Undergraduate Program for Materials Science and Engineering

Length of Schooling

Prospective students who enrolled MS&E (Materials Science and Engineering) program need 4 years full time study. This program consists of five types of courses.

Key Courses

The key courses throughout 4 years are listed as follows:

Engineering Graphics	Fundamental of Material Science
Engineering Mechanics	Introduction of Materials Science & Engineering
Electrotechnics	Materials Chemistry
Fundamentals of Machine Design	Thermodynamics of Materials
Inorganic Chemistry	Introduction and Methodology of Materials Science and Engineering
Analytical Chemistry	Methods of Materials Testing
Physical Chemistry	Computer in Materials Science Technology

Objectives

Materials Science & Engineering (MSE) is a major that is concerned with the structure and properties of all engineering materials. After graduation, MSE students have wide basic theory in materials science and technology, and can become materials research workers or materials engineers who are responsible for designing, producing, examining and testing diverse materials. Students graduated with honor, can also do some research, education, development and management work related to materials designing and producing, materials processing, manufacturing and relative areas etc.

Requirements

Respect the relevant policies and decrees formulated by the Chinese government, and the rules and regulations of Jiangsu University (UJS).

Respect the teaching staff and Chinese traditions and customs.

Develop scientific attitude in research and study and stress the combination of theory and practice. Have a good command of basic theories and systematic knowledge in the field of Materials.

Be in good health condition.

Type A Courses

No.	School	Name of Course	Term	Credit	Total Hours	Theory Hours	Practice Hours	Required Elective
A1	IEEC	Chinese-Ⅰ	1	18	270	270	0	Required
A2	IEEC	Chinese-Ⅱ	2	4	60	45	15	Required
A3	IEEC	Chinese-Ⅲ	3	4	60	45	15	Required
A4	IEEC	Chinese-Ⅳ	4	4	60	45	15	Required
A5	IEEC	Overview of China	1	4	60	45	15	Required
A6	PED	Sports-Ⅰ	1	2	30	10	20	Required
A7	PED	Sports-Ⅱ	2	2	30	10	20	Required
A8	PED	Sports-Ⅲ	3	2	30	10	20	Required
A9	PED	Sports-Ⅳ	4	2	30	10	20	Required
A10	FOS	Advanced Mathematics	2.3	11	165	165	0	Required
A11	FOS	Linear Algebra	3	2	30	30	0	Required
A12	FOS	Probability Theory and Mathematical Statistics（C）	5	3	45	45	0	Required
A13	FOS	College Physics	2	6	90	70	20	Required
A14	EI	Electrotechnics	4	6	90	70	20	Required
A15		Information Retrieval	4	1	15	15	0	Elective
A16	SA	Chinese Fine Arts	2	2	30	30	0	Elective
A17	SA	Chinese Music	3	2	30	30	0	Elective
		Total A		**75**	**1125**	**945**	**180**	

Type B Courses

No.	School	Name of Course	Term	Credit	Total Hours	Theory Hours	Practice Hours	Required Elective
B1	SME	Engineering Graphics	2	4	60	50	10	Required
B2	SCEM	Engineering Mechanics	4	5	75	69	6	Required

B3	SCCE	Inorganic Chemistry	1	4	60	45	15	Required
B4	SCCE	Analytical Chemistry	2	3	45	30	15	Required
B5	SCCE	Physical Chemistry	3	4	60	45	15	Required
B6	SME	Fundamental of Machinery Design	3	3	45	45		Required
B7	SMSE	Introduction of Materials Science & Engineering	3	3	45	45		Required
B8	SMSE	Fundamental of Material Science I	4	6	90	90		Required
B9	SMSE	Fundamental of Material ScienceII	5	6	90	90		Required
B10	SMSE	History and methodology of Materials Science and Engineering	4	2	30	30		Required
B13	SMSE	Materials Chemistry	4	3	45	45		Required
B14	SMSE	Computer in Materials Science & Engineering	5	4	45	45	15	Required
B15	SMSE	Methods of Materials Testing	5	3	45	39	6	Required
B16	SMSE	Thermodynamics of Materials	5	2	30	30		Required
		Total B		**52**	**780**	**698**	**82**	

Type D Courses：Elective 34 **Credit**

D1	SMSE	Materials and Environment	5	2	30	30		Elective
D2	SMSE	Polymer Materials	6	6	90	75	15	Elective
D3	SMSE	Introduction to Ceramics	6	6	90	75	15	Elective
D4	SMSE	Physical Metallurgy	6	6	90	75	15	Elective
D5	SMSE	Metallic Engineering Materials Science	6	6	90	75	15	Elective
D6	SMSE	Composites Materials	6	6	90	75	15	Elective
D7	SMSE	New Energy Materials	6	6	90	75	15	Elective
D8	SMSE	Advanced Materials Processing	7	4	60	60		Elective
D9	SMSE	Gelatin Material Equipment &Technology	5	2	30	30		Elective
D10	SMSE	Material Quality and Failure Analysis	6	2	30	30		Elective

D11	SMSE	Introduction to Modeling and Simulation	6	3	45	30	15	Elective
D12	SMSE	Materials for Biomedical Applications	7	2	30	30		Elective
D13	SMSE	Surface Hardening	6	2	45	30	15	Elective
D14	SMSE	Nanomechanics of Materials and Biomaterials	7	2	30	30		Elective
D15	SMSE	Imaging of Materials	7	2	30	30		Elective
D16	SMSE	Economic and Environmental Materials Selection	7	2	30	30		Elective
D17	SMSE	Electrical, Optical, and Magnetic Materials and Devices	7	3	45	45		Elective
D18	SMSE	Nanoscale Materials	7	2	30	30		Elective
D19	SMSE	Micro/Nano Processing Technology	7	2	30	30		Elective
D20	SMSE	Thin Film Materials and Technologies	7	3	45	45		Elective
D21	SMSE	Materials Corrosion and Protection	7	3	45	45		Elective
		Total D		**34**	**510**	**510**		

Type E Courses: Practice

No.	Name of Course	Term	Credit	Weeks	Remark
E1	orientation	1	1	1	
E2	Metal Techniques Practice A	1	2	2	
E3	Metal Techniques Practice B	2	3	3	
E4	Cognition practice	4	2	2	Other city
E5	productive practice	6	3	3	Other city
E6	Practice of Fundamental Mechanical Design	3	2	2	
E7	Course Project A	5	3	3	
E8	Course Project B	7	3	3	
E9	Materials advancement and technological innovation	5	1	1	
	Graduation Design	8	16	16	
	Total E		**36**	**36**	