

## Data Sheet of International Undergraduate's Course, Tongji CAUP

### 同济大学建筑与城市规划学院本科生国际课程(英语)登记表

Course Code 课程编号	020395	Department 所在系(✓)	A	P	L	D	院登记号 CAUP Code	
Instructor(Title) 主讲教师(职称)	Associate Prof. SUN Chengyu	Other Teachers 合作教师						
	孙澄宇 副教授							
课程中文名	计算机图辅助设计(上)							
Course Name (E)	VISUALIZATION in COMPUTER-AIDED ARCHITECTURAL DESIGN							
Form of Teaching 教学形式(✓)	Lectures 讲课	Design Studio 设计课	Seminar 研讨课		Internship 实践课		Others 其他	
	✓							
Total Hours 总学时数	34	Hours per Week 周课时	2		Weeks 教学周数		17	
Semester 春季或秋季学期	Spring 春季	Tongji Credits 同济 学分数	2					
Brief Course Description 课程简述 (中英文)								
<p>As communication media of designs, various visualization methods are used by architects. In this course, the popular ones, namely diagrams, sections, illustrations, mockups, evaluations, and films, are introduced with essential computer techniques, which cover the topics like 2D drawing, 3D (free) form modeling, rendering, digital fabrication, performance simulation, and multimedia edit.</p> <p>本课程是面向低年级外籍本科生的全英语建筑学专业基础课。通过教学使学生掌握在设计过程中,用来创作各种类型设计图示所必需使用的多种计算机辅助设计工具软件。一方面,结合设计图示创作的常见方法,教授各软件的原理、概念、操作;另一方面,基于实际的设计图示创作练习,实现所学知识与设计需要相结合的目的。</p>								
Brief Schedule and Topics 课程进度简表 (中英文)								
<p>Week 1 - 3</p> <ul style="list-style-type: none"> <li>● Visualization with 2D drawings: Draw a diagram in a vector system (AutoCAD)</li> </ul> <p>第1-3周</p> <ul style="list-style-type: none"> <li>● 二维图示的创作: 矢量绘图工具(以 AutoCAD 为例)</li> </ul> <p>Week 4</p> <ul style="list-style-type: none"> <li>● Visualization with 2D drawings: Transfer from a vector drawing into a bitmap drawing (AutoCAD &amp; TIFF)</li> </ul> <p>第4周</p> <ul style="list-style-type: none"> <li>● 二维图示的创作: 矢量成果的位图转换</li> </ul> <p>Week 5 - 7</p> <ul style="list-style-type: none"> <li>● Visualization with 2D drawings: Draw a diagram in a bitmap system (Adobe Photoshop)</li> </ul> <p>第5-7周</p> <ul style="list-style-type: none"> <li>● 二维图示的创作: 位图绘图工具(以 Photoshop 为例)</li> </ul> <p>Week 8-10</p>								

- Visualization with 3D models: Build a 3D model (Rhino)

第 8-10 周

- 三维图示的创作：建立三维模型（以 Rhino 为例）

Week 11

- Visualization with 3D models: Set up a virtual stage (Vray for Rhino)

第 11 周

- 三维图示的创作：设计虚拟的三维舞台（以 Vray 为例）

Week 12

- Visualization with 3D models: Render a 3D model into illustrations (Vray for Rhino)

第 12 周

- 三维图示的创作：虚拟场景的渲染（以 Vray 为例）

Week 13

- Visualization with 3D models: Evaluate a 3D model into analysis diagrams (Ecotect)

第 13 周

- 三维图示的创作：三维设计的性能评估（以 Ecotect 为例）

Week 14

- Visualization with 3D mockups

第 14 周

- 实物模型的制作

Week 15-17

- Visualization with movies or VR

第 15-17 周

- 视频或虚拟现实的制作

## Course Syllabus 课程大纲（中英文）

### COURSE DESCRIPTION

As communication media of designs, various visualization methods are used by architects. In this course, the popular ones, namely diagrams, sections, illustrations, mockups, evaluations, and films, are introduced with essential computer techniques, which cover the topics like 2D drawing, 3D (free) form modeling, rendering, digital fabrication, performance simulation, and multimedia edit.

### 课程介绍

本课程是面向低年级外籍本科生的全英语建筑学专业基础课。通过教学使学生掌握在设计过程中，用来创作各种类型设计图示所必需使用的多种计算机辅助设计工具软件。一方面，结合设计图示创作的常见方法，教授各软件的原理、概念、操作；另一方面，基于实际的设计图示创作练习，实现所学知识与设计需要相结合的目的。

### REQUIREMENTS

- 1) have a Microsoft Windows based laptop computer with available internet connection.
- 2) have a student email address from Tongji University, which looks like [xxx@tongji.edu.cn](mailto:xxx@tongji.edu.cn) ;
- 3) have basic knowledge and skill about personal computer Operation System & Microsoft Office tools,

such as Word, Excel, and PowerPoint;

- 4) have initial concepts about design and space;
- 5) have basic skill of sketching with pen and paper.

### 课程要求

- 1) 必须熟练使用自带的个人计算机（建议采用 Windows 7 操作系统）;
- 2) 必须充分运用自己的学生身份资源，能够在互联网上获取各种软件工具；
- 3) 必须能够熟练使用常用办公软件；
- 4) 必须对设计与空间的概念具有基本认识；
- 5) 必须具有基本的图演思考与讨论能力。

### Main Reference Books 主要参考书目

#### Textbooks:

Philippe Block et al. *Advances in Architectural Geometry*. 2014.

Peter Wildbur. *Information Graphics: a survey of typographic, diagrammatic and cartographic communication*, Trefoil Publications Ltd., London, 1989.

Criss B. Mills. *Designing with Models – A Studio Guide to Making and Using Architectural Design Models*. 2011.

Iain Fraser, Rod Henmi. *Envisioning Architecture: An Analysis of Drawing*. 1993.

#### Websites:

<http://www.adobe.com>

<http://www.autodesk.com/education/free-software/students-university/all-products>

<http://www.rhino3d.com>