

Information Form for SJTU Graduate Profession Courses

Basic Information				
* Course Name	Chinese			
	English	Algorithm Analysis for Forming Process		
* Credits	2	* Teaching Hours	32	1 =16
* Semester	Spring	* Cross-semester?	No	Spanning over Semesters
* Course Type	Program Elective Course	* Course Type	For full-time students	
* Course Category	Specialized Course	Targeting Students	All graduates	
* Instruction Language	Chinese	Teaching Method	In class teaching	
* Grade	Letter grading	Exam Method	Essay	
* School	050 School of Material Science and Engineering			
Subject	Material Science and Engineering			
Person in charge	Name	ID	School	E-mail
				Lexie@sjtu.edu.cn
Extended Information				
* () Course Description	200 CAD/CAM/CAE 1 CAD/CAM/CAE 2 3			
* English Course Description	<p>Plastic forming technology is one of the oldest production technologies in human society, and metal forming is its important symbol. The development of plastic forming technology has gone a long way from the earliest experience manufacturing to today's forming theory supported by computer and information technology. With the deeply penetration of computer aided technology on most aspects of plastic forming technology, computer has become an important support for plastic forming theory and technology. The research in the field of plastic forming technology cannot be inseparable from plastic forming software products, and also the later need constantly develop and improvement.</p> <p style="text-align: center;">This course will take the algorithm in plastic forming as the breakthrough point,</p>			

	<p>and explain the skills of software programming. The algorithm involves several key technologies in CAD/CAM/CAE in plastic forming technology, and the students will be able to realize many of them by their own programming.</p> <p>So that the students can achieve the following aims. (1) Master the key technologies of CAD/ CAM/CAE in plastic forming; (2) Have a deeper perceptual understanding of the software involved in the engineering field; (3) Master the basic programming skills and be able to realize several algorithms in plastic forming technology.</p>			
* () Syllabus	Content		Hours	Format
	OpenGL		2	
	Bezier Bezier		6	
	B B B NURBS		6	
			2	
			4	
	CAE CAE CAE		6	
	CAE		2	
	O		2	
	CAD CAD		2	
	* English Syllabus	Introduce the development of computer-aided technology and corresponding software in China; Graphics transformation technology and OpenGL.		2
Introduce geometric modeling methods. Explain the following concepts: Spline curve and Coons spline surface; Bezier spline curve, its properties and its advantages and disadvantages; the method of Bezier spline geometry drawing; Bezier splines surfaces. Draw the Bezier curves and surfaces.		6	Classr oom	
Explain the following concepts: B-spline curve and surface construction, NURBS curve and surface. Draw the B-spline curve and surface.		6	Classr oom	
Explain surface modeling technology, surface intersection and surface cutting.		2	Classr oom	

	Introduce the development of NC machining, NC machine tools and NC machining process; surface offsets; NC programming technology. Draw the NC tool path.	4	Classr oom
	Introduce CAE technology and surface triangulation discrete technology; the technology of CAE visualization. Explains the method of contour generation in CAE visualization; the visualization and dynamic display technology of scientific data. Draw the isolines to show dynamic visualization data.	6	Classr oom