

材料类英文授课体系硕士培养方案

International Master Programme of Materials Science and Engineering

1. 研究方向 Research Fields

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| (1)金属和陶瓷材料 | Metal and Ceramics Materials |
| (2)表面工程 | Surface Engineering |
| (3)空间环境下材料行为 | Behavior of Materials under Space Environment and Test Technologies |
| (4)聚合物基复合材料 | Polymer Matrix Composite Materials |
| (5)复合材料细观力学 | Micromechanics of Composite Materials |
| (6)信息功能材料与器件 | Information Function Material and Device |
| (7)生物医学材料与器件 | Biomedical Materials and Device |
| (8)凝固科学与液态成形技术 | Science and Solidification of Liquid Forming Technology |
| (9)塑性成形理论与技术 | Plastic Forming Theory and Technology |
| (10)材料连接科学与技术 | Science and Technology of Materials Joining |

2. 课程设置 Course

类别 Type	课程编号 Course No.	课程名称 Course name	课程英文名称 English Course name	学时 Hours	学分 Credits	学期 Semester
学位课 Degree Courses	SYW00001Q	初级汉语口语 I	The Course of Primary Chinese Oral	64	2	秋 Autumn
	SYW00001C	初级汉语口语 II	The Course of Primary Chinese Oral	64	2	春 Spring
	SYW15001Q	中国文化与跨文化沟通	Chinese culture and cross-cultural communication	32	2	秋 Autumn
	S0612067Q	数值分析	Numerical Analysis	32	2	秋 Autumn
	S0612034Q	数理统计	Equations of Mathematics and Physics	32	2	春 Spring
	SYW03001Q	材料热力学	Thermodynamics and Kinetics of Materials	32/0	2	秋 Autumn
	SYW03002Q	固态相变	Solid state phase transformation	27	1.5	秋 Autumn
	SYW03003Q	材料表面与界面	Surfaces and Interfaces in Materials	32/0	2.0	秋 Autumn
	SYW03004Q	材料空间环境效应	Space Environmental Effects of Materials	16	1	秋 Autumn
	SYW03005Q	传热与流动数值模拟	Numerical heat transfer and fluid flow	18/8	1	秋 Autumn
	SYW03006C	塑性成形工艺及数值模拟	Plastic forming technique and numerical simulation	32	2	春 Spring
	SYW03007C	液压成形技术与控制	Hydroforming technology and process control	18/4	1	春 Spring
	SYW03008Q	材料连接中的界面行为	Interfacial behavior of joining and bonding	27	1.5	秋 Autumn
	SYW03009Q	电子封装中的微连接基础	Fundamentals of Microjoining in Electronics Packaging Technology	16	1	秋 Autumn
	SYW03014C	材料表面物理化学	Physics and Chemistry of Materials Surface	32/0	2	春 Spring

	SYW03010Q	材料先进表征技术	Advanced Materials Characterization Techniques	32	2	秋 Autumn
	SYW03011Q	纳米材料的制备及性能	Synthesis and properties of nanomaterials	27	1.5	春 Spring
	SYW03012Q	半导体器件物理基础	Fundament of Semiconductor –device Physics	16	1	秋 Autumn
	SYW03013C	陶瓷材料学	Ceramic Materials	32	2	春 Spring
	SYW03015C	生物材料	Biomaterials	27	1.5	春 Spring
	SYW03016C	钛铝金属间化合物及钛基复合材料	TiAl intermetallic and titanium matrix composites	16	1	春 Spring
	SYW03017Q	先进激光焊接技术	Advanced Laser Welding Technology	27	1.5	秋 Autumn
	SYW03018C	焊接热过程及应力变形的有限元分析	Finite element analysis for heat transfer, stress and deformation	18/6	1	春 Spring
	SYW03019Q	高能束焊接	High energy beam welding	16	1	秋 Autumn
	SYW03020C	空间摩擦学	Space Tribology	16	1	春 Spring
	SYW03021C	智能和纳米复合材料	Smart Nanocomposites	32	2	春 Spring
	SYW03022C	扫描探针技术	Scanning probe Microscopy	32	2	春 Spring
专题课 Special Topic	SYW03023C	新材料制造	Fabrication of new materials	32	2	春 Spring
必修环节 Required Parts	S0300XSJL	学术交流	Academic Communication	16	1	春 Spring
	S0300KTBG	开题报告	Thesis Proposal	16	1	秋 Autumn
	S0300ZQJC	中期检查	Interim Inspection	16	1	春 Spring

3. 培养规定 Regulations

材料科学与工程学科：专业学位课不少于 14 学分，专业选修课不少于 8 学分，专题课 2 学分。

For master candidates specialized in **Materials Science and Engineering**:

Degree courses for more than 14 credits, specialized optional courses for more than 8 credits, special topic course for 2 credits.