Note:

The following curriculum is a consolidated version. It is legally non-binding and for informational purposes only.

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Curriculum for the **Bachelor's Programme Civil and Environmental Engineering** at the University of Innsbruck

§ 1 Qualification Profile

(1) The Bachelor's Programme Civil and Environmental Engineering at the University of Innsbruck is grouped among the studies of engineering sciences.

(2) The field of civil engineering covers a wide range of subjects from feasibility studies, planning, construction design and analysis to the realization, operation, maintenance and renovation of constructions like buildings, bridges, transport infrastructure, water supply facilities and power stations. Due to the important role attributed to the protection of the environment and the protection against natural hazards, the course of studies also focuses on the civil engineering-related disciplines of environmental engineering like traffic planning, flood and avalanche protection, protection against noise, and the treatment of waste water and solid waste.

(3) The construction industry comprises a wide range of activities and is therefore a major contributor to the economic performance and well-being of any country. This variety of activities and the close interaction of civil and environmental engineering with natural sciences, economics and law, and the rapid advances in construction and environmental technologies make the training of students all the more demanding.

(4) The Bachelor's Programme Civil and Environmental Engineering at the University of Innsbruck aims at developing and promoting essential fields of competence, i.e.

1. Scientific skills
   a) through in-depth training in the basic principles and methods of natural sciences,
   b) by promoting analytical, interdisciplinary and networked thinking and the ability of students to think critically,
   c) by promoting abstraction and modelling skills;
2. Engineering skills
   a) by promoting students' understanding of complex interrelations and engineering problems,

b) by developing expertise in solving core tasks of engineering practice,

c) by realising the creative potential of students to solve complex practical problems independently,

d) by imparting modern IT, management and presentation training;

3. Soft skills

a) by developing teamwork skills,

b) by acquiring further knowledge in foreign languages,

c) by developing an interest in life-long learning and further personal education.

(5) Graduates of the Bachelor's Programme Civil and Environmental Engineering at the University of Innsbruck are able to work in the fields mentioned above, and they are qualified for positions in engineering and for a relevant master's programme to deepen their knowledge acquired in the bachelor's programme.

§ 2 Scope and duration

The Bachelor's Programme Civil and Environmental Engineering covers 180 ECTS-Credits with a duration of six semesters, taking a workload of 30 ECTS-Credits per semester as a basis. One ECTS-Credit equals a workload of 25 hours. One semester hour (in the following: SSt) equals the number of teaching units of 45 minutes multiplied by the number of teaching weeks during the semester. Compulsory modules, amounting to 172.5 ECTC-Credits and one elective module, amounting to 7.5 ECTS-Credits, are to be taken. The compulsory modules comprise 122 SSt and the elective module comprises 22 SSt.

§ 3 Types of courses and maximum number of participants

(1) Lecture (VO)

Lectures serve to convey content through lecture presentations and explanations supported by examples and demonstrations. Interaction between students and the lecturer is to be encouraged.

(2) Practical course (UE)

1. Practical courses enable students to put into practice the material learned in the corresponding lecture; they also offer the opportunity to work independently on study exercises. Depending on the educational objective, these exercises can take the form of calculations, constructions, planning, programming, presentations and management tasks, laboratory work or any combination of these.
2. Practical courses are courses with continuous performance assessment.
3. The maximum number of participants is in general 30, for laboratory and equipment courses and courses with bachelor's thesis the maximum number is 15.

(3) Lecture with practical elements (VU)

1. VU courses are a combination of lecture and practical course, providing flexibility so that the choice of delivery, by lecture or practical course, depends on the requirements of the content to be taught. If the group has to be divided for the tutorial because of the number of participants, then typically in VU courses 50% of the hours are used for the lecture, and 50% for the practical course.
2. VU courses are courses with continuous performance assessment.
3. In VU courses the maximum number of participants is 30 for the practical course part; for laboratory and equipment courses 15.

(4) Seminar (SE)

1. Seminars serve to introduce scientific methods and provide an introduction to discourse in the field. Students have to work on a given topic/project by means of scientific methods. Participants are to make independent oral and/or written contributions.
2. Seminars are courses with continuous performance assessment.
3. The maximum number of participants is 30.

§ 4 Modules (Title, Type, Description, Course Content)

(1) The compulsory modules including the bachelor's thesis cover 172.5 ECTS-Credits. The following compulsory modules are to be taken:

1.	**Compulsory Module: Construction Economics and Projects Management**	**h**	**ECTS-Credits**
a.	**VO Construction Engineering and Economics 1** Organisation of construction sites, construction contract; tendering procedure, tender and award of the contract; introduction to cost accounting; pricing of construction work; contract administration; accounting regulations and escalation; controlling and back analysis of cost;	3	4.5
b.	**UE Construction Engineering and Economics 1** Exemplification and exercise tasks in small groups; learning of technical language; basic knowledge in tendering procedure, calculation, contract law, offers, costing in construction and bill of quantities;	2	2.5
c.	**VO Project Management and Interdisciplinary Planning 1** phases of project management are discussed in detail; examples show the reality of project phases. Presentation starts in the phase of project development and further goes on to all other phases through project finish;	2	3
d.	**UE Project Management and Interdisciplinary Planning 1** Economic and organizational aspects of project management, structure of teamwork, examples of project management and project steering, example cases of project situations and their analysis, examples of planning processes and controls, examples of project phases, analysis of project closure situations;	2	2.5
	Total	**9**	**12.5**
	Learning Outcomes: Mastery of the basics of the subject area construction operations, construction economics and project management; working on the main problems of construction on building sites; getting to know the most important building and business connections and explaining larger problem issues of whole projects;		
	Prerequisites: none		

2.	**Compulsory Module: Structural Analysis**	**h**	**ECTS-Credits**
a.	**VO Structural Analysis** Planning and installation of beam structures; calculation of statistically determinate beams; calculation of statistically indeterminate beams (force and displacement method); influence lines; second order theory; linear calculation of plane loadbearing structures;	4	6.5

b.	**UE Structural Analysis** The exercises intend to train the ability to analyse and calculate beam structures; introduction to the application of a frame programme for the implementation of static calculations;	2	3.5
	Total	**6**	**10**
	Learning Outcomes: Mastery of static calculation processes for loadbearing poles whether or not computer-assisted and the knowledge from the loadbearing of beams and flags as the basis for calculating and constructing buildings in the framework of the applied subjects of constructive engineering;		
	Prerequisites: none		

3.	**Compulsory Module: Concrete and Masonry Construction**	**h**	**ECTS-Credits**
a.	**VO Concrete Structures 1** Basic knowledge of designing and dimensioning reinforced concrete structures; knowledge of theoretical background of designing concrete structures; ultimate limit state design of concrete structures (flexural-, shear, torsion- and normal force capacity); serviceability limit state of concrete structures (deflection, crack width, stresses and strains);	4	6
b.	**UE Concrete Structures 1** Presentation of the calculation of concrete structures and application examples and exercises of calculation, construction and planning in terms of the building practice;	2	2.5
b.	**VU Masonry Structures** Basics of the design of masonry structures as well as practical implementation with exercise examples;	1	1.5
	Total	**7**	**10**
	Learning Outcomes: Mastery of the main fundamentals of the measurement and construction of the load-bearing components made from concrete and masonry; the calculation takes into consideration their physical and geometrical non-linear behaviour;		
	Prerequisites: none		

4.	**Compulsory Module: Strength of Materials**	**h**	**ECTS-Credits**
a.	**VO Strength of Materials 1** Basics of elasticity theory (kinematic, kinetic and constitutive relationships); linear beam theory (internal force variables, stress analysis, elastic curve);	3	4
b.	**VO Strength of Materials** 2 Principles of virtual work; principles of virtual work applied to beam theory; stability problems (flexural buckling); theory of strength; nonlinear elastic and inelastic material behaviour; plastic hinge analysis; limit theorems of plasticity theory;	3	3.5
c.	**UE Strength of Materials 1** Calculations of elastic theory and linear beam theory are demonstrated and instructions for independent work on such problems are given;	2	2.5

d.	**UE Strength of Materials 2** The course follows the lecture course on "Strength of Materials 2"; computational methods for solving simple problems of linear beam theory, viscoelasticity- and plasticity theory are demonstrated and instructions for independent work on such problems are given;	2	2.5
	Total	**10**	**12.5**
	Learning Outcomes: Mastery of the determination of the tensions and malformations of deformable solid bodies, especially of poles, following static and thermal pressures; these findings form the basis for proving the serviceability and load-bearing capacity of building constructions;		
	Prerequisites: none		

5.	**Compulsory Module: Geotechnical Engineering**	**h**	**ECTS-Credits**
a.	**VO Soil Mechanics and Foundation Engineering** Formations and composition of soils, soil groups; soil classification, grain size distribution, index tests; groundwater, percolation, permeability, capillarity; percolation, potential theory, frost heave; stresses in soil, effective stress, pore pressure, Mohr-circles, stress fields; settlements; consolidation; shear strength, direct shear test, triaxial test; earth pressure; underground amelioration (replacement, compaction, pre-loading, grouting, freezing);	4	6
b.	**UE Soil Mechanics and Foundation Engineering 1** Individual solving of fundamental tasks of soil physics, soil mechanics and foundation engineering based on the lecture "Soil Mechanics and Foundation Engineering" and further literature; focus on soil mechanical methods;	1	1.5
c.	**UE Soil Mechanics and Foundation Engineering 2** Individual solving of fundamental tasks of soil physics, soil mechanics and foundation engineering based on the lecture "Soil Mechanics and Foundation Engineering" and further literature; focus on foundation engineering;	2	2.5
d.	**VO Geotechnical Engineering** Geological processes and their influence on solid and loose rocks; possibilities and limits of geological-geotechnical underground models and prognoses; geological, hydrogeological and geotechnical importance of pore, crevice and karst groundwater; spring and groundwater evidence;	2	2.5
	Total	**9**	**12.5**
	Learning Outcomes: Mastery of the basics of soil mechanics and of foundation work, origin of the soil; soil behaviour; main types of soil mechanics and of the foundation work evidence and planning principles;		
	Prerequisites: none		

6.	Compulsory Module: Building Construction and Construction Physics	h	ECTS-Credits
a.	**VO Basics for Structural Design** Introduction to the basics of structural design (historical, cultural and contemporary technical facts about building design). Designing and building a structural bearing model provides insights into structural building processes.	2	2.5
b.	**VO Building Physics 1** Based on physical fundamentals, the course deals with the field of heat (temperature, gas kinetics, laws of thermodynamics, heat transport), constructional heat insulation (parameters, heat demand, heat pump), humidity (air humidity and material moisture, water vapour transport, condensation) and acoustics (oscillations, waves, sound propagation, room acoustics, airborne sound and impact sound, sound transmission);	2	3
c.	**UE Building Physics 1** Demonstration of building physical design of heat- and sound-protecting building components and rooms as well as instructions for independent work on such calculations are given;	2	2.5
d.	**VO Building Construction 1** Presentation of construction processes and building constructions as well as construction systems, methods and materials under aspects of function, conditions and economic efficiency; dealing with detailed solutions in building construction and simple house-technical equipment of buildings;	2	2.5
e.	**UE Building Construction** 1 Guidance for standard conforming technical drawings of submitted-designed- and detailed plans as well as manually and CAD-supported creation of construction drawings; individual creation of standard conforming technical drawings by the students;	2	2
	Total	**10**	**12.5**
	Learning Outcomes: Mastery of the basics of building construction, theory of building physics through the mediation of the theoretical basis and practical exercises;		
	Prerequisites: none		

7.	Compulsory Module: Wood Building Design and Construction	h	ECTS-Credits
a.	**VO Timber Construction 1** Basics of timber construction; historical, economic and ecological aspects of timber construction including properties of wood and wood products; design criteria for timber construction systems as well as basic connections;	2	2.5
b.	**UE Timber Construction 1** Introduction into modern timber construction, use of timber and timber products, basic calculation of building elements and bonding systems; presentation of calculation models for load capacity analysis and usability with a help of concrete examples;	2	2.5
	Total	**4**	**5**

	Learning Outcomes: Mastery of the basics of wood-building; material qualities, completion techniques, application possibilities of wood and wood production in constructive civil engineering; measurement of basic building parts like balconies and pillars;
	Prerequisites: none

8.	**Compulsory Module: Hydraulics and Hydraulic Engineering**	**h**	**ECTS-Credits**
a.	**VO Hydraulics 1** Fundamentals of fluid mechanics (tasks of fluids, hydrostatics, hydrodynamics of ideal and real fluids, pipe and channel hydraulics);	1	1.5
b.	**UE Hydraulics 1** Exercises from the field of fluid mechanics (demonstration of calculations, independent solving of practical exercises by the students);	1	1.5
c.	**VO Hydraulic Engineering** Basics from the fields of water management and hydraulic engineering (hydraulic cycle, hydrology, river engineering, hydroelectric installations, barrages, material transport);	3	4.5
d.	**UE Hydraulic Engineering** Exercises from the fields of water management and hydraulic engineering (demonstration of calculations, independent solving of practical exercises by the students);	2	2.5
	Total	**7**	**10**
	Learning Outcomes: Mastery of the basics of Hydraulics and Hydrology, of the water industry and of constructive Hydraulic Engineering; these findings form the basis of the problem issues of Hydraulic Engineering;		
	Prerequisites: none		

9.	**Compulsory Module: Mathematics, Geometry and Computer Science**	**h**	**ECTS-Credits**
a.	**VO Geometric Modelling, Visualization and CAD** Axonometry, Curves and Surfaces, Freeform Curves and Freeform Surfaces, Intersections, Development of Surfaces, Projection with Elevation, Differential Properties of Curves and Surfaces;	2	3
b.	**UE Geometric Modelling, Visualization and CAD** Polyhedrons, intersection and development, ruled surfaces, mining and topographic problems;	2	2.5
c.	**VO Engineering Mathematics 1** Fundamentals in engineering mathematics: calculus (one variable), linear algebra (vector analysis, matrices, linear systems of equations, eigenvalue)	4	5.5
d.	**UE Engineering Mathematics 1** Practical course accompanies the lecture, deepening the lecture, samples, example of use from the engineering science, computer based methods to solve problems;	2	2.5

e.	**VO Engineering Mathematics 2** Fundamentals in engineering mathematics for studies of engineering sciences: differential and integral calculus (multidimensional), differential equations;	2	3
f.	**UE Engineering Mathematics 2** Practical course accompanies the lecture: deepening the lecture, calculations, example of use from the engineering science, computer based methods to solve problems;	2	2.5
g.	**VO Programming Language 1** Basic knowledge of how to use higher programming languages. Managing IT-related requirements for studies of engineering sciences;	1	1.5
h.	**UE Programming Language 1** Basic knowledge of how to use higher programming languages. Managing IT-related requirements for studies of engineering sciences;	2	2.5
i.	**VU Probability Theory and Statistics** Statistics of single and multidimensional data, basic concepts of probability, single and multidimensional random variables, important distributions, sampling theory, confidence intervals, statistical tests, basics of probabilistic safety concept; stochastic basic concepts;	2	2
	Total	**19**	**25**
	Learning Outcomes: Mastery of the basics of Mathematics, Geometry and Informatics for study programme in Engineering (Linear Algebra, Differential and Integral Equalities, Probability Theory and Statistics, illustration methods and their use in representing objects, software languages, mathematical software); these competences are needed for the studies on the one hand but on the other they are required for increasing numbers in professional practice;		
	Prerequisites: none		

10.	**Compulsory Module: Mechanics**	**h**	**ECTS-Credits**
a.	**VO Mechanics 1** Axioms of mechanics, mechanical modelling; basics of statics (single force, plane and spatial forces, equilibrium conditions, method of sections, tensions); introduction to statics of beam structures (boundary conditions, force variables, local equilibrium);	1	2
b.	**UE Mechanics 1** Demonstration of calculation and solving practical problems of the statics of plane and spatial forces independently, especially the statics of beam structures;	1	1.5
c.	**VO Mechanics 2** Hydrostatics; work, performance and potential energy of internal and external forces; kinematics; principle of virtual work; dynamic basic law, principle of impulse and momentum;	3	4.5
d.	**UE Mechanics 2** Demonstration of calculation and solving practical problems of statics, kinematics and dynamics of solid and fluid bodies; implementation of mechanical procedures to solve practical problems of statics and dynamics;	2	3

e.	**VO Mechanics 3** Vibration; energy methods of dynamics of solid bodies and flowing media; approximation of statics and dynamics; selected issues of hydrodynamics;	2	2.5
f.	**UE Mechanics 3** Demonstration of calculation and solving practical problems of the dynamics of solid and fluid bodies, especially equations of motion according to suitable modelling and calculation of speed and pressure in flowing media;	1	1.5
	Total	**10**	**15**
	Learning Outcomes: Mastery of the principles and relations between the mechanics of solid and liquid bodies, the ability to form models and to perform basic tasks in statics and dynamics. This knowledge forms the basis of their serviceability and the loadbearing capacity of building constructions on the static and dynamic pressures and of their dimensioning;		
	Prerequisites: none		

11.	**Compulsory Module: Structural Steelwork**	**h**	**ECTS-Credits**
a.	**VO Structural Steelwork** Basics of steel- and aluminium-construction (architecture, material characteristics, mechanical properties); safety philosophy, semi-probabilistic safety concept and international standards, background information to the design standards for structures, joining technique and joint design, manufacturing and assembling;	3	5
b.	**UE Structural Steelwork** Demonstration of the procedure for the construction and dimensioning of steel structures up to intermediate difficulty; practical training and self-dependent solution of problems during the exercises by the students in the form of a project work;	2	2,5
	Total	**5**	**7.5**
	Learning Outcomes: Knowledge of completion techniques and possible applications of steel in building and the erosion in steel load-bearing structures; knowledge of which influences and qualities are to be considered in the calculations; mastery of proof of serviceability, load-bearing capacity, stability and the strength of materials;		
	Prerequisites: none		

12.	**Compulsory Module: Environmental Engineering**	**h**	**ECTS-Credits**
a.	**VO Waste and Resource Management** Fundamentals of waste management and treatment as well as resource management (Recyclables, pollutants, landfill technologies, mechanical and biological treatment, waste incineration);	2	2.5
b.	**VO Sanitary Engineering** Fundamentals of sanitary engineering (water resources, water supply, urban drainage, wastewater treatment, design according to generally accepted technical standards);	2	2.5

c.	**UE Urban Water Management** Relevant regulations and their application of design and dimension based on simple examples of water supply, urban drainage and wastewater treatment;	2	2.5
	Total	**6**	**7.5**
	Learning Outcomes: Mastery of the fundamental relations between waste and sanitary environmental engineering, particularly of the measurement and dimensionalisation of the system, using simple formula and rules and regulations;		
	Prerequisites: none		

13.	**Compulsory Module: Transportation Engineering**	**h**	**ECTS-Credits**
a.	**VO Fundamentals of Railway Engineering** Fundamentals of railway vehicles, driving dynamics, calculation of running time, aligning tracks, permanent way, designing of train stations for passenger transportation and movement of goods, signalling equipment, defence electronic;	2	2.5
b.	**UE Fundamentals of Railway Engineering** Practice of the calculation of running time and energy consumption by passenger trains and by freight trains, aligning tracks, switches and crossovers;	2	2.5
c.	**VO Infrastructure – Road** Basics of vehicle movement, road cross-section, layout of roads, non-grade-separated junctions, grade-separated junctions, streets, facilities for stationary traffic, bicycle traffic, pedestrian traffic, traffic safety, environmental effects, economic analysis, road construction and road maintenance;	2	2.5
d.	**UE Infrastructure – Road** Introduction, basics of vehicle movement, road cross-section, layout of roads, non-grade-separated junctions, grade-separated junctions, streets, facilities for stationary traffic, bicycle traffic, pedestrian traffic, traffic safety, environmental effects, economic analysis, road construction and road maintenance;	2	2.5
e.	**VO Traffic Planning and Traffic Engineering** Traffic concepts, traffic elevation, traffic analysis, traffic prediction, traffic models, traffic control, traffic concepts, inactive traffic;	2	2.5
	Total	**10**	**12.5**
	Learning Outcomes: Mastery of the fundamental relations between waste and sanitary environmental engineering, particularly of the measurement and dimensionalisation of the system, using simple formula and rules and regulations;		
	Prerequisites: none		

14.	Compulsory Module: Surveying	h	ECTS-Credits
a.	**VO Surveying** Basic knowledge and understanding of the role of surveying for civil engineering (cadastre, land register, land use plan, development plan); coordinates and reference systems; instruments and methods of measurement; engineering surveying;	2	2
b.	**UE Surveying 1** Introduction to geodesic software; "rmGeo": o idea of the software, geometric calculation tools, transferring measurement data to the computer, evaluating measured data, transferring points to measuring instruments, preparations for creating plans, support of parallel course;	1	1
c.	**UE Surveying 2** Tachymeter-theodolite: installation and introduction of the device, measurement exercises; surveying basics, data flow of measurement devices to the PC, evaluation of the measurement to the final plan; route surveying, profile measurement, graphic field book, levelling; access to cadastre data;	2	2
	Total	**5**	**5**
	Learning Outcomes: Mastery of basic knowledge of surveying for the use of engineering (creation and assessment of planning fundamentals, basic knowledge of surveying in the building industry);		
	Prerequisites: none		

15.	Compulsory Module: Building Materials	h	ECTS-Credits
a.	**VO Construction Materials 1** Description of material structure (chemical principles, atomic models, atomic bonds, microstructure, crystalline, amorphous); properties of materials (state and state variables, mechanical, thermal, electrical properties); processes in materials (chemical reactions, phase transitions)	2	3
b.	**VO Construction Materials 2** Fundamental material values of elastic and plastic material behaviour. Phenomena of time-, temperature- and structure-dependent material properties;	1	2
c.	**UE Construction Materials 2** Material- and measurement-related exercises in small groups (sample preparation, measurement performance, data evaluation, reporting);	2	2.5
	Total	**5**	**7.5**
	Learning Outcomes: Mastery of the basics of material technology; production and processing procedures of the most important building materials, determination of the basic parameters of materials;		
	Prerequisites: none		

(1) An elective module corresponding to 7.5 ECTS-Credits must be passed, whereby in both fields according to no. 1 and 2 courses corresponding to at least 2.5 ECTS-Credits must be passed.

	Soft Skills 1 (SK1)	h	ECTS-Credits
1.	**Scientific-technical skills**		
a.	**VU Construction Design (Advanced)** Instruction of basic knowledge and techniques for designing building plans with CAD programs according to ÖNORM, DIN and ISO codes (lines, faces, measuring, content of drawing);	2	1
b.	**VU CAD** Basic commands, drawing organization, layers, blocks, dimensions, simple 3D-objects, modelling examples;	2	1
c.	**VU Chemistry (Advanced)** Fundamentals of Chemistry (structure of matter, chemical compounds, chemical reactions); chemistry in civil engineering: water, environment, inorganic and organic materials, chemical interactions and their effects on the durability of materials;	2	1.5
d.	**VU Introductory Computer Science** Networks and internet, hardware (PC, workstation, periphery), operating systems, data transfer and communication, introduction to HTML;	2	1
e.	**VU Introductory Mathematics** Repetition of basic knowledge and skills from high school mathematics; training of computational skills from elementary algebra to differential and integral calculus;	2	1.5
f.	**VU Fundamentals of Mechanics** Basic concepts of mechanics, kinematics of lineal motion, vectors, power and groups of power, balance, calculation of simple static issues; Hooke's law; deformations; work and potential;	2	1.5
g.	**VU Basic Physics for Civil Engineers** General basics in physics (measurement and measuring units, kinematics, dynamics, movement, work, energy, momentum, performance), basics of electrical engineering, thermodynamics;	2	1.5
2.	**Skills from other Disciplines**		
a.	**UE Foreign Language 1** In order to promote personal development and as an additional qualification for professional practice, students can choose a foreign language courses at the International Language Centre (isi);	2	2.5
b.	**VO Gender Issues in Engineering 1** Fundamentals of gender aspects (terminology, historical development), gender aspects in organizations, companies and institutions, especially in the technological sector;	2	2
c.	**VO Legal Bases for Building Industry** Acquisition of the fundamentals of legal matters relevant for the realization of building projects; basic legal concepts (constitution, legal system etc.); fundamentals of laws on administrative procedure; insight into the most important laws governing substances and materials for the construction industry in Austria (land register etc.); standards in Austria; fundamentals of contract and tendering law in the field of construction;	2	1

d.	**UE Social Competence 1** In order to promote personal development and as an additional qualification for professional practice, students can choose one of the following courses at the Institute of Communication at Work and Psychotherapy: teamwork, optimization of cooperation, team development, presentation, moderation, leading of meetings, conflict management, conversation skills 2 (group discussions);	2	2,5
	Total	**-**	**7,5**
	Learning Outcomes: Mastery of the basic knowledge of natural and technical science as well acquisition of the legal, language and social competences as the basis of the Bachelor's Programme in Building and Engineering Science;		
	Prerequisites: none		

§ 5 Studies Induction and Orientation Stage

(1) Within the scope of the Studies Induction and Orientation Stage, which takes place in the first semester, the following course examinations must be passed:

1. Mathematics 1 (VO 4, 5.5 ECTS-Credits, § 4 par. 1 no. 9 lit. c),
2. Mechanics 1 (VO 1, 2.0 ECTS-Credits, § 4 par. 1 no. 10 lit. a),
3. Basics for Structural Design (VO 2, 2.5 ECTS-Credits, § 4 par. 1 no. 6 lit. a).

(2) Successful passing of all exams of the Studies Induction and Orientation Stage entitles to passing all further courses and examinations as well as to writing the Bachelor's Thesis.

(3) Before successful completion of the Studies Induction and Orientation Stage courses amounting to 20 ECTS-Credits may be passed from the following modules:

a. Geotechnical Engineering (§ 4 par. 1 no. 5 lit. d),
b. Hydraulics and Hydraulic Engineering (§ 4 Abs. 1 Z 8 lit. a und b),
c. Mathematics, Geometry and Computer Science (§ 4 par. 1 no. 9 lit. a, b, d, g and h),
d. Mechanics 1 (§ 4 par. 1 no. 10 lit. b),
e. Environmental Engineering (§ 4 Abs. 1 Z 12 lit. a),
f. Surveying (§ 4 par. 1 no. 14 lit. a and b),
g. Construction Materials 1 (§ 4 par. 1 no. 15 lit. a),
h. Soft Skills 1 (§ 4 par. 2 Z 1 lit. a to g and no. 2 lit. a to d).

§ 6 Bachelor's Thesis

(1) A bachelor's thesis amounting to 7.5 ECTS-Credits is to be completed. It is to be completed in addition to successful completion of the allocated course. The bachelor's thesis is to be presented in the seminar and submitted in paper form and in digital version to the lecturer of the seminar. The form of the submission of the digital version is to be determined by the Director of Studies.

(2) The bachelor's thesis is to be completed as part of one of the courses with continuous assessment mentioned in Z 1 to 12.

	Course	Module
1.	Building Physics 1	CM 6
2.	Soil Mechanics and Foundation Engineering 2	CM 5
3.	Infrastructure - Road	CM 13
4.	Construction Material 2	CM 15
5.	Construction Engineering and Economics 1	CM 1
6.	Timber Construction 1	CM 7
7.	Fundamentals of Railway Engineering	CM 13
8.	SStructural Steelwork	CM 11
9.	Concrete Structures 11	CM 3
10.	Project Management and Interdisciplinary Planning 1	CM 1
11.	Urban Water Management	CM 12
12.	Hydraulic Engineering	CM 8

§ 7 Allocation of places in courses with a limited number of participants

In courses with a limited number of participants, especially in allocating and supervising bachelor's thesis, course places are allocated as follows:

1. Students for whom the study duration would be extended due to the postponement are to be given priority.
2. If the criteria in Z 1 do not suffice, first, students for whom this course is part of a compulsory module are to be given priority, and second, students for whom this course is part of an elective module.
3. If the criteria in Z 1 and 2 do not suffice, the available places are drawn by random.

§ 8 Examination regulations

(1) The completion criteria as well as the methods of evaluation, mentioned in Para 2 to 5, are to be defined by the instructor before the start of the course.

(2) Positive completion of a lecture in a compulsory or elective module is to be effected by an examination at the end of the course.

Method of examination: written or oral examination;

(3) Positive completion of a practical course in a compulsory or elective module is to be effected by continuous assessment during the course.

(4) Positive completion of a lecture-practical course in a compulsory or elective module is to be effected by continuous assessment during the course for the practical part and final assessment at the end of the course for the lecture part.

Method of examination: practical part: continuous assessment, lecture part: written and/or oral assessment;

(5) Positive completion of a seminar in a compulsory or elective module is to be effected by continuous assessment during the course and final assessment at the end of the course.

Method of examination: continuous assessment and written and/or oral assessment;

(6) A compulsory module is to be completed by successful assessment of all compulsory courses of the relevant module.

(7) The elective module is to be completed by successful assessment of all courses required for submitting the requested number of ECTS-Credits according to § 4 Para 2.

(8) For writing the bachelor's theses, the following requirements are to be fulfilled:

1. The completion of all bachelor's theses according to § 6 Para 1 requires successful completion of the modules

   a) *Strength of Materials* (§ 4 Para 1 Z 4)

   b) *Mathematics, Geometry and Informatics* (§ 4 Abs. 1 Z 9)

   c) *Mechanics* (§ 4 Abs. 1 Z 10).

2. For bachelor's theses within the context of the course according to § 6 Para 2 Z 7, successful completion of the module Structural Analysis (§ 4 Abs. 1 Z 2) is to be proven in addition to the requirements mentioned in Z 1.

3. For bachelor's theses within the context of courses according to § 6 Para 2 Z 6, 8 and 9, successful completion of the module *Building Construction and Building Physics (*§ 4 Abs. 1 Z 6) is to be proven in addition to the requirements mentioned in Z 1 and 2.

4. For bachelor's theses within the context of courses according to § 6 Para 2 Z 11 and 12, successful completion of the courses from *Hydraulics 1* (§ 4 Para 1 Z 8 lit. a and b) are to be proven in addition to the requirements mentioned in Z 1.

The Dean of Studies is responsible for the examination of the requirements mentioned above.

(9) For the examinations within the context of the module *Soft Skills 1* and with regard to the courses according to § 4 Para 2 Z 2 lit. a, the examination rules of the International Language Centre of the University of Innsbruck and with regard to the courses according to § 4 Abs. 2 Z 2 lit. d, the examination rules of the Institute of Communication at Work and Psychotherapy of the University of Innsbruck do apply.

§ 9 Academic degree

Graduates of the Bachelor's Programme Civil and Environmental Engineering are awarded the academic degree "Bachelor of Science", abbreviated "BSc".

§ 10 Coming into force

(1) The curriculum is effective as of 1 October 2007.

(2) §§ 3, 4 and 8 in the version published in the University of Innsbruck Bulletin of 8 June 2011, Issue 26, No 466 is effective as of 1 October 2011 and applies to all students.

(3) § 5 in the version published in the University of Innsbruck Bulletin of 8 June 2011, Issue 26, No 466 is effective as of 1 October 2011 and applies to all students beginning their degree programme as of winter semester 2011/2012.

(4) § 5 in the version published in the University of Innsbruck Bulletin of 31 May 2012, Issue 29, No 306 ceases to be effective at the end of 30 September 2014.

(5) §§ 3, 4, 5 and 8 in the version published in the University of Innsbruck Bulletin of 31 May 2012, Issue 29, No 306 is effective as of 1 October 2011 and applies to all students.

(6) § 10 par. 4 comes out of force at the end of 30 September 2014.

(7) § 5 in the version of the University of Innsbruck Bulletin of 31 May 2012, Issue 29, No. 306 comes out of force at the end of 31 December 2015.

(8) § 5 in the version of the University of Innsbruck Bulletin of 8 June 2016, Issue 38, No. 446 comes into force on 1 October 2016 and is to be applied to all students commencing their study programme as of the 2016/2017 winter semester and to all students, who have not yet passed the courses of the studies induction and orientation stage according to the previous regulations.

(9) § 8 par. 2 in the version of the University of Innsbruck Bulletin of 8 June 2016, Issue 38, No. 446 come into force on 1 October 2016 and are to be applied to all students.

§ 11 Transitional provisions

(1) Regular students who have commenced the Diploma Programme Civil and Environmental Engineering (in the version published in the University of Innsbruck Bulletin of 3 May 2002, Issue 35, No 422) before 1 October 2007 are entitled from this point in time onwards to complete the first section of this programme within a maximum of three semesters, the second section within a maximum of seven semesters, and the third section within a maximum of three semesters.

(2) If one section of the Diploma Programme Civil and Environmental Engineering is not completed within the specified time then this curriculum of the bachelor's programme will apply.

(3) For students, who have started their study programme before the 2016/2017 winter semester, the limitation of ECTS-Credits that may be passed before completion of the studies induction and orientation stage according to §5 par. 3 in the version of the University of Innsbruck Bulletin of 8 June 2016, Issue 38, No. 446 is not to be applied before 30 November 2017. After that point in time more courses and examinations may only be taken after successful completion of the whole studies induction and orientation stage.

(4) Students of the Diploma Programme Civil and Environmental Engineering are entitled to change to this curriculum of the bachelor's programme at any time on a voluntary basis.

(5) The course examinations according to the curriculum for the Bachelor's Programme Civil and Environmental Engineering in the version of the University of Innsbruck Bulletin from 23 April 2007, issue 35, no. 199, correspond to the respective course examinations of the curriculum in the version of the University of Innsbruck Bulletin from 8 June 2011, issue 26, no. 466, as follows: see appendix.

Appendix: Equivalence list

Curriculum, University of Innsbruck Bulletin from 23 April 2007, Issue 35, No 199			**Curriculum, University of Innsbruck Bulletin from 8 June 2011, Issue 26, No 466**		
§ 4 Para 1 Z 4 lit. c	Strength of Materials	UE3, 5.0 ECTS	§ 4 Para 1 Z 4 lit. c	Strength of Materials 1	UE2, 2.5 ECTS
			§ 4 Para 1 Z 4 lit. d	Strength of Materials 2	UE2, 2.5 ECTS
§ 4 Para 1 Z 9 lit. b	Geometric Modelling, Visualization and CAD	UE4, 2.5 ECTS	§ 4 Para 1 Z 9 lit. b	Geometric Modelling, Visualization and CAD	UE2, 2.5 ECTS
§ 4 Para 1 Z 9 lit. h	Programming Language 1	UE4, 2.5 ECTS	§ 4 Para 1 Z 9 lit. h	Programming Language 1	UE2, 2.5 ECTS
§ 4 Para 1 Z 14 lit. a	Engineering Survey	VO2, 2.5 ECTS	§ 4 Para 1 Z 14 lit. a	Engineering Survey	VO2, 2.0 ECTS
§ 4 Para 1 Z 14 lit. b	Engineering Survey	UE4, 2.5 ECTS	§ 4 Para 1 Z 14 lit. b	Engineering Survey 1	UE1, 1.0 ECTS
			§ 4 Para 1 Z 14 lit. c	Engineering Survey 2	UE2, 2.0 ECTS
§ 4 Para 1 Z 15 lit. c	Construction Material 2	UE4, 2.5 ECTS	§ 4 Para 1 Z 15 lit. c	Construction Material 2	UE2, 2.5 ECTS