

Design Studio VII – International Urban Design and Landscaping Project

Major: ARCHITECTURE AND URBAN DESIGN

Semester 10

This design studio deals with international urban design and landscaping projects, fitting within larger urban planning contexts- in existing cities or in new cities in arid zones- which the students examine or develop on the macro-scale, depending on the situation. Students are required to design projects that comply with the principles of sustainable development.

On the micro-scale, students analyze the impact of economic, social, cultural and environmental aspects on their specific urban design and landscaping projects; they also produce all necessary site and location analysis studies and they thoroughly examine the different complex variables and activities that affect the urban designs and landscaping of their projects.

Students learn how to deal with *and* how to design multi-functional urban design and landscaping projects of high complexity on an international scale, either within existing cities or within new cities in arid zones. They employ elements of sustainable development, as well as contemporary urban design and landscaping theories, movements and technologies, which they put into practice in their designs. Students also comprehend the importance of socio-cultural sciences in urban design and learn how to analyze their impacts on their projects.

Code	No.	Course	L	E	P	ECTS
ARCH	1001	Design Studio VI – international Urban Design and Landscaping	1	6	0	12

Design Studio VII – Working Drawings

Major: ARCHITECTURE AND URBAN DESIGN

Semester 10

This design studio is closely related to “ARCH 1001 Design Studio VII”. It is the implementation of the international urban design and landscaping project. Students are required to carry out the working drawings and construction documents of the whole project or of a specific part depending on the situation.

Students work individually on their projects throughout all design stages: concept design, design development, construction drawings (including detailing up to a scale of 1:1) and tender documents, including bills of quantities and specifications, as well as implementation methods, using up-to-date knowledge for design creation, expression and interpretation on an international scale.

Students learn to work on the international scale; they are able to coordinate between the urban design and landscaping of the project and the different engineering disciplines. They learn how to prepare working drawings and construction documents for international urban design and landscaping projects.

Code	No.	Course	L	E	P	ECTS
ARCH	1002	Design Studio VII – Working Drawings	1	4	0	8

Advanced Theory of Architecture and Urban Design

Major: ARCHITECTURE AND URBAN DESIGN

Semester 10

This course aims at exploring the multi-faceted nature of modern and contemporary architectural theory. In a lecture series, issues of modern and contemporary architectural theory and their social, economic, political and aesthetic intertwining are highlighted and discussed. The course is linked to the parallel design courses and offers theoretical background to questions regarding architectural and urban design as well as issues of building construction. Students write and present a research paper about a topic of contemporary architectural theory.

Students learn to understand recent and current discussions about architectural theory and link and employ them in their own design work. In addition, their abilities of scientific text writing and critical thinking are trained and improved.

Code	No.	Course	L	E	P	ECTS
ARCH	1003	Advanced Theory of Architecture and Urban Design	2	2	0	5

Theory of Architecture and Urban Design in Arid Zones

Major: ARCHITECTURE AND URBAN DESIGN

Semester 10

As part of the arid zones line, this seminar explores climate-sensitive design strategies for arid regions by studying current regional and international examples. The seminar will start from vernacular approaches on the building scale to understand sun protection and ventilation concepts, adiabatic cooling, using thermal storage mass to allow amplitude attenuation and phase shift toward the night, shaping the building to reduce the area exposed to the sun. The students will then explore how these can be expanded to the urban scale to mediate between external and internal environments. The students will study traditional and contemporary projects to produce design guidelines for arid climates with the aim to develop energy-efficient buildings with a high thermal comfort and according neighborhood models further defined by the qualities of the public spaces they enable.

Students are aware of different multi-scalar design strategies to be applied in arid climates. Their knowledge in the field of arid architecture and urban design will be both theoretical and operational.

Code	No.	Course	L	E	P	ECTS
ARCH	1004	Theory of Architecture and Urban Design in Arid Zones	2	2	0	5

Elective Seminar II

Major: BUILDING TECHNOLOGY AND INTEGRATED DESIGN

Semester 10

List of Elective Courses:

- o History of international and modern Architecture
- o Economics and Feasibility Studies
- o Environmental Impact Assessment I, II
- o Special Programs and Strategies (Low cost housing, preservation of historical monuments) I, II
- o Architectural Criticism
- o Quality Control Systems
- o Methods of Value Engineering
- o Theory, planning and Design methods of Landscaping
- o Regional Landscape Planning
- o Natural Protectorates and National Parks
- o Architecture, Design Guidelines, New Cities
- o Architecture and City Branding
- o Sustainable Urban Development
- o Urban renewal and Urban reconstruction
- o Statistics and Quantitative Methods
- o Market Analysis for Real Estate Development
- o Advanced Urban Economics
- o Participatory Methods in Planning
- o Strategic Planning
- o International Urban Design
- o Theories and Methodologies of City Planning
- o Public Building Design: Theories and Methodologies
- o Residential Building Design: Theories and Methodologies
- o Building Reuse

Code	No.	Course	L	E	P	ECTS
ARCH	1000	Elective Seminar II	2	2	0	5

Design Studio VII – Architecture

Major: BUILDING TECHNOLOGY AND INTEGRATED DESIGN

Semester 10

This design studio concentrates on the design of a specific building typology, in this case: industrial buildings within larger urban contexts, either in existing cities or in new cities in arid zones. Students are required to design projects, which are multi-functional and multi-faceted, covering many dimensions and focusing on principles of sustainable design, as well as contemporary architecture theories, movements and technologies, while integrating renewable energies in their designs.

Students learn how to deal with a project of higher complexity (higher level of complexity than Design Studio VI). They apply sustainable design methods, suitable for existing urban contexts or for new cities in arid zones, while putting into practice the techniques of using renewable energies in their designs.

Code	No.	Course	L	E	P	ECTS
BTECH	1001	Design Studio VII – Architecture	1	6	0	12

Design Studio VI – Working Drawings

Major: BUILDING TECHNOLOGY AND INTEGRATED DESIGN

Semester 10

This design studio is closely related to “BTECH 1001 Design Studio VII”. It is the implementation of the architectural design project. Students are required to carry out the working drawings and construction documents of the industrial building. The Students work individually on their projects throughout all design stages: concept design, design development, construction drawings (including building elements detailing up to a scale of 1:1) and tender documents, including bills of quantities and specifications, as well as implementation methods, using up-to-date knowledge for design creation, expression and interpretation. The project is multi-disciplinary and the students focus on the coordination between the architectural design and the engineering design of the building.

The Students understand and apply the techniques of using renewable energies in their designs, in addition to being able to coordinate between the architectural design and the engineering design of the building and designing the details of different building elements up to a scale of 1:1. They learn how to prepare working drawings and construction documents of a complex building.

Code	No.	Course	L	E	P	ECTS
BTECH	1002	Design Studio VII – Working Drawings	1	4	0	8

Renewable Energy Technologies in Buildings

Major: BUILDING TECHNOLOGY AND INTEGRATED DESIGN

Semester 10

The world is being faced with a major challenge to alleviate the concentration of CO₂ in the atmosphere to save the earth from catastrophic implications of the continuous increase of the average temperature, due to the increase in Greenhouse Gas emissions. Renewable Energy Technology has been regarded as an alternative to fossil fuel for energy generation, and hence, helps decrease the footprint of buildings. This however, may be faced with several challenges. Renewable Energy Technologies in Buildings introduces students to the different initiatives to boost the implementation of RET in buildings in Egypt, as well as Worldwide. This also involves the critical analysis of the different initiatives and the investigation of concepts such as Energy Efficiency in the MENA region. Students will work in groups to analyze a number of case studies and build a portfolio of a number of distinguished buildings in Egypt and Worldwide, which implements RET in buildings.

By the completion of the Sustainable Building course, students are able to demonstrate understanding and knowledge of applying RET to buildings in light of the available technologies in Egypt and the region through interaction with relevant stakeholders in the field RET and Energy Efficiency in buildings.

Code	No.	Course	L	E	P	ECTS
BTECH	1003	Renewable Energy Technologies in Buildings	2	2	0	5

Elective Seminar I

Major: BUILDING TECHNOLOGY AND INTEGRATED DESIGN

Semester 10

List of Elective Courses:

- o Economics and Feasibility Studies
- o Environmental Impact Assessment I, II
- o Special Programs and Strategies (Low cost housing, preservation of historical monuments) I, II
- o Operating and Maintaining Buildings and Urban Settlements
- o Construction Project Specifications and Bids
- o Techniques of Planning, Scheduling and Control
- o Quality Control Systems
- o Tenders, Cost Analysis and Contract Management
- o Methods of Value Engineering
- o Statistics and Quantitative Methods
- o Market Analysis for Real Estate Development
- o Project Management/ Construction Management
- o Advanced Construction Methods
- o Façade Engineering
- o Light-Weight Structures
- o Uses of Renewable Energy
- o Detailing methodologies of Building Elements
- o Advanced Environmental Control Systems

Code	No.	Course	L	E	P	ECTS
BTECH	1000	Elective Seminar I	2	2	0	5