

# **International Undergraduate Program in Mechanical Engineering of Jiangsu University**

<b>Subject:</b> Engineering	<b>Specialty:</b> Mechanics	<b>Specialty Code:</b> 0802
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## **Program Duration and Degree Conferment**

This international undergraduate program consists of compulsory and optional courses, and the students must get at least 168 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, and mould design and manufacturing.

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 (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.

### Schedule of Courses for Mechanical Engineering

Course Type	Required/ Elective	School	Course Name	Total Credits	Total Hours	Exam Type	Term
General Education	Required Courses	OEC	Chinese- I	8	120	C	1
		OEC	Chinese-II	6	90	C	2
		OEC	Chinese-III	6	90	C	3
		OEC	Overview of China	2	30	C	1
		SS	Advanced Higher Mathematics A	10	150	S	1、 2
		SS	Linear Algebra	2	30	C	3
		SS	Statistics and Probability Theory	3	45	C	4
		SS	College Physics A	6	90	S	2、 3
		SS	College Physics Experiment A	3	45	C	2、 3
		SCCE	Engineering Chemistry	2	30	C	1

Course Type		School	Course Name	Total Credits	Total Hours	Exam Type	Term	
General Education	Required/ Elective	SCSCE	PC Program Design (C Language)	4	60	S	1	
		PED	College Physical Education (Basic)	4	80	C/S	1、2	
		Sum		56	860			
	Elective Courses	OEC	Human Science	2	30	C	2-5	
		OEC	Economy and Management	2	30	C	2-5	
		OEC	Appreciation of Arts	2	30	C	2-5	
		OEC	Integrated Education	2	30	C	2-5	
		PED	College Physical Education (Options)	0	80	C/S	2-5	
		Sum		8				
	Subtotal				64			
	Basic Courses of Disciplines	Required Courses	SME	Introduction to Mechanical Engineering	1	15	C	2
			SME	Engineering Graphics	6	90	S	1、2
			SCEM	Engineering Mechanics	6	90	S	3、4
SCEM			Experiments of Engineering Mechanics	1	15	S	4	
SEPE			Fluid Dynamics	2	30	C	4	
SEPE			Fundamentals of Heat Transfer Theory	2	30	C	5	
SEIE			Electrotechnics & Electronics	4	60	S	5	
SEIE			Experiments for Electrotechnics & Electronics	1.5	23	C	5	
SME			Mechanical Principle and Design	6	90	S	4、5	

Course Type	Required/ Elective	School	Course Name	Total Credits	Total Hours	Exam Type	Term	
Basic Courses of Disciplines	Required Courses	SME	Tolerance and Its Measurement Technology	2	30	C	5	
		SME	Engineering Materials and Their Processing Fundamentals	3	45	C	4	
		SME	Basics of Mechanical Manufacturing Technology	4	60	S	6	
		SME	Fundamentals of Control Engineering	2.5	38	S	5	
		Sum		41				
	Elective Courses	SME	Mechanical Optimization Design	2	30	C	6	
		SME	Foundation of Mechanical Vibration	2	30	C	6	
		SME	Engineering Analysis Based on Finite Element Method	2	30	C	6	
		SME	Manufacturing Plan and Control	2	30	C	6	
		SME	Management and Control for Quality	2	30	C	6	
		SCSCE	Database Theories and Applications	2	30	C	6	
		Sum		6				
	Subtotal			47				
	Specialized Courses	Required Courses	SME	Mechanics CAD	2	30	C	3
			SME	Design of Single-Chip Microcomputer Application System	2	30	S	5

Course Type	Required/ Elective	School	Course Name	Total Credits	Total Hours	Exam Type	Term
Specialized Courses	Required Courses	SME	Measurement Techniques for Mechanical Engineering	2	30	S	6
		SME	Hydraulic and Pneumatic Transmission	2	30	S	6
		SME	Electromechanical Transmission Control	2	30	S	6
		SME	Mechanical Engineering Experiments	2	30	C	7
		Sum		12			
	Elective Courses (I)	SME	Numerical Control Theories & Programming Techniques	2	30	C	6
		SME	Design of Mechanical Manufacturing Equipments	2	30	C	6
		SATE	Automobile Construction	2	30	C	6
		SATE	Automobile Engineering	2	30	C	6
		SATE	Design of Internal-Combustion Engine	2	30	C	6
		SEPE	Design of Fluid Machinery	2	30	C	6
		SME	Intelligent Agricultural Equipments	2	30	C	6
		SME	Agricultural Machinery Science	2	30	C	6

Course Type	Required/ Elective	School	Course Name	Total Credits	Total Hours	Exam Type	Term
Specialized Courses	Elective Courses (I)	SME	Design of Computer-Aided Measurement and Control Systems	2	30	C	6
		SME	Sensor Technology	2	30	C	6
		SME	Diagnosis Technology for Mechanical Failures	2	30	C	7
		SME	Micro Electro-Mechanical Systems and Nanotechnology	2	30	C	7
		Sum		6			
	Elective Courses (II)	SME	Man-Machine Engineering	2	30	C	7
		SME	Computer-Aided Control Techniques	2	30	C	7
		SME	Virtual Instrument Technology	2	30	C	7
		SME	Modern Functional Materials	2	30	C	7
		SME	Advanced Manufacturing Technology	2	30	C	7
		SME	Design of Robots	2	30	C	7
		SME	Automation of Mechanical Manufacturing	2	30	C	7
		SME	Modern Forming Techniques	2	30	C	7
		SATE	Structural Design of Automotive Body	2	30	C	7
		SATE	Vehicle Safety Assessment	2	30	C	7

Course Type	Required/ Elective	School	Course Name	Total Credits	Total Hours	Exam Type	Term
Specialized Courses	Elective Courses ( II )	SATE	Principle and Match for Automotive Power Trains	2	30	C	7
		SATE	Testing Techniques for Vehicles	2	30	C	7
		SEPE	Basics of Fluid Machinery	2	30	C	7
		SEPE	Control Automation of Fluid Machinery	2	30	C	7
		SATE	Introduction to Internal Combustion Engines	2	30	C	7
		SATE	Construction of Heat Engines	2	30	C	7
		Sum		8			
	Subtotal				26		
Total Credits				137			

## Professional Practice Schedules of Mechanical Engineering

Course Type	School	Course Name	Credits	Weeks	Group/Separate		Term
					Group	Separate	
Practice	SME	Orientation	0	1	√		1
	SME	Introduction to Mechanical Engineering Practice	1	1	√		1
	SME	Mechanical Engineering Training I	2	2	√		2
	SME	Mechanical Engineering Training II	2	2	√		3
	SME	Manufacturing Practice	2	2	√		6

Course Type	School	Course Name	Credits	Weeks	Group/Separate		Term
					Group	Separate	
Practice	SME	Orientation	0	1	√		1
	SME	Introduction to Mechanical Engineering Practice	1	1	√		1
	SME	Mechanical Engineering Training I	2	2	√		2
	SME	Mechanical Engineering Training II	2	2	√		3
	SME	Manufacturing Practice	2	2	√		6
	Related School	Specific Professional Practice	2	2		√	7
	Sum			9	10		
Course Design	SME	Course Design for Engineering Graphics	1	1	√		2
	SME	Integrated Course Design for Mechanical Design I	1	1	√		4
	SME	Integrated Course Design for Mechanical Design II	2	2	√		5
	SME	Course Design for Electromechanical Control Systems	2	2	√		6



Course Type	School	Course Name	Credits	Weeks	Group/Separate		Term
					Group	Separate	
Course Design	SME	Course Design for Basics of Mechanical Manufacturing Technology	2	2	√		7
	Related School	Integrated Technical Practice	2	2		√	8
	Sum		12	12		√	8
Graduation Design (Thesis)			12	12		√	8
Sum			33	34			

### Remarks for This International Undergraduate Program in Mechanical Engineering

1. The students are required to obtain 2 credits for each branch of general educational elective courses, i.e., human science, economy and management, appreciation of arts, and integrated education.
2. Engineering Mechanics is composed of Theoretical Mechanics and Mechanics of Materials.
3. The schedule of the Specific Professional Practice and Integrated Technical Practice is separately arranged by different Schools/Departments according to the specific course selection from the international students.