Program of Mechanical Engineering for International Students (2019)

I. Introduction

Oriented to future development of mechanical engineering, Mechanical and Energy Engineering (MEE) of Southern University of Science and Technology (SUSTech) aims at establishing a world-leading center of education and research. The disciplines of our department include innovative design and advanced manufacturing, robotics and automation, and new energy engineering with research 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 talented students. The first type has expertise in research with solid science foundation, interdisciplinary background, and deep humanistic literacy, capable of studying deeply into engineering problems. The second is innovative with strong leadership for solving important engineering problems.

II. Objectives and Learning Outcomes

MEE of SUSTech conducts general education to solidify students' science foundation and designs innovative-practical courses and basic training of mechanical engineering to foster talented students. The students of MEE will play a leading role on their jobs with broad and solid fundamental knowledge of mechanical engineering, outstanding ability of practice, ability of independently learning, capability of comprehensively applying knowledge, innovation capability, humanistic literacy, and global vision.

Undergraduates with degree from MEE will be equipped with the following knowledge, capability, and accomplishment.

1. Master basic theoretical knowledge, including mathematics, physics, mechanics, materials, electronics and computer science, management science, etc.
2. Master professional knowledge, theory, technology and industry of mechanical engineering, scientific research methods and engineering design and manufacturing methods, and understand the latest development trend and frontier of related fields.
3. Be able to use innovative thinking to independently understand, analyze and solve problems.
4. Have the ability of international vision and cross-cultural communication, competition and cooperation.
5. Have effective communication and leadership skills in multi-disciplinary teams.
6. Rigorous and realistic scientific attitude, pursuit of excellence and sense of mission to serve humanity.
7. Have humanistic and social science literacy, social responsibility and engineering ethics.
8. Develop the awareness of independent learning and develop the ability of lifelong learning.

III. Study Length and Graduation Requirements

Study length: 4 years

Degree conferred: Bachelor of Science for students fulfilling the requirements of the undergraduate program.

The minimum credit requirement for graduation: 141credits (not including English courses);

Category	Module	Minimum Credit Requirement
General Education (GE) Required Courses (48 creidts)	Science	28
	Physical Education	4
	Chinese Languages & Culture	16
General Education (GE) Elective Courses (13 creidts）)	Humanities	4
	Social Sciences	4
	Arts	2
	Science	3
Major Course (80 creidts)	Major Foundational Courses	Innovative Design and Advanced Manufacturing and New Energy Engineering: 27, Robotics and Automation: 24
	Major Core Courses	25
	Major Elective Courses	Innovative Design and Advanced Manufacturing and New Energy Engineering: 15, Robotics and Automation:18
	Research Projects, Internship and Undergraduate Thesis / Projects	13
Total (not including English courses)		141

IV. Discipline

Mechanical Engineering

V. Main Courses

Fundamental Courses of Engineering: CAD and Engineering Drawing, Fundamentals of Electric Circuits, Ordinary Differential Equations B, Engineering Materials - Science, Processing and Design, Mechanics of Materials, Engineering Mechanics I – Statics and Dynamics, Engineering Fluid Mechanics, Engineering Thermodynamics or Heat Transfer, Dynamics and Vibration, Fundamentals of Control Engineering, etc.

Fundamental Courses of Mechanical Engineering: Fundamentals of Mechanical Design, Fundamentals of Manufacturing, Fundamentals of Robotics, Fundamentals of New Energy Engineering, etc.

Core Courses of Mechanical Engineering: Innovative Design Theory and Practice, Precision Machining Technology, Additive Manufacturing and Design, Advanced Manufacturing Systems , Embedded System and Robot, Walking Robot, Modern Control and Optimization Estimatio Novel Energy Harvesting and Utilization I: Fuel Cell Technologies, etc.

VI. Practice-Based Courses

Engineering Training, Experiments, Course Projects, Production Practice, Innovation and Entrepreneurship, Comprehensive Training for Engineers, etc.

VII. Pre-requisites for Major Declaration

Major Declaration Time	Course Code	Course Name	Prerequisite
Declare major at the end of First Year	MA101B	Calculus I A	NA
	MA102B	Calculus II A	Calculus I A
	PHY103B	General Physics B (I)	NA
	PHY105B	General Physics B (II)	General Physics B (I)
	MA107A	Linear Algebra A*	NA
	CS102B	Introduction to Computer Programming B*	NA
	CH101B	General Chemistry B*	NA
	PHY104 B	Experiments of Fundamental Physics*	NA
	Notes: 1. At least one of those four courses (marked with *) should be passed. 2. The above courses are the minimum requirements. The high-level courses are also acceptable.		
Declare major at the end of Second Year	MA102B	Calculus II A	Calculus I A
	PHY105B	General Physics B (II)	General Physics B (I)
	MA107A	Linear Algebra A*	NA
	CS102B	Introduction to Computer Programming B*	NA
	ME102	CAD and Engineering Drawing	NA
	ME103	Awareness Practice of Manufacturing Engineering	NA
	EE104	Fundamentals of Electric Circuits	Calculus I A（MA101B）, Linear Algebra A or Linear Algebra B（MA107A or MA107B）
	MAE203B	Engineering Mechanics I – Statics and Dynamics	Linear Algebra B（MA107B）
	MA201b	Ordinary Differential Equation B	Calculus I A（MA102B）
	Notes: The above courses are the minimum requirements. The high-level courses are also acceptable.		

VIII. Requirements for GE Required Courses

(I) Science Module

Course Code	Course Name	Credit	Lab Credits	Hours/week	Term	Language Instruction	Prerequisite	Dept
MA101B	Calculus I A	4		4	1/Fall	E	NA	MATH
MA102B	Calculus II A	4		4	1/Spr	E	Calculus I A	MATH
MA107A	Linear Algebra A	4		4	2/Fall	E	NA	MATH
PHY103B	General Physics B (I)	4		4	2/Spr	E	NA	PHY
PHY105B	General Physics B (II)	4		4	3/Fall	E	General Physics B (I)	PHY
CH101B	General Chemistry B	3		3	1/Spr/ Fall	E	NA	CHEM
CS102B	Introduction to Computer Programming B	3	1	4	1/Spr/ Fall	E	NA	CSE
PHY104B	Experiments of Fundamental Physics	2	2	4	1/Spr/ Fall	E	NA	PHY
Total		**28**	**3**	**31**				

(II) Physical Education

Course Code	Course Name	Credit	Lab Credits	Hours/week	Term	Language Instruction	Prerequisite	Dept
GE131	Physical Education I	1		2	1/Fall	C	NA	PE Center
GE132	Physical Education II	1		2	1/Spr	C	NA	
GE231	Physical Education III	1		2	2/Fall	C	NA	
GE232	Physical Education IV	1		2	2/Spr	C	NA	
Total		4		8				

(III) Chinese Languages & Culture

Course Code	Course Name	Credit	Hours/week	Term	Language Instruction	Prerequisite	Dept
CLE008	Elementary Chinese I	2	4	1/Fall	B	NA	CLE

CLE009	Elementary Chinese II	2	4	1/Spr	B	CLE008	
CLE027	Intermediate Chinese I	2	4	2/Fall	B	CLE009	
CLE028	Intermediate Chinese II	2	4	2/Spr	B	CLE027	
CLE031	Advanced Chinese I	2	4	3/Fall	B	CLE028	
CLE032	Advanced Chinese II	2	4	3/Spr	B	CLE031	
CLE033	Chinese Culture	2	2	Spr/Fall	B/E	NA	CLE/ HUM/ SSC
CLE034	Chinese History	2	2	Spr/Fall	B/E	NA	
Total		16	28				

(IV) English Language

All students are required to undertake the English Placement Test before selecting courses, based on which students will be assigned to 3 levels to be ready for the courses with English as the instruction language.

SUSTech English III, English for Academic Purposes are required for Level A.

SUTech English II, SUSTech English III, English for Academic Purposes for Level B.

SUSTech English I, SUSTech English II, SUSTech English III, English for Academic for Level C.

Course Code	Course Name	Credit	Hours/week	Instruction Language	Prerequisite	Dept
CLE021	SUSTech English I	4	4	E	NA	CLE
CLE022	SUSTech English II	4	4	E	CLE021	
CLE023	SUSTech English III	4	4	E	CLE022	
CLE030	English for Academic Purposes	2	2	E	CLE023	

IX Requirements for GE Elective Courses

(I) Students are required to complete 4 credits for the Humanities Module and Social Sciences Module respectively, and 2 credits for the Music and Art Module. (Information about the available courses and the instruction language will be announced before the course selection session)

(II) Students are required to complete 3 credits for Science Module

Course Code	Course Name	Credit	Lab Credits	Hours/week	Term	Language Instruction	Prerequisite	Dept
MSE102	Frontier Seminars in Materials Science and Engineering	1		1	1/Spr	B	NA	MSE

BIO102B	Introduction to Life Science	3		3	1/Spr &Fall	B	NA	BIO
BIO104	General Biology Laboratory	2	2	4	1/Spr &Fall	B	BIO102B or BIO102A	BIO
PHYS001	Open Physics Laboratory I	1	1	8	1/Smr	B		PHY
ME111	Introduction to product design and engineering realization	3	1	4	1/Spr	B	NA	MEE
ME232	Prolegomenon to Robotics	3		3	1/Spr	B	NA	MEE
MA109	Advanced Linear Algebra	4		4	2/Fall	B	MA107A	MATH
MA212	Probability and Statistics	3		3	2/Fall	B	MA102A or MA102B	MATH
PHY201-15	Physics Laboratory II	2	2	4	2/Fall	B	PHY103B	PHY
PHY221	Open Physics Laboratory II	1	1	2	2/Fall	B		PHY
MA206	Mathematics Modelling	3		3	2/Spr	B	MA201a or MA201b)	MATH
Total		**26**	**7**	**39**				

X. Major Course Arrangement

Table 1: Major Required Course (Foundational and Core Courses)

Course Category	Course Code	Course Name	Credit	Lab Credits	Hours/week	Term	Advised term to take the course	Instruction language	Prerequisite	Dept.
Major Foundational Courses	ME102	CAD and Engineering Drawing	3	1.5	4.5	Fall/Spr/ Smr	1/Spr or 1/Smr	B/E	NA	MEE
	EE104	Fundamentals of Electric Circuits	2		2	Fall/Spr	1/Spr or 2/Fall	B	MA101B, MA107A or MA107B	EE
	ME103	Awareness Practice of Manufacturing Engineering	3	2	5	Fall/Spr /Smr	1/Smr	E	NA	MEE
	ME261	Engineering Materials - Science, Processing and Design*	3		3	Fall/Spr	2/Fall or 2/Spr	B	PHY105B, CH101B	MEE
	MSE001	Fundamentals of Materials Science and Engineering*	3		3	Fall/Spr	2/Fall	E	PHY105B, CH101A	MSE
	MAE203B	Engineering Mechanics I – Statics and Dynamics	3		3	Fall	2/Fall	E	MA107B	MAE
	MA201b	Ordinary Differential Equation B	4		4	Fall/Spr	2/Spr	B	MA102B	MATH
	MAE202	Mechanics of Materials**	3		3	Spr	2/Spr	B	MA107A, MA102B	MAE
	MAE207	Engineering Fluid Mechanics***	3		3	Fall/Spr	3/Fall	B	MA102B	MAE
	MAE305	Engineering Thermodynamics***	3		3	Fall	2/Fall	E	MA102B	MAE
	MAE308	Heat Transfer***	3		3	Spr	3/Spr	E	MA102B	MAE
	Total		**33**	**3.5**	**36.5**					
1. *Must complete one of the following courses, ME261 Engineering Materials - Science, Processing and Design or MSE001Fundamentals of Materials Science and Engineering. 2. **Students who select MSE213 Mechanics of Materials can be indentified as MAE202 Mechanics of Materials. 3. ***Students in the direction of Innovative Design and Advanced Manufacturing or New Energy Engineering must complete MAE305 Engineering Thermodynamics or MAE308 Heat Transfer. Students in the direction of Robotics and Automation must complete one of the following courses, MAE207 Engineering Fluid Mechanics, MAE305 Engineering Thermodynamics or MAE308 Heat Transfer. 4. The minimum requirement for graduation in this module for student in the direction of Innovative Design and Advanced Manufacturing or New Energy Engineering is 33 credits. The minimum requirement for graduation in this module for student in the direction of I Robotics and Automation is 30 credits. 5. The above courses are the minimum requirements. The high-level courses are also acceptable.										
Major Core Courses	ME303	Fundamentals of Machine Design	3	1	4	Fall/Spr	3/Fall	E	ME102、MAE203B、MAE202	MEE
	ME307	Fundamentals of Control	3	0.5	3.5	Fall/Spr	3/Fall	E	EE104	MEE

	Engineering									
ME301	Dynamics and Vibration*	3	1	4	Fall/Spr	3/Spr	E	MAE203B, MA201b	MEE
ME313	Product Design Practice	2	2	4	Spr/Smr	3/Spr	B	ME303	MEE
ME302	Fundamentals of Manufacturing	3		3	Fall/Spr	3/Spr	B	ME103、MAE203B、MAE202	MEE
ME308	Advanced Manufacturing Practice	2	2	4	Fall/Smr	4/Fall	B	ME302	MEE
ME304	Fundamentals of Energy Engineering**	3	0.5	3.5	Fall/Spr	3/Spr	B	MSE001、MAE207 or MAE305 MAE308	MEE
ME306	Fundamentals of Robotics**	3	1	4	Fall/Spr	3/Spr	B	ME303、ME307	MEE
ME331	Robot Modeling and Control**	3		3	Fall	3/Fall	B	MAE203B	MEE
ME407	Precision Machining Technology**	3	1	4	Fall	4/Fall	B	ME302	MEE
Total		**2.8**	**9**	**3.7**					

Notes:
1. *MAE314 Theory of Vibration can be identified as ME301 Dynamics and Vibration.
2. ** Must complete one of the following courses, ME304 Fundamentals of New Energy Engineering, ME306 Fundamentals of Robotics, ME331 Robot Modeling and Control, ME407 Precision Machining Technology.
3. The above courses are the minimum requirements. The high-level courses are also acceptable.

The following courses are for students in the direction of Innovative Design and Advanced Manufacturing. The minimum credit requirement is 6 credits. The extra credits can be identified as the module of MEE Major Elective Courses.

ME310	Fundamentals of Measurement Technology	3		3	Spr	3/Spr	B	ME307, EE205	MEE
ME405	Innovative Design Theory and Practice	3	1	4	Fall	4/Fall	B	ME303, ME313	MEE
ME462	Additive Manufacturing and Design	3		3	Fall	4/Fall	B	ME302	MEE
ME453	Manufacturing Systems	3		3	Spr	4/Spr	B	ME302	MEE
Total		**12**	**1**	**13**					

The following courses are for students in the direction of Robotics and Automation. The minimum credit requirement is 6 credits. The extra credits can be identified as the module of MEE Major Elective Courses.

EE306	Introduction to MEMS	3	1	4	Spr	3/Spr	E	PHY105B	EE
ME432	Embedded System and Robot	3	1	4	Fall	4/Fall	B	ME306 or ME331	MEE
ME424	Modern Control and Estimation	3		3	Fall	4/Fall	E	ME307	MEE
ME434	Walking Robot	3	0.5	4.5	Spr	4/Spr	B	ME306 or ME331	MEE
Total		**12**	**2.5**	**14.5**					

The following courses are for students in the direction of New Energy Engineering. The minimum credit requirement is 6 credits. The extra credits can be identified as the module of MEE Major Elective Courses.
Notes：
*MSE334 Introduction to Energy Materials and MSE336 Experiments for Energy Materials must study in the same semester according to the requirements of MSE.

ME482	Fuel Cell Technology	3		3	Fall	4/Fall	B	ME304	MEE
ME411	New Energy Technology	3	1	4	Fall	4/Fall	B	ME304	MEE
ME483	New energy system	3		3	Spr	4/Spr	B		MEE

	MSE334	Introduction to Energy Materials*	2		2	Spr	3/Spr	E	MSE001	MSE
	MSE336	Experiments for Energy Materials*	1	1	2	Spr	3/Spr	E	MSE001	MSE
	MSE320	Introduction to Photovoltaics and Photo-thermal	3		3	Spr	3/Spr	B	PHY105B, MSE205 EE201	MSE
	Total		**15**	**2**	**17**					
Practice	ME491	Practice	3	3	6				NA	MEE
	ME492	Projects of Innovation and Entrepreneurship	2	2	4				NA	MEE
	ME493	Senior Project*	8	8	16	Spr	4/Spr		NA	MEE
	Total		**13**	**13**	**26**					
Notes:*Students who have completed Comprehensive Design Ⅰ&Ⅱ（COE491 & COE492） are not required to take the Senior Project （ME493）.										

Table 2: Major Elective Courses

Course Code	Course Name	Credit	Lab Credits	Hours/week	Term	Advised term to take the course	Instruction language	Prerequisite	Dept.
ME112	Introduction to Matlab	2	1	3	Spr	1/Spr	B	NA	MEE
ME211	Advanced Graphics and Computer Aided Design	2	1	3	Fall	2/Fall	B	ME102	MEE
EE201-17	Analog Circuits	3		3	Fall	2/Fall	B	PHY105B、EE104	EE
EE201-17L	Analog Circuits Laboratory	1	1	2	Fall	2/Fall	C	EE201-17	EE
BMEB131	Introduction to Biomedical Engineering	2		2	Spr	2/Spr	C	NA	BMEB
EE202-17	Digital Circuits	3		3	Fall/ Spr	2/SprFall	B	PHY105B	EE
EE202-17L	Digital Circuits Laboratory	1	1	2	Fall/ Spr	2/SprFall	B	EE202-17	EE
EE208	Engineering Electromagnetics	3	1	4	Spr	2/Spr	B	MA101B、MA107A、EE104	EE
ME312	Machine Design II	2	2	4	Spr/ Smr	3/Spr	B	ME303	MEE
EE323	Digital Signal Processing	3	1	4	Fall	4/Fall	C	EE205	EE
Total		**22**	**8**	**30**					
Notes: The minimum requirement for graduation in this Engineering Foundation Major Elective Courses module is 3 credits.									
MES300	Awareness Practice of Mechanical Engineering	1	1	2	Smr	1/Smr	B	NA	MEE
EE205	Signals and Systems	3	1	4	Fall	2/Fall	B	MA101B	EE
MSE002	Experiments for Fundamentals of Materials Science and Engineering	1	1	2	Spr/ Fall	2/Fall	E	PHY105B, CH101A	MSE
ME354	Manufacturing Process Simulation and Data Analysis	2	1	3	Fall	3/Fall	B	ME103	MEE
ME355	Frontiers in Hybrid Manufacturing Processes	3		3	Fall	3/Fall	B	ME302	MEE
ME356	Advanced Laser-Based Processing and Detection Technology	3		3	Fall	3/Fall	B	MA102B, PHY105B	MEE
MSE413	3D Printing and Laser-based Advanced Manufacturing	3		3	Fall	3/Fall	E	NA	MSE
INO 002	Mechatronics System Design & Innovation	2	1	3	Fall	3/Fall	C	NA	IDD
CS303B	Artificial Intelligence B	3	1	4	Fall	3/Fall	B	CS101A, CS203B, MA212	CS
INO001	Design Engineering	2	1	3	Spr	3/Spr	C	NA	IDD

ME361	Fundamentals of Additive Manufacturing of Metals	3		3	Spr	3/Spr	B	ME261 or MSE001	MEE
CS308	Computer Vision	3	1	4	Spr	3/Spr	B	CS101A, CS203 , MA101B, MA107A	CS
ME334	Microrobotics	3		3	Spr	3/Spr	C	ME307	MEE
ME335	Microfabrication and Microsystems	3		3	Spr	3/Spr	C	PHY105B	MEE
ME362	Microstructure Characterization and Analysis	3		3	Spr	3/Spr	B	CH101B、PHY105B	MEE
ME363	Fundamental and Application of Advanced Composite Materials	3		3	Spr	3/Spr	B	PHY105B	MEE
ME423	Sensing Technology and Data Processing*	3	1	4	Fall	4/Fall	B	ME307	MEE
ME464	Fracture mechanics and failure analysis	3		3	Fall	4/Fall	B	MSE305 or MAE202	MEE
CS401	Intelligent Robotics	3	1	4	Spr	4/Spr	B	CS102A、CS203、MA212	CS
CS405	Machine Learning	3	1	4	Fall	4/Fall	B	MA212、MA107A	CS
ME426	Fundamentals of Engineering Optimization	3		3	Spr	4/Spr	E	MA102B、MA107B	MEE
ME332	Robot Operating System	3	1	4	Spr	4/Spr	B	CS102B	MEE
ME336	Collaborative Robot Learning	3	1	4	Spr	4/Spr	C	ME306 or ME331	MEE
ME452	Fundamentals and Applications of Plasma	3		3	Spr	4/Spr	B	ME302	MEE
ME300-X	Special Topics								MEE
ME400-X	Elective Course (Postgraduate Course)								MEE
Total		**65**	**13**	**78**					

Notes:

The minimum requirement for graduation in this module of MEE Major Elective Courses for student in the direction of Innovative Design and Advanced Manufacturing or New Energy Engineering is 6 credits. The minimum requirement for graduation in this module of MEE Major Elective Courses for student in the direction of I Robotics and Automation is 9 credits.

*Students in the direction of Robotics and Automation must complete one of the following courses, ME310 Fundamentals of Measurement Technology or ME423 Sensing Technology and Data Processing.ME425 Sensing Technology can be identified as ME423 Sensing Technology and Data Processing.

**ME300-X Special Topics is a series of courses in various mechanical engineering topics.

***ME400-X is a series of Postgraduate Courses. Students can select them as Major Elective Courses with approval.

In addition to the above courses, students should also study mathematics and engineering optional courses under the guidance of tutors, with a minimum of 3 credits.

Table 3: Overview of Practice-Based Courses

Course Code	Course Name	Credit	Lab Credits	Hours/week	Term	Advised term to take the course	Instruction language	Prerequisite	Dept.
ME102	CAD and Engineering Drawing	3	1.5	4.5	Fall/ Spr/ Smr	1/Spr or 1/Smr	B/E	NA	MEE
ME103	Awareness Practice of Manufacturing Engineering	3	2	5	Fall/ Spr /Smr	1/Smr	E	NA	MEE
ME303	Fundamentals of Machine Design	3	1	4	Fall/ Spr	3/Fall	E	ME102、MAE203B、MAE202	MEE
ME307	Fundamentals of Control Engineering	3	0.5	3.5	Fall/ Spr	3/ Fall	E	EE104	MEE
ME301	Dynamics and Vibration	3	1	4	Fall/ Spr	3/Spr	E	MAE203B, MA201b	MEE
ME313	Product Design Practice	2	2	4	Spr/ Smr	3/Spr	B	ME303	MEE
ME308	Advanced Manufacturing Practice	2	2	4	Fall/ Smr	4/Fall	B	ME302	MEE
ME304	Fundamentals of Energy Engineering	3	0.5	3.5	Fall/ Spr	3/Spr	B	MSE001、MAE207 or MAE305 MAE308	MEE
ME306	Fundamentals of Robotics	3	1	4	Fall/ Spr	3/Spr	B	ME303、ME307	MEE
ME407	Precision Machining Technology	3	1	4	Fall	4/Fall	B	ME302	MEE
ME405	Innovative Design Theory and Practice	3	1	4	Fall	4/Fall	B	ME303, ME313	MEE
EE306	Introduction to MEMS	3	1	4	Spr	3/Spr	E	PHY105B	EE
ME432	Embedded System and Robot	3	1	4	Fall	4/Fall	B	ME306 or ME331	MEE
ME434	Walking Robot	3	0.5	4.5	Spr	4/Spr	B	ME306 or ME331	MEE
ME411	New Energy Technology	3	1	4	Fall	4/Fall	B	ME304	MEE
MSE336	Experiments for Energy Materials	1	1	2	Spr	3/Spr	E	MSE001	MSE
ME112	Introduction to Matlab	2	1	3	Spr	1/Spr	B	NA	MEE
ME211	Advanced Graphics and Computer Aided Design	2	1	3	Fall	2/Fall	B	ME102	MEE
EE201-17L	Analog Circuits Laboratory	1	1	2	Fall	2/Fall	C	EE201-17	EE
EE202-17L	Digital Circuits Laboratory	1	1	2	Fall/ Spr	2/SprFall	B	EE202-17	EE
EE208	Engineering Electromagnetics	3	1	4	Spr	2/Spr	B	MA101B、MA107A、EE104	EE
ME312	Machine Design II	2	2	4	Spr/ Smr	3/Spr	B	ME303	MEE

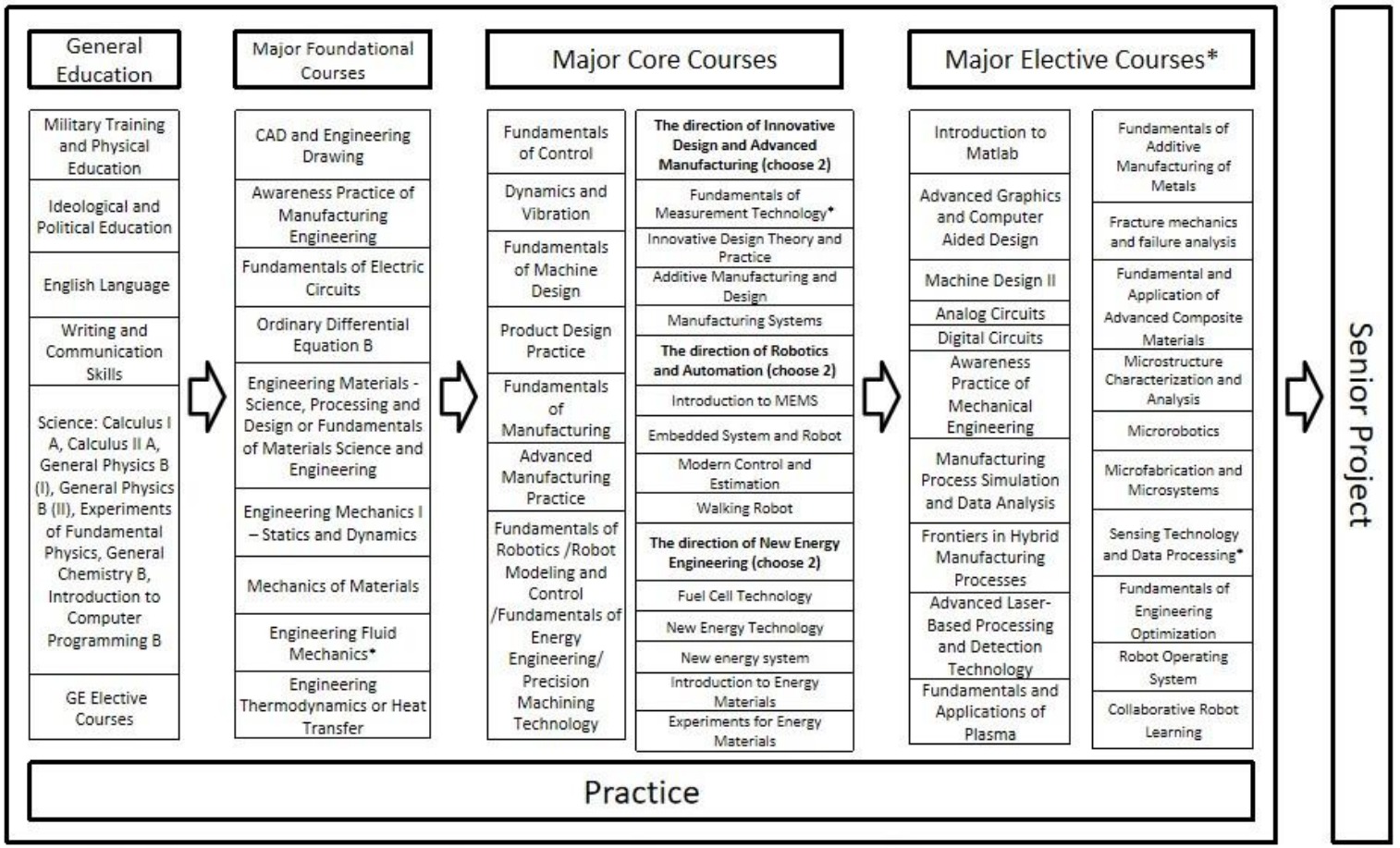
EE323	Digital Signal Processing	3	1	4	Fall	4/Fall	C	EE205	EE
MES300	Awareness Practice of Mechanical Engineering	1	1	2	Smr	1/Smr	B	NA	MEE
EE205	Signals and Systems	3	1	4	Fall	2/Fall	B	MA101B	EE
MSE002	Experiments for Fundamentals of Materials Science and Engineering	1	1	2	Spr/ Fall	2/Fall	E	PHY105B, CH101A	MSE
ME354	Manufacturing Process Simulation and Data Analysis	2	1	3	Fall	3/Fall	B	ME103	MEE
INO 002	Mechatronics System Design & Innovation	2	1	3	Fall	3/Fall	C	NA	IDD
CS303B	Artificial Intelligence B	3	1	4	Fall	3/Fall	B	CS101A, CS203B, MA212	CS
INO001	Design Engineering	2	1	3	Spr	3/Spr	C	NA	IDD
CS308	Computer Vision	3	1	4	Spr	3/Spr	B	CS101A, CS203 MA101B, MA107A	CS
ME423	Sensing Technology and Data Processing	3	1	4	Fall	4/Fall	B	ME307	MEE
CS401	Intelligent Robotics	3	1	4	Spr	4 Spr	B	CS102A、CS203、MA212	CS
CS405	Machine Learning	3	1	4	Fall	4/Fall	B	MA212、MA107A	CS
ME332	Robot Operating System	3	1	4	Spr	4/Spr	B	CS102B	MEE
ME336	Collaborative Robot Learning	3	1	4	Spr	4/Spr	C	ME306 or ME331	MEE
ME491	Practice	3	3	6				NA	MEE
ME492	Projects of Innovation and Entrepreneurship	2	2	4				NA	MEE
ME493	Senior Project	8	8	16	Spr	4/Spr		NA	MEE
Total		103	52	155					

Table 4: Overview of Course Hours and Credits

Course Category	Total Course Hours	Total Credits	Credit Requirements	Percentage of the Total*
General Education (GE) Required Courses (not including English courses)			48	**34.04%**
General Education (GE) Elective Courses			13	**9.21%**
Major Foundational Courses	584	36	Innovative Design and Advanced Manufacturing and New Energy Engineering：27, Robotics and Automation：24	19.14%-17.02%
Major Core Courses	1304	67	25	17.73%
Major Elective Courses	1728	87	Innovative Design and Advanced Manufacturing and New Energy Engineering：15, Robotics and Automation：18	10.64%-12.76%
Research Projects, Internship and Undergraduate Thesis/Projects	416	13	13	9.22%
Total (not including English courses)			**141**	

***** Percentage of the total= Credit requirements of each line / Total credit requirements

Curriculum Structure of Mechanical Engineering (2019)



Notes*: 1. Major Elective Courses only list some courses, all courses are detailed in the program. 2. Engineering Fluid Mechanics is an elective course for the Students in the direction of Robotics and Automation. 3. Students in the direction of Robotics and Automation must complete one of the following courses, Fundamentals of Measurement Technology or Sensing Technology and Data Processing.