机械工程留学本科生培养方案及课程计划

International Undergraduate Program in Mechanical Engineering of Jiangsu University

Subject: Engineering	**Specialty:** Mechanics	**Specialty Code:** 080202

Program Duration and Degree Conferment

This international undergraduate program consists of compulsory and optional courses, and the students must get at least 190.5 credits for their graduation from this program. Prospective students enrolled in this program are normally expected to spend 4 academic years in completing their undergraduate study at the School of Mechanical Engineering, Jiangsu University. Alternatively, they can also complete this program within 3-8 academic years. The bachelor degree in Engineering will be conferred to the students who successfully complete this program.

Objectives

Combined with the common knowledge education, professional education, engineering science education and industrial practice training, the main objectives of this multidisciplinary undergraduate program (mainly covering the fields of mechanics, mechanical science, materials, electronics, electromechanical control technology, detection technique, computer-aided engineering) aim to develop/improve the students' ability and support/benefit their future career development (e.g., senior engineers and technicians, outstanding researchers and scholars, etc.) due to the solid and interdisciplinary engineering background, the creative inspiration and ability, as well as the strong ability for actual engineering applications through studying at the School of Mechanical Engineering, Jiangsu University.

Requirements

The knowledge background of this program mainly consists of mechanical manufacturing and automation, mechanical design and automation.

Except the general requirements (e.g., respect and obey the relevant rules/regulations from Chinese government and Jiangsu University, respect the faculty and Chinese traditions/customs, be in good health condition, etc.), the students are required to have the knowledge background in natural, human, art and social sciences especially familiar with the computer-aided programming/design and proficient in both oral and written English, and they are also required to know the basic fundamentals, professional knowledge, and technical applications of the related fields in mechanical engineering and its automation technique (mainly including mechanics, mechanical science, materials, electronics, electromechanical control technology, detection technique, computer-aided engineering, and enterprise management), with potential ability and knowledge to design and manufacture electromechanical products, industrial product development, technical innovation , and enterprise management.

Moreover, the students for this program are required to have the relevant basic technical/professional skills and ability for design, calculation, analysis, detection, and operation, and knowing of frontier knowledge, applications and future research/development trend in mechanical engineering will be a plus. In addition, the students should have the ability to analyze

and solve the actual engineering problems using the knowledge and techniques they have learnt and known. They are required to have the relative strong ability to self-study with innovative inspiration and collaborative spirit.

Key Subjects and Core Courses

This program consists of two key subjects, including mechanical engineering and mechanics. The core courses for this program are listed in the following Table.

Mechanics	Engineering Graphics
Theory and Design of Machines and Mechanisms	Electrotechnics & Electronics
Engineering Materials and Their Processing Fundamentals	Basics of Mechanical Manufacturing Techniques
Numerical Control Principles & Programming Techniques	Design of Mechanical Manufacturing Equipments
Fundamentals of Control Engineering	Fundamentals and Applications of Single-Chip Microcomputers
Electromechanical Transmission Control	Hydraulic and Pneumatic Transmission
Detection Techniques for Mechanical Engineering	

Type A Courses（此类课程总学分/要求修满最低学分）

No.	School	Name of Course	Term	Credit	Total Hours	Class Hours	Practice/ Lab Hours	Required/ Elective
A1	OEC	Chinese-Ⅰ（统一） 汉语-Ⅰ	1	10	150	90	60	Required
A2	OEC	Chinese-Ⅱ（统一） 汉语-Ⅱ	2	8	120	90	30	Required
A3	OEC	Chinese-Ⅲ（统一） 汉语-Ⅲ	3	8	120	90	30	Required
A4	OEC	Chinese-Ⅳ（统一） 汉语-Ⅳ	4	8	120	90	30	Required
A5	OEC	EQ Self-development（统一） 情商自我成长	1	1	15	15	0	Required
A6	OEC	Overview of China（统一） 中国概论	1	4	60	60	0	Required
A7	SS	Higher Mathematics A 高等数学 A	2-3	11	165	165	0	Required
A8	SS	Linear Algebra 线性代数	4	2	30	30	0	Required
A9	SS	Statistics and Probability Theory 概率统计	4	3	45	45	0	Required
A10	SS	College Physics A 大学物理 A	2-3	8	120	120	0	Required
A11	SS	College Physics Experiment A 大学物理实验 A	2-3	3.5	52	0	52	Required

A13	SCSCE	PC Program Design (C Language) 程序设计(C 语言)	3	5	75	50	25	Required
A14	SCCE	Engineering Chemistry 工程化学	2	2.5	38	30	8	Required
A15	Library	Literature Retrieval 文献检索	5	1	15	11	4	Required
A16	--	Chinese Fine Arts 中国美术	5	2	30	30	0	Elective
A17	--	Chinese Music 中国音乐	5	2	30	30	0	Elective
A18	PED	College Physical Education 大学体育 I	1	2	30	30	0	Elective
A19	PED	College Physical Education 大学体育 II	2	2	30	30	0	Elective
A20	PED	College Physical Education 大学体育 III	3	2	30	30	0	Elective
A21	PED	College Physical Education 大学体育 IV	4	2	30	30	0	Elective
		Total A		**75**	**1125**	**886**	**239**	

备注：开课学院为学院英文名称首字母简写，例如 Overseas Education College (OEC), School of Mechanical Engineering (SME)

课程编号：课程类别（ABCDE）+专业编号（2 位，申报前向海外教育学院索取）+序列号（3 位）

原则上第一学期只安排汉语-I，中国文化概论，情商自我成长，入学教育（含专业介绍），社会考察课程

Type B Courses（此类课程总学分/要求修满最低学分）

No.	School	Name of Course	Term	Credit	Total Hours	Class Hours	Practice/ Lab Hours	Required/ Elective
B1	SCEM	Engineering Mechanics A 工程力学 A	3-4	7	105	105	0	Required
B2	SCEM	Engineering Mechanics Experiment 工程力学实验	4	1	15	0	15	Required
B3	SEPE	Fluid Dynamics 流体力学	4	2	30	26	4	Required
B4	SEPE	Fundamentals of Heat Transfer Theory 传热学基础	5	2	30	26	4	Required
B5	SEIE	Electrotechnics & Electronics A 电工电子学 A	4-5	4.5	68	68	0	Required
B6	SEIE	Experiments for Electrotechnics & Electronics A 电工电子学实验 A	4-5	1	15	0	15	Required

B7	SME（机制）	Introduction to Mechanical Engineering 机械工程导论	2	2	30	30	0	Required
B8	SME（机设）	Engineering Graphics A 工程图学 A	2-3	8	120	94	26	Required
B9	SME（机设）	Theory and Design of Machines and Mechanisms 机械原理及设计	4-5	6	90	80	10	Required
B10	CIT（工业中心）	Theory and Design of Machines and Mechanisms 机械原理及设计实验	4-5	1	15	0	15	Required
B11	SME（机制）	Tolerance and Its Test Techniques 公差与检测技术	5	2	30	24	6	Required
B12	SME（机制）	Engineering Materials and Their Processing Fundamentals 工程材料及其成型基础	5	3	45	39	6	Required
B13	SME（机制）	Basics of Mechanical Manufacturing Techniques A 机械制造技术基础 A	6	4	60	54	6	Required
B14	SME（机电）	Fundamentals of Control Engineering 控制工程基础	5	2	30	26	4	Required
B15	SME（机设）	Modern Design Theory and Method 现代设计理论与方法	6	2	30	26	4	Elective
B16	SME（机设）	Finite Element Numerical Analysis for Engineering 工程有限元分析	6	2	30	26	4	Elective
B17	CSCE	Industrial Economics 工业经济学	6	2	30	30	0	Elective
		Total B		**47.5**	**713**	**608**	**105**	

Type C Courses（此类课程总学分/要求修满最低学分）

No.	School	Name of Course	Term	Credit	Total Hours	Class Hours	Practice/ Lab Hours	Required/ Elective
C1	SME（机制）	Mechanics CAD 机械 CAD	5	2	30	24	6	Required
C2	SME（测控）	Single Chip Computer 单片机原理及应用	6	2	30	24	6	Required

C3	SME （测控）	Detection Techniques for Mechanical Engineering 机械工程测试技术	6	2	30	24	6	Required
C4	SME （机电）	Hydraulic and Pneumatic Transmission 液压与气压传动	6	2	30	24	6	Required
C5	SME （机电）	Electromechanical Transmission Control 机电传动控制	6	2	30	24	6	Required
C6	SME （机制）	Numerical Control Principles & Programming Techniques 数控原理及编程技术	6	2	30	24	6	Required
C7	SME （机制）	Design of Mechanical Manufacturing Equipments 机械制造装备设计	7	2	30	24	6	Required
C8	SME （机设）	Robot Design 机器人设计	7	2	30	26	4	Required
C9	SME （机制）	Quality Management and Control 质量管理与控制	7	2	30	26	4	Required
C10	SME （机制）	Advanced Manufacturing Techniques 先进制造技术	7	2	30	26	4	Elective
C11	SME （机制）	Modern Forming and Moulding Techniques 现代成形与模具技术	7	2	30	26	4	Elective
C12	SME （机电）	Microelectromechanical Systems (MEMS) 微机电系统	6	2	30	26	4	Elective
C13	CIT （工业中心）	Numerical Design & Manufacturing for Electromechanical Products 机电产品数字化设计制造	6	2	30	26	4	Elective
		Total C		**22**	**330**	**272**	**58**	

Type D Courses: Practice

No.	School	Name of Course	Term	Credit	Weeks	Remark
D1	OEC	Freshman Transition 入学教育	1	1	1	
D2	CIT （工业中心）	Basic Engineering Training I 基础工程训练Ⅰ	1	1	1	

D3	CIT（机电总厂）	Basic Engineering Training II 基础工程训练Ⅱ	2	4	4	
D4	CIT（机电总厂）	Basic Engineering Training III 基础工程训练III	3	2	2	
D5	SME（机制）	Machine Shop Practice 生产实习	7	3	3	
D6	SME（机设）	Course Design for Engineering Graphics 工程图学课程设计	3	1	1	
D7	SME（机设）	Integrated Course Design for Mechanical Design I 机械设计综合课程设计 I	4	1	1	
D8	SME（机设）	Integrated Course Design for Mechanical Design II 机械设计综合课程设计 II	5	2	2	
D9	SME（机电）	Course Design for Electromechanical Control System 机电控制系统课程设计	6	2	2	
D10	CIT（工业中心）	Mechanical Design & Manufacturing Experiments 机械设计制造综合实验	6	1	1	
D11	SME（机设）	Integrated Technical Practice 专业综合实践	7	3	3	
D12	SME（机制）	Basic Course Design for Mechanical Manufacturing Techniques 机械制造技术基础课程设计	8	3	3	
D13	SME（机制、机设）	Graduation Design (Thesis) 毕业设计（论文）	8	12	12	
		Total D		**36**	**36**	

Allocation of Credits & Courses

Term	Name of Course	Credit	Required Credit	Elective Credit	Practice Credit
1	Chinese-Ⅰ（统一） 汉语-Ⅰ	10	17	2	2
	EQ Self-development（统一） 情商自我成长	1			
	Overview of China（统一） 中国概论	4			
	Introduction on Computer 计算机基础	2			

	College Physical Education 大学体育 I	2			
	Orientation 入学教育	1			
	Basic Engineering Training I 基础工程训练Ⅰ	1			
2	Chinese-Ⅱ（统一） 汉语-Ⅱ	8	28	2	4
	Higher Mathematics A 高等数学 A	6			
	Engineering Chemistry 工程化学	2.5			
	College Physics A 大学物理 A	4			
	College Physics Experiment A 大学物理实验 A	1.5			
	College Physical Education 大学体育 II	2			
	Introduction to Mechanical Engineering 机械工程导论	2			
	Engineering Graphics A 工程图学 A	4			
	Basic Engineering Training Ⅱ 基础工程训练Ⅱ	4			
3	Chinese-Ⅲ（统一） 汉语-Ⅲ	8	26.5	2	3
	Higher Mathematics A 高等数学 A	5			
	College Physics A 大学物理 A	4			
	College Physics Experiment A 大学物理实验 A	2			
	College Physical Education 大学体育 III	2			
	Engineering Graphics A 工程图学 A	4			
	Engineering Mechanics A 工程力学 A	3.5			
	Basic Engineering Training Ⅲ 基础工程训练Ⅲ	2			

	Course Design for Engineering Graphics 工程图学课程设计	1			
4	Chinese-Ⅳ（统一） 汉语-Ⅳ	8	28	2	1
	Linear Algebra 线性代数	2			
	Statistics and Probability Theory 概率统计	3			
	College Physical Education 大学体育 IV	2			
	Engineering Mechanics A 工程力学 A	3.5			
	Engineering Mechanics Experiment 工程力学实验	1			
	Fluid Dynamics 流体力学	2			
	Electrotechnics & Electronics A 电工电子学 A	2.5			
	Experiments for Electrotechnics & Electronics A 电工电子学实验 A	0.5			
	Theory and Design of Machines and Mechanisms 机械原理及设计	3			
	Theory and Design of Machines and Mechanisms 机械原理及设计实验	0.5			
	Mechanics CAD 机械 CAD	2			
	Integrated Course Design for Mechanical Design I 机械设计综合课程设计 I	1			
5	Literature Retrieval 文献检索	1	21.5	（4）	2
	Chinese Fine Arts 中国美术	2			
	Chinese Music 中国音乐	2			
	PC Program Design (C Language) 程序设计(C 语言)	5			

	Fundamentals of Heat Transfer Theory 传热学基础	2			
	Electrotechnics & Electronics A 电工电子学 A	2			
	Experiments for Electrotechnics & Electronics A 电工电子学实验 A	0.5			
	Theory and Design of Machines and Mechanisms 机械原理及设计	3			
	Theory and Design of Machines and Mechanisms 机械原理及设计实验	0.5			
	Experiments for Electrotechnics & Electronics A 电工电子学实验 A	0.5			
	Engineering Materials and Their Processing Fundamentals 工程材料及其成型基础	3			
	Tolerance and Its Test Techniques 公差与检测技术	2			
	Fundamentals of Control Engineering 控制工程基础	2			
	Integrated Course Design for Mechanical Design II 机械设计综合课程设计 II	2			
6	Microelectronic Technology 微电子技术	2	14	4	3
	Basics of Mechanical Manufacturing Techniques A 机械制造技术基础 A	4			
	Modern Design Theory and Method 现代设计理论与方法	2			
	Finite Element Numerical Analysis for Engineering 工程有限元分析	2			
	Industrial Economics 工业经济学	2			
	Detection Techniques for Mechanical Engineering 机械工程测试技术	2			

	Hydraulic and Pneumatic Transmission 液压与气压传动	2			
	Electromechanical Transmission Control 机电传动控制	2			
	Numerical Control Principles & Programming Techniques 数控原理及编程技术	2			
	Course Design for Electromechanical Control System 机电控制系统课程设计	2			
	Mechanical Design & Manufacturing Experiments 机械设计制造综合实验	1			
7	Design of Mechanical Manufacturing Equipments 机械制造装备设计	2	6	4	6
	Robot Design 机器人设计	2			
	Quality Management and Control 质量管理与控制	2			
	Advanced Manufacturing Techniques 先进制造技术	2			
	Modern Forming and Moulding Techniques 现代成形与模具技术	2			
	Microelectromechanical Systems (MEMS) 微机电系统	2			
	Numerical Design & Manufacturing for Electromechanical Products 机电产品数字化设计制造	2			
	Manufacturing Practice 生产实习	3			
	Integrated Technical Practice 专业综合实践	3			
8	Basic Course Design for Mechanical Manufacturing Techniques 机械制造技术基础课程设计	3	0	0	15
	Graduation Design (Dissertation) 毕业设计(论文)	12			

Total		**190.5**	**138.5**	**16**	**36**