**Data Sheet of International Master's Courses CAUP, Tongji**

**同济大学建筑与城市规划学院研究生国际课程(英语)登记表**

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|---|---|---|---|---|---|---|---|---|
| Course Code<br>课程编号 | 2010316 | Department<br>所在系(√) | A<br>√ | P | L | D | 院登记号<br>CAUP Code | |
| Instructor(Title)<br>主讲教师(职称) | Ass. Prof.<br>Yuan Feng<br>袁烽 副教授 | Other Teachers<br>合作教师 | | | | | | |
| 课程中文名 | 参数化图解设计方法研究 | | | | | | | |
| Course Name (E) | Advanced Debate on Architectural Design Methodology in Parametric Diagram(Graphic Demonstration of the Methods in Architecture Design) | | | | | | | |
| Form of Teaching<br>教学形式 (√) | Lectures<br>讲课 | Design Studio<br>设计课 | Seminar<br>研讨课 | Internship<br>实践课 | Others<br>其他 | | | |
| | √ | | √ | | | | | |
| Total Hours<br>总学时数 | 36 | Hours per Week<br>周课时 | 2 | Weeks<br>教学周数 | 18 | | | |
| Semester<br>春季或秋季学期 | Fall<br>秋季 | Tongji Credits<br>同济 学分数 | 2 | | | | | |

Brief Course Description 课程简述（中英文）

# Introduction

# 课程介绍

**The Diagrams of Architecture**

**建筑图解**

课程设计成图解的历史，建筑图解设计方法的过去、现在和未来的概览。因为主题略微超越了建筑本身，课程也指出建筑图解（历史、理论和未来）如何可能与其他通常不被认为是建筑的设计、建成、使用、体验空间（及其图解）产生关联。课程的另一教学目是通过不同的图解理论和实践向学生提供一系列富有启示的不一样的建筑理论和实践。平行阅读材料尽量选择领域内的代表著作，包括著名的，古典的，历史的和国际的，以前未发表的，但重要的文本，及新近富有创意的著作。
首先，我们塑造（以整体的形式）一个包含建筑理论和历史的图解（通过对此图解的图解及文字解说）。其次，构成一个包含建筑图解的图解。最后，用图解来连接文章和课程的各部分以形成对于建筑图解的批判性图解。设计成为一种元图解，用来阅读、理解和批评文本、图纸和理论。

Thiscourse is designedas a diagrammatic history, and overview of the past, present and future of diagrams, *in*architecture and *of* architecture. Because the subject exceeds and lies partly beyondarchitecture itself, the lectures also indicate how architectural diagrams (their histories,theories and futures) might be linked to other designed, built, imagined, used andexperienced spaces (and their diagrams) that are not conventionally considered to bearchitectural. Another goal of the course is to provide an indicative array of some of thedifferent ways of theorizing and practicing architecture through different theories andpractices of the

diagram. The selection of parallel reading materials are designed to be as representativeof the field as possible and to include the famous, classical, historical andinternational canon of works, previously obscure or unpublished, marginal butsignificant texts, and very recent original contributions.

Firstly, we form (as a whole) a diagram of the history and theories ofarchitecture (through the diagram and texts about the diagram). Secondly, they constitute adiagram of diagrams in architecture. Lastly, the diagrams have been built into and betweenthe articles and parts of the course to become a kind of critical diagram of the Diagrams ofArchitecture itself. Designed as a kind of meta-diagram, they are positioned to reflect,enhance and critique the texts, diagrams and books overall.

**The Parametric Diagram**

**参数化图解**

将科技引入图形已不是一种新现象。但是，通过科技、数学以及科学地运用形式的过程却是一种新现象。在设计过程中的许多阶段，相关信息的几个层次被拼接和分析。这个过程需要花费很多时间和精力，特别是包含科学和运算参数。

参数化图解使信息收集、分析和设计可同步进行，立刻对数据产生回应，得到结果。数据可以来源于太阳研究、风的研究、空间关系、法规要求等等的信息。

参数化图表并不完全是未知的现象，它在很多层面上是图形的演变结果。技术图表有可能是参数化科技图表在参数领域的最紧密关联，但是参数图表的过程和结论都是独一无二的。

此间的图解的过程已转变为建筑，反之亦然。构造来自于参数，就像一个数学公式，然而解决方法是三维的，是问题的过程和结果的建筑表现。

Zaha Hadid建筑事务所目前在参数化设计领域处于领先地位。其合伙人Patrik Schumacher在参数化设计理论和实践中位于前沿。同时，我们也将讲解从KarlChu,Evan Douglis,Greg Lynn,Neil Leach,Roland Snooks等一系列建筑理论家与参数化设计学者。

Introducing technology into the diagram is not a new phenomenon. However, the process of forming the diagram through the use of technology, mathematics and science is. At many stages of the design process, several layers of related information are collated and analyzed. This process may take time and much energy especially within the parameters of science and arithmetic.

The parametric diagram allows the collection, analysis and design to be done in the same process, simultaneously, giving almost instant results in response to data. This data may be information from sun studies, wind studies, connections and relationships of space, regulatory requirements and so on.

The parametric diagram is not a completely unknown phenomenon however; it is the result of the evolution of the diagram at many levels. The technical diagram is possibly of the closest relation to the parametric the technical diagram deals with parameters, but the process and result are unique to the parametric diagram style.

The diagram here becomes the architecture and vice versa. The tectonic is formed from the

parametric – like a mathematical equation, yet the solution is three-dimensional, and is an architecturally literal representation of the process and solution of the question.

Zaha Hadid architects currently lead the way in parametric design and representation. Patrik Schumacher – partner in the practice also leads the discussion and theory of parametric design and philosophy.

Other architects evolving into this style KarlChu,Evan Douglis,Greg Lynn,Neil Leach,Roland Snooks

| AGENDA | | | |
|---|---|---|---|
| PART A INTRODUCTION: HISTORY AND THEORIES IN THE DIAGRAM OF ARCHITECTURE | 1ST WEEK | 9/20 | 1. INTRODUCTION |
| | 2ND WEEK | 9/27 | 2. PHILOSOPHY ORIENTATION AND BACKGROUND, HISTORY AND THEORIES OF THE DIAGRAMS OF ARCHITECTURE |
| | 3RD WEEK | 10/11 | 3. LECTURE: GUEST PROFESSOR （Wang Fei） ARCHITECTURE AS DRAWING?—A BRIEF HISTORY OF ARCHITECTURAL DRAWING AND REPRESENTATION |
| | | 10/13 | 4. LECTURE: GUEST PROFESSOR （Neil Leach） |
| | | 10/16 | 5. LECTURE: GUEST PROFESSOR （Wang Fei） FROM PERSPECTIVE TO ANAMORPHOSIS AND AXONOMETRY |
| | 4TH WEEK | 10/18 | 6. Panel Symposium（Alisa Andrasek / Biothing + others） |
| PART B CONTEMPORARY METHODOLOGY IN DIAGRAM | 5TH WEEK | 10/25 | 7. THE FORMALIST DIAGRAM (ASSIGNMENT 1) |
| | 6TH WEEK | 11/1 | 8. THE PROGRAMMATIC DIAGRAM (ASSIGNMENT 2) |
| | 7TH WEEK | 11/8 | 9. THE TECHNICAL DIAGRAM |
| | 8TH WEEK | 11/15 | 10. COMMENTS ON ASSIGNMENTS 1 & 2 1. DIAGRAMMING THE PHYSICAL TRANSFORMATION OF ICE 2. DIAGRAMMING POETRY |
| PART C PARAMETRIC DIAGRAM AND GEOMETERY | 9TH WEEK | 11/22 | 11. GEOMETERY AND ARCHITECTURE |
| | 10TH WEEK | 11/29 | 12. PARAMETRIC SHAPE GRAMMAR (ASSIGNMENT 3) |
| | 11TH WEEK | 12/6 | 13. PARALLEL AND COLOR GRAMMAR |
| | 12TH WEEK | 12/13 | 14. COMMENT ON ASSIGNMENT 3 3. TRANSFORMING CHINESE TRADITIONAL PATTERNS INTO SPACE INTRODUCTION TO PAVILION DESIGN ASSIGNMENT |
| PART D WORKSHOP | 13TH WEEK | 12/20 | |
| | 14TH WEEK | 12/27 | |
| | 15TH WEEK | 1/3 | 15. COMMENT ON PAVILION ASSIGNMENT PAVILION DESIGN |
| | 16TH WEEK | 1/10 | 16. COMMENT ON PAVILION ASSIGNMENT |

**Agenda**

日程安排

The course is structured into four main parts:

课程主要分为四部分：

第一部分为课程介绍，主要关注建筑图解的历史和理论。在这一阶段我们将以建筑图解的哲学背景研究和本体论开始。此外，我们将进行一场关于图解历史之前的辩论，分析“建筑图纸和表现”和“以异形及轴测的角度”两个主题。

课程解读图解历史，从众多理论角度，阅读包括Anthony Vidler, Giles Deleuze & Felix Guattari, Robert Somall, Peter Eisenman and Sanford Kwinter等人的文章，探索更加主观、诗意、艺术性、多感官、现象、文化等有关的设计图解以及建筑体验。

**Part A** is the introduction,which is focused on the history and theories of the diagram of architecture.In this stage, we shall begin with a philosophical background research and the ontology on diagrams of architecture. Moreover, we will hold a debate on a brief pre-history of diagram,which analyzesboth the topics of “architectural drawing and representation” and “from perspective to anamorphosis and axonometry”.
Contextualizing the lectures on the diagram in history and from a number of theoretical standpoints, existing reading articles by Anthony Vidler, Gilles Deleuze & Felix Guattari, Robert Somal, Peter Eisenman and Sanford Kwinter, have been included to explore the more subjective, poetic, artistic, multisensory, phenomenological, contextual and culturally contingent dimensions of the diagram in the design and experience of architecture and place.

第二部分的主题是图解的当代方法论。在这一现代时期，我们将从三方面聚焦主题，包括形式主义图解，程序图解和结构图解。在这三次讲座中，学生们的学习重点将更多的转移到案例学习上，诸如独立设计、建筑、项目，尤其是建筑师，包括六篇已经发表的论文和四篇新的建筑师文章，他们次前从未写过图解在他们的建筑中的作用。挑选的论文不仅仅让我们更深入的了解那些在运用图解年方面有独树一帜造诣的建筑师，而且强调了主题及图解在单个学术或专业建筑项目实践和理论中存在的问题。其中包括对Bernard Tschumi的访谈，和业界对权威人士Peter Eisenman普遍认可。其余的还有对Will Alsop的访问，文章包括OMA的图解，外国建筑办公室，MVRDV的Will Alsop 和Winy Mass, UNStudio 的Ben Van Berkel和Caroline Bos, Reiser +Umemoto的Jesse Reiser及Nanako Umemoto, Zaha Hadid建筑事务所的Partik Schumacher及Nox 的Lars Spuybroek.
第二部分将引入两个小作业，“图解冰的物理转变”和“图解诗歌”，将分别放在第五周和第六周。作业点评将在第八周进行，随后进入课程的第三部分。
两个作业各占15%（总共30%）。
**Part B** is the topic of “Contemporary Methodology in Diagram”. In this contemporary stage, we will focus on enhancing the topic from three perspectives, including the formalism diagram, programmatic diagram and structural diagram. Accompanied by the three lectures, students will also be shifting in scope to the more case-study like level of individual designs, buildings, projects and particular architects, including six republished essays, and four new essays by architects, who have never written on the role of the diagram in their architecture. Each essay was selected not only to provide more forensic insights into specific architects whose work with the diagram is unique in some way, but also to highlight the crucial themes, issues, questions and problems that diagrams raise at the coalface of individual academic or professional architectural projects, practices and theories. Including an interview with Bernard Tschumi, and acknowledging Peter Eisenman as a leading authority in the field.The remainings include an interview with Will Alsop, and essays on the diagrams of OMA, Foreign Office Architects, Will Alsop and Winy Maas of MVRDV, Ben van Berkel and Caroline Bos of UNStudio. Jesse Reiser and Nanako Umemoto of Reiser + Umemoto,Patrik Schumacher of Zaha Hadid Architects and Lars Spuybroek of NOX.

Two short assignments will be introduced during Part B, “diagramming the physical transformation of ice” and “diagramming poetry” in weeks 5 and 6 respectively. Feedback for these assignments will be given on week 8 before moving on to Part C.
These assignments have a weighting of 15% each (30% total).

第三部分是参数化图解的新议题。这部分课程来源于MIT的Terry Knight教授的研究生课程。几何和运用几何生成形状的新方式将把我们带入新的领域。参数化形状语法、颜色语法是引领设计新思维的设计方法。

**Part C** is on the new topic of parametric diagrams. Generally, this part is taken from a graduate course, taught by Terry Knight in MIT. Geometry and new ways of generating shape from geometry will lead to a new sphere. Parametric shape grammar and parallel and colour grammar are design methods towards a new thinking in architectural design.

第3个作业安排在第10周。此作业将研究传统中国图案并运用空间来表现。该任务所占的比重为15%。

Assignment No.3 will be introduced during week 10. This assignment will look into Traditional Chinese patterns and representing these as space. This assignment has a weighting of 15%.

第四部分是作业阶段。你需要通过团队合作来设计创作场馆，利用之前几个星学到的素材作为你的设计中理论和表现技术的基础。此次是本次课程的主要作业，分值占总比重的55％。

**Part D**is an assignment stage. You will be working in teams to design and create pavilions, using the material provided from the previous weeks as your basis for the theory and representation techniques for your designs. This is the major assignment for this lecture and workshop series and will have a weighting of 55%。

分值分布

三个小作业，占总分的45％，各占总分的15％。

作业1安排在第5周。

作业2安排在第6周。

作业3安排在第10周。

主作业——作业安排在第10周，占总分的55％。

**Weighting**

There are three short assignments, which have a total weighting of 45%. All three assignments have a weighting of 15% each.

Assignment 1 is given on week 5.

Assignment 2 is given on week 6.

Assignment 3 is given on week 10.

The main assignment – assignment four is given during week ten and has a weighting of 55%.

Assignment 4 is given on week 12.

For dates of comments/feedback, see agenda schedule.