

南京大学建筑与城市规划学院 建筑系

# 教学年鉴 2011—2012

THE YEAR BOOK OF ARCHITECTURE PROGRAM

2011-2012, Volume 12

SCHOOL OF ARCHITECTURE AND URBAN PLANNING

NANJING UNIVERSITY

华晓宁, 刘铨, 王丹丹 编 EDITORS: HUA Xiaoning, LIU Quan, WANG Dandan  
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南京大学建筑与城市规划学院 建筑系

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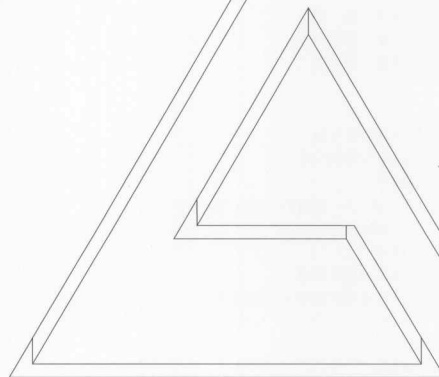
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| 吉国华 教 授 | Professor JI Guohua           |
| 周 凌 副教授 | Associate Professor ZHOU Ling |
| 傅 筱 副教授 | Associate Professor FU Xiaao  |
| 胡友培 讲 师 | Lecturer HU Youpei            |

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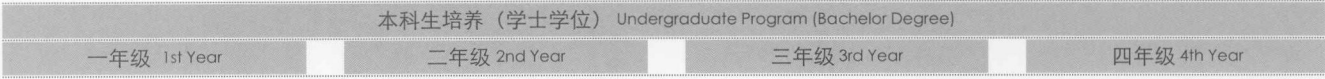
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南京大学建筑与城市规划学院建筑系  
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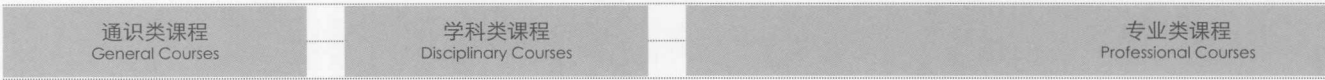
教学阶段  
Phases of Education



教学类型  
Types of Education



课程类型  
Types of Courses



主干课程  
Design Courses



理论课程  
Theoretical Courses



技术课程  
Technological Courses



实践课程  
Practical Courses





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	本科一年级	本科二年级	本科三年级
	Undergraduate Program 1st Year	Undergraduate Program 2nd Year	Undergraduate Program 3rd Year
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Design Courses		建筑设计（一） Architectural Design 1	建筑设计（三） Architectural Design 3
			建筑设计（四） Architectural Design 4
			建筑设计（五） Architectural Design 5
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Architectural Theory			居住建筑设计与居住区规划原理 Theory of Housing Design and Residential Planning
			城市规划原理 Theory of Urban Planning
建筑技术	理论、材料与结构力学 Theoretical, material & structural Statics	CAAD理论与实践 Theory and Practice of CAAD	建筑技术（一） 结构与构造 Architectural Technology 1: Structure Construction & Execution
Architectural Technology	Visual BASIC程序设计 Visual BASIC Programming		建筑技术（二） 建筑物理 Architectural Technology 2: Building Physics
			建筑技术（三） 建筑设备 Architectural Technology 3: Building Equipment
历史理论	古代汉语 Ancient Chinese	外国建筑史（古代） History of World Architecture (Ancient)	外国建筑史（当代） History of World Architecture (Modern)
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实践课程		古建筑测绘 Ancient Building Survey and Drawing	工地实习 Practice of Construction Plant
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General Courses	语文 Chinese	社会调查方法 Methods for Social Investigation	
	名师导学 Guide to Study by Famed Professors		
	计算机基础 Basic Computer Science		
选修课程		城市道路与交通规划 Planning of Urban Road and Traffic	人文地理学 Human Geography
Elective Courses		环境科学概论 Introduction of Environmental Science	中国城市发展建设史 History of Chinese Urban Development
		人文科学研究方法 Research Method of the Social Science	欧洲近现代文明史 Modern History of European Civilization
		美学原理 Theory of Aesthetics	中国哲学史 History of Chinese Philosophy
		管理学 Management	宏观经济学 Macro Economics
		概率论与数理统计 Probability Theory and Mathematical Statistics	管理信息系统 Management Operating System
		国学名著导读 Guide to Masterpieces of Chinese Ancient Civilization	城市社会学 Urban Sociology





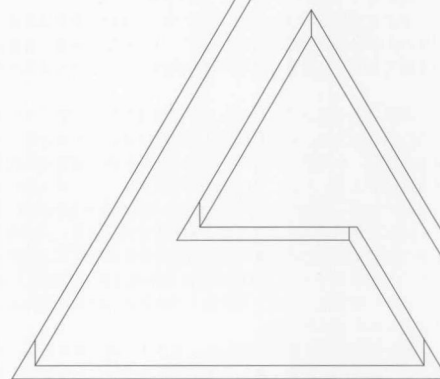


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## 探索建筑教育的多元化模式 · 丁沃沃

建筑学在西方已有大约500年的历史，是西方大学里的传统学科。上个世纪之初随着西学东进的潮流中国引入了西方建筑学教育，因此对于中国来说，建筑学教育历史远远短于我们辉煌的建筑历史。以西方建筑学为基础的我国建筑教育体系近百年来为国家培养了大量的职业建筑师，尤其是近三十年来新一代的建筑师在我国城市化进程中发挥了巨大的作用。随着社会发展的需要，我国目前不仅需要大量的城市建设者，也需要更多有专业知识的城市经营者和管理者，也更需要高质量的设计师。因此，作为建筑教育工作者应该根据国家的需要，在不同历史阶段对建筑学教育作相应调整。

从社会需求来看，城市化进程的提速和城市建设质量的提高将使国家对建筑师的需求由数量转向质量。从行业发展趋势来看，高端专业人才的培养直接关系到国家各行业整体质量的提升。就建筑学专业学位而言，它的设立意在提高应用型人才的专业能力和综合素质，是在原有建筑学培养计划的基础上加强应用技术的输入、行业规范的教育以及实际操作能力的训练，而不能理解为将原有的建筑学教育降低为以操作性为主的职业教育。建筑学学位的多样化应该应对建筑教育的多样化，因此，探索适合我国经济发展模式、发展阶段，同时和国际接轨的有自身特色的建筑学学位教育模式非常有必要，且意义重大。为此，南京大学建筑学教育开始研究建筑学教育的发展趋势和大学多学科基础对建筑学的影响，探索多学科交叉背景下建筑学教育的新思路。

在分析了国内外一流大学建筑教育的基础上，我们认为现行的建筑教育存在两个主要问题：a. 专业学位过于重复，即本科五年学生已经获得了可以参加执业资格考试的建筑学学士，在研究生阶段又须三年获得一个建筑学硕士。两个专业学位共耗时8年，仅层次不同，对执业资格考试没有本质的影响。对学生来说学制过长，对学校来说浪费了有限的资源。b. 过早强化专业知识。由于本科要拿专业学位，所以只能压缩一般大学知识尽早进入专业教育以满足专业学位的学时数。知识基础不够宽，研究视野不够广，方法不系统和学术不规范等问题，使得学生后续发展空间受到限制。相对于国际一流大学，我们的建筑学学术研究一直在较低水平上徘徊。据此，我们认为应重新整理教育思路，结合国情，建构分类贯通的建筑学人才培养新模式。

为此，南京大学建筑学科首先对自己的培养目标进行定位，在学院全体教师的充分讨论和论证下，根据南京大学的性质、地位和资源，决定了建筑学人才培养的目标：建筑学高端人才。根据国家发展的需要，结合我国国情和建筑学的学科特色，我们设定了分层次、分类型的人才培养方案。尤其是结合专业教育和学术教育的不同要求，注重三类人才的培养：应用型、复合型 and 学术型。

1. 高层次应用型人才：随着我国城市化进程的提速和城市建设质量的提高，国家对建筑师的需求将会由数量向质量转变。从发展趋势来看，高端建筑设计专业人才的培养直接关系到国家建筑行业整体质量的提升，国家目前迫切需要建筑学高端应用型人才。

2. 高层次复合型人才：我国正处于城市化发展的快速且关键阶段，新理念、新事物和新行业不断变化，因此具有宽基础的有应变能力的复合型人才会对国家的发展与建设做出贡献。就建筑行业而言，建筑的开发行业和管理行业都需要具有建筑学背景的复合型专业人才。为此，美国一流大学在本科一、二年级实行的不分专业的通识教育有借鉴的价值，这种机制提供了后期在高端教育中跨学科培养的可能。

3. 高层次学术型人才：从提高国家竞争力的角度看，高层次学术型人才的培养不仅是提升国家整体实力的需要，也是衡量教育和科学水平的需要。随着我国综合国力的提升，对高层次学术型人才的需求会越来越迫切。高层次人才培养是一个系统工程，并不能一蹴而就。为此，高层次人才的培养必须从基础抓起。只有广阔的学识才能支撑起有高度的学术空间。

在培养目标和参照标准明确之后，南京大学建筑学科在同行的支持和鼓励下，开始了建筑教育体系的全面改革：由建筑教育的单一化（培养职业建筑师）模式改革为多元化模式，即为整个建筑行业的需求培养人才。具体的构架是：本科实行多目标、宽口径的通识教育培养模式，同时为研究生阶段的专业教育打下坚实而宽阔的基础；研究生阶段实行国际通行的课程体系培养高层次专业人才，同时以实习基地的模式结合国情强化学生的操作能力。博士阶段走国际化之路，将研究课题直接和国际接轨。

经过为期6年的探索，初步形成了一套较为完整的体系。在学制的设置方面吸取了国际一流大学建筑学的办学经验，同时结合我国国情和建筑学的学科特色，建构了分层次分类型地建构人才培养方案，即：2（通识）+2（专业）+2或3（研究生）模式。

具体地说就是第一个2年设定为建筑学的通识教育阶段，其中包括一年级的大学通识和二级的建筑学基础通识；第二个2年为建筑学专业教育，强化专业知识；最后的2（或3）年为研究生教育，同时设立了三个培养目标，即专业型教育、复合型教育和学术型教育。我们针对各类人才的需求，对培养模式做了进一步细化，即2+2+2的专业型人才培养、2+2+3的复合型人才培养、2+2+6的学术型人才培养等模式，这样就构成了我们多元化建筑学高层次人才的培养体系。

在课程体系的设计方面，我们概括为：一条主干、四个类别、多项选择。以模块化的课程组合构架出不同的课程体系，实现了以核心课程为主干的开放式、分类型的高层次人才培养模式。

一条主干是指以设计训练为主干，其中包括了各类别的基础设计、建筑设计和城市设计。四个类别的课程分别为：基本知识、课程设计、理论训练、设计实践。多项选择即：各类跨学科选修课、各类设计工作坊、国际合作教学和基地实习。由于各类人才的培养分类在研究生阶段，因此我们主要对研究生课程进行整合、重组，实现课程多样化，做到了精炼必修课程，强化专业核心课程，针对不同类型的人才培养模式设置不同的课程模块，根据不同类型进行选择 and 组合。

南京大学建筑学科多元化培养模式力求做到四个相结合：前瞻性和可操作性相结合；实践性训练和研究性训练相结合；规范性设计与创意性设计相结合；国际化视野和中国特色相结合。该模式实行6年来，从学生的综合素质来看，该培养模式基本达到了预期的效果。对于南京大学建筑学教育来说，本科的培养仅仅是阶段性成果，研究生阶段的多样化教育是建筑教育的核心。

The architecture in the western countries has a history of about 500 years, and it is one of the traditional disciplines of western universities. With the trend of "Learning from the western countries and introducing the knowledge into the Oriental countries" at the beginning of the last century, China has introduced a western architectural education. So, for China, the history of architectural education is far shorter than our splendid architectural history. Over the past century, China's architectural education system that is based on the western architecture has cultivated a large number of professional architects for the nation; especially in the past three decades, the new generation of architects has played a huge role in the urbanization process of China. With the needs of social development, contemporary China needs not only a large number of city builders, but also more urban operators and managers with expertise, as well as qualified designers. Therefore, educators should make relevant adjustment to the architectural education in different historical stages according to the needs of the country.

From the perspective of social demands, the speed of the process of urbanization and the improvement of the quality of urban construction will make the national demand for architects change from quantity to quality. From the perspective of industrial trends, the training of high-end professionals relates directly to the enhancement of the overall quality of various industries of China. And from the perspective of professional degree of architecture, it's setup intends to improve the professional competence and overall quality of the applied talents, and to strengthen the input of the applied technology, the education of the industry standards and the training of actual operating capacity based on the original architectural training plan, and it cannot be understood as lowering the original architectural education to the vocational education focusing on the operability. The diversification of the degree of architecture should correspond to the diversification of architectural education. Therefore, it is necessary and important to explore the mode of architectural degree education that is suitable for China's economic development model and stage of development, and has its own distinctive feature conforming to international standards. Therefore, the architectural education in Nanjing University has started to

## EXPLORATION ON THE DIVERSIFIED MODE OF ARCHITECTURAL EDUCATION • DING Wowo

study the development trend of architectural education and the impact of university multidisciplinary basis on the architecture, and explore the new ideas of architectural education under the background of the crossed multidiscipline.

Based on the analysis of the architectural education in the leading universities at home and abroad, we believe that the current architectural education has two major problems: a. the professional degree is too repetitive, i.e. a five-year undergraduate student has acquired the degree of bachelor of architecture necessary for participating in the licensing examination, and he or she needs another three years to acquire a degree of master of architecture at the graduate level. The two degrees are of different levels and take total of 8 years, having no essential impact on the licensing examination. For the students, the school system is too long; and for the universities, it is a waste of the limited resources. b. premature strengthening on the expertise. Since the undergraduate students have to obtain professional degrees, we can only compress the general academic knowledge teaching as soon as possible and enter the stage of professional education to achieve the required hours for professional degrees. Such problems as the knowledge base is not wide enough, the research vision is not open enough, the method is not systematic enough and the academic is not standardized enough, etc., resulting in the students' subsequent development space being restricted. Compared to world-class universities, our academic research on architecture is hovering at a lower level. Accordingly, we consider refreshing the ideas of education and combining with the national conditions to construct a new classification-through mode of architectural talent training.

To this end, Nanjing University positions the objectives of its architectural training first. Upon a full discussion and argumentation among all the teachers of the school and based on the nature, status and resources, the objectives of architectural talent training are determined as: high-end architectural talent. According to the needs of national development and in combination with China's national conditions and the disciplinary characteristics of architecture, we establish a hierarchical and classified talent training program. Especially in combination with the different requirements of professional education and academic education, we focus on the training of three types of talents: applied type, versatile type, and academic type.

1. High-level applied talents: With the acceleration of the urbanization process and the improvement of the quality of urban construction in China, the focus of the national demand for architects will change from the quantity to quality. From the perspective of development trends, the training of high-end architectural design professionals relates directly to the enhancement of the overall quality of the national construction industry, and China has now an urgent need for high-end applied talents in the field of architecture.

2. High-level versatile talents: China is now at a rapid and critical state of development in urbanization, and new ideas, new things, and new industries are constantly changing, versatile talents with a broad-base and types of capacity will therefore make a great contribution to the development and construction of the country. As for the architectural industry, the architectural development and management industries need the versatile professionals with architecture background. Therefore, the general education, regardless of specialties practiced by the best American universities in undergraduate grade 1 and grade 2, is of reference value. This mechanism provides the possibility of the interdisciplinary training in the late high-end education.

3. High-level academic talents: From the perspective of enhancing national competitiveness, the training of high-level academic talents is not only a need for enhancing overall national strength, but also a need for measuring the educational and scientific levels. With the enhancement of China's comprehensive national strength, the demand for high-level academic talents will become increasingly urgent. The training of high-level talents is a systematic project and cannot be done

overnight. Therefore, the training of high-level talents must start from the basics. Only broad knowledge can prop up a high level of academic space.

After clarifying its training objectives and reference standard, the architectural disciplines in Nanjing University initiates the overall reform of architectural education system under the support and encouragement of the peers: changing from the simple (training vocational architects) mode of architectural education to the diversified mode of architectural education, i.e. training talents for the demands of the whole architectural industry. The specific framework: at the undergraduate stage, adopt the training mode of multi-target and wide-caliber general education, and lay a solid and broad foundation for specialized education at the postgraduate stage; at the postgraduate stage, use the internationally accepted curriculum system to train high-level professionals, and strengthen the students' operating ability using the practice base mode in combination with the national conditions; and at the doctoral stage, take an international way to link the research projects to the international standards.

After a six-year exploration, a set of more complete systems was initially formed. The setup of the school system has learned from the experience of the architecture education of the world-class universities and combines China's national conditions with the disciplinary feature of architecture to develop a hierarchical and classified talent training program, i.e.: 2 (General) +2 (professional) +2 or 3 (postgraduate) mode. Specifically, the first two years are for the general education stage of architecture, including the university general education in first year and the general architecture basis in the second year; the second two years are for the professional education of architecture which strengthens expertise; and the final 2 (or 3) years are for graduate education, and three training objectives are set at the same time, i.e. the professional education, versatile education and academic education. For the demands for various types of talents, we further refine the training mode, i.e. the training of 2+2+2 type of professionals, the training of 2+2+3 type of versatile talents and the training of 2+2+6 type of academic talents, forming our diversified training system for high-level talents of architecture.

In setting up the curriculum, we summarize as follows: one backbone, four categories, and multiple options. Develop a different curriculum system with the modular curriculum combination to implement the open and classified training mode for high-level talents that takes the core curriculum as the backbone.

One backbone means taking the architectural design training as a backbone, including the fundamental design, architectural design, and urban design in various categories. The four categories of courses include: basic knowledge, curriculum design, theoretical training, and design practice. Multiple options: the various interdisciplinary elective courses, all kinds of design workshops, international cooperative teaching, and practice at the base. Since the training of various types of talents is classified at the graduate stage, we mainly carry out integration and restructuring of postgraduate courses, thus implementing curriculum diversification. We have realized refining the required courses and strengthening the professional core courses. We set different course modules for different types of talent training mode and make selection and combination according to the different types.

The diversified training mode of architecture in Nanjing University strives to achieve four combinations: the combination of forward-looking and operability, the combination of practical training and research training, the combination of standardized design and creative design and the combination of international vision and Chinese characteristics. Since the 6 years of the implementation of this mode, this training mode has basically achieved the desired effect in the aspect of the students' comprehensive qualities. For the educators of architecture in Nanjing University, the training of undergraduates is just a periodical achievement, while the diversified education at the postgraduate stage is the core of architectural education.



## 通识教育背景下建筑系本科设计课程设置的探索 • 周凌 丁沃沃

### 一、背景：培养什么样的人

目前我国的建筑学教育虽然套用了国际上通行的专业学位教育概念，但是在模式上并没有完全对应，主要存在三大问题：a.建筑学专业学位重复设置，本科和硕士没有明确分工，导致硕士专业学位的学制过长，教育资源浪费。b.就研究型大学而言，由于本科以专业学位为出口，不得不压缩通识课程而过早进入专业训练，使得学生后续发展空间受到限制。该现状直接导致了本学科高层次研究型人才的缺乏，造成建筑学的研究和创新落后于国家高端需求。c.同样由于通识类知识匮乏，学生的学术视野较窄，远远不能满足整体建筑行业对人才能力多样化的需求，更不能满足国家未来发展的新要求。

为解决上述问题，南京大学建筑与城市规划学院在2007年开始进行建筑教育模式的改革和创新，在理念、方法和操作措施方面进行了研究与探索，主要有几方面：

1. 建筑学通识教育和专业教育相结合的新模式，即：4（本科）+ 2/3（研究生）模式。参照国际一流大学的专业定位，将建筑学专业教育的出口放在研究生层面，学生获得建筑学硕士。本科以通识教育为基础。该模式既满足学科发展对高层次人才的需求，又满足了建筑行业对不同类型高层次人才的需要。基于该模式，建筑教育的目标可以由培养专业设计人才而上升到宽基础、善创新、高层次、国际化，引领整个建筑行业的高级人才。

2. 建筑学本、硕分门类通的复合型教学框架。该教学框架分为：文理美通识、专业通识、专业提高三大阶段，并以建筑设计为主轴，突出了专业特色。教学框架又分成三个层次，分别对应了：建筑行业专门人才（复合型）、建筑设计专业高层次人才（专业型）、建筑学科研究型高层次人才（研究型）。基于该框架，将通识教育、专业教育、专业提升和学术培养的分类教育理念落到了实处(图1)。

3. 以培养目标为导向、以知识类别为模块的课程体系。通过模块化课程的组织来实现不同人才培养路径，可以概括为：一条主干（设计课主干）、四个模块、多项选择。即：学术型人才——通识模块+专业模块+研究型培养；专业型人才——通识模块+专业模块+研究型模块；复合型人才——通识模块+专业模块+跨学科知识模块(图2)。

南京大学建筑教育的目标是培养建筑学高端人才，既要培养建筑设计的顶尖人才，也要培养建筑理论研究的顶尖人才，还要培养行业开发与管理工作的顶尖人才。但不管是“应用型”从事建筑设计工作，还是“学术型”从事建筑理论、科学技术的研究工作，还是“复合型”从事建筑行业的开发与管理工作的，首先都需要对建筑设计有比较深入的了解，需要有很强的设计能力、创造能力与表达能力，也需要对建筑学整个学科有更深的理解。

### 二、比较：国内外现状与趋势简述

#### 1. 国际现状

国外高水平的四年制建筑学本科的建筑设计课，以美国和欧洲的院校为代表。

美国麻省理工大学（MIT）采用四年制本科，第一年为新生建筑学研讨课，以seminar的形式上课，设计课从二年级开始，二、三年级加上四年级上学期，共五学期的建筑设计课，学制与南京大学建筑学专业目前设计课程时间相同。这也是我院采用四年制本科体系中设计课程教学的一个重要参照。

瑞士苏黎世理工大学（ETH）学制为三年（高中为3+1）。由于其通识在高中的一年中完成，所以其实际上相当于四年制本科。瑞士苏黎世理工大学设计课共六个学期，课时逐年递增，一年级设计课每周6学时，第二年设计课每周10学时，第三年设计课每周16学时。同样，其也是在六学期内完成建筑设计课教学。

这两个学校代表新的教学体系，与我院目前实行的学制和教学体系十分接近，也代表了国际上建筑教育的某种新方向。

#### 2. 国内现状

我国建筑学专业自1927年成立以来，“建筑设计课”作为主要专业课，教学模式主要来自第一代留学美国的杨廷宝等人带来的美国当时普遍实行的最早来自巴黎美术学院的“图房”制，即师傅带徒弟的教学模式。这是多年来全世界建筑学专业建筑设计课最普遍采用的方式。这种方式重视绘图和图纸表达，而相对轻视技术和建造，教学方式是按照类型进行，不断重复，综合训练。国内最早成立的建筑院校普遍采用此

方式，这种方式一直延续到现在。

20世纪90年代开始，国内高水平的建筑学专业普遍实行五年制本科，这种与注册职业建筑师制度和职业教育体系相关的学制，强调的是建筑学专业的职业教育，设计课程相应延长，加入了实习等环节，但建筑设计课的内容和教学方法并没有改变，还是沿用巴黎美术学院的体系。因此，建筑设计课，从中国近代建筑学诞生以来，其教学方式一直没有真正改变过。比如，国内最早获得教育部“建筑设计重点学科”的两所院校——清华大学“建筑设计专业”与东南大学“建筑设计专业”，均一直采用传统的教学体系，建筑设计课教学主要以类型主导、强调综合训练的方式。

#### 3. 发展趋势

21世纪以来，在教育部“全国高等学校建筑学专业指导委员会”以及部分高校建筑学院的积极推动下，国内高水平的建筑院校如清华大学、同济大学开始实行4年制本科建筑学专业。清华大学部分实施四年制本科，设计课教学正在进行探索。同济大学2010年开始实施四年制模式，设计课程也在改革当中。在这一系列四年制改革中，也包含南京大学建筑与城市规划学院，其建筑学专业在2007年开始招收四年制本科生以来，一直致力于探索设计课的全面改革。对国际著名建筑学高校人才培养模式的调研，加上与国内建筑学专业教学计划的比较，发掘出一套与国际接轨的人才培养方案。南京大学建筑学科将设计课教学设置在南京大学通识教育体系的框架下，利用综合性院校文理科优势，同时参照国际上一些著名高校的设计课程设置，在此方面做出了积极的尝试。

#### 三、创新：建筑设计课模块化设置

以往多数中国高校建筑学五年制本科课程中，一年级开始美术课与设计基础课，二年级开始建筑设计课，以后建筑设计课程贯穿五年。而南京大学通识教育体系中前一二、二年级以通识教育为主，专业课很少，三、四年级才开始有完整的建筑设计课，故此，学制缩短后建筑设计课如何保证质量就成为一个不可回避的重要问题。通识教育背景下四年制建筑学专业本科核心课程“建筑设计课”是重中之重，这也是培养研究型人才，创建研究型大学，以及培养高端专业人才，创建高水平大学的重要环节之一。建筑设计课程设置成功与否，关系到通识教育和四年制建筑学专业本科的学制设置是否成功。

作为全国第一个建立在通识教育体系下的建筑学四年制本科专业，在此体系下的建筑设计课，必然要压缩设计课时间，调整教学方向，使教学计划更加紧凑，更加集约，教学目标更加精准。因此，南京大学建筑与城市规划学院把建筑学专业核心课程压缩为“设计基础 I-II”（一年级）、“建筑设计基础 I-II”（二年级）与“建筑设计 I-VI”（三、四年级）三大课，其他课程设置均以此三大设计课为核心设置。具体举措为：

第一，以“设计基础 I-II”代替“美术课”。以往建筑教育以素描、色彩（水彩或水粉）等传统美术课为主，训练学生观察、表达以及艺术修养，常常需要很长时间。现在以一门“设计基础”代替美术课，以现代设计教育思想代替传统美术，训练学生抽象与表达能力，同时培养观察表达能力，切入重点。

第二，以“建筑设计基础 I-II”代替“建筑制图课”。以往建筑制图训练目标单一，仅关注训练制图，不关注建筑本身构成，不涉及学生对城市和建筑的理解。现在“建筑设计基础课”以认知基础，通过认知建筑、认知图示、认知环境、认知设计几个环节，强调认识建筑本身物质构成，以及其在环境中的意义，它不仅是一门制图课，还强调对理解建筑物与建筑环境、城市环境开始来学习建筑。

第三，以“建筑设计课 I-VI”完成以往需要四年的全部设计课程。通过高度提炼的核心建筑问题为中心，组织六个设计题目。建筑设计一解决材料与建造问题，建筑设计二解决空间与表现问题，建筑设计三解决商业综合建筑的流线与功能问题，建筑设计四解决小区规划与住宅设计这个大量性问题，建筑设计五解决城市设计问题，建筑设计六解决高层建筑的规范和技术问题。

第四，专业课程设置围绕设计课展开，建筑原理、建筑技术课紧密结合设计课内容与进度，测绘、工地实习等利用假期进行。上课时间安排方面，设计课以及配套专业课集中在周二、周三，相对比较集中，学生有比较完整时间进行设计和讨论。

# EXPLORATION ON THE SETUP OF UNDERGRADUATE DESIGN COURSES FOR THE DEPARTMENT OF ARCHITECTURE UNDER THE GENERAL EDUCATION BACKGROUND • ZHOU Ling DING Wowo

设计课程通过一系列高度集约化、体系化的设置,以建筑学基本问题出发,从材料—建造、空间—环境、结构—技术等为线索,递进式贯穿六个设计题目,涵盖了建筑设计中最重要的基本内容。通过设计课,学生不仅能学习建筑设计技能,还能学习相关技术与人文知识,更能训练创造性和扩展性思维。

## 四、实践意义

“建筑设计课”模块课程将成为南京大学建筑学科的核心课程,同时成为中国最早探索通识教育与建筑学结合的建筑设计课程。学生将通过课程训练掌握更加全面、实用的知识和技能。从知识传递、技能训练、创造力培养三个方面出发培养学生,改变了以往建筑设计课做不同建筑类型重复训练的只注重技能训练,而不注重知识传递与创造力培养的模式。

“建筑设计课”培养的人才将在各层次、类型上均达到一定的质量。学术型人才培养为具有宽厚基础与艰深学术研究能力的硕士与博士生输送人才,将胜任高等院校、科研及政府高管工作的人才;专业型人才培养为建筑学硕士生输送人才,将能胜任未来社会的建筑与城市重大工程的设计与研究;而复合型人才培养则具有不同学科的知识技能交叉、复合的特色,适合为社会多种重要职位提供特殊人才。希望毕业生能以扎实的基本功、出色的研究能力和分析能力、出色的管理能力,获得行业内的高度认可。

在南京大学建筑学科人才培养分类贯通创新模式实验基地的条件下,南京大学建筑学科将实现在中国的建筑学教育领域中的宽基础、多层次、多类型的贯通式的人才培养,完成各类毕业生覆盖学术型、应用型 and 复合型的社会多种需求,从而促进中国建筑学教育的多元性和跨越性发展。

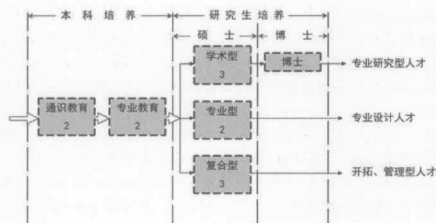


图1 通识教育体系下建筑学的培养目标

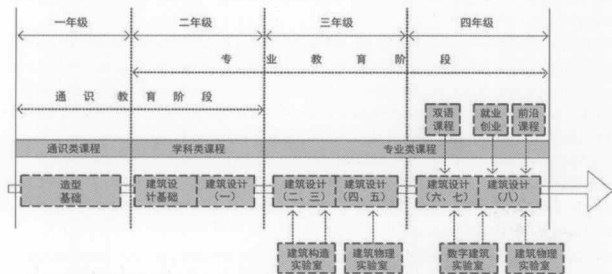


图2 四年制本科专业课程设置框架

## 1. Background: what kind of talents to develop

At present, although China's architectural education applies to the concept of internationally accepted professional degree education, the teaching mode is not completely in consistence. There are mainly three major problems: a. the degree in architecture is set repeatedly, and there is no clear division of undergraduate and graduate education, resulting in the overlong school system of the master's degree and the waste of educational resources. b. For a research-oriented university, the undergraduate education takes professional degree as the output, so it has to compress the general courses and enter the stage of professional training earlier, resulting in the limited space in the students' subsequent development. This status quo directly results in the lack of high-level research talent of undergraduates, making the architectural research and innovation lag behind the national high-end demand. c. Also due to the lack of the knowledge of general education, the students' academic horizons are narrower, far from satisfying the need of the whole architectural industry for diversified capacity, not to say meeting the new requirements of the country's future development.

To solve the above problems, the School of Architecture and Urban Planning of Nanjing University started the reform and innovation of architectural education mode in 2007, and carried out research and exploration on the concepts, methods and operational measures, mainly including the following aspects:

I. A new mode of the combination of general architectural education and professional education, namely: 4 Years (undergraduates) + 2/3 Years (postgraduates) mode. With reference to professional positioning among world-class universities, place the output of architectural professional education on the graduate level, and the students will receive a master of architecture degree. Undergraduates take general education as their foundation. This mode not only satisfies the needs of the discipline development for high-level talents, but also satisfies the needs of the architectural industry for different types of high-level talents. Based on this mode, the goal of architectural education can be elevated from the cultivation of professional design talents to high-level talents who have wide basis, are good at innovation, high-level and international, and will lead the whole architectural industry.

II. The composite architectural bachelor/master classification-through teaching framework. This teaching framework consists of three stages: Arts/Science/Aesthetics General, Specialty General and Specialty Advancement, with architectural design as the principal line, showing the professional characteristics. The teaching framework is divided into three levels, respectively corresponding to: special talents of architecture industry (versatile), high-level talents of architectural design (professional), and high-level research talents of architectural discipline (research). Based on this framework, we can put into practice the classified educational philosophy of general education, professional education, specialty advancement and academic training (Fig 1).

III. The curriculum system with training goals as orientation and knowledge categories as modules. Realize the training of different types of talents via modular course organization, which can be summarized as: one trunk (design courses trunk), four modules, and multiple options, i.e. academic talent — general module + professional module + research training; professional talent — general module + professional module + research type module; versatile talent — general module + professional module + interdisciplinary knowledge module (Fig 2).

The goal of architectural education of Nanjing University is to develop high-end architectural talents, including the top talents of architectural design, the top talents of architectural theory research, and the top talents of industrial development and management. However, for either the "applied talents" engaged in architectural



design, or the "academic talents" engaged in architectural theory and science & technology research, or the "versatile talents" engaged in the development and management in the architectural industry, they need to have good understanding of architectural design, have strong design ability, creation ability and presentation skill, and have a deeper understanding of the whole discipline of architecture.

## 2. Comparison: summary on the status and trends at home and abroad

### I. International status

Among the architectural design courses for the four-year architectural undergraduate in foreign countries, architectural schools in America and Europe are representative. Massachusetts Institute of Technology (MIT) adopts the four-year undergraduate system. In the first year, the freshmen have architecture courses in the form of seminars; the design courses start from Grade 2, a total of 5 semesters of architectural design courses including Grade 2, Grade 3 and the first semester of Grade 4, of which the educational system is consistent with the schedule of current architectural design courses in Nanjing University. This is an important reference for us to teach the design courses in the four-year undergraduate system.

Eidgenössische Technische Hochschule Zürich (ETH) adopts the three-year system (3+1 for senior high school). Since the general education is completed in one year in the senior high school, it is actually equivalent to a four-year undergraduate programme. The design courses in ETH cover 6 semesters, with the class hour increased on a year by year basis: 6 hours a week in grade 1, 10 hours a week in grade 2, and 16 hours a week in grade 3. Similarly, it also completes the teaching of architectural design course in 6 semesters.

These two schools represent not only a new teaching system which is very similar to the current educational system and teaching system of our school, but also a new direction of the international architectural education.

### II. Domestic status

Since the architectural major was established in China in 1927, the "architectural design course" has been primarily a professional course, and the teaching mode came from the atelier system from the École Des Beaux-Arts, i.e. a teaching mode of "master teaching apprentice", which was then very popular in the United States, and was brought in by Mr. Yang Tingbao and others, who were China's first-generation of overseas students in the United States. This is a way most commonly used over the years by architectural design courses around the world. This way emphasizes plotting and drawing representations, while relatively neglecting technology and construction; the teaching is carried out by building types, continuously repeating the comprehensive training. The earliest established domestic architectural institutions commonly adopt this way, which continues until now.

Since the 1990s, the domestic high-level architecture specialties have been widely using the five-year undergraduate system, which is related to the registered professional architects system and vocational education system, emphasizing the vocational education of architecture, with the design courses accordingly extended and internship added. However, the content and teaching method of architectural design courses remains unchanged, sticking to the teaching system from the École Des Beaux-Arts. Therefore, since the birth of the modern Chinese architecture specialty, the teaching method of architectural design course has not really changed. For example, for the two institutions who were first to achieve the "key discipline of architectural design" of the Ministry of Education — Tsinghua University and Southeast University, their "architectural design specialty" has been using the traditional teaching system, and the teaching of architectural design courses is led by

building types, emphasizing comprehensive training.

### III. Trends

Since the 21st century, with the active promotion of the Ministry of Education's "National Steering Committee for College Architecture Specialty", as well as some of the architectural schools, the high-level domestic architectural institutions, such as Tsinghua University and Tongji University, have started to implement a four-year undergraduate architectural programme. Tsinghua University partially implements the four-year undergraduate system, and explorations on design course teaching are under way. Tongji University started the implementation of the four-year system in 2010, and the reform of the design course is also under way. This series of four-year system reform also includes the School of Architecture and Urban Planning, Nanjing University, which started to recruit four-year system undergraduates in the architecture specialty in 2007 and has been committed to exploring the design courses. Based upon the survey on the talent training model of the internationally renowned architecture schools, coupled with the comparison with the teaching plans of domestic architecture specialty, the School of Architecture and Urban Planning, Nanjing University, has developed a set of internationally compatible talent training programs. The architectural discipline of Nanjing University sets up the design course teaching under the framework of the Nanjing University general education system, to make full use of the arts and science advantages of a comprehensive university, and consulting the design course settings of some internationally renowned universities, it has made positive attempts in this aspect.

### 3. Innovation: Modular setting of architectural design courses

In the previous five-year architectural undergraduate courses in most Chinese colleges and universities, fine arts and design basic courses started in grade 1, architectural design courses started in grade 2 and will continue to be taught throughout the five years. In Nanjing University's general education system, teaching in grade 1 and grade 2 focuses on general education, and complete architectural design courses will be available in grade 3 and grade 4. Therefore, how to ensure the quality of architectural design courses after the compression of the training system has become an unevadable key issue. Under the general education background, the four-year architectural undergraduate kernel course "architectural design" is a top priority, which is also one of the important aspects for training research talents, creating research universities, developing high-end professionals and creating high-level universities. Whether the architectural design curriculum is successful relates to the success of the general education and the four-year architectural undergraduate programme.

As China's first four-year undergraduate architecture specialty established under the general education system, the class hours of architectural design courses have to be compressed and the teaching direction needs to be adjusted to make the teaching plan more compact, more intensive, and the teaching objectives more precise. Therefore, the School of Architecture and Urban Planning of Nanjing University has compressed the core architecture courses into "design basis I-II" (grade 1), "architectural design basis I-II" (grade 2) and "architectural design I-VI" (grade 3 and grade 4), and all other curricula take these three design courses as core curricula. The specific initiatives include:

1. Replace the "fine arts" with "design basis I-II". The previous architectural education mainly focused on traditional fine arts courses such as sketch, chromatics (watercolor or gouache) to train students' observation, expression and artistic accomplishments, often taking a long time. And now, replacing the courses on fine arts with a "design

basis" course and replacing the education of traditional fine arts with modern design education the new programme trains the students' abstract expression skills and meanwhile develops their observation skills, thus proceeding to the key point.

II. Replace the "architectural drawing" with "architectural design basis I-II". The previous architectural drawing has a single target, concerned only with training in drawing rather than architecture per se, and has no relation to the students' understanding of the city and architecture. Now, the "architectural design basis" course is based on understanding. By understanding architecture, understanding graphic representation, understanding built environment and understanding design, the course stresses the awareness of the material composition of architecture and its significance in the environment. It is not only a drawing course, but also stresses learning architecture from understanding the building and built environment as well as urban environment.

III. Complete all design courses previously requiring 4 years by taking the course "architectural design I-VI". Organize six design themes by centering on the highly refined core architectural issues. Architectural design I deals with the materials and construction issues, architectural design II deals with the space and representation issues, architectural design III deals with issues of circulation and function in the case of commercial building complex, architectural design IV deals with the issues of residential quarter planning and housing design, architectural design V deals with the urban design issues, and architectural design VI deals with the specifications and technical issues of high-rise buildings.

IV. The specialized curriculum expands around the design course, the architectural principles and architectural technology courses closely integrate with the content and progress of the design course, and carries out surveying, mapping and site practice during the vacations. As for the class hour arrangements, the design course and its supporting professional courses are allocated to Tuesday and Wednesday, which are relatively concentrated, thus giving students more time to conduct design and discussion.

Through a series of highly intensive and systematic curricula, the design courses start from the basic architectural issues, taking materials / construction, space / environment, structure / technology as clues to progressively link to the six design topics, covering the most important fundamental contents in architectural design. The design courses train the students to learn the architectural design skills and the related technical and humanistic knowledge, and to train their creative and extensive thinking.

#### 4. Practical significance

The "architectural design" module will become the core course of architecture in Nanjing University, as well as China's first architectural design course that explores the combination of general education and architecture. The students will master more comprehensive and practical knowledge and skills through the course training. It will develop students from three aspects including knowledge transfer, skill training, and creative ability development, and change the previous model in which the architectural design course focuses only on the skill training by repeating the exercise on different architectural types rather than focusing on knowledge transfer and creative ability development.

The talents trained by the "architectural design" course will achieve a certain quality in various levels and types. The academic talents will be trained to be master's and doctoral talents with a wide basis and stronger academic research abilities, who will be qualified for senior management in colleges, scientific research institutions, and

the government; the professional talents will be trained to be master of architecture, who will be qualified for the design and research of architecture and key urban engineering; while the versatile talents feature having crossed and composite knowledge and skills of different disciplines, applicable for providing special talents for various important positions in the society. The graduates are expected to obtain high acceptance by the industry for their solid basic skills, excellent research and analyzing abilities as well as sound management power.

Under the condition of Nanjing University's experimental base for the innovative model of classification-through architectural talent development, Nanjing University's architecture discipline will implement the wide base, multi-level and multi-type through-type talent development in the field of China's architectural education, and satisfy diversified social demands for various types of graduates covering research talents, applied talents and versatile talents, thus facilitating the diversified and leap-frog development of China's architectural education.

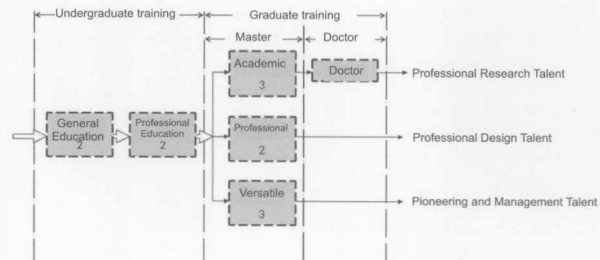


Fig.1 Architecture training objectives under the system of general education

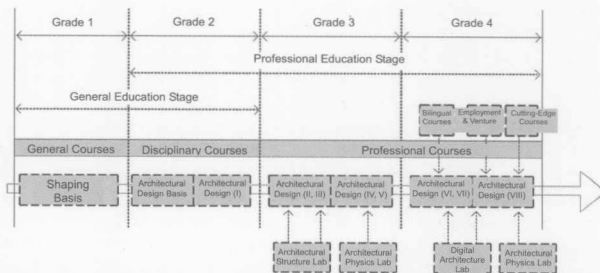


Fig.2 Framework of the specialized courses for four-year undergraduates