CURRICULUM B.Eng. Engineering
myStudies, 180 ECTS

IU INTERNATIONAL UNIVERSITY OF APPLIED SCIENCES

Month	Model 1: Programme Start October — Courses			Model 2: Programme Start January — Courses			Model 3: Programme Start April — Courses			Model 4: Programme Start July — Courses		
Oct / Nov / Dec	Engineering: Branches, Methods, Applications, Trends	Mathematics: Linear Algebra	Fundamentals of Physics									
Jan / Feb / Mar	Introduction to the Internet of Things	Fundamentals of Chemistry	Mathematics: Analysis	Introduction to the Internet of Things	Fundamentals of Physics	Mathematics: Linear Algebra						
Apr / May	Introduction to Computer Science	Signals and Systems	Automation Technology	Introduction to Computer Science	Mathematics: Analysis	Automation Technology	Fundamentals of Physics	Mathematics: Linear Algebra	Mathematics: Analysis			
Jun	Lecture-Free Period											
Jul / Aug	Introduction to Academic Work	Production Engineering Industry 4.0	Mechanics - Statics	Introduction to Academic Work	Production Engineering Industry 4.0	Mechanics - Statics	Introduction to Academic Work	Introduction to the Internet of Things	Production Engineering Industry 4.0	Fundamentals of Physics	Introduction to the Internet of Things	Production Engineering Industry 4.0
Sep	Lecture-Free Period											
Oct / Nov / Dec	Materials Science for Engineers	Control Systems Engineering*	Fundamentals of Systems Simulation	Engineering: Branches, Methods, Applications, Trends	Fundamentals of Chemistry	Signals and Systems	Engineering: Branches, Methods, Applications, Trends	Signals and Systems	Introduction to Computer Science	Engineering: Branches, Methods, Applications, Trends	Mathematics: Linear Algebra	Mathematics: Analysis
Jan / Feb / Mar	Sensor Technology	Electrical Engineering	Introduction to Programming with Python	Sensor Technology	Electrical Engineering	Introduction to Programming with Python	Fundamentals of Chemistry	Electrical Engineering	Mechanics - Statics	Fundamentals of Chemistry	Introduction to Academic Work	Mechanics - Statics
Apr / May	Project: Simulation of Systems*	Mechanics - Kinematics and Dynamics*	Fundamentals of Data-Driven Engineering	Fundamentals of Systems Simulation	Mechanics - Kinematics and Dynamics*	Fundamentals of Data-Driven Engineering	Materials Science for Engineers	Fundamentals of Systems Simulation	Automation Technology	Introduction to Computer Science	Signals and Systems	Automation Technology
Jun	Lecture-Free Period											
Jul / Aug	Introduction to Data Protection and Cyber Security	Statistics: Probability and Descriptive Statistics	Technical Mechanics: Elastostatics	Introduction to Data Protection and Cyber Security	Statistics: Probability and Descriptive Statistics	Technical Mechanics: Elastostatics	Introduction to Data Protection and Cyber Security	Statistics: Probability and Descriptive Statistics	Introduction to Programming with Python	Introduction to Data Protection and Cyber Security	Statistics: Probability and Descriptive Statistics	Introduction to Programming with Python
Sep	Lecture-Free Period											
Oct / Nov / Dec	Introduction to Electromagnetics* / Electrical Machines and Energy Technology*	Elective A Course a	Elective A Course b	Introduction to Electromagnetics*	Project: Simulation of Systems*	Materials Science for Engineers	Mechanics - Kinematics and Dynamics*	Project: Simulation of Systems*	Fundamentals of Data-Driven Engineering	Fundamentals of Systems Simulation	Mechanics - Kinematics and Dynamics*	Fundamentals of Data-Driven Engineering
Jan / Feb / Mar	Project: Control Unit Design for a Mechanical System*	Elective B Course c	Elective B Course d	Control Systems Engineering* / Project: Control Unit Design for a Mechanical System*	Elective A Course a	Elective A Course b	Sensor Technology	Control Systems Engineering*	Project: Control Unit Design for a Mechanical System*	Sensor Technology	Electrical Engineering	Control Systems Engineering*
Apr / May	Seminar: The Big Data Society	Elective C Course e	Elective C Course f	Seminar: The Big Data Society	Elective B Course c	Elective B Course d	Technical Mechanics: Elastostatics	Elective A Course a	Elective A Course b	Technical Mechanics: Elastostatics	Project: Simulation of Systems*	Materials Science for Engineers
Jun	Lecture-Free Period											
Jul / Aug	Bachelor Thesis			Electrical Machines and Energy Technology*	Elective C Course e	Elective C Course f	Electrical Machines and Energy Technology*	Elective B Course c	Elective B Course d	Electrical Machines and Energy Technology*	Elective A Course a	Elective A Course b
Sep	Lecture-Free Period											
Oct / Nov / Dec				Bachelor Thesis			Introduction to Electromagnetics*	Seminar: The Big Data Society	Elective C Course e	Elective C Course f; Introduction to Electromagnetics*	Seminar: The Big Data Society	Elective B Course c	Elective B Course d
Jan / Feb / Mar				Bachelor Thesis			Bachelor Thesis			Project: Control Unit Design for a Mechanical System*	Elective C Course e	Elective C Course f
Apr / May							Bachelor Thesis			Bachelor Thesis		

Electives~

Specialization	Elective A	Elective B	Elective C
Robotics	*Robot Kinematics and Dynamics* — a) Mechanics - Kinematics; b) Mechanics - Dynamics	*Simulation and Control of Robots* — c) Project: Modeling and Simulation of Robots; d) Project: Introduction to Robot Control	*Embedded Systems and Programming with C/C++* — e) Embedded Systems; f) Programming with C/C++
Mechatronics	*Mechatronic Systems and Design* — a) Mechatronic Systems; b) Design of Mechatronic Systems	*Electrical Drive Technology and Fluid Mechanics* — c) Electrical Drive Technology; d) Fluid Mechanics	*Embedded Systems and Programming with C/C++* — e) Embedded Systems; f) Programming with C/C++
Cybersecurity Engineering	*Operating Systems, Networks and Network Forensics* — a) Operating Systems, Computer Networks, and Distributed Systems; b) Introduction to Network Forensics	*Pentesting and DevSecOps* — c) System Pentesting Basics; d) DevSecOps and Common Software Weaknesses	*Cryptography and IT-Law* — e) Cryptography; f) IT Law
Data-Science Engineering	*Functional Programming with Python and Inferential Statistics* — a) Object Oriented and Functional Programming in Python; b) Statistics - Inferential Statistics	*Machine Learning - Supervised and Unsupervised Learning* — c) Machine Learning - Supervised Learning; d) Machine Learning - Unsupervised Learning and Feature Engineering	*Databases and Explorative Data Analysis and Visualization* — e) Database Modeling and Database Systems; f) Explorative Data Analysis and Visualization
Engineering Management	*Supply Chain Management and Innovation* — a) Supply Chain Management I; b) Entrepreneurship and Innovation	*Agile Project Management and Smart Products* — c) Agile Project Management; d) Project: Smart Product Solutions	*Smart Services* — e) Smart Services I; f) Smart Services II
Electrical Engineering: Electromobility	*Introduction to Electronics and Electronic Circuits* — a) Introduction to Electronics; b) Introduction to Electronic Circuits	*Electro Mobility* — c) Electrical Drive Technology; d) Battery Technology	*Autonomous Driving* — e) Self-Driving Vehicles; f) Seminar: Current Topics and Trends in Self-Driving Technology
Electrical Engineering: Digital Electronics	*Introduction to Electronics and Electronic Circuits* — a) Introduction to Electronics; b) Introduction to Electronic Circuits	*Digital and Information Technology and Programming with C/C++* — c) Digital and Information Technology; d) Programming with C/C++	*Embedded Systems, Microcontrollers and Logical Circuits* — e) Embedded Systems; f) Project: Microcontrollers and Logical Circuits
Electrical Engineering: Renewable Energies	*Introduction to Electronics and Electronic Circuits* — a) Introduction to Electronics; b) Introduction to Electronic Circuits	*Energy Technology* — c) High Voltage Technology; d) Energy Industry	*Renewable Energies* — e) Power Plant Technology; f) Regenerative Energy
Non-Specialization Electives			*Mastering Prompts* — e) Artificial Intelligence; f) Project: AI Excellence with Creative Prompting Techniques; *Career Development* — e) Personal Career Plan; f) Personal Elevator Pitch

Course Information

Module	Course Code	Course	ECTS	Type of Exam
Engineering: Branches, Methods, Applications, Trends	DLBENGEBMAT01	Engineering: Branches, Methods, Applications, Trends	5	Exam/ Written Assessment: Written Assignment
Mathematics: Linear Algebra	DLBDSMFLA01	Mathematics: Linear Algebra	5	Exam
Fundamentals of Physics	DLBWINGP01-01_E	Fundamentals of Physics	5	Exam
Introduction to the Internet of Things	DLBINGEIT01_E	Introduction to the Internet of Things	5	Exam
Fundamentals of Chemistry	DLBMETGC01_E	Fundamentals of Chemistry	5	Exam
Mathematics: Analysis	DLBDSMFC01	Mathematics: Analysis	5	Exam
Introduction to Computer Science	DLBCSICS01	Introduction to Computer Science	5	Exam
Signals and Systems	DLBROSSS01_E	Signals and Systems	5	Exam
Automation Technology	DLBROEIRA02_E	Automation Technology	5	Exam
Introduction to Academic Work	DLBCSIAW01	Introduction to Academic Work	5	Basic Workbook (passed / not passed)
Production Engineering Industry 4.0	DLBDSEAR01	Production Engineering Industry 4.0	5	Exam
Mechanics - Statics	DLBROMS01_E	Mechanics - Statics	5	Exam
Control Systems Engineering*	DLBROCSE01_E	Control Systems Engineering*	5	Exam
Materials Science for Engineers	DLBMETGWK01_E	Materials Science for Engineers	5	Exam
Fundamentals of Systems Simulation	DLBENGFSS01	Fundamentals of Systems Simulation	5	Exam
Sensor Technology	DLBROST01_E	Sensor Technology	5	Exam
Electrical Engineering	DLBINGET01-01_E	Electrical Engineering	5	Exam
Introduction to Programming with Python	DLBDSIPWP01	Introduction to Programming with Python	5	Exam
Fundamentals of Data-Driven Engineering	DLBENGFDDE01	Fundamentals of Data-Driven Engineering	5	Written Assessment: Case Study
Mechanics - Kinematics and Dynamics*	DLBROMKD01_E	Mechanics - Kinematics and Dynamics*	5	Exam
Project: Simulation of Systems*	DLBENGPSS01	Project: Simulation of Systems*	5	Written Assessment: Project Report
Introduction to Data Protection and Cyber Security	DLBCSIDPITS01	Introduction to Data Protection and Cyber Security	5	Exam
Statistics: Probability and Descriptive Statistics	DLBDSSPDS01-01	Statistics: Probability and Descriptive Statistics	5	Exam
Technical Mechanics: Elastostatics	DLBBWTM01_E	Technical Mechanics: Elastostatics	5	Exam
Introduction to Electromagnetics*	DLBENGEEE01	Introduction to Electromagnetics*	5	Exam
Electrical Machines and Energy Technology*	DLBAETEME01_E	Electrical Machines and Energy Technology*	5	Exam
Project: Control Unit Design for a Mechanical System*	DLBENGEESD01	Project: Control Unit Design for a Mechanical System*	5	Written Assessment: Project Report
Seminar: The Big Data Society	DLBENGSTBDS01	Seminar: The Big Data Society	5	Written Assessment: Research Essay
ELECTIVE A~			10	
ELECTIVE B~			10	
ELECTIVE C~			10	
Bachelor Thesis		Bachelor Thesis	9	Bachelor Thesis
		Thesis Defense	1	Presentation: Colloquium