

BSc in Constructing Architecture

Constructing Architecture is a 210 ECTS study programme. The first part is a 90 ECTS course-based programme taught through distance-learning. The second part is a 120 ECTS project-based programme. After graduation the student will receive a BSc degree in constructing architecture and qualify for the professional title Constructing Architect (Icelandic: byggingafræðingur).

The programme is practically orientated, rooted in the construction industry and related to both the design and the construction process. There is an emphasis on preparing students to plan, manage, coordinate and implement the design of structures, construction management at construction sites, quality management and project management of small and large projects within the construction industry. Students are trained in solving practical design projects where teamwork and good communication is important. Students use computer-aided methods for design, calculations, scheduling and management as they solve realistic problems under the guidance of teachers with practical experience.

The main objective of the study program is to graduate students capable of handling diverse jobs within the building industry, such as building design, construction management, supervision at construction site, quality control and building inspection.

The core elements of the program are: Constructing architecture; Planning, management and law; Structural mechanics; Installations and building physics; Communication and group work; Computer aided drawing (CAD) and Building information management (BIM).

Upon completion of the BSc programme in Constructing Architecture, a total of 210 ECTS credits, students should have achieved the following learning objectives.

KNOWLEDGE

Upon graduation the student shall have gained general knowledge and understanding of:

- construction technology and construction architecture.
- basic actions on buildings and the load bearing capacity of simple structures, building physics, building installation design, surveying, geotechnical issues and characteristics of common building materials such as concrete, wood and steel.
- computer aided drawing, including the methods and tools that are in common use, both for two and three dimensional modelling, such as AutoCAD and Revit.
- building information modelling (BIM) methodology, the main BIM applications and the tools used in a coordinated BIM design process.
- project management and the methods and tools commonly used for management tasks and planning, such as MS Project.
- quality assurance and quality control systems.
- the municipal planning and building administration.
- the provisions of Icelandic laws, regulations , standards and ethics relating to the construction industry.
- the proper procedures in developing building design projects and making design and tender documents for both new constructions and maintenance projects.
- the bidding procedures for construction projects as well as the laws, regulations and standards that should be followed.
- the basic financial issues, administration, and operational safety related to the management of smaller companies in the construction industry.
- facility management.
- environmental aspects and green building design .
- communication techniques, group work and management.

SKILLS

Upon graduation the student shall have gained skills to be able to:

Disciplinary skills

- apply BIM methodology and work with design software, such as AutoCAD and Revit/BIM.
- make architectural drawings and drawings of building details according to standards.
- draft the size and design of simple structural elements and building parts.
- draft the size, make and location of simple water , heating and sewage utility systems.
- utilise basic soil mechanics to draft geotechnical solutions for traditional construction projects.
- identify and assess building damage and deterioration, and provide maintenance plans based on professional expertise.
- record and perform basic measurements at the work site for common building- and earthwork projects.
- prepare tender documents, offers, project plans and cost estimates for the most traditional construction projects and evaluate plans prepared by others.
- use methods of project and construction management to organize, manage and supervise the construction of buildings and roads.
- do the appropriate accounting and calculations relating to administration, salaries, withholding tax, cash flow, indexation and bonds for small businesses.
- apply their knowledge in practical management, administration and operational safety of small industrial and production companies.
- integrate their knowledge to analyse problems within the field of construction architecture and evaluate the need for expert assistance.

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| Personal skills | <ul style="list-style-type: none"> • express themselves through speech and writing, as well as present and share their knowledge in a methodical and professional manner. • apply their practical knowledge to solve technical problems. • write technical reports and perform inspections. • apply technical methods in a systematic way to collect and assess information and design data required to prepare and outline projects. • use independent and effective procedures in solving projects within their field of expertise. • integrate subjects within construction architecture to solve various problems and tasks within the building industry. • present possible solutions and results in a professional manner. |
| Interpersonal skills | <ul style="list-style-type: none"> • work effectively with a group of people, within or outside the field of study, and share their knowledge and skills in a clear and concise manner to the group. • collect information to solve problems by using personal and professional relationships, libraries, search engines as well as other sources of knowledge. • use freehand sketches for explanation and communication with colleagues. • introduce technical challenges with the aid of appropriate methods and tools. • associate with owners, designers, consultants, developers, employers and employees, in accordance with laws and regulations as well as code of conduct within the industry. • identify and resolve design and technical challenges by systematic analysis and comparison of the available options. |

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| COMPETENCE | |
| Upon graduation, the student should be able to utilise the knowledge and skills he has acquired to: | |
| | <ul style="list-style-type: none"> • undertake common and traditional technical tasks in the design of buildings alongside building planners, architects and engineers. • work independently and in interdisciplinary teams to design structures from an original idea through the construction period and until delivery. • work on supervision and monitoring of projects in the construction industry. • perform general production and maintenance work in the construction industry. • manage small businesses in building industry, such as design firms and construction companies. • assess the need for external expertise for projects within the disciplines covered in the construction architectural studies. • provide a multidisciplinary perspective on design proposals and construction projects. • pursue further education, either through lifelong learning or towards a more advanced degree. |