

Materials Science and Engineering

Program Code: 0805

1. Program Duration: 4-8 years

2. Required Credits: No less than 16 credits.

3. Curriculum

Course Type	Course Code	Course Name	Credit Hours	Credits	Semesters	Notes
Required course	7000001	Survey of China	36	2	1	
	7000011	Primary Chinese Language	32	2	1	
	7000024	Modern Applied Mathematics	48	3	1	
	7141101	Methodology of Materialogy	16	1	1	
Optional course	7141102	Metal Strength and Fracture	32	2	1	
	7141103	Fundamentals and Applications of Electrochemical Processes	32	2	1	
	7141104	Interface Engineering of Materials	32	2	1	
	7143101	Materials Genome Engineering	32	2	1	
	7145101	Materials for Energy Storage and Conversion	32	2	1	
	7145102	Functional Porous Materials	32	2	1	
	7141105	High Energy Beam Processing and Additive Manufacturing	32	2	2	
	7141106	Advanced Welding and Joining Technology	32	2	2	
	7142101	Research Methods for Corrosion Electrochemistry	32	2	2	

7143102	Intelligent Anticorrosion Materials and Technology	32	2	2	
7141107	Surface Coupling Bionics	32	2	2	
7141108	Principles of Macro- and Micro- Friction and Wear of Metals	32	2	2	
7143103	Molecular Design of Functional Materials for Oil and Gas Industry	32	2	2	
7143104	High Performance Scientific Computing	32	2	2	
7145103	New Frontiers of Nanomaterials Research	32	2	2	
7143105	Computational Science in Energy Storage and Conversion	32	2	2	
7143106	Research Progress on Materials Surface and Interface	32	2	2	
7144101	Materials of Composite Functional Membrane	32	2	2	
7144102	Lecture on Scientific Ethics and Academic Norms	16	1	2	
6000013	Visual-Audio-Oral Practice of English For Postgraduates	16	1	2	select 2 courses
6000014	Academic English: Reading & Writing	16	1	2	
6000015	Contrastive Study of English And Chinese & Translation	16	1	2	
6000016	Cross-Cultural Communication	16	1	2	
6000017	Appreciation of The Classic Literary Works in English-Speaking Countries	16	1	2	
6000018	English For Energy	16	1	2	
6000019	English For Studying Abroad	16	1	2	
6000069	UPC Intensive Curricula	-	≤3	1-6	
5142001	Fundamentals of Materials Science	48	3	2	

	5141001	Fundamentals of Materials Engineering	40	2.5	1	
	5145001	Materials Physics	48	3	2	
	5144001	Materials Chemistry	48	3	2	
	6141001	Metallurgy of Physical Welding	48	3	2	
	6141002	Fundamentals of Electrochemical Corrosion	32	2	2	
	6142002	Macro- and Micromechanical Properties of Materials	32	2	2	
	6143001	Multiscale Simulation of Materials	32	2	2	
	6145001	New Energy Chemistry and Materials	32	2	2	
	6145002	Functional Porous and Polymer Material	32	2	2	
Compulsory part	8140101	Literature Reading and Thesis Proposal	-	1	4	
	8140102	Overseas Academic Exchange and Study & Training	-	1	1-8	