

## ◆ Postgraduate Program for Multinational Architects in Conjunction with Engineering and Urban Design

### 1. Program Outline

Our Department of Architecture and Building Engineering at Tokyo Tech originated in 1907 as part of the curriculum at Tokyo Tech's parent institution Tokyo Technical High School (i.e., Technische Hochschule) founded in 1881. The department is therefore one of the oldest university-level architectural schools in Japan. With its one-hundred-year history it enjoys a high reputation both within and outside Japan, a number of its graduates having become renowned architects, structural engineers or academics. This **International Graduate Program** is solely for master's students and is administered chiefly by the **Architectural Design Course** of the department. (NB: all Japanese architectural degrees are conferred in the form of an engineering qualification.)

### 2. Course Outlines and Faculty

The major concentration in this course is within architectural design (studio courses) and history and theory, with fieldwork broaching new architectural themes in an urban context.

### 3. Guide to Study in this Program

Requisite instruction to better understand Japanese megacities and the built environment throughout Japan will be offered in seminars that also include architectural tours. Instructors will assist and encourage students seeking to master these themes, and each student will be required to obtain 34 credits over two years of study and complete either a design diploma—or a written thesis in English—at the end of the second year.

### 4. Graduation Requirements

Department of Architecture and Building Engineering

#### 【Master's degree】

- 34 credits or more from the Graduate school courses.
- Research Courses (研究科目群)
  - (1) 8 credits from the Seminar Courses. (講究科目)
- Courses by Departments (専門科目群)
  - (1) 12 credits or more from the Departmental Courses. (専攻専門科目)
- 2 credits or more from the Liberal Arts and General Education(G). (大学院教養・共通科目群)
- It passes master's-thesis examination and the final examination.

The minimum period of study is two years in total. Note that the above requirements are minimal and some additional requirements may be conditioned depending on the special course. All students are strongly advised to consult with their own supervisors about the study plan.

## 5. Faculty

### Professors

Koichi YASUDA, Ph.D.	Architectural Design
Shin-ichi OKUYAMA, Dr. Eng.	Architectural Design
Yoshiharu TSUKAMOTO, Dr. Eng.	Architectural Design and Urban Research
Kohji TOKIMATSU, Dr. Eng.	Geotechnical Earthquake Engineering
Toshiyuki OGAWA, Dr. Eng.	Steel and Shell Structures
Toru TAKEUCHI, Dr. Eng.	Steel Structure, Structural design, Seismic Control
Hiroyasu SAKATA, Dr.Eng.	Concrete Structure, Timber Structure
Haruyuki FUJII, Dr. Eng.	Design Science, Environmental Design Theories
Yutaka YOKOYAMA, Dr. Eng.	Building Materials
*Fumihito MIYAMOTO, Dr. Eng.	School Building, Environmental Psychology
* Toshihiro OSARAGI, Dr. Eng.	Architectural Planning, Spatial Analysis and Urban Studies
* David, B Stewart, Ph.D.	History of Architecture, Architectural Theory
* Yoshiharu Kanebako	Architectural Engineering

### Associate Professors

Taisuke YAMAZAKI, Dr. Eng.	History of Architecture, Architectural Design
Ryo MURATA, Dr.Eng.	Architectural Design and Environment Responsive Architecture
Hisato HOTTA, Dr. Eng.	Composite Structure
Kikuo IKARASHI, Dr. Eng.	Steel Structures
Shuji TAMURA, Dr.Eng.	Seismic Design of Piles, Soil-Structure Interaction
Kazuhiro YUASA, Dr. Eng.	Environmental Engineering, Building Services
* Takamasa MIKAMI, Dr. Eng.	Concrete Engineering, Building Materials
* Naoko SAIO, Dr. Eng.	Architectural Planning
* Naoki KAGI, Dr. Eng.	Environmental Engineering

\* Instructors who belong to other departments

**Program Head: Prof. Koichi YASUDA** <IGP @archi.titech.ac.jp>

## 6. Tables of Course Subjects

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### Research Courses (研究科目群)

Course Number	Remarks* (See footnotes )	Course	Department Offering course**	Credit	Chair	Semester S: Spring A:Autumn	Opening year a: Annually e: Even o: Odd
62701 62703	R	Seminar in Architectural design and Building Engineering (ABE) I, III	ABE	0-2-0	Academic Adviser	S	a
62702 62704	R	Seminar in Architectural design and Building Engineering (ABE) II, IV	ABE	0-2-0	Academic Adviser	A	a

\*B: Basic, A: Applied, I: Interdisciplinary, R: Required, MP: Master's Program, DP: Doctoral Program

\*\*ABE: Dept. Architecture and Building Engineering

**Courses by Departments (専門科目群)**

Course Number	Remarks (See footnotes)	Course	Department Offering course*	Credit	Chair	Semester S: Spring A: Autumn	Opening year a: Annually e: Even o: Odd
62005	B/A	History of Architecture	ABE	2-0-0	undecided	A	a
62003	B/A	Architectural Preservation and Renovation	ABE	2-0-0	T.Yamazaki	S	a
62033	B/A (1)	Theory of Architectural Design I	ABE	2-0-0	undecided	A	a
92029	B/A	Theory of Architectural Design II	BE	2-0-0	S. Okuyama	A	a
62007	B/A	Architectural Theory for Urban Space	ABE	2-0-0	Y. Tsukamoto	A	a
62006	B/A (2)	Architectural Detail	ABE	2-0-0	undecided	S	a
62053	B/A	Architectural Programming	ABE	2-0-0	K. Yasuda	S	a
62041	A	Theory of Architectural Space and Planning	ABE	2-0-0	Visiting Prof. from oversea	A	a
62063	A (2)	Modern Architecture in Japan	ABE	2-0-0	undecided	S	a
62062	A	Design and Technology	ABE	2-0-0	D.B.Stewart	A	a
62068	B/A	Passive Solar Design	ABE	2-0-0	R.Murata	A	a
62056	B/A	Structural Planning in Architecture	ABE	1-0-0	T. Takeuchi	S	e
62002	I	Theories and Computation in Environmental Design	ABE	2-0-0	H. Fujii	A	o
62001	I	Design Science of Architecture	ABE	2-0-0	H. Fujii	A	e
77016	I	Theory and Applications of Urban Spatial Data	MEI	2-0-0	T. Osaragi	A	o
77020	I	Intellectual Infrastructure Systems	MEI	2-0-0	T. Mikami	S	o
77026	I	Air Quality Engineering	MEI	2-0-0	N. Kagi	S	e
62054	A	Architectural design Studio I	ABE	0-0-2	Professors in Architectural Design Course	S	a
62055	A	Architectural design Studio II	ABE	0-0-2	Professors in Architectural Design Course	A	a
62061	☆	Architectural Tour	ABE	0-0-1	T.Yamazaki	During Spring Break	a
62059	☆	Architectural Workshop I	ABE	1-1-0	T.Yamazaki Y. Tsukamoto	A	a

62060	☆	Architectural Workshop II	ABE	1-1-0	K. Yasuda S. Okuyama	S	a
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\*B: Basic, A: Applied, I: Interdisciplinary, R: Required,

\*(1) Due to be called off Autumn Semester, 2015

\*(2) Due to be called off Spring Semester, 2016

\*☆ The subject with this mark are solely for the students in the department of Architecture and building Engineering of International Graduate Program

\*\*ABE: Dept. Architecture and Building Engineering

\*\*BE: Dept. Built Environment

**Liberal Arts and General Education(G) (大学院教養・共通科目群)**

	Remarks
International Communication (G) (大学院国際コミュニケーション科目)	Refer to VI.Liberal Arts and General Education
Interdisciplinary Courses (G) (大学院総合科目)	
Interdepartmental Courses (G) (大学院広域科目)	
Arts and Humanities (G) (大学院文明科目)	
Career Development Courses (G) (大学院キャリア科目)	
Courses for Developing Creativity (G) (大学院創造性育成科目)	
Courses for International Students (G) (大学院留学生科目)	

## 7. Syllabus of Course Subjects

### 62005

#### History of Architecture

Autumn Semester (2-0-0)

This class is a series of lectures and discussions on some topics in the history of Japan's modern architecture focusing the relationship between architectural discourses and designs: what Japanese architects have thought about and tried to express their "tradition"; what the idea of "space" have changed architectural thinking among Japanese architects; etc.

### 62003

#### Architectural Preservation and Renovation

Spring Semester (2-0-0)

Associate Prof. Taisuke Yamazaki

Architectural preservation is a rather new theme in Japan except for the national government's activities concerning Cultural properties. This course offers an insight on the history of architectural preservation in Japan, and on the theory and practice of preservation activities, giving the students the chance to tour some good examples of architectural preservation in Tokyo district.

1. History of Architectural Preservation in Modern Japan
2. Theory of Architectural Preservation
3. Practice of Architectural Preservation

### 62033

#### Theory of Architectural Design I

Autumn Semester (2-0-0) : Due to be called off Autumn Semester, 2015

In designing a piece of architecture, it is not only the drawing techniques and attractive forms that are important, but the architectural thoughts concerning design methods, theories and insights into its surroundings, are indispensable. The Design Course looks into such ways of thinking as well as design techniques. In this course, architectural thoughts regarding designing, shapes, environments and social position of the architect, etc. will be discussed.

1. Methodology of Architectural Composition
2. Topics Concerning Architecture and the City
3. Critique of the Recent Works

### 92029

#### Theory of Architectural Design II

Autumn Semester (2-0-0)

Prof. Shin-ichi Okuyama

In designing a piece of architecture, it is not only the drawing techniques and attractive forms that are important, but the architectural thoughts concerning design methods, theories and insights into its surroundings, are indispensable. The Design Course looks into such ways of thinking as well as design techniques. In this course, the works and theory by Kazuo Shinohara, who was one of the most influential Japanese architect in both within and outside Japan, and used to teach from 1950's to 1980's at Tokyo Tech, is taken up for the subject matter firstly. And next, practical design work for a detached house is assigned through the analysis of works and theories of Kazuo Shinohara.

1. Key Ideas and Notions Regarding Architectural Design
2. Texts on the designs of houses by Japanese Architects after the War
3. Analyses of the Present Situation Surrounding Architectural Design

**62007****Architectural Theory for Urban Space**

Autumn Semester (2-0-0)

Prof. Yoshiharu Tsukamoto

To talk about architecture is very important for a better architectural design because verbalization is an act to let one think about what he/she is designing more clearly. To visualize ideas and designs of architecture one needs some frames to help him/her realize what needs to be seen. This course is for practicing such ways of thinking with examples of architectural critiques on the latest works.

1. Methods of Architectural Critique
2. Various Approaches to Architecture and its Surroundings
3. Analyses of the Recent Architectural Critics in the Architectural Media

**62006****Architectural Detail**

Spring Semester (2-0-0) : Due to be called off spring Semester, 2016

A building comprises of various parts. It is a combination of different types and sizes of materials. To put together in a proper or interesting way is one of the key factors in the construction of a good building. Thus, architectural details are an essential part of architectural design. This course offers the methods of composing elements and its relationship with design.

1. Architectural Details for Design
2. Traditional Ways of Japanese Architecture
3. Essence of Detail Technique Based on Modern Technology.

**62053****Architectural Programming**

Spring Semester (2-0-0)

Prof. Koichi Yasuda

For the smooth proceeding of an architectural project, careful and well-combined procedures should be undertaken. This course teaches important planning and building stages from its preparatory phases to the design and construction processes. Some specialists on this subject will be invited to share their experiences with the students.

1. From the Start of a Project to its Completion
2. Arrangement and Analysis of the Clients needs, The Method of its Visualization and Construction Management
3. Specialists Views

**62041****Theory of Architectural Space and Planning**

Autumn Semester (2-0-0)

Visiting Professor from overseas

Intensive course conducted by a professor from overseas. It can be a design studio, a series of lectures or a workshop depending on the visiting professor in charge. In 2010, the influential architect in East Asia, Minsuk Cho from South Korea was in charge of the class and in 2011, Professor Li Xiangning at Tongji University, Shanghai, China was in charge of the class. In 2012, Professor Rene Kural at the Royal Academy of Fine Art in Denmark was in charge of the class.

**62063****Modern Architecture in Japan**

Spring Semester (2-0-0) : Due to be called off Spring Semester 2016

In this seminar, several topics regarding architectural thoughts and design in Japan, not only new but also old, are to be presented and discussed to help better understand the current Japan's architectural scene.

**62062****Design and Technology**

Autumn Semester (2-0-0)

Prof. David B. Stewart

This weekly seminar presents and analyzes various recent and contemporary case studies in building and city planning. The course language is English and regular attendance is strongly encouraged. The approach is both theoretical and visual and should appeal to architectural students. However, interested students from any field are most welcome and there are no prerequisites. Teaching style is interactive and will include student presentations. This is not a lecture course and is based on discussion and active participation. We hope to find out and theorize the ways in which building and urban design make for a better life experience in Today's cities worldwide.

**62068****Passive Solar Design**

Autumn Semester (2-0-0)

Associate Prof. Ryo Murata

Passive Solar Design is the methodology of architectural design with the consideration to building environmental engineering. In this class, these theories and practices are widely discussed by analysis of passive and low energy architecture through historical and contemporary examples.

**62056****Structural Planning in Architecture**

Spring Semester (1-0-0) , held in even-numbered year only

Prof. Toru Takeuchi

Structural design based on the latest developments in structural engineering is hardly grasped by architects; it belongs to engineers in the field. This lecture is for the students in the Design Course to help them understand what leading structural engineers think and help develop ability to discuss structural engineering with its specialists.

1. Modeling of a structure
2. Characteristics of structural systems
3. Review of the Methods of Analysis

**62002****Theories and Computation in Environmental Design**

Autumn Semester (2-0-0), held in odd-number year only

Prof. Haruyuki Fujii

The participants will learn the scientific and computational foundations concerning environmental design. This class focuses on the following issues; 1) Physical Aspects in Environmental Design 2) Psychological Aspects in Environmental Design 3) Environmental Design Computing.

**62001****Design Science of Architecture**

Autumn Semester (2-0-0), held in even-number year only

Prof. Haruyuki Fujii

This class focuses on the scientific approaches to practice and research in architectural design. The following issues will be discussed; 1) Formal theories in Design Science and their application 2) Constructive Methodologies of Designing

**77016****Theory and Applications of Urban Spatial Data**

Autumn Semester (2-0-0), held in odd-number year only

Prof. Toshihiro Osaragi

This course will focus on the theory and applications of spatiotemporal information for statistical-/ mathematical modeling of the sort typically used in urban and metropolitan policy, planning, and environmental analysis. Participants will learn example applications from their area of interest and then develop a simple application in the form of a model that incorporates spatiotemporal data.

## **77020**

### **Intellectual Infrastructure Systems**

Spring Semester (2-0-0), held in odd-number year only

Associate Prof. Takamasa Mikami

Social infrastructure is becoming smart with the progress of information science and technology. This lecture gives an overview of the state of the art in intellectual infrastructure systems. This course also provides an opportunity to study advanced technologies on lifeline networks and related anti-disaster facilities. Your presentations and discussions will form an important part of this class.

## **77026**

### **Air Quality Engineering**

Spring Semester (2-0-0), held in even-number year only

Associate Prof. Naoki Kagi

The objective in this course is to understand basics and cleaning techniques for air quality in indoor environment and atmospheric environment and etc. Through reviewing and discussing the previous research papers for air quality, the technologies for measuring, analyzing and cleaning of air were investigated.

## **62054, 62055**

### **Architectural Design Studio I, II**

Each in Spring and Autumn Semesters respectively (0-0-2×2)

Professors in the Architectural Design Course

Each student is to submit a drawing with concepts for a proposed assignment issued by the professors in Design Course. Discussion with instructors and colleagues are welcomed.

## **62701, 62702, 62703, 62704**

### **○Seminar in Architectural Design and Building Engineering I, II, III, IV**

Each in Spring and Autumn Semesters respectively (0-2-0×4)

Professors in the Architectural Design Course

An instructor is designated to each student as an academic advisor. With an agreement by both, each student does research and field work, or design practice on an assigned theme.

## **62061**

### **※ Architectural Tour**

During Spring Break (0-0-1)

Associate Prof. Taisuke Yamazaki

A tour to visit famous buildings and sites in Japan for a week for better understanding of Japanese architecture and culture; Kyoto and Nara will be its locations.

## **62059**

### **※ Architectural Workshop I**

Autumn Semester (1-1-0)

Prof. Yoshiharu Tsukamoto and Associate Prof. Taisuke Yamazaki

Needed information to grasp an understanding for traditional architecture and cities in Japan and methods to analyze modern architecture and cities in Japan are offered with tours.



## **62060**

### **※ Architectural Workshop II**

During summer break (1-1-0)

Prof. Koichi Yasuda and Prof. Shin-ichi Okuyama

Design practice at an architectural firm in Tokyo, Japan with tours to several renowned architectural firms.

### **○Diploma**

Spring Semester (0-0-0)

All members of the faculty

Choosing a theme, each student is to make a design presentation for master course diploma.

The subjects with “○” on the title are mandatory.

The subjects with ※ on the title are solely for the students in the Department of Architecture of the International Graduate Program.

[Important]

Following the education reform in April 2016, in principle, new courses equivalent to those currently available will be offered.

Regarding the newly offered courses, please check the cross-reference table that will be available on Tokyo Tech's website at a later date.