall	None	Department of Biology
Computer Programming	CS109	Introduction to Computer Programming	Required Choose one from five	3	1/Fall	None	Dept. of Computer Science and Engineering
	CS110	Introduction to Java Programming		3	1/Fall	None	
	CS111	Introduction to C programming		3	1/Fall	None	
	CS112	Introduction to Python Programming		3	1/Fall	None	
	CS113	Introduction to Matlab Programming		3	1/Fall	None	

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name		Prerequisite
Declare major at the end of the first academic year	MA101a	Mathematical Analysis I	Choose one from two	None
	MA117	Calculus I		None
	MA102a	Mathematical Analysis II	Choose one from two	Mathematical Analysis I
	MA127	Calculus II		Calculus I
	CS109	Introduction to Computer Programming	Choose one from five	None
	CS110	Introduction to Java Programming		None
	CS111	Introduction to C programming		None
	CS112	Introduction to Python ProgrammingPython		None
	CS113	Introduction to Matlab Programming		None
	BIO103	Principles of Biology		None
Declare major at the end of the second academic year	MA101a	Mathematical Analysis I	Choose one from two	None
	MA117	Calculus I		None
	MA102a	Mathematical Analysis II	Choose one from two	Mathematical Analysis I
	MA127	Calculus II		Calculus I
	CS109	Introduction to Computer Programming	Choose one from five	None
	CS110	Introduction to Java Programming		None
	CS111	Introduction to C programming		None
	CS112	Introduction to Python Programming		None
	CS113	Introduction to Matlab Programming		None
	BIO103	Principles of Biology		None
	PHY101	General Physics I	Choose one from two	None
	PHY105	College Physics I		None
	PHY102	General Physics II	Choose one from two	General Physics I
	PHY106	College Physics II		College Physics I

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Bioinformatics

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	BIO104	General Biology Laboratory	2	2	1/Spr	Principles of Biology	BIO
	BIO201	Biochemistry（Macromolecules）	3		2/Fall	Principles of Biology, General Chemistry or Chemistry: The Central Science	BIO
	MA212	Probability and Statistics	3		2/Fall	Mathematical Analysis II orCalculus II	MATH
	BIO202	Biochemistry I（Metabolism）	3		2/Spr	Biochemistry（Macromolecules）	BIO
	BIO301	Genetics	3		2/Spr	None	BIO
	Total		14	2			
Major Core Courses	BIO206	Cell Biology	3		3/Fall	Principles of Biology	BIO
	BIO309	Computational Biology	3	1	3/Fall	None	BIO
	BIO304	Systems Biology	3		3/Spr	Principles of Biology, Probability and Statistics	BIO
	BIO306	Bioinformatics	4	2	3/Spr	None	BIO
	BIO320	Molecular Biology	3		3/Spr	Biochemistry（Macromolecules）	BIO
	BIO350	Genomics	3		3/Spr	Principles of Biology	BIO
	Total		19	3			
Practice-based Courses	BIO461	Integrated Biological Experimentation and Research Practice I	2	2	2/Fall	Principles of BiologyGeneral Biology Laboratory	SLS
	BIO462	Integrated Biological Experimentation and Research Practice II	2	2	2/Spr	Integrated Biological Experimentation and Research Practice I	SLS
	BIO492	Thesis	12	12	4/Fall-Spr	Integrated Biological Experimentation and Research Practice II	SLS
	Total		16	16			
Total			49	21			

Table 2: Major Elective Courses

Program of Bioinformatics, 27 credits

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
"Computer science and technology" Module, choose 3 from 9, 9 credits.						
CS203B	Data Structures and Algorithm Analysis B	3	1	2/Fall	Introduction to Computer Programming or Introduction to Java Programming	CSE
CS205	C/C++ Program Design	3	1	2/Fall	None	CSE
CS307	Principles of Database Systems	3	1	2/Fall	Introduction to Computer Programming	CSE
CS201	Discrete Mathematics	3		2/Spr	Calculus II,Linear Algebra	CSE
CS208	Algorithm Design and Analysis	3	1	2/Spr	Introduction to Computer Programming,Data Structures and Algorithm Analysis	CSE
CS303B	Artificial Intelligence B	3	1	3/Fall	Data Structures and Algorithm Analysis B,Probability and Statistics	CSE
CS306	Data Mining	3	1	3/Spr	Data Structures and Algorithm Analysis B	CSE
CS324	Deep Learning	3	1	3/Spr	Artificial Intelligence	CSE
CS332	Information Retrieval	3	1	3/Spr	Data Structures and Algorithm Analysis	CSE
Total		27	8			
"Mathematics and Statistics" Module, choose one from six, 3 credits						
STA217	Introduction to Data Science	3		2/Fall	Calculus II or Mathematical Analysis II	STA
MA201b	Ordinary Differential Equations B	4		2/Spr	Calculus II or Mathematical Analysis II	MATH
MA329	Statistical Linear Models	3		3/Fall	Probability and Statistics	STA

MA206	Mathematical Modeling	3		3/Spr	Ordinary Differential Equations B	MATH
MA234	Introduction to Theoretical and Practical Data Science	4	1	3/Spr	Probability and Statistics	MATH
MA405	Survival Analysis	3		4/Fall	Statistical Linear Models	STA
Total		20	1			
“Life Sciences” Module, 11 credits						
BIO203	Microbiology	3		2/Fall	None	BIO
BIO205	Microbiology Laboratory	2	2	2/Fall	General Biology Laboratory	BIO
BIO207-15	Plant Physiology	3		2/Fall	Principles of Biology	BIO
BIO217	Biological Psychology	3		2/Fall	Principles of Biology	BIO
BIO222	Biochemistry and Molecular Biology Laboratory	2	2	2/Spr	General Biology Laboratory,Biochemistry（Macromolecules）	BIO
BIO224	Basic Synthetic Biology	3		2/Spr	Principles of BiologyOr Introduction to Life Science	SLS
BIO226	Introduction to Species Evolution and Ecology	3		2/Spr	Principles of Biology	SLS
BIO303	Genetics Laboratory	2	2	2/Spr	General Biology Laboratory	BIO
BIO308	Frontier in Life Sciences Seminar and Journal Club	2		2/Spr	None	BIO
BIO463	Integrated Biological Experimentation and Research Practice III	2	2	2/Smr	Integrated Biological Experimentation and Research Practice II	SLS
BIO471	Field Trips I	1	1	1/Smr	None	BIO
BIO208	Cell Biology Laboratory	2	2	3/Fall	Cell Biology	BIO
BIO311-14	Animal Physiology	3		3/Fall	None	BIO

BIO336	The Biology of Cancer	3		3/Fall	None	BIO
BIO340	Protein Engineering	3		3/Fall	Biochemistry (Macromolecules)	BIO
BIO347	Basic Principles of Biophysics	3		3/Fall	Biochemistry (Macromolecules)	BIO
BIO401-16	Genetic Engineering	3		3/Fall	Biochemistry (Macromolecules) or Genetics	BIO
BIO302	Modern Biotechnology	3		3/Spr	Biochemistry (Macromolecules)	BIO
BIO305	Model Organism and Developmental Biology	3		3/Spr	Principles of Biology	BIO
BIO310	Neurobiology	3		3/Spr	Biochemistry (Macromolecules)	BIO
BIO331	Protein Structure and Function	3	1	3/Spr	Biochemistry (Macromolecules)	BIO
BIO332	Stem Cell and Regenerative Medicine	2		3/Spr	Cell Biology	BIO
BIO344	Modern Biotechnology Laboratory	2	2	3/Spr	General Biology Laboratory	BIO
BIO405	Immunology	3		4/Fall	Cell Biology	BIO
BIO348	Scientific Writing and Communication	1		4/Spr	None	BIO
BIO470	Summer Off-Campus Internship	2	2	1,2,3/Smr	None	BIO
Total		65	16			

Note:
1. CS203B“Data Structures and Algorithm Analysis B” could be replaced by CS203“Data Structures and Algorithm Analysis ” or STA205 “Data Structures and Algorithms”
2. CS303B“Artificial Intelligence B” could be replaced by CS303“Artificial Intelligence” or STA303“Artificial Intelligence B”.
3. CS201 “Discrete Mathematics” could be replaced by STA204 “Discrete Mathematics and Its Applications”

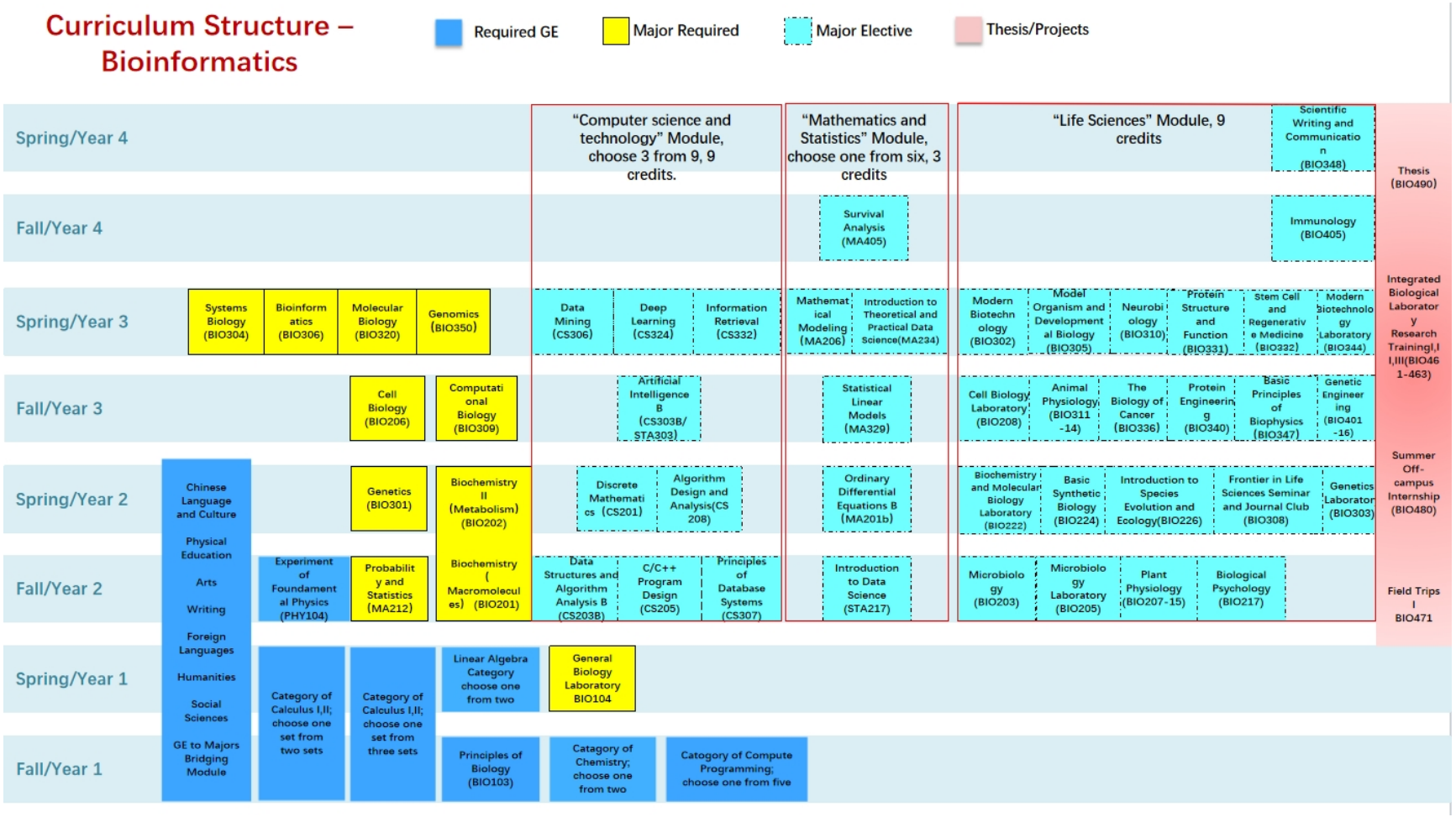
Table 3: Overview of Practice-based Learning

Program of Bioinformatics

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
CS109	Introduction to Computer Programming	3	1	1/Fall	None	CSE
CS110	Introduction to Java Programming	3	1	1/Fall	None	CSE
CS111	Introduction to C programming	3	1	1/Fall	None	CSE
CS112	Introduction to Python Programming	3	1	1/Fall	None	CSE
CS113	Introduction to Matlab Programming	3	1	1/Fall	None	CSE
CS203B	Data Structures and Algorithm Analysis B	3	1	2/Fall	Introduction to Computer Programming Introduction to Java Programming	CSE
CS205	C/C++ Program Design	3	1	2/Fall	None	CSE
CS307	Principles of Database Systems	3	1	2/Fall	Introduction to Computer Programming	CSE
CS208	Algorithm Design and Analysis	3	1	2/Spr	Introduction to Computer Programming,Data Structures and Algorithm Analysis	CSE
CS303B	Artificial Intelligence B	3	1	3/Fall	Data Structures and Algorithm Analysis B,Probability and Statistics	CSE
CS306	Data Mining	3	1	3/Spr	Data Structures and Algorithm Analysis B	CSE
CS324	Deep Learning	3	1	3/Spr	Artificial Intelligence	CSE
CS332	Information Retrieval	3	1	3/Spr	Data Structures and Algorithm Analysis	CSE
MA234	Introduction to Theoretical and Practical Data Science	4	1	3/Spr	Probability and Statistics	MATH
PHY104B	Experiments of Fundamental Physics	2	2	2/Spr	None	PHY

BIO104	General Biology Laboratory	2	2	1/Spr	Principles of Biology	BIO
BIO205	Microbiology Laboratory	2	2	2/Fall	General Biology Laboratory	BIO
BIO461	Integrated Biological Experimentation and Research Practice I	2	2	2/Fall	Principles of BiologyGeneral Biology Laboratory	SLS
BIO222	Biochemistry and Molecular Biology Laboratory	2	2	2/Spr	General Biology Laboratory,Biochemistry（Macromolecules）	BIO
BIO303	Genetics Laboratory	2	2	2/Spr	General Biology Laboratory	BIO
BIO462	Integrated Biological Experimentation and Research Practice II	2	2	2/Spr	Integrated Biological Experimentation and Research Practice I	SLS
BIO463	Integrated Biological Experimentation and Research Practice III	2	2	2/Smr	Integrated Biological Experimentation and Research Practice II	SLS
BIO471	Field Trips I	1	1	2/Smr	None	BIO
BIO208	Cell Biology Laboratory	2	2	3/Fall	Cell Biology	BIO
BIO309	Computational Biology	3	1	3/Fall	None	BIO
BIO306	Bioinformatics	4	2	3/Spr	None	BIO
BIO331	Protein Structure and Function	3	1	3/Spr	Biochemistry (Macromolecules)	BIO
BIO344	Modern Biotechnology Laboratory	2	2	3/Spr	General Biology Laboratory	BIO
BIO470	Summer Off-Campus Internship	2	2	1,2,3/Smr	None	BIO
BIO492	Thesis	12	12	4/Fall-Spr.	Integrated Biological Experimentation and Research Practice II	SLS
Total		88	53			

Curriculum Structure of Bioinformatics



School of Medicine

Program of Biomedical Science

for International Students (2026)

I. Introduction

Biomedical science is a frontier interdisciplinary subject that integrates the theories and methods of basic medicine and life science. The School of Medicine is staffed with the world's top scientists in the fields of biomedicine, including oncology, drug research and development, nervous system diseases, aging related diseases, pathogenic microorganisms, cardiovascular diseases, public health, precision medicine and big data analyses, intelligent medicine. The School of Medicine provides the students with the world's leading teaching and research resources. Students will carry out pioneering scientific research projects independently with the guidance of professors. Students from this major will go to one of the affiliated hospitals for an introductory training in clinical medicine in their senior year. The program provides an internationally competitive curriculum and one-to-one guidance to cultivate students' solid basic biomedical knowledge and innovative skills.

Academic subject areas: Preclinical Medicine （1001）； Program code: Basic Medicine 100103T

II. Objectives and Learning Outcomes

1. Objectives

This program aims to train innovative research talents with knowledge of basic medicine and life sciences, aiming for developing strong experimental skills, ability of problem-solving, teamwork, lifelong learning to achieve international competitiveness by systematic learning and training.

2. Learning Outcomes

1. Master the biomedical knowledge in natural science, humanity, and social science.

2. Master the basic knowledge of basic medicine (e.g. physiology and pathophysiology, pathology, histology and embryology, medical immunology, etc.). Be familiar with the morphological and functional changes of human body in regard to molecules, cells and tissues, and the principles of these changes.

3. Master the basic scientific thinking and experimental techniques, with data analysis, literature retrieval, information acquisition and analysis.

4. Communicate effectively in both Chinese and English. Be able to read English academic literature, and have strong academic communication ability.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Science.

3. The minimum credit requirement for graduation: 157 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	4
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	19
		Major Core Courses	30
		Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	18
	Major Elective Courses	Major Elective Courses	10
Total			157
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Chinese Studies & Writing）, Humanities and Social Sciences Module, and Introduction to Majors Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1 Fall	None	Department of Mathematics
	MA127	Calculus II	4	1 Spring	Calculus I	
	MA113	Linear Algebra	4	1 Spring & Fall	None	
Physics	PHY105	College Physics I	4	1 Fall	None	Department of Physics
	PHY106	College Physics II	4	1 Spring	College Physics I	
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	
Chemistry	CH103	General Chemistry	4	1-2 Spring & Fall	None	Department of Chemistry
Biology	BIO103	Principles of Biology	3	1-2 Spring & Fall	None	Department of Biology
Computer Programming	CS112	Introduction to Python Programming	3	1-2 Spring & Fall	None	Dept. of Computer Science and Engineering

Note:
1. For Mathematics Category, students can take Mathematical Analysis I and II, or Single-variable Calculus and Multivariable Calculus as alternatives to Calculus I and II; Advanced Linear Algebra I as an alternative to Linear Algebra.
2. For Physics Category, students can take General Physics I and II as alternatives to College Physics I and II.
3. For Computer Programming Category, students can choose any one of the five computer programming courses.
4. The above alternative courses are also applicable to “Prerequisites for Major Declaration”.

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	CH103	General Chemistry	
	BIO103	Principles of Biology	
Declare major at the end of the second academic year	MA117	Calculus I	
	PHY105	College Physics I	
	CH103	General Chemistry	
	BIO103	Principles of Biology	

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Biomedical Sciences

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	MED105	Medical Organic Chemistry	4		2/Fall		MED
	MED221	Molecular Microbiology	3		2/Fall		MED
	MED219	Advanced Molecular Biology	3		2/Fall		MED
	MED205	Medical Cell Biology	3		2/Spring		MED
	MED203	Medical Biochemistry	3		2/Spring		MED
	MED206	Basic Biomedical Laboratory	2	2	2/Spring		MED
	MED216	Medical Microbiology Laboratory	1	1	3/Fall		MED
	Total		19	3			
Major Core Courses	MED306	Histology & Embryology	3	1	2/Fall		MED
	MED304	Physiology & Pathophysiology I	3		2/Fall		MED
	MED305	Physiology & Pathophysiology II	3		2/Spring	MED304	MED
	MED339	Human Function & Pharmacology Laboratory	2	2	3/Fall		MED
	MED405	Medical Immunology	3		3/Fall		MED

	MED307	Pathology	3	1	3/Spring	MED306	MED
	MED404	Medical Genetics	3		3/Spring		MED
	MED301	Biomedical Ethics	2		3/Spring		MED
	MED340	Biomedical Laboratory A	2	2	3/Spring		MED
	MED309	Medical Neurobiology	3		4/Fall		MED
	MED226	Experimental Methodology and Application of Molecular Biology	3		4/Spring		MED
	Total		30	6			
Practice-based Courses	MED481	Projects of Science and Technology Innovation I	2	2	3/Fall		MED
	MED482	Projects of Science and Technology Innovation II	2	2	3/Spring		MED
	MED483	Projects of Science and Technology Innovation III	2	2	4/Fall		MED
	MED491	Thesis of Biomedical Sciences	12	12	4/Spring		MED
	Total		18	18			
Total			67	27			
Note：The Projects of Science and Technology Innovation starts from the 3rd year. The project must be conducted under the supervision of a professor from School of Medicine.							

Table 2: Major Elective Courses

Program of Biomedical Sciences

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
MED103	History of Medicine	2		2/Fall		MED
MED107	Medical Economics	2		2/Spring		MED
MED111	Introduction to Hospital Administration	2		2/Spring		MED
MED102	Medical English	2		2/Spring		MED
MED215	Medical Literature Retrieval and Writing	1		2/Spring		MED
MED224	Big Data and Precision Medicine	3		2/Spring		MED
MED230	Modern Vaccinology	3		2/Spring		MED
MED222	Probability & Statistics for the Biosciences	3		2/Spring		MED
MED233	Medical Synthetic Biology	3		2/Spring		MED
MED234	Carbohydrate and Lipid Metabolism in Health	3		2/Spring		MED
MED235	Medical Genomics - From Theory to Practice	3		2/Spring		MED
MED236	Fundamentals of Psychiatric and Mental Health Epidemiology	3		2/Spring		MED
MED227	Introduction to Modern Virology	3		3/Fall		MED
MED333	Cancer Biology Principles	3		3/Fall		MED
MED218	Medical Epigenetics	3		3/Fall		MED
MED217	Evidence based medicine methodology and clinical trial	2		3/Spring		MED
MED302	Preventive Medicine	2		3/Spring		MED
MED241	Structure and Function of Gastrointestinal Microecology	3		3/Spring		MED
MED342	The principle and practice of clinical study	3		3/Spring	MED222	MED
MED403	Pharmacology	2		4/Fall		MED
MED232	Medical Bioinformatics	3		4/Spring		MED
Total		54	0			

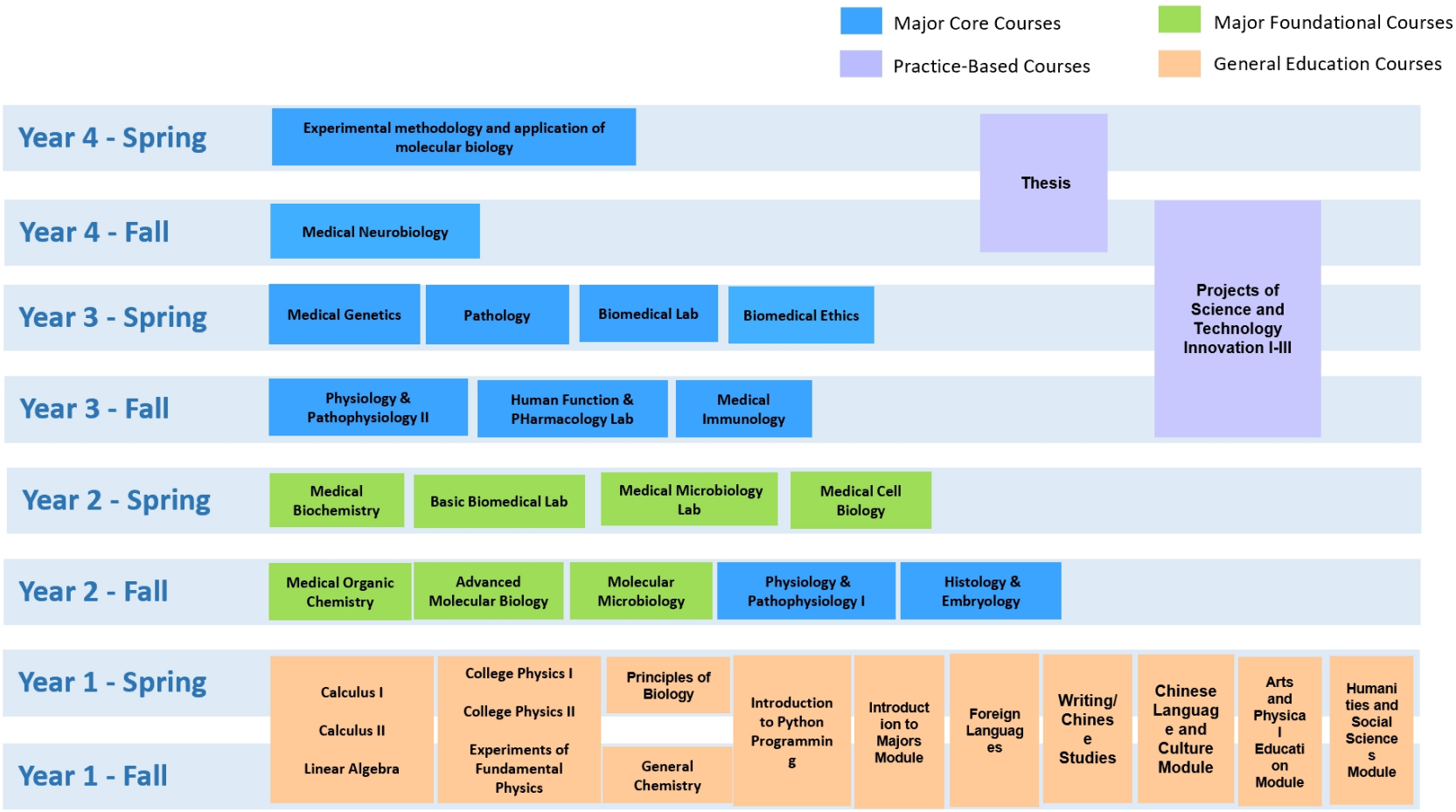
Note: Minimum credits requirement of the above elective courses is 10 credits.

Table 3: Overview of Practice-based Learning

Program of Biomedical Sciences

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
MED206	Basic Biomedical Laboratory	2	2	2/Spring		MED
MED216	Medical Microbiology Laboratory	1	1	2/Spring		MED
MED306	Histology & Embryology	3	1	2/Fall		MED
MED339	Human Function & Pharmacology Laboratory	2	2	3/Fall		MED
MED307	Pathology	3	1	3/Spring	MED306	MED
MED340	Biomedical Laboratory A	2	2	3/Spring		MED
MED481	Projects of Science and Technology Innovation I	2	2	3/Fall		MED
MED482	Projects of Science and Technology Innovation II	2	2	3/Spring		MED
MED483	Projects of Science and Technology Innovation III	2	2	4/Fall		MED
MED491	Thesis of Biomedical Sciences	12	12	4/Spring		MED
Total		31	27			

Curriculum Structure of Biomedical Sciences



College of Business

Program of Finance

for International Students (2026)

I. Introduction

Academic subject areas: The Department of Finance is one of the first five departments of SUSTC founded in 2011. Our department aims to build a strong, domestically, and internationally recognized finance discipline. Our department adheres to the SUSTech's motto of "Research, Innovation and Entrepreneurship" in research. We strive to contribute our research to the national strategic plans and the regional development in the Pearl River Delta and Shenzhen. The research projects undertaken by the department in financial asset pricing theory and empirical analysis, Chinese finance theory and practice, E-finance trades and mechanism, risk measurement and monitoring in E-finance, and quantitative finance are all driven by the important issues in today's economy. Our department is committed to educating students with the most contemporary financial knowledge, critical thinking, entrepreneurship, and global vision so that they are ready to solve practical and challenging problems in China's finance and economy.

Program code: 020301K

II. Objectives and Learning Outcomes

1. Objectives

The Finance program is committed to educating students with a solid foundation of financial and economics knowledge, skills, methodology and theory. The program also aims to train students to be professional in the most contemporary forms of finance, which prepares them to pursue challenging careers in the financial sector as investment bankers, financial engineers, hedge fund managers, policy advisors for China's financial reforms and innovative entrepreneurs in the finance industry. This program not only provides a strong foundation for critical thinking, entrepreneurship, and global vision, but also develops innovative and visionary talents to solve the practical problems of China's financial reforms.

2. Learning Outcomes

1) Have a basic understanding of classic theory, growth theory and business cycles theory, should be able to employ qualitative and quantitative methods to analyze and explain to others

how various behaviors of economic agents and government policies can be explained by economics.

2) Students will be able to explain basic Corporate Finance concepts, such as time value of money and risk-return trade-off, evaluate firms' capital budgeting projects, dividend policy and capital structure, Read and analyse financial statements. Evaluate financial statements of a listed company.

3) You need to be familiar with commonly used financial database such as WIND (China) and WRDS (Global data), and master some statistical packages such as SAS, Matlab , Python or R. You will be required to apply methods to do your own empirical work. To learn hands-on skills in investment. Econometrically model the real economic problems and interpret empirical findings.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Economics.

3. The minimum credit requirement for graduation: 152 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	21
		Major Core Courses	27
		Practice-based Learning (Undergraduate Thesis, Internships, Research projects, etc.)	17
	Major Elective Courses	Major Elective Courses	8
Total			152
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1 Fall		Department of Mathematics
	MA127	Calculus II	4	1 Spring	Calculus I	
	MA113	Linear Algebra	4	1 Spring & Fall		
Physics	PHY105	College Physics I	4	1 Fall		Department of Physics
	PHY106	College Physics II	4	1 Spring	College Physics I	
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall		
Chemistry	CH105	Chemistry: The Central Science	3	1-2 Spring & Fall		Department of Chemistry
Geoscience + Life science	BIO102B	Introduction to Life Science	3	1-2 Spring & Fall		Department of Biology
Computer Programming	CS112	Introduction to Python Programming	3	1-2 Spring & Fall		Dept. of Computer Science and Engineering

Note:
1. Mathematics: MA101a Mathematical Analysis I and MA102a Mathematical Analysis II can replace MA117 Calculus I and MA127 Calculus II; MA107 Advanced Linear Algebra I can replace MA113 Linear Algebra.
2. Physics: PHY101 General Physics I and PHY102 General Physics II can replace PHY105 College Physics I and PHY106 College Physics II.
3. Chemistry: CH103 General Chemistry can replace CH105 Chemistry: The Central Science.
4. Geoscience + Life science: BIO103 Principles of Biology / EOE 100 Introduction to Earth Sciences can replace BIO102B Introduction to Life Science.
5. Computer Programming: CS109 Introduction to Computer Programming / CS110 Introduction to Java Programming / CS111 Introduction to C Programming / CS113 Introduction to Matlab Programming can replace CS112 Introduction to Python Programming.

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	MA117/MA101a	Calculus I/Mathematical Analysis I	
	MA127/MA102a	Calculus II/Mathematical Analysis II	Calculus I/Mathematical Analysis I
	MA113/MA107	Linear Algebra/Advanced Linear Algebra I	
	Note: The students who had completed above two prerequisites can take the rest of prerequisites after declaring the major		
Declare major at the end of the second academic year	MA117/MA101a	Calculus I/Mathematical Analysis I	
	MA127/MA102a	Calculus II/Mathematical Analysis II	Calculus I/Mathematical Analysis I
	MA113/MA107	Linear Algebra/Advanced Linear Algebra I	

Note:

1. 13.If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. 14.If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. 15.Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. 16.For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Finance

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	FIN201	Microeconomics	3	0	1-2 Fall & Spring		Dept. of Finance
	FIN204	Macroeconomics	3	0	1-2 Fall & Spring		
	MA212	Probability and Statistics	3	0	2 Fall & Spring	Calculus II	Dept. of Mathematics
	FIN203	Financial Accounting	3	0	2 Fall		Dept. of Finance
	FIN215	Political Economics	3	0	2 Spring		
	FIN308	Financial Economics	3	0	3 Spring	Corporate Finance、Probability and Statistics	
	FIN303	Econometrics	3	0	3 Fall	Microeconomics、Macroeconomics、Probability and Statistics	
	Total		21	0			
Major Core Courses	FET204	Commercial Bank	3	0	2 Fall		Dept. of Finance
	FIN206	Corporate Finance	3	0	2 Fall	Financial Accounting	
	FIN210	Economics of Money and Banking	3	0	2 Spring		

	FIN302	Empirical Methods in Finance	3	0	3 Spring	Financial Investments、Econometrics	
	FIN301	Financial Investments	3	0	3 Fall	Microeconomics/ Macroeconomics/ Economics、Probability and Statistics	
	FIN417	Corporate Finance Case analysis	3	0	3 Fall	Microeconomics、Macroeconomics、Corporate Finance	
	FET303	Financial Risk Management	3	0	3 Spring	Corporate Finance、Probability and Statistics	
	FIN305	Options, Futures and Financial Derivatives	3	0	3 Spring	Corporate Finance、Financial Investments	
	FIN310	China Economics and Finance	3	0	3 Spring	Microeconomics、Macroeconomics、Financial Investments	
	Total		27	0			
Practice-based Courses	FETS301	Internship	3	3	3 Summer		Dept. of Finance
	FIN480	Projects of Science and Technology Innovation	2	2	ANY		
	FIN491	Thesis	12	12	4 Spring		
	Total		17	17			
Total			65	18			

Note：
1. FMA301 Econometrics can replace FIN 303 Econometrics;
2. FMA304 Asset Pricing and Risk Management can replace FET 303 Financial Risk Management
3. EBA208 Economics of Money and Finance can replace FIN210 Economics of Money and Bank

Table 2: Major Elective Courses

Program of Finance

	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Elective Courses in Finance	FET102	Principles of Fintech	3	0	2 Fall		
	MA201b	Ordinary Differential Equations B	4	0	2 Fall	Calculus II	Dept. of Mathematics
	FIN213	Financial Markets and Institutions	3	0	2 Fall		Dept. of Finance、Dept. of MIS
	FIN209	Entrepreneurial Finance and Innovation I	3	0	2 Fall		
	FET219	Life Contingencies Practicum	1	1	2 Fall		
	FIN217	Investment and Risk Management	1	1	2 Fall		
	FET202	Cases in FinTech I	1.5	0	2 Fall		
	FIN218	Managerial Accounting	3	0	2 Fall		
	FIN205	Special Topics in Finance and Entrepreneurship I	1.5	0	2 Fall		
	FIN202	Special Topics in Finance and Entrepreneurship II	1.5	0	2 Spring		
	FET301	Cases in FinTech II	1.5	0	2 Spring		
	FIN214	Securities Investment Practicum	1	1	2 Spring		
	FET206	Data Structures and Financial Applications	3	0	2 Spring	Introduction to Python Programming	
	FIN212	Financial Statement Analysis	3	0	2 Spring	Microeconomics、Macroeconomics、Corporate Finance	
	MA208	Applied Stochastic Processes	3	0	2 Spring	Probability and Statistics	

	MIS205	Data Management and Databases	3	1	2 Spring	Introduction to Python Programming	
	EBA301	Data analysis and Data Mining	3	1	3 Spring		
	FIN411	International Finance	2	0	3 Spring	Corporate Finance、Financial Investments	
	FIN409	Financial Modeling and Analysis	3	0	3 Fall	Probability and Statistics	
	FIN311	Artificial Intelligence and Its Applications in Finance	3	0	3 Fall	Introduction to Python Programming	
	FIN304	Financial Time Series	3	0	3 Fall	Microeconomics、Macroeconomics、Probability and Statistics	
	FIN314	Frontier and Practice of Securities Market	1	1	3 Fall	Microeconomics、Macroeconomics	
	MA228	Nonlife Actuarial Models	3	0	3 Fall	Probability and Statistics	Dept. of Mathematics
	MA303	Partial Differential Equations	3	0	3 Fall	Ordinary Differential Equations B	
	FMA303	Security Investments	3	0	3 Fall	Probability and Statistics	
	MA322	Life Insurance Actuarial Science	3	0	3 Spring	Probability and Statistics	
	FIN312	Actuarial Modelling with Applications in Insurance	3	0	3 Spring	Econometrics、Probability and Statistics	Dept. of Finance、Dept. of MIS
	FIN313	Strategic Behavior	3	0	3 Spring		
	FET306	Business Analytics with Big Data	3	1	3 Spring		
	FIN407	Investment Banking	3	0	3 Spring	Corporate Finance	
	FIN306	Fixed Income: Models and Applications	2	0	3 Spring	Options, Futures and Financial Derivatives	

	MA308	Statistical Computation and Software	3	0	3 Spring	Probability and Statistics	Dept. of Statistics and Data Science
	MA304	Multivariate Statistical Analysis	3	0	3 Spring	Probability and Statistics	
	FIN403	Cases in Financial Innovations	3	0	4 Fall		Dept. of Finance
	FIN413	Quantitative Investment Analysis	3	0	4 Fall	Financial Investments、Econometrics	
	Total		90	7			
Elective Courses in Management	EBA103	Lectures on the Frontiers of Big Data Management and Applications	2	0	1 Spring		Dept. of MIS
	EBA105	Business Communication and Protocol	2	0	1 Spring		
	EBA203	Management Information System	3	1	2 Fall	Introduction to Computer Programming/ Introduction to Java Programming/ Introduction to C programming/ Introduction to Python Programming	
	EBA207	Management System Analysis and Design	3	1	3 Spring	Introduction to Computer Programming/ Introduction to Java Programming/ Introduction to C programming/ Introduction to Python Programming	
	EBA420	Management Frontiers and Practices I	3	1	4 Fall		
	EBA421	Management Frontiers and Practices II	3	1	4 Spring		
	MIS104	Business Model Research	2	0	1 Fall		

	MIS202	Marketing	3	0	2 Spring		
	MIS204	Prescriptive Decision Analytics	3	1	2 Spring		
	MIS208	Behavioral and Experimental Economics	3	1	2 Spring		
	MIS212	Business Negotiations	3	1	2 Spring		
	MIS223	Social Media and Digital Marketing	3	1	2 Fall		
	MIS301	Big Data Analysis and Application	3	1	3 Spring	Probability and Statistics	
	MIS302	Big Data Management and ERP	3	1	4 Fall	Management Information System/ Data Management and Databases	
	MIS303	Big Data Governance and Business Model	3	1	4 Fall	Management Information System/ Data Management and Databases	
	MIS305	Data Intelligence and Decision Analytics	3	1	3 Spring	Probability and Statistics	
	MIS308	Empirical Methods in Economics and Management	3	1	4 Fall	Data Statistics and Econometrics	
	MIS309	Business History and Economic Development Model in China and Overseas	3	0	3 Spring		
	MIS310	Social Network Models and Applications	3	1	4 Fall		
	MIS312	Entrepreneurial Thinking and Management	3	0	3 Fall		
	MIS316	Fundamentals and Methods of Deep Learning	3	1	3 Spring	Data Mining and Business Applications	
	MIS317	Data Statistics and Econometrics	3	1	3 Spring	Probability and Statistics	

	MIS321	Consumer Behavior	3	0	2 Fall		
	MIS322	International Business	3	0	2 Fall		
	MIS323	Marketing Research	3	0	2 Spring		
	MIS401	Advanced Marketing	3	1	3 Spring	Marketing	
	MIS403	Big Data and Cluster Project Management	3	0	3 Spring		
	MIS407	Data Modeling and Analysis in Production Operations	3	1	3 Spring		
	MIS404	Operations Management	3	0	3 Fall	Prescriptive Decision Analytics	
	MIS332	Blockchain Essentials and Practices	3	1	3 Fall		
	MIS405	Advanced E-commerce and Management	3	0	4 Spring		
	MIS406	Judgment and Decision Making	3	0	4 Fall		
	MIS408	Advanced Operations Research	3	0	3 Spring		
	MIS411	Digital Marketing Analytics	3	1	4 Fall		
	Total		99	20			

Note:
1. A minimum of 8 credits MUST be taken to fulfill Major Elective Courses
2. MA201a Ordinary Differential Equations A can replace MA201b Ordinary Differential Equations B;
3. MIS206 Business Data Structures and Algorithms/MA211 Data structure and Algorithms / CS203B Data Structures and Algorithm Analysis B /CS203 Data Structures and Algorithm Analysis can replace FET206 Data Structures and Financial Applications;
4. CS303B Artificial Intelligence B can replace FIN311 Artificial Intelligence and Its Applications in Finance；
5. MA309 Time Series Analysis can replace FIN304 Financial Time Series；
6. CS307 Principles of Database Systems can replace MIS205 Data Management and Databases

Table 3: Overview of Practice-based Learning

Program of Finance

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
CS112	Introduction to Python Programming	3	1	1-2 Spring & Fall		Dept. of Computer Science and Engineering
PHY104B	Experiments of Fundamental Physics	2	2	1-2 Spring & Fall		Dept. of Physics
FET219	Life Contingencies Practicum	1	1	2 Fall		Dept. of Finance
FIN217	Investment and Risk Management	1	1	2 Fall		
FIN214	Securities Investment Practicum	1	1	2 Spring		
MIS204	Prescriptive Decision Analytics	3	1	2 Spring		Dept. of MIS
MIS205	Data Management and Databases	3	1	2 Spring	Introduction to Python Programming	
EBA301	Data analysis and Data Mining	3	1	3 Spring		
FIN314	Frontier and Practice of Securities Market	1	1	3 Fall	Microeconomics、Macroeconomics	Dept. of Finance
FET306	Business Analytics with Big Data	3	1	3 Spring		
FETS301	Internship	3	3	3 Summer		
FIN480	Projects of Science and Technology Innovation	2	2	ANY		
FIN491	Thesis	12	12	4 Spring		
Total		38	28			

Curriculum Structure of Finance

Freshman	Sophomore	Junior	Senior
General Education Courses	General Education Courses	General Education Courses	General Education Courses
Microeconomics	Political Economics	Financial Investments	Projects of Science and Technology Innovation
Macroeconomics	Commercial Bank	Options, Futures and Financial Derivatives	Thesis
Probability and Statistics	Corporate Finance	China Economics and Finance	Major Elective Courses
	Financial Accounting	Corporate Finance Case analysis	
	Economics of Money and Finance	Econometrics	
	Prescriptive Decision Analytics	Financial Risk Management	
	Marketing	Internship	
	Major Elective Courses	Major Elective Courses	
Note: The above is the recommended semester. Students can make adjustments according to their own academic plans.			

College of Business

Program of Financial Engineering

for International Students (2026)

I. Introduction

Academic subject areas: The rapid development of financial technology has changed the existing financial ecosystem. It is affecting, in every way, the payment method, financial innovation, market operation, service providing, and regulation rules. As a cross-sectional discipline, financial technology is innovating global financial industry. By combining the information science and data science, this new discipline is implementing cutting edge achievements of those areas and will make a big difference in improving the efficiency of the financial market. With this background, SUSTech creatively launches the major of Financial Technology to fit this big environment.

The graduates from this major will have excellent quantitative and technical skills to meet the requirements of the diversified roles in the financial industry, such as in the field of investment banks, commercial banks, asset management, government regulation, Internet finance, and etc. Graduates will also be prepared to continue with a further study in the area of, but not limited to, finance, business analysis, computer science and information engineering.

Following SUSTech's philosophy, "innovative, high-end, cutting-edge, international", this major will fit to the reality of China's finance reform and development. At the same time, the major will also meet to the needs of the latest research dynamic, nation's development strategy, and the development of Pearl River Delta and Shenzhen City. With the strong supports from our excellent faculties, facilities, and research achievements, the major's main teaching and research interests will focus on electronic currency technology, financial information science, internet finance, intelligent investment, financial big data and etc. These achievements will make a contribution to China's financial reform and development, as well as to financial innovation in Pearl River Delta and Shenzhen City.

Program code: 020302

II. Objectives and Learning Outcomes

1. Objectives

The target of the major is to provide the excellent education to financial technology talents. With well-designed text books and curriculums, the major will efficiently help the students develop core skills to apply to the real problems with the professional knowledge that they have learned in the classes. The students in the major will: meet the needs of socialist market economic construction; comprehensively develop in moral, intellectual, physical and aesthetic aspects; adapt to the open economic environment, and build solid foundations in economics, finance, computer technology and English; master the basic theory and method of financial technology; have a good ideological, business, cultural and psychological quality; have a strong practical, innovation and application ability; be able to work in the frontier areas of innovation such as digital currency, electronic payment, intelligent investment, financial big data and etc.

2. Learning Outcomes

1) Have a basic understanding of classic theory, growth theory and business cycles theory, should be able to employ qualitative and quantitative methods to analyze and explain to others how various behaviors of economic agents and government policies can be explained by economics. Understand the challenges, practical significance and future impact of financial technology on the traditional financial industry. Understand the major areas of financial technology, the developments in various fields and their application scenarios. Understand the possibilities and opportunities that financial technology provides for the future development of the financial industry. Implement the key technologies of existing financial technology from the perspective of different financial industry.

2) Students will be able to explain basic Corporate Finance concepts, such as time value of money and risk-return trade-off, evaluate firms' capital budgeting projects, dividend policy and capital structure, Read and analysis financial statements. Evaluate financial statements of a listed company. Students should master basic data structures and algorithms. In addition, they should be also to choose reasonable data structures according to practical demand of algorithms. Students should master basic data structures and algorithms. In addition, they should be also to choose reasonable data structures according to practical demand of algorithms.

3) Students should master basic theories and technologies of artificial intelligence. In addition, they should be also to apply such theories and technologies to develop simple financial intelligent systems. Describe the target and requirements for a spectrum of business data analysis

and data mining problems in finance, marketing, etc. Develop the ability to employ data mining algorithms to discover patterns in data to address the selected problems. Creatively apply and adapt the introduced modeling techniques to propose original findings for practical organizational data analysis problems. Creatively communicate analytic procedure and results effectively in presentations with oral, written, and electronic formats.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Economics.

3. The minimum credit requirement for graduation: 152 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	27
		Major Core Courses	21
		Practice-based Learning (Undergraduate Thesis, Internships, Research projects, etc.)	17
	Major Elective Courses	Major Elective Courses	8
Total			152
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1 Fall		Department of Mathematics
	MA127	Calculus II	4	1 Spring	Calculus I	
	MA113	Linear Algebra	4	1 Spring & Fall		
Physics	PHY105	College Physics I	4	1 Fall		Department of Physics
	PHY106	College Physics II	4	1 Spring	College Physics I	
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall		
Chemistry	CH105	Chemistry: The Central Science	3	1-2 Spring & Fall		Department of Chemistry
Geoscience + Life science	BIO102B	Introduction to Life Science	3	1-2 Spring & Fall		Department of Biology
Computer Programming	CS112	Introduction to Python Programming	3	1-2 Spring & Fall		Dept. of Computer Science and Engineering

Note:

1. Mathematics: MA101a Mathematical Analysis I and MA102a Mathematical Analysis II can replace MA117 Calculus I and MA127 Calculus II; MA107 Advanced Linear Algebra I can replace MA113 Linear Algebra.
2. Physics: PHY101 General Physics I and PHY102 General Physics II can replace PHY105 College Physics I and PHY106 College Physics II.
3. Chemistry: CH103 General Chemistry can replace CH105 Chemistry: The Central Science.
4. Geoscience + Life science: BIO103 Principles of Biology / EOE 100 Introduction to Earth Sciences can replace BIO102B Introduction to Life Science
5. Computer Programming: CS109 Introduction to Computer Programming / CS110 Introduction to Java Programming / CS111 Introduction to C Programming / CS113 Introduction to Matlab Programming can replace CS112 Introduction to Python Programming.

V. Prerequisites for Major Declaration

<table>
<tr><th>Major Declaration Time</th><th>Course Code</th><th>Course Name</th><th>Prerequisite</th></tr>
<tr><td rowspan="4">Declare major at the end of the first academic year</td><td>MA117/
MA101a</td><td>Calculus I/Mathematical Analysis I</td><td></td></tr>
<tr><td>MA127/
MA102a</td><td>Calculus II/Mathematical Analysis II</td><td>Calculus I/Mathematical Analysis I</td></tr>
<tr><td>MA113/
MA107</td><td>Linear Algebra/Advanced Linear Algebra I</td><td></td></tr>
<tr><td colspan="3">Note: The students who had completed above two prerequisites can take the rest of prerequisites after declaring the major</td></tr>
<tr><td rowspan="4">Declare major at the end of the second academic year</td><td>MA117/
MA101a</td><td>Calculus I/Mathematical Analysis I</td><td></td></tr>
<tr><td>MA127/
MA102a</td><td>Calculus II/Mathematical Analysis II</td><td>Calculus I/Mathematical Analysis I</td></tr>
<tr><td>MA113/
MA107</td><td>Linear Algebra/Advanced Linear Algebra I</td><td></td></tr>
<tr><td>CS109/
CS110/
CS111/
CS112/
CS113</td><td>Introduction to Computer Programming /
Introduction to Java Programming /
Introduction to C Programming /
Introduction to Python Programming/
Introduction to Matlab Programming</td><td></td></tr>
</table>

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Financial Engineering

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	FIN201	Microeconomics	3	0	1-2 Fall & Spring		Dept. of Finance
	FIN204	Macroeconomics	3	0	1-2 Fall & Spring		
	MA212	Probability and Statistics	3	0	2 Fall & Spring	Calculus II	Dept. of Mathematics
	FIN203	Financial Accounting	3	0	2 Fall		Dept. of Finance
	FIN215	Political Economics	3	0	2 Spring		
	FIN308	Financial Economics	3	0	3 Spring	Corporate Finance、Probability and Statistics	
	FIN302	Empirical Methods in Finance	3	0	3 Spring	Financial Investments、Econometrics	
	FIN303	Econometrics	3	0	3 Fall	Microeconomics、Macroeconomics、Probability and Statistics	
	EBA301	Data analysis and Data Mining	3	1	3 Spring		
	Total		27	3			
	FIN206	Corporate Finance	3	0	2 Fall		
	FET206	Data Structures and Financial Applications	3	0	2 Spring	Introduction to Python Programming	

	FIN301	Financial Investments	3	0	3 Fall	Microeconomics/ Macroeconomics/ Economics、Probability and Statistics	
	FIN311	Artificial Intelligence and Its Applications in Finance	3	0	3 Fall	Introduction to Python Programming	
	FIN409	Financial Modeling and Analysis	3	0	3 Fall	Probability and Statistics	
	FET303	Financial Risk Management	3	0	3 Spring	Corporate Finance、Probability and Statistics	
	FIN305	Options, Futures and Financial Derivatives	3	0	3 Spring	Corporate Finance、Financial Investments	
	Total		21	0			
Practice-based Courses	FETS301	Internship	3	3	3 Summer		Dept. of Finance
	FET470	Practice of Financial Theory	2	2	ANY		
	FIN491	Thesis	12	12	4 Spring		
	Total		17	17			
Total			65	20			

Note：

1. MIS206 Business Data Structures and Algorithms/ MA211 Data structure and Algorithms / CS203B Data Structures and Algorithm Analysis B /CS203 Data Structures and Algorithm Analysis can replace FET206 Data Structures and Financial Applications;
2. FMA301 Econometrics can replace FIN 303 Econometrics;
3. FMA304 Asset Pricing and Risk Management can replace FET 303 Financial Risk Management;
4. CS303B Artificial Intelligence B can replace FIN311 Artificial Intelligence and Its Applications in Finance
5. CS307 Principles of Database Systems can replace MIS205 Data Management and Databases

Table 2: Major Elective Courses

Program of Financial Engineering

	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Elective Courses in Finance	FET102	Principles of FinTech	3	0	2 Fall		
	MA201b	Ordinary Differential Equations B	4	0	2 Fall	Calculus II	Dept. of Mathematics
	FIN213	Financial Markets and Institutions	3	0	2 Fall		Dept. of Finance
	FIN209	Entrepreneurial Finance and Innovation I	3	0	2 Fall		
	FET219	Life Contingencies Practicum	1	1	2 Fall		
	FIN217	Investment and Risk Management	1	1	2 Fall		
	FET202	Cases in FinTech I	1.5	0	2 Fall		
	FIN218	Managerial Accounting	3	0	2 Fall		
	FIN205	Special Topics in Finance and Entrepreneurship I	1.5	0	2 Fall		
	FET204	Commercial Bank	3	0	2 Fall		
	FIN210	Economics of Money and Banking	3	0	2 Spring		
	MIS202	Marketing	3	0	2 Spring		
	FIN202	Special Topics in Finance and Entrepreneurship II	1.5	0	2 Spring		
	FET301	Cases in FinTech II	1.5	0	2 Spring		

	FIN214	Securities Investment Practicum	1	1	2 Spring		
	FIN212	Financial Statement Analysis	3	0	2 Spring	Microeconomics、Macroeconomics、Corporate Finance	
	MA208	Applied Stochastic Processes	3	0	2 Spring	Probability and Statistics	
	FIN411	International Finance	2	0	3 Spring	Corporate Finance、Financial Investments	
	FET306	Business Analytics with Big Data	3	1	3 Spring		
	FIN417	Corporate Finance Case analysis	3	0	3 Fall	Microeconomics、Macroeconomics、Corporate Finance	
	FIN304	Financial Time Series	3	0	3 Fall	Microeconomics、Macroeconomics、Probability and Statistics	
	FIN314	Frontier and Practice of Securities Market	1	1	3 Fall	Microeconomics、Macroeconomics	
	MA228	Nonlife Actuarial Models	3	0	3 Fall	Probability and Statistics	Dept. of Mathematics
	MA303	Partial Differential Equations	3	0	3 Fall	Ordinary Differential Equations B	
	FMA303	Security Investments	3	0	3 Fall	Probability and Statistics	
	MA322	Life Insurance Actuarial Science	3	0	3 Spring	Probability and Statistics	
	FIN312	Actuarial Modelling with Applications in Insurance	3	0	3 Spring	Econometrics、Probability and Statistics	Dept. of Finance
	FIN313	Strategic Behavior	3	0	3 Spring		
	FIN407	Investment Banking	3	0	3 Spring	Corporate Finance	
	FIN306	Fixed Income: Models and Applications	2	0	3 Spring	Options, Futures and Financial Derivatives	

	FIN310	China Economics and Finance	3	0	3 Spring	Microeconomics、Macroeconomics、Financial Investments	
	MA308	Statistical Computation and Software	3	0	3 Spring	Probability and Statistics	Dept. of Statistics and Data Science
	MA304	Multivariate Statistical Analysis	3	0	3 Spring	Probability and Statistics	
	FIN403	Cases in Financial Innovations	3	0	4 Fall		Dept. of Finance
	FIN413	Quantitative Investment Analysis	3	0	4 Fall	Financial Investments、Econometrics	
	Total		90	5			
Elective Courses in Management	EBA103	Lectures on the Frontiers of Big Data Management and Applications	2	0	1 Spring		Dept. of MIS
	EBA105	Business Communication and Protocol	2	0	1 Spring		
	EBA203	Management Information System	3	1	2 Fall	Introduction to Computer Programming/ Introduction to Java Programming/ Introduction to C programming/ Introduction to Python Programming	
	EBA207	Management System Analysis and Design	3	1	3 Spring	Introduction to Computer Programming/ Introduction to Java Programming/ Introduction to C programming/ Introduction to Python Programming	
	EBA420	Management Frontiers and Practices I	3	1	4 Fall		
	EBA421	Management Frontiers and Practices II	3	1	4 Spring		

	MIS104	Business Model Research	2	0	1 Fall		
	MIS205	Data Management and Databases	3	1	2 Spring	Introduction to Python Programming	
	MIS204	Prescriptive Decision Analytics	3	1	2 Spring		
	MIS208	Behavioral and Experimental Economics	3	1	2 Spring		
	MIS212	Business Negotiations	3	1	2 Spring		
	MIS223	Social Media and Digital Marketing	3	1	2 Fall		
	MIS301	Big Data Analysis and Application	3	1	3 Spring	Probability and Statistics	
	MIS302	Big Data Management and ERP	3	1	4 Fall	Management Information System/ Data Management and Databases	
	MIS303	Big Data Governance and Business Model	3	1	4 Fall	Management Information System/ Data Management and Databases	
	MIS305	Data Intelligence and Decision Analytics	3	1	3 Spring	Probability and Statistics	
	MIS308	Empirical Methods in Economics and Management	3	1	4 Fall	Data Statistics and Econometrics	
	MIS309	Business History and Economic Development Model in China and Overseas	3	0	3 Spring		
	MIS310	Social Network Models and Applications	3	1	4 Fall		
	MIS312	Entrepreneurial Thinking and Management	3	0	3 Fall		
	MIS316	Fundamentals and Methods of Deep Learning	3	1	3 Spring	Data Mining and Business Applications	

	MIS317	Data Statistics and Econometrics	3	1	3 Spring	Probability and Statistics	
	MIS321	Consumer Behavior	3	0	2 Fall		
	MIS322	International Business	3	0	2 Fall		
	MIS323	Marketing Research	3	0	2 Spring		
	MIS401	Advanced Marketing	3	1	3 Spring	Marketing	
	MIS403	Big Data and Cluster Project Management	3	0	3 Spring		
	MIS407	Data Modeling and Analysis in Production Operations	3	1	3 Spring		
	MIS404	Operations Management	3	0	3 Fall	Prescriptive Decision Analytics	
	MIS332	Blockchain Essentials and Practices	3	1	3 Fall		
	MIS405	Advanced E-commerce and Management	3	0	4 Spring		
	MIS406	Judgment and Decision Making	3	0	4 Fall		
	MIS408	Advanced Operations Research	3	0	3 Spring		
	MIS411	Digital Marketing Analytics	3	1	4 Fall		
	Total		99	21			
	Note: 1. A minimum of 8 credits MUST be taken to fulfill Major Elective Courses 2. MA201a Ordinary Differential Equations A can replace MA201b Ordinary Differential Equations B; 3. MA309 Time Series Analysis can replace FIN304 Financial Time Series； 4. EBA208 Economics of Money and Finance can replace FIN210 Economics of Money and Bank						

Table 3: Overview of Practice-based Learning

Program of Financial Engineering

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
CS112	Introduction to Python Programming	3	1	1-2 Spring & Fall		Dept. of Computer Science and Engineering
PHY104B	Experiments of Fundamental Physics	2	2	1-2 Spring & Fall		Dept. of Physics
FET219	Life Contingencies Practicum	1	1	2 Fall		Dept. of Finance、Dept. of MIS
FIN217	Investment and Risk Management	1	1	2 Fall		
FIN214	Securities Investment Practicum	1	1	2 Spring		
MIS204	Prescriptive Decision Analytics	3	1	2 Spring		
MIS205	Data Management and Databases	3	1	2 Spring	Introduction to Python Programming	
EBA301	Data analysis and Data Mining	3	1	3 Spring		
FIN314	Frontier and Practice of Securities Market	1	1	3 Fall	Microeconomics、Macroeconomics	
FET306	Business Analytics with Big Data	3	1	3 Spring		
FETS301	Internship	3	3	3 Summer		
FET470	Practice of Financial Theory	2	2	ANY		
FIN491	Thesis	12	12	4 Spring		
Total		38	28			

Curriculum Structure of Financial Engineering

Freshman	Sophomore	Junior	Senior
General Education Courses	General Education Courses	General Education Courses	General Education Courses
Microeconomics	Political Economics	Financial Investments	Practice of Financial Theory
Macroeconomics	Financial Accounting	Options, Futures and Financial Derivatives	Thesis
Probability and Statistics	Data Management and Databases	Financial Modeling and Analysis	Thesis
	Prescriptive Decision Analytics	Econometrics	
	Corporate Finance	Data analysis and Data Mining	
	Data Structure and Financial Applications	Artificial Intelligence and Its Applications in Finance	
	Major Elective Courses	Financial Risk Management	
		Internship	
		Major Elective Courses	
Note: The above is the recommended semester. Students can make adjustments according to their own academic plans.			

College of Business

Program of Big Data Management and Applications for International Students (2026)

I. Introduction

Big Data Management and Applications (BDMA) is an undergraduate program offered by the Department of Information Systems and Management Engineering. This program is developed against the backdrop of the era of big data, focusing on big data management and governance and applications of data analysis theories and methods in management. Areas of BDMA include Business Statistical Analysis, Business Intelligence.

Academic subject areas: Management Science and Engineering

Program code: 120108T

II. Objectives and Learning Outcomes

1. Objectives

The curriculum of this program is based on the standard set by the National Education Guidance Committee and refers to similar programs run by leading domestic and foreign higher educational institutions. The curriculum aims to

1) cultivate skills that allow students to adapt to a dynamic economy,

2) meet the demand for talent in Guangdong, Hong Kong, and the Macao Greater Bay Area,

3) train students in evidence-based management and systematic management thinking,

4) disseminate interdisciplinary knowledge from Economics, Management, Information Systems, and Management Engineering,

5) develop students' capabilities in theoretical and quantitative analysis,

6) provide students the opportunity to develop entrepreneurship skills, and

7) educate future management talents with professional ethics, modern management knowledge, and international perspectives.

2. Learning Outcomes

Graduates of this program are expected to satisfy requirements in the following three aspects.

1) Knowledge requirements: Master management science and engineering theories; be well informed about various information and engineering technologies; know the fundamentals of science, arts, humanities, and the interlinks among them; understand big data processing, analytic methods, and specialized management science for data management in e-commerce; be skilled in business data modeling and applying various technologies, methods and tools to decision analysis.

2) Capability requirements: Possess the ability to independently acquire and update relevant knowledge in management science and engineering; be competent in comprehensively applying professional knowledge to practice; be skilled at logical thinking and communication; have strong capabilities in organizational coordination; be proficient in applying foreign languages of the trade; be able to make comprehensive use of management science, information technology, and engineering methods to solve business problems; be innovative in applying big data management and application theories; be capable of conducting business analysis of big data and providing support for decision making.

3) Quality Requirements: Have sophisticated ideological and political views and positive outlook on life and values; have strong legal awareness, high sense of social responsibility, professional ethics, teamwork spirit and social adaptability; possess scientific spirit, compassion, and professionalism; have innovative spirit and entrepreneurial consciousness; have healthy psychology and physique.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years. The academic credit system of SUSTech allows flexible study years, but not less than 3 years or more than 6 years

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Management

3. The minimum credit requirement for graduation: 153 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Chinese Studies	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	24
		Major Core Courses	18
		Practice-based Courses (Undergraduate Thesis, Internships, Research Projects, etc.)	17
	Major Elective Courses	Major Elective Courses	15
Total			153
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Chinese Studies & Writing）, Humanities and Social Sciences Module, and Introduction to Majors Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1 Fall	None	MATH
	MA127	Calculus II	4	1 Spring	Calculus I	MATH
	MA113	Linear Algebra	4	1 Spring & Fall	None	MATH
Physics	PHY105	College Physics I	4	1 Fall	None	PHY
	PHY106	College Physics II	4	1 Spring	College Physics I	PHY
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	PHY
Chemistry	CH105	Chemistry: The Central Science	3	1-2 Spring & Fall	None	CHEM
Geoscience + Life science	BIO102B	Introduction to Life Science	3	1-2 Spring & Fall	None	BIO
Computer Programming	CS109/ CS110/ CS111/ CS112/ CS113	Introduction to Computer Programming/ Introduction to Java Programming/ Introduction to C programming/ Introduction to Python Programming/Introduction to Matlab Programming	3	1-2 Spring & Fall	None	CSE

Note:
1. For Mathematics Category, students can take Mathematical Analysis I and II as alternatives to Calculus I and II; Advanced Linear Algebra I as an alternative to Linear Algebra.
2. For Physics Category, students can take General Physics I and II as alternatives to College Physics I and II.
3. For Chemistry Category, students can take General Chemistry as an alternative to Chemistry: The Central Science.
4. For Geoscience + Life Science Category, students can take Principles of Biology or College Earth Sciences as an alternative to Introduction to Life Science.
5. For Computer Programming Category, students can choose any one of the five computer programming courses.
6. The above alternative courses are also applicable to "Prerequisites for Major Declaration".

V. Prerequisites for Major Declaration

<table>
<tr><th>Major Declaration Time</th><th>Course Code</th><th>Course Name</th><th>Prerequisite</th></tr>
<tr><td rowspan="4">Declare major at the end of the first academic year</td><td>MA117/
MA101a</td><td>Calculus I/
Mathematical Analysis I</td><td>None</td></tr>
<tr><td>MA127/
MA102a</td><td>Calculus II/
Mathematical Analysis II</td><td>Calculus I/
Mathematical Analysis I</td></tr>
<tr><td>MA113/
MA107</td><td>Linear Algebra/
Advanced Linear Algebra I</td><td>None</td></tr>
<tr><td colspan="3">Note: The students who had completed above two prerequisites can take the rest of prerequisites after declaring the major</td></tr>
<tr><td rowspan="4">Declare major at the end of the second academic year</td><td>MA117/
MA101a</td><td>Calculus I/
Mathematical Analysis I</td><td>None</td></tr>
<tr><td>MA127/
MA102a</td><td>Calculus II/
Mathematical Analysis II</td><td>Calculus I/
Mathematical Analysis I</td></tr>
<tr><td>MA113/
MA107</td><td>Linear Algebra/
Advanced Linear Algebra I</td><td>None</td></tr>
<tr><td>CS109/
CS110/
CS111/
CS112/
CS113</td><td>Introduction to Computer Programming/
Introduction to Java Programming/ Introduction to C programming/ Introduction to Python Programming/Introduction to Matlab Programming</td><td>None</td></tr>
<tr><td colspan="4">Note:
1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
5. Management (EBA106) introduce the basic knowledge of big data management and applications. 1+3 students are suggested to take this course after declaring the major; 2+2 students are suggested to take this course before declaring the major.</td></tr>
</table>

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Big Data Management and Applications for International

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	FIN201	Microeconomics	3		2-3 Spring & Fall	None	FIN
	FIN204	Macroeconomics	3		2-3 Spring & Fall	None	FIN
	MA212	Probability and Statistics	3		2 Fall	Calculus II	MATH
	EBA203	Management Information System	3	1	2 Fall	Introduction to Computer Programming/ Introduction to Java Programming/ Introduction to C programming/ Introduction to Python Programming/Introduction to Matlab Programming	ISME
	MIS204	Prescriptive Decision Analytics	3	1	2 Fall	None	ISME
	MIS205	Data Management and Databases	3	1	2 Spring	Introduction to Computer Programming/ Introduction to Java Programming/ Introduction to C programming/ Introduction to Python Programming/Introduction to Matlab Programming	ISME
	MIS206	Business Data Structures and Algorithms	3	1	2 Spring	Introduction to Computer Programming/ Introduction to Java Programming/ Introduction to C programming/ Introduction to Python Programming/Introduction to Matlab Programming	ISME
	EBA301	Data Analysis	3	1	3 Spring	Management Information	ISME

		and Data Mining				System/ Data Management and Databases	
	Total		24	5			
Major Core Courses	MIS202	Marketing	3		2 Spring	None	ISME
	MIS300	Big Data Ecology and Storage Computing	3	1	3 Fall	Business Data Structures and Algorithms	ISME
	MIS303	Big Data Governance and Business Model	3	1	3 Fall	Management Information System/ Data Management and Databases	ISME
	MIS316	Fundamentals and Methods of Deep Learning	3	1	3 Spring	Data Mining and Business Applications	ISME
	MIS317	Data Statistics and Econometrics	3	1	3 Spring	Probability and Statistics	ISME
	MIS305	Data Intelligence and Decision Analytics	3	1	3 Spring	Probability and Statistics	ISME
	Total		18	5			
Practice-based Courses	MIS370	Internship	3	3	2 or 3 Summer	None	ISME
	MIS480	Science & Technology Innovation Projects	2	2	Any term after the first academic year	None	ISME
	MIS491	Thesis	12	12	4 Spring & Fall	None	ISME
	Total		17	17			
Total			59	27			
Note： Data Structures and Algorithm Analysis （CS203) / Data Structures and Algorithm Analysis B （CS203B) is regarded as equivalent to Business Data Structures and Algorithms (MIS206).							

Table 2: Major Elective Courses

Program of Big Data Management and Applications for International

Course Track	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Data Analytics	MIS302	Big Data Management and ERP	3	1	4 Fall	Management Information System/ Data Management and Databases	ISME
	MIS310	Social Network Models and Applications	3	1	4 Fall	None	ISME
	MIS320	Mining of Network Data	3	1	3 Spring	Business Data Structures and Algorithms	ISME
	MIS400	Data Analytics and Business Insights	3	1	4 Fall	Data Management and Databases	ISME
Decision Analysis	MIS301	Big Data Analysis and Application	3	1	3 Spring	Probability and Statistics	ISME
	MIS404	Operations Management	3		3 Fall	Prescriptive Decision Analytics	ISME
	MIS407	Data Modeling and Analysis in Production Operations	3	1	3 Spring	Probability and Statistics/ Prescriptive Decision Analytics	ISME
	MIS408	Advanced Operations Research	3		3 Spring	None	ISME
Business Administration	MIS223	Social Media and Digital Marketing	3	1	2 Fall	None	ISME
	MIS401	Advanced Marketing	3	1	3 Spring	Marketing	ISME
	MIS411	Digital Marketing Analytics	3	1	4 Fall	None	ISME
Other Electives	MIS208	Behavioral and Experimental Economics	3	1	2 Spring	None	ISME
	MIS212	Business Negotiations	3	1	2 Spring	None	ISME
	EBA204	Innovative Thinking	3		2 Spring	None	BOC

	MIS336	IT Innovations Management	1		3 Spring	None	ISME
	MIS308	Empirical Methods in Economics and Management	3	1	4 Fall	Data Statistics and Econometrics	ISME
	MIS312	Entrepreneurial Thinking and Management	3		3 Fall	None	ISME
	MIS321	Consumer Behavior	3		2 Fall	None	ISME
	MIS322	International Business	3		2 Fall	None	ISME
	MIS323	Marketing Research	3		2 Spring	None	ISME
	MIS331	Big Data In Finance	3	1	3 Spring	Probability and Statistics	ISME
	MIS332	Blockchain Essentials and Application	3		3 Spring	None	ISME
	MIS333	Blockchain Development and Practices	3	1	3 Spring	None	ISME
	MIS334	IT Project Management	3		3 Fall	None	ISME
	MIS335	Supply Chain Management	3		3 Spring	Probability and Statistics	ISME
	MIS403	Big Data and Cluster Project Management	3		3 Spring	None	ISME
	MIS405	Advanced E-commerce and Management	3		4 Spring	None	ISME
	MIS406	Judgment and Decision Making	3		4 Fall	None	ISME

	EBA207	Management System Analysis and Design	3	1	3 Spring	Introduction to Computer Programming/ Introduction to Java Programming/ Introduction to C programming/ Introduction to Python Programming/Introduction to Matlab Programming	ISME
	EBA420	Management Frontiers and Practices I	3	1	4 Fall	None	ISME
	EBA421	Management Frontiers and Practices II	3	1	4 Spring	None	ISME
	FIN203	Financial Accounting	3		2 Fall	None	FIN
	FET102	Principles of FinTech	3		2 Fall	None	FIN
	FET202	Cases in FinTech I	1.5		2 Fall	None	FIN
	FET203	FinTech Mathematics	3		1 Spring	Linear Algebra A	FIN
	FET204	Commercial Bank	3		2 Fall	None	FIN
	FET219	Life Contingencies Practicum	1	1	2 Fall	None	FIN
	FET301	Cases in FinTech II	1.5		2 Spring	None	FIN
	FET303	Financial Risk Management	3		3 Spring	Corporate Finance、Probability and Statistics	FIN
	FET306	Business Analytics with Big Data	3	1	3 Spring	None	FIN
	FIN202	Special Topics in Finance and Entrepreneurship II	1.5		2 Spring	None	FIN
	FIN205	Special Topics in Finance and Entrepreneurship I	1.5		2 Fall	None	FIN

	FIN206	Corporate Finance	3		2 Spring	Financial Accounting	FIN
	FIN209	Entrepreneurial Finance and Innovation I	3		2 Fall	None	FIN
	FIN210	Economics of Money and Banking	3		2 Spring	None	FIN
	FIN212	Financial Statement Analysis	3		2 Spring	Microeconomics、Macroeconomics、Corporate Finance	FIN
	FIN213	Financial Markets and Institutions	3		2 Fall	None	FIN
	FIN214	Securities Investment Practicum	1	1	2 Spring	None	FIN
	FIN215	Political Economics	3		2 Fall	None	FIN
	FIN217	Investment，Financial Management and Risk Control	1	1	2 Fall	None	FIN
	FIN218	Managerial Accounting	3		2 Fall	Financial Accounting	FIN
	FIN301	Financial Investments	3		3 Fall	Microeconomics/Macroeconomics/Economics/Probability and Statistics	FIN
	FIN302	Empirical Methods in Finance	3		3 Spring	Financial Investments、Econometrics	FIN
	FIN303	Econometrics	3		3 Fall	Microeconomics、Macroeconomics、Probability and Statistics	FIN
	FIN304	Financial Time Series	3		3 Fall	Microeconomics、Macroeconomics、Probability and Statistics	FIN
	FIN305	Options, Futures and Financial Derivatives	3		3 Spring	Corporate Finance、Financial Investments	FIN
	FIN306	Fixed Income: Models and Applications	2		3 Spring	Options, Futures and Financial Derivatives	FIN
	FIN308	Financial Economics	3		3 Spring	Corporate Finance、Probability and Statistics	FIN

	FIN310	China Economics and Finance	3		3 Spring	Microeconomics、Macroeconomics、Corporate Finance、Financial Investments	FIN
	FIN311	Artificial Intelligence and Its Applications in Finance	3		3 Fall	Introduction to Python Programming	FIN
	FIN312	Actuarial Modelling with Applications in Insurance	3		3 Spring	Econometrics、Probability and Statistics	FIN
	FIN313	Strategic Behavior	3		3 Spring	None	FIN
	FIN314	Frontier and Practice of Securities Market	1	1	3 Fall	Microeconomics、Macroeconomics	FIN
	FIN340	Investments	3		3Fall	Economics、Finance	EBA
	FIN403	Cases in Financial Innovations	3		4 Fall	Options, Futures and Financial Derivatives	FIN
	FIN407	Investment Banking	3		3 Spring	Corporate Finance	FIN
	FIN409	Financial Modeling and Analysis	3		3 Fall	Probability and Statistics	FIN
	FIN411	International Finance	2		3 Spring	Corporate Finance、Financial Investments	FIN
	FIN413	Quantitative Investment Analysis	3		4 Fall	Financial Investments、Econometrics	FIN
	FIN417	Corporate Finance Case Analysis	3		3 Fall	Microeconomics、Macroeconomics、Corporate Finance	FIN
Total			159	14			

Note:
1. After declaring the major of Big Data Management and Applications, students need to choose at least three courses within three tracks （Data Analytics, Decision Analysis and Business Administration).
2. The requirement of total credits for major elective courses is 15 credits.
3. The term of taking the course is not compulsory, and can be adjusted according to student's own study plans.

Table 3: Overview of Practice-based Learning Program of Big Data Management and Applications for International

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
CS110	Introduction to Java Programming	3	1	1-2 Spring & Fall	None	CSE
CS111	Introduction to C programming	3	1	1-2 Spring & Fall	None	CSE
CS112	Introduction to Python Programming Python	3	1	1-2 Spring & Fall	None	CSE
PHY104B	Experiments of Fundamental Physics	2	2	1-2 Spring & Fall	None	PHY
EBA203	Management Information System	3	1	2 Fall	Introduction to Computer Programming/ Introduction to Java Programming/ Introduction to C programming/ Introduction to Python Programming/Introduction to Matlab Programming	ISME
MIS204	Prescriptive Decision Analytics	3	1	2 Spring	None	ISME
MIS205	Data Management and Databases	3	1	2 Spring	Introduction to Computer Programming/ Introduction to Java Programming/ Introduction to C programming/ Introduction to Python Programming/Introduction to Matlab Programming	ISME
MIS206	Business Data Structures and Algorithms	3	1	2 Spring	IIntroduction to Computer Programming/ Introduction to Java Programming/ Introduction to C programming/ Introduction to Python Programming/Introduction to Matlab Programming	ISME
MIS300	Big Data Ecology and Storage Computing	3	1	3 Fall	Business Data Structures and Algorithms	ISME

MIS303	Big Data Governance and Business Model	3	1	3 Fall	Management Information System/ Data Management and Databases	ISME
EBA301	Data analysis and Data Mining	3	1	3 Fall	Management Information System/ Data Management and Databases	ISME
MIS316	Fundamentals and Methods of Deep Learning	3	1	3 Spring	Data Mining and Business Applications	ISME
MIS317	Data Statistics and Econometrics	3	1	4 Fall	Probability and Statistics	ISME
MIS305	Data Intelligence and Decision Analytics	3	1	3 Spring	Probability and Statistics	ISME
MIS370	Internship	3	3	2 or 3 Summer	None	ISME
MIS480	Science & Technology Innovation Projects	2	2	Any term after the first academic year	None	ISME
MIS491	Thesis	12	12	4 Spring & Fall	None	ISME
MIS302	Big Data Management and ERP	3	1	4 Fall	Management Information System/ Data Management and Databases	ISME
MIS310	Social Media and Digital Marketing	3	1	4 Fall	None	ISME
MIS320	Mining of Network Data	3	1	3 Spring	Business Data Structures and Algorithms	ISME
MIS400	Data Analytics and Business Insights	3	1	4 Fall	Data Management and Databases	ISME
MIS301	Big Data Analysis and Application	3	1	3 Spring	Probability and Statistics	ISME
MIS407	Data Modeling and Analysis in Production Operations	3	1	3 Spring	Probability and Statistics/ Prescriptive Decision Analytics	ISME

MIS223	Social Media and Digital Marketing	3	1	2 Fall	None	ISME
MIS401	Advanced Marketing	3	1	3 Spring	Marketing	ISME
MIS411	Digital Marketing Analytics	3	1	4 Fall	None	ISME
MIS208	Behavioral and Experimental Economics	3	1	2 Spring	None	ISME
MIS212	Business Negotiations	3	1	2 Spring	None	ISME
MIS308	Empirical Methods in Economics and Management	3	1	4 Fall	Data Statistics and Econometrics	ISME
MIS331	Big Data In Finance	3	1	3 Spring	Probability and Statistics	ISME
MIS333	Blockchain Development and Practices	3	1	3 Spring	None	ISME
EBA207	Management System Analysis and Design	3	1	3 Spring	Introduction to Computer Programming/ Introduction to Java Programming/ Introduction to C programming/ Introduction to Python Programming/Introduction to Matlab Programming	ISME
EBA420	Management Frontiers and Practices I	3	1	4 Fall	None	ISME
EBA421	Management Frontiers and Practices II	3	1	4 Spring	None	ISME
Total		102	44			

Curriculum Structure of Big Data Management and Applications

Freshman Year		Sophomore Year		Junior Year		Senior Year	
Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
Calculus I	Calculus II	Management	Marketing	Big Data Ecology and Storage Computing	Data Statistics and Econometrics	Major Elective Courses	Thesis
College Physics I	College Physics II	Probability and Statistics	Data Management and Databases	Big Data Governance and Business Model	Fundamentals and Methods of Deep Learning	Major Elective Courses	
Linear Algebra	Chemistry: The Central Science	Management Information System	Business Data Structures and Algorithms	Major Elective Courses	Data Intelligence and Decision Analytics		
Computer Programming	Introduction to Life Science	Prescriptive Decision Analytics	Major Elective Courses	Major Elective Courses	Data Analysis and Data Mining		
Experiments of Fundamental Physics		Microeconomics、Macroeconomics					
				Internship、Science & Technology Innovation Projects			

Notes:
Management covers the basic knowledge of the Big Data Management and Application major. Students who choose this major are recommended to take this course.
Internships are suggested to be completed during the summer vacations of the sophomore and junior years.For details on majorl elective courses, please refer to the elective course list in the program. The semester of study can be adjusted according to your own academic plan.

Major Foundational Courses
Major Core Courses
Practice-based Courses
Major Elective Courses

College of Business

Program of Industrial Engineering

for International Students (2026)

I. Introduction

Industrial Engineering is an interdisciplinary field that combines engineering and management. It aims to explore how to effectively operate various complex system issues through quantitative analysis, optimization decisions, and other engineering and analytical methods. Its application scenarios include intelligent manufacturing systems, transportation systems, smart retail, finance, healthcare, and other service systems. The goal is to support the digital and intelligent transformation of enterprises and organizations, providing innovative solutions for modern management in areas such as enterprise management, business consulting, government decision-making, and public services. In terms of talent cultivation, the Industrial Engineering program aims to nurture versatile professionals with a solid foundation in mathematics, computer science, management theory, and practical experience. Additionally, this program includes various practical courses, internships and innovation projects in order to enhance students' communication and coordination skills.

Academic subject areas: Industrial Engineering（1207）

Program code: 120701

II. Objectives and Learning Outcomes

1. Objectives

The curriculum of this program is based on the standard set by the National Education

Guidance Committee and refers to similar programs run by leading domestic and foreign higher

educational institutions. This program aims to cultivate talents who can serve and adapt to the needs of national economic and social development, possess an international perspective, innovative spirit and entrepreneurial awareness. These talents will be capable of engaging in scientific research and practical applications in fields related to industry and services.

2. Learning Outcomes

1）Knowledge requirements：Have a solid foundation in mathematics, computer science and data science; master the basic theories and analysis methods of operations research and management; form a reasonable overall knowledge structure; master the relevant theories, technologies and tools of qualitative analysis and quantitative analysis

2）Ability requirements：Possess data processing skills and the ability for scientific research and practical application. When students face with prominent problems in real-world scenarios, they can analyze key systemic issues, establish mathematical models, and apply optimization theories to propose reasonable solutions.

3）Qualifications：Have a rigorous scientific attitude; establish correct legal awareness, professional ethics and social responsibility; have a broad international vision.

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Management.

3. The minimum credit requirement for graduation: 153 credits. The specific requirements are as follows.

Module		Category	Minimum Credit Requirement
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	18
		Major Core Courses	12
		Practice-based Learning (Undergraduate Thesis, Internships, Research projects, etc.)	17
	Major Elective Courses	Major Elective Courses	18
Total			144
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA117	Calculus I	4	1 Fall	None	MATH
	MA127	Calculus II	4	1 Spring	Calculus I	MATH
	MA113	Linear Algebra	4	1 Spring & Fall	None	MATH
Physics	PHY105	College Physics I	4	1 Fall	None	PHY
	PHY106	College Physics II	4	1 Spring	College Physics I	PHY
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	PHY
Chemistry	CH105	Chemistry: The Central Science	3	1-2 Spring & Fall	None	CHEM
Geoscience + Life science	BIO102B	Introduction to Life Science	3	1-2 Spring & Fall	None	BIO
Computer Programming	CS109/ CS110/ CS111/ CS112/ CS113	Introduction to Computer Programming/ Introduction to Java Programming/ Introduction to C programming/ Introduction to Python Programming/ Introduction to Matlab Programming	3	1-2 Spring & Fall	None	CSE

Note:
1. For Mathematics Category, students can take Mathematical Analysis I and II as alternatives to Calculus I and II; Advanced Linear Algebra I as an alternative to Linear Algebra.
2. For Physics Category, students can take General Physics I and II as alternatives to College Physics I and II.
3. For Chemistry Category, students can take General Chemistry as an alternative to Chemistry: The Central Science.
4. For Geoscience + Life Science Category, students can take Principles of Biology or College Earth Science as an alternative to Introduction to Life Science.
5. For Computer Programming Category, students can choose any one of the four computer programming courses.
6. The above alternative courses are also applicable to "Prerequisites for Major Declaration".

V. Prerequisites for Major Declaration

<table>
<tr><th>Major Declaration Time</th><th>Course Code</th><th>Course Name</th><th>Prerequisite</th></tr>
<tr><td rowspan="4">Declare major at the end of the first academic year</td><td>MA117/
MA101a</td><td>Calculus I/
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<tr><td>MA127/
MA102a</td><td>Calculus II/
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Mathematical Analysis I</td></tr>
<tr><td>MA113/
MA107</td><td>Linear Algebra/
Advanced Linear Algebra I</td><td>None</td></tr>
<tr><td colspan="3">Note: The students who had completed above two prerequisites can take the rest of prerequisites after declaring the major</td></tr>
<tr><td rowspan="4">Declare major at the end of the second academic year</td><td>MA117/
MA101a</td><td>Calculus I/
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<tr><td>MA113/
MA107</td><td>Linear Algebra/
Advanced Linear Algebra I</td><td>None</td></tr>
<tr><td>CS109/
CS110/
CS111/
CS112/
CS113</td><td>Introduction to Computer Programming/ Introduction to Java Programming/ Introduction to C programming/ Introduction to Python Programming/Introduction to Matlab Programming</td><td>None</td></tr>
<tr><td colspan="4">Note:
1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).</td></tr>
</table>

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Industrial Engineering

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	EBA107		3		2 Fall	None	FIN
	MA212	Probability and Statistics	3		2 Fall	Calculus II	MATH
	IDE201	Mathematical Programming	3		2 Fall	None	COB
	EBA414	Creative Thinking Training	3		2 Fall	None	COB
	IDE202	Stochastic Processes and Applications	3		2 Spring	None	COB
	EBA206	Game Theory and Applications	3		2 Spring	None	COB
	Total		18				

Major Core Courses	IDE309	Smart Logistics and Dynamic Programming	3		2 Spring	None	COB
	IDE306	Production and Operations Management	3		3 Fall	None	
	IDE307	Digital Twin and Quality Control	3	1	3 Fall	Probability and Statistics/Probability Theory and Mathematical Statistics	
	IDE308	Intelligent Systems and Industrial Engineering	3	1	3 Fall	None	
	Total		12	2			
Practice-based Courses	IDE330	Internship	3	3	3 Summer	None	COB
	IDE470	Science & Technology Innovation Projects	2	2	4 Fall	None	
	IDE491	Thesis	12	12	4 Spring	None	
	Total		17	17			
Total			47	20			

Note:
1. Microeconomics can replace economics.
2. MA212 Probability and Statistics can be replaced by MA215 Probability Theory or STA203 Foundation of Probability Theory, provided that MA204 Mathematical Statistics or MA236 Foundations of Mathematical Statistics is taken as a distributional elective.

Table 2: Major Elective Courses

Distributional Electives:Students must select at least 3 courses (9 credits) from the following list.							
Course Category	**Course Code**	**Course Name**	**Credits**	**Practice-based Learning Credits**	**Terms**	**Prerequisite**	**Dept.**
Distributional Electives	MA215	Probability Theory	4		2 Fall	Calculus II/Mathematical Analysis II	MATH
	STA203	Foundation of Probability Theory	3		2 Fall	Calculus II/Mathematical Analysis II	STAT
	MIS323	Marketing Research	3		2 Spring	None	ISME
	MA204	Mathematical Statistics	3		2 Spring	Probability Theory/Probability and Statistics	STAT
	MA236	Foundations of Mathematical Statistics	3		2 Spring	Probability Theory/Probability and Statistics	MATH
	MIS317	Data Statistics and Econometrics	3	1	3 Spring	Probability and Statistics	ISME
	CS405	Machine Learning	3	1	4 Fall	Linear Algebra、Probability and Statistics	CSE
	MIS400	Data Analytics and Business Insights	3	1	4 Fall	Data Management and Databases	ISME
	MIS302	Big Data Management and ERP	3	1	4 Fall	Management Information System/ Data Management and Databases	ISME
	ME102	CAD and Engineering Drawing	3	1	4 Spring	None	ME
	SDM313	Design for Intelligent Manufacturing	3	1	4 Spring	None	SDIM
	Total		34	6			
Note: If the course selected by the student is not on the list, it can be recognized as an elective course for the major upon the signature and approval of the academic advisor and the program director.							

Other Electives: Students must select at least 3 courses (9 credits) from the following list.							
Other Electives	MA213-16	Mathematical Analysis	5		3 Fall	Mathematical Analysis II/Calculus II	MATH
	MIS202	Marketing	3		2 Spring	None	ISME
	MIS208	Behavioral and Experimental Economics	3	1	2 Spring	None	ISME
	MIS212	Business Negotiations	3	1	2 Spring	None	ISME
	MIS308	Empirical Methods in Economics and Management	3	1	4 Fall	Data Statistics and Econometrics	ISME
	MIS312	Entrepreneurial Thinking and Management	3		3 Fall	None	ISME
	MIS321	Consumer Behavior	3		2 Fall	None	ISME
	MIS322	International Business	3		2 Fall	None	ISME
	MIS323	Marketing Research	3		2 Spring	None	ISME
	MIS331	Big Data In Finance	3	1	3 Spring	Probability and Statistics	ISME
	MIS332	Blockchain Essentials and Application	3	1	3 Spring	None	ISME
	MIS333	Blockchain Development and Practices	3	1	3 Spring	None	ISME
	MIS334	IT Project Management	3		3 Fall	None	ISME
	MIS405	Advanced E-commerce and Management	3		4 Spring	None	ISME
	MIS406	Judgment and Decision Making	3		4 Fall	None	ISME

	EBA207	Management System Analysis and Design	3	1	3 Spring	Introduction to Computer Programming/ Introduction to Java Programming/ Introduction to C programming/ Introduction to Python Programming	ISME
	FET102	Principles of FinTech	3		2 Fall	None	FIN
	FET202	Cases in FinTech I	1.5		2 Fall	None	FIN
	FET204	Commercial Bank	3		2 Fall	None	FIN
	FET301	Cases in FinTech II	1.5		2 Spring	None	FIN
	FET303	Financial Risk Management	3		3 Spring	Corporate Finance、Probability and Statistics	FIN
	FET306	Business Analytics with Big Data	3	1	3 Spring	None	FIN
	FIN202	Special Topics in Finance and Entrepreneurship II	1.5		2 Fall	None	FIN
	FIN205	Special Topics in Finance and Entrepreneurship I	1.5		2 Fall	None	FIN
	FIN206	Corporate Finance	3		2 Spring	Financial Accounting	FIN
	FIN209	Entrepreneurial Finance and Innovation I	3		2 Fall	None	FIN

	FIN212	Financial Statement Analysis	3		2 Spring	Microeconomics、Macroeconomics、Corporate Finance	FIN
	FIN213	Financial Markets and Institutions	3		2 Fall	None	FIN
	FIN214	Securities Investment Practicum	1	1	2 Spring	None	FIN
	FIN217	Investment，Financial Management and Risk Control	1	1	2 Fall	None	FIN
	FIN218	Managerial Accounting	3		2 Fall	Financial Accounting	FIN
	FIN301	Financial Investments	3		3 Fall	Microeconomics/Macroeconomics/Economics/Probability and Statistics	FIN
	FIN302	Empirical Methods in Finance	3		3 Spring	Financial Investments、Econometrics	FIN
	FIN303	Econometrics	3		3 Fall	Microeconomics、Macroeconomics、Probability and Statistics	FIN
	FIN304	Financial Time Series	3		3 Fall	Microeconomics、Macroeconomics、Probability and Statistics	FIN
	FIN305	Options, Futures and Financial Derivatives	3		3 Spring	Corporate Finance、Financial Investments	FIN
	FIN308	Financial Economics	3		3 Spring	Corporate Finance、Probability and Statistics	FIN
	FIN311	Artificial Intelligence and Its Applications in Finance	3		3 Fall	Introduction to Python Programming	FIN

	FIN312	Actuarial Modelling with Applications in Insurance	3		3 Spring	Econometrics、Probability and Statistics	FIN
	FIN313	Strategic Behavior	3		3 Spring	None	FIN
	FIN314	Frontier and Practice of Securities Market	1	1	3 Fall	Microeconomics、Macroeconomics	FIN
	FIN403	Cases in Financial Innovations	3		4 Fall	Options, Futures and Financial Derivatives	FIN
	FIN407	Investment Banking	3		3 Spring	Corporate Finance	FIN
	FIN409	Financial Modeling and Analysis	3		3 Fall	Probability and Statistics	FIN
	FIN411	International Finance	2		3 Spring	Corporate Finance、Financial Investments	FIN
	FIN413	Quantitative Investment Analysis	3		4 Fall	Financial Investments、Econometrics	FIN
	FIN417	Corporate Finance Case Analysis	3		3 Fall	Microeconomics、Macroeconomics、Corporate Finance	FIN
Total			130	11			

Note:
If the course selected by the student is not on the list, it can be recognized as an elective course for the major upon the signature and approval of the academic advisor and the program director.

Table 3: Overview of Practice-based Learning

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
CS109	Introduction to Computer Programming	3	1	1-2 Spring/Fall	None	CSE
CS110	Introduction to Java Programming	3	1	1-2 Spring/Fall	None	CSE
CS111	Introduction to C programming	3	1	1-2 Spring/Fall	None	CSE
CS112	Introduction to Python Programming	3	1	1-2 Spring/Fall	None	CSE
CS113	Introduction to Matlab Programming	3	1	1-2 Spring/Fall	None	CSE
PHY104B	Experiments of Fundamental Physics	2	2	1-2 Spring/Fall	None	PHY
IDE307	Digital Twin and Quality Control	3	1	3 Fall	Probability and Statistics/Probability Theory and Mathematical Statistics	COB
IDE308	Intelligent Systems and Industrial Engineering	3	1	3 Fall	None	COB
MIS317	Data Statistics and Econometrics	3	1	3 Spring	Probability and Statistics	ISME
IDE330	Internship	3	3	3 Summer	None	COB
IDE470	Science & Technology Innovation Projects	2	2	4 Fall	None	COB
CS405	Machine Learning	3	1	4 Fall	Linear Algebra、Probability and Statistics	CSE
MIS400	Data Analytics and Business Insights	3	1	4 Fall	Data Management and Databases	ISME
MIS302	Big Data Management and ERP	3	1	4 Fall	Management Information System/ Data Management and Databases	ISME
ME102	CAD and Engineering Drawing	3	1	4 Spring	None	ME
SDM313	Design for Intelligent Manufacturing	3	1	4 Spring	None	SDIM
IDE491	Thesis	12	12	4 Spring	None	COB
Total		58	32			

Curriculum Structure of Industrial Engineering

Freshman Year		Sophomore Year		Junior Year		Senior Year	
Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
Calculus I	Calculus II	Economics	Smart Logistics and Dynamic Programming	Intelligent Systems and Industrial Engineering	Data Statistics and Econometrics	Science & Technology Innovation Projects	Thesis
College Physics I	College Physics II	Probability and Statistics	Stochastic Processes and Applications	Digital Twin and Quality Control	Marketing Research	Machine Learning	
Linear Algebra		Mathematical Programming	Game Theory and Applications	Production and Operations Management	Major Elective Courses	Data Analytics and Business Insights	
Experiments of Fundamental Physics		Creative Thinking Training	Major Elective Courses			Big Data Management and ERP	
Chemistry: The Central Science							
Introduction to Life Science				Internship			
Computer Programming							

Note: The above is the recommended study semester, and students can adjust it according to their own academic plan.

Grey label is recommended as major elective courses.

College of Business

Program of Accounting

for International Students (2026)

(Accounting Analytics Concentration Track)

I. Program Introduction

The Accounting major (Accounting Analytics Concentration track) integrates the needs of modern enterprises and social development and conducts intelligent processing and analysis of financial data through technological approaches such as artificial intelligence, big data analytics, and machine learning. This program aims to cultivate high-quality professionals in intelligent accounting and finance to support China's high-quality economic development and the economic development of Shenzhen and the Guangdong–Hong Kong–Macao Greater Bay Area. Relying on its geographical advantages and the strong foundation in science and engineering at Southern University of Science and Technology, the program emphasizes interdisciplinary integration between intelligent accounting and STEM disciplines and comprehensively builds an integrated knowledge structure. The program aims to cultivate students' ability to rely on big data and to comprehensively apply fundamental knowledge of economics, management, and accounting to analyze and solve practical problems.

Discipline Category: Business Administration (1202); Major Code: 120203K.

II. Program Objectives and Training Requirements

Objectives

The Accounting discipline of the School of Business at Southern University of Science and Technology adheres to the university's educational philosophy of "Creating Knowledge, Innovation, and Entrepreneurship," and upholds the university motto of "Virtue, Truth, Renewal, and Self-Reliance". The program is committed to cultivating high-quality business leaders and future leaders with well-rounded development in moral, intellectual, physical, aesthetic, and labor education, as well as a global perspective, innovative spirit, and entrepreneurial capability. The program not only enables students to systematically master core knowledge in accounting and economics, but also integrates fundamental theories from science and engineering, project-based learning, real enterprise data cases, and industry-collaborative courses, thereby enabling students to develop into genuine "Finance + Technology" professionals, establishing a solid foundation to

identify, lead, and realize value creation brought about by the integration of finance and technology.

Requirements

1. Master fundamental knowledge of accounting, including basic concepts and principles of financial accounting, management accounting, and cost accounting, so as to lay a solid foundation for subsequent studies in intelligent accounting and finance.

2. Become familiar with artificial intelligence, big data analytics, and machine learning technologies; learn relevant technical principles, algorithms, and applications; and understand how to apply these technologies to financial data processing and analysis.

3. Through the study of data processing and data analysis tools, master commonly used tools such as Python, SQL, Stata, and SAS, and be able to use these tools to conduct intelligent data processing and analysis. Through participation in practical projects or internships, accumulate practical experience in relevant fields and enhance ability and skills to solve real-world problems.

III. Duration of Study, Degree Awarded, and Graduation Credit Requirements

Duration of Study: Four years

Degree Awarded: Bachelor of Management

The minimum credit requirement for graduation is 144 credits. The detailed requirements are as follows:

<table>
<tr><th colspan="2">Course Module</th><th>Course Category</th><th>Minimum Credits</th></tr>
<tr><td rowspan="12">General Education Courses</td><td rowspan="2">Chinese Language and Culture Module
16 Credits</td><td>Chinese Language and Culture</td><td>16</td></tr>
<tr><td rowspan="2">Arts and Physical Education Module
6 Credits</td><td>Physical Education</td><td>4</td></tr>
<tr><td>Arts</td><td>2</td></tr>
<tr><td rowspan="3">Competence Development Module
19 Credits</td><td>Computer Programming</td><td>3</td></tr>
<tr><td>Writing</td><td>2</td></tr>
<tr><td>Foreign Languages</td><td>14</td></tr>
<tr><td rowspan="2">Humanities and Social Sciences Module
8 Credits</td><td>Humanities</td><td>4</td></tr>
<tr><td>Social Sciences</td><td>4</td></tr>
<tr><td rowspan="4">Mathematics and Natural Sciences Module
≥28 Credits</td><td>Mathematics</td><td>12</td></tr>
<tr><td>Physics</td><td>10</td></tr>
<tr><td>Chemistry</td><td>3</td></tr>
<tr><td>Geoscience + Life Sciences</td><td>3</td></tr>
<tr><td>GE to Majors Bridging Module
2 Credits</td><td>Introduction to Majors</td><td>2</td></tr>
<tr><td rowspan="4">Major Courses</td><td rowspan="3">Major Compulsory Courses</td><td>Major Foundation Courses</td><td>12</td></tr>
<tr><td>Major Core Courses</td><td>21</td></tr>
<tr><td>Practice-based Learning (Undergraduate Thesis, Internship, Research and Innovation Projects, etc.)</td><td>17</td></tr>
<tr><td>Major Elective Courses</td><td>Major Elective Courses</td><td>15</td></tr>
<tr><td colspan="3">Total</td><td>144</td></tr>
<tr><td colspan="4">Note:
please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing, Humanities and Social Sciences Module, and GE to Majors Bridging Module.</td></tr>
</table>

IV. Requirements for Natural Science Foundation Module and Computer Science Courses in the Fundamental Skills Development Module

Course Category	Course Code	Course Title	Credits	Recommended Semester	Prerequisite	Offering Unit
Mathematics	MA117	Calculus I	4	Year 1, Fall		Department of Mathematics
	MA127	Calculus II	4	Year 1, Spring	Calculus I	
	MA113	Linear Algebra	4	Year 1, Spring / Fall		
Physics	PHY105	College Physics I	4	Year 1, Fall		Department of Physics
	PHY106	College Physics II	4	Year 1, Spring	College Physics I	
	PHY104B	Experiments of Fundamental Physics	2	Years 1–2, Spring / Fall		
Chemistry	CH105	Chemistry: The Central Science	3	Years 1–2, Spring / Fall		Department of Chemistry
Geography and Biology	BIO102B	Introduction to Life Sciences	3	Years 1–2, Spring / Fall		Department of Chemistry
Computer Science	CS109/CS110 /CS111 /CS112	Introduction to Computer Programming / Introduction to Java Programming / Introduction to C Programming / Introduction to Python Programming	3	Years 1–2, Spring / Fall		Department of Computer Science

Note:
1. Mathematics: MA117 Calculus I and MA127 Calculus II can be substituted by MA101a Mathematical Analysis I and MA102a Mathematical Analysis II.
2. Mathematics:MA113 Linear Algebra can be substituted by MA107 Advanced Linear Algebra I.
3. Physics:PHY101 General Physics I and PHY102 General Physics II can replace PHY105 College Physics I and PHY106 College Physics II.
4. Chemistry:CH103 General Chemistry can replace CH105 Chemistry: The Central Science.
5. Geoscience + Life science:BIO103 Principles of Biology / EOE 100 Introduction to Earth Sciences can replace BIO102B Introduction to Life Science..
6. Computer Programming: Students are required to complete any one of the four Computer Science courses listed above

V. Course Requirements to Be Completed Prior to Entry into the Major

<table>
<tr><th>Major Declaration Time</th><th>Course Code</th><th>Course Title</th><th>Prerequisite</th></tr>
<tr><td rowspan="4">Declare major at the end of the first academic year</td><td>MA117/ MA101a</td><td>Calculus I / Mathematical Analysis I</td><td></td></tr>
<tr><td>MA127/ MA102a</td><td>Calculus II / Mathematical Analysis II</td><td>Calculus I / Mathematical Analysis I</td></tr>
<tr><td>MA113/ MA107</td><td>Linear Algebra / Advanced Linear Algebra I</td><td></td></tr>
<tr><td colspan="3">Note： Students who have completed two prerequisite courses may complete the remaining required courses after declaring the major.</td></tr>
<tr><td rowspan="3">Declare major at the end of the second academic year</td><td>MA117/ MA101a</td><td>Calculus I / Mathematical Analysis I</td><td></td></tr>
<tr><td>MA127/ MA102a</td><td>Calculus II / Mathematical Analysis II</td><td>Calculus I / Mathematical Analysis I</td></tr>
<tr><td>MA113/ MA107</td><td>Linear Algebra / Advanced Linear Algebra I</td><td></td></tr>
</table>

Note：

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI. Major Courses Arrangement

Table 1. Major Compulsory Courses

Program of Accounting

Course Category	Course Code	Course Title	Credits	Lab / Practice Credits	Recommended Semester	Prerequisite	Dept.
Major Foundation Courses	FIN201	Microeconomics	3		Years 1–2, Spring / Fall		Department of Finance
	FIN204	Macroeconomics	3		Years 1–2, Spring / Fall		
	ACC201	Principles of Accounting*	3		Year 2, Fall		College of Business
	ACC202	Corporate Finance (Financial Management) *	3		Year 2, Fall		
	Subtotal		12				
Major Core Courses	FIN218	Managerial Accounting*	3		Year 2, Spring		College of Business
	ACC203	Accounting Theory	3		Year 2, Spring		
	ACC204	Intermediate Financial Accounting I*	3	1	Year 2, Spring		
	ACC301	Auditing *	3	1	Year 3, Fall		

	ACC303	Intermediate Financial Accounting II*	3		Year 3, Fall		
	ACC306	Data Mining and Application of Financial Analysis	3		Year 3, Spring		
	ACC308	Empirical Accounting Research	3		Year 3, Spring		
	Subtotal		21	2			
Concentrated Practical Training	ACC370	Professional Internship	3	3	Year 2 or Year 3, Summer		College of Business
	ACC470	Intelligent Accounting Innovation Practice Project	2	2	Any semester after Year 1		
	ACC480	Thesis	12	12	Year 4, Spring		
	Subtotal		17	17			
Total			50	19			

Note：
1. Courses marked with "*" are core courses required by the National Teaching Quality Standards for Business Administration (Accounting Major).
2. ACC201 Principles of Accounting includes instruction on professional ethics in accounting.
3. FIN206 Corporate Finance can substitute for ACC202 Corporate Finance (Financial Management).
4. EBA301 Data Analysis and Data Mining may substitute for ACC306 Data Mining and Applications of Financial Analysis.

Table 2. Major Elective Courses

Program of Accounting

Course Category	Course Code	Course Title	Credits	Lab / Practice Credits	Recommended Semester	Prerequisite	Dept.
Accounting Major Electives	ACC305	Introduction to Intelligent Finance	3		Year 3, Fall		College of Business
	ACC302	Accounting Information Systems*	3	1	Year 3, Spring		
	ACC304	Advanced Financial Accounting *	3	1	Year 3, Spring		
	ACC311	Comparative International Financial Reporting Standards	3		Year 3, Fall		
	ACC312	Topics in Chinese Accounting and Finance	3		Year 3, Spring		
	ACC313	Tax Law	3		Year 3, Fall		
	ACC315	Case Studies in Financial Auditing	3		Year 3, Fall		
	ACC314	Internal Control and Internal Auditing	3	1	Year 3, Spring		
	ACC318	Valuation and Financial Statement Analysis	3		Year 3, Spring		
	ACC401	ESG and Sustainable Development	3		Year 4, Fall		
	ACC402	Auditing Theory and AI Auditing	3		Year 3–4, Spring		

	ACC430	Python Applications in Finance	3		Semesters 3–4, Spring/Fall		
	ACC431	Intelligent Auditing	3		Semesters 3–4, Spring/Fall		
	ACC432	Intelligent Finance and Data Visualization	3		Semesters 3–4, Spring/Fall		
	ACC433	Data Structures and Financial Applications	3		Semesters 3–4, Spring/Fall		
	ACC434	Process Design and Financial Robotics	3		Semesters 3–4, Spring/Fall		
Other Major-Related Electives	FET102	Principles of Fintech	3		Year 1, Spring		Department of Finance Depar-tment of MIS
	FIN209	Entrepreneurial Finance and Innovation I	3		Year 2, Fall		
	FIN205	Special Topics in Finance and Entrepreneurship I	1.5		Year 2, Fall		
	FIN202	Special Topics in Finance and Entrepreneurship II	1.5		Year 2, Spring		
	FIN310	China Economics and Finance	3		Year 2, Spring	Microeconomics; Macroeconomics; Financial Investments	
	FIN409	Financial Modeling and Analysis	3		Year 3, Fall	Probability and Statistics	
	FIN303	Econometrics	3		Year 3, Fall	Microeconomics; Macroeconomics; Probability and Statistics	

	FIN302	Empirical Methods in Finance	3		Year 3, Spring	Financial Investments; Econometrics	
	FIN313	Strategic Behavior	3		Year 3, Spring		
	FIN413	Quantitative Investment Analysis	3		Year 3, Spring	Financial Investments; Econometrics	
	FET303	Financial Risk Management	3		Year 3, Spring	Corporate Finance; Probability and Statistics	
	MIS202	Marketing	3		Year 2, Spring		
	MIS208	Behavioral and Experimental Economics	3	1	Year 2, Spring		
	MIS205	Data Management and Databases	3	1	Year 3, Fall	Introduction to Computer Programming / Introduction to Java Programming / Introduction to C Programming / Introduction to Python Programming	
	MIS312	Entrepreneurial Thinking and Management	3		Year 3, Fall		
	MIS404	Operations Management	3		Year 3, Fall	Prescriptive Decision Analytics	
	MIS332	Blockchain Essentials and Practices	3	1	Year 3, Fall		
	MIS400	Data Analytics and Business Insights	3	1	Year 4, Fall	Business Data Structures and Algorithms	

	MIS405	Advanced E-Commerce and Management	3		Year 4, Spring		
	MA208	Applied Stochastic Processes	3		Year 2, Spring	Probability and Statistics	Depart-ment of Statistics and Data Science
	MA216	Computational Finance	3		Year 3, Fall	Probability and Statistics	
	MA304	Multivariate Statistical Analysis	3		Year 3, Spring	Probability and Statistics	
	CS203B	Data Structures and Algorithm Analysis B	3		Year 2, Fall	C / C++ Programming	Departm ent of Compute r Science and Engineeri ng
	CS103	Introduction to Artificial Intelligence	2		Year 1, Fall		
	CS328	Distributed and Cloud Computing	3	1	Year 3, Spring	Introduction to Computer Programming / Introduction to Java Programming / Introduction to C Programming / Introduction to Python Programming	
	Total		122	9			
	Note: 1. Students are required to complete 15 credits of major elective courses. 2. At least two accounting major elective courses (6 credits) must be selected. 3. Other major-related elective courses are not limited to those listed in this table. Students may select at least three courses (9 credits) from the college's course offerings. 4. FIN212 Financial Statement Analysis may replace ACC318 Valuation and Financial Statement Analysis						

Table 3. Practical Teaching Components

Accounting Major

Course Code	Course Title	Credits	Lab / Practice Credits	Recommended Semester	Prerequisite	Dept.
CS111	Introduction to C Programming	3	1	Years 1–2, Spring / Fall		Department of Computer Science and Engineering
CS112	Introduction to Python Programming	3	1	Years 1–2, Spring / Fall		
CS113	Introduction to Matlab Programming	3	1	Years 1–2, Spring / Fall		
PHY104B	Experiments of Fundamental Physics	2	2	Years 1–2, Spring / Fall		Department of Physics
ACC204	Intermediate Financial Accounting I	3	1	Year 2, Spring		College of Business
ACC304	Advanced Financial Accounting	3	1	Year 3, Spring		
ACC301	Auditing	3	1	Year 3, Fall		
ACC314	Internal Control and Internal Auditing	3	1	Year 3, Spring		
EBA301	Data Analysis and Data Mining	3	1	Year 3, Fall		

MIS208	Behavioral and Experimental Economics	3	1	Year 2, Spring		
MIS332	Blockchain Essentials and Practices	3	1	Year 3, Fall		
MIS400	Data Analysis and Business Insights	3	1	Year 4, Fall	Business Data Structures and Algorithms	
CS328	Distributed and Cloud Computing	3	1	Year 3, Spring	Introduction to Computer Programming / Introduction to Java Programming / Introduction to C Programming / Introduction to Python Programming	Department of Computer Science
ACC370	Professional Internship	3	3	Year 2 or 3, Summer		College of Business
ACC470	Intelligent Accounting Innovation Practice Project	2	2	Year 4, Fall		
ACC480	Bachelor's Thesis	12	12	Year 4, Spring		
Total		55	31			

Program Structure Diagram Accounting Major

Year 1		Year 2		Year 3		Year 4	
Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
Calculus I	Calculus II	Principles of Accounting	Managerial Accounting	Auditing	Empirical Accounting Research	Intelligent Accounting Innovation Practice Project	Thesis
College Physics (I)	College Physics (II)	Corporate Finance (Financial Management)	Intermediate Financial Accounting I	Intermediate Financial Accounting II	Applications of Data Mining and Financial Analysis	Major Elective Courses	
Linear Algebra		Major Elective Courses	Accounting Theory				
Experiments of Fundamental Physics			Major Elective Courses	Major Elective Courses	Major Elective Courses		
Chemistry: The Central Science							
Introduction to Life Sciences			Internship				
Computer Courses							
Microeconomics	Macroeconomics						

Note:
The semesters listed above are recommended study periods.
Students may adjust their course plans according to their individual academic arrangements.

School of Design

Program of Industrial Design

for International Students (2026)

I. Introduction

SUSTech School of Design aims to build a global creative community in which learning, research, and engagement are all part of the creative experience, to educate students in the enormous potentials and responsibilities of design, and to translate leading technologies into new design outcomes and industry advancement for social benefit.

SUSTech School of Design offers rigorous project-based teaching programs led by a team of leading designers, and scholars. Teaching programs will focus initially on object design, and experience design. These areas of focus are aligned and framed to bridge basic research to industrial needs, leading to careers in gaming, product design, animation, branding, graphics and so on. Cross-disciplinary activities are implemented, including internships, research projects, entrepreneurial projects, and graduation project. Close links with industry leaders and creative makers enhance learning and research. The curriculum structure of the School will allow future addition of areas such as interaction, environmental and wearables design.

Academic subject areas: Mechanical Engineering（0802）

Program code: 080205

II. Objectives and Learning Outcomes

1. Objectives

Design is the translation platform for bringing scientific and technological advances to broad benefit to society. The School of Design is committed to educating students into the skills and theoretical foundations of creative thinking of a wide range of fields of design, including object design, wearable design, interaction design, experience design and environmental design, with a contemporary focus on the opportunities for smart materials and devices, enhancing inclusiveness in society, and improving wellness through design. Particular attention will be paid to the ethical and professional responsibilities of design. Working closely with industry, the program will develop innovation, entrepreneurship and creativity to drive the national and global outcomes from better design. Located in the global center for manufacturing and production, we are in an

unparalleled context for developing creative ideas and delivering the outcomes to everyone in the world. Graduates will have capabilities to research, design, collaborate and communicate and will find future employment in designing consumer and IT products, furniture, toys, interaction, games, and exhibitions, or prepare for a career in research and academia.

2. Learning Outcomes

Upon graduation, students will:

Attain the ability to recognize and grasp opportunities to use design skills to conceptualize and create the future

Draw upon and integrate knowledge from diverse domains, including humanities, social sciences, natural sciences and technologies.

Have developed skills and theoretical foundations for self-directed designing and learning

Use contemporary tools, techniques and systems to deliver robust designed outcomes

Develop capacities for critical thinking and evaluation that leads to design advances

Hold aesthetic and ethical perspectives to guide responsible practice

Be able to work effectively and respectfully in multicultural team contexts to pursue diverse opportunities

Be aware of the social, cultural and environmental impacts of design

III. Study Length, Degree, and Graduation Requirements

1. Study length: 4 years.

2. Degree conferred: Students who complete and meet the degree requirements of the undergraduate program will be awarded a bachelor's degree in Engineering

3. The minimum credit requirement for graduation: 157 credits. The specific requirements are as follows.

Module		**Category**	**Minimum Credit Requirement**
General Education Courses	Chinese Language and Culture Module	Chinese Language and Culture	16
	Arts and Physical Education Module	Physical Education	4
		Arts	2
	Competence Development Module	Computer Programming	3
		Writing	2
		Foreign Languages	14
	Humanities and Social Sciences Module	Humanities	4
		Social Sciences	4
	Mathematics and Natural Sciences Module	Mathematics	12
		Physics	10
		Chemistry	3
		Geoscience + Life science	3
	GE to Majors Bridging Module	Introduction to Majors	2
Major Courses	Major Required Courses	Major Foundational Courses	18
		Major Core Courses	15
		Practice-based Learning(Undergraduate Thesis, Internships, Research projects, etc.)	18
	Major Elective Courses	Major Elective Courses	27
Total			157
Note: please see the General Education Requirement for more details on Chinese Language and Culture Module, Arts and Physical Education Module, Competence Development Module（Foreign Languages & Writing）, Humanities and Social Sciences Module, and GE to Majors Bridging Module.			

IV. Course Requirements for the Mathematics and Natural Sciences Module and Computer Programming

Course Category	Course Code	Course Name	Credits	Terms	Prerequisite	Dept.
Mathematics	MA118/ MA117/ MA101a	Single-variable Calculus/Calculus I/Mathematical Analysis I	4/4/5	1 Fall	None	Department of Mathematics
	MA128/ MA127/ MA102a	Multivariable Calculus/Calculus II/Mathematical Analysis II	4/4/5	1 Spring	Single-variable Calculus/Calculus I/Mathematical Analysis I	Department of Mathematics
	MA113/ MA107	Linear Algebra/ Advanced Linear Algebra I	4	1 Spring & Fall	None	Department of Mathematics
Physics	PHY105/ PHY101	College Physics I/ General Physics I	4/5	1 Fall	None	Department of Physics
	PHY106/ PHY102	College Physics II/ General Physics II	4/5	1 Spring	College Physics I/ General Physics I	Department of Physics
	PHY104B	Experiments of Fundamental Physics	2	1-2 Spring & Fall	None	Department of Physics
Chemistry	CH105/ CH103	Chemistry: The Central Science/General Chemistry	3	1-2 Spring & Fall	None	Department of Chemistry
Geoscience + Life science	BIO102B/ BIO103/ EOE111	Introduction to Life Science/Principles of Biology/ College Earth Sciences	3	1-2 Spring & Fall	None	Department of Biology/ESS、OCE、ESE
Computer Programming	CS110/ CS109/ CS111/ CS112/ CS113	Introduction to Java Programming/ Introduction to Computer Programming/Introduction to C Programming/Introduction to Python Programming/Introduction to Matlab Programming	3	1-2 Spring & Fall	None	Dept. of Computer Science and Engineering

V. Prerequisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of the first academic year	MA118/ MA117/ MA101a	Single-variable Calculus/Calculus I/Mathematical Analysis I	None
	MA128/ MA127/ MA102a	Multivariable Calculus/Calculus II/Mathematical Analysis II	Single-variable Calculus/Calculus I/Mathematical Analysis I
	MA113/ MA107	Linear Algebra/ Advanced Linear Algebra I	None
	PHY105/ PHY101	College Physics I/ General Physics I	None
	PHY106/ PHY102	College Physics II/ General Physics II	College Physics I/ General Physics I
	PHY104B	Experiments of Fundamental Physics	None
	CS110/CS109/CS111/CS112/CS113	Introduction to Java Programming/ Introduction to Computer Programming/Introduction to C Programming/Introduction to Python Programming/Introduction to Matlab Programming	None
Declare major at the end of the second academic year	MA118/ MA117/ MA101a	Single-variable Calculus/Calculus I/Mathematical Analysis I	None
	MA128/ MA127/ MA102a	Multivariable Calculus/Calculus II/Mathematical Analysis II	Single-variable Calculus/Calculus I/Mathematical Analysis I
	MA113/ MA107	Linear Algebra/ Advanced Linear Algebra I	None
	PHY105/ PHY101	College Physics I/ General Physics I	None
	PHY106/ PHY102	College Physics II/ General Physics II	College Physics I/ General Physics I

	PHY104B	Experiments of Fundamental Physics	None
	CS110/CS109/CS111/CS112/CS113	Introduction to Java Programming/ Introduction to Computer Programming/Introduction to C Programming/Introduction to Python Programming/Introduction to Matlab Programming	None
	CH105/ CH103	Chemistry: The Central Science/General Chemistry	None
	BIO102B/ BIO103/EOE111	Introduction to Life Science/Principles of Biology/ College Earth Sciences	None

Note:

1. If the number of students entering a major at the end of the first academic year in the department is greater than or equal to the total number of the teaching-research faculty (PI)*2*60%, all majors in the department may implement the prerequisites for major declaration at the end of the second academic year.
2. If the number of students entering a major at the end of the first academic year in the department is less than the total number of the teaching-research faculty (PI)*2*60%, all majors in the department do not implement the prerequisites for major declaration at the end of the second academic year.
3. Suppose the number of students applying for a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), then the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).
4. For departments that do not implement prerequisites for major declaration at end of the second academic year, if the cumulative number of students applying for a major at the end of the second academic year and the number of students who have entered a major at the end of the first academic year exceeds four times the total number of the teaching-research faculty (PI), the department may select students according to predetermined rules. In principle, the rules set by the department shall examine the students' suitability for the major and not based on weighted GPA (Specific rules shall be set by the department and announced in advance).

VI: Major Course Arrangement

Table 1: Major Required Courses

Program of Industrial Design

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major Foundational Courses	DS209	Visual Perception and Cognition	3	1	2 Fall	NA	DES
	DS203	Additive Manufacturing	3	1	2 Fall	NA	DES
	DS211	Interactive Systems Design	3	1	2 Fall	NA	DES
	DS103	Designing for beginners	3		2 Fall	NA	DES
	DS207	Design History	3		2 Fall	NA	DES
	DS208	Design Ethics	3		2 Spr	NA	DES
	Total		18	3			
Major Core Courses	DS344	Gamification	3	1	3/秋	NA	DES
	DS303	Manufacturing Systems	3	1	3/春	NA	DES
	DS313	Sound & Senses	3	1	3/春	NA	DES
	DS402	Research Project	3		4 Fall	NA	DES
	DS403	Research Methods for Design	3		4 Fall	NA	DES
	Total		15	3			
Practice-based Courses	DS404	Internship	3	3	4 Fall	NA	DES
	DS411	Design Entrepreneurship Project	3	3	4 Fall	NA	DES
	DS420	Graduation Project	12	12	4 Spr	NA	DES
	Total		18	18			
Total			51	24			

Table 2: Major Elective Courses

Program of Industrial Design

Course Category	Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
Major electives	DS227	Personal System	3	1	2 Spr	NA	DES
	DS228	Client Product	3	1	2 Spr	NA	DES
	DS229	Circular Design	3	1	2 Spr	NA	DES
	DS322	UX and Interaction	3	1	3/4	NA	DES
	DS367	Human Factors in Design	3		3/4	NA	DES
	DS331	Narrative and Cognition	3		3/4	NA	DES
	DS335	Product UX	3	1	3/4	NA	DES
	DS362	Designing with Environments	3	1	3/4	NA	DES
	DS371	Design and Society	3	1	3/4	NA	DES
	DS363	Design and Learning with Data	3		3/4	NA	DES
	DS370	Information Visualization and Visual Analysis	3	1	3/4	NA	DES
	DS323	AI in Design	3	1	3/4	无	DES
	DS321	Design Practice Management	3	1	3/4	无	DES
	DS329	Culture and Technology	3	1	3/4	NA	DES
	DS110	Summer Studio	3	1	1/2/3 Summer	NA	DES
	DS337	Responsive Devices	3	1	3/4	NA	DES
	DS338	Branding and Marketing	3	1	3/4	NA	DES
	DS342	Social Robotics	3	1	3/4	NA	DES
	DS350	Haptic Interfaces	3	1	3/4	NA	DES
Total			57	16			

（1）The program offers the series of three courses, which are personal system, client product and circular products（DS227, DS228, DS229）. Students shall take the courses for a total of 9 credits.
（2）Students complete 6 courses (18 credits) from the other electives in the list.

Table 3: Overview of Practice-based Learning

Program of Industrial Design

Course Code	Course Name	Credits	Practice-based Learning Credits	Terms	Prerequisite	Dept.
DS209	Visual Perception and Cognition	3	1	2 Fall	NA	DES
DS203	Additive Manufacturing	3	1	2 Fall	NA	DES
DS211	Interactive Systems Design	3	1	2 Fall	NA	DES
DS344	Gamification	3	1	3 Fall	NA	DES
DS303	Manufacturing Systems	3	1	3 Spr	NA	DES
DS313	Sound & Senses	3	1	3 Spr	NA	DES
DS404	Internship	3	3	4 Fall	NA	DES
DS411	Design Entrepreneurship Project	3	3	4 Fall	NA	DES
DS421	Graduation Project	12	12	4 Spr	NA	DES
DS227	Personal System	3	1	2 Spr	NA	DES
DS228	Client Product	3	1	2 Spr	NA	DES
DS229	Circular Design	3	1	2 Spr	NA	DES
DS321	Design Practice Management	3	1	3/4	NA	DES
DS322	UX and Interaction	3	1	3/4	NA	DES
DS323	AI in Design	3	1	3/4	NA	DES
DS362	Designing with Environments	3	1	3/4	NA	DES
DS329	Culture and Technology	3	1	3/4	NA	DES
DS110	Summer Studio	3	1	1/2/3Summer	NA	DES
DS335	Product UX	3	1	3/4	NA	DES
DS337	Responsive Devices	3	1	3/4	NA	DES
DS338	Branding and Marketing	3	1	3/4	NA	DES
DS342	Social Robotics	3	1	3/4	NA	DES
DS350	Haptic Interfaces	3	1	3/4	NA	DES
DS370	Information Visualization and Visual Analysis	3	1	3/4	NA	DES
DS371	Design and Society	3	1	3/4	NA	DES
Total		84	40			

Curriculum Structure of Industrial Design (School of Design)

