

	复合材料制备科学				
	Manufacturing Science and Technology on Composite Materials				
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	<p>Based on the frontier theory of composite material preparation and combined with the special characterization in manufacturing of composite materials, the course of ' Manufacturing Science and Technology on Composite Materials' will systematically introduce the cutting-edge manufacturing technology of composites, including manufacturing principle, processing method and technology and the relevant material properties on composites. It will also involve the knowledge in the fields of mechanics, acoustics, electrochemical, electromagnetic and material physics. The course introduces the manufacturing technology of composites in three aspects: the metal, ceramic and polymer matrix composites. In metal matrix composites, the course will introduce the mechanical alloying technology, in-situ synthesized technology, high-energy ultrasound assisted preparation technology, semi-solid stirring technology, porous matrix preparation technology, powder metallurgy method, explosion welding, thermal spraying method, and the secondary processing technology, mechanical processing, welding, heat treatment, surface treatment technology. The basic concept and manufacturing technologies of four important polymer matrix composites will be discussed, including polymer alloy, filling modification of polymer matrix composite, fiber reinforced polymer matrix composites and polymer matrix nanometer composite material. For ceramic composites, the course will present the manufacturing methods of particulate reinforced ceramic matrix composites, whisker reinforced ceramic matrix composites, fiber reinforced ceramic matrix composites and nano-ceramic composites. The course aims to systematically introduces the manufacturing principle and methods used in composites processing, widened student's horizon and provide a basic manufacturing knowledge for student's future research works of composites.</p>			

