

Bachelor of Science in Architecture

Profile of the Study Program

The **GIU Faculty of Engineering** ensures the graduation of highly qualified architects with an internationally recognized education and provides a vibrant environment for research and teaching. A selected national and international faculty is committed to a curriculum with a broad range of courses, teaching content and research methods in architecture and urban design. Aligning with the department of Architecture and Urban Design of the Faculty of Engineering and Materials Science at the German University in Cairo (GUC), an excellent competence centre is to be created to support scientific, technical and economic cooperation with German and international universities, research centres, architects, specialist planners and innovation centres.

The study program **Bachelor of Science in Architecture** contributes to the university's mission in providing an anchor for cooperation with German partners and partner universities abroad through research-oriented professors and contemporary study programs. Thus, opening up new opportunities for knowledge transfer and student exchange, in order to make an important contribution to international cooperation between science and business. The overall study program objectives are:

- Offer a balanced education between science and practice that is built on contemporary curricula in collaboration with other local and international institutions
- Offer a spectrum ranging from the history and theory of architecture to aesthetics and design to the functional, technical, environmental, economic and organizational aspects of building and urban design
- Apply state-of-the-art information technology in teaching and research
- Provide an outstanding and attractive collegial environment to study, research, and work for students and staff
- Support effective collaborations with the industry and business clusters
- Develop innovative research activities within the curricula
- Maintain high work ethics

The **qualification goals** of the undergraduate study program of Architecture and are:

- Acquire skills related to academic study, critical thinking, scientific methodology, research paper writing, and presentation and communication skills
- Acquire knowledge and understand the breadth of the discipline of architectural engineering
- Build broad perspectives on the various teaching fields of the discipline of architecture and urban design, through direct integration between the design studios and other knowledge areas required for a comprehensive background
- Acquire qualified standards of specific research methods for future architects, as well as the skills of sound planning methods and strategies to apply them directly in the design processes of the different fields of architecture and urbanism
- Expand and promote the interdisciplinary and multi-cultural competence of graduates

The **teaching methodology** is based on two pillars: on the one hand, the use of transformative, grounded and reflective pedagogy and, on the other hand, a small number of participants per working group, which enhances the students' learning capacity. The maximum number per group is 25 (theory courses) and 15 (practical seminars). The teaching language is English for the entire curriculum.

With the successful completion of the study program Bachelor of Science in Architecture an important step towards the minimum requirements for **obtaining a protected professional title**. The gained 210 ECTS during the seven-semester bachelor build the core part in matching the given requirements of the International Union of Architects (UIA), facilitating the registration in national / international chambers of architects. The UIA accreditation foresees a 4-year fulltime academic education along with a 2-year supervised traineeship. Alternatively, a 5-year fulltime education meeting the given 11 criteria (a-k, Art. 46) allow an immediate UIA accreditation.

The registration in the German Chamber of Architects foresees 240 ECTS and a minimum 4-year academic study of architecture along with a minimum of 2 years of practice experience. The academic requirement of 240 ECTS can be easily reached by adding 30 ECTS to the successfully accomplished Bachelor of Science in Architecture (210 ECTS) by enrolling in further architectural studies. Further architectural studies can be accomplished at every other EU-based university.

These requirements correspond to the EU wide evidence of qualification and may differ slightly in the respective countries/chamber of architects.

Structure of the Study Program

In a seven-semester Bachelor's program, students acquire the core competences of architectural design from the urban scale to the constructive detail as well as the synopsis of social, ecological and economic aspects. The analytical ability to recognise problems, the knowledge of suitable strategies and the ability to implement an idea through the design of built spaces, as well as the skills of explorative and analytical thinking are the focus of the teaching.

The duration of the Bachelor of Science in Architecture is 3.5 years or 7 semesters. According with the European Credit Transfer and Accumulation System, the educational program corresponds with the accumulation of 60 credit points per academic year or 210 ECTS credit points for the entire three and a half-year program.

Semester 1 to 6:

Design Studio / Building Construction / History and Theory of Architecture / Visual Design / Urban Design / Engineering & Management / English & Academic Study Skills

Semester 7:

Bachelor's Thesis Project / Bachelor Seminar / In-Depth Electives

To graduate, the student must successfully prepare and defend a bachelor thesis (design project and research report which is equivalent to 12 ECTS), in 16 weeks; a Bachelor Seminar (which is equivalent to 10 ECTS) and must successfully accomplish several In-depth Electives equivalent to 8 ECTS points. The acquisition of ECTS credit points requires the successful completion of course requirements according to its nature and learning objectives.

The vertical structure of the curriculum of the architecture program is based on the logic that design classes should have the highest priority in every single semester, and each semester starts with content-related design/construction courses. Here students have a choice of different design studios offered on different topics. All other courses are considered equally important to support knowledge of a building's aesthetics and function, construction, mathematical, structural and engineering issues, building physics, material and tectonics/structural relations, physical and social/historical context. In addition to the clear weighting of the individual courses, the program demonstrates a plausible continuity of subjects throughout the course of the bachelor.

The horizontal structure of the curriculum; Analogous to the previous, the curriculum resorts to the horizontal study structure. Each individual semester focuses on current topics and their relationships to each other. It is about structuring the essential learning outcomes that each student must achieve before moving on to the next step(s)/semester.

Fields and competences of the study program	No of Modules	ECTS
Design Studio DS - competences: - architectural spatial design based on site, function, aesthetics - analysis social and environmental impact of designs in their specific context, physically and socially - architectural materiality, and technical drawing - presentation skills and story telling	2	77
Building Construction BC - competences: - building construction - fundamentals of material technology - learning of relationship between mathematical, structural and engineering understanding - technical evaluation of building design alternatives with regards to - practical building physics - basics of building services engineering issues and energy-efficient building - life cycle assessment - environmental classification	3	44
History and Theory of Architecture - competences: - articulate histories of visual production - develop abilities to critically think by analysing works of art and architecture their meaning, circumstances and production - learn to connect design strategies based on composite evidence, of visual, historical and contextual - explain design principles in relationship to the history and theory of architecture - mastering basics of surveying and measurement survey	2	15
Visual Design - competences: - employ traditional means of representation, computer-aided design, digital and physical modelling and fabrication to develop and communicate design - articulate, present and discuss design proposals in verbal, written and graphic form	4	39
Urban Design - competences: - understand practice and historic-related urban development - develop context-oriented design approaches - further development and understanding of trends in the urban realm - understand ecological, social and socioeconomic issues - planning and building law	2	15
Project-Management and Legislation - competences: - civil and contract law - learning of relationship between mathematical, structural and engineer understanding - inclusion of management and engineering practices into design approaches - holistic understanding of architectural design-related realisation processes - acquisition of in-depth knowledge through electives	2	14
English & Academic Study Skills - competences: - mastering of the English language - applying scientific methodologies on research tasks - expressing critical reflection on behalf of presentation techniques	1	6

Total of 210 ECTS

Curriculum

L = Lecture, E = Exercise/Tutorial or Practical (all in contact hours)

1 st Semester					
Code	No	Module / Course	L	E	ECTS
ARCH	B101	Design Studio DS1 Introduction to Architectural Design	1	4	6
ARCH	B102	Building Construction BC1	1	2	4
ARCH	B103	History of Architecture 1	1	2	3
ARCH	B104	Theory of Architecture 1	1	2	3
ARCH	B105	Visual Design in Architecture, Freehand Drawing, Modelling and Communication 1	1	4	9
MATH	B106	Basics of Mathematics in Design and Structural Analysis in Construction	2	2	3
HUMA	B102	Critical Thinking and Scientific Methodology	0	2	2
Total			7	18	30

2nd Semester					
Code	No	Module / Course	L	E	ECTS
ARCH	B201	Design Studio DS2	1	4	8
ARCH	B202	Building Construction BC2	1	4	5
ARCH	B203	History of Architecture 2	1	2	3
ARCH	B204	CAAD/CAM Fundamentals 1: Freehand Drawing, Modeling and Communication	1	4	6
ARCH	B206	Introduction to Urban Design	1	2	3
ARCH	B208	Building Physics – Focus on Skeleton Construction	2	2	3
HUMA	B202	Communication and Presentation Skills	0	2	2
Total			7	20	30

3rd Semester					
Code	No	Module / Course	L	E	ECTS
ARCH	B301	Design Studio DS 3	1	6	8
ARCH	B302	Building Construction BC3 + BSE (Building Service Engineering)	1	4	5
ARCH	B303	History of Architecture 3	1	2	3
ARCH	B304	CAAD/CAM Fundamentals 2: Freehand Drawing, Modeling and Communication	1	4	6
ARCH	B306	Basics of Urban Sociology	2	1	3
ARCH	B308	Building Physics – Focus on Massive Construction	2	2	3
HUMA	B302	Research Paper Writing	0	2	2
Total			8	21	30

4th Semester					
Code	No	Module / Course	L	E	ECTS
ARCH	B401	Design Studio DS 4	1	6	9
ARCH	B402	Building Construction BC4	1	4	6
ARCH	B403	Theory of Architecture 2	1	2	3
ARCH	B404	CAAD/CAM Advanced Course 1: Freehand Drawing, Modeling and Communication	1	4	6
ARCH	B406	Theory in Urban Design	2	1	3
ARCH	B408	Building Legislation	1	4	3
Total			7	21	30

5th Semester					
Code	No	Module / Course	L	E	ECTS
ARCH	B501	Design Studio DS 5	1	6	12
ARCH	B502	Building Construction BC 5	1	4	6
ARCH	B503	Working Drawings 1 (Integrated in DS5)	1	4	3
ARCH	B504	CAAD/CAM Advanced Course 2	1	4	3
ARCH	B506	Sustainable Urban Development	2	1	3
ARCH	B508	Ecology and Environmental Control Systems	1	2	3
Total			7	21	30

6th Semester					
Code	No	Module / Course	L	E	ECTS
ARCH	B601	Design Studio DS 6	1	6	12
ARCH	B602	Building Construction BC6	1	4	6
ARCH	B603	Working Drawings 2 (Integrated in DS6)	1	4	3
ARCH	B604	Visual Design in Architecture, Freehand Drawing, Modelling and Communication 2 (Integrated in the Design Studios)	1	2	3
ARCH	B606	Basics of Urban Economics	2	1	3
ARCH	B608	Project and Construction Management, Practice and Contracts	1	2	3
Total			7	19	30

7th Semester					
Code	No	Module / Course	L	E	ECTS
ARCH	B701	Bachelor Seminar + Field Trip	2	6	10
ARCH	B702	Bachelor Thesis (Project and Report)	2	12	12
ARCH	B709	In-depth Elective	0	2	8
Total			4	20	30