

# Undergraduate Program for Specialty in Materials Science & Engineering

## I. Educational Targets

This major meets the needs of advanced metal materials, nano material, energy material, advanced ceramic materials, semiconductor materials, carbon materials, and other national emerging strategic industries.

1. Ability to systematically apply the basic theoretical knowledge of natural science and material science and engineering and have the ability of system thinking and multi-disciplinary knowledge integration, transfer, and promotion.

2. Ability to creatively apply materials science and engineering expertise to solve complex engineering problems in this and other related fields.

3. Strong sense of teamwork, communication, and communication skills, able to scientifically manage and lead a multidisciplinary team, organize and cooperate to complete complex engineering projects in the field of materials science and engineering.

4. With physical and mental health, excellent moral character, scientific quality, and humanistic accomplishment can comprehensively consider such factors as ethics, society and environment, and sustainable development in engineering practice.

5. Have a good lifelong learning, international vision, cross-cultural communication, pioneering and innovative consciousness, and competitive ability.

6. Have a good sense of service, fulfill social and public responsibility.

## II. Program Highlights

This program combines general and novel materials, integrates theory and practice, and balances basic knowledge and discipline trend, aiming to serve the strategic emerging industries.

## III. Program Length and Degree

Duration: 4 years

Degrees Conferred: Bachelor of Engineering

#### IV.Credits requirement

Minimum Credits of Curricular (Comprising course system and intensified internship practical training): 160

Minimum Extracurricular Credits: 5

##### 1. Course Credits Hours and Units

Course Module		Required /Elective	Hrs/Crs	Percentage (%)
Essential-qualities-oriented Education General Courses		Required	560/31	19.4
		Elective	160/10	6.3
Basic -disciplinary Courses		Required	1312/78.5	49
Major-specific courses	Major-specific Core Courses	Required	232/13.5	8.4
	Major-specific Electives	Elective	184/11.5	7.2
Practicum Credits	Practicum Credits	Required	31w /15.5	9.7
Total			2448+31w /160	100

##### 2. Course Credits Hours and Units

Internship & Practical Training	Course Nature	Weeks/Credits	Percentage (%)
Military Training	Required	2/1	6.5
Laboring for Public Benefit	Required	1/0.5	3.2
Engineering Training 1	Required	4/2	12.9
Engineering Training 5	Required	1/0.5	3.2
Professional Social Practice	Required	1/0.5	3.2
Engineering Internship (Social Practice)	Required	3/1.5	9.7
Undergraduate Thesis	Required	16/8	51.6
Total		28/14	100

##### 3. Extracurricular Credits

No.	Extracurricular Activities and Social Practice	Requirements	Extracurricular Credits
1	Activities of	Submit report and pass oral defense	2

	Social Practice	Entitled as Activist by the Communist Youth League of HUST or Hubei Province; Membership of the group which is entitled as Excellent Social Practice Group by the Communist Youth League of HUST or Hubei Province	2
--	-----------------	---	---

continue

No.	Extracurricular Activities and Social Practice	Requirements	Extracurricular Credits	
2	Ideological and political course Social Practice	Submit a report and obtain a passing score	2	
3	Labor for Public Good	Attend labor for public good for 1 week at least	0.5	
4	Examinations in English and Computer	CET-6	Students whose Band-6 exam scores accord our requirements	2
		TOEFL	90 Points or Higher	3
		IELTS	6.5 Points or Higher	3
		GRE	300 Points or Higher	3
		National Computer Rank Examination	Win certificate of Band-2 or higher	2
		National Computer Software Qualification	Win certificate of programmer	2
			Win certificate of Advanced Programmer	3
	Win certificate of System Analyst	4		
5	Competitions	University Level	Win first prize	3
			Win second prize	2
			Win third prize	1
		Provincial Level	Win first prize	4
			Win second prize	3
			Win third prize	2
		National Level	Win first prize	6
			Win second prize	4
			Win third prize	3

6	Thesis	Those whose thesis appears in national publications	Per piece	2~3
7	Scientific Research	Depending on both the time spent in and ability demonstrated in scientific research project	Each item	1~3
8	Experiments	Depending on innovative extent	Each item	1~3

## V. Main Courses

Fundamentals of Material Science, Engineering Chemistry, Physical Chemistry, Quantum Mechanics, Solid State Physics, Computational materials science, Semiconductor Physics and Devices, Physical Properties of Materials, Mechanical Properties of Materials, Metallic Materials, Macromolecular Materials, Advanced Ceramic Materials, Principle and Process of Heat Treatment, Modern Instrumental Analysis

## VI. Practicum Module (Experiments Included)

Military Training, Engineering Practice, Professional Social Practice, Engineering Internship, Undergraduate Thesis