



TECHNIK
HOCHSCHULE
MAINZ UNIVERSITY
OF APPLIED SCIENCES

Course Catalogue

Module Descriptions

2024/2025

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Overview

The School of Engineering is composed of 3 departments

- Architecture
- Civil Engineering
- Geoinformatics and Surveying

Each department offers major and minor subjects. Besides we offer additional courses, open to all incoming students, such as language courses, business creativity (e*), culture management (e), project management (e)... (*e = taught in English)

The ECTS (European Credit Transfer System) is the foundation for your individual workload. 30 ECTS credits (ECTS) is the maximum workload you should aim for. Major subjects, such as a Bachelor's thesis have 12 ECTS. Minor subjects have between 4 and 6 ECTS. If your desired study program comprises a German course (recommended), you must clarify with your home university whether these credits will be acknowledged (recommended).

Most courses are graded according to the following table. However, there are subjects for which non-graded credits will be awarded for regular, proactive participation.

Local	
1,0 – 1,5	EXCELLENT: outstanding performance with only minor errors
1,6 – 2,5	VERY GOOD: above the average standard but with some errors
2,6 – 3,3	GOOD: generally sound work with a number of notable errors
3,4 – 3,7	SATISFACTORY: fair but with significant shortcomings
3,8 – 4,0	SUFFICIENT: performance meets the minimum criteria
>4,1	FAIL: more work required before the credit can be awarded
	Tg: course

Due to unforeseen circumstances, e.g. professor illness, overlapping schedules, the course initially selected does not meet your expectations, or any other reason you can think of, we cannot guarantee that all courses will be feasible during your stay.

Therefore, please nominate at least 45 credits in your order of preference, even though you will need only 30 credits for your Learning Agreement (Please see Page 25). Please send the course selection form attached at the end of this catalogue by email to: kathrin.krechel@hs-mainz.de

International Civil Engineering

The modules presented in this course catalogue are those that we recommend for incoming students. In today's closely connected world, the benefit of working in an international environment while improving your English skills cannot be overstated. We will tailor an individual program taught in English for you. Please note that your workload should not exceed 30 ECTS. If your home university agrees, German language courses may be part of your workload.

A sample curriculum in International Civil Engineering could look like this:

First semester		Second semester	
Sustainable Built Environment/	6 ECTS	Building Physics /	5 ECTS
Physics /	4 ECTS	Solid Construction 2 /	5 ECTS
Traffic Infrastructures /	4 ECTS	Steel Construction /	5 ECTS
Solid Construction 1 /	5 ECTS	Urban Planning /	5 ECTS
International Project Management /	5 ECTS	Study Skills /	5 ECTS
Introduction to Hydrology /	6 ECTS	Facility Management /	5 ECTS
30 ECTS		30 ECTS	

Internship

12 ECTS

Students have the opportunity to participate in a practical module in which they do an internship in a local company.

We assist in finding industry partners, e.g. with

- Julius Berger International
- Heberger International
- DB Engineering and Consulting
- Astron

Aim of module:

During the internship, students acquire knowledge and skills of professional practice. This will contribute to their understanding of the technical, economic, social, and legal interrelationships in building operations.

Exam type: Written report

Requirements: None. Contract with company

Note: We recommend that exchange students interested in doing an internship to plan a full year of exchange and complete the internship during the second semester of their stay.

Building Construction

6 ECTS / 180h

Content:

This lecture will cover the following topics:

- From design to model
 - Actions and requirements
 - Forces and loads
 - Modeling of structures
- Structural systems
 - Plane structural systems
 - Spatial structural systems
 - Spatial bracing and stability
 - Design actions on structures
- Safety concept in civil engineering
 - The structure of the verification concept
 - Verification of ultimate and serviceability limit state
 - The design value of actions
 - Simplified combination rule for building construction
- Fundamentals of technical representation
 - Dimensional tolerances, module order, and dimensional order
 - Structural drawings, scale levels, drawing sizes, plan content and title block
 - Views, sectional planes, dimensioning and labelling
- Building materials
 - Classification and characteristics of building materials
 - Masonry, concrete, binders, steel, wood and wood-based materials, glass, plastics
 - Fundamentals of building physics
 - Heat and moisture protection
 - Structural fire protection
 - Sound insulation
- Interaction between structure and ground
 - Foundations and excavations
 - Foundation underpinning and dewatering
 - Working spaces
- Structural elements
 - Walls
 - Ceilings
 - Floors
 - Roofs
 - Stairs

Aim of module:

After participating in the module courses, students will be able to:

- comprehend load-bearing elements for building structures and to design buildings using both planar and three-dimensional support structures.

Exam type: 80% Written Exam 120 min and 20% assignment

Requirements: Obligatory: None. Desirable: completed preliminary internship

Offered Semester: 1

Physics

4 ECTS / 120h

Content:

The following topics will be covered in the lecture:

- Kinematics
 - Coordinates and vectors
 - Velocity and acceleration
 - Superposition of motions
 - Translational and rotational motion
- Dynamics
 - Newton's laws
 - Mechanical forces
 - Equilibrium of forces and moments
 - Stress and pressure
 - Hooke's law and elastic oscillations
 - Mechanical work, energy, and power
 - Law of conservation of energy
 - Momentum and conservation of momentum law
 - Rotational motion, angular momentum, and conservation of angular momentum
- Physical material properties
 - Density, bulk density, bulk density.
 - Stress, pressure, shear stress
 - Stress-strain diagram, Young's modulus
 - Shear modulus G
 - Transverse strain, Poisson's ratio
 - Relationship between elastic constants.

Aim of module:

After participating in the module courses, students will be able to:

- describe natural processes and mechanical material properties mathematically.
- Solve physics problems using Newtonian mechanics.
- employ conservation laws simplify mechanical problems.

Exam type: Written Exam 120 min

Requirements: none

Offered Semester: 1

Traffic Infrastructures

4 ECTS / 120h

Content:

This lecture will cover the following topics:

- Field of Road Design
 - Planning principles and processes
 - Network design
 - Basics in driving dynamics
 - Horizontal and vertical alignment, design of cross-sections
 - 3D alignment
 - Interchange and intersection design
- Field of Traffic Planning
 - Planning methodology
 - Traffic census, traffic count
 - Traffic prognosis
 - Principles of traffic flow
 - Capacity and level of service of roads
 - Design according to the German HBS

Aim of module:

After participating in the module courses, students will:

- hold basic knowledge about planning processes and road design.
- be able to design highways and motorways in horizontal, vertical, and 3D alignment as well as cross sections in detail and to perform the related calculations (axis and gradients)
- be able to design interchanges and intersections.
- be able to analyze traffic planning tasks and develop traffic concepts.
- able to prepare and perform each step to fulfill the necessary verifications in the dimensioning process for road traffic infrastructures.

Exam type: Final Exam

Requirements: None

Offered Semester: 2

Building Physics

5 ECTS / 150h

Content:

This lecture will cover the following topics:

- Sound insulation
 - Fundamentals of sound insulation
 - Vibrations, sound waves, acoustical quantities
 - Calculation of sound levels
 - Basics of indoor acoustics, Sabine's formula
 - Structural sound insulation
 - Airborne sound insulation and impact sound insulation
 - Acoustic properties of building components
 - Sound propagation outdoors, point and line sound sources
 - Eigenfrequencies of plates, coincidence effect
 - Double shell resonance and double shell sound protection
- Thermal insulation
 - Basics of thermal insulation
 - Heat transfer
 - Thermal insulation of individual components
 - Use of solar energy
 - Energy saving regulations, Annual energy demand
 - Evaluation of thermal insulation measures
- Humidity protection
 - Fundamentals of moisture protection
 - Ideal gas law, behavior of ideal gases and of vapors
 - Condensation on surfaces
 - Indoor humidity balance
 - Water vapor diffusion
 - Condensation inside the building component
 - Glaser diagram

Aim of module:

After participation in the module courses, students will be able to:

- solve problems in building physics (proven by examination) with the help of standardized calculation methods.
- determine and evaluate the sound, thermal and moisture properties of a building component and the entire building structure.

Test Performance: Written Exam 120 min

Requirements: None

Offered Semester: 2

Solid Construction I

5 ECTS / 150h

Content:

During the lectures, the following topics are presented:

- Fundamentals of the composite material reinforced concrete.
- Design principles with the inclusion of durability.
- Design methods for verifying the structural safety of reinforced concrete components (bending design, shear force design)
- System assumption and internal force determination for design in reinforced concrete structures
- Reinforcement design
- Drawing representation of reinforced concrete structures

Aim of module:

After participating in the module, students will:

- know the specific properties of the composite material reinforced concrete and the applications derived from them
- know the basic design procedures for the verifications of load-bearing capacity, serviceability, and durability and can apply them to practical examples.
- be able to detail reinforced concrete components constructively

Exam type: Written Exam 120 min

Requirements: None

Offered Semester: 2

Construction Process Engineering

5 ECTS / 150h

Content:

The following topics will be covered in the lecture:

- Basic elements of construction: Labor – Services and costs, Equipment – types, costs, and services, list of construction equipment, Materials – types and costs, Planning using Building Information Modelling – BIM
- Concrete and reinforced concrete construction methods, e.g.: Formwork and scaffolding, Reinforcement work, Formwork pressure calculation
- Steel construction methods: Assembly technologies, Joining Technologies
- Earthworks methods, e.g.: Hydraulic excavator and excavator truck operation, soil compaction and soil improvement, road construction
- Methods of excavation support and special civil engineering, e.g.: Equipment, Anchorages, Injections
- Lifting technology methods, e.g.: Compression or traction hoists, tower cranes, mobile cranes, slinging equipment
- Methods of demolition: Equipment and tools
- The overall structure of the construction site: Site infrastructure and site logistics, planning and allocation of site equipment elements.
- Basic principles of costing and pricing: Economic and temporal classification of cost determination (=calculation), Division costing, calculation via the bid amount

Aim of module:

After completing the module, students will be:

- able to know the essential site equipment elements, basic calculation procedures for determining equipment performance and equipment costs, and typical construction and civil engineering process techniques
- familiar with basic construction estimating
- able to independently develop and conduct a presentation on the subject area

Exam type: Written Exam 90 min (80%) and independent presentation (20%)

Requirements: Obligatory: None. Desirable: Passed modules Mathematics 1 and Mathematics 2

Offered Semester: 3

Urban Planning

5 ECTS / 150h

Content:

During the lecture the following topics are presented:

- Field of Urban Planning
 - The layout of urban traffic infrastructures.
 - Basics of geometric road design
 - Design of roads, junctions, and connections in the urban context
 - Design of public squares considering different functions
 - Specific surface structures and materials
 - Integration of sustainable traffic modes
- Field of Road Pavements
 - Principles of pavement structures
 - Road materials and layers
 - German quality assurance concept
 - Design of road pavements according to the German RStO
 - Pavement monitoring concepts
- Field of Railroad Systems
 - Development, legal bases, and organization of railroads.
 - Railway crossings (road/rail).
 - Fundamentals of the wheel/rail system
 - Rails and track loading
 - Superstructure design and maintenance
 - Track curves, alignment, and switches
 - Cross-section design
 - Earthworks and engineering structures for railroads

Other at a glance (power supply, signals, control and safety technology, vehicle dynamics, railroad operation, station facilities)

Aim of module:

After completing the module, students will be able to:

- develop design and layout concepts for urban traffic infrastructures (road space, balance of functions, and connection of traffic modes).
- design pavement structures and choose suitable materials for each layer.
- develop pavement monitoring concepts and calculate a pavement maintenance program.
- have basic knowledge of the system components of railroads and their functions.
- familiar with the structural features of the rail body and the track and be able to assess track designs and constructions in terms of their functional efficiency and serviceability.

Exam type: Written Exam 120 min

Requirements: None

Offered Semester: 3

International Project Management

5 ECTS / 150h

Content:

The following content will be communicated to the students:

- Fundamentals of Project management: Project management standards and methods, Project organization: structures, processes
- Project Organization: Goals and structuring, Structural and process organization, Information, communication, documentation, Management systems, and tools Time planning
- Project planning
- Cost Management: Cost determination, Cost controlling, Cash flow planning
- Schedule Management: Schedules and their hierarchies, Forms of presentation, Creation of schedules, Deadline controlling.
- Project Control & Audit: Contract relationships and types of contracts, Project execution forms, Construction contracts
- New tools and methods: Lean Construction Management, Building Information Modeling

Aim of module:

After completing the module, students will be able to:

- understand and analyze project management techniques as well as broader management issues.
- assess the contractual, economic and social impacts of International Projects during their life cycle.
- comprehend the different stages of a project (project initiation, planning, and execution) in the context of International civil and construction engineering.

Exam type: Written Exam

Requirements: None

Offered Semester: 4

Steel Construction

5 ECTS / 150h

Content:

During the course, the following content will be taught:

- Steel construction in history
- Material properties of steel: material constants, fabrication, and constitutive law
- Elastic and plastic material behavior
- Basics of the second order theory and the theory of stability of elastic and rigid beams for different support conditions
- Basics of the torsional buckling of beams
- Code calculation of beams by using first and second-order theory beyond the ultimate and serviceability limit states
- Basics of bolts and weldings
- The capacity of flexible bolted and welded connections
- Construction concepts of steelwork connections
- Steel construction bracings and their structural design

Aim of module:

After completing the module, students will be able to:

- develop, evaluate, select and calculate regular steel structures.
- use the Eurocode methods and have the required background and knowledge base in steel construction.
- identify and justify the advantages and disadvantages of different design solutions.

Exam type: Final Exam

Requirements: None

Offered Semester: 4

Sustainable Built Environment

6 ECTS / 180h

Content:

The module will cover the following subjects:

- Sustainability concept
- Systems-oriented thinking
- Carbon footprints, energy and water considerations
- Technology in building with sustainable materials (bamboo, clay, and wood)
- How to research material beyond approval limits
- How to work transdisciplinary in another language

Aim of module:

After completing the module, students will be able to:

- understand the importance of sustainability for the environment.
- identify the potential for sustainable construction operations in civil engineering.
- Assess the carbon footprint of buildings and infrastructure.
- assess sustainable materials based on their mechanical properties.
- offer design and construction solutions to achieve the sustainable development goals.
- Work within an international team for a joint project.

Exam type: A group project study and presentation

Requirements: None

Offered Semester: 4

Solid Construction II

5 ECTS / 150h

Content:

The following topics will be covered in the lecture:

- Supplementary verifications in the ultimate limit state of reinforced concrete components.
- Optimization of reinforcement: tension and shear force cover line.
- Design of components subjected to compressive loads
- Design of foundation components
- Serviceability limit state design: deflection limit, crack width design
- Complex verifications for resource conservation
- Drawing representation of reinforced concrete structures

Aim of module:

After participating in the module courses, students will be able to

- Carry out the design and construction of reinforced concrete components using practical examples (e.g., uniaxially tensioned slabs, beams, columns, and foundation components).
- Apply the serviceability checks (e.g., deflection limitation and crack width limitation).
- Apply the design procedures and extended verifications for resource optimization in a meaningful way.

Exam type: Written Exam 120 min.

Requirements: Obligatory: participation in Technical Mechanics 1 and 2. Desirable: passed

PL in Technical Mechanics 1 and 2, Solid Construction 1

Offered Semester: 4

Facility Management

5 ECTS / 150h

Content:

The following content will be communicated to the students:

- Applied Facilities Management Introduction
- Building Services Space and Weight
- Cooling, Heating, and Ventilation Loads
- Building Services Design (Elec & Water)
- Operational plans
- Maintenance planning
- Repair Planning
- Work control strategies
- Occupant support and customer service
- Regulatory environment
- Indoor environmental health
- Energy management
- Trends in sustainable ('green') building design, operation, and maintenance.

Aim of module:

After completing the module, students will be

- cognizant of the planning process involved in facility management;
- able to develop an Operation Plan including cost, schedule, and resources.

Example: Final Exam and project

Requirements: None

Offered Semester: 6

Introduction to Hydrology

6 ECTS / 180h

Content:

The following subjects will be covered during the lectures:

- Introduction and scope of Hydrology
- Hydrologic cycle
- Hydrological data sources, measurements, and monitoring approaches
- Surface water hydrology; runoff and catchment, hydrographs, hydrographs routing, and reservoir panning.
- Groundwater hydrology; groundwater, wells, and aquifers

Aim of module:

After completing the module, students will be able to:

- understand the importance of engineering hydrology.
- be familiar with the different phases of the earth's water and associated processes.
- Understand the concepts of surface and groundwater hydrology.
- use topographical maps to perform fundamental hydrological analysis.
- use and analyze the hydrological data for the real-world engineering problems.

Exam type: Written Exam 120 min.

Requirements: None

Offered Semester: 5

Reinforced Concrete Design

6 ECTS / 180h

Content:

During the lectures, the following topics are presented:

- Fundamentals of the composite material reinforced concrete.
- Design principles with the inclusion of durability.
- Design methods for verifying the structural safety of reinforced concrete components (bending design, shear force design)
- System assumption and internal force determination for design in reinforced concrete structures
- Reinforcement design
- Drawing representation of reinforced concrete structures

Aim of module:

After participating in the module courses, students will be able to:

- know the specific properties of the composite material reinforced concrete and the applications derived from them.
- know the basic design procedures for the verifications of load-bearing capacity, serviceability, and durability and can apply them to practical examples.
- detail reinforced concrete components constructively.

Exam type: Written Exam 120 min.

Requirements: Obligatory: participation in Technical Mechanics 1 and 2. Desirable: passed

PL in Technical Mechanics 1 and 2

Offered Semester: 5

Geotechnical Engineering

6 ECTS / 180h

Content:

The following content is covered within this module:

- General overview of geotechnical engineering
- Index properties, classification, and phase relations of the soil mass
- Concept of total and effective stresses in soils
- Compaction of soils
- Permeability and seepage in soils
- Consolidation of soils
- Lateral earth pressure concepts
- Shear strength of soils
- Stability of slopes

Aim of module:

After completing the module, students will be able to:

- understand the essential characteristics and phase relationships of soil.
- Differentiate and classify the various types of soils.
- calculate total, effective, and pore water pressures under different conditions of loading and underground water.
- understand the idea behind the compaction process and solve related problems.
- comprehend the water flow theory in soils and solve corresponding one- and two-dimensional seepage problems.
- calculate the consolidation settlement of soils.
- evaluate the shear strength properties of soils for drained and undrained cases.
- identify the laboratory experiments to investigate the strength properties of soils.
- Calculate the active and passive lateral earth pressures.
- identify the different types of landslides and perform stability analysis.

Exam type: Final Exam and a project with a presentation

Requirements: None

Offered Semester: 5

Foundations and Earth Structures

6 ECTS / 180h

Content:

The following content is covered within this module:

- General overview of foundations and earth structures
- Limit State Design
- Introduction to Eurocodes
- Site investigations and soil testing
- Lateral earth pressure concepts
- Retaining walls and earth structures
- Shallow Foundations
- Deep Foundations
- Groundwater Control
- Stability of slopes

Aim of module:

After completing the module, students will be able to:

- Understand the basic concepts in foundations and earth structures
- Be familiar with the concept of limit state design and implementation of Eurocode to the design instances
- Comprehend the different types of site investigation techniques and analyze the data collected from the field.
- Analyze and design retaining walls, shallow and deep foundations
- Understand the importance of the groundwater concept and methods utilized to control groundwater
- Evaluate the stability of slopes and understand the basics of the stabilization structures.

Exam type: Midterm and Final Exam

Requirements: Students who are taking this course have to pass the soil mechanics (or geotechnical engineering) course

Offered Semester: 5

Geographical Information Systems

6 ECTS / 180h

Content:

The following content is covered within this module:

- Definition and components of Geographical Information Systems (GIS)
- Applications of GIS in engineering
- Map projections and coordinate systems
- Global Positioning System (GPS)
- Data acquisition with unmanned air vehicles (UAVs)
- Geospatial data types and their basic properties
- Geospatial database systems
- Visualization of spatial data
- Spatial data query and analysis
- Geospatial data analysis
- Application of an open-source GIS software QGIS

Aim of module:

After completing the module, students will be able to:

- understand the basics of GIS and its components.
- comprehend the map generation processes, including projections and coordinate systems.
- identify the use of GPS and UAVs in engineering implementations.
- Create and update a geodatabase.
- perform queries in the geodatabase.
- perform geospatial analysis with the vector and raster data.
- produce GIS-based solutions to engineering problems requires geospatial analysis.
- Use QGIS software.

Exam type: Final Exam, project, and computer exercises

Requirements: None

Offered Semester: 5

Optimization in Civil Engineering

6 ECTS / 180h

Content:

The following content is covered within this module:

- Introduction to the “optimization” concept in civil engineering and current applications in different sub-branches.
- Critical aspects of optimum design for engineering structures
- Size, shape, and topology optimizations
- Conventional and unconventional optimization methods
- Constrained and unconstrained optimizations
- Utilization of Excel solver and Python programming language in solving the optimization problems

Aim of module:

After completing the module, students will be able to:

- understand the optimization concept and its importance in civil engineering.
- learn different optimization algorithms and their implementations for engineering problems that have different characteristics.
- gain the ability to construct mathematical formulations and solution steps for the engineering optimization problems.
- acquire programming abilities in Python language and develop their computer codes to solve optimization problems.

Exam type: Final Exam, assignments, and computer exercises

Requirements: Basic understanding of computer programming and familiarity with Microsoft Excel

Offered Semester: 5

Study Skills

5 ECTS / 150h

Content:

The following subjects will be covered during the lectures:

- Introduction of scientific work and research methodology
- Types of research methods
- Ethics and plagiarism concepts
- Literature survey
- Citation techniques and implementations
- Presentation of research findings
- Manuscript preparations

Aim of module:

After completing the module, students will be able to

- understand the basics of the scientific research.
- Learn the steps of research paper preparation.
- compare and understand the different citation approaches.
- perform the literature survey using the various citation databases.
- Analyze, evaluate and present their research findings.

Exam type: A research report and presentation

Requirements: None

Offered Semester: Each semester

Theory of Technical Systems

6 ECTS / 180h

Content:

The following topics will be covered in the lecture:

- Systemic thinking (methods)
 - Working aids for systemic thinking (sensitivity analysis)
 - Criteria matrix, cross impact matrix and consensus matrix
 - Effect graph structure and sub-scenarios
 - Simulations and policy tests
 - Applications and examples
- Optimizing systems
 - From the real world to the plan
 - Analytical methods for solving optimization problems
 - Optimization problems with constraints
 - Linear Optimization
 - The simplex method with application examples
 - The Lagrange multiplier method
- Graph theoretical methods and their applications
 - System structure and graphs
 - Eulerian and Hamiltonian graphs
 - Traveling Salesman Problem
 - Kruskal and Greedy Algorithms
 - The Shortest Path and Dijkstra's Algorithm
 - Chinese Postman Problem and solution methods
 - Assignment problems, matchings and perfect matchings
 - Vertex coloring and conflict graphs
- Game theory
 - Matrix games and their applications
 - Pure and mixed strategies
 - Formulation as a linear optimisation problem
 - Approximation methods
 - Queueing theory
- Practical lectures by guest lecturers

Aim of module:

After completing the module, which encompasses standard topics of an operations research course, students will be able to:

- apply system theoretical methods for the analysis and solution of complex technical tasks
- apply the methods of sensitivity analysis, optimisation, graph theory, and game theory to concrete practical problems.

Exam type: Written Exam 120 min

Requirements: None

Duration: 1 semester

Offered Semester: Each semester

Planning and Building in the Era of Climate Change and Digitalization

6 ECTS / 180h

Content:

- From point cloud to surface model
- Building and living
- Digital building survey
- Structural design
- The building takes shape
- Disruptions in AEC
- Architectural principles in a historical perspective
- The paths to and from the building
- From planning to reality
- Building Information Modeling (BIM)
- Importance of the “as built model” for operation

Aim of module:

After attending this course, students will be able to

- develop sustainable solutions in the building sector
- employ different IT tools to find more sustainable solutions
- collaborate across different disciplines and between different nationalities

Furthermore, students will improve their communication skills and heighten their awareness of social responsibility.

Exam type: Research report, presentation, and final exam

Requirements: None

Duration: 1 semester

Offered Semester: Each semester

Additional Courses

CC/OA = Complementary courses, open for all, 4 - 6 ECTS,

Forms of teaching: lecture/seminar/block course/exercise/workshop

CC_GerIO = German: 5 ECTS/ lecture/seminar/exercise

We do offer German courses on several different levels. As we do have only very few incomings that speak German, the A1 course is normally the course with the most participants.

CC_ERB2 = Refresher course English B2: 5 ECTS/ lecture/seminar/exercise

Students will learn fundamental English vocabulary necessary for success in both their studies and later in professional life. They will improve their reading, writing, and speaking skills in English and familiarize themselves with cultural aspects of the Anglo/American working world.

CC_BCB2 = Business Creativity B2: 5 ECTS/ lecture/seminar/exercise

Overall Assignment – Create your Business Idea – Leading points:

- a) WHAT? – product/ idea of the concept
- b) WHERE? – distribution on market (regional, national, global)
- c) To WHOM? – target group
- d) HOW create awareness? – marketing strategy
- e) COSTS?! – pricing/ strategy – low-cost or high-cost strategy

Students should already possess a good command of the English language (B2). In this course, students will get an insight into basic business fundamentals, such as Marketing, Branding, Company Structures, Target Groups, and Pricing, and they have to make BUSINESS themselves. Due to small idea checks and presentations, they have to come up with a business idea and answer the above- mentioned questions. Teamwork is essential, because they will have to work in groups and turn their idea into reality. In the end, they have to present their final idea and their product in front of a jury.

Bachelor's thesis / Independent research project

12 ECTS

In addition to the above courses, students can write a bachelor's thesis or conduct an independent research project with us. Students may carry out a research project under the supervision of an instructor in any area of our Civil Engineering Program. A supervisor will outline the main steps of the research project and students will carry out the actual research work. Regular follow-up meetings will monitor students' work progress.

Aim of module:

In a Bachelor's thesis students should demonstrate their ability to work independently on a practical problem using scientific methods and to present their results in an understandable and coherent fashion.

Exam type:	A research report and presentation
Requirements:	None
Duration:	Maximum 12 weeks

Learning Agreement – International Civil Engineering

The ECTS (European Credit Transfer System) is the foundation for your individual study program and workload.

30 – 32 ECTS credits (ecp) is the maximum workload you can opt in for. We will always try to place you in your desired courses, however, due to possible last minute unforeseen events (the lecturer is ill...), timetable overlaps, the initially selected course does not meet your expectations, the course is overbooked or any other eventuality, we cannot guarantee that every course is feasible during your stay.

Detailed information for the current subject topics and the timetable will be published during the induction week, at the earliest two weeks before the semester starts.

Learning Agreement EU students:

If you are an Erasmus+ student, you are obliged to use a **digital learning agreement**.

Please contact your home university coordinator and ask how to proceed.

In the framework of EWP (Erasmus Without Paper), the digital Learning Agreement is applied in the workflow used by your home university.

Do not use the attachment!

Learning Agreement **NON-EU** students:

If you are from a Non-European university, please download the form ([LA Non EU](#)).

- Fill in table A with the courses you want to take at Hochschule Mainz (max 30 – 32 ecp)
- and fill table B, with the courses you want to have recognized after return.
- Sign it.
- Have it signed by your coordinator and upload it to Mobility Online (cc by email to kathrin.krechel@hs-mainz.de)