

Development of Structure and Technology (2.0credits) (構造物と技術の発展)

| | | | |
|---------------------|---------------------------|---------------------------|-------------------------|
| Course Type | Basic Specialized Courses | | |
| Class Format | Lecture | | |
| Course Name | Civil Engineering | Architecture | |
| Starts 1 | 1 Spring Semester | 1 Spring Semester | |
| Elective/Compulsory | Compulsory | Compulsory | |
| Lecturer | norimi mizutani Professor | Hikaru NAKAMURA Professor | Masaki NAKANO Professor |
| | Jun TOBITA Professor | Ippei MARUYAMA Professor | Keiichi ARAKI Professor |

Course Purpose

The historical changes and the role of construction technology in civil engineering and architecture are based on the basic characteristics of materials such as soil, steel, and concrete, design and technical perspectives, and water, energy and transportation. This course outlines from the viewpoints of social infrastructure development and disaster prevention theory for various natural disasters, and introduces the historical development of typical technologies and structures.

The aim of this course is to nurture the comprehensive and creative capabilities to solve technical issues in civil engineering and architectural structures as well as to teach the historical aspects of civil engineering and architecture that lead from the past to the future and their significance.

At the end of the course, students should be able to understand the history of development and the overall picture of typical civil engineering and architectural structures, and to explain them from the viewpoint of material properties such as soil, steel, concrete, as well as design and technical perspectives, and from the viewpoints of social infrastructure development and disaster prevention theory.

Prerequisite Subjects

The background subject is not specified because this is a course in the first spring semester to introduce the outline of the subject.

Course Topics

1. Guidance
2. Ethics for engineers
3. Development of construction materials and structures
4. Maintenance of infrastructures
5. Geotechnical engineering for supporting national land
6. Geotechnical disaster prevention engineering and environmental geotechnical engineering
7. Beach erosion and its countermeasures
8. Mechanism of storm surges and tsunamis, and coastal disaster prevention
9. Materials and structures for architectural buildings and civil infrastructure
10. Frontier of architecture and construction materials
11. Construction techniques for high-rise buildings and space structures, Part 1
12. Construction techniques for high-rise buildings and space structures, Part 2
13. Lessons learned from past natural disasters
14. Construction techniques for disaster resilient society
15. Summary

After the class, you should review the distributed prints. In addition, you will be required to submit a report task several times.

Textbook

Handouts will be distributed by each faculty member.

Additional Reading

Reference books will be introduced as appropriate according to the related content.

Grade Assessment

(Assessment method) Each instructor individually assigns a report task related to the lecture, scores the report contents, and comprehensively evaluates the total score.

(Assessment criteria) Acceptance criteria are to be able to understand the historical inheritance of technology for civil engineering and architecture and its significance, and explain the technical issues of civil engineering and architectural structures and their solutions based on your own ideas.

Notes

No course requirements are required.

Lecture is held by ONLINE by using Zoom or Teams.

Contacting Faculty

Welcome questions during the class. Each faculty member also accepts questions at the room and by e-mail or message in NUCT at any time.

History of City and Civilization (2.0credits) (都市と文明の歴史)

| | | |
|---------------------|--------------------------------|---------------------------------|
| Course Type | Basic Specialized Courses | |
| Class Format | Lecture | |
| Course Name | Civil Engineering | Architecture |
| Starts 1 | 1 Spring Semester | 1 Spring Semester |
| Elective/Compulsory | Compulsory | Compulsory |
| Lecturer | Takayuki MORIKAWA Professor | Kazuhisa TSUNEKAWA Professor |

Course Purpose

Outline the history of city and civilization from ancient times to the present day and master basic knowledge to think about the future of the city.

Lecture while relating to the growth and decline of urban areas based on natural conditions, economic development stage and social background, problems and overcoming environmental hygiene, trends of transportation technology and automobile civilization, and technology development and design of building.

Prerequisite Subjects

Course Topics

1The birth, growth and decline of modern cities,

Progress of automobile civilization and suburbanization VS New city civilization, history of traffic technology.

2History of Japanese cities : Ancient: Formation of the city, Heijokyo and Heiankyo, Early modern times: castle town, modern: from Edo to Tokyo, modern urban planning, contemporary: modern urban planning, Nagoya , Urban space in Japan: formation principle, composition technique, city and architecture

3History of Western cities: Ancient: Athens, Rome, etc., Middle Ages: Venetia · Siena etc., Renaissance · Baroque: Florence, 18th-19th century: London · Paris, Modern city theory: New York etc.

Textbook

Architectural Institute of Japan ed., Toshi-shi Zushu, Shokoku-sha

Additional Reading

Grade Assessment

Paper and exam

Notes

Contacting Faculty

morikawa(at)nagoya-u.jp

tsune(at)nagoya-u.jp

Replace (at) with @

| | | |
|---------------------|---------------------------------|-------------------|
| Course Type | Basic Specialized Courses | |
| Class Format | Lecture | |
| Course Name | Civil Engineering | Architecture |
| Starts 1 | 1 Spring Semester | 1 Spring Semester |
| Elective/Compulsory | Compulsory | Compulsory |
| Lecturer | Toshiyuki YAMAMOTO Professor | |

Course Purpose

Fundamentals of computers and network are discussed. Communication with e-mail, browsing internet resources and learning some applications are the main part of this course. Exercises using the computer system in the Center for Information Media Studies enhance the acquired ability.

We will obtain the skills below

1. make and organize documents with computers
2. use e-mail properly
3. understand the structure of webpages, and make simple webpages
4. Build simple codes, and calculate some problems

Prerequisite Subjects

Course Topics

1. Computer ethics
2. File operation
3. E-mail and Netnews
4. Access to the Internet and Homepages
5. Webpage development
6. Programming

Textbook

Hiroyuki Tomita and Yasuhiro Saito: Fortran 90/95 programing, Baifu-kan

Additional Reading

Introduced according to the process of the lecture.

Grade Assessment

Ability to make a documents of self-introduction, web site developments, and computer programing knowledge are required, and the report on them are evaluated.

Sixty points or more out of 100 points are required to pass.

Notes

Not required.

Class is online using Teams or Zoom.

URL is informed through NUCT [Announcements].

Contacting Faculty

Ask questions in classes. No fixed schedules for office hour is set, so ask questions by email, or make an appointment by email for face-to-face inquiry.

tel: 4636, email yamamoto@civil.nagoya-u.ac.jp

Introduction to Structural Mechanics (2.0credits) (形と力)

| | | |
|---------------------|---------------------------|-------------------------|
| Course Type | Basic Specialized Courses | |
| Class Format | Lecture | |
| Course Name | Civil Engineering | Architecture |
| Starts 1 | 1 Autumn Semester | 1 Autumn Semester |
| Elective/Compulsory | Compulsory | Compulsory |
| Lecturer | Junji KATO Professor | Keiichi ARAKI Professor |

Course Purpose

To learn the basic relationships between shape and forces in structures and inquire about the methodology and skills applicable to solve the basic mechanical problem.

Performance targets:

- 1) To understand the basics of mechanics and be able to analyze reaction forces of statically determinate truss, beam, and frame structures.
- 2) To understand the concept of sectional forces and to be able to draw the figures.
- 3) To understand the concept of the influence line and to be able to analyze the sectional forces for statically determinate structures.

Prerequisite Subjects

Course Topics

1. Basic relationships between shape and forces
2. Equilibrium of forces
3. Analysis of internal forces members
4. Concepts of structural shapes

Several reports will be given after lectures.

Textbook

The handout is distributed in the lecture via NUCT.

Additional Reading

Reference books are introduced in the first lecture.

Grade Assessment

Examinations and Reports

The goal attainment level is evaluated by both results of the intermediate and the final examination as well as the reports. 60 points or more are accepted for 100 full marks.

Notes

No special requirement is necessary.

Class embodiments and tools used:

- The class will be divided into two parts, the first half and the second half of the class period, by two lecturers.
- The first half classes are on-demand using NUCT and the first guidance and the second half classes are interactive online classes using Zoom.
- In the case of on-demand, the NUCT function "message" accepts questions to the lecturer and exchanges opinions among students.

Contacting Faculty

Any questions welcome anytime to the instructors and TAs.

For reference, the lecturers at the counter are as follows.

- First half class: Prof. Y. Araki, yoshikazu.araki@nagoya-u.jp
- Second half class: Prof. J. Kato, junjikato@nagoya-u.jp

Replace (at) with @ when you e-mail.

Human Activities and Environment (2.0credits) (人間活動と環境)

| | | | |
|---------------------|------------------------------------|--------------------------------|-------------------------|
| Course Type | Basic Specialized Courses | | |
| Class Format | Lecture | | |
| Course Name | Civil Engineering | Architecture | |
| Starts 1 | 1 Autumn Semester | 1 Autumn Semester | |
| Elective/Compulsory | Compulsory | Compulsory | |
| Lecturer | Hiroki tanikawa Professor | ArataKATAYAMA Professor | Satoru IIZUKA Professor |
| | Teruyuki SAITO Associate Professor | Lee Sihwan Associate Professor | |

Course Purpose

Understanding the environmental influences on human life, production, and infrastructure
Lecture in Japanese.

Prerequisite Subjects

Not designated.

Course Topics

1. National land conservation and sustainability 2. The natural progress of national land: rivers and valleys
3. Environmental assessment and follow up 4. Ecological system concerning rivers 5. Changes of valleys
6. Natural regeneration 7. Light, sunshine, global warming and human 8. Sound and human 9. Indoor air
and human 10. Heat and moisture 11. Engineering and Architectural Ethics

There are additional overtime studies regarding each lecture.

Textbook

to be distributed

Additional Reading

to be announced in class.

Grade Assessment

The criterion for passing this course understands the relationship between human activities and the environment as an impact-response system that considers feedback from natural, human-made, and social networks. Students are required to submit reports on each lecture's contents during the lecture period and at the end of the term. Besides, if students submit independent reports, those reports will be evaluated and added to evaluate the related assignments.

Notes

Not designated.

Face-to-face classes will be the basic way. If remote (interactive) classes are used, they will be conducted using Zoom or Microsoft Teams.

Contacting Faculty

Ask via email,

Prof.Tanikawa (tanikawa@nagoya-u.jp)

Prof.Katayamaa-katayama@esi.nagoya-u.ac.jp

A.Prof.Saitosaito@nuac.nagoya-u.ac.jp

Prof.Iizukas.iizuka@nagoya-u.jp

Mathematics I and Tutorial (4.0credits) (数学 1 及び演習)

| | | | |
|---------------------|---------------------------|---|------------------------------------|
| Course Type | Basic Specialized Courses | | |
| Class Format | Lecture and Exercise | | |
| Course Name | Civil Engineering | Architecture | |
| Starts 1 | 1 Autumn Semester | 1 Autumn Semester | |
| Elective/Compulsory | Compulsory | Compulsory | |
| Lecturer | norimi mizutani Professor | Tomoaki NAKAMURA Associate Professor | YonghwanCHO Assistant Professor |

Course Purpose

Learn how to solve the ordinal differential equations and vector analysis.

Prerequisite Subjects

Course Topics

- Primitive method
- Second-order linear differential equations
- Higher-order linear differential equations
- Fundamental characteristics of vector
- Differentiation of vector
- Curved line and curved surface
- Integration theorems of vector field

Students are required to read the corresponding part of the textbook prior to the lecture, and review exercises given in the lecture.

Textbook

Additional Reading

Grade Assessment

Your final grade will be calculated according to the final examination (100%).

Notes

No prerequisite.

- Classes will be given both face-to-face and online (real-time using Teams).

Contacting Faculty

Norimi Mizutani (ext. 4630, mizutani<at>civil.nagoya-u.ac.jp)

Tomoaki Nakamura (ext. 4632, tnakamura<at>nagoya-u.jp)

Yong-Hwan Cho (ext. 4634, yhcho<at>civil.nagoya-u.ac.jp)

Probability and Statistics (2.0credits) (確率と統計)

| | | |
|---------------------|---------------------------|-------------------|
| Course Type | Basic Specialized Courses | |
| Class Format | Lecture | |
| Course Name | Civil Engineering | Architecture |
| Starts 1 | 1 Autumn Semester | 1 Autumn Semester |
| Elective/Compulsory | Elective | Elective |
| Lecturer | Yasuhiro MORI Professor | |

Course Purpose

On the basis of the knowledge acquired through "Basics of Data Science," this course introduces the theories of probability and statistics for use in data analysis and decision making in civil engineering and architecture. At the end of this course, participants are expected to

1. Understand the basic theories of probability and statistics and be able to proof these theories,
2. Understand the characteristics of commonly used probability models and be able to calculate their statistics and the distribution functions,
3. Understand the method for estimating the statistics and the probability distributions on the basis of the data from investigations, experiments, and/or observations and be able to apply those methods,
4. Understand the role of the theories of probability and statistics for use in data analysis and decision making in civil engineering and architecture.

Prerequisite Subjects

Basics of Data Science

Course Topics

1. Why do you study probability & statistics? Statistics and ethics, Definition of probability, Conditional probability, Theorem of total probability
2. Random variables and probability distributions, Statistics, Moment generating function, Characteristic function
3. Probability distribution of two random variables
4. Probabilistic model of random events #1: Uniform dist., Binomial dist., Geometric dist., Negative binomial dist.
5. Probabilistic model of random events #2: Poisson dist., Exponential dist., Gamma dist., Normal dist., Central limit theorem
6. Probabilistic model of random events #3: Lognormal dist., BPT dist., Extreme value dist., Monte Carlo simulation
7. Application of probability: Hazard function and reliability function, Bath-tub curve, Risk analysis
8. Mid-term exam.
9. Commentary of the midterm examination, Regression analysis
10. Statistical inference, Point estimation
11. Confidence interval
12. Hypothesis tests on single set of data
13. Hypothesis tests on two sets of data
14. Probabilistic model, Goodness-of-fit test
15. Decision making

Textbook

N/A

Additional Reading

N/A

Grade Assessment

Mid-term exam (25%), Final exam (50%), and reports (25%)

Notes

There is no requirement.

Contacting Faculty

Office hour will be set up on appointment basis. Emailyasu(at)nuac.nagoya-u.ac.jp

* Replace (at) with @.

Analytical Dynamics with Exercises (3.0credits) (解析力学及び演習)

| | | |
|---------------------|-----------------------------|--------------------------------------|
| Course Type | Basic Specialized Courses | |
| Class Format | Lecture and Exercise | |
| Course Name | Civil Engineering | Architecture |
| Starts 1 | 2 Spring Semester | 2 Spring Semester |
| Elective/Compulsory | Elective | Elective |
| Lecturer | Toshihiro NODA Professor | Kentaro NAKAI Associate Professor |

Course Purpose

While reviewing and conscious of Newton's mechanics, students will learn the Lagrangian equation of motion and the Hamilton's principle, which are universal principles of dynamics. The purpose of this lecture is to cultivate a fundamental ability to perform a unified interpretation of various movements by analytical mechanics and deeper mechanical considerations.

By learning this lecture, the goal is to be able to:

1. Deepen the understanding of Newtonian mechanics.
2. Understand the fundamentals necessary for analytical mechanics, such as the principle of virtual work, Lagrange's equation of motion, and the variational method, and perform necessary calculations.
3. Understand the relationship between Newtonian mechanics and analytical mechanics, and cultivate the basic power for deeper consideration of mechanical phenomena, and perform necessary calculations.

Prerequisite Subjects

Mathematics 1 with Exercises, Mechanics I and II, Calculus I and II, Algebras I and II

Course Topics

1. Review the basics of Newtonian mechanics (single mass system, multi-mass systems, equation of motion of rigid bodies, etc.) and the basics of mathematics necessary for analytical mechanics.
2. Lectures and exercises on the principles of virtual work.
3. Lectures on Lagrange's equation of motion including the principle of d'Alembert, generalized coordinates, including the case where motion is constrained.
4. Exercise small vibration problems, coupled motion and normal vibration.
5. Lectures and exercises on variational methods and Euler's differential equations.
6. Learn the variational principle of mechanics (Hamilton's principle) and its relevance to Newtonian mechanics.
7. Lectures and exercises on Hamilton's canonical equations (Legendre transform), phase space, canonical transformation, etc.

After each lecture, students will work on related exercises. Assignments for home study are also given as appropriate. In addition, in order to confirm the degree of acquisition of the basics of dynamics, a test (initial test) on the dynamics of mass / mass system / rigid body will be conducted at the first time of this class.

Textbook

Analytical dynamics for engineering students, Kawabe, T. Shokabo Co., Ltd. (in Japanese)

Printed documents will be distributed during the lecture.

Additional Reading

- Analytical dynamics, Tanabe, Y. and Shinoda, M., Shokabo Co., Ltd. (in Japanese)
- Structural mechanics, Tamura, T., Asakura Co., Ltd. (in Japanese)

Grade Assessment

Evaluate the level of achievement for the achievement target through reports, initial exams, midterm exams and final exams. A score of 60 or more out of 100 is a passing score.

Notes

Not required.

In principle, this lecture will be provided online using Zoom or Microsoft Teams.

Contacting Faculty

Questions during and after the lecture are welcome. E-mail questions are also accepted at any time.

Toshihiro NODA, Ext: 3833, E-mail: noda(at)nagoya-u.jp, Bldg. 9 Rm. 317

Kentaro NAKAI, Ext: 5203, E-mail: nakai(at)civil.nagoya-u.ac.jp, Bldg. 9 Rm. 313

Please replace (at) with @.

Mathematics II and Tutorial (4.0credits) (数学 2 及び演習)

| | | |
|---------------------|-----------------------------------|------------------------------|
| Course Type | Basic Specialized Courses | |
| Class Format | Lecture and Exercise | |
| Course Name | Civil Engineering | Architecture |
| Starts 1 | 2 Autumn Semester | 2 Autumn Semester |
| Elective/Compulsory | Elective | Elective |
| Lecturer | Fujii keisuke Associate Professor | Emi KANO Assistant Professor |

Course Purpose

This course will offer Fourier analysis and partial differential equation as the continuation of Mathematics 1 with Exercises. The main purpose of the course is to connect the mathematical theories with actual physical problems in engineering. Through the course, students can master skills for applying Laplace transform for solving differential equations, applying Fourier transforms for various time-sequence analyses and formulating and solving spatio-temporal problems by applying partial differential equations.

Prerequisite Subjects

Fundamental Mathematics 1, 2, 3, 4, 5, Mathematics 1 with Exercises. Credits for these courses are preferable but not mandatory prerequisite of this course.

Course Topics

1. Differential equation 2. Partial differential equation 3. Laplace transform 4. Fourier transform and Fourier analysis

Textbook

Advanced Engineering Mathematics: Fourier analysis and Partial Differential Equations, E. Kreyszig, Baifukan.

Additional Reading

Advanced Engineering Mathematics: Ordinary Differential Equations, E. Kreyszig, Baifukan.

Grade Assessment

Comprehensive evaluation will be made based on the three exams (80%) and seven-nine quizzes (20%). Credit will be issued for the scores of 60% or higher.

Notes

Registration conditions are not required. Lectures and exercises are conducted online using Zoom. Please access the NUCT system regularly as we will contact you about the lectures and the handouts through the NUCT.

Contacting Faculty

Students can send questions directly to the lecturer. Make an appointment(fujii@i.nagoya-u.ac.jp) in case when a face-to-face communication is needed.

Fundamentals of Hydrodynamics with Exercises (4.0credits) (流れの力学及び演習)

| | | | |
|---------------------|---------------------------|------------------------------|------------------------------------|
| Course Type | Basic Specialized Courses | | |
| Class Format | Lecture and Exercise | | |
| Course Name | Civil Engineering | Architecture | |
| Starts 1 | 2 Spring Semester | 4 Spring Semester | |
| Elective/Compulsory | Compulsory | Elective | |
| Lecturer | norimi mizutani Professor | Takashi TASHIRO Professor | YonghwanCHO Assistant Professor |

Course Purpose

Learn about basics of hydrostatics and fundamental laws of fluid motions. Then analyze flow in pipe.

Prerequisite Subjects

Course Topics

Introduction Characteristics of fluid Hydrostatics Stability of floating body Description of flow of ideal fluid
Relative hydrostatics Bernoulli's principle Energy analysis in one dimensional problem Unsteady Bernoulli's
principle Description of flow of viscous fluid Energy loss Pipe flow Analysis based on momentum (1) Analysis
based on momentum (2)

Textbook

Additional Reading

Grade Assessment

Report and end-term exam. Score of 60 or higher is required.

Notes

Contacting Faculty

Questions after the class are welcome. Email to professors is also recommended.

Graphic Science (2.0credits) (図学)

| | | |
|---------------------|---------------------------------|-------------------|
| Course Type | Basic Specialized Courses | |
| Class Format | Lecture | |
| Course Name | Civil Engineering | Architecture |
| Starts 1 | 1 Spring Semester | 1 Spring Semester |
| Elective/Compulsory | Elective | Compulsory |
| Lecturer | Yasuhiko NISHIZAWA Professor | |

Course Purpose

This course is intended for students of civil engineering and architecture to cultivate the ability of understanding, representing and telling spatial figure information. The course is divided into two parts. The first part is the representation of three-dimensional figures on two-dimensional surfaces by means of geometric projections. The second part is to draw three dimensional figures based on geometrical analyzing of two dimensional figures and understand information concerning the figures with basic talent of design. Goals: Students will get some abilities. One is representation of three-dimensional figures on two-dimensional surfaces by means of geometric projections. The second part is to draw three dimensional figures based on geometrical analyzing of two dimensional figures and understand information concerning the figures with basic talent of design.

Prerequisite Subjects

Geometry knowledge acquired in high school.

Course Topics

1. Multi-view projection (6 times) 2. Polyhedron and section (4 times) 3. Curves and curved surfaces (2 times) 4. Intersection of plural figures (1 time) 5. Perspective projection (2 times). You will be asked an assignment in each class on NUCT, so please submit it by the due date.

Textbook

KODAK Shiro, Gendai-zugaku (Japanese), Morikita-shuppan, ISBN978-4-627-08030-0

Additional Reading

Some supplementary materials are distributed in class in order to promote understanding of the contents of the lesson.

Grade Assessment

Grades will be evaluated according to the score, which is the total score of the assignments given in each class converted to a maximum of 50 points, and the total score of the mid-term exam (maximum of 25 points) and the final exam (maximum of 25 points). A total of 60 points or more is considered as a pass. Home works and tests asks the following abilities: 1) Ability to project a figure in a three-dimensional space onto a two-dimensional plane. 2) Ability to geometrically analyze a three-dimensional figure from a figure on a two-dimensional plane to grasp and express figure information.

Notes

Some materials will be upload at NUCT site before each lecture.

If you draw on the paper materials, you should bring a triangle ruler and a compass for drawing in each class.

As part of measures against COVID-19 infection, students will be divided into 5 groups and face-to-face lessons and online lessons will be combined.

Contacting Faculty

If you had any questions, please tell to the follow address: nszw@nuac.nagoya-u.ac.jp

Spatial Planning (2.0credits) (空間計画論)

| | | |
|---------------------|---------------------------|-------------------|
| Course Type | Basic Specialized Courses | |
| Class Format | Lecture | |
| Course Name | Civil Engineering | Architecture |
| Starts 1 | 2 Autumn Semester | 2 Autumn Semester |
| Elective/Compulsory | Compulsory | Elective |
| Lecturer | Hirokazu KATO Professor | |

Course Purpose

You will understand spatial planning theories taking into account the development stages of nations and cities with economic mechanisms and land systems as background.

You will learn about the actual spatial planning systems in Japan and abroad. And you will compare them to explore the ideal spatial planning required of Japan and the world in the 21st century.

The goals by learning this lecture is as follows:

1. To get and explain the basic knowledge on economics, land system, stock, public investment, which is necessary for thinking about spatial planning, and the knowledge on the expansion to planning.
2. To understand and explain the outline of spatial planning in Japan and its problems.
3. To understand and explain the spatial planning, which is necessary for Japan in the future.

Prerequisite Subjects

Infrastructure Planning, Human Activities and the Environment

Course Topics

1. Orientation
2. Overview -Why do we need spatial planning?-
3. Spatial planning and the mechanism of growth, decline and regeneration of countries and cities
4. Economics needed to understand spatial planning
5. Stock Economics
6. Socio-economic significance of public goods and public investment
7. Relationship between land tax system, land information, land market system and spatial planning
8. Impacts of spatial planning on environmental issues
9. The overall structure and process of the spatial planning system in Japan
10. Problems of urban planning and improvement measures in Japan
11. Spatial planning for sustainable city management
12. Spatial planning under aging and declining population
13. Space planning in information society after COVID-19
14. Ethics required of nation and urban planning engineers

You should review the previous lecture before each class. In the lecture, you should write down not only the whiteboard but also the important points in the talk. You submit a brief comment at the end of each lecture. Sometime, you will be required to submit report.

Textbook

Textbooks are not specified, but lecture materials will be distributed as appropriate

Additional Reading

Reference materials are not specified, but they will be distributed as appropriate

Grade Assessment

Final Examination(70%), Report(30%)

Passed applicants must have basic knowledge of economics, land system, stock, public investment, and the expansion to spatial planning.

<Entered after 2020>

95-100: A+

80-94: A

70-79: B

65-69: C

60-64: C-

-59: F

<Entered before 2019>

90-100: S

80-89: A

70-79: B

60-69: C

-59: F

Notes

- Classes is conducted face-to-face, and the situation will be available for viewing on YouTube (simultaneous viewing and post-viewing are possible).
- "Opportunities for students to ask questions to faculty members" and "Opportunities for exchanging students' opinions" are possible in "Messages" and "Chat rooms" of NUCT.
- Information about lecture is announced by NUCT.
- See also below for lecture contents

<http://orient.genv.nagoya-u.ac.jp/kato/ekato.htm>

Contacting Faculty

Please use message function of NUCT.

* If impossible to use NUCT:

Mail to kato@genv.nagoya-u.ac.jp

Space Design Workshop 1 (3.0credits) (空間設計工学及び演習第1)

| | | | |
|---------------------|------------------------------------|---------------------------------|------------------------------|
| Course Type | Basic Specialized Courses | | |
| Class Format | Lecture and Exercise | | |
| Course Name | Architecture | | |
| Starts 1 | 2 Spring Semester | | |
| Elective/Compulsory | Compulsory | | |
| Lecturer | Yasuhiko NISHIZAWA Professor | Kazuhisa TSUNEKAWA Professor | Hisashi KOMATSU Professor |
| | Miya YAMADE Assistant Professor | LIYan Assistant Professor | |

Course Purpose

To learn the fundamental methods of architectural drafting through hand drafting ,and to acquire the basic ideas and knowledge on planning and design through design of a small space.

At the end of this course, participants are expected to analyze the architectural and urban problems on the assignment, and learn about the technical knowledge on the planning and design as well as the concept, technique, and presentation to solve them.

Prerequisite Subjects

Graphic Science, Introduction to Structural Mechanics, Human Activities and Environment, History of City and Civilization, Development of Structure and Technology, Basic Theory of Space Design, Painting and Sculpture Workshop 1

Course Topics

In the first task, students learn basic knowledge about space design and planning, and learn basic matters related to architectural design drafting. Students also learn the ability to convey architectural plans and designs to others through words and diagrams by analyzing of famous modern and contemporary works and tracing blueprints.

The second task is to design a small space, and to learn the basics of the architectural design process, such as site analysis, programs, concepts, and examination of planes, sections, elevations, and construction methods. It is necessary to develop ideas based on architectural ideas using models and sketches. Each time you bring a sketch or model of your design and explain it, you will receive individual guidance (esquisse) from your teacher.

Textbook

AIJ, The data for architectural design, Maruzen. ISBN978-4-621-07509-8

Yasashiku-manabu-kenchikuseizu, X-Knowledge, ISBN978-4-7678-2987-6

Additional Reading

Instruct the materials for your works during class as needed

Grade Assessment

Evaluation method) The minimum standard is to submit the specified deliverables within the specified date. In the first task, the supervisor will score according to the degree of completion of the exercises submitted every week, and the average value will be used as the grade. In the second task, each faculty member comprehensively scores the degree of understanding of design conditions, the degree of skill acquisition, the degree of perfection in the idea / planning / design / expression of deliverables, the presentation at the critique, etc. Pass 60 points or more. There is no single solution to the architectural design proposal, and the architectural rationality and creativity of the student's proposal will be evaluated comprehensively.

Grade Assessment is given as follows. A+ to 100-95 points, A to 94-80 points, B to 79-70 points, C to 69-65 points, C- to 64-60 points, and F to 59 points.

Notes

There are no special registration requirements.

Contacting Faculty

Yasuhiko NISHIZAWA: nszw(at)nuac.nagoya-u.ac.jp

Kazuhisa TSUNEKAWA: tsunekawa(at)cc.nagoya-u.ac.jp

Miya YAMADE: fmiya38(at)yahoo.co.jp

Yan LI: y-li(at)nuac.nagoya-u.ac.jp

Replace (at) with @

Structural Mechanics and Tutorial (2.5credits) (建築構造力学及び演習)

| | |
|---------------------|---------------------------|
| Course Type | Basic Specialized Courses |
| Class Format | Lecture and Exercise |
| Course Name | Architecture |
| Starts 1 | 2 Spring Semester |
| Elective/Compulsory | Compulsory |
| Lecturer | Jun TOBITA Professor |

Course Purpose

The fundamentals of structural mechanics for building engineering and its application are given with exercise. The system of architectural structures and analytical methods for internal forces, stresses, strains and deformation of statically determinate structures are discussed. At the end of the course, introduction to statically indeterminate structures will be given.

Prerequisite Subjects

Introduction to Structural Mechanics

Course Topics

1. Internal forces of statically determinate beams, frames and truss structures
2. Fundamental properties of structural materials
3. Properties of sections
4. Fundamental equation on deformation of beams
5. Analytical methods for statically determinate beams and frames
6. Introduction to analytical methods for statically indeterminate structures
7. Comprehensive exercise

Textbook

Structural Mechanics I, by M. Izumi (in Japanese), Baifukan, ISBN4-563-03182-8

Additional Reading

Recommend in the lecture.

Grade Assessment

Reports and examinations. 60% or higher is necessary for acquisition.

Notes

Lectures and exercises will be handled face-to-face, online and on demand. E-mail and NUCT are used for communication, report assignments, and submissions, so please check it all the time. If you are affected by the school environment or communication environment, please contact us by e-mail.

Contacting Faculty

Contact by e-mail:tobita(at)nagoya-u.jp

Basic Theory of Space Design (2.0credits) (空間設計論)

| | |
|---------------------|--------------------------------------|
| Course Type | Basic Specialized Courses |
| Class Format | Lecture |
| Course Name | Architecture |
| Starts 1 | 2 Spring Semester |
| Elective/Compulsory | Compulsory |
| Lecturer | Eisuke TABATA Associate Professor |

Course Purpose

To understand the basic theory of space design for architecture and city in followings wide view points.
Relationship between human body, psychology, behavior, life, society, culture, and space.
Planning theory for House which is the basis of various architectural designs.
Building construction methods and materials for various structures.

Prerequisite Subjects

History of cities and civilizations, Graphic Science, Human Activities and Environment

Course Topics

1-6.Basic theory of space design
7.Field work
8-10.Planning theory for House
11-14.Basics of building construction method
15.Conclusion and discussion

Textbook

Y. Nagasawa, Architectural Planning, Ichigaya
Y. Uchida, Building Construction, Ichigaya

Additional Reading

AIJ, SPATIAL STUDIES, Inoue shoin
AIJ, Through Five Senses: Perceiving Architectural and Urban Spaces, Inoue shoin

Grade Assessment

Total performance of every lesson reports(60%) and final examination(40%).
Pass: 60 point

Notes

No registration requirements

Contacting Faculty

Besides the class, the questions would be answered if the appointment for meeting would be taken by e-mailing.
Eisuke TABATA [tabata\(at\)cc.nagoya-u.ac.jp](mailto:tabata(at)cc.nagoya-u.ac.jp)

Space Design Workshop 2 (3.0credits) (空間設計工学及び演習第2)

| | | | |
|---------------------|--|--------------------------------------|---------------------------------------|
| Course Type | Basic Specialized Courses | | |
| Class Format | Lecture and Exercise | | |
| Course Name | Architecture | | |
| Starts 1 | 2 Autumn Semester | | |
| Elective/Compulsory | Compulsory | | |
| Lecturer | HOTTA Yoshihiro Associate Professor | Eisuke TABATA Associate Professor | MIYAWAKIMasaru Associate Professor |
| | Miya YAMADE Assistant Professor | Part-time Faculty | |

Course Purpose

Through the learning of the basics on planning, design, structure and environment elements such as light and wind in a house, public space and landscape, this workshop aims to acquire the basic skills and presentation techniques for drawing and showing site plan, floor plan, elevation, section, perspective drawing as well as making a model.

Prerequisite Subjects

Space Design Workshop 1

Course Topics

15 weeks are divided into the first half and the second half to work on two tasks. Common to both issues, grasp and analyze problems of architecture and cities related to the contents of the issues, acquire planning and design expertise and skills to solve them (cultivate basic skills), and develop ideas, plans, Aim to develop design, technical, and expressive skills (creativity and overall skills). In addition, students will learn the responsibilities of architects by cultivating the ability to consider the impact on the surrounding environment and the area of the site and the exchange of opinions with teachers and TAs. Especially in class, teachers and TAs give advice to students on the design drafts you have created, listening to the students' explanations. In addition, literature surveys, field surveys, and drawings / model productions required for the assignment production are conducted outside of class hours, and the results are reflected in the assignment production.

First part of the workshop : Designing a house.

Second part of the workshop : Researching a territory and Designing public spacePublic space and landscape design.

The way of this exercise will be announced on NUCT.

Textbook

AIJ,The data for architectural design,Maruzen

Additional Reading

Reference books are indicated in classes.

Grade Assessment

The minimum standard is to take part in every Esquisse and submit a pre-designated drawings and models within the designated time limit. The evaluation takes into account the degree of understanding of design conditions, the concept of your work, the degree of perfection in planning and design, the expression, the content of esquisses, the content of presentations at lecture meetings (in principle, all participants), and attitudes during class. The instructor gives a comprehensive score, and the average is used as the grade. A score of 60 or more out of 100 is a passing score.

Notes

Lecture will be the combination of face to face and remote class (interactive communication class) by Zoom. Details of remote class is announced at NUCT.

Contacting Faculty

Tabatabata@cc.nagoya-u.ac.jp

Hottahotta@nuac.nagoya-u.ac.jp

Miyawakimiyawaki@nuac.nagoya-u.ac.jp

Yamade:yamade@nuac.nagoya-u.ac.jp

Applied Structural Mechanics and Tutorial (2.5credits) (応用構造力学及び演習)

| | | |
|---------------------|---------------------------|-------------------------|
| Course Type | Basic Specialized Courses | |
| Class Format | Lecture and Exercise | |
| Course Name | Architecture | |
| Starts 1 | 2 Autumn Semester | |
| Elective/Compulsory | Compulsory | |
| Lecturer | Jun TOBITA Professor | Keiichi ARAKI Professor |

Course Purpose

Following Structural Mechanics and Exercises, the advanced theory of mechanics of framed structures is presented with emphasis on its application to structural design of buildings. The course includes extensive studies of applications and exercises to understand the load-carrying mechanism of structures.

- To understand the mechanics of frames, the fundamental theory of structural design of buildings.
- To understand the fundamental concepts of elastic design, plastic design, and structural safety.
- To understand the fundamentals of load transfer in structures through exercises.

Prerequisite Subjects

Introduction to Structural Mechanics, Structural Mechanics and Exercises, Mathematics 1 with Exercises, Mechanics 1 with Exercises

Course Topics

1. Principle of virtual work, 2. Force method, 3. Moment distribution method, 4. Buckling, 7. Plasticity.

Textbook

Hijkata, K. et al., Introduction to Building Structural Mechanics vol. II (in Japanese), Morikita Publishing Co., Ltd., ISBN-13 : 978-4627554214

Additional Reading

Hijkata, K. et al., Introduction to Building Structural Mechanics vol. I (in Japanese), Morikita Publishing Co., Ltd., ISBN-13 : 978-4627554115

Grade Assessment

by report&mini exam (20%),midterm examination (40%), and term-end examination (40%)

Notes

- No requirements.
- On demand videos are provided for classes. Zoom is also used in classes.
- In case of on-demand videos, questions and exchanges of comments can be performed through "Message" function of NUCT.

Contacting Faculty

Use of e-mail for questions is recommended. If face-to-face or on-line (Zoom) questions and answers are preferred, make an appointment using email.

Extension number: 3752, e-mail: yoshikazu.araki@nagoya-u.jp

Steel Structures (2.0credits) (鉄骨構造)

| | |
|---------------------|---------------------------------------|
| Course Type | Basic Specialized Courses |
| Class Format | Lecture |
| Course Name | Architecture |
| Starts 1 | 2 Autumn Semester |
| Elective/Compulsory | Compulsory |
| Lecturer | Ozaki Fuminobu Associate Professor |

Course Purpose

The aim of this class is to understand the steel member and structure for buildings.

Prerequisite Subjects

Introduction to Structural Mechanics, Structural Mechanics

Course Topics

Introduction to steel structural designs, mechanical properties of steel, design of members (beam, column, beam-column), buckling, design of connections and column-bases, structural planning.

Textbook

Steel Structures : Morikita-Shuppan

Additional Reading

Prints

Grade Assessment

term examination(80) and reports(20)

<Newly enrolled students in 2020 academic year and after>

10095948079706965646059

<Newly enrolled students in 2019 academic year and before>

10090 8980 7970 6960 59

Notes

The completion condition is not required.

Contacting Faculty

ozakinuac.nagoya-u.ac.jp

Transportation Planning (2.0credits) (交通論)

| | | | |
|---------------------|------------------------------|---------------------------------|-----------------------------------|
| Course Type | Specialized Courses | | |
| Class Format | Lecture | | |
| Course Name | Civil Engineering | Architecture | |
| Starts 1 | 3 Spring Semester | 4 Spring Semester | |
| Elective/Compulsory | Elective | Elective | |
| Lecturer | Hideki NAKAMURA Professor | Toshiyuki YAMAMOTO Professor | Tomio MIWA Associate Professor |

Course Purpose

Understand the role of transportation in forming land use patterns and learn demand analysis methods and traffic engineering.

Prerequisite Subjects

History of City and Civilization, Human Activities and Environment, Probability and Statistics, Urban and National Land Planning

Course Topics

1. Introduction
2. Characteristics of road traffic flow
3. Traffic flow theory
4. Road capacity
5. Fundamental traffic signal control
6. Road capacity at signalized intersection
7. Transportation planning and evaluation
8. Traffic management and ITS
9. Transportation survey
10. Travel demand forecasting (four-step model)
11. Trip distribution model
12. Network assignment model
13. Disaggregate model of travel demand

Textbook

Yasunori Iida and Ryuichi Kitamura: Transportation Engineering, Ohmsha

Additional Reading

Introduced according to the process of the lecture.

Grade Assessment

Examination and reports.

Notes

Not required.

Lecture is by face-to-face at the classroom.

Contacting Faculty

Students can ask questions to professors at any time during classes.

Questions during off-class hours can be asked via e-mail: nakamura@genv.nagoya-u.ac.jp, yamamoto@civil.nagoya-u.ac.jp and miwa@nagoya-u.jp

Infrastructure Planning (2.0credits) (社会資本計画学)

| | | |
|---------------------|--------------------------------|-------------------------------|
| Course Type | Specialized Courses | |
| Class Format | Lecture | |
| Course Name | Civil Engineering | Architecture |
| Starts 1 | 2 Spring Semester | 3 Spring Semester |
| Elective/Compulsory | Compulsory | Elective |
| Lecturer | Takayuki MORIKAWA Professor | Kiichiro HAYASHI Professor |

Course Purpose

The objective of this lecture is to learn the basic academic knowledge and the ability to solve the issues related to planning engineering under civil engineering. This lecture provides basics and applied skills of analysis methods and measures to understand the roles of infrastructure by learning its economic characteristics, planning procedure, demand analysis, and evaluation methods.

The goal of this lecture is that the students will understand the basics of planning procedure, demand analysis and evaluation methods, explain measures and study the analytical method of the issues.

Prerequisite Subjects

History of Civilization, Human Activities and Environment, Probability and Statistics, Space Design, Urban and National Land Planning

Course Topics

The lecture in AY2021 is planned to be offered by on-line.
Make sure you check this course's sled at NUCT.

1. Introduction of infrastructure planning
2. Linear programming 1
3. Linear programming 2
4. Linear programming 3
5. Linear programming 4
6. Linear programming 5
7. Non-linear programming 1
8. Non-linear programming 2
9. Introductory Economics 1
10. Introductory Economics 2
11. Introductory Economics 3
12. Cost-benefit analysis 1
13. Cost-benefit analysis 2
14. Environmental assessment
15. Life-cycle analysis

After the lecture, the students will study some example problems provided through the lecture as home-study.

Textbook

All the materials must be downloaded from NUCT.

Additional Reading

Infrastructure Planning, Shogo Kawakami, Kajima Syuppankai

Grade Assessment

Evaluation is based on essay exams (20%) and final examination (80%).

The success criteria is to understand the basics of planning procedure, demand analysis and evaluation methods.

The C level is the minimum requirement for passing this lecture

It employs the course registration withdrawal system.

Notes

No prerequisite is required.

Contacting Faculty

By e-mail.

Morikawa <morikawa@nagoya-u.jp>

hayashi <maruhaya98--@nagoya-u.jp>

Engineering on Physical Environment (2.0credits) (物理環境工学)

| | |
|---------------------|--|
| Course Type | Specialized Courses |
| Class Format | Lecture |
| Course Name | Architecture |
| Starts 1 | 2 Autumn Semester |
| Elective/Compulsory | Compulsory |
| Lecturer | Satoru IIZUKA Professor Lee Sihwan Associate Professor |

Course Purpose

Lectures on the mechanisms and control methods of thermal, air, light, and sound environments in architectural spaces

Prerequisite Subjects

Human Activities and Environment

Course Topics

1. Physics of heat
2. Calculation of heat transfer
3. Physics of ventilation
4. Calculation of ventilation
5. Physics of light
6. Movement of sun
7. Physics of sound
8. Acoustic calculation

Students need to submit reports on each physical environmental issue.

Textbook

Additional Reading

Grade Assessment

Examination (Total 100 points: Each of questions with thermal, air, light, and sound environments is 25 points.)

A passing grade is a score of 60 or higher.

Notes

No course requirements.

Basically, face-to-face classes are conducted.

If distance classes (interactive communication classes) are combined, they are taught using Zoom or Microsoft Teams.

Contacting Faculty

Students are able to ask questions after the classes. Questions by email are also accepted.

Satoru Iizuka, Professor, Email: s.iizuka@nagoya-u.jp

Concrete Technology (2.0credits) (コンクリート工学)

| | | |
|---------------------|-----------------------------|-----------------------------------|
| Course Type | Specialized Courses | |
| Class Format | Lecture | |
| Course Name | Architecture | |
| Starts 1 | 2 Autumn Semester | |
| Elective/Compulsory | Compulsory | |
| Lecturer | Ippei MARUYAMA Professor | You HIBINO Associate Professor |

Course Purpose

In this lecture, dynamics, performance, material, manufacture, construction, maintenance, etc. about concrete (reinforced concrete and prestressed concrete are also included) that is indispensable to construction work are performed.

1) Understanding of fundamentals of relationships between properties of concrete components and mixture proportion, 2) Understanding properties of fresh concrete and the relationship between concrete mixture proportion and construction process, 3) Understanding physical properties of concrete which is necessary for reinforced concrete design, 4) Understanding of deterioration mechanism of concrete and the relationships between concrete durability and concrete components and resultant mixture proportions, 5) Understanding fundamentals of reinforced concrete, prestressed concrete, and other concrete structures.

Prerequisite Subjects

Shape and Force

Course Topics

1W: Guidance, Introduction, Outlines of structural materials other than concrete(1)

2W: Outlines of structural materials other than concrete(2)

3W: What is concrete, History of concrete, Examples

4W: Constituents, Required performance, and characters of concrete

5W: Cement

6W: Water, Admixtures, Aggregates

7W: Mix proportioning

8W: Fresh concrete

9W: Mortar artworks competition

10W: Structural concrete(1)

11W: Structural concrete(2)

12W: Structural concrete(3)

13W: Durability

14W: State of the art in concrete technology(1)

15W: State of the art in concrete technology(2)

There are assignments of Mortar work competition, Mixture proportion, Calculation of concrete testing results, and so on.

Textbook

"Building Material, from selection to execution" by Yasuo Tanigawa, 2009. (Riko Tosho)

ISBN: 978-4844607403

Additional Reading

"Architectural Structural Material" by Tadashi Nakatsuka, 2004. (Asakura Syoten) ISBN978-4-254-26865-2

"Japanese Architectural Standard Specification for Reinforced Concrete Work JASS5" Architectural Institute of Japan, 2009. ISBN: 978-4-8189-3202-9

Grade Assessment

An overall judgment will be based on exercise questions (several times, 30%) and an examination (70%). Over 60, the credits will be given.

Accomplishment degree will be evaluated by reports.

After entrance at H23PY.

A+:100-95, A:94-80, B:79-70, C:69-65, C-:64-60, F:59-0

Attendance of all the lectures are requested. If someone fails to attend the lecture more than or equal to 3 times, credits will not be given.

Notes

There is no requirement.

(1) Class format and tools to be used

In principle, online classes will be held in October (with plans to hold face-to-face classes at least once), and face-to-face classes will be held after November. Use Zoom or Teams for online classes.

(2) How to provide "opportunities for students to ask questions to faculty" and "opportunities for students to exchange opinions

One face-to-face class will be held in October to provide an opportunity for students to ask questions.

During the online classes, questions will be accepted at any time through the chat function.

Contacting Faculty

We welcome your questions. At the first lecture, we provide our e-mail address.

Question by e-mail is also welcomed. If you want to meet us directly, we ask you to make a reservation by e-mail. During the online classes, questions will be accepted at any time through the chat function.

Contact:

Yo Hibino (hibino@nuac.nagoya-u.ac.jp)

Architectural Design Workshop 1 (3.0credits) (建築設計及び演習第1)

| | | | |
|---------------------|---|---|--|
| Course Type | Specialized Courses | | |
| Class Format | Lecture and Exercise | | |
| Course Name | Architecture | | |
| Starts 1 | 3 Spring Semester | | |
| Elective/Compulsory | Compulsory | | |
| Lecturer | Hisashi KOMATSU Professor LIYan Assistant Professor | Eisuke TABATA Associate Professor Part-time Faculty | HOTTA Yoshihiro Associate Professor |

Course Purpose

In this workshop, it's the final phase for participants to learn about the fundamental knowledge and technique on the architectural design.

At the end of this course, they are expected to acquire the knowledge and technique for the planning and design of architecture and landscape through the workshop about the assignment of a public building with the urban scale.

Prerequisite Subjects

Space Design Workshop 1, Space Design Workshop 2, Painting and Sculpture Workshop 1

Course Topics

1. A small apartment house is programmed and designed based on the given conditions of the site. A site plan, floor plans, elevations, sections, a perspective and a model should be submitted. 2. A facility for education is programmed and designed based on the given conditions of the site. A site plan, floor plans, elevations, sections, a perspective and a model should be submitted.

Textbook

Instruct the materials for your works during class as needed

Additional Reading

AIJ, The data for architectural design, Maruzen.

Grade Assessment

Presentation of the work in the jury (100%) Questions: in the studio of 3rd-year students

Notes

No course requirements. Note that it is necessary to make steady progress every week, including attendance at weekly esquisse, as mentioned above.

Contacting Faculty

Any kinds of question are replied in each studio.

History of Architecture 1 (2.0credits) (建築史第1)

| | |
|---------------------|---------------------------------|
| Course Type | Specialized Courses |
| Class Format | Lecture |
| Course Name | Architecture |
| Starts 1 | 2 Autumn Semester |
| Elective/Compulsory | Compulsory |
| Lecturer | Yasuhiko NISHIZAWA Professor |

Course Purpose

An outline of the history of Japanese architecture, to understand their ideas and meanings by four view points, architectural style and details, wooden frame structural system, building system, and relation with some Asian architecture. And on this lecture, you can get two talents, one is analyzing architecture and cities, the other is evaluating them.

Goals: Students will get some abilities which are analyzing architecture and cities, and evaluating architecture and cities.

Prerequisite Subjects

Outline of Urbanization and Civilization. Development of Buildings and Technology.

Course Topics

1 Outline of wooden buildings and architectural culture. 2-5 Ancient residents, shrine, Buddhist architecture and city planning. 6 Old residents in Nara and Heian period. 7-8 Buddhism temples, and residents in middle age. 9 Castles. 10-14 City plan, residents and religious architecture in Edo period. 15 The early modern architecture in Japan. In addition, homework will be given for the review of the class contents, you should answer keywords of content in each class by using NUCT site.

Textbook

Architectural Institute of Japan, "Nihon Kenchiku-shi Zushu", Shokokusha.
ISBN978-4-395-00888-9

Additional Reading

Ohta hirotaro, "Nihon Kenchiku-shi Josetsu", Shokokusha.
Hirai Kiyosho, "Nihon -jutaku-no Rekishi", NHK Publish.
Takahashi Yasuo, "Toshi-shi Zushu", Tokyo University Press.
Inagaki, Eizo, "Nihon no kindai kenchiku", Kajima Shuppankai.

Grade Assessment

Evaluation: by total score of home works on each class (10%), two reports (40%) and final test (50%), 60% is required for credit.

Grade Assessment is given as follows. A+ to 100-95 points, A to 94-80 points, B to 79-70 points, C to 69-65 points, C- to 64-60 points, and F to 59 points.

On the examination you should describe outlines and characteristics of style, structure, materials, construction system on Japanese Architecture.

Notes

Review the Outline of Urbanization and Civilization. Development of Buildings and Technology.

Contacting Faculty

If you had any questions, please tell to the following address: nszw@nuac.nagoya-u.ac.jp

Architectural Planning 1 (2.0credits) (建築計画第1)

| | |
|---------------------|------------------------------|
| Course Type | Specialized Courses |
| Class Format | Lecture |
| Course Name | Architecture |
| Starts 1 | 3 Spring Semester |
| Elective/Compulsory | Compulsory |
| Lecturer | Hisashi KOMATSU Professor |

Course Purpose

Learning in this lecture begins with the question of what an architectural planning is. Next, students will learn about the history, social systems, building construction methods, and usage of various types of architecture. Then, from the viewpoint of "use", the students acquire the applied skills to acquire advanced specialized knowledge on the spatial composition and functions of architecture. In the lectures, students will mainly learn the architectural planning of apartment buildings, educational facilities (primarily elementary and junior high schools), libraries and museums.

The objectives of this lecture are (1) to understand that architecture is a social entity, (2) to understand the relationship between various activities and architectural space through consideration of specific cases, and (3) to acquire the "eye for understanding architectural program" and "the ability for thinking about the architectural program", which are required in the consensus making in an architectural design, in addition, (4) to foster awareness of ethics in architectural planning.

Prerequisite Subjects

Course Topics

Textbook

Additional Reading

Grade Assessment

Notes

Contacting Faculty

Engineering on Human Environment (2.0credits) (人間環境工学)

| | | |
|---------------------|---------------------------------------|-----------------------------------|
| Course Type | Specialized Courses | |
| Class Format | Lecture | |
| Course Name | Architecture | |
| Starts 1 | 3 Spring Semester | |
| Elective/Compulsory | Compulsory | |
| Lecturer | Teruyuki SAITO Associate Professor | Lee Sihwan Associate Professor |

Course Purpose

Lectures on the physiological and psychological relations of human beings to the environment, the evaluation of the environment and its application to the environmental design.

Prerequisite Subjects

Human Activities and Environment, Engineering on Physical Environment

Course Topics

1. Sensation, perception and cognition
2. Comfort and health
3. Evaluation of thermal environment
4. Evaluation of visual environment
5. Evaluation of acoustic environment
6. IAQ
7. Cognition of space
8. Inhabitants' consciousness to residential environment

Textbook

Textbook for Environmental Engineering (in Japanese)/SHOKOKUSHA Publishing Co., Ltd.

Additional Reading

Distribute the prints as necessary.

Grade Assessment

Examination(80%) and report(20%)

Notes

No course requirements.

Basically, face-to-face classes are conducted.

If remote classes (interactive communication class) are combined, they are taught using Microsoft Teams.

* If there is a change in the class form, etc. after registration, we will guide you on the NUCT class site.

Contacting Faculty

Students can ask questions to professors at the end of classes.

Questions during off-class hours can be asked via e-mail.

saito(at)nuac.nagoya-u.ac.jp

| | |
|---------------------|----------------------------|
| Course Type | Specialized Courses |
| Class Format | Lecture |
| Course Name | Architecture |
| Starts 1 | 3 Spring Semester |
| Elective/Compulsory | Compulsory |
| Lecturer | Hideki TANAKA Professor |

Course Purpose

Purpose:

To understand how the environment in modern architecture or city is controlled by a total system which consists of many sub-systems of consuming energy and material, and how to create healthy, comfortable and functional environment.

Achievement Goal:

Understand and explain the purpose, planning and design method for heating, ventilation and air-conditioning, Sanitary, electrical installation system, and the related urban infrastructure, which are the environmental systems of buildings and cities.

Prerequisite Subjects

Human Activities and Environment, Fundamentals of Hydrodynamics, Engineering on Physical Environment, Engineering on Human Environment

Course Topics

- 1.Circulation of Urban energy and material
- 2.Urban and architectural environmental system
- 3.Outline of air-conditioning system
- 4.Characteristics and calculation method of HVAC load
- 5.Design of HVAC system (Heat load)
- 6.Design of HVAC system (Air handling unit)
- 7.Design of HVAC system (Duct system)
- 8.Planning of HVAC heat source system
- 9.Principle of heat source equipment
- 10.Outline of water supply system
- 11.design of water supply system
12. Outline of plumbing system
- 13.Outline of electric system
- 14.Estimation of performance of environmental system
- 15.Introduction of advanced HVAC system

Textbook

Distribute prints as necessary.

Additional Reading

Handbook for Heating, Air-Conditioning and Sanitary Engineering (The Society of Heating, Air-Conditioning and Sanitary Engineers of Japan)

Grade Assessment

Evaluation based on submitted reports and examination.

A passing grade is a score of 60 or higher.

The weighting factors of submitted reports and examination are 3:7.

Notes

No course requirements.

Basically, face-to-face classes are conducted.

If remote classes (interactive communication class) are combined, they are taught using Microsoft Teams.

* If there is a change in the class form, etc. after registration, we will guide you on the NUCT class site.

Contacting Faculty

Accept questions in the lecture room at the end of the lecture

Accept email questions

Contact information for the faculty in charge of the lecture:

tanaka@nagoya-u.jp

Seismic Engineering (2.0credits) (耐震工学)

| | |
|---------------------|----------------------------|
| Course Type | Specialized Courses |
| Class Format | Lecture |
| Course Name | Architecture |
| Starts 1 | 3 Spring Semester |
| Elective/Compulsory | Elective |
| Lecturer | Masafumi MORI Professor |

Course Purpose

This course introduces the foundations of earthquake engineering to students taking this course. First, through past earthquake damage, the property of the buildings and soil easily to be damaged and the mechanism of the seismic ground motion are introduced. Next, basic theory of one degree of freedom system is presented, and finally, the basic concept of the earthquake-resistant design is demonstrated. The aim of this course is to acquire the fundamental knowledge and to solve the technical problem in the earthquake-resistant design of the building.

At the end of the course, participants are expected to understand the dynamic characteristics of buildings in the earthquake through the vibration theory of one degree of freedom system and to explain the properties of buildings strong to the earthquake excitation.

Prerequisite Subjects

Mechanics1, Mathematics2, Structural Mechanics, Reinforced Concrete Structure, Steel Structure

Course Topics

1. Guidance / Earthquake and Seismic ground motion
2. Past earthquakes and their damage (1)
3. Past earthquakes and their damage (2)
4. Nankai Trough Major Earthquake and its damage
5. Seismic resistance and earthquake damage of various structures (1)
6. Seismic resistance and earthquake damage of various structures (2)
7. Seismic resistance of foundation structure and earthquake damage
8. Vibration of 1 degree of freedom system (1)
9. Vibration of 1 degree of freedom system (2)
10. Vibration of 1 degree of freedom system (3)
11. Vibration of multi-degree-of-freedom system
12. Dynamic elasto-plastic response of buildings
13. Seismic design methods and their issues (1)
14. Seismic design methods and their issues (2)
15. Summary

After the class, you will be required to submit a report task.

Textbook

N.Fukuwa, J.Tobita and T.Hirai : Earthquake Engineering, Kodansha

Additional Reading

They are introduced as need.

Grade Assessment

Reports(50%), Final Examination(50%).

<Enrollees before 2019>

95 to 100 points :S, 90 to 89 points:A, 70 to 79 points:B, 60 to 69 points:C, 59 points or less :F.

<Enrollees After 2020>

95 to 100 points :A+, 80 to 94 points:A, 70 to 79 points:B, 65 to 69 points:C, 60 to 64 points :C-, 59 points or less :F.

But the person who is absent from a final examination is judged "W".

To pass, students must earn at least 60 points out of 100.

Grading is based on level of understanding of building earthquake damage and the earthquake response of building.

Notes

Nothing

Contacting Faculty

Welcome questions during the class and also accepts questions by e-mail at any time.

(m.mori@nagoya-u.jp)

Reinforce Concrete Structures (2.0credits) (鉄筋コンクリート構造)

| | |
|---------------------|-----------------------------------|
| Course Type | Specialized Courses |
| Class Format | Lecture |
| Course Name | Architecture |
| Starts 1 | 3 Spring Semester |
| Elective/Compulsory | Compulsory |
| Lecturer | You HIBINO Associate Professor |

Course Purpose

[Objectives]

Reinforced concrete structures (RC structures) are composite structures that resist external forces by combining different types of materials, such as steel and concrete. Therefore, the resistance mechanism against external forces and the design method of the members are different from wooden or steel structures. This lecture focuses on the basics of resistance mechanisms and design methods for reinforced concrete beams and columns. The purpose of this course is to develop the knowledge and ability to contribute to the design of reinforced concrete members by explaining the material properties of reinforcing bars and concrete, and the basic mechanical properties and design methods of beam and column members with specific examples of calculation and design.

[DP]

DP5

[Achievement of goals]

Understand the basics of reinforced concrete members and be able to design reinforced concrete members.

Prerequisite Subjects

Dynamics of architectural structure and exercise, Concrete technology

Course Topics

1. Introduction
2. Properties of materials: concrete and steel
3. Principle of RC structures
4. Flexural behavior of RC beams (1)
5. Flexural behavior of RC beams (2)
6. Flexural behavior of RC columns
7. Shear behavior of RC beams and columns
8. Performance of RC walls (flexural and shear performance, uplift and opening reinforcement)
9. Beam-column joints (shear, bond and anchorage)
10. Performance of RC slabs (type and design)
11. Earthquake damage and seismic standards
12. Allowable stress design method
13. Calculation of lateral load carrying capacity
14. Ductility of RC members
15. Structural design concept for RC structures (Design Example)

Students should prepare for and review the contents of each lecture using the handouts provided, and fully understand the lecture contents.

Textbook

"Reinforced Concrete Structures" RIKOH TOSHO CO., LTD., 2009
Handouts will be distributed as necessary.

Additional Reading

"Standard for Structural Calculation of Reinforced Concrete Structures -Based on Allowable Stress Concept" Architectural Institute of Japan, 2018

Grade Assessment

The grade of achievement is assessed based on the basis of the points listed below awarded for the result of exercise problems (30%) and an examination (70%).

Grading scale:

A+: 95-100 points

A: 80-94 points

B: 70-79 points

C: 65-69 points

C-: 60-64 points

F: 0-59 points

Notes

No course requirements are required.

Contacting Faculty

Questions will be answered at the following e-mail addresses, in NUCT messages, during breaks after lectures, or during office hours.

hibino@nuac.nagoya-u.ac.jp

Experiments on Structures and Materials (2.0credits) (構造・材料実験法)

| | | | |
|---------------------|----------------------------------|------------------------------------|--------------------------------|
| Course Type | Specialized Courses | | |
| Class Format | Lecture and Experiment | | |
| Course Name | Architecture | | |
| Starts 1 | 3 Spring Semester | | |
| Elective/Compulsory | Compulsory | | |
| Lecturer | NAGAETakuya Associate Professor | Ozaki Fuminobu Associate Professor | You HIBINO Associate Professor |
| | Tatsuya ASAI Assistant Professor | Takashi HIRAI Assistant Professor | |

Course Purpose

The fundamental methods of testing the structural materials and members in architecture, such as steel and concrete, are introduced. In the first half of the course, the measuring system, data analyzing methods and safety control are explained. In the second half, various experiments are carried out including production of specimens, various measuring and loading methods.

Prerequisite Subjects

Concrete Engineering, Structural Mechanics with Exercise, Applied Structural Mechanics with Exercise

Course Topics

1. Purpose of experiments 2. Background of physical phenomena 3. Principles of measurements 4. Tests for cements and additives 5. Tests for aggregate properties 6. Mix design of concrete 7. Compression strength test of concrete 8. Non-destructive tests of concrete strength 9. Test for reinforcing bar, 10. Bending test of steel beam 11. Loading test of timber, 12. Processing of reinforcing bar 13. Bending test of RC beam 14. Vibration test, 15. Presentation of experimental results

Textbook

Y. Tanigawa, et al., Experimental Method of Structural Materials, Morikita-Suppan.

Additional Reading

prints

Grade Assessment

Over 60, credits will be given.

Attendance of all the lectures are requested. If someone fails to attend the lecture, he/she should recover it by attending another lecture.

Accomplishment degree will be evaluated by reports and presentations.

Notes

no requirements

Contacting Faculty

We welcome your questions.

asai.tatsuya(at)k.mbox.nagoya-u.ac.jp replace "(at)" to "@"

Regulations in Building and Urban Area (1.0credits) (建築法規)

| | | |
|---------------------|---------------------------------------|-------------------|
| Course Type | Specialized Courses | |
| Class Format | Lecture | |
| Course Name | Architecture | |
| Starts 1 | 3 Spring Semester | |
| Elective/Compulsory | Compulsory | |
| Lecturer | Ozaki Fuminobu Associate Professor | Part-time Faculty |

Course Purpose

This lecture is outlined about the Building Standard Law, the City and Town Planning Act including the background and the actual condition of a design and examination. It aims at deepening an understanding also about the importance of law observance from an ethical viewpoint and the fundamental knowledge about a building law required for the examination for class-1 architects. Students can understand the Building Standard Law.

Prerequisite Subjects

Disaster prevention and safety

Course Topics

1. Outline of the Building Code in Japan 2. Terms and Definition of the Statute and Regulation about Ordinary Structure 3. Regulation about Fire Prevention and Refuge 4. Regulation about Strength of Structure, and Road and Usage 5. Regulation about Area, Height, and Sun Shadow 6. Guidance Techniques for Building Agreement and Integrated Design, Procedure Regulation of Check, Inspection and Violation 7. Town Planning and Zoning Act System of Nagoya City 8. Urban Landscape of Nagoya City Report assignments as homework are required.

Textbook

Hajimete no Kenchiku-Hoki, Gakugei Shuppansha

Additional Reading

Related handout distributed by every lecture

Grade Assessment

Estimation due to reports(70%) and tests(30%).<Newly enrolled students in 2020 academic year and after>10095948079706965646059<Newly enrolled students in 2019 academic year and before>10090 8980 7970 6960 59

Notes

The completion condition is not required.

Contacting Faculty

E-mail:ozaki@nuac.nagoya-u.ac.jp

Disaster Mitigation Management (1.0credits) (防災安全)

| | | | |
|---------------------|-------------------------|----------------------------|---------------------------------------|
| Course Type | Specialized Courses | | |
| Class Format | Lecture | | |
| Course Name | Architecture | | |
| Starts 1 | 3 Spring Semester | | |
| Elective/Compulsory | Compulsory | | |
| Lecturer | Yasuhiro MORI Professor | Masafumi MORI Professor | Ozaki Fuminobu Associate Professor |

Course Purpose

Students are required to learn the skills of problem solving in the field of disaster planning and disaster information.

Achievement

- 1.Students understand risk management.
- 2.Students understand fireprevention management
- 3.Students understand earthquake disasters.

Prerequisite Subjects

Probability and statistics,
Physical environmental engineering

Course Topics

calender: 1,2,3.Risk and Security 4,5:Earthquake disaster, 6,7,8:Fire and Security
Report assignments as homework are required.

Textbook

Related handouts(documents) will be distributed.

Additional Reading

Related handout distributed by ever lecture

Grade Assessment

Based on reports.

<Newly enrolled students in 2020 academic year and after>
10095948079706965646059

<Newly enrolled students in 2019 academic year and before>
10090 8980 7970 6960 59

Notes

Assignments imposed in each class must be submitted.

Contacting Faculty

ozaki(at)nuac.nagoya-u.ac.jp, yasu(at)nuac.nagoya-u.ac.jp
m.mori(at)nagoya-u.jp

* Replace (at) with @.

Architectural Design Workshop 2 (3.0credits) (建築設計及び演習第2)

| | |
|---------------------|---|
| Course Type | Specialized Courses |
| Class Format | Lecture and Exercise |
| Course Name | Architecture |
| Starts 1 | 3 Autumn Semester |
| Elective/Compulsory | Elective |
| Lecturer | Kazuhisa TSUNEKAWA MIYAWAKIMasaru Part-time Faculty Professor Associate Professor |

Course Purpose

Workshop of the planning and design of building complexes and large developments with regard to urban contexts.

Prerequisite Subjects

Space Design Workshop 1, Space Design Workshop 2, Architectural Design Workshop 1, Architectural Planning 1,2

Course Topics

1. Work on the design of an elementary school with the community.
2. Conceptual and schematic planning of urban or regional projects is developed based on the given conditions.

Textbook

AIJ, The data for architectural design, Maruzen.

Additional Reading

Reference books are indicated in classes.

Grade Assessment

Presentation of the work in the jury. Grade Assessment is given as follows. S to 100-90 points, A to 89-80 points, B to 79-70 points, C to 69-60 points, and F to 59 points-.

Notes

Lecture will be the combination of face to face and remote class (interactive communication class) by Zoom and so on. Details of remote class is announced at NUCT.

Contacting Faculty

Tsunekawatsunekawa@cc.nagoya-u.ac.jp
Miyawakimiyawaki@nuac.nagoya-u.ac.jp

History of Architecture 2 (2.0credits) (建築史第2)

| | |
|---------------------|--|
| Course Type | Specialized Courses |
| Class Format | Lecture |
| Course Name | Architecture |
| Starts 1 | 3 Spring Semester |
| Elective/Compulsory | Compulsory |
| Lecturer | HOTTA Yoshihiro Associate Professor |

Course Purpose

An outline of the history of Western architecture from ancient to pre-modern period, to understand their characteristics of architectural style, construction system. Then, you can get two talents on this class, one is analyzing architecture and urban planning, the other is evaluating them. In particular, you can understand three points, the first one is outline of religious architecture and public facilities, the second one is outline of building system and masonry system, the last one is the relationship between architecture and urbanization. Goals: Students will get two talents on this class, one is analyzing architecture and cities, the other is evaluating them.

Prerequisite Subjects

History of City and Civilization
History of Architecture 1

Course Topics

1. Egypt
2. Ancient Greek
3. Ancient Rome
4. From Early Christian to Byzantine
5. Romanesque
6. Gothic
7. Gothic
8. Medieval city and domestic architecture
9. Renaissance 1(outline and church architecture)
10. Renaissance 2(city and domestic architecture)
11. Baroque 1(outline and church architecture)
12. Baroque 2(city and domestic architecture)
13. 18th Century 1(architecture/city/garden in France and England)
14. 18th Century 2(Revolutionary architecture in France)
15. 19th Century

In addition, homework will be given for the review of the class contents, and the answer will be explained next week.

Textbook

Architectural Institute of Japan ed., Seiyo Kenchiku-shi Zushu, Shokoku-sha. As for the detailed informations of each building, Refer to this text book.

Additional Reading

Reference books are introduced in the printed materials in each lecture.

Grade Assessment

A minimum of 60 points is required to pass the course, based on the score of the mid-semester report assignment (50 points) and the written examination at the end of the semester (50 points).

Notes

No course requirements are necessary.

Contacting Faculty

If you had any questions, please tell to the follow address : hotta@nuac.nagoya-u.ac.jp.

Architectural Planning 2 (2.0credits) (建築計画第2)

| | |
|---------------------|---------------------------------|
| Course Type | Specialized Courses |
| Class Format | Lecture |
| Course Name | Architecture |
| Starts 1 | 3 Autumn Semester |
| Elective/Compulsory | Elective |
| Lecturer | Kazuhisa TSUNEKAWA Professor |

Course Purpose

Students should learn the background history, social systems, architectural methods, and how to use them for various issues in architectural design, and acquire expertise in the spatial composition and functions of architecture. In particular, acquire knowledge on medical and welfare facilities, offices, and theaters. In addition, understand related fields that link architecture and society.

Prerequisite Subjects

Course Topics

Textbook

AIJ, The data for architectural design, Maureen.
Will be distributed handouts in the class

Additional Reading

Will be introduced in the class

Grade Assessment

Paper(40%) and final exam (60%).
S: 90-100%, A: 80-89, B: 70-79, C: 60-69, F: 0-59

Notes

Contacting Faculty

Urban and National Land Planning (2.0credits) (都市・国土計画)

| | | |
|---------------------|---------------------------------------|---|
| Course Type | Specialized Courses | |
| Class Format | Lecture | |
| Course Name | Architecture | |
| Starts 1 | 3 Autumn Semester | |
| Elective/Compulsory | Elective | |
| Lecturer | MIYAWAKIMasaru Associate Professor | NAKAMURAShinichiro Associate Professor |

Course Purpose

The purpose of this course is to recognize the importance of urban and regional planning as a field related to sustainability and quality of life, learn the history of urban and regional planning and to understand the current planning system. The aim of this course is to be able to explain the above items comprehensively.

Prerequisite Subjects

History of City and Civilization, City and Environment, Spatial Planning, Spatial Design, Architecture, History of Civil Engineering

Course Topics

The way of this lecture will be announced on NUCT.

1. Current situation, issues and approaches of Nagoya region
2. Current situation, issues and approaches of various cities around the world
3. Various urban planning ideas, modern urban planning and contemporary urban planning
4. Machizukuri in Japan
5. Contemporary urban and regional planning: national, region, municipality, area and district levels
6. Characteristics, issues and prospects of Japanese urban and regional planning

Review of textbook is required after every class.

Textbook

Book to Understand Landscape and Urban Design(Asakura-syoten)

Additional Reading

Kokudokeikaku-no-Hensen (Kajimashuppankai)

Machizukuri Keyword Dictionary (Gakugei Shuppan-sha)

Sustainable Site Design 100 Cases: Acupuncture of Sustainable Urban Regeneration (Shokokusha)

Grade Assessment

In-class the test (reports in the case of pandemic): 100% will be evaluated. Total 60 points out of 100 points is a pass grade.

Notes

Face to face class, but sometimes remote class (interactive communication class) by Zoom in the conditions. Details is announced at NUCT. Students can ask questions in the class or by the report of every class. Discussion between students will be possible in the class or by the message function of NUCT.

Contacting Faculty

Questions are welcome.

Please make an appointment beforehand.

E-mail: miyawaki@nuac.nagoya-u.ac.jp (Dr. Miyawaki), shinichiro@civil.nagoya-u.ac.jp (Dr. Nakamura)

Building Services Engineering (2.0credits) (設備工学)

| | | |
|---------------------|----------------------------|---------------------------------------|
| Course Type | Specialized Courses | |
| Class Format | Lecture | |
| Course Name | Architecture | |
| Starts 1 | 3 Autumn Semester | |
| Elective/Compulsory | Elective | |
| Lecturer | Hideki TANAKA Professor | Teruyuki SAITO Associate Professor |

Course Purpose

Purpose

Through the lectures on the application of the theory outlined in Environmental System Engineering, the purpose, characteristic, constitution and expected effect of building service system, and relationship between that system and environment should be understood.

Achievement Goal

Understand and explain the purpose, characteristics, composition, expected effects, and relationships with urban and indoor environments of major and advanced environmental systems.

Prerequisite Subjects

Engineering on Physical Environment, Engineering on Human Environment, Environmental System Engineering, Sanitary Engineering

Course Topics

1. Transport equipment, Electric equipment, Heat source equipment, Automatic control and building automation
2. Thermal storage system, District heating and cooling, Application system of unused energy, Co-generation system, Assessment of building environment performance
3. Solar and wind energy system, Application system of rain and reclaimed water
4. Indoor air quality and ventilation

Textbook

Handouts are to be distributed.

Additional Reading

Handbook for Heating, Air-Conditioning and Sanitary Engineering (The Society of Heating, Air-Conditioning and Sanitary Engineers of Japan)

Grade Assessment

Examination

Notes

No course requirements.

Basically, face-to-face classes are conducted.

If remote classes (interactive communication class) are combined, they are taught using Microsoft Teams.

* If there is a change in the class form, etc. after registration, we will guide you on the NUCT class site.

Contacting Faculty

Students can ask questions to professors at the end of classes.

Questions during off-class hours can be asked via e-mail.

tanaka(at)nagoya-u.jp

saito(at)nuac.nagoya-u.ac.jp

| | | | |
|---------------------|-----------------------------------|---------------------------------------|------------------------------------|
| Course Type | Specialized Courses | | |
| Class Format | Lecture and Exercise | | |
| Course Name | Architecture | | |
| Starts 1 | 3 Autumn Semester | | |
| Elective/Compulsory | Elective | | |
| Lecturer | Satoru IIZUKA Professor | Teruyuki SAITO Associate Professor | UKAI Makiko Assistant Professor |
| | Lee Sihwan Associate Professor | | |

Course Purpose

This course includes exercise of office building planning, and practices of building service planning and design. The students learn the basic energy conservation methods and practical planning knowledge of building service through the exercise and practices. They understand the necessity and urgency of improvement on energy conservation performance, and the responsibility for it as an engineer. Moreover, they also improve their communication abilities through the exercise and practices.

Prerequisite Subjects

Human Activities and Environment, Engineering on Physical Environment, Engineering on Human Environment, Environmental System Engineering, Sanitary Engineering

Course Topics

1. Lecture on the outline of building services planning and the exercise of office building planning
2. Exercise of energy conservation by architectural methods (calculation of PAL)
3. Calculation of heating and cooling loads
4. Planning of air-conditioning system
5. Planning of piping system

Textbook

Handouts are to be distributed.

Additional Reading

Handbook for Heating, Air-Conditioning and Sanitary Engineering (The Society of Heating, Air-Conditioning and Sanitary Engineers of Japan)

Grade Assessment

Submission drawings and calculation sheets, Exercise activities
A passing grade is a score of 60 or higher.

Notes

No course requirements.

Basically, face-to-face classes are conducted.

If distance classes (interactive communication classes) are combined, they are taught using Zoom or Microsoft Teams.

Contacting Faculty

Students can ask questions to professors during classes.

Questions during off-class hours can be asked via e-mail.

saito(at)nuac.nagoya-u.ac.jp

s.iizuka(at)nagoya-u.jp

ukai(at)nuac.nagoya-u.ac.jp

Structural Analysis and Tutorial (2.5credits) (建築構造解析及び演習)

| | |
|---------------------|---|
| Course Type | Specialized Courses |
| Class Format | Lecture and Exercise |
| Course Name | Architecture |
| Starts 1 | 3 Autumn Semester |
| Elective/Compulsory | Elective |
| Lecturer | Keiichi ARAKI Professor NAGAETakuya Associate Professor |

Course Purpose

Learning the fundamentals for the structural analysis through computer programming by use of the matrix theory and time-history seismic response calculation.

Prerequisite Subjects

Mechanics I, Shape and Forces, Structural Mechanics with practice, Applied Structural Mechanics with practice

Course Topics

1. Matrix Calculations
2. Stress Analysis of Plane Truss
3. Stress Analysis of Plane Rigid Frame
4. Time-History Seismic Response Calculation of Single-Degree-of-Freedom System
5. Calculation of Response Spectrum

Textbook

Texts are distributed in classes.

Additional Reading

Hijkata, K. et al., Introduction to Building Structural Mechanics vol. II (in Japanese), Morikita Publishing Co., Ltd., ISBN-13 : 978-4627554214

Takayuki Teramoto and Takuya Nagae, Mechanics of Building Structures II (in Japanese), Morikita Publishing Co., Ltd.

Grade Assessment

Report

The goal attainment level is evaluated by the reports. 60 points or more for 100 point full marks are accepted.

Notes

- No requirements.
- Exercises using computers are held in face-to-face classes.
- Lectures are performed by on-demand videos or online tools like Zoom.
- In case of on-demand videos, questions and exchanges of comments can be performed through "message" function of NUCT.

Contacting Faculty

Contact the instructors or teaching assistants in classes. The use of email is also suggested.

Structural Design (2.0credits) (構造設計工学)

| | |
|---------------------|-------------------------|
| Course Type | Specialized Courses |
| Class Format | Lecture |
| Course Name | Architecture |
| Starts 1 | 3 Autumn Semester |
| Elective/Compulsory | Elective |
| Lecturer | Yasuhiro MORI Professor |

Course Purpose

As the basic knowledge in the field of structural engineering for buildings, this course first introduces the ideas and technologies for achieving the safety and functionality of buildings in relation to Japanese Building Standard Law. Then as the advanced technical knowledge, this course introduces the idea of performance-based design along with the measures of performance levels, and limit state design as a tool to achieve the performance-based design. In the second half, this course introduces the methods to determine the design load on the basis of observed physical phenomena such as imposed load, snow depth, wind speed, and ground motion intensities, as well as the current Japanese seismic provisions.

Prerequisite Subjects

Course Topics

1. Structural design and risk management
2. Performance-based design and responsibility of stake holders
3. Measure of structural performance level
4. Limit state probability, Reliability index
5. Structural design methods, Load combinations
6. Dead load and live load
7. Snow load #1
8. Snow load #2
9. Wind load #1
10. Wind load #2
11. Seismic load: Lessons from past disasters, Seismic response of structures
12. Response spectrum, Ductility and balance of stiffness, Past seismic provisions
13. Japanese current seismic provisions #1
14. Japanese current seismic provisions #2
15. Japanese current seismic provisions #3

Textbook

Additional Reading

Grade Assessment

Final exam (70%), and reports (30%)

Notes

Contacting Faculty

Office hour will be set up on appointment basis. Emailyasu(at)nuac.nagoya-u.ac.jp

* Replace (at) with @.

Building Foundation Engineering (2.0credits) (建築基礎構造)

| | |
|---------------------|----------------------------|
| Course Type | Specialized Courses |
| Class Format | Lecture |
| Course Name | Architecture |
| Starts 1 | 3 Autumn Semester |
| Elective/Compulsory | Elective |
| Lecturer | Masafumi MORI Professor |

Course Purpose

Outline and important points for design procedure of building foundation will be shown. Concepts and computational methods on shear strength, deformation, bearing capacity, earth pressure, design of pile and spread foundations of building structures.

Prerequisite Subjects

Introduction to Structural Mechanics, Structural Mechanics and Tutorial, Reinforce Concrete Structures

Course Topics

1. Ground conditions and examples of soil disasters 2. Fundamental properties of soil 3. Soil exploration 4. Penetration, Consolidation and ground settlement 5. Shear deformation and strength 6. Earth pressure problem 7. Bearing capacity 8. Foundation of building structures (spread foundation and pile foundation) 9. Summary and Evaluation

Some reports are assigned during the lecture.

Textbook

Not specified.

Prepare prints as necessary.

Additional Reading

The Soil -- Soil and foundation for building engineers, M. Fujii, et. al., Kenchiku Gijutsu Building Foundation (The Second Edition), M. Hatanaka and M. Kakurai, Toyoshoten

Grade Assessment

Reports(50%), Final Examination(50%).

<Enrollees after 2020>

95 to 100 points :A+ 80 to 94 points:A 70 to 79 points:B 65 to 69 points:C 60 to 64 points:C- 59 points or less:F.

<Enrollees before 2019>

95 to 100 points :S 90 to 89 points:A 70 to 79 points:B 60 to 69 points:C 59 points or less:F.

But the person who is absent from a final examination is judged "W".

Criterion of evaluation is a correct understanding of basic concepts and terms related to the design of the building foundation.

Notes

No registration requirements required.

Lecture methods and tools:

In principle, face-to-face lectures will be held. However, due to concerns about COVID-19 infection, etc., we will give consideration to students who wish to take online classes by zoom, so please make a request in advance.

Contacting Faculty

E-mail:m.mori@nagoya-u.jp EX:3765

Building Material Engineering (2.0credits) (建築材料工学)

| | | |
|---------------------|-----------------------------|-------------------|
| Course Type | Specialized Courses | |
| Class Format | Lecture | |
| Course Name | Architecture | |
| Starts 1 | 3 Autumn Semester | |
| Elective/Compulsory | Elective | |
| Lecturer | Ippei MARUYAMA Professor | Part-time Faculty |

Course Purpose

Objectives: Understanding the material functions and properties which are necessary for design, construction, and management of architectural buildings.

Goals: Influences of the material properties on a architectural design are considered by studying various materials, products, production systems, mechanical properties and standards. The information of many types of non-structural materials as well as structural materials, and the process of material selection in architectural design are discussed.

Prerequisite Subjects

Concrete Engineering Reinforced concrete design Material/Structural Experiment for Architecture

Course Topics

1. Overview of building materials 2. Performance and properties of materials 3. Materials and production of concrete 4. Properties of concrete 5. Properties and production of steel 6. Wood and wooden materials 7. Non-structural metals 8. Ceramics 9. Plastics 10. Paints, adhesives, sealing materials 11. Insulation, fire-proof materials 12. Water-proof materials 13. Exterior materials 14. Interior materials 15. Material design and example of construction

Textbook

Learning of building materials, Richo tosyo, Tanigawa et al. (in Japanese)

Additional Reading

We use Japanese text book, see .

Grade Assessment

Over 60, credits will be given.

Score will be based on 2 times of examinations and reports.

The percentage of them will be announced at the first lecture.

Regarding scoring, following will be applied:

A+:100-90, A:89-80, B:79-70, C:69-60, F:0-59

Attendance of all the lectures are requested. If someone fails to attend the lecture more than or equal to 3 times, credits will not be given.

Notes

There is no requirement for taking this lecture.

Contacting Faculty

We welcome your questions. At the first lecture, we provide our e-mail address.

Question by e-mail is also welcomed. If you want to meet us directly, we ask you to make a reservation by e-mail.

Building Construction Engineering (2.0credits) (建築生産システム)

| | |
|---------------------|---------------------|
| Course Type | Specialized Courses |
| Class Format | Lecture |
| Course Name | Architecture |
| Starts 1 | 3 Autumn Semester |
| Elective/Compulsory | Compulsory |
| Lecturer | Part-time Faculty |

Course Purpose

The process of building construction, its historical development, introduction of new technology, and current state in construction control are discussed. The practical arrangements in building construction and new technology for saving time and labor are also presented.

Objectives

- To understand the fundamentals of building construction.
- To understand the current status of construction management, historical progress, and new technologies.
- To understand construction planning and management points of each construction project from start to completion.
- To understand the current status and issues in the construction industry and the ethics of construction engineers.

Prerequisite Subjects

It is desirable that students have studied the basics of concrete engineering, building materials engineering, reinforced concrete structures, and steel structures.

Course Topics

1. Guidance, about construction industry, basic knowledge of buildings
2. Construction planning (PDCA) and construction management (QCDSE)
3. Temporary construction
4. Underground construction
5. Pile construction
6. Rebar construction
7. Formwork construction
8. BIM
9. Concrete work
10. Steel frame work 1
11. Steel frame work 2
12. External finishing work
13. Interior finish work
14. From completion to demolition / Looking back on the lecture
15. Summary and evaluation

A quiz will be given in each lecture to confirm basic knowledge. Questions about the lecture content will be answered and explained in the next week's lecture. Homework related to the content of each lecture will be given.

Textbook

"Kenchiku Seko wo Manabu" by Yasuo Tanigawa, Hiroyuki Ikeda, Yasunori Uno
Hardcover, 281 Pages, Published 2012. (Riko Tosho) ISBN978-4-8446-0796-0

Lecture materials will be distributed in advance of each class.

Additional Reading

Reference books will be given during the lecture as necessary.

Grade Assessment

Explanations will be given using a projector while supplementary materials are used in accordance with the textbook "Kenchiku Seko wo Manabu".

Grades will be based on a comprehensive evaluation of the final exam and the work submitted, with a passing grade based on an understanding of construction and the knowledge necessary for communication in construction. Insufficient attendance (less than 80%) will result in a failing grade.

Notes

Homework will be assigned each week and must be turned in before the lecture begins the following week.

Contacting Faculty

Provide a question box on the quiz.

Questions will also be accepted outside of lecture time. Email address will be given at the beginning of the class.

Senior Design Workshop 1 (Structural Design) (3.0credits) (総合設計及び演習第1 (構造))

| | |
|---------------------|---|
| Course Type | Specialized Courses |
| Class Format | Lecture and Exercise |
| Course Name | Architecture |
| Starts 1 | 4 Spring Semester |
| Elective/Compulsory | Elective |
| Lecturer | Keiichi ARAKI Professor Part-time Faculty |

Course Purpose

The purposes of this class are two folds:

- (1) To understand the fundamentals of structural design by integrating the knowledge gained from the classes related to structural engineering.
- (2) To understand the missions of structural engineers.

For these purposes, the following 2 goals are set in this class:

- (1) To understand the whole structure and concrete procedures in structural design through exercises on structural design of reinforced concrete buildings.
- (2) To study the fundamentals of construction project management. Concrete examples are given for this purpose.

Prerequisite Subjects

Introduction to Structural Mechanics, Structural Mechanics and Exercises, Mathematics 1 with Exercises, Mechanics 1 with Exercises, Mechanics 2 with Exercises, Applied Structural Mechanics and Exercises, Structural Analysis and Exercises.

Course Topics

Lectures are provided to understand the role of structural engineers and the fundamental knowledge on building structures. Exercises are performed on structural design with practical examples. Through the exercises on reinforced concrete structures, the following topics are presented. Structural design drawings are also required.

1. Design root.
2. Design load.
3. Initial design.
4. Structural analysis
5. Computation of deformation
6. Design of upper structure.
7. Design of foundations. Structural design drawings.

Textbook

(in Japanese)

Additional Reading

Supporting materials are distributed in classes.

Grade Assessment

Evaluation is made based on the submitted report. Minimum requirement is 60 points out of 100.

Notes

- No requirements for taking the class.
- Classes are held on face to face. Depending on the situation, online classes may be performed.
- Ask questions using the message through NUCT.
- Use message through NUCT to exchange opinions and comments among students, if necessary.

Contacting Faculty

Contact the instructors in classes. The use of emails is also suggested.

Senior Design Workshop 1 (Architectural Design) (3.0credits) (総合設計及び演習第1 (計画))

| | |
|---------------------|---------------------------------|
| Course Type | Specialized Courses |
| Class Format | Lecture and Exercise |
| Course Name | Architecture |
| Starts 1 | 4 Spring Semester |
| Elective/Compulsory | Elective |
| Lecturer | Yasuhiko NISHIZAWA Professor |

Course Purpose

The aim of this studio and lecture is to foster not only technical knowledge and techniques needed for designers, but also communication ability, social responsibility and ability to learn independently and continuously. Each student is expected to analyze the issues of actual natural, built and social environments, set a design theme, develop a program and calculate size to realize the theme, select the site, conduct basic design and complete the drawings.

Goals: Documents and presentation and discussion can be realized.

Prerequisite Subjects

Space Design Workshop 1

Space Design Workshop 2

Architectural Design Workshop 1

Architectural Design Workshop 2

Course Topics

Each student will set a theme related to architectural and urban design on his/her own, develop a program, calculate size, conduct basic design, complete the drawings and make a presentation. The workshop consists of orientation, studio selection, esquisses, an interim jury and a final jury.

Students should continue to create assignments outside of class hours based on what was pointed out in esquisse, and face the next esquisse.

Textbook

Text books will be announced by the advisers of each studio.

Additional Reading

Text books will be announced by the advisers of each studio.

Grade Assessment

Presentation of the work in the jury. 60% is required for the credit.

Notes

No registration requirements required

Contacting Faculty

About the specific questions of each individual project, ask the advisers of each studio.

| | |
|---------------------|----------------------|
| Course Type | Specialized Courses |
| Class Format | Lecture and Exercise |
| Course Name | Architecture |
| Starts 1 | 4 Spring Semester |
| Elective/Compulsory | Elective |
| Lecturer | Associated Faculty |

Course Purpose

This course includes practice of building service planning and design for commercial buildings and so on. Through the practice, each student is expected to learn the practical planning knowledge of building service, to understand social responsibility for the energy conservation as an engineer and to foster communication and presentation ability.

Prerequisite Subjects

Space Design Workshop 1&2, Architectural Design Workshop 1&2, Engineering on Physical Environment, Engineering on Human Environment, Environmental System Engineering, Building Services Engineering, Environmental System Engineering with Exercises

Course Topics

- 1) To draw a building plan of an office building
- 2) To understand the method of decreasing air-conditioning loads and calculate thermal loads using a general simulation program
- 3) To decide the capacities of HVAC, chiller and boiler based on calculated thermal loads and select the kinds of them
- 4) To understand the characteristic of each air-conditioning method and design its system of the target space
- 5) To draw the plan of air-conditioning system and make a presentation.

Textbook

Handouts are to be distributed at the time of guidance.

Additional Reading

Handbook for Heating, Air-Conditioning and Sanitary Engineering (The Society of Heating, Air-Conditioning and Sanitary Engineers of Japan)

Grade Assessment

Submission drawings and calculation sheets, Exercise activities and presentation skills
A passing grade is a score of 60 or higher.

Notes

Course that is desirable to take: Environmental System Engineering with Exercises

Basically, face-to-face classes are conducted.

If distance classes (interactive communication class) are combined, they are taught using Microsoft Teams.

* If there is a change in the class form, etc. after registration, we will guide you on the NUCT class site.

Contacting Faculty

Students can ask questions to professors during classes.

Questions during off-class hours can be asked via e-mail.

saito(at)nuac.nagoya-u.ac.jp

s.iizuka(at)nagoya-u.jp

ukai(at)nuac.nagoya-u.ac.jp

History of Architecture 3 (2.0credits) (建築史第3)

| | | |
|---------------------|---------------------------------|--|
| Course Type | Specialized Courses | |
| Class Format | Lecture | |
| Course Name | Architecture | |
| Starts 1 | 3 Autumn Semester | |
| Elective/Compulsory | Elective | |
| Lecturer | Yasuhiko NISHIZAWA Professor | HOTTA Yoshihiro Associate Professor |

Course Purpose

An outline of the history of modern architecture in the Western Architecture and Japanese Architecture, to understand their ideas and meanings by four view points, architectural style and details, steel frame and reinforced concrete structural system, building system, and relation between Western Architecture and Japanese modern architecture. And on this lecture, you can get two talents, one is analyzing architecture and urban, the other is evaluating them.

Goals: Students will get two talents which are analyzing architecture and cities, and evaluating them.

Prerequisite Subjects

Architectural History 1

Architectural History 2

Course Topics

1. Introduction to the Modern Architecture
2. Arts and Crafts Movement
3. Garden City Movement
4. Art Nouveau
5. American Skyscraper and Suburban House
6. Aesthetics of Organism
7. Aesthetics of Machine(1)
8. Aesthetics of Machine(2)
9. Colonial Style in Japan
10. Modernization and Western Style Architecture in Japan
11. Works of Early Japanese Architects
12. Search of Architectural Originality in Japan
13. Architectural Law and Technology in Japan
14. Early Modernism in Japan
15. The Second World War and Architecture in Japan

In addition, homework will be given for the review of the class contents, and the answer will be explained next week.

Textbook

Instead of the text book, printed materials are given in each lecture.

Additional Reading

M.Tafuri and F.Dal Co, Modern Architecture 1 and 2, New York

K.Frampton, Modern Architecture A Critical History, London

E.Inagaki, Nihon no Kindai Kenchiku, Tokyo

T.Fujimori, Nihon no kindai Kenchiku, Tokyo.

Grade Assessment

Evaluation: by the score of two reports (50%) and final examination(50%), 60% is required for credit. On the examination you should describe outlines and characteristics of style, structure, materials, construction system on modern architecture in Europe, America and Japan.

Notes

History of Architecture 3 (2.0credits) (建築史第3)

No registration requirements required

Contacting Faculty

Questions are replied by Prof. Nishizawa (#513, Engineering and Science building, ext.3748, nszw@nuac.nagoya-u.ac.jp) or Prof. Hotta (#515, Engineering and Science building, hotta@nuac.nagoya_u.ac.jp)

Environmental Engineering (2.0credits) (社会環境保全学)

| | |
|---------------------|--|
| Course Type | Specialized Courses |
| Class Format | Lecture |
| Course Name | Architecture |
| Starts 1 | 4 Spring Semester |
| Elective/Compulsory | Elective |
| Lecturer | Hiroki tanikawa Professor Ozaki Fuminobu Associate Professor ArataKATAYAMA Professor |

Course Purpose

Lecture on the relationship between human activity and carrying capacity air pollution, taking material and energy flow, water quality, disaster, and environmental technology as examples.

Prerequisite Subjects

Sanitary Engineering Environmental System Engineering Building Services Engineering Statistics and Probability

Course Topics

1. Environment and Human Activity

(1) Global Warming, Climate Change (2) Carrying Capacity (3) Economic Growth, Energy, Resource and Environment (4) Regional Environmental Management and Index (5) Sound Material Society and Material Flow

2. Environment, Disaster and Technology

(1)Industrial Activity and Environmental Problem (2)Technological Development and Environmental Burden Reduction (3)Disaster and Accident for Buildings (4)Preservation and Retrofit Technology for Building (5)LCA for Building

3. Human Activity and Water Resource

(1) Basic of Water quality (2) Environmental Standard of Water quality

Textbook

to be distributed by each lecturer

Additional Reading

Committee on Environmental Systems Research, Japan Society of Civil Engineers Environmental Systems, Asakura, 1998 Vital Signs, The trends that are shaping our future, World Watch Japan, 2009

Grade Assessment

Short essay (17%), in-class exam (50%) and final examination (33%).

Notes

Not designated.

Online Lecture

Out of class, students can ask questions by the "message" function of NUCT.

the opinion exchange between students will be done by the "message" function of NUCT.

Contacting Faculty

Contact to Professor Tanikawa tanikawa@nagoya-u.jp

Senior Design Workshop 2 (3.0credits) (総合設計及び演習第2)

| | |
|---------------------|---------------------------------|
| Course Type | Specialized Courses |
| Class Format | Lecture and Exercise |
| Course Name | Architecture |
| Starts 1 | 4 Autumn Semester |
| Elective/Compulsory | Elective |
| Lecturer | Yasuhiko NISHIZAWA Professor |

Course Purpose

Each student is requested to develop further his/her basic scheme studied in the Senior Design Workshop I, to design the details, and to finish the drawings and the model.

Goals: Documents and presentation and discussion can be realized.

Prerequisite Subjects

Senior Design Workshop 1 (Structural Design)

Senior Design Workshop 1 (Architectural Design)

Senior Design Workshop 1 (Environmental and Building Service Design)

Course Topics

Based on the works of Senior Design Workshop, esquisse will be performed in each studio and the assignment will be created. The work will be reviewed at the review meeting held at the end of the semester. Students should continue to create assignments outside of class hours based on what was pointed out in esquisse, and face the next esquisse.

Textbook

Text books will be announced by the advisers of each studio.

Additional Reading

Text books will be announced by the advisers of each studio.

Grade Assessment

Presentation of the work in the jury. 60% is required for the credit.

Notes

You should study one of Senior Design Workshop 1.

Contacting Faculty

About the specific questions of each individual project, ask the advisers of each studio.

Graduation Thesis A (5.0credits) (卒業研究A)

| | | |
|---------------------|-------------------------|--------------------|
| Course Type | Specialized Courses | |
| Class Format | Experiment and Exercise | |
| Course Name | Civil Engineering | Architecture |
| Starts 1 | 4 Spring Semester | 4 Spring Semester |
| Elective/Compulsory | Compulsory | Compulsory |
| Lecturer | Associated Faculty | Associated Faculty |

Course Purpose

* Civil and Environmental Engineering Program

Each student will do exercises on how to solve unknown problems. Specifically, he/she will select a research topic by consulting with their supervisor, clarify issues on the research topic through reviews based on literature surveys, etc., and consider methods for solving the issues. Then, he/she will practice the methods themselves, analyze the material obtained from the practice, and derive the answer to the issues. Finally, he/she will compile a series of these processes into a bachelor thesis, and give a presentation at a final defense.

* Architecture Program

Through the selecting research topic, conducting research and making a presentation of the outcomes, students are expected to acquire the ability to understand and analyze the problems related to architecture from the overall viewpoint and to improve the quality of architecture and urban environment.

Prerequisite Subjects

Lectures in his/her freshman to junior year

Course Topics

* Civil and Environmental Engineering Program

Each student will do lab-based seminars, discussions with faculty members, self-learning in the laboratory, work on experiments, analysis, surveys, etc., preparation of the bachelor thesis, presentations, etc. Prior to the seminars, discussions, and presentations, work such as self-learning in the laboratory, experiments, analysis, surveys, and paper writing should be carried out. Specific work will be carried out with meetings with his/her supervisor.

* Architecture Program

With consult with his/her adviser, each student selects a research topic for his/her senior paper, learns background of that topic, and conducts research. Under the guidance of his/her adviser, he/she shall carry out literature review, experiments, and/or analyses by himself/herself. Through this process, he/she will do exercise on the fundamental methodology for the investigation/analysis for solving a problem.

Textbook

Directed by his/her adviser

Additional Reading

Directed by his/her adviser

Grade Assessment

Reports and presentation

Notes

* Civil and Environmental Engineering Program

No requirements.

* Architecture Program

It is desirable that there are few courses that have not been taken.

Contacting Faculty
Directed by his/her adviser

Graduation Thesis B (5.0credits) (卒業研究B)

| | | |
|---------------------|-------------------------|--------------------|
| Course Type | Specialized Courses | |
| Class Format | Experiment and Exercise | |
| Course Name | Civil Engineering | Architecture |
| Starts 1 | 4 Autumn Semester | 4 Autumn Semester |
| Elective/Compulsory | Compulsory | Compulsory |
| Lecturer | Associated Faculty | Associated Faculty |

Course Purpose

* Civil and Environmental Engineering Program

Each student will do exercises on how to solve unknown problems. Specifically, he/she will select a research topic by consulting with their supervisor, clarify issues on the research topic through reviews based on literature surveys, etc., and consider methods for solving the issues. Then, he/she will practice the methods themselves, analyze the material obtained from the practice, and derive the answer to the issues. Finally, he/she will compile a series of these processes into a bachelor thesis, and give a presentation at a final defense.

* Architecture Program

Through the selecting research topic, conducting research and making a presentation of the outcomes, students are expected to acquire the ability to understand and analyze the problems related to architecture from the overall viewpoint and to improve the quality of architecture and urban environment.

Prerequisite Subjects

Lectures in his/her freshman to junior year

Graduation Thesis A

Course Topics

* Civil and Environmental Engineering Program

Each student will do lab-based seminars, discussions with faculty members, self-learning in the laboratory, work on experiments, analysis, surveys, etc., preparation of the bachelor thesis, presentations, etc. Prior to the seminars, discussions, and presentations, work such as self-learning in the laboratory, experiments, analysis, surveys, and paper writing should be carried out. Specific work will be carried out with meetings with his/her supervisor.

* Architecture Program

With consult with his/her adviser, each student selects a research topic for his/her senior paper, learns background of that topic, and conducts research. Under the guidance of his/her adviser, he/she shall carry out literature review, experiments, and/or analyses by himself/herself. Through this process, he/she will do exercise on the fundamental methodology for the investigation/analysis for solving a problem.

Textbook

Directed by his/her adviser

Additional Reading

Directed by his/her adviser

Grade Assessment

Reports and presentation

Notes

* Civil and Environmental Engineering Program

No requirements.

* Architecture Program

It is desirable that there are few courses that have not been taken.

Contacting Faculty
Directed by his/her adviser

National Planning and Construction Projects (2.0credits) (国土のデザインとプロジェクト)

| | | | |
|---------------------|--|---|-------------------|
| Course Type | Related Specialized Courses | | |
| Class Format | Lecture | | |
| Course Name | Civil Engineering | Architecture | |
| Starts 1 | 2 Spring Semester | 4 Spring Semester | |
| Elective/Compulsory | Elective | Elective | |
| Lecturer | Takashi TOMITA Professor Part-time Faculty | NAKAMURASHinichiro Associate Professor | Part-time Faculty |

Course Purpose

In Japan, the importance of capturing the relationship between the use of national land and the infrastructures has been reaffirmed through the historical severe disasters: the Isewan Typhoon, the Great Hanshin-Awaji Earthquake, and the Great East Japan Earthquake. On the other hand, looking at the world, not only disasters, but also securing and managing food, water and energy have become vital to the nation. The infrastructures have important role to support them. In this lecture, from the viewpoints of national land design, you will learn the importance of integrated design of infrastructure suitable for population trends, economic growth and land use. which are the basic elements of an infrastructure projects, to design the land and support the society, economy, and environment to be realized, the necessary requirements are set for the natural and social conditions of the country and region. The purpose of this lecture is to understand the necessary requirements for infrastructure projects from the three perspectives, technology, citizens, and industry, with considering social circumstances, spatial differences, and temporal changes.

Through this lecture, students will be able to explain these contents in writing.

Prerequisite Subjects

Course Topics

Textbook

Additional Reading

Grade Assessment

Notes

Contacting Faculty

History of Civil Engineering (2.0credits) (土木史)

| | | |
|---------------------|-----------------------------|-------------------|
| Course Type | Related Specialized Courses | |
| Class Format | Lecture | |
| Course Name | Civil Engineering | Architecture |
| Starts 1 | 3 Spring Semester | 4 Spring Semester |
| Elective/Compulsory | Elective | Elective |
| Lecturer | Part-time Faculty | Part-time Faculty |

Course Purpose

This course aims at understanding the historical progress of civil infrastructure and urban planning from ancient to the modern times and acquiring the ability to think future infrastructure/urban design.

The goal of this course is to learn philosophy and necessity of civil engineering through its history.

Prerequisite Subjects

History of City and Civilization, Development of Structure and Technology

Course Topics

1. Guidance / Introduction
2. The world of nomads and settlers
3. Emergence of a city
4. Ancient Roman applicability / Chinese balance
5. Civil engineering of ancient Japan
6. Islamic trading world and the formation of Europe
7. Renaissance and baroque
8. Development to the new continent
9. Pre-modern Japan
10. Industrial Revolution
11. Construction of modern cities and public health
12. Birth of city planning
13. Japanese civilization / Modern industrial Infrastructures
14. Water management system
15. Summary: City trade and the future

Short worksheet will be assigned every lecture. In addition, several reports will be assigned.

Textbook

Related books will be introduced in lectures.

Additional Reading

Related books will be introduced in lectures.

Grade Assessment

The evaluation is based on worksheets to be submitted every lecture and several reports. If the fundamental knowledge about civil infrastructure and urban planning is understood correctly and the ability to think of future infrastructure/urban design is acquired, the credit is earned.

Notes

Not required. The lecture will be provided in on-demand style in 2022AY.

Contacting Faculty

Questions about lecture contents may be accepted via the worksheet which should be submitted in every lecture, then it would be responded in an ex post facto lecture. For other questions, please contact Assoc. Prof. Miwa (department of civil engineering) by e-mail (miwa@nagoya-u.jp).

Information Processing and Tutorial (1.5credits) (情報処理及び演習)

| | | |
|---------------------|--------------------------------------|-------------------|
| Course Type | Related Specialized Courses | |
| Class Format | Lecture and Exercise | |
| Course Name | Architecture | |
| Starts 1 | 2 Autumn Semester | |
| Elective/Compulsory | Elective | |
| Lecturer | Eisuke TABATA Associate Professor | Part-time Faculty |

Course Purpose

To acquire basic knowledge about the technology for architectural design using CAD (Computer Aided Design) software and BIM (Building Information Modeling) software. In addition, learns to use the computer as a design tool, by actually operating the computer.

Prerequisite Subjects

Introduction to Information Processing, Space Design Workshop 1, Basic Theory of Space Design, Painting and Sculpture Workshop 1

Course Topics

Learning the design method using computer by 3 steps.

1. Learning 2D and 3D CAD, and also BIM tools.
2. Learning an architectural presentation by using computers.
3. Acquire the ability to present their own creative forms to others.

Textbook

Distribute materials as needed during the lecture.

Additional Reading

Grade Assessment

Evaluate according to submission task (about 3 times).

Notes

Contacting Faculty

Painting and Sculpture Workshop 1 (1.0credits) (造形演習第 1)

| | |
|---------------------|-----------------------------|
| Course Type | Related Specialized Courses |
| Class Format | Exercise |
| Course Name | Architecture |
| Starts 1 | 2 Spring Semester |
| Elective/Compulsory | Elective |
| Lecturer | Part-time Faculty |

Course Purpose

This workshop aims at learning the basic presentation ability for creation to communicate the impression for a natural phenomenon, a social phenomenon and a design to anyone with the word and figure. In this workshop, the practice is carried out in terms of the following four viewpoints.

Quality of Line

Observation

Disabled Drawing

Communication

Drawing presentation by hand provides lots of the learning opportunity in their process. Those increase the sensibility for the eyesight and space. The training to catch a subject in terms of the different viewpoints gives the flexible idea, releases the thinking and helps the improvement of the communication abilities.

Prerequisite Subjects

Graphic Science, Introduction to Structural Mechanics, Human Activities and Environment, History of City and Civilization, Development of Structure and Technology, Basic Theory of Space Design, Space Design Workshop 1

Course Topics

Guidance

Quality of Line 1

Quality of Line 2

Quality of Line 3

Observation 1

Observation 2

Observation 3

Disabled Drawing 1

Disabled Drawing 2

Disabled Drawing 3

Communication 1

Communication 2

Communication 3

Final Assignment

Exhibition & General Comment

Textbook

There is no textbook. Handout materials will be distributed during classes.

Additional Reading

Campvs Martivs Antiqvae vrbis: Il Campo Marzio dell'antica Roma, Honnotomo-sha, 1993.6.

Grade Assessment

Your overall grade of this course will be decided on the basis on the designated works, including the final assignment. Credits will be awarded to those students who score 60 or more out of 100.

Notes

No course requirements are necessary.

Contacting Faculty

Questions during classes are encouraged.

Painting and Sculpture Workshop 2 (1.0credits) (造形演習第 2)

| | |
|---------------------|-----------------------------|
| Course Type | Related Specialized Courses |
| Class Format | Exercise |
| Course Name | Architecture |
| Starts 1 | 3 Spring Semester |
| Elective/Compulsory | Elective |
| Lecturer | Part-time Faculty |

Course Purpose

Aims of the course: Students will learn how to plan, shoot and edit still and moving images using a PC, express their own ideas through those images, and create a piece of work linked to the architectural design and drawing exercise.

Objectives to achieve: At the end of the course, students should have mastered the following two points. To acquire the ability to communicate to others through images the impressions gained from contact with natural, social and plastic phenomena. To acquire a broad range of basic expertise in architecture and urbanism, as well as design and technical skills.

Prerequisite Subjects

Painting and Sculpture Workshop 1, Spatial Design Engineering and Exercises 1 and 2, Information Processing and Exercises

Course Topics

Week 1: Lectures and exercises on still images

Week 2: Lectures and exercises on still images

Week 3: Production of still images

Week 4: Critique 1 on still images

Week 5: Lectures and practice on moving images

Week 6: Lecture and practice on moving images

Week 7: Production of moving images

Week 8: Critique 2 on moving images

Week 9: Lectures and practice on moving images

Week 10: Lectures and practice on moving images

Week 11: Production of moving images

Week 12: Critique 3 on moving images

Week 13: Production of moving images based on architectural design and drawing exercises

Week 14: Production of moving images based on architectural design and drawing exercises

Week 15: Critique 4 on moving images based on architectural design and drawing exercise

Extra Time: Students are expected to complete assignments in class.

Classroom format: Lectures and exercises are held in the PC studio, where the lecturer uses a projector to show how the computer is actually used. Each student will operate a computer and will be able to ask questions as they progress. Students will be able to submit assignments and ask questions via the network.

Textbook

Handouts will be given in lectures as necessary, and relevant books will be introduced.

Additional Reading

References will be given where necessary.

Grade Assessment

The assessment is based on the total score of the four exercises (submitted by data). A minimum of 60 points on a 100-point scale is required to pass the course, based on the submission of the above completed work.

Notes

No course requirements are necessary.

Contacting Faculty

If you have any questions, please do so by email, or schedule a meeting with us by email.

Email address: photo-ta@kb4.so-net.ne.jp, tanaka@nagoya-city.com, hotta@nuac.nagoya-u.ac.jp

Soil Mechanics with Exercises (4.0credits) (土質力学及び演習)

| | | |
|---------------------|--|---|
| Course Type | Related Specialized Courses | |
| Class Format | Lecture and Exercise | |
| Course Name | Civil Engineering | Architecture |
| Starts 1 | 2 Autumn Semester | 4 Autumn Semester |
| Elective/Compulsory | Compulsory | Elective |
| Lecturer | Toshihiro NODA Professor YOSHIKAWA Takahiro Assistant Professor | Kentaro NAKAI Associate Professor SAKAI Takayuki Assistant Professor |

Course Purpose

In order to understand the mechanical properties of a saturated soil composed of soil particles and water, this lecture will explain how to capture a two-phase mixed material. In particular, while clarifying the difference between the movement (infiltration) of pore water without deformation of the soil skeleton composed of soil particles and the movement (consolidation) of pore water with deformation of the soil skeleton based on the effective stress concept, the purpose of this lecture is to develop basic knowledge of soil mechanics.

By learning this lecture, the goal is to be able to:

1. Explain the basic physical quantities that describe the state of the soil, the classification of the soil, and the compaction characteristics.
2. Explain the meaning of Darcy's law, potential flow, hydraulic conductivity, and the method of laboratory test for obtaining it in relation to hydraulics in the ground. In addition, understand the continuous equation in the permeation problem, and calculate the permeation flow using a graphical solution method.
3. Explain the definition and meaning of the equilibrium conditions of force balance and stress, displacement and strain, and constitutive equations, taking a one-dimensional one-phase system problem as an example.
4. Understand the concept of effective stress and derive the consolidation equation in one-dimensional elastic consolidation theory and solve by the Fourier method. The consolidation phenomenon can be grasped and the amount of consolidation settlement can be calculated.

Prerequisite Subjects

Mechanics I, Mechanics II

Course Topics

1. Learn basic properties of soil, basic physical quantities and engineering classification of soil.
2. Learn about Darcy's law and the characteristics of general potential flow with respect to water flow in the ground. In addition, students will learn the meaning of permeability and the methods of two laboratory tests to measure it. Students will also learn about the continuous equation and the problems of two-dimensional steady infiltration.
3. Understand the properties of unsaturated soil and soil compaction.
4. Understand the concept of equilibrium of force and stress of one-phase materials in one-dimensional problems, and learn the concept of deformation matching conditions and strain.
5. Derive a one-dimensional consolidation equation in the consolidation problem. In that, each governing equation such as the principle of effective stress will be explained. In addition, the solution of the one-dimensional consolidation equation by the Fourier method is shown, and the consolidation phenomenon (dissipation process of excess pore water pressure) is deepened based on the solution.

After each lecture, students will work on related exercises. Assignments for home study are also given as appropriate.

Textbook

Soil mechanics (Corona): by Masaki Nakano

Printed documents will also distributed during the class.

Additional Reading

References will be introduced as necessary.

Grade Assessment

Evaluate the level of achievement for the achievement target through reports, midterm exams, and final exams. A score of 60 or more out of 100 is a passing score.

Notes

Lecture will be provided by face-to-face in the classroom.

For students who have difficulty to attend the face-to-face classes, please contact to Assoc.Prof. Nakai (nakai@civil.nagoya-u.ac.jp).

Contacting Faculty

Questions during and after the lecture are welcome. E-mail questions are also accepted at any time.

Toshihiro NODA, Ext: 3833, E-mail: noda (at) nagoya-u.jp, Bldg. 9 Rm. 317

Kentaro NAKAI, Ext: 5203, E-mail: nakai (at) civil.nagoya-u.ac.jp, Bldg. 9 Rm. 313

Takayuki SAKAI, Ext: 2734, E-mail: t-sakai (at) civil.nagoya-u.ac.jp, Bldg. 9 Rm. 327

Takahiro YOSHIKAWA, Ext: 3834, E-mail: yoshikawa (at) civil.nagoya-u.ac.jp, Bldg. 9 Rm. 315

Please replace (at) with @.

Measurement Technology and Experiments (2.5credits) (計測技術及び実習)

| | | | |
|---------------------|---------------------------------------|------------------------------------|--------------------------------------|
| Course Type | Related Specialized Courses | | |
| Class Format | Lecture and Practice | | |
| Course Name | Civil Engineering | Architecture | |
| Starts 1 | 3 Spring Semester | 3 Spring Semester | |
| Elective/Compulsory | Elective | Elective | |
| Lecturer | Toshiyuki YAMAMOTO Professor | Jun TOBITA Professor | Satoru IIZUKA Professor |
| | Teruyuki SAITO Associate Professor | Lee Sihwan Associate Professor | Takashi HIRAI Assistant Professor |
| | Yuji KAKIMOTO Assistant Professor | UKAI Makiko Assistant Professor | Part-time Faculty |

Course Purpose

To learn the principles and tools of measurements required for design, manufacturing, and management of structures. Field and laboratory experiments are included.

Prerequisite Subjects

Probability and Statistics, Fundamentals of Hydrodynamics with Exercises, Engineering on Physical Environment, Human Activities and Environment

Course Topics

Surveying practice (distance surveying, leveling, measurement of angle, plane table surveying), Error estimation (law of error propagation, method of least squares), Measurement of temperature, humidity and wind velocity, Visualization of fluid, Measurement of meteorological factors, luminous environment, traffic noise and vibration.

Textbook

Introduced according to the process of the lecture.

Additional Reading

Architectural Institute of Japan: Kankyo Kogaku Jikkenyo Kyozaï I/II

Grade Assessment

Reports. Regular attendance is required.

Notes

Not required.

Basically, face-to-face classes are conducted.

* If there is a change in the class form, etc. after registration, we will guide you on the NUCT class site.

Contacting Faculty

Students can ask questions to professors during classes.

Questions during off-class hours can be asked via call: Yamamoto at yamamoto(at)civil.nagoya-u.ac.jp or 789-4636, Tobita at 789-3754 and Saito at saito(at)nuac.nagoya-u.ac.jp.

* Please replace (at) by @.

Sanitary Engineering (2.0credits) (衛生工学)

| | | |
|---------------------|-----------------------------|---|
| Course Type | Related Specialized Courses | |
| Class Format | Lecture | |
| Course Name | Civil Engineering | Architecture |
| Starts 1 | 3 Spring Semester | 3 Spring Semester |
| Elective/Compulsory | Elective | Elective |
| Lecturer | ArataKATAYAMA Professor | NagahisaHIRAYAMA Associate Professor |

Course Purpose

This lecture starts from water quality as basics, and deals the topics on the planning, system, method and assessment of water supply, on those of sewage treatment system, and on those of waste treatment. Students are expected to build up themselves with the ability to consider how should be water managed.

By learning sanitary engineering, the students should be able to do the following things.

1. To understand water quality indicators and to be able to explain the water quality required.
2. To understand the mechanism of water supply and to be able to explain treatment plans, water supply and distribution system, and treatment methods.
3. To understand the sewer system and to be able to explain treatment plans, removal system of sewage and rainwater, and treatment methods.
4. To understand waste treatment required in water treatment and to be able to explain it.
5. To understand the issues of water and sewage in natural disasters and to be able to explain them.
6. To understand the environmental assessment and to be able to explain it.

Prerequisite Subjects

chemistry, human activities and environment, hydrology, Social environmental conservation

Course Topics

1. Introduction to Sanitary Engineering: 2. Water quality: 3. Drinking water supply (planning, delivery and distribution, treatment): 4. Sewer system (planning, catchment and discharge, wastewater treatment) and sewage sludge treatment: 5. Wastewater treatment without sewer system: 6. disaster countermeasure: 7. Environmental Impact Assessment

After the class, the reference reviews are recommended to have comprehensive understanding of the issues. The students will be given assignments and requested to solve and submit them as reports.

Textbook

Upon the class, the lecture documents are provided on the intranet of the University (NUCT and etc.) where students can freely access and download them.

Additional Reading

On Water treatment technology

G. Kiely "Environmental Engineering" McGraw-Hill International, Singapore, 1996, 979pp.

J.G. Henry, G. W. Heinke, "Environmental Science and Engineering" Prentice Hall, Eaglewood Cliffs, N.J. 1989, 728pp.

Grade Assessment

Report and Examination

Higher than 60 points in 100 as full mark is passed.

Grade "pass" is given to the students who are able to explain the individual basic issues on water quality, water supply system, sewer system, and the related issues such as waste treatment, natural disaster countermeasures and environmental assessment. The students who shows the comprehensive understandings on the difficult complex problems will be reflected on the grades.

Notes

The students are expected to have learned general chemistry and hydrology prior to this class.

Although the lecture is planned to conduct face-to-face in the class room, depending on the situation of the new corona virus infection, the lecture may be conducted as a remote lecture using internet (Zoom or

Sanitary Engineering (2.0credits) (衛生工学)

Teams) at home or elsewhere. The method of conducting the lecture will be informed to the students through NUCT. Please make sure to check the method of conducting lectures posted on NUCT.

Contacting Faculty

After the class

or

Responding to individual questions: by appointment of date/time by telephone/email.

Email address (Please change <a> with @, then send email)

Hirayama, Nagahisa: hirayama.nagahisa<a>j.mbox.nagoya-u.ac.jp

Katayama, arata: a-katayama<a>imass.nagoya-u.ac.jp

Special Lectures on Architecture (2.0credits) (建築学特別講義)

| | |
|---------------------|-----------------------------|
| Course Type | Related Specialized Courses |
| Class Format | Lecture |
| Course Name | Architecture |
| Starts 1 | 4 Autumn Semester |
| Elective/Compulsory | Elective |
| Lecturer | Part-time Faculty |

Course Purpose

A series of special lectures by visiting speakers such as architects, urban planners, structural designers, environmental designers, and historians to understand the design practices and various trends in the contemporary society.

Prerequisite Subjects

Basic Theory of Space Design, History of Architecture 1&2, Architectural Planning 1&2, Engineering on Human Environment, Environmental System Engineering, Urban and National Land Planning, Reinforce Concrete Structures, Structural Design, Building Material Engineering, Building Foundation Engineering

Course Topics

This seminar will be on only Zoom. Please check NUCT about URL, ID, Pass cord of Zoom or web site of the department of Architecture. A omnibus lectures of several visiting speakers.

Textbook

Textbooks will be introduced in classes.

Additional Reading

Textbooks will be introduced in classes.

Grade Assessment

Students will be evaluated on the basis of a report. 60 points or more on a 100-point scale is a passing grade. The report should be about 2000 words in length and should include an outline of the lecture and comments on the lecture. Grading criteria will be based on an accurate understanding of the theme and content of each lecture.

Notes

No course requirements are necessary.

Contacting Faculty

All questions are responded by Associate Professor Yoshihiro Hotta (hotta@nuac.nagoya-u.ac.jp).

Outline of Engineering 1 (1.0credits) (工学概論第 1)

| | | | |
|---------------------|--|--|--|
| Course Type | Related Specialized Courses | | |
| Class Format | Lecture | | |
| Course Name | Department of Chemistry and Biotechnology | Department of Materials Science and Engineering | Department of Physical Science and Engineering |
| | Department of Energy Science and Engineering | Department of Electrical Engineering, Electronics, and Information Engineering | Department of Mechanical and Aerospace Engineering |
| | Civil Engineering | Architecture | |
| Starts 1 | 1 Spring Semester | 1 Spring Semester | 1 Spring Semester |
| | 1 Spring Semester | 1 Spring Semester | 1 Spring Semester |
| | 1 Spring Semester | 1 Spring Semester | |
| Elective/Compulsory | Elective | Elective | Elective |
| | Elective | Elective | Elective |
| | Elective | Elective | |
| Lecturer | Part-time Faculty | | |

Course Purpose

Based upon the wide and deep experiences, alumni and/or aluminae of Nagoya University, who work the hub of society, give future perspectives, foster internal and external active personality and propose guideline for their further study.

Prerequisite Subjects

Because it is a common subject not to affect a specialized subject, I do not appoint the subject to become the background.

Course Topics

Experience every time own as "do your best younger student" a senior playing an active part in the social center I perform a class on the basis of this. In all eight times of classes, I perform orientation and the lecture by seven outside lecturers. What I check about a lecturer and a title released before a class of every time beforehand. After a lecture, conduct an additional investigation depending on the need including contents and the phrase handled in a lecture. In addition, submit it as you impose the report problem about lecture contents every time.

Textbook

I distribute a slide or the print which the person in charge of each time lecturer uses as a lecture document.

Additional Reading

Instructions will be given as necessary in class

Grade Assessment

I evaluate an acquirement degree for the accomplishment by a report. I keep lecture contents of every time under control, and it is said that I pass if I can collect own thought and lets results reflect it according to the depth of the contents which were able to learn it such as the grasp of lecture contents, a guideline for the future dream, study of oneself.

Notes

Contacting Faculty

I cope after a lecture every time. Or ask the staff of the educational affairs section. E-mail: t-nagasaki@energy.nagoya-u.ac.jp

Outline of Engineering 2 (1.0credits) (工学概論第2)

| | | | |
|---------------------|--|--|--|
| Course Type | Related Specialized Courses | | |
| Class Format | Lecture | | |
| Course Name | Department of Chemistry and Biotechnology | Department of Materials Science and Engineering | Department of Physical Science and Engineering |
| | Department of Energy Science and Engineering | Department of Electrical Engineering, Electronics, and Information Engineering | Department of Mechanical and Aerospace Engineering |
| | Civil Engineering | Architecture | |
| Starts 1 | 4 Spring Semester | 4 Spring Semester | 4 Spring Semester |
| | 4 Spring Semester | 4 Spring Semester | 4 Spring Semester |
| | 4 Spring Semester | 4 Spring Semester | |
| Elective/Compulsory | Elective | Elective | Elective |
| | Elective | Elective | Elective |
| | Elective | Elective | |
| Lecturer | Part-time Faculty | | |

Course Purpose

It is recognized as an urgent issue to create low-carbon society in order to mitigate global warming. The objective of this lecture is to understand the current situation of Japan in terms of energy supply and demand as well as technologies of energy conservation and renewable energy utilization. Energy policy of Japan such as Energy Basic Plan is also one of the topics.

It is expected that the lecture provides fundamental understanding of measures to deal with reducing primary energy consumption.

Prerequisite Subjects

Fundamentals of Engineering

Course Topics

1. Situation of Japan with respect to energy
2. Energy policy and Energy Basic Plan
3. Solar energy technologies
4. Energy conservation technologies with wasted heat recovery
5. Social systems for low-carbon society
6. Try "Test of Energy"

Textbook

None.

Additional Reading

To be distributed in the lecture.

"Test of Energy", <http://www.ene-kentei.jp>

Grade Assessment

Reports are required to be submitted during the lecture. The subjects are presented in the lecture.

Notes

There are no prerequisites.

Contacting Faculty

All questions are encouraged to be presented during the lecture.

Outline of Engineering 3 (2.0credits) (工学概論第3)

| | | | |
|---------------------|--|--|--|
| Course Type | Related Specialized Courses | | |
| Class Format | Lecture | | |
| Course Name | Department of Chemistry and Biotechnology | Department of Materials Science and Engineering | Department of Physical Science and Engineering |
| | Department of Energy Science and Engineering | Department of Electrical Engineering, Electronics, and Information Engineering | Department of Mechanical and Aerospace Engineering |
| | Civil Engineering | Architecture | |
| Starts 1 | 4 Autumn Semester | 4 Autumn Semester | 4 Autumn Semester |
| | 4 Autumn Semester | 4 Autumn Semester | 4 Autumn Semester |
| | 4 Autumn Semester | 4 Autumn Semester | |
| Elective/Compulsory | Elective | Elective | Elective |
| | Elective | Elective | Elective |
| | Elective | Elective | |
| Lecturer | Gang ZENG Lecturer | Emanuel LELEITO Lecturer | GRIB Dina Lecturer |
| | Kiyohisa NISHIYAMA Designated Lecturer | | |

Course Purpose

This course will introduce the history, the current state and future prospects of R&D (research and development) in various sectors related to the field of engineering in Japan. The course will expose you to a wide range of issues being tackled by engineers in different fields, with the aim of motivating and preparing you to pursue your research interest. You will have an opportunity to explore basic concepts and real-world applications, and to do a mini research tasks leading to a final presentation.

Apart from the engineering field related knowledge, this lecture will also help you develop the following skills:

- Cross-disciplinary communication skills
- Communication across language barriers (English/Japanese)
- Online search and research skills for information gathering
- Presentation skills

Prerequisite Subjects

You do not require any background knowledge to join this class. Each lecturer will provide the basic knowledge that might be needed to understand the lecture topics.

Course Topics

This class consists of “omnibus-style” lectures on the following topics.

1. Science, Technology and Innovations in Embedded Computing Systems (Gang ZENG)
 - This lecture gives an overview of the embedded computing systems related technologies in Japan. In particular, the latest innovations on the low-energy and automotive applications will be introduced.
 - The students are asked to participate in group discussion to share their ideas and thoughts about energy conservation and future automobiles.
2. The innovative factors of technologies in Japan (Kiyohisa NISHIYAMA)
 - This lecture provides the participants with the concept of 40 innovation principles. Some Japanese technologies are broken down into the combination of the principles as examples.
 - The students each are asked to analyse a technology of interest found in Japan. The students will be able to grab the concepts of any technological innovations after completing this lecture.

Outline of Engineering 3 (2.0credits) (工学概論第3)

3. Science, Technology and Innovation for Disaster Risk Reduction (Emanuel LELEITO)

- This lecture gives students an overview of the Scientific and Technology Innovations that have contributed to Japan's leading role in Disaster Risk Reduction (DRR).
- DRR related discussions and presentation in class will help students exercise their creative thinking and problem solving skills.

4. Societal, Cultural and Economic Contexts of Engineering Practice in Japan (Dina GRIB)

- The last part of this course introduces you to the Science, Technology and Society studies (STS) field and provides a brief overview of how Japanese cultural, economic, societal and political tradition affects technological innovation and scientific research as well as how STI in turn affect Japanese culture, society and politics.
- The participants will be invited to conduct a mini case study using online materials, share their findings in class and participate in group discussions.

Textbook

Lecture materials will be distributed in class during each lecture.

Additional Reading

References and materials for additional reading will be introduced in class during each lecture.

Grade Assessment

Credits will be awarded to those students who score over 60 out of 100 based on the following evaluation criteria:

- 1) Reports (60%): Each lecturer will ask you to prepare and submit reports to evaluate your understanding of the topics taught. The reports will be worth 60% of the total score.
- 2) Presentation (40%): You will be asked to do a final presentation based on one or a combination of the topics taught. The presentation will require that you do independent online research to gather necessary information and present the topic in 3-5 minutes. Your understanding of the topic as well as the effectiveness of your presentation will be evaluated. The presentation is worth 40% of the total score.

Notes

The course will be delivered online via Zoom or Teams video conferencing with the help of NUCT. Pre-recorded teaching materials are to be used partially and in this case students will be expected to use those to prepare for the in-class discussions.

Contacting Faculty

Questions are received during or after class time and via NUCT messenger.

Contact person: Emanuel LELEITO, leleito@nagoya-u.jp

Outline of Engineering 4 (3.0credits) (工学概論第4)

| | | | |
|---------------------|--|--|--|
| Course Type | Related Specialized Courses | | |
| Class Format | Lecture | | |
| Course Name | Department of Chemistry and Biotechnology | Department of Materials Science and Engineering | Department of Physical Science and Engineering |
| | Department of Energy Science and Engineering | Department of Electrical Engineering, Electronics, and Information Engineering | Department of Mechanical and Aerospace Engineering |
| | Civil Engineering | Architecture | |
| Starts 1 | 1 Spring Semester | 1 Spring Semester | 1 Spring Semester |
| | 1 Spring Semester | 1 Spring Semester | 1 Spring Semester |
| | 1 Spring Semester | 1 Spring Semester | |
| Elective/Compulsory | Elective | Elective | Elective |
| | Elective | Elective | Elective |
| | Elective | Elective | |
| Lecturer | Part-time Faculty | | |

Course Purpose

Elementary ClassThis course is intended to teach Japanese to students who have not learnt Japanese before or who have learned only a very little. Basic Japanese which is necessary for daily life in Japan will be taught.

The students study the fundamentals of grammar and basic conversational expressions. The students are requested to communicate in daily life using simple expressions.

Intermediate ClassThis course is intended to teach Japanese to students who already learned Japanese of Elementary level. The aims of this study are to obtain the ability necessary to explain their experiences concretely.

The students are requested to communicate in their study in Japanese. Depending on the students' Japanese ability, the advanced class will also be prepared.

Prerequisite Subjects

Elementary ClassNone

Intermediate ClassElementary Japanese

Course Topics

Elementary Class1.Pronunciation of Japanese 2.Structure of Japanese sentences 3.Fundamental vocabulary and expressions 4.Conversation practice 5.Listening practice, Students must read the part which they will study in the next lecture.

Intermediate Class1 Grammar, 2 Conversation, 3 Opinion delivery, 4 Reading comprehension, 5 Listening practice, The students must memorize the most important sentences which they will study in the next lecture.

Textbook

Elementary ClassNIHONGO Breakthrough, From survival to communication in Japanese, JAL Academy, ASK Publishing Co.Ltd.

Intermediate Classweekly J : 6

Additional Reading

I introduce it to progress appropriately

Grade Assessment

Elementary ClassClass performance 20Assignments 20Interview test and examination30, Presentation 30
In each item, the ability of conversation is an important check point.

Intermediate ClassClass performance 20Assignments 10Interview test 20Written examination20, Presentation 30.

Outline of Engineering 4 (3.0credits) (工学概論第4)

In each item, the ability of correct expressions is an important check point.

These scores are summed and evaluated. The students with the evaluation S, A, B, or C can pass this subject.

Notes

This subject is open for NUPACE and NUSIP students.

Contacting Faculty

The lecturer will answer questions about the content of the lesson, and the instructor in charge will answer other questions.

ysakai@mech.nagoya-u.ac.jp

Engineering Ethics (2.0credits) (工学倫理)

| | | | |
|---------------------|--|--|--|
| Course Type | Related Specialized Courses | | |
| Class Format | Lecture | | |
| Course Name | Department of Chemistry and Biotechnology | Department of Materials Science and Engineering | Department of Physical Science and Engineering |
| | Department of Energy Science and Engineering | Department of Electrical Engineering, Electronics, and Information Engineering | Department of Mechanical and Aerospace Engineering |
| Starts 1 | Civil Engineering | Architecture | |
| | 1 Spring Semester | 1 Spring Semester | 1 Spring Semester |
| | 1 Spring Semester | 1 Spring Semester | 1 Spring Semester |
| Elective/Compulsory | Elective | Elective | Elective |
| | Compulsory | Elective | Elective |
| | Elective | Elective | |
| Lecturer | Part-time Faculty | | |

Course Purpose

All students will push forward the preparations to a member of society through a college life having high flexibility as well as the lecture of the university, but this is the conscious problem that it is independent and should work on. Therefore, about life, the responsibility of the necessary member of society (a person of occupation and researcher solving another person such as engineers and social problem situation), found ability, ethic, it is the purpose of the class that gets an image at the beginning of student life. I solved many problems until now, and the engineer developed the society, but had much failure, accidents and the ethical disgraceful affair. I understand basic power to act as a member of society, an engineer ethically while having the viewpoint to the future a little while referring to a lot of such failure examples. In addition, I acquire a custom to think on the spot, and to be settled necessary for an engineer, a member of society. (the lecturer is engaged in a study and the business of the engineer ethic in professional engineer (nation qualification) with the work experience.)

Prerequisite Subjects

Course Topics

Textbook

Additional Reading

Grade Assessment

Notes

There are no prerequisites.

Contacting Faculty

E-mail:roofrate3-nug@yahoo.co.jp

Statistics and Analysis B (2.0credits) (データ統計解析 B)

| | | | |
|---------------------|--|--|--|
| Course Type | Related Specialized Courses | | |
| Class Format | Lecture | | |
| Course Name | Department of Physical Science and Engineering | Department of Electrical Engineering, Electronics, and Information Engineering | Department of Mechanical and Aerospace Engineering |
| | Civil Engineering | Architecture | |
| Starts 1 | 4 Spring Semester | 4 Spring Semester | 4 Spring Semester |
| | 4 Spring Semester | 4 Spring Semester | |
| Elective/Compulsory | Elective | Elective | Elective |
| | Elective | Elective | |
| Lecturer | Ichiro TAKEUCHI Professor | Associated Faculty | |

Course Purpose

The current state-of-the-art artificial intelligence (AI) is developed using statistical machine learning. The goal of this course is to learn the mathematical foundation of statistical machine learning.

Prerequisite Subjects

None, but it is desirable that students have already taken courses in linear algebra, calculus, probability and statistics, and computer programming.

Course Topics

Foundation of probability and statistics for data analysis
Supervised learning for regression problems
Supervised learning for classification problems
Unsupervised learning
Basics of neural networks

Textbook

Lecture materials will be provided.

Additional Reading

An Introduction to Statistical Learning (Gareth James et al., Springer)
Elements of statistical learning 2nd ed. (Trevor Hastie et al., Springer)
Pattern recognition and machine learning (Christopher M. Bishop, Springer)

Grade Assessment

The score will be totally evaluated by the final examination (60%) and exercise reports (40%). The pass line is 60%.

Notes

The lecture will be held in a face-to-face format, but it may be changed to an online or on-demand format depending on the status of covid-19. Lecture slides, including blank spaces, will be distributed, and students will write on them during the lecture. It is recommended that students print out the lecture slides in advance or prepare a tablet PC so that they can write on them during the lecture (details will be explained in the first lecture). Handwritten notes (no more than 8 pages of single-sided A4 paper) may be brought to the final exam (details will be explained in the first lecture).

Contacting Faculty

Please contact the instructor by e-mail. The e-mail address will be provided at the beginning of the lecture.

Technical Writing (2.0credits) (テクニカルライティング)

| | | | |
|---------------------|--|--|--|
| Course Type | Related Specialized Courses | | |
| Class Format | Lecture | | |
| Course Name | Department of Materials Science and Engineering | Department of Physical Science and Engineering | Department of Energy Science and Engineering |
| | Department of Electrical Engineering, Electronics, and Information Engineering | Department of Mechanical and Aerospace Engineering | Civil Engineering |
| | Architecture | | |
| Starts 1 | 4 Spring Semester | 4 Spring Semester | 4 Spring Semester |
| | 4 Spring Semester | 4 Spring Semester | 4 Spring Semester |
| | 4 Spring Semester | | |
| Elective/Compulsory | Elective | Elective | Elective |
| | Elective | Elective | Elective |
| | Elective | | |
| Lecturer | Emanuel LELEITO Lecturer | Gang ZENG Lecturer | GRIB Dina Lecturer |

Course Purpose

This course teaches scientific writing and presentation skills necessary for explaining technical contents to others in English.

What you will get in this course:

1. Understand logical thinking and structure issues.
2. Understand and write the document structure that leads to problem solving.
3. Write abstracts of scientific and technical papers in English.
4. Apply the above methods to presentations and debates in English.

Prerequisite Subjects

This course will be taught from the basics, background subjects are not specified.

Course Topics

1. Research skills
 - 1.1 Academic literacy and critical reading
 - 1.2 Logical thinking and structuring logic
 - 1.3 Avoiding plagiarism
2. Writing skills
 - 2.1 Understanding document structure
 - 2.2 Organizing document structure
 - 2.3 Writing abstracts in English
3. Presentation skills
 - 3.1 Writing your speech
 - 3.2 Slide design and presentation
 - 3.3 Dealing effectively with Q & A

Students are required to read related contents of next lecture in advance. Reports will be assigned after each lecture, which should be completed independently by searching necessary information. Reports and final presentation will be used for evaluation.

Textbook

No textbook is specified. Lecture materials will be distributed in each class.

Additional Reading

Technical Writing (2.0credits) (テクニカルライティング)

A Manual for Writers of Research Papers, Theses, and Dissertations: Chicago Style for Students and Researchers (Chicago Guides to Writing, Editing, and Publishing) - Kate L. Turabian, Revised by Wayne C. Booth, Gregory G. Colomb, Joseph M. Williams, Joseph Bizup, William T. FitzGerald and the University of Chicago Press Editorial Staff.

Grade Assessment

Based on reports and final presentation. Credits will be awarded to those students who can write abstracts and make an academic presentation using the basic skills learnt in class. On a scale of 0 to 100, the passing score is 60, with the scoring divided as follows:

- 1) Reports (60%): Each lecturer will ask you to prepare and submit reports to evaluate your understanding of the topics taught.
- 2) Presentation (40%): You will be asked to do a final presentation based on a combination of the skills learnt.

Notes

All classes will be conducted online using Microsoft Teams or Zoom

Contacting Faculty

Questions will be accepted in class or after the class using NUCT Message function

Coordinating Professor:

Gang Zengzeng.gang.s6(at)f.mail.nagoya-u.ac.jp

Industry and Economy (2.0credits) (産業と経済)

| | | | |
|---------------------|--|--|--|
| Course Type | Related Specialized Courses | | |
| Class Format | Lecture | | |
| Course Name | Department of Chemistry and Biotechnology | Department of Physical Science and Engineering | Department of Electrical Engineering, Electronics, and Information Engineering |
| | Department of Mechanical and Aerospace Engineering | Civil Engineering | Architecture |
| Starts 1 | 4 Autumn Semester | 4 Autumn Semester | 4 Autumn Semester |
| | 4 Autumn Semester | 4 Autumn Semester | 4 Autumn Semester |
| Elective/Compulsory | Elective | Elective | Elective |
| | Elective | Elective | Elective |
| Lecturer | Part-time Faculty | | |

Course Purpose

I learn knowledge about the economy while examining the background, structure, influence about various economic phenomena, pocketbook issues.

I learn the economic thought method that economists built that understanding, explanation solves a pocketbook issue at the same time.

A target: In this lecture, a student attending a lecture aims for coming to be able to do the next thing.

1. As a member of society, an industrial person, I learn necessary and useful economic knowledge and come to be able to inflect.
2. I understand structure and the mechanism of the economic phenomenon, pocketbook issue and come to be thought systematically.
3. I understand the way of economic thought (view, way of thinking) and learn it and become able to inflect.

Prerequisite Subjects

Because it is not a specialized subject, I do not appoint it in particular.

Course Topics

1. Economic circulatory structure ... give-and-take
2. Change ... prosperous conditions and recession of the economy
3. Foreign exchange rate ... strong yen and weak yen
4. Role ... annual revenue and annual expenditure of the government
5. Maintenance of role ... price stability and the trust order of Bank of Japan
6. Problem ... overflow of population of the population and too few population
7. Economic history ... Smith and Keynes
8. Free-market economy ... light and shadow
9. Japanese economy ... inflation and deflation after World War II

Reading as I appoint the range that should read a textbook beforehand at the time of a lecture of every time for the next time.

In addition, reviewing it as I show a part to review and a method about the document which I distributed, and deepening understanding.

Textbook

Nakaya"Nyumonsho wo yomumae no Keizaigaku nyumon";Doubunkan

Additional Reading

P. A.Samuelsan, W. D.Node house "economics" (Iwanami Shoten) Kennichi Miyazawa () "introduction to industrial linkage analysis" (Nikkei library, Nihon Keizai Shimbun, Inc.) Iwao Ozaki "industrial structure of Japan" (Keio University publication society)

R. A.I introduce it at the time of a lecture of every time including Feldman "economic latest lecture of the Dr. Feldman in Japan" (Bungeishunju Ltd.).

Grade Assessment

Understand a basic concept about the economy definitely, and keep the structure of the pocketbook issue under control, and, in wearing an economic thought method, pass; is based. I evaluate an accomplishment degree by a small report (20%) to assign at the time of a lecture of every time and the regular examination (80%) of the term end and do higher than 60 points with a pass at one hundred perfect score. In addition, the absentee of the regular examination assumes it "absence".

Notes

There are no prerequisites.

Contacting Faculty

Around during the lecture and lecture time, a charge teacher copes in a lecture room

Patent and Intellectual Property (1.0credits) (特許及び知的財産)

| | | | |
|---------------------|--|--|--|
| Course Type | Related Specialized Courses | | |
| Class Format | Lecture | | |
| Course Name | Department of Chemistry and Biotechnology | Department of Physical Science and Engineering | Department of Energy Science and Engineering |
| | Department of Electrical Engineering, Electronics, and Information Engineering | Department of Mechanical and Aerospace Engineering | Civil Engineering |
| | Architecture | | |
| Starts 1 | 2 Autumn Semester | 2 Autumn Semester | 2 Autumn Semester |
| | 4 Autumn Semester | 4 Autumn Semester | 4 Autumn Semester |
| | 4 Autumn Semester | | |
| Elective/Compulsory | Elective | Elective | Elective |
| | Elective | Elective | Elective |
| | Elective | | |
| Lecturer | Masahiro KITO Professor | | |

Course Purpose

Understand the necessity and significance of patents from the viewpoint of researchers and engineers at universities and companies

Acquire basic knowledge of patents and acquire what researchers and engineers who invent should do.

Attainment target

1. Understand the purpose and necessity of the patent system
2. Understand the basics of patent application procedures and how to write application documents
3. Can perform basic patent search
4. Understand how companies and universities use patents

Prerequisite Subjects

Course Topics

Textbook

Additional Reading

Grade Assessment

Notes

No requirement for the course.

Contacting Faculty

| | | | |
|---------------------|------------------------------|----------------------|---------------------------------|
| Course Type | Related Specialized Courses | | |
| Class Format | Lecture | | |
| Course Name | Civil Engineering | Architecture | |
| Starts 1 | 4 Autumn Semester | 4 Autumn Semester | |
| Elective/Compulsory | Elective | Elective | |
| Lecturer | Hideki NAKAMURA Professor | Jun TOBITA Professor | Yasuhiko NISHIZAWA Professor |
| | Hisashi KOMATSU Professor | Part-time Faculty | |

Course Purpose

The objectives of this course are (1) to establish scenarios for certain social infrastructure projects, and thereby introduce relevant civil engineering theories and construction technology, as well as conduct site-visits; (2) to survey, through technical site visits, various aspects of urban and architectural studies, including building material experiments, energy conservation, and the recent development of regional disaster mitigation activities.

Prerequisite Subjects

As the objective of this class is to understand fundamentals of civil engineering and architecture, no background class is assigned.

Course Topics

You can understand some characteristics of infrastructure, buildings and townscape through site visits. A report is requested to submit after each visit.1)Orientation2)Lecture & Site-visit 1: Preservation of Historical Area – “The Cultural Path” located in the downtown of Nagoya* Before lecture, please see following website ; http://www.futabakan.jp/english/cultural_path.html3)Lecture and Site-visit 2: Architecture and culture –Nagono and Shike-michi district4)Lecture 3: Social infrastructure and civil engineering (1) Expressway Development in Japan5)Lecture and Site-visit 4: Nagoya University Disaster Mitigation Research Center6)Lecture 5: Social infrastructure and civil engineering (2) Maintenance and Operation of Expressway7)Site-visit 6: Ichinomiya Traffic Control Center (Central Nippon Expressway Co., Ltd)8)Site-visit 7: E-MAC Technical Training Center (Central Nippon Expressway Co., Ltd)

Textbook

Suggested in the class, if necessary.

Additional Reading

Suggested in the class, if necessary.

Grade Assessment

Students will be evaluated on attendance and written reports. 100-95:A+, 94-80:A, 79-7:B, 69-65:C, 64-60:C-, less than 60:F. Attendance to the site visits and proper understanding on civil engineering and architecture are evaluated as a condition of obtaining a credit of this course.

Notes

As a countermeasure against new coronavirus infection, the course may not be offered.No requirements.

Contacting Faculty

Questions are welcome. Questions can be sent by e-mail.E-mail: nakamura@genv.nagoya-u.ac.jp (Prof. Nakamura), tobita@sharaku.nuac.nagoya-u.ac.jp (Prof. Tobita).

Management Engineering (2.0credits) (経営工学)

| | | | |
|---------------------|--|--|--|
| Course Type | Related Specialized Courses | | |
| Class Format | Lecture | | |
| Course Name | Department of Chemistry and Biotechnology | Department of Physical Science and Engineering | Department of Electrical Engineering, Electronics, and Information Engineering |
| | Department of Mechanical and Aerospace Engineering | Architecture | |
| Starts 1 | 4 Autumn Semester | 4 Autumn Semester | 4 Autumn Semester |
| | 4 Autumn Semester | 4 Autumn Semester | |
| Elective/Compulsory | Elective | Elective | Elective |
| | Elective | Elective | |
| Lecturer | Part-time Faculty | | |

Course Purpose

[purpose of the class] In the corporate management, I learn it about the management of the technique that is essential for the growth, development and the innovation.

[arrival target] I become able to understand a way of thinking and the basics of management. I understand an organization change and an organization design, the management of the innovation and come to be able to give explanation.

Prerequisite Subjects

Course Topics

Management of technology (MOT) and knowledge management

Management and artefact (artifact)

Organization to realize innovation

Science, technique, sense of values

Innovation and organization learning

[instructions of the class overtime learning]

Preparing a next class range, and understanding the meanings of the technical term.

Textbook

Isao Naito, Yukihiro Wakuta edition (2016) " organization theory of the representation" CHUOKEIZAI-SHA

Additional Reading

Instructions will be given as necessary in class

Grade Assessment

[evaluation method] I give a small test to look back on the lecture content of the day before the end of the lecture of every time and have you finally submit a report. I evaluate it at 50% of normal points, report point 50%. In addition, I do not accept the submission of the report when there is absence more than 1/3.

[point of reference] Pass in understanding the basic concept and term in conjunction with the management engineering definitely; is based.

Notes

There are no prerequisites.

Contacting Faculty

I accept questions during the class.