

ISTINYE UNIVERSITY
FACULTY OF FINE ARTS, DESIGN AND ARCHITECTURE
DEPARTMENT OF ARCHITECTURE
COURSE DESCRIPTIONS

1st SEMESTER

Basic Design

Forming the substructure based on the basic design principles for the development of abstract thinking consciousness and correct expression of this process.

Students are expected to interpret and abstract the existing environment by using the common pattern language consisting of dot, line, shape, texture and structure. Basic design principles such as harmony, contrast, balance, proportion are experienced in this process through daily workshops. For the purpose of defining the current facts in the built environment, we focus on the meaning of the relationship between object and subject and their interaction in space, time and space.

Basic Art Education

The aim is to introduce students to the features and basic art education principles and A studio course which aims to teach 2 and 3 dimensional abstract compositions using basic art education concepts, principles and elements in a studio environment that reveals creative power and enhances aesthetic sense.

Architectural Presentation Techniques I

The course includes ways of transforming the ideas of design in 2 and 3 dimensional drawing techniques. Technical and free hand drawings using drawing equipments and making 3D models in studio exercises and also by homeworks; drawing basic forms, from triangle to hyperbola using T-ruler, 45-60 set squares, rulers, compasses etc. Basic letters and technical writing studies; 3D basic forms and complex forms by using model materials and equipments; Vertical-orthographic projected drawings; plans, sections, elevations; Horizontal projection; isometric and oblique perspectives; drawings for project design expression, plans, sections, elevations in 1/100 and 1/50 scales.

Architectural Theory And Design I

In this theoretical course, human ergonomics, usage areas resulting from it, and logic of space design are studied. In addition, program, planning principles and contemporary examples of predetermined building types supported with visual materials are explained. The definition of architect and architecture, the scope of architecture in theory and practice, the difference of architecture from other arts, the emphasis of architecture on real life hosting, evaluation of related disciplines and architecture in the context of historical development, basic concepts in architecture, components of architecture, architectural planning and design process, design theories and methods, architectural

form and space organization, actions and areas of action, human-space relations, human dimensions, user requirements, building requirement program, function schemes, influence of environmental data, values, culture, structural and socio-economic factors on space design and architectural form.

History Of Art

Art, Artist, Artwork, What is the purpose of art? What is the birth / origin / purpose / function of art work? How should an artwork be evaluated? Differences between Art and Craft, Topics of art work-craft product-industrial product-fabrication-design product. What should be the perspective on the work of art? Archaeological finds of prehistoric and ancient periods, the development of abstract and concrete thinking, the influence of belief systems on art; Periodicization of the history of civilization (hunter-gatherer, agriculture-livestock, industry). Neolithic period and transition of human communities to settled order, political and religious thoughts in settled civilizations, Mesopotamian art, Egyptian art, Cretan and Mycenaean civilizations art, Greek thought (mythos-logos), slavery and the concept of citizenship in Greek civilization, Greek art, Etruscan art, Roman civilization, formation and development processes of Turkish art before and after Anatolia, Art-architecture and culture in the first Turkish-Islamic states, architecture and decoration program in Seljuk and Principalities period, Investigation of formation and development processes of Turkish art in Early Ottoman, Ottoman Period and Westernization periods, internal and external influences in the formation of Turkish Art, Art movements and the effects of these movements on architecture, the development process of Turkish ornamentation and handicrafts, comparative analysis of world art history according to chronological order.

Mathematics

The aim of this course is to teach basic mathematical techniques, to provide the necessary mathematical skills for analyzing problems, to provide practical use of mathematics with numerous sample problems, to gain analytical thinking, discussion and evaluation skills. Numbers and functions, limit and continuity, derivative, derivative applications, indefinite / definite integral, definite integral applications, arrays and series, matrix, determinant and linear equation systems.

Information Technologies And Architecture

What is a computer? A tool, an instrument; How can we relate to it? Signing up (g-mail); WINDOWS; Word Processing; WORD ; Using Tables; Excel; Preparing presentations; PowerPoint; Photoshop; Google; Gmail, Images, Google applications, Google docs.

Turkish Language I

English I

2nd SEMESTER

Introduction To Architectural Design

In this studio course a number of separate projects will be designed within the framework of a non-comprehensive program the environmental plan taking into account. Spaces are examined in the context of body, material and transport logic in these projects. Furthermore, the projects introduce the architectural design process by emphasizing the functional, environmental, organizational, relational, structural, conceptual, composition, social, psychological and cultural aspects of architectural design. In the first project aiming to develop the habit of thinking with visual-spatial concepts, students use the methods and techniques of lecturing, discussing, drawing, model and demonstration in order to increase their experience on mental creativity and to develop their skills in designing, describing and communicating.

Architectural Presentation Techniques II

In this course, which is a continuation of the previous course, the students will use 2 and 3 dimensional drawing and presentation techniques by computers.

The subject of the course is architectural project design and production with computer support. Students with basic computer skills will be taught one of the CAD programs (AutoCAD or ArchiCAD) in the architectural world; Sketching, designing, drawing and rendering processes are transferred to and from computer environment.

Architectural Theory And Design II

Introduction of different building types in historical development, examination of functional solutions, planning principles and design processes, creativity in architecture, different techniques and approaches in architectural design, forms of perception, knowing and behaving, effects of materials and technology on design and formation process, analysis of theories and concepts that examine the effects of ecological parameters on architectural design, public space and social responsibilities of architect.

Culture Of Architecture And Art

The course titled "Architecture and Art Culture" focuses on the historical process of knowledge production of the art and architecture disciplines, from the traditional world to today's post-modern world. The determinism of the structural features of the pre-modern world in the production of knowledge and the transformation of knowledge production together with the modernization process constitute the main subject of the course.

Descriptive Geometry

General meaning of geometry and development of historical process, projection, projection types, projection planes, representation of point on conjugate planes, obtaining coordinates and explanation of various locations of point, representation of lines and planes on conjugate planes, various lines and relative positions of the lines, various planes and relative positions of the planes, the relationships between line-line, plane-line, plane-plane, intersections, plane exchange, rotation

and application methods, special and general situations circle on conjugate planes, representation of curved surfaces, intersections of curved surfaces and planes or lines, polygons, cones, cylinders and spheres, etc.

Building Technology: Structure

In this course, structure and construction systems are generally discussed. Course content, basic concepts related to structure and structure, concept of carrier system, introduction of basic carrier systems and design principles; elements of the structural system described in the elementary form, foundations, walls, floors, consists of subjects. This building system and its elements; all components, details and complementary elements. In addition, the masonry structure and reinforced concrete skeleton carrier construction systems are examined comparatively.

Space Reading And Comprehension Tools

Understanding of nature, ecology and human settlements and their relations; Environmental paradigms (sustainable development, local economic development, conservationism, deep ecology approaches) and parameters (energy, waste, population ...); Basic concepts of reading space; sense of space, space and place making process, context of place; Reading cartography and cartography as a representation of a spatial unit; Basic components of urban morphology; Morphological relations and analysis: location, topography, historical development, transportations, urban pattern, green areas and landscape, identity elements, land use functions etc. ; Environment, Perception, Environmental Human Relations, Environmental Values; Visual Perception and Sequential approaches; Publicity and Public Space in the formation of space.

Turkish Language II

English II

Manifest Of Istinye I

3rd SEMESTER

Architectural Design I

This studio course enables students to become acquainted with the phenomenon of functional complexity and spatial diversity through relatively large-scale projects, to create design solutions that can respond directly to the architectural program and to increase their awareness and judgemental skills towards material and context. The methods of lecturing, discussion, drawing, model and demonstration are used to increase students' experience on mental creativity and to develop their skills in designing, explaining and communicating.

Building Technologies And Materials I

In this course, construction / construction technology, building systems and building materials are discussed. Course content, building systems and basic concepts related to the construction, structural elements of the structural elements and design principles as well as; elements, walls,

floors, staircases. This building system and its elements; all components, details and complementary elements. In addition, the properties of building materials and selection criteria are considered together with the constructive organization of the elements and the principles of detailing.

History Of Art And Architecture I

World architecture is described in a social historical framework from the prehistoric times to the end of the 11th century: Neolithic period, Ancient Egypt, Mesopotamia, Ancient Indian, Minos - Mycenaean, Ancient Greek, Ancient Roman architecture, Early Christian and Byzantine architecture, and architecture-related arts.

Statics And Strength Of Materials

Force concept. Concurrent and parallel forces. Moment of a force and couple. Plane forces. Center of gravity, Supports, Load Types. Friction. Trusses. Cables. Moment of Inertia. Internal forces. Stress-Strain. Axial force, shear force and torsion effect. Bending Moment. Elastic curve. Combined bending and axial force. Buckling.

Computer Aided Design I

This course is an introduction to computer-aided design (CAD) and its applications in architecture. It consists of drawing, modelling and presentation modules. These three modules provide students with a broad introduction into 2-dimensional/3-dimensional CAD and modelling approaches and various digital representation techniques as well. Topics such as creating, manipulating and transforming shape and form in digital environment; visualization of design ideas from conceptual design to presentation are covered.

Freehand Drawing And Architectural Analysis I

In this course, the method of creating sketches and the principles of architectural analysis, will be discussed theoretically and practically in the design process from inception to completion. To students; these methods and principles will be given as preliminary information contained in the accompanying concepts of basic art education. Architectural design is the same with the logic of fiction will examine several examples of this process will be supported by visual materials and courses

Professional English I

Manifest Of Istinye II

4th SEMESTER

Architectural Design II

In the studio course, which aims to develop a solution by considering the design problem for a specific purpose in a holistic way, the concepts of 'space-environment-place' in natural and cultural environment are explored, understood, analyzed and discussed. The theoretical aspect of

architecture is examined through design problems. The ability to master and use the terminology and concepts related to architecture is gained through seminars and research. Contemporary architectural examples and approaches from Turkey and the world are evaluated critically. Knowledge of building is assimilated in studio applications and all structural elements are questioned in a realistic way in accordance with the applicability of the designed object in real life.

Structural Analysis

This course provides students with a basic knowledge of structural analysis and design for buildings, bridges and other structures.

Building Technologies And Materials II

Design and integration of building elements. Structural design requirements, criteria, design of structural element systems within the framework of possibilities. Analysis, design and construction of building elements, floor systems, vertical circulation systems (ramp and stairs), roof systems (flat and sloping roofs). Structural design requirements, criteria, possibilities. Design elements of structural element systems. Traditional and advanced construction methods. Natural stone building materials, Aggregate and binding building materials (lime, gypsum and cement), Artificial building materials (mortar, concrete), Terracotta building materials (ceramic, brick).

History Of Art And Architecture II

Introduction of early Islam, Great Seljuks, Anatolian Seljuk, Anatolian Principalities, Ottoman architecture and arts, Mimar Sinan's contributions. World architecture from 9th to the end of 17th century and Turkish architecture from 4th to 17th century are described in a social historical framework. Carolingian, Romanesque, Gothic Architecture and Scholastic Philosophy, Renaissance, Reform, Humanism and Renaissance Architecture and Art, Manierism in Architecture, Baroque Architecture and Art, Architecture and Art of Middle Asia's Semi-Resident Turkish Cultures (Karahanlı, Ghaznavid and Great Seljuks), Anatolian Seljuk Period, Early Ottoman Period, and Classical Ottoman Era, Mimar Sinan.

Computer Aided Design II

Novel computational design approaches will be presented in relation to architectural geometry. This course aims to provide students a deeper understanding of concepts of computational design and a practical experience in developing computational design applications. Further to an overview of digital technologies used in architecture; parametric and algorithmic design methods and techniques and use of computer-aided manufacturing (CAM) tools will be introduced.

Freehand Drawing And Architectural Analysis II

Students who have been reinforced in terms of general knowledge, principles and disciplines within the scope of "Sketch and Architectural Analysis 1" course will be able to carry out sketches and analyzes in a project involving building, space and square arrangements in the follow up course. This project may be of a wellknown and noteworthy building or students' own designs and will be

handled together with its surrounding through sketches and architectural analyzes. In this process which has the same structure as the architectural design logic, various examples will be examined and the course will be supported with visual materials.

Professional English II

Manifest Of Istinye III

5th SEMESTER

Architectural Design III

In this studio course, architectural thinking will be dealt with structure, construction and detail within the scope of design issues that will improve the ability of environmental conditions to be used as a data to design problems. Design problems are studied at different levels of detail, and not very complex building / building group design processes are experienced. In this process, technical data are included in the design process.

Urban Design I

To realize project design theories and applications aiming sustainable development of urban design considering the ecological, social and environmental values of the city. To teach architecture students application tools and methods of urban design and its theoretical framework.

Conservation And Restoration Of Historical Building And Sites

Historical development and theoretical base of conservation idea, conservation criteria, classification of architectural values to be protected, reasons of deterioration of historical environment and structures, and methods of protection are explained with local examples.

Building Technologies And Materials III

Design and integration of building elements. Structural design requirements, criteria, design of structural element systems within the framework of possibilities. Analysis, design and construction of building elements, windows, doors, coverings (wall, floor, ceiling), curtain wall systems, suspended ceiling systems, chimneys, fireplaces. Structural design requirements, criteria, possibilities. Design elements of structural element systems. Traditional and advanced construction methods. Glass, metal, plastic, paint building materials

History Of Art And Architecture III

From Middle age to present Romanesque, gothic, renaissance, baroque and rococo, classicism, historicalist and industrial period, twentieth century modernism, and processes involving contemporary architecture and art periods in Europe.

Professional English III

Manifest Of Istinye IV

6th SEMESTER

Architectural Design IV

In this studio course, it is ensured that the student understands the relations between the structures by establishing relations with existing buildings in the city or with more complex organizations with more than one mass. In addition, the course also includes analysis of the structured environment.

Urban Design II

Developing the skills required for urban planning and urban design process, ecologically sustainable designs, obtaining sufficient experience in the settlement works, preserving the cultural values, having the theoretical knowledge and application skills about environmental protection and development. To teach architecture students the tools and methods of urban design principles and the theoretical framework of urban design.

Survey And Restoration

Brief information about the traditional techniques and photogrammetry that are commonly used to prepare the survey of a building with the character of a historical document. Survey drawing techniques, materials used in historical buildings, analysis studies prepared to determine the deteriorations and additions that are added to structures over time. Theoretical knowledge, inventory vouchers and surveys of predetermined historical buildings are prepared by student groups with traditional survey techniques. Restitution and restoration projects including the new function proposed for the existing building, and the intervention techniques are prepared in line with the surveys.

Academic English I

7th SEMESTER

Architectural Design V

Developing complex building / building group programs in complex environments and producing architectural solutions; developing and implementing data collection, analysis, building program development processes which are appropriate to the nature of design problem and reflect the designer's personal interests and skills, developing the skills of dominating the components of architecture, such as structure, building systems, detail development, throughout the design process. The student is prepared for real life experiences with case studies such as zoning conditions and compliance with the decisions of conservation boards.

Construction Project

Establishment of spatial arrangement and structural system alternatives within the scope of preliminary project, final project and construction project in the structural application project where the relations between architecture and other disciplines come forefront, determination of material and construction systems, design feasibility of construction according to the current building

legislation (earthquake, heat conservation, noise, fire etc. regulations), building sub-systems related to static, plumbing, mechanical and electrical equipment systems integration with the architectural project, preparation of the construction project in accordance with the appropriate expression techniques and project arrangement principles.

Zoning Law

Definition of legislation which is the legal instrument of urban planning and architectural applications, and evaluation of application problems. The definition of the zoning law and its branches, sources of zoning law, the legal framework for the planning in Turkey, planning stages, relevant central and local units, the development of the zoning ordinances Turkey, important provisions of the Construction Act, other important laws (Environmental Law, Coastal Law, Culture and Natural Heritage Protection Law, Tourism Law, etc.), review of zoning regulations in Turkey, examples of court decisions.

Atatürk's Principles And History Of Turkish Revolution I

Academic English II

8th SEMESTER

Graduation Project

The diploma project is a study that demonstrates that the student has the required level of knowledge and interpretation in all disciplines constituting the whole of education and training in the architectural department and that he / she has reached the required professional level in a context of a process. Necessary steps in the design process and the procedures are determined by the jury. During the implementation of the study, the audit and the general criticism of the projects progress will be carried out by the jury of the diploma project at certain intermediate jury sessions within the semester. In this process, which will be realized without any workshops except for jury critics and seminars, it is aimed to determine an urban problem by the student, and designing, drawing, representation and presentation of multi-program space(s) in the context of body, environment, material and transport logic. It is important that the student questions himself and acquired knowledges and stimulates creativity, develop his personality, be aware of the world / different architectural environments and express his thoughts.

Project And Cost Management

Production, management, economics and technology concepts and the relationships between these concepts, role holders participating in the construction process in Turkey, their authority and responsibilities, the evolution of the construction sector in Turkey, management of design and construction phases, the project management techniques, quantities, exploration, analysis applications in construction, bidding laws and practices.

Atatürk's Principles And History Of Turkish Revolution II

ELECTIVE COURSES

DESIGN AND PRESENTATION MODULE

Design Principles Of Performing Arts Buildings

In this course, the design principles of the performing arts buildings will be discussed theoretically in the context of their development from the Ancient Greek to the 21st century. Firstly, students will be informed about the theories of the performing arts. In the light of this, the architectural design and planning principles and program will be examined in conjunction with various contemporary examples. The studied examples will be discussed in particular on their spatial configurations and relationships. The course will be supported extensively with visual material.

Design Principles Of Accommodation Buildings

The course introduces the design criteria of buildings such as hotels, dormitories, and hostel buildings that can be covered by accommodation buildings. Starting from the room unit, which is the main component of the accommodation buildings, common spaces used by customers, service spaces and the secondary venues determined by the type of hotel programs additions will be examined one by one, design principles and methods of these spaces will be discussed. From traditional buildinga to contemporary designs, a wide range of architectural examples from different accommodation types will be analyzed.

Design Principles Of Worship Spaces

The course deals with the conceptual framework of how the worship spaces, which constitute an important part of religious architecture, are formed, established or designed. In the course, the design of worship spaces is revealed by analyzing examples of worship places belonging to all religions and beliefs in the world and in a wide range from traditional to contemporary designs.

Sustainable Building Design

The course covers the topics of ecology, human and environmental interaction, the importance of environmental data, ecological problems and solutions, sustainable development, sustainable architecture, sustainable building assessment methods, sustainable building materials, material selection criteria, sustainable construction systems and building life cycle.

Design And Branding In Architecture

Overview of changes in the concept of consumption in the process of globalization through space design and brand concept. The effects of branding strategies on space design and solution methods.

Architectural Design Theories

Different disciplines that influence architectural design, social and cultural, behavioral theories from these disciplines that direct architectural design, privacy, territorial domain, theories of personal-social space, knowledge theory, design approaches and models, the role of information and architect in design, participation theory.

Human Behavior And Architecture

This course aims to introduce the factors and concepts that shape the complex relationships between the built environment and human beings. The participant will have the chance to research and analyze the buildings with their psychological, social and cultural aspects, benefit from the literature in the field of environment-behavior and learn to use their knowledge systematically in the fields of architectural programming and architectural evaluation.

Bioarchitecture

Biological-inspired design examines the relationship between biology and architecture discipline through a natural and built environment. Explains the effects of nature, which is the main subject of biology, on architectural design process from past to present. It deals with the methods of how to transform the knowledge of nature into the knowledge of architecture and how it can benefit from nature in order to produce new design ideas. Biomimicry, biomorphism, ecomimicry, ecological design, ecosystem-based design, biophilic design, regenerative design, evolutionary design, and many other design approaches and processes based on nature are examined with examples. This course aims to enable students to develop a new design solution from nature to a design problem and to gain different perspectives in the design process.

Form And Geometry In Architecture

The geometric aspect of architectural forms and how to use them in the design process.

Educational Buildings

Examination of preschool, primary, secondary and university structures, planning and design principles are the main topics of this course.

Health Buildings

Design principles of health buildings such as health center and hospital.

Urban Furniture Design

General approaches in the design of urban furniture, physical, scientific, cultural, artistic criteria affecting the design, classification of urban furniture, relationship between furniture-user relationship and urban identity will be explained with examples.

Design Methods

The course focuses on definitions of design and different methods to define and solve design problems. An overview of quantitative methods, such as decision theory and optimization; qualitative methods, such as decision trees and pattern languages are discussed. Methods that help in finding creative solutions, such as brainstorming and synectics are covered.

Architectural Photography

Introduction to historical and technical information on the development of photography. Photography and space: Architectural photography, two- and three-dimensional subjects and problems, perspective and its problems, straightening and taking into exposure, tone-texture problems, indoor and its problems, using daylight and additional artificial lighting to daylight, special lighting positions. Copied and duplicated photographs. Photography as artistic expression: effect of photography in the development of contemporary art and new aesthetical expression. Photography and application, dark room and printing.

URBAN AND ENVIRONMENT MODULE

Sustainable Architecture

It is aimed to understand the concept of "sustainability" which is put forward in the world and Turkey in order to avoid the negativity caused by the rapid transformation of the globalization process and different sized relationships of this concept with architecture which is an interdisciplinary work area.

City And Environment

Definition of urbanization and its development, urban culture, management and types of city, environmental pollution, types of pollution, causes and solutions, natural disasters and disaster awareness, environment city, city-green relations, housing and mass housing, cooperatives, definition and development of shanty houses, issues and solutions.

Environmental Aesthetics

A theoretical course conducted in discussions on assigned readings and research. Aims to introduce students to environmental concerns and issues of aesthetics related to the environment and to social and urban experiences. Apart from the discussions, students are asked to submit papers related to the environment, short stories, drawings and visual documentation.

Landscape In Architecture

The aim of this course is to provide the students with the knowledge of the spatial arrangement outside the buildings and to support them reflecting their skills on architectural design. To teach the basic principles of landscape design projects, land leveling, hard floor designs, planting designs, usage of reinforcement elements and application stages. The basic principles of landscape design and

sustainability of exterior and interior spaces, landscape, application, planting, lighting techniques, maintenance and protection.

Urban Morphology

The aim of the course is to introduce the principles and methods of urban morphology. After defining the place of urban morphology within the general urban design theories, the basic concepts and different approaches in this field will be conveyed through case studies. The subject will be supported by common and individual practical studies in two stages.

Models And Implementations Of Urban Regeneration

Planning, policy & practices in Urban Regeneration, Practical models to support urban regeneration, Legislation for Urban Regeneration Practices, Project Management and Financing in Urban Regeneration, Communication & Participation and Community Development in Urban Regeneration

HISTORY AND THEORY MODULE

Cultural Studies In Architecture

In this course, fundamental design theories will be discussed theoretically and practically with an interdisciplinary method. Course will be focused on the relationship between architectural theory - design - process and literature (fiction and science fiction), contemporary art (especially video-art and installation art), music (contemporary industrial music and techno music), cognitive design processes in the context of linguistics - psychoanalysis theories, film - architecture and the function of art - subculture. The course has two parts. First two hours, there will be a presentation by the instructor and at the second part will become a discussion group.

Testimony On Monumental Structures

It is planned to recognize the important historical buildings of Istanbul within a specific urban context in field studies and to identify using various methods of representation; to investigate the buildings and their context seen on site in written sources.

Housing Design And Historical Background

It is aimed that architect candidates will be aware of the importance of residential areas and units in social and individual life while living in different scales of design processes for these areas that have the largest share in the building stock in cities. Thus, it is thought that an important step will be taken in designing livable and quality spaces for people.

Modern Design In Historical Settlements

Historical urban texture concept. Measures related to the integration of the historical urban fabric into the contemporary life. Discussion about approaches to contemporary infill buildings in historical urban fabric and contemporary additions to historical structures. The concept of urban identity and

the effects of contemporary structures on urban identity within a historical urban texture. Analysis and evaluation of relevant examples from the world and Turkey.

Issues And Problems In 'Modernism'

In this course the complex relations between the Western architectural production of early twentieth century and its material and intellectual contexts is explored. We start by delving into the concepts of 'aesthetic modernism' and 'social modernity'. After setting the scene through an analysis of social, economic and intellectual background of what come to be known as 'Architectural Modernism', each week the course focuses on specific (architectural) productions and problems with the aim of acquainting the students with different 'modernisms' as well as cases that deviate from the 'Modernist' norms.

TECHNOLOGY MODULE

Advanced Construction Techniques

The course includes general information about advanced structural systems, contemporary material and construction techniques in parallel with the changes in the field of architecture which is developing rapidly in the architectural space production,

Physical Internal Space Inspection

Giving necessary information about physical environmental elements, definitions, interactions, optimizations, and providing interior comfort conditions

Earthquake-Resistant Design

Earthquake engineering terminology. Design earthquakes. Earthquake resistant design philosophy. Choice of forms and materials. Effect of soil properties. Reinforced concrete buildings. Precast concrete buildings. Steel buildings. Masonry buildings. Timber buildings. Related codes and standards. Special topics in earthquake engineering

Contemporary Structure Systems

Structural systems built with steel and advanced technology, material properties, geometries and construction technologies

Steel Structures

Steel material, usage areas, structural systems formed with steel material, steel construction technology, calculation principles of structural elements forming steel structure, formation of nodes and detail drawings

Reinforced Concrete Structures

To have knowledge about the materials used in reinforced concrete, the loads acting on the structure, the design principles of the structural system elements (slab, column, beam, curtain, foundation), the principles of calculation, the detail drawings, the current regulations and standards.

History Of Modern Structural Engineering

A historical survey of the development of modern structural engineering with active participation of the students. Discussion of the merits and sources of modern structural products concerning industrialization and invention of modern structural materials. Study of objective aesthetic values of great builders such as Telford, Eiffel, Roebling, Nervi, Saarinen, Maillart, and Freyssinet. Interrelation between structural design criteria and architectural design principles.

Studies On Tall Buildings: Design Considerations

Definition, emergence and historical background of tall buildings. Planning and design considerations. Lateral loads; wind and earthquake effects; aerodynamic modifications against wind. Steel, reinforced concrete and composite tall buildings. Structural systems used in architectural design of tall buildings; frame systems, braced frame and shear walled frame systems, outrigger systems, framed-tube systems, braced-tube systems and bundled tube systems. Buildings with twisted facades. The course is conducted through lectures, case studies and discussions and aims the student to realize that the design of tall buildings starts with the architect and requires high level of interdisciplinary approach.