

西安交通大学《高级三维建模》课程教学大纲

一、课程基本信息

I. Basic Information

课程名称 Course Title	高级三维建模 Advanced 3D Modelling		
课程编号 Course Number			
课程学分 Credits	3	总学时 Credit Hours	64
学时分配 Assignment of Credit Hours	理论:____ 实验:____ 上机:____ 课外:____ (课外学时不计入总学时) Lecture: <u>42</u> Studio:____ Practice in the IT room: <u>22</u> Extracurricular:____ (Extracurricular hours do not count towards the total number of hours.)		
课程类型	<input type="checkbox"/> 公共课程 Public Course <input type="checkbox"/> 通识课程 General Education Course <input type="checkbox"/> 学科门类基础课 <input type="checkbox"/> 专业大类基础课 <input checked="" type="checkbox"/> 专业核心课 Specialized Core Course <input type="checkbox"/> 专业选修课 Specialized Elective Course <input type="checkbox"/> 集中实践 Intensive Practice		
开课学期	<input type="checkbox"/> 1-1 <input type="checkbox"/> 1-2 <input type="checkbox"/> 2-1 <input checked="" type="checkbox"/> 2-2 <input type="checkbox"/> 3-1 <input type="checkbox"/> 3-2 <input type="checkbox"/> 4-1 <input type="checkbox"/> 4-2 <input type="checkbox"/> 5-1 <input type="checkbox"/> 5-2		
先修课程	none		

Prerequisites	
教材、参考书及其他资料 Materials (Textbook, Bibliography or Referencing and Supplementary Materials)	<p>[序号] 作者 1, 作者 2.教材名称.出版地: 出版者, 出版年.</p> <p>例: [1] 刘国钧, 陈绍业.电路分析.北京: 高等教育出版社, 1994.</p> <p>[1] Kunwoo Lee. Principles of CAD/CAM/CAE Systems. University of Michigan: Addison-Wesley, 1999.</p>

二、课程目标及学生应达到的能力

II. Course Objectives and Expected learning outcomes

(工科专业对标工程教育认证标准中专业毕业要求的 12 条具体指标点, 其他专业对标行业/评估标准中专业毕业要求的具体指标点)

1. The course aims to provide the students with advanced knowledge of Computer Aided Design (CAD) tools for the representation and the development of the industrial product.
2. The student will learn how to represent 3D geometries with solid modelling techniques, as well as the main features required by this kind of approach.

3. Focus will be given to the creation of parametric-associative models too, to their assembly and consequent technical representation.

课程目标与专业毕业要求的关联关系

Correlation between course objectives and graduation requirements
for the program

毕业要求：

Students of this program should meet the following graduation requirements:

A. Master extensive theories on engineering and technology, humanities, social sciences, natural sciences, etc., demonstrate high scientific literacy, strong humanistic and artistic dispositions, and physical and mental well-being;

B. Have solid theoretical knowledge of industrial design, and master the knowledge related to product and its development, design, aesthetics, engineering, technology, management, planning, teamwork, professional ethics, etc.;

C. Master methods and skills of industrial design and related fields, be able to apply multidisciplinary knowledge into reality, and have strong expression, creation, practical, problem analysis and solving skills in the field of design;

D. Have good communication skills, teamwork spirit, a strong sense of social responsibility, and international vision, and be capable of applying interdisciplinary knowledge in pioneering work.

毕业要求 课程目标	A	B	C	D
1. Knowledge of CAD software	M	H	M	L
2. Solid Modelling skills	H	M	H	L
3. Parametric and associative modelling understanding	H	M	M	L

注：毕业要求中 A、B、C、D、E、F、G、…对应毕业要求中各项具体内容。课程目标与专业毕业要求的关联关系用 H/M/L 标注。

Note: A, B, C and D indicate the specific aspects of the graduation requirements. H, M and L refer to a strong, medium and weak correlation between the course objectives to the graduation requirements respectively.

三、教学内容简介

III. Description of teaching contents

章节顺序	章节名称 Chapter Title	知识点 Teaching Points	参考学时 Credit Hours
1	Introduction to CAD software	<ol style="list-style-type: none"> 1. Overview of CAD tools. 2. Role and purpose of CAD systems within the development cycle of a product. 3. Overview of modelling approaches. 	8
2	Solid Modelling Fundamentals	<ol style="list-style-type: none"> 1. Solid modelling techniques 2. 2D Sketches 3. Modelling by-features 4. Modelling operators 5. Dimensioning and parametrization 6. Introduction to Assemblies. 7. Project presentation 	24
3	Technical Representation Methods	<ol style="list-style-type: none"> 1. Introduction to representation standards 2. Views and Sections 3. Assemblies' representation 	16
4	Project revision	<ol style="list-style-type: none"> 1. Supporting the students in their final exam project 	16

四、教学安排详表

IV. Teaching Arrangements

序号	教学内容 Teaching contents	学 时 分配 Credit Hours	教学方 式 Teaching Methods	教学要求 (知识要求及能力要求) Learning Objectives (Knowledge objective & ability objective)	对课程目 标的支撑 关系 Related to which Course Objective
1	Introducti on to CAD software	8	Theory	To understand the role of CAD/CAE software in industrial product development	1

2	Solid Modelling Fundamentals	12	Theory & Practices	To gain skill in CAD drawing using solid modelling techniques, selecting the most appropriate features, and knowing how to correctly parametrize them.	2+3
3	Technical Representation Methods	12	Theory & Practices	To gain knowledge about the different representation methods available, and being able to correctly provide technical drawings of selected parts.	2+3
4	Project revision	8	Theory & Practices	The students will learn to cooperatively work together to complete the assigned project that will be evaluated as their final exam.	1+2+3

注：对课程目标的支撑关系可填写大纲中第二部分课程目标的相应序号。

The column *Related to which Course Objective* can be filled in with the number of the corresponding course objective in Part II.

五、实践环节

V. Studio/Lab

实验编号 No.	实验名称 Subject Name	实验内容 Contents	教学方法 Teaching Methods	对课程目标的 支撑关系 Related to which Course Objective
1	n/a			
2	n/a			
3	n/a			

注：对课程目标的支撑关系可填写大纲中第二部分课程目标的相应序号

The column *Related to which Course Objective* can be filled in with the number of the corresponding course objective in Part II.

六、课外学时分配

VI. Extracurricular Practice

章节顺序	内容 Contents	参考学时 Credit Hours	对课程目标的 支撑关系 Related to which Course Objective
1	n/a		
2	n/a		
...	n/a		

注：对课程目标的支撑关系可填写大纲中第二部分课程目标的相应序号。

The column *Related to which Course Objective* can be filled in with the number of the corresponding course objective in Part II.

七、考核方式及成绩构成

VII. Evaluation and Composition of Grades

The course will include a per-student examination that will provide 50% of the final grade, and a group final project that will provide the remaining 50%.

大纲制定者: Pietro Piazzolla

大纲审核者: _____

最后修订时间: ____年__月__日