Architecture Master: Thesis Option

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Course Definitions

**ARCH 500 Thesis  Non-Credit**
Supervised independent research on a topic arranged between the student and a faculty member and approved by the Administrative Committee of the Institute. It must be an original contribution to the field of Architecture.

**ARCH 590 Seminar  Non-Credit**
The expression of the subject, objectives and the discussions on the related theoretical issues, presentation of the consequences, the discussion of the thesis in regard to contemporary developments in architecture.

**ARCH 501 Graduate Studio I  (2,2) 3**
An analytical approach to critical issues in interior design. The studio is planned to provide the necessary knowledge and skills to deal with specific interior design problems, particularly related to the understanding of space, materials and detailing, through lectures, site trips and studio work.

**ARCH 502 Graduate Studio II  (2,2) 3**
The students are expected to conduct their own research in the studio order under the supervision of the instructors where they are to analyze, test and criticize particular case studies. These studies may be structured around different theoretical concepts or typologies.
Elective Courses

ARCH 512 Advanced Structural System  (3,0) 3
The objective of this course is to provide knowledge on the static of advanced structural systems. Emphasis is given especially to the structures under the effect of dynamic forces such as wind and earthquakes. The architectural forms and innovative systems used in foundation to resist dynamic forces will be taught to make students familiar with the concepts about design of structural systems. Dynamic forces - wind and earthquake. Architectural form and the dynamic forces. The limits of structural systems. Foundation rooftop mechanism designs to resist earthquake forces.

ARCH 514 Traditional Building Elements and Construction Techniques  (3,0) 3
The objective of the course is to lend students analytical vision in understanding the behaviour of structural components and identify the related problems frequently met in historic buildings. Non-destructive test techniques in the diagnosis of structural failures designed for ones other than visible problems are also introduced. Together with their problems, various types of construction techniques from different historic periods mainly in Europe and Anatolia are introduced and basic intervention methods and repair materials are discussed in the light of restoration principles. Students are asked to submit assignments and prepare a seminar presentation on topics determined at the beginning of the semester.

ARCH 515 Studies on Architectural Structures  (3,0) 3
Analyze some real systems in detail. Distil common concepts that emerge from theory and that apply to many kinds of systems. Learning about architecture/structure by examining a wide variety of systems such as biological, sociological, economic at a variety of levels in addition to the technological and organizational systems. Students are encouraged to explore how structure is determined by looking at system typologies and constraints that influence or determine the structure. Network methods may be used as a choice of level of abstraction.

ARCH 516 New Perspectives on Earthen Architecture  (3,0) 3
The objective of this course is to provide knowledge on properties of earthen material used in the construction of traditional architecture considering the advantageous of local materials for environmental control. The course focuses on the composite use of gypsum and adobe which aims to make earthen material more compatible for new constructions.

ARCH 520 Development of Contemporary Architecture  (3,0) 3
Industrial revolution, scientific progress, inventions of materials and techniques, building evolution and its influence on prevailing architectural styles, in the continent. Great Exhibitions and achievements in technology and expression. Search for new forms; rationalism, engineering tradition - reinforced and ferro-concrete, Arts and Craft Ideals and Art Nouveau movement. American development, Chicago School, Louis Sullivan, architectural system of Frank Lloyd Wright- Grammer of Prairie houses. Responses to mechanisation; Deutscher Werkbund and Futurism, De Stijl and Amsterdam School. New space conceptions, Cubism, Le Corbusier’s quest for ideal form, Bauhaus movement and International style, Walter Gropius, Mies Van de Rohe, Philip Johnson etc. Deconstructionist and architecture in the age of electronic media, emerging concepts. As a futuristic vision, concluding part of the course gives an idea about present revolution in science and technology, emerging concepts of human habitat, possible changes and future possibilities in architecture. Some ongoing experiments by leading architects of today are highlighted as path finder.

ARCH 521 Introduction to Architectural Research  (3,0) 3
The objective of the course is to make students define, plan, execute, and complete a research project, and understand the basic principles of scientific investigation and the architectural research process. Course contents are; research issues in architecture; analysing a textbook/paper; criteria for topic selection; process of a research project; research methods (qualitative and quantitative methods); proposal development; writing and presentation techniques.

ARCH 522 Form and Geometry in Architecture  (3,0) 3
Knowledge fields of architecture, knowledge representation, design process, form generation in the design process, different approaches to alternative ways of form generation process, procedures of form generation, mathematics and geometric models in form generation, form generation struggles in urban design and architectural design process in the historical context, symbol sets and mapping in design process, grids and other design tools, and procedures on design tools in form generation process, computer implementations in shape grammar and solid grammar, rule based systems, computer modelling in architecture, analysis of examples in relation to form generation procedures in historical context.
ARCH 523 Geometrical Issues in Architectural Design  (3,0) 3
Geometry as ground for form and space creation. Relationship and interdependence between function and geometry of designing spaces. Geometrical transformation of forms and spaces. Conceptual approach to geometrical design of buildings and structures.

ARCH 524 Architectural Environments and Space  (3,0) 3
Studies on environmental issues of architectural design. Environment and built environment. Comfort as a final goal of architectural design. Historical, physical, cultural and psychological aspects of comfort providing in both building design and built environment.

ARCH 525 Theories and Process in Architectural Design  (3,0) 3
Theories and discourse of architecture and design; design science and different research activities; history of design theories: first, second and third generations, different process and problems type; Design as a Mental Activity: design thinking, design psychology and primary generators; Design and Creativity: preliminary form, banal, mediocre or heuristic design; Philosophy of Design Methodology; Knowledge in Design: designedly way of knowing, design discipline versus design science; Visualisation, Presentation and Giving Form in Design: parametric, innovative and creative design, an abstract/concrete form, different attitudes and approaches to the architectural form.

ARCH 526 Human Factors in Architectural Design  (3,0) 3
The objective of this course is to provide awareness of the theories and methods of inquiry that seek to clarify the relationships between human behaviour and the physical environment. It also considers the diversity of needs, values, behavioural norms, and social and spatial patterns that characterize different cultures and the implications of this diversity for the societal roles and responsibilities of architects.

ARCH 527 Application of Tessellations in Architecture  (3,0) 3
Study on tessellations’ shapes, types and methods of their grouping. Applications of tessellations in different visual arts, research and selection of tessellations’ types relevant to architectural design problems. Tessellated grids and building design issues. Transformation of two dimensional tessellated grids into three dimensional forms. Tessellated grids and long span structures.

ARCH 528 The Effects of Colour and Light on the Perception of Architectural Edifice  (3,0) 3
Architectural design is a comprehensive process requiring the understanding and utilization of a variety of skills and resource sources. While it can be a highly individualized and idiosyncratic process, the necessary interface of this process with society’s circumstances and perception of the architectural edifice. The objective of this course is to understand Light-Colour-Space relation and its effect to human perception through analysis of existing architectural stock and environment.

ARCH 529 Space, Form and Sustainable Technology  (3,0) 3
A research and invention, oriented seminar exploring the consequences of contemporary and future sustainability strategies on formal and tectonic architectural conditions. Ecological and cultural practices as a foundation for design are considered. The course proceeds from a theoretical research on space, form and sustainable technology and analysis how designers use space, form, technology to exhibit cultural artefacts and ideas. Student in the process of devising and learning theories, related to the subject of study, and the conclusion from the field study which is carried out in an urban district or a village core will test their knowledge from the course.

ARCH 530 Environmental Aesthetics  (3,0) 3
A critical understanding of the roles of architectural design, aesthetics, and materiality in shaping the built environment. The objective of this course is dealing with visual art, elements and principles. The course begin with analyzes and criticism the theoretical concepts and viewpoints which is related to the subject of the study. Student in the process of devising, learning and understanding theories, related to the environmental aesthetics will test their knowledge from the course in field study which will be an urban district or a village.

ARCH 531 Theory of Colour  (3,0) 3
The objective of this course is to understand the different relationships of color established in the color wheel and to be able to use them as a design tool. Studies on theory of colour and colour relationships comprising primary, secondary, analogous and complementary colours. The role of hue, saturation, value and pigment in colour theory. Advancing (warm) colours vs. receding (cool) colours and neutral colours. The reflection of light in nature, painting, architecture and interiors.
ARCH 532 Theory of Conservation (3,0) 3
Conceptual definitions and terminologies for understanding the theory of conservation. Historical approaches towards developing the theory of conservation. Basic concepts in architectural field. Types of cultural and historic heritage; architectural buildings, archaeological sites, historic area (historic urban quarter and village core). Contemporary international regulations; accepted principles, charters and declarations. The importance of recording and documentation. Conservation and the unity of style; destruction for the sake of restoration and the anti-restoration theory. Analytical approach towards the structures and the original materials. Authenticity, changing criteria and concept of authenticity in architectural conservation; Adaptive re-use of the traditional buildings with emphasis on pre-determined revitalization approaches. Conservation, revitalization and design in historic environment (urban conservation). Encouragement of public participation.

ARCH 535 Architectural Heritage Recording (3,0) 3
Approaching towards protection of historic buildings. The methods of making a thorough measured and descriptive survey of a historic building. Students will test their knowledge from the course on a chosen building through various, techniques and instruments from theoretical lectures which are given during the course. Practical exercises are carried out on the field study. The students are also encouraged to develop a practical approach for analysis a traditional dwelling in a site which is chosen as case study and is necessary for the preparation of restitution projects.

ARCH 536 Typomorphological Analysis in Urban Studies (3,0) 3
The objective of this course is to make a critical review on the townscape analysis in morphological studies. The course will assist students to understand the urban space as a whole with its elements in architecture. City’s morphology involves plots, building, land use, streets, plans and townscape. The study of morphology focuses on the history of variation of form. It is important to the use of morphology as a tool for analysis that it is not only about form. In serious urban design, form never be viewed without considering its context: the meaning attached to it, its relationship to the urban process. It will give opportunity to discuss and analysis the urban form according to morphological elements and components. It aims to understand the urban form in planning level and architectural level. The aim of this course to introduce the concepts of the morphological period, fringe belts, and townscape in planning level and to see whether they can be combined, both theoretically and in application with the typological process, materials, structures, tissues and urban organisms. In addition to those, it aims to provide a critical discussion after the analysis of urban fabric for the new designs in a urban context.

ARCH 538 Documentation Methods for Historic Environments (3,0) 3
The objective of this course is to introduce documentation methods for historic areas to preserve (historic urban quarter and village core). Student investigate local urban configuration to determine the underlying socio-spatial mechanism. Investigation of documentation methods appropriates a chosen historic area. The students will be able to gain experience in documenting procedures for analysis architectural, natural, cultural, and socio-economic characteristics of a chosen historic area, to interpret, and evaluate; strength, weakness, opportunity and threat in order to develop practical skills in this scope. Preference for field study is historic residential environment. It can also be the theme of a restoration project. The content and scope of the study necessitate teamwork both in site and in the studio.

ARCH 539 The Reception of Classical Antiquity (3,0) 3
The course analyses the survival and revival of classical architecture from the end of the Roman Empire to nowadays, from the Medieval to the Post-Modern eras. Attention is paid to the formal (stylistic) vocabulary and secondly to the cultural, theoretical and political background for the perseverance of classicism in Western architecture and beyond. The course is based on the analysis of selected examples of buildings and the reading of scholarly literature on the subject.

ARCH 551 Computers in Design (3,0) 3
The use of computers in various design professions in discussed. Computers programming will be further studied together with an introduction to the principles of computer graphics.

ARCH 562 Biological Analogy in Architectural Design (3,0) 3
This course aims to provide further knowledge about the architectural design philosophy and theory by focusing upon the below issues: Philosophical and theoretical basis of biological analogy; Types of analogies: Organic, ecological and Darwinian analogies; Exploration of biomimetic design principles; Biotechnics and methodology of product design from Nature; The interpretation of form from biology; Lessons from the natural world for sustainable building solutions; Samples related biological analogy in the History of Architecture; Contemporary samples that based on biological analogy; Most recent developments and future prospects of biological analogy in architecture.