



Computer Science Engineering BSc

Study Abroad Course List

Tuition-fee/credit: 110 USD

For course syllabi, please contact the Study Abroad Office!

Course title	Semester	Credits (ECTS)
Algorithm Design	Fall	2
Mathematics for Information Technology 1.	Fall	6
Foundations of Electrical Signals of Hardware	Fall	4
Introduction to Computing Science	Fall	4
Project Management 1.	Fall	3
Enterprises and Labour Market	Fall	3
Digital Logic Design 1.	Fall	4
Foundation of Informatics 1.	Fall	3
Programming 1.	Fall	3
Computer Architectures 1	Fall	4
Web Design	Fall	3
Databases 1.	Spring	4
Modelling of Transport Processes	Spring	5
Applied Mathematics 1.	Spring	6
Quality Management 1.	Spring	3
Industrial Law	Spring	3
Work, Fire and Health Safety	Spring	4

**Detailed information about the courses:****Algorithm Design**

Language of instruction:	English
Form of teaching:	lecture
Class hours per week:	2
Credits (ECTS):	2
Course description:	The course provides an introduction to basic algorithms, their design and basic analysis. The course also aims to provide an overview of several different data structures, their advantages and disadvantages, and their uses. Introduction to algorithm design. Algorithm analysis. The Big Oh Notation. Data structures: queues, stacks, lists, binary trees, hash tables, dictionaries, associative tables. Basic algorithms. Sorting and searching. Graphs and graph algorithms.
Assessment methods:	semester mark
Semester:	Fall Semester

Mathematics for Information Technology 1.

Language of instruction:	English
Form of teaching:	lecture, practice
Class hours per week:	2+2
Credits (ECTS):	6
Course description:	Sets of numbers (natural, whole, rational and real numbers); vectors and operations with vectors, scalar and vector products and their applications; sets and operations with sets; projections; definition of functions; presentation of functions; polynomials; rational- fractional functions; algebraic functions; sequences of real numbers (definition of monotonicity, boundedness, convergence and divergence); limit value and continuity of functions; types of discontinuity; definition of tangents; differential calculus of functions in one variable, differential quotients, derivative, relation between differentiability and continuity; rules of derivation, derivatives of algebraic functions; integral calculus: definition of the primitive function and indefinite integral, properties of indefinite integrals, basic integrals, integral processes, definition of the Riemann integral, its geometric and physical meaning, integral function, Newton-Leibniz theory.
Assessment methods:	exam
Semester:	Fall Semester

**Foundations of Electrical Signals of Hardware**

Language of instruction:	English
Form of teaching:	lecture, practice
Class hours per week:	2+2
Credits (ECTS):	4
Course description:	The goal of the course for the IT students to evolve the basic knowledge of electrical engineering and electrical circuit design approach, the basic relationships and methods of calculation awareness. Electrostatics. The electrical field. Circuits Basics. The stationary magnetic field. The time-varying electromagnetic field. Electromagnetic waves. Poynting vector. Sinusoidal alternating quantities. DC and sinusoidal varying voltage networks, and the presentation and application of calculation methods of two-gates.
Assessment methods:	exam
Semester:	Fall Semester

Introduction to Computing Science

Language of instruction:	English
Form of teaching:	lecture, practice
Class hours per week:	2+2
Credits (ECTS):	4
Course description:	This course intended to introduce students to some of the classical and important number theoretic problems and to different areas of number theory. Primes, Divisibility and the Fundamental Theorem of Arithmetic. Greatest Common Divisor (GCD), Euclidean Algorithm. Congruences, Chinese Remainder Theorem, Hensel's Lemma, Primitive Roots. Quadratic Residues and Reciprocity. Arithmetic Functions, Diophantine Equations, Continued Fractions.
Assessment methods:	semester mark
Semester:	Fall Semester

**Applied Mathematics 1.**

Language of instruction:	English
Form of teaching:	lecture, practice
Class hours per week:	2+2
Credits (ECTS):	6
Course description:	Matrices and vectors. Systems of linear equations. Matrix inversion and determinants. Ranks, range and linear equations. Vector spaces. Linear independence, bases and dimension. Linear transformations and change of basis. Diagonalisation. Inner products and orthogonality. Solution techniques of linear system of equations. Eigenvalues and eigenvectors. Application of linear algebra.
Assessment methods:	semester mark
Semester:	Spring Semester

Databases 1.

Language of instruction:	English
Form of teaching:	lecture, laboratory
Class hours per week:	2+2
Credits (ECTS):	4
Course description:	This course provides the students with an introduction to the core concepts in databases. It is centered around the core skills of identifying organizational information requirements, modeling them using conceptual data modeling techniques, converting the conceptual data models into relational data models and verifying its structural characteristics with normalization techniques, and implementing and utilizing a relational database using an industrial-strength database management system.
Assessment methods:	exam
Semester:	Spring Semester

**Digital Logic Design 1.**

Language of instruction:	English
Form of teaching:	lecture, laboratory
Class hours per week:	2+2
Credits (ECTS):	4
Course description:	The majority of the instruments in information technology are digital systems. The course helps the students to understand the mathematical and electronic basics of these systems, and gives instructions for the planning and creation of them. Starting from the simplest building elements, the level of digital computers is reached systematically.
Assessment methods:	semester mark
Semester:	Fall Semester

Modelling of Transport Processes

Language of instruction:	English
Form of teaching:	lecture, practice
Class hours per week:	2+2
Credits (ECTS):	4
Course description:	After successful completion of the course students will be enlightened upon the main concepts of some parts of the classical physics. These skills will help them to make their future work better. During the semester, following topics will be taught: kinematics, dynamics, hydrodynamics, thermodynamics, electromagnetic waves, optical waveguides
Assessment methods:	Attendance, homework, midterm exams
Semester:	Spring Semester

Foundations of Informatics 2.

Language of instruction:	English
Form of teaching:	lecture, practice
Class hours per week:	1+2
Credits (ECTS):	3
Course description:	The presentations give an introduction to hardwares of a computer. The practices give a basic knowledge in the usage of Microsoft Excel. Students learn the basic usage of Microsoft Excel: formulas, simple and more complex formulas, usage of charts and working with data.
Assessment methods:	Attendance, tests
Semester:	Spring Semester