# Master of Science in Architecture
## Program code: 161010

### *INTRODUCTION*

The department of Architecture (College of Architecture) offers a Master of Science program in **Architecture**. Both full-time and part-time students are accepted to the program. The program is designed to provide opportunities for students to advance studies with deeper and more specialized areas of knowledge and skill, also to respond to the need of the intense demand of rapid changing industrial and professional development in the building industry. Research requirements include either thesis or non-thesis options. Language of instruction is English. The program offers thesis and non-thesis options.

***According to the University Council decision dated 4/2/2007, Thesis students admitted with effect from September 2007 are exempted from the comprehensive examination.***

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### *PROGRAM REQUIREMENTS*

**30 (33) TOTAL COURSE CREDITS**(Non-thesis option in parenthesis)

**9 (12) COMPULSORY COURSES**

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|---|---|---|
| 1610-501 | Research Methods in Architecture | (3) |
| 1610-513 | Special Topics in Architectural theory and Design | (3) |
| 1610-523 | Special Topics in Building Science and Technology | (3) |
| 1610-591 | Seminar I (non-credit) | (0) |
| 1610-592 | Seminar II (non-credit) | (0) |
| 1610-593 | Project | (3) (non-thesis option only) |

**6 (9) Core Elective Theory Courses (3 credits each)**

The student chooses (6) credits for thesis option or (9) for non-thesis option from the following subdisciplines.

1610-511 Research Methods in Architectural Design and Theory
1610-512 Advanced Architectural Theory
1610-561 Urbanism and Urban Forms
1610-562 Environment and Behavior
1610-563 Housing Theory and Supply
1610-565 Regional and Vernacular Architecture

**6 (12) Core Elective Technical Courses (3 credits each)**

The student chooses 6 credits for thesis option or (12) for non-thesis option from the following subdisciplines.

1610-521 Research Methods in Building Science
1610-522 Advanced Environmental Systems
1610-551 Independent Study
1610-552 Special Project
1610-564 Building Performance Evaluation
1610-571 Advanced Lighting Design

1610-572 Advanced Building Acoustics and Noise control
1610-573 Building Thermal Dynamics
1610-574 Advanced Computer Applications and Simulations
1610-575 Advanced Building Assemblies and Technology

## 9 COMPULSORY COURSES

1610-597 Thesis (0)
1610-598 Thesis (0)
2000-599 Thesis (9)

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## *COURSE DESCRIPTION*

**1610-501: RESEARCH METHODS IN ARCHITECTURE**
**CR: 3**

An important and characteristic lecture course in architectural studies. Introduction to various domains of architectural research and inquiry, their foundations and framework, relations in design, importance of methods. Overview and understanding of research methods currently available in the fields related to architectural studies, including, e.g. interpretive-qualitative, argumentative, quantitative and experimental, simulation and modeling, and strategies of case studies, etc.

**1610-511: RESEARCH METHODS IN DESIGN AND THEORY**
**CR: 3 PR: 1610-501**

It is a course that helps students to study and examine in depth the various methods of research and inquiry used in the study of architectural theories and design. It explores the relationship between research and design as well as the relationship between methods and research. Topics cover both qualitative and quantitative approaches, case study strategies, historical interpretations, narrative and textual analysis, and formulation of research proposals and report writing.

**1610-512: ADVANCED ARCHITECTURAL THEORY**
**CR: 3**

Examines contemporary architectural theory, criticism and practice through the presentation and study of the important texts and built form. Significant architectural works and the critics and theories of their authors will be studied for the understanding of their contributions to the language of architecture.

**1610-513: SPECIAL TOPICS IN ARCHITECTURAL THEORY AND DESIGN**
**CR: 3**

The study and critical evaluation of current and historical selected issues in architecture and environmental design. Topics will be selected from such areas as theories of the change in culture and architecture; concept of representation and expression; sources of architectural form; regional architecture; roles of rational and functional requirements in design; design process and methods; concepts of tectonic issues and details; urban forms and generation. Each course is organized by one faculty instructor as an intensive and concentrated presentation of a selected range of theoretical issues, or a specific period of work. The specific formulation of each course offering is independently determined. Varied sessions under the same course number are assigned to each course based on the topical options.

**1610-521: RESEARCH METHODS IN BUILDING SCIENCE**
**CR: 3 PR: 1610-501**

Methods for identifying, evaluating and enhancing the knowledge base for interactions between building systems, occupants, environment and design decisions. Introduction of analytic and empirical approaches to characterizing attributes of physical environments and their translation into environmental quality. Examine related research methods in the discipline of science and engineering. Students also learn the necessary steps

for efficiently beginning and completing research projects, such as proposal writing, research design, data collection, applied statistics, and instrumentation operation.

**1610-522: ADVANCED ENVIRONMENTAL SYSTEMS**
**CR: 3**

Advanced studies of environmental systems and physical environmental factors, including both natural and artificial building system components, their integration to building and architectural design, and their analysis and evaluation. Case study analysis is emphasized.

**1610-523: SPECIAL TOPICS IN BUILDING SCIENCE AND TECHNOLOGY**
**CR: 3**

Advanced study and analytical understanding of selected subject areas in the umbrella domain of building science and technology. Topics will be selected from such areas as passive building thermal system and its integration; mechanical and electrical system and its integration; plumbing and life safety systems; lighting and acoustics, system concept in buildings and assemblies; ecological design and sustainability. Each course is organized by one faculty instructor as an intensive and concentrated presentation of a selected subtopic or a combined theme. The specific formulation of each course offering is independently determined. Varied sessions under the same course number are assigned to each course based on the topical options.

**1610-551: INDEPENDENT STUDY**
**CR: 3**

The individual student will complete a guided study and investigation in a selected area. It could be from either tracks of Architectural Design and Theory or Building Science and Technology. A written proposal includes topic subject, content and material, methods of study, and schedule of tasks to be approved by the sponsoring faculty instructor is required to initiate the course by the individual graduate student.

**1610-552: SPECIAL PROJECT**
**CR: 3**

There could be one or more students' enrollment for the course. Faculty instructor is to initiate the content and the plan of the course, possibly related to an ongoing research project in the Department of Architecture, funded or non-funded, or a pilot project toward the students' thesis work. Field work in or outside Kuwait may be required. This is not to be the same as the required Graduation Project (0690-953) for the non-thesis option.

**1610-561: URBANISM AND URBAN FORMS**
**CR: 3**

Examining the theory and practice of architecture in relation to the body of knowledge and ideology associated to urban design and forms. Understand urban forms related to functions; analysis of socioeconomic political, historical, geographical and cultural forces. Concepts, models and methods of idealized and differentiated urban design configurations.

**1610-562: ENVIRONMENT AND BEHAVIOR**
**CR: 3**

Theories of mental, special and social behavior as related to the built environment. Topics cover human sensation, perception, cognition, environmental meaning, environmental stress and stressors, proxemics, social interaction and principles of environmental-behavior design. Representative works in the subject field will be analytically studied.

**1610-563: HOUSING THEORY AND SUPPLY**
**CR: 3**

It aims to cover the various housing theories and policies throughout the periods of time. Introduction to supply and production mechanisms of housing for people. Focus is given to housing for low-income strata and possible alternatives for unsuccessful mass-housing. Examining and analyzing housing environments involving special issues such as energy conscious design, human-environmental interactions, policy and regulations, and cultural patterns. Reference is drawn to the local situation in Kuwait and the Gulf region.

**1610-564: BUILDING PERFORMANCE EVALUATION**
**CR: 3**

Multi-disciplinary concepts and applications of building related to the health and safety in the design, construction, and operations of residential, commercial, and institutional buildings. An examination of various building performance characteristics and components, and their crucial

interactive nature which leads toward success or failure of building use and feedback into the design process. Lecture/recitation followed by field work analysis, documentation, and reporting.

**1610-565: REGIONAL AND VERNACULAR ARCHITECTURE**
**CR: 3**

Studies related to definitions, meaning, roles, and questions regarding regional and vernacular architecture. Investigating and exploring the useful lessons and rich experiences behind the work that led to the formation of its architecture. Worldwide examples will be discussed with specialized focus given to the Kuwaiti and Arab case studies.

**1610-571: ADVANCED LIGHTING DESIGN**
**CR: 3**

Development of selected comprehensive lighting design techniques are offered in this course. Students are involved in case studies of lighting design with emphasis on the special aspects of luminous environment. It requires also individual research in an advanced area of the subject. Examining existing literature and research reports in the fields, includes lighting analysis models, graphic techniques, computer programs, daylighting methods, energy optimization, … and other topics. Presentation by invited professional experts.

**1610-572: ADVANCED BUILDING ACOUSTICS AND NOISE CONTROL**
**CR: 3**

Serious and highly concentrated study in selected aspects of architectural acoustics and noise control. Case study and practical consulting experience may be integrated to the format and content of the course. Exemplary sub topics include speech intelligibility in educational buildings, analysis and diagnosis of noise problems, and current trends of acoustical design for contemporary concert halls. Research exploration and interdisciplinary understanding of the problem and solutions in the subject area is emphasized.

**1610-573: BUILDING THERMAL DYNAMICS**
**CR: 3**

Introducing students to the engineering principles of thermal dynamics, heat transfer, and fluid mechanics in building science applications. Insights of basic mathematical and practical techniques in building thermodynamics are offered to equip students with research tools. In addition, the course presents a rich body of material on real world applications in order to develop an intuitive understanding of the subject of thermodynamics of buildings.

**1610-574: ADVANCED COMPUTER APPLICATIONS AND SIMULATIONS**
**CR: 3**

The course is intended to introduce different computing tools to benefit the students in various areas of graduate studies. It serves as an introduction to programming and computer system fundamentals. Furthermore, teaches computer usage in architectural design generation and production. Exploration of available hard and software through advanced design issues. Processing of various kinds of information related to architecture, including light simulation, digital imaging, and data exchange. The course also offers selected simulation tools specifically related to research work such as programs performing parametric analysis in building energy studies, lighting analysis, or acoustical design and auralization.

**1610-575: ADVANCED BUILDING ASSEMBLIES AND TECHNOLOGY**
**CR: 3**

Study of complex building types and forms from a geometrical, functional, structural, and construction point of view; the effort scale, site, environmental control, materials assembly systems, and detail methods upon architectural design; the current state of building technology. It helps student gain skills and understanding of design building assemblies and elements through control methods of construction, potential of material and technical clarity.

**1610-591: SEMINAR I**
**CR: 0**

All applicants to the Master of Architecture degree must attend at least two seminars during the study period and provide students with an opportunity to explore, exchange and assimilate information and specialized resources relevant to the thesis and the study development. The meeting takes place

weekly with the faculty or program supervisor, as well as fellow students. Lectures and interdisciplinary discussions will be provided.

**1610-592: SEMINAR II**
**CR: 0 PR: 1610-591**

All applicants to the Master of Architecture degree must attend at least two seminars during the study period and provide students with an opportunity to explore, exchange and assimilate information and specialized resources relevant to the thesis and the study development. The meeting takes place weekly with the faculty or program supervisor, as well as fellow students. Lectures and interdisciplinary discussions will be provided.

**1610-593: PROJECT**
**CR: 3**

The student undertakes an independent project on a research topic of theoretical and/or experimental focus under the supervision of a faculty member listed in the supervisory list of the College of Graduate Studies. The objective is to provide the student with an opportunity to integrate and apply the knowledge gained throughout the course of study in a practical problem. The student must document the project in a scientific report following standard research writing guidelines and give a public presentation to the project examination committee.

**1610-597: THESIS**
**CR: 0**

**1610-598: THESIS**
**CR: 0**

**2000-599: THESIS**
**CR: 9**