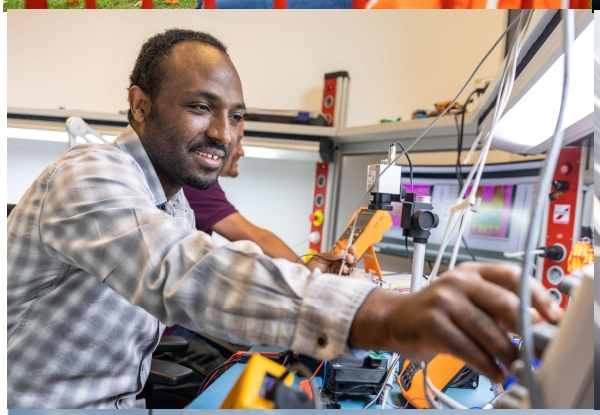
FH | JOANNEUM
University of Applied Sciences

INTERNATIONAL PROGRAMME

Winter Semester, 2025/26

FH JOANNEUM, Campus Kapfenberg

Study with purpose



INTERNATIONAL PROGRAMME

FH JOANNEUM
University of Applied Sciences

Winter Semester, *29.09.2025 - 06.02.2026*

FH JOANNEUM, Campus Kapfenberg

Kapfenberg is the right place for you ...

The four-degree institutes at the Kapfenberg Campus of the University of Applied Sciences JOANNEUM and the International Relations Office have joined forces to create and offer you a programme in English.

MEC (Industrial Mechatronics)

PEE (Power Electronic Engineering, Master)

EMU (Energy Mobility and Environmental Management, Bachelor)

MET (Energy and Transport Management, Master)

ITM/SWD (Software Design and Cloud Computing) fulltime, parttime

IMS (IT & Mobile Security, Master)

IRM (IT Law & Management, Master)

IWI (Industrial Management, Bachelor)

IIM (International Industrial Management, Master)

INT (International Relations Office)

Please note: IMS, IRM, IIM and STM are part time programmes. This means that the courses may also take place in the evenings and on Saturdays. Courses can as well be conducted online via MS Teams.

MET is taught entirely in English. Should applicants fulfil the course requirements, they may choose courses from MET curriculum which is not listed in the International Programme. Please bear in mind that there is a limited number of places in some courses so that only a limited number of incoming students can be accepted in some courses!

Get nominated

· by your home university

Apply

· via Mobility Online

· and fill in your learning agreement

and spend a semester in Austria, Kapfenberg!

Application deadline

1st of June 2025.The number of participants for this programme is limited.

CONTACT INFORMATION

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List of all courses offered in the International Programme

Deg.prog.	Semester	Course no	Course	ECTS
MEC	5	210861501	Power Electronics	4
MEC	5	210861504	Control Engineering	5
PEE	3	M240862314	Electric Mobility	6
PEE	3	M240862311	Renewable Energy	3
PEE	3	M240862312	Power Converter Design	6
				24
EMU	3	180326310	English III – Focus on mobility	2
EMU	1	180326110	English for Communication	2
MET	1	190592101	Climate Change and Dynamics	4
MET	1	190592102	Digital Modelling and Big Data Simulation	4
MET	1	190592103	Environmental Process Engineering	4
MET	1	1905ca92104	Strategic Management - Cases in International	4
MET	1	190592105	Renewable Energy Generation	5
MET	1	190592106	Energy Networks and Hybrid Technologies	5
MET	1	190592107	Storage and Power-to-X Technologies	4
MET	1	190592108	Advanced Traffic Technologies	5
MET	1	190592109	Trends in International and Urban Mobility	5
MET	1	190592110	Mobility Infrastructure	4
MET	3	190592301	Integrated Management Systems and Sustainability Reporting	4
MET	3	190592309	Environmental System Aspects and Natural Ressource Planning*	4
MET	3	190592314	Autonomous Driving Technologies and Impact*	3
				59

Deg.prog.	Semester	Course no.	Course	ECTS
SWD	3	B22.0418306	Server Technologies	2
SWD	3	B22.0418315	Web Application Development	3
SWD	3	B22.0418317	Hackaton	4
MSD	3	B18.0832302	Business Communications	2
SWD	3	B18.0832307	Software design	3
SWD	5	B22.0418506	Research skills and practices	2
SWD pt	5	B22.0418312	Visualisation and Data mining	4
IMS	3	M240419302	Project work	10
IMS	3	M240419303	Scientific Research	5
IRM	3	M240472304	Legal English2	3
				38
IWI	1	B220589111	English 1 - Business	2
IWI	3	B220589310	English 3 - Career & Performance Evaluation	2
IWI	5	B220589506	Cross Cultural Communication	3
IIM	1	M240590108	International Marketing & Market Research	2,5
IIM	1	M240590107	Enterprise Resource Planning	2
IIM	1	M240590112	Leadership & Conflict Management	3
				14,5
INT	Flexible	S05.0502201 or S05.0502203	German beginners (A1/1 or A1/2)	5
INT	Flexible	S05.0502204 or S05.0502205	German intermediate (A2/1 or A2/2)	3
INT	Flexible	S05.0502220 or S05.0502209	German advanced (B1/B2)	3
INT	Flexible	S05.0502235	Tandem+ Programme	2
INT	flexible	S05.0502236	Cultural Diversity at FH JOANNEUM	1
				14
			Total ECTS	142

Note: Courses with * are elective courses and will only take place if there is a certain number of regular students to choose this course or these courses have very limited places and it cannot be guaranteed that everybody can join the class.

B21.0861501	Power Electronics	4 ECTS

Course type: Integrated course (taking place between November and January)
Location of the course in the curriculum: S_5
Learning outcome:
After the completion of this course, the students will have the following knowledge and skills. The students:

- can describe the application of power electronics in the field of mechatronics.
- can describe the operating behavior and the advantages and disadvantages of linear regulators and switching regulators.
- can describe the different conversion modes between voltage, current and frequency and the specific topologies for each case.
- can select and dimension power converters for use in mechatronic systems.
- can proficiently use software tools for simulating power electronic converters, enabling visualization of system responses and understand the effects of different topologies and components.
- can set up laboratory experiments with power electronic converters and in-depth analyze their behavior.

Prerequisites and requirements:
Students are expected to have prior knowledge in the following areas:

- Physics (mechanics, electricity, and magnetism)
- Mathematics (algebra and calculus)
- Electrical engineering (passive elements and circuit analysis)
- Analog Electronics
- Semiconductors theory
- Electric drives

Course content:
This course is deals with the analysis and application of power electronics in the mechatronic field; in particular, the following topics will be covered:

- Introduction to Power Electronics
- Design of switching power-poles
- Switch-mode DC-DC converters
- Design control switch-mode DC power supplies
- Magnetic circuit concepts
- Electric motor drives (DC and AC motors)
- Design feedback controllers for motor drives

Required/necessary literature:

- Mohan N.: "First course on Power Electronics and Drives". Ed. Mnpere, 2003. (Available online)
- Femia, N.: "Power Management Lab Kit Buck Experiment Book", Rev. A, Texas Instruments®

Teaching activities and methods:
The content covered in the lecture is presented in:

- Classroom sessions, and
- Laboratory exercises

The knowledge is consolidated by means of examples and tasks to be solved independently.

Assessment:
The following criteria will be used to evaluate the course:

- Final written exam (individual)
- Laboratory exercises (individual participation during the exercises and report in group of maximum two students)

B21.0861504	Control Engineering	5 ECTS

Course type: Integrated course (taking place between November and January)
Location of the course in the curriculum: S_5
Learning outcome:
After the completion of this course, the students will have the following knowledge and skills. The students:

- can identify and describe the components of a control system,
- can construct mathematical models for dynamic systems in the field of mechatronics,
- can master the derivation of transfer functions for systems and the analysis of their transient and steady-state responses.
- can proficiently use software tools for simulating dynamic systems and controllers, enabling visualization of system responses and understand the effects of different control strategies.
- can apply the concept of frequency domain analysis and its role in control system design, including Bode plots, Nyquist plots, and stability margins.
- can analyze in detail Proportional-Integral-Derivative (PID) control: how each term affects system performance and how to tune PID controllers for optimal performance.
- can design controllers using frequency domain methods, including lead-lag compensation and phase margin optimization.
- can implement robust control, ensuring good performance in the presence of uncertainties in system parameters, and
- can set up a discrete controller for a real mechatronic system and implement it in a microcontroller.

Prerequisites and requirements:
Students are expected to have prior knowledge in the following areas:

- Physics (mechanics, electricity, and magnetism),
- Mathematics (algebra and calculus)
- Electrical engineering (passive elements and circuit analysis)
- Analog Electronics
- Semiconductors theory
- Electric drives

Course content:
This course is deals with the analysis and application of control engineering in the mechatronic field; in particular, the following topics will be covered:

- Introduction to control engineering
- Mathematical modeling of dynamic systems
- Transfer function – Transient and steady-state response
- Frequency domain analysis
- In-depth analysis of PID control
- Frequency domain design
- Robust performance

Required/necessary literature:

- Ogata, K.: "Modern Control Engineering", Fifth edition, Prentice Hall. (Available in Moodle).
- Rossi; Toscani; Mauri; Castelli Dezza: "Introduction to microcontroller programming for power electronics control applications -Coding with MATLAB® and Simulink®". First edition, CRC Press.

Teaching activities and methods:
The content covered in the lecture is presented in:

- Classroom sessions,
- Computer exercises,
- Laboratory exercises, and
- Final project

The knowledge is consolidated by means of examples and tasks to be solved independently.

Assessment:
The following criteria will be used to evaluate the course:
- Final written exam (individual)
- Computer and laboratory exercises (individual effort during the exercises and report in group of maximum two students)
- Final project (individual poster presentation and demonstration)

M240862314	Electric Mobility	6 ECTS

Course type: Integrated Lecture
Location of the course in the curriculum: S3
Learning outcome:
After finishing this course, students can
- Analyze the requirements and types of electric drivetrains and testing facilities for electric mobility.
- Evaluate the characteristics and performance of electrical machines, including their design and construction.
- Create universal models of electrical machines, incorporating the grid as a virtual motor.
- Apply optimized control techniques, such as Field Oriented Control, to multi-phase systems.
- Design testing systems for e-mobility components and analyze their effectiveness.
- Synthesize knowledge of electric mobility to design e-mobility systems using model-based approaches, such as HIL and P-HIL.

Prerequisites and requirements:
Completed or last year of Bachelor's degree in Electronics Engineering
Course content:
- Introduction to Electric Mobility: electric drivetrain, testing facilities, types, requirements.
- Study of AC Electrical Machines (design and construction).
- Universal modeling of Electrical Machines, including the grid as a virtual motor.
- Study of optimized control techniques for multi-phase systems (e.g. Field Oriented Control).
- Analysis of testing systems for e-mobility components.
- Model-Based Design of E-Mobility Systems (HIL, P-HIL).

Required/necessary literature:
- Wilamowski, B. M.; Irwin, J. D. The industrial electronics handbook – Power electronics and motor drives (2nd edition). CRC Press.
- Vodovozov, Valery. Electric Drive Systems and Operation. Ventus Publishing ApS. 2012
- Krishnan, R. Electric Motor Drives: Modelling, Analysis, and Control. Ed. Prentice Hall, 2001.

Teaching activities and methods:
- lecture
- exemplary solving of examples
- independent solving of examples, individually and in groups
- guided solving of problems in the laboratory in groups
- independent solving of problems in the laboratory in groups
- use of software for solving subject-related tasks

Assessment: lecture:
Lectures: exam
Exercises: continuous assessment

As this course is a very challenging master's course it is only open for students studying an equivalent master's degree!!

M240862313	Power Converter Design	6 ECTS

Course type: Integrated lecture
Location of the course in the curriculum: S3
Learning outcome:
After finishing this course, students can
analyze the characteristics and operation of advanced non-isolated DC-DC converters for higher density and efficiency, including interleaved and multi-level converters.
evaluate the suitability of different power semiconductors for use in power electronics applications according to design criteria.
apply knowledge of DC-AC converters to design and implement motor and grid-tie applications.
analyze the operation of isolated DC-DC converters like flyback, full-bridge, Dual Active Bridge, and Series Resonant Converter.
evaluate and apply PWM control methods for power electronics applications using simulation-based techniques.
evaluate the implications of control unit selection in power electronics systems.
Prerequisites and requirements:
Completed or last year of Bachelor's degree in Electronics Engineering
Required/necessary literature:
Teaching activities and methods:

- lecture
- exemplary solving of examples
- independent solving of examples, individually and in groups
- guided solving of problems in the laboratory in groups
- independent solving of problems in the laboratory in groups
- use of software for solving subject-related tasks

Assessment: lecture:
Lectures: exam
Exercises: continuous assessment
As this course is a very challenging master's course it is only open for students studying an equivalent master's degree!!

M240862311	Renewable Energy	3 ECTS

Course type: Lecture
Location of the course in the curriculum: S_3
Learning outcome:
After finishing this course, students can
evaluate the market situation and potential for transformation towards electrified systems
analyze the advantages and disadvantages of various renewable energy generation methods, including photovoltaic systems, wind energy, hydropower, fuel cells, and e-fuels
compare and contrast different energy storage systems, including the hydrogen cycle, battery storage, and mechanical storage evaluate smart grid systems, including charging techniques and DC microgrids, as well as their operation, and control.
Prerequisites and requirements:
Completed or last year of Bachelor's degree in Electronics Engineering or equivalent degree programme
Course content:
Transformation towards electrified systems: Overview and market situation
Renewable Energy Generation: Photovoltaic systems, wind energy, hydropower, fuel cells, e-fuels, associated power electronic devices.
Energy Storage Systems: Hydrogen cycle, battery storage, mechanical storage, associated power electronic devices.
Smart Grids: Charging techniques, DC microgrids, operation, control, benefits.
Required/necessary literature:
Teaching activities and methods: lecture
Assessment: exam
As this course is a very challenging master's course it is only open for students studying an equivalent master's degree!!

B21.0591310	English III – Focus on Mobility	2 ECTS

Course type: Seminar

Location of the course in the curriculum: S3

Learning outcome:

This module provides advanced business management knowledge in the strategic planning and analysis of companies and projects. It also covers the analysis and presentation of corporate technical processes and the preparation of technical documentation in the form of high-quality technical manuals and operating instructions. English language skills are provided with a focus on mobility topics.

Prerequisites and requirements: English B2 level

Course content:

This course focuses on professional English for business and industry by preparing students for an internship and the application process. Existing vocabulary knowledge is combined with technical terminology related to mobility and transportation. The group project is aimed at applying the technical vocabulary and language devices learned on the course.

1) Focus on professional/business English
- Focus on business terminology and report writing
- Focus on applications, CVs and job interviews
- The language of meetings
- The language of negotiations

2) Focus on current events and trends
- The world of mobility
- The world of logistics and transportation
- Discussion of articles/company profiles with a focus on e-mobility, transportation, etc.

3) Project assignment: (Linked to one of the courses of the semester)
- Group project consisting of a group presentation (could also be a negotiation style presentation, a meeting, etc.)
- Focus on topics related to mobility (e.g.: urban mobility, e-mobility, the future of automotive, etc.)

Required/necessary literature:

Books: Versus; Osterwalder, Alexander: Business Model Generation,
Grussendorf: Express: English for Logistics, Ocford;
McCarthy/O'Dell: Academic Vocabulary in Use, Cambridge;
Journals: BWL: Harvard Business Review; Controlling & Management; Englisch: Newsweek, The Economist, Business Spotlight

Assessment: Continuous assessment with additional written/oral examinations

ATTENTION: You only can take English III OR English for Communication. Both courses together are not possible.

B21.0591110	English for Communication	2 ECTS

Course type: Seminar
Location of the course in the curriculum: S1
Learning outcome:
- Achieve a common level of English within the group
- Improve oral and written English competencies
- Ability to give short presentations in English

Prerequisites and requirements: B2 level
Course content:
This course aims at ensuring a common proficiency level of English among students and providing the basis for more profound discussions of topics in the fields of "energy", "mobility" or the "environment" in semesters 2 to 4. The major focus of this course is to repeat and revise important concepts (written and oral English) and selected grammar chapters.
CHAPTER OVERVIEW:
Chapter 1: Welcome to English for Communication
Chapter 2: Working as a team
Chapter 3: Communication in the workplace
Chapter 4: The world of presentations
Required/necessary literature:
Brieger, N., & Comfort, J. (2003). BEC Vantage - Masterclass Upper Intermediate. Oxford: Oxford University Press.
Strutt, P. (2005). Market Leader - Business Grammar and Usage. Harlow: Pearson Education Limited.
Teaching activities and methods: Seminar
Assessment: Continuous assessment with additional written/oral examinations
ATTENTION: You only can take English III OR English for Communication. Both courses together are not possible.

M19.0592101	Climate Change and Dynamics	4 ECTS

Course type: Lecture
Location of the course in the curriculum: S1
Learning outcome:
After completing this module, the students will be able to assess the performance range of environmental-physical climate technology and climate sciences and to recognise and evaluate the effects of climate change on the economy and society. They understand the individual contributions to climate change and can assess and discuss climate fluctuations. They can also evaluate measures to reduce climate change and draw conclusions from them. Based on the lecture from the bachelor programme, important process engineering processes are dealt with and explained. Special attention will be paid to the optimization of process engineering processes. The concept of process engineering should be recognized and understood.
Prerequisites and requirements: bachelor know how in relevant fields
Course content:
In this lecture the climate system "Earth", the paleoclimate and climate history, climate observations, climate classifications, climate physical mechanisms and geobiochemical cycles, the energy balance of the Earth and the anthropogenic imbalance as well as climate models and climate predictions are examined in detail. The lecture will also deal with the topics climate engineering (technical processes that change the radiation balance) as well as humanity and climate change in more detail. Physical climate change is seen as a challenge for the economy and society. Current research topics and debates in the field of climate and environmental change as well as measures to reduce climate change are analysed with the students.
Required/necessary literature:
European Comission-Joint Research Center: Well-to-wheels Report (2006);
Kavalov/Peteves: Status and perspectives of biomas to liquid fuels in the European Union (2005);
IEA: Biofuels for Transport (IEA, 2004);
Teaching activities and methods: Lecture
Assessment: written and/or oral exam

M19.0592102	Digital Modelling and Big Data Simulation	4 ECTS

Course type: Integrated course
Location of the course in the curriculum: S1
Learning outcome:
The module provides students with the necessary skills and knowledge needed for the scientific analysis of large amounts of data. The students develop different modeling approaches (design, classification, verification, validation) and derive different types of simulation (static, dynamic, solvers, etc.) from the modeling approaches. Based on the knowledge gained, optimization approaches and strategies, as well as concepts of big data analyzes are developed. After completion of this module, students are able to handle simulation projects independently: from project definition to documentation.
Prerequisites and requirements:
Course content:
This integrated lecture provides an introduction to digital system thinking (basic principles, system analysis, etc.), deals with definitions (e.g. model, simulation, data, data analysis), modeling concepts (model design, classification, verification), simulations (constraints, numerical equation solver, static and dynamic simulation, etc.), optimizations (e.g objective function, solution algorithms) and monitoring (structure, data validation). In addition, the students will develop big data strategies (analysis strategies, error sources, error management) and deepen their theoretical knowledge with the help of different software platforms, using practical examples.
Required/necessary literature:
Shannon: "Introduction to the Art and Science of Simulation", Proceedings of the 1998 Winter Simulation Conference, December 13-16, 1998, ACM Press, 1998
Kossiakoff/Sweet: "Systems Engineering – Principles and Practice", John Wiley & Sons, 2003
Boyd: "Systems Analysis and Modeling", Academic Press, 2001
Bertalanffy: "General System Theory", George Braziller Inc., 1968
Teaching activities and methods: Integrated course
Assessment: written and/or oral exam

M19.0592103	Environmental Process Engineering	4 ECTS

Course type: Lecture
Location of the course in the curriculum: S1
Learning outcome:
After completing this module, the students will be able to assess the performance range of environmental-physical climate technology and climate sciences and to recognise and evaluate the effects of climate change on the economy and society. They understand the individual contributions to climate change and can assess and discuss climate fluctuations. They can also evaluate measures to reduce climate change and draw conclusions from them. Based on the lecture from the bachelor programme, important process engineering processes are dealt with and explained. Special attention will be paid to the optimization of process engineering processes. The concept of process engineering should be recognized and understood.
Prerequisites and requirements: Bachelor know how of Energy Transport and Environmental management or similar
Course content:
In this lecture students are introduced to the evaluation of process engineering processes as well as material flows and states. Flow diagrams, process diagrams as well as process engineering disciplines with associated term definitions should be understood. Great attention will be paid to material and energy balances as well as to the so-called green technologies. Based on the lecture from the bachelor's programme, energy savings in production plants will be examined in more detail.
Required/necessary literature:
Marohasy: Climate Change: The Facts 2017; Connor Court Verlage, 2017
Teaching activities and methods: lecture
Assessment: written and/or oral exam

M19.0592104	Strategic management - Cases in international business	4 ECTS

Course type: Integrated course
Location of the course in the curriculum: S1
Learning outcome:
After completion of this module, students will be able to define the concept of a strategy, explain the strategic process and analyse different industry strategies. Students are familiar with adequate tools for the analysis of the corporate environment and can apply those tool to specific industry examples. Additionally, they will have the ability to identify the mostly commonly used corporate strategies, including potential advantages and disadvantages. Finally, they will be able to apply their knowledge to case studies specific to the fields of energy, mobility or environmental management.
Prerequisites and requirements: Bachelor know how of Energy Transport and Environmental management or similar
Course content:
This integrated lecture aims at introducing students to the principles and key concepts of strategic management. In the course of the semester they learn how to analyse a company's internal and external environment with adequate tools. Additionally, students learn about strategy levels, how to explain the strategic process, formulate business strategies, execute them and analyse their success. The overall lecture is supported by relevant case studies that illustrate different cases of success or failure in international business settings, preparing students for their future roles in middle or higher management.
Required/necessary literature: European Journal of Management and Business Economics
Teaching activities and methods: Integrated course
Assessment: Continuous assessment with additional written/oral examinations

M19.0592105	Renewable Energy Generation	5 ECTS

Course type: Integrated course
Location of the course in the curriculum: S1
Learning outcome:
After completion of this module, students possess the necessary skills and knowledge for the planning and implementation of renewable energy sources, energy grids as well as energy storage technologies. Students acquire their knowledge through the use of practical industry examples.
Prerequisites and requirements: Bachelor know how of Energy Transport and Environmental management
Course content:
In the course of this integrated lecture, students deepen their knowledge concerning the application of renewable energy sources like, for instance, biomass, geothermal, solar and wind power, hydropower and industrial waste heat. Topics covered in this lecture include: available potentials, transformation technologies, energy transportation, storage and use. Special emphasis is put on the discussion of properties and boundary conditions, load curve analyses, case studies on system integration, residual load behaviour and other innovative aspects of renewable energy generation.
Required/necessary literature:
Elgerd: Electric Power Engineering, Chapter 6: The Electric Power Network, Springer Science, 1998
Galant: Electricity Storage: A New Flexibility Option for Future Power Systems, Chapter 7 of Advanced Technologies for Future Transmission Grids, Springer, 2013
Teaching activities and methods: Integrated course
Assessment: written and/or oral exam
ATTENTION: This course can only be done together with the courses “Energy Networks” and “Storage and Power to X-Technologies” as the content and the exams are coordinated.

M19.0592106	Energy Networks and Hybrid Technologies	5 ECTS

Course type: Integrated course
Location of the course in the curriculum: S1
Learning outcome:
After completion of this module, students possess the necessary skills and knowledge for the planning and implementation of renewable energy sources, energy grids as well as energy storage technologies. Students acquire their knowledge through the use of practical industry examples.
Prerequisites and requirements: Bachelor know how of Energy Transport and Environmental management
Course content:
In this integrated lecture technological energy storage aspects and different energy storage technologies will be discussed. Students will learn about storage devices for electrical, mechanical and thermal energy as well as future technologies, hydrogen and fuel cells. The lecture also deals with primary and secondary batteries and their role in the energy system: different battery types, concepts describing the storage capabilities of batteries in context of both energy and power. How an electric power system can affect the operation of a battery and vice versa, applying demand side management for higher energy efficiency. A review of the state-of-the art is content of the lecture and an overview of emerging technologies will be provided: Power-to-X, production and storage of hydrogen as well as the usage in fuel cells, applications for e-mobility and in households.
Required/necessary literature:
Elgerd: Electric Power Engineering, Chapter 6: The Electric Power Network, Springer Science, 1998
Teaching activities and methods: Integrated course
Assessment: written and/or oral exam
ATTENTION: This course can only be done together with the courses “Renewable Energy Generation” and “Storage and Power to X-Technologies” as the content and the exams are coordinated.

M19.0592107	Storage and Power-to-X Technology	4 ECTS

Course type: Integrated course
Location of the course in the curriculum: S1
Learning outcome:
After completion of this module, students possess the necessary skills and knowledge for the planning and implementation of renewable energy sources, energy grids as well as energy storage technologies. Students acquire their knowledge through the use of practical industry examples.
Prerequisites and requirements: Bachelor know how of Energy Transport and Environmental management
Course content:
In this integrated lecture technological energy storage aspects and different energy storage technologies will be discussed. Students will learn about storage devices for electrical, mechanical and thermal energy as well as future technologies, hydrogen and fuel cells. The lecture also deals with primary and secondary batteries and their role in the energy system: different battery types, concepts describing the storage capabilities of batteries in context of both energy and power. How an electric power system can affect the operation of a battery and vice versa, applying demand side management for higher energy efficiency. A review of the state-of-the art is content of the lecture and an overview of emerging technologies will be provided: Power-to-X, production and storage of hydrogen as well as the usage in fuel cells, applications for e-mobility and in households.
Required/necessary literature:
Teaching activities and methods: Integrated course
Assessment: written and/or oral exam
ATTENTION: This course can only be done together with the courses “Energy Networks and Hybrid Technologies” and “Renewable Energy Generation” as the content and the exams are coordinated.

M19.0592108	Advanced Traffic Technologies	5 ECTS

Course type: Integrated course
Location of the course in the curriculum: S1
Learning outcome:
This module provides in-depth knowledge concerning various vehicle technologies, international and national trends in mobility and their impact on the environment and society. Additionally, students deal with different aspects of transport infrastructures. The theoretical parts of this module are supplemented by practical tasks and offer students in-depth knowledge of modern forms of mobility and infrastructure.
Prerequisites and requirements: Bachelor know how of Energy Transport and Environmental management
Course content:
In the course of this integrated lecture, students learn about various vehicle concepts (e.g. hydrogen, e-mobility, CNG, etc.) as well as traffic planning methods (e.g. traffic analysis, traffic modeling). In addition, students will focus on the topics of traffic efficiency and traffic signal controls, taking into account the integration of public transport, scheduling, planning and assignment of vehicles and goods, network traffic control and intelligent maintenance strategies.
Required/necessary literature:
O´Flaherty: Transport Planning and Traffic Engineering; Elsevier Butterworth Heinemann, Amsterdam, 2006
Teaching activities and methods: Integrated course
Assessment: written and/or oral exam
It is recommended to combine the courses “Advanced Traffic Technologies”, “Trends in International and Urban Mobility” and “Mobile Infrastructure”

M19.0592109	Trends in international and urban mobility	5 ECTS

Course type: Integrated course
Location of the course in the curriculum: S1
Learning outcome:
The module provides in-depth knowledge concerning various vehicle technologies, international and national trends in mobility and their impact on the environment and society. Additionally, students deal with different aspects of transport infrastructures. The theoretical parts of this module are supplemented by practical tasks and offer students in-depth knowledge of modern forms of mobility and infrastructure.
Prerequisites and requirements: Bachelor know how of Energy Transport and Environmental management
Course content:
This integrated lecture provides an overview of new urban trends in mobility their impact on urban and rural systems (e.g. city of short distances, walkability, bikeability, healthy mobility, mixed usage of public space, etc.). Topics like, for instance, integrated planning, implementation and the impact of new mobility services on mobility behavior and their sustainability (car & ride sharing, micro-public transport, city logistics, financing new business models) are discussed in detail with the help of practical examples.
Required/necessary literature:
Teaching activities and methods: Integrated course
Assessment: written and/or oral exam
It is recommended to combine the courses “Advanced Traffic Technologies”, “Trends in International and Urban Mobility” and “Mobile Infrastructure”

M19.0592110	Mobile Infrastructure	4 ECTS

Course type: Integrated course
Location of the course in the curriculum: S1
Learning outcome:
The module provides in-depth knowledge concerning various vehicle technologies, international and national trends in mobility and their impact on the environment and society. Additionally, students deal with different aspects of transport infrastructures. The theoretical parts of this module are supplemented by practical tasks and offer students in-depth knowledge of modern forms of mobility and infrastructure.
Prerequisites and requirements: Bachelor know how of Energy Transport and Environmental management
Course content:
This integrated lecture provides an overview of new urban trends in mobility their impact on urban and rural systems (e.g. city of short distances, walkability, bikeability, healthy mobility, mixed usage of public space, etc.). Topics like, for instance, integrated planning, implementation and the impact of new mobility services on mobility behavior and their sustainability (car & ride sharing, micro-public transport, city logistics, financing new business models) are discussed in detail with the help of practical examples.
Required/necessary literature:
Bell/Kaparias/Mount: Urban Traffic Engineering and Streetscape Design, Imperial College Pr, 2019
Teaching activities and methods: Integrated course
Assessment: written and/or oral exam
It is recommended to combine the courses "Advanced Traffic Technologies", "Trends in International and Urban Mobility" and "Mobile Infrastructure"

M19.0592301	Integrated Management Systems and Sustainability Reporting	4 ECTS

Course type: Integrated course
Location of the course in the curriculum: S3
Learning outcome:
After successful completion of this module, students are able to explain the key elements and goals of an Integrated Management System as well as to plan the concrete practical development and implementation of such a system. Furthermore, they are able to depict the specific requirements of the individual Management System Standards and to put them into practise. In addition, they know how to define the essential terms of sustainability reporting and to explain the international and national legal provisions in terms of non-financial reporting for different companies. The students are also able to compare and assess the quality of non-financial reports with regard to international standards and legal requirements.
Prerequisites and requirements: Bachelor know how of Energy Transport and Environmental management
Course content:
This integrated lecture serves as a consolidation in the field of Business Management with a special focus on Integrated Management Systems and Sustainability Reporting. In this context the key elements of Integrated Management Systemes, e.g. the high-level structure, as well as specific requirements of the individual management system standards are presented. Furthermore, the requirements, international standards and legal provisions for sustainability reporting (e.g. non-financial reporting, CSR, GRI, IIRC, Global Compact) are elaborated and discussed on the basis of actual examples.
Required/necessary literature: Bugdol et al: Integrated Management Systems, Springer Verlag, 2015
Teaching activities and methods: Integrated course
Assessment: continuous assessment and written and/or oral exam

M19.0592308	Environmental System Aspects and Natural Resource Planning	4 ECTS

Course type: lecture
Location of the course in the curriculum: S1
Learning outcome:
This module offers supplementary and in-depth course content as a combination of electives. Students choose their additional training area and deepen their core competences by choosing adequate electives. Courses are offered in the areas of environmental chemistry and emission control, international energy and mobility law, environmental system aspects, sustainable facility management as well as autonomous driving technologies and their impacts.
Prerequisites and requirements:
Bachelor know how of Energy Transport and Environmental management
Course content:
This lecture deals with the modelling, integration and evaluation of natural and social science concepts and models for the planning and efficient use of natural resources (water, ground and air). In detail, methods of phosphorus recovery, treatment of urban and industrial wastewater as well as remediation of contaminated sites will be presented. Modern application methods in the field of Urban and Landfill Mining are also an important part of this lecture. Subsequently, the method of persistent substances in the environment will also be treated. The aim is to present and understand complex interactions within the environmental systems water/ground/air.
Required/necessary literature:
Nakagawa: International Harmonization of Economic Regulations; Oxford University Press, 2011
Teaching activities and methods: lecture
Assessment: written and/or oral exam

M19.0592313	Autonomous Driving Technologies and Impact	3 ECTS

Course type: lecture
Location of the course in the curriculum: S3
Learning outcome:
This module offers supplementary and in-depth course content as a combination of electives. Students choose their additional training area and deepen their core competences by choosing adequate electives. Courses are offered in the areas of environmental chemistry and emission control, international energy and mobility law, environmental system aspects, sustainable facility management as well as autonomous driving technologies and their impacts.
Prerequisites and requirements:
Course content:
This lecture focuses on existing and future technologies of autonomous mobility, their concepts and effects by means of practical technology examples.
Students will gain in-depth knowledge concerning on-board and infrastructural aspects like, for instance, drive technologies and concepts, sensor technology and communication (infrastructure to infrastructure (I2I), infrastructure to vehicle (I2C & C2I), vehicle to vehicle (C2C)), They will deal with issues of control, data security on a technical level, legal, economic and social requirements or effects on the mobility of persons and goods.
Required/necessary literature:
Teaching activities and methods: lecture
Assessment: written and/or oral exam

B22.0418306	Server Technologies	2 ECTS

Course type: Integrated course
Location of the course in the curriculum: S3
Learning outcome:
On completion of the course, students know about the configuration and administration of internet standard server systems as well as the design and operation of internet-based streaming offers.
Prerequisites and requirements:
Programming in object oriented Languages (Java), Web programming languages (PHP), Database Design, Linux Systemmanagement, Basic Database Administration & CRUD Operations (SQL)
Course content:
Configuration and administration of internet standard server systems (mail, web, FTP, DNS servers etc.); introduction to web application servers: scripts, templates, persistence, sessions, HTTP.
Required/necessary literature:
Paul Love: Beginning Unix
Ben Laurie, Peter Laurie: Apache, The Definitive Guide
Craig Hunt: Linux Network Servers
W. Richard Stevens, "Unix Network Programming: The Sockets Networking
Responsive Design Patterns & Principles, Ethan Marcotte, Book Apart, 2015
Mobile First, Luke Wroblewski, Book Apart, 2011
„Unix System Administration", Aeleen Frisch
RFCs: SSH, NTP, DNS, DHCP, HTTP, SMTP, POP3, IMAP, FTP, TLS (ietf.org)
Professional Journals: i'X
Teaching activities and methods: Lecture and Tutorial
Assessment: Continuous Assessement

B22.0418315	Web application development	3 ECTS

Course type: Integrated Course
Location of the course in the curriculum: S3
Learning outcome:
On completion of this module, students know how to develop interactive web applications.
Prerequisites and requirements: Basic Programming Skills, Basic Web Technologies Knowledge (HTML and CSS)
Course content:
Design and implementation of rich internet applications with a focus on interactivity in the browser. Selected browser APIs are discussed and explored for use in front-end development using JavaScript. The combination of HTML, CSS and JavaScript to create interactive web applications is the focus of this course.
In addition, the analysis and optimization of performance as well as automated tests are important aspects for the creation of modern web applications.

Required/necessary literature:
Teaching activities and methods: Interactive lecture, practical laboratory exercises and activating e-learning
Assessment: Continuous assessment

B22.0418317	Hackathon	4 ECTS

Course type: Seminar
Location of the course in the curriculum: S3
Learning outcome:
The graduate has the ability to work on problems in a team, to grasp problems and to apply what has been learned. Within the scope of this lecture, he / she has the opportunity for independent further education in a subject of his / her choice included in the course.
Prerequisites and requirements: ...
Course content:
In this seminar, students work on a selected digital problem. The participating teams work within a limited time span to develop or design a proof-of-concept for a solution to a specific problem or challenge. The phases of the collaboration are defined as follows Engage - Investigate - Act.

Required/necessary literature:
Paul Love: Beginning Unix
Ben Laurie, Peter Laurie: Apache, The Definitive Guide
Craig Hunt: Linux Network Servers
W. Richard Stevens, "Unix Network Programming: The Sockets Networking
Responsive Design Patterns & Principles, Ethan Marcotte, Book Apart, 2015
Mobile First, Luke Wroblewski, Book Apart, 2011
„Unix System Administration", Aeleen Frisch
RFCs: SSH, NTP, DNS, DHCP, HTTP, SMTP, POP3, IMAP, FTP, TLS (ietf.org)
Teaching activities and methods: Workshops
Assessment: Continuous assessment

B22.0418506	Research skills and practices	2 ECTS

Course type: Seminar
Location of the course in the curriculum: S5
Learning outcome:
The students improve their knowledge and skills for scientific work.
Prerequisites and requirements:
Course content:
In the course ESP students improve their academic writing skills.
The following topics will be dealt with in detail:
- writing different types of texts (special focus will be laid on writing abstracts and summaries)
- acquiring strategies that help students comprehend and independently write complex, scientific texts
- extending their academic vocabulary
- introduction to presentation skills: summarizing and presenting scientific papers (such as project work or bachelor theses)
Required/necessary literature:
Teaching activities and methods: Seminar
Assessment: Continuous assessment

B18.0832302	Business Communications	2 ECTS

Course type: Integrated course
Location of the course in the curriculum: S2
Learning outcome: Students will acquire the ability to analyse and address processes and challenges inherent in the day-to-day operations of mobile platform development.

-Students will develop skills to actively engage in business meetings cantered on app development, offering innovative insights and contributions.
-Students will master the art of pitching a product effectively.
-Students will gain proficiency in communicating fluently within a business environment.
-Students will reflect on leadership responsibilities and comprehend the associated challenges.

Prerequisites and requirements: B2 level of English
Course content:

- Coping with stress
- Productivity
- SCRUM
- Start-up success and entrepreneurial thinking
- Leadership
- Creativity
- Pitching of a business idea

Required/necessary literature:
Sutherland, J. (2014) Scrum: The Art of Doing Twice the Work in Half the Time. Crown Business, New York. (available in our library)
Rest of the materials will be uploaded to our LMS/Moodle
Teaching activities and methods: group work, discussions, use of media sources, gallery walk, exploratory approaches
Assessment: continuous assessment and vocab exam

B22.0418312	Vizualisation and Data Mining	4 ECTS

Course type: Integrated Course
Location of the course in the curriculum: S_3
Learning outcome:
After this course, students have acquired the following skills:

- Students are capable of linking theoretical modelling skills to applied data problems in python.
- Students have honed their investigative skills to identify pitfalls of real life modelling.
- Students can extract answers from given data and evaluate the quality of these answers.
- Students can visualize and present their findings in an appropriate manner.
- Students are well-prepared to handle a data analytics task in the future, e.g., for their thesis.

Prerequisites and requirements: Fundamental Programming experience in Python
Course content:
This course provides a comprehensive introduction to statistical modeling and data analysis, with a strong focus on appropriate data handling. Key topics include probability theory, important probability distributions and statistical estimation. Students will explore methods for visualizing univariate, and multivariate data and gain hands-on experience with statistical techniques such as linear and logistic regression, model diagnostics and model selection. The course materials, including lecture slides and Jupyter notebooks, serve as the basis for exercises and assignments.
Required/necessary literature: This literature is not necessarily required, but provides a good basis for further reading on the lecture topic.
Introduction to Statistical Learning with Applications in Python (2023), James, Witten, Hastie, Tibshirani & Taylor
Elements of Statistical Learning (2009), Hastie, Tibshirani & Friedman
Modern Applied Statistics with S (2002), Venables & Ripley
Statistical Inference (2002), Casella & Berger

Teaching activities and methods: This class is a mixture of lecture and exercise. Students are encouraged to follow the lecture content on provided Juypternotebooks while concepts are discussed. In the exercise classes, students will team up into groups and work through various tasks together, before discussing them in class.

Assessment: Continuous : The grade for the class will be achieved by fulfilling several tasks, namely active participation in exercise tasks, a small quiz, completing short online courses as well as two large assignments over the semester. There is no final exam, but in order to achieve a passing grade, students must hand in both assignments on time.

B18.0832307	Software Design	3 ECTS

Course type: Integrated course
Location of the course in the curriculum: S3
Learning outcome:
On completion of the course, students have fundamental knowledge about object-oriented design and practical aspects of software quality.
Course content:
Introduction in object-oriented software design:

- Modelling of software systems using UML;
- Introduction to design patterns;
- Refactoring using design Patterns.

Prerequisites:
Required/necessary literature:
Books: Bertrand Meyer, Agile!, 2014; Paul M. Duvall, Continuous Integration, 2007; LIsa Crispin and Janet Gregory, Agile Testing, 2009; Gerard Meszaros, xUnit Test Patterns, 2007; Jez Humble and David Farley, Continous Delivery, 2011; Martin Fowler, UML Distilled, 2004; Erich Gamma and Richard Helm and Ralph Johnson and John Vlissides, Design Patterns, 1995; Robert C. Martin, Agile Software Development, 2002; Martin Fowler, Patterns of Enterprise Application Architecture, 2003;
Professional Journals: -

m18.041930	Project work (master)	10 ECTS

Course type: Project
Location of the course in the curriculum: S3
Learning outcome:
Students are expected to independently carry out a medium sized project of average difficulty. The tasks of this project reflect most of the main objectives of the master program. Prerequisites and requirements:
The prerequisites are often different. But there should be at least a basic knowledge in one of the following fields: data bases, network, Linux/Unix, object oriented programming, software engineering, new media.
Course content:
After successfully completing this module, students will be able to independently plan and implement internal IT projects with a focus on data and network security. Besides the practical part of the project, the student will also be able to document their work comprehensively.
Required/necessary literature: -
Swales, J. M and C. B. Feak (2004). Academic Writing for Graduate Students. The University of Michigan Press, Michigan.
Beer, D. and D. McMurrey (2005). A Guide to Writing As an Engineer. John Wiley & Sons, Hoboken, NJ.
Hirsch, H. L. (2003). Essential Communication Strategies for Scientists, Engineers, and Technology Professionals. John Wiley & Sons, Hoboken, NJ.
Robson, C. (2002). Real World Research. Blackwell Publishing, Oxford.
Teaching activities and methods: Supervison
Assessment: Final project work

m18.041930	Scientific Research	3 ECTS

Course type: Seminar
Location of the course in the curriculum: S_3
Learning outcome:
The students acquire detailed understanding of data security, especially the security of Big Data technologies. In addition to that, the students will be able to successfully participate in scientific research work in order to present his/her research impressively to the scientific community. He/ she is also able to create and present scientific posters.
Prerequisites and requirements: Bachelor
Course content:
Students can critically evaluate scientific articles, present their project work to an international audience, compose a proposal of their Master's thesis and discuss scientific methods in CS
Required/necessary literature:
Sword, H. (2012). Stylish academic writing. Harvard University Press. Richey, R. C., & Klein, J. D. (2014). Design and development research: Methods, strategies, and issues. Routledge. De Chazal, E., & Mccarter, S. (2012). Oxford EAP.: Upper-intermediate/B2: a Course in English for Academic Purposes. Oxford University Press. Zobel, J. (2004). Writing for computer science (Vol. 8). New York NY: Springer. Kanika, A. (2015).
Research methods: The essential knowledge base. Cengage learning.
Teaching activities and methods: Seminar
Assessment: continuous assessment
Note: This course is only open for Master's degree students

M240472304	Legal English 2	3 ECTS

Course type: Seminar

Location of the course in the curriculum: S3

Learning outcome:

The students will build a comprehensive legal vocabulary and develop the ability to understand legal texts and contract clauses originating from civil law as well as common law systems. The course equips students to draft contracts, negotiate effectively, and fluently discuss legal aspects relevant to business and IT. Additionally, they will refine skills writing formal reports, enabling them to assert themselves confidently in their professional fields.

Prerequisites and requirements: B2 level of English

Course contents:

Development of negotiation skills
Typical Contract Clauses (e.g. warranties)
IP Law
Data Protection
Current IT-related legal topics

Assessment: continuous assessment and final exam

B220589111	Business English	2 ECTS

Course type: Integrated Lecture
Location of the course in the curriculum: S1
Learning outcome:
The students are able to
• use tenses correctly, including the passive voice.
• understand and use prepositions and apply word order and syntax correctly.
• use specific expressions in the business environment.
• understand and analyse articles that cover economic, technical or social issues.
• business correspondence: enquiries and offers.
• apply learned skills to prepare and deliver presentations. Proficiency level in accordance with CEFR: B1.2

Course content:
• General Business English & basic grammar revision
• Technical and financial terms
• Business correspondence
• Short presentations in English
Required/necessary literature: The lecturer agrees to pass on an updated list of recommended literature to the students in accordance with the syllabus.
Teaching activities and methods: PR
Assessment: Final exam and continuous assessment

B220589310	Career & Performance Evaluation	2 ECTS

Course type: Integrated lecture
Location of the course in the curriculum: S3
Learning outcome:

The students are able to:
• use specific terminology in business and engineering.
• write job applications, conduct interviews & simulate recruitment processes.
• plan a trainee programme/Employee Academy.
• analyze and evaluate information for scientific work when using references.
• apply learned skills to prepare and deliver professional presentations.

Course content:
• Letter of application
• writing a resume
• Interviews in English
• Learning/training program for a new recruit
• Developing a solution to a technical problem
• Basics of academic writing
Required/necessary literature:
• Ibbotson: Cambridge English for Engineering, Cambridge
• Pilbeam/O'Driscoll: Market Leader - Logistics Management, Longman
• Vince: English Grammar in Context, Macmillan
• Various up-to-date materials from media resources
• Literature in accordance with CEFR framework
The lecturer agrees to pass on an updated list of recommended literature to the students in accordance with the syllabus.

Teaching activities and methods: Integrated lecture
Assessment: Final Exam and continuous assessment

B220589506	Cross Cultural Communication	3 ECTS

Course type: Seminar
Location of the course in the curriculum: S5
Learning outcome:
Students are able to:
• use English for business and socializing in a multicultural world
• enable students to express themselves adequately in technical and financial terms in an industrial business environment with English as the target language.
• use English as the business language for meetings and moderation while understand the differences of communication with multi-cultural participants.
• use English to negotiate while maintaining proper business etiquette with multicultural participants.
• analyse and evaluate information for scientific work when using references.
• apply learned skills to prepare and deliver a professional presentation as a culmination of project or theoretical work.
Prerequisites and requirements: None
Course content:
• Communicative strategies and business etiquette in an international environment.
• Case studies to extract and analyse valuable information, identify problems, plus make creative/realistic solutions during meetings.
• Professional presentation of Industrial Research Project
• Writing an abstract for the Bachelor Thesis
• Writing a term paper
Required/necessary literature:
Books:
• Tullis/Trappe: Insights into Business, Longman
• Various up-to-date materials from media resources
The lecturer agrees to pass on an updated list of recommended literature to the students in accordance with the syllabus.
Teaching activities and methods: Seminar
Assessment: Continuous assessment

M24059010	Enterprise Resource Planning	2 ECTS

Course type: Seminar
Location of the course in the curriculum: S1

Learning outcome

The students are able to:

•Explain the changing tasks of an IT department using current examples.
• Analyze IT management issues and solve tasks such as IT security (data security, access security, reliability), IT risk management and the management of the "IT Enterprise Architecture".
• explain the technical and organizational functionality of ERP systems.
• illustrate the integration relationships of the industrially relevant core modules of an ERP system.
• Discover how process mining technology can improve the efficiency and simplicity of business processes running on ERP systems.
• Remember the features of DBMS, the categories of NoSQL and the basics of SQL.

Content:
Digital transformation and trends in ICT
• Value contribution, cost factor & risks of ICT
• Examples of conveying voice, technical and methodological skills for "solution providers" in the area of ICT
• Role and tasks of the CIO in companies
• Information systems in companies
• Trends in the area of operational information systems
• Integrated standard business application software (ERP systems):
  - Overview of SAP Business Suite as an example of an ERP system:
  - technical architecture
  - business architecture
  - Modules and integration relationships at a glance Enterprise Resource Systems
• Process Mining: How to optimize ERP business processes.
• Database Management Systems (DBMS): Functionality of DBMS, Data Warehouse, Categories of DBMS. Relational data models. Applications of commercial DBMS, SQL, NoSQL, Big Data

M24059010	International Marketing & Market Research	2,5 ECTS

Course type: Integrated course
Location of the course in the curriculum: S1
Learning outcome:
The students are able to:
• indepently apply concepts of marketing and communication in the context of marketing investment goods.
• independently develop internationalisation concepts (positioning strategies) for companies.
• assess the degree of maturity for purchasing processes and methods in an industrial environment.
• apply principles of supplier management (incl. supplier selection, evaluation and development) in a structured manner.
• interpret global trends and their influence on corporate purchasing.
• develop strategies for procurement for materials groups in accordance with the challenges which they entail.

Course content:
The course will consist of lectures and case studies and generally follow the structure of the course literature:

PART I THE DECISION WHETHER TO INTERNATIONALIZE
1 Global marketing in the firm
2 Initiation of internationalization
3 Internationalization theories
4 Development of the firm's international competitiveness

Assessment: Continuous assessment via blog entries; Group presentation; Essay, to be handed in at the end of the semester

0502101 or 0502112	German beginners (A1.1 or A1.2)	5 ECTS

Depending on the number of interested students for each course, we are offering or the course level A1.1 or A1.2.

Course type: **Integrated course**
Location of the course in the curriculum: flexible
Location of the course: will be announced

Learning outcome:

A1.1:
You will learn to greet people, name jobs, talk about your origin (where from? where to?), to count, to tell people your address and phone numbers, how to invite guests, to express your general opinion, to order in a bar or restaurant, to find your way around in a department store, to inform yourself, to name groceries, to give advice and ask favours, to apologise, and much more.
Grammar: Verbs in the present tense, w-questions and yes/no questions, articles, accusative, dative, personal pronouns in the accusative and dative.

A1.2:
You learn to talk about your work, your and the other's state of health, to give directions, to ask the way, to express date and time, to express preferences and repugnances and much more.
Grammar: recapitulation of Perfekt (perfect tense); Präteritum (past tense) of the auxiliary verbs; possessive articles; modal verbs; imperative; local und temporal prepositions; polite form with subjunctive II; personal pronouns with Akkusativ and Dativ; demonstrative pronouns; verbs with Dativ

Prerequisites and requirements: A1.1: no prerequisites; A1.2: prerequisite: level A1.1

Course content:

- speaking
- listening
- reading
- writing

Required/necessary literature:
Books: Miteinander (available at your International Relations Office, 20 EUR)
Teaching activities and methods: Integrated course
Assessment: Continuous assessment

0502103 or 0502113	German intermediate (A2/1 or A2/2)	3 ECTS

Depending on the number of interested students for each course, we are offering or the course level A2.1 or A2.2.

Course type: Integrated course
Location of the course in the curriculum: flexible

Learning outcome:

A2.1:
This course will focus on enlarging the student's range of vocabulary and expressions and students will be exposed to more complex issues of grammar at level A2/1 such as: past tense ("Präteritum") from „haben", „sein" and modal verbs, perfect tense ("Perfekt"), making requests using „sollte" and imperatives, comparison and graduation of adjectives, verbs with Dativ, pronouns with Dativ, position of pronouns, verbs with prepositions, „Wechselpräpositionen", temporal and local prepositions, subordinate clauses with „wenn" and „dass", relative and idefinite pronouns etc.

A2.2:
This course will focus on enlarging the student's range of vocabulary and expressions and students will be exposed to more complex issues of grammar at level A2/2 such as: Past tense ("Präteritum"), perfect tense ("Perfekt") (recap); adjective declination; passive voice (present tense); subjunctive II (of haben, sein, modal verbs); temporal and local prepositions; subordinate clauses with "wenn", "weil", "dass"; reported questions; word formation etc.

Course content:
- speaking
- listening
- reading
- writing

Required/necessary literature:
Books: Scripts of FH JOANNEUM (available at your International Relations Office, 20 EUR)
Teaching activities and methods: Integrated course
Assessment: Continuous assessment

0502120 or 0502106	German advanced (Listening and Speaking B1/B2 or Reading and Writing B1/B2)	3 ECTS

Depending on the number of interested students for each course, we are offering or the course Listening and Speaking B1/B2 or the course Reading and Writing B1/B2

Course type: Integrated course
Location of the course in the curriculum: flexible

Learning outcome:

Listening and Speaking B1/B2

You will learn …
- … to understand and to obtain information about a person
- … to understand announcements in buses, department stores etc.
- … to understand and to obtain information about prices, departure times etc.
- … to understand and participate in conversation while shopping
- … to order in a coffee house
- … to understand directions and to describe a route
- … to understand a simple story about a tourist landmark
- … to talk about the city you live in

•… to understand and gather information about the family during conversation
•… to speak about your own living arrangements and to question others on the topic
•… to understand, make, accept and reject suggestions
•… to understand weather and traffic reports
•… to talk about your daily routine and to question others on the topic
•… to understand information provided over the telephone
•… to book a hotel room
•… to talk about your holiday and to question others on the topic
•… to make an appointment over the telephone

Course content:
- speaking
- listening

Required/necessary literature:
Books: Scripts of FH JOANNEUM (available at your International Relations Office, 18 EUR)
Teaching activities and methods:
Communicative Teaching focusing on listening and speaking
Assessment: Continuous assessment

Learning outcome:

Reading and Writing B1/B2

You will learn …
•… to recognise different types of text and write a curriculum vitae
•… to extract important information from a text
•… to compose a summary and to understand a popular science text
•… to apply different styles of reading and to find specific information in a text
•… to understand a scientific text
•… to write an informal letter and to compose a complaint email
•… to understand a fairy-tale
•… to compile a report and to make notes and write a summary
•… to interpret statistics and summarise them
•… to write a personal statement
•... to identify and correct errors in spelling, grammar and syntax
•… to compose a letter to the editor and to write a story ending

Course content:
- reading
- writing

Required/**necessary literature:**
Books: Scripts of FH JOANNEUM (available at your International Relations Office, 20 EUR)
Teaching activities and methods: Communicative Teaching focusing on reading and writing
Assessment: Continuous assessment

0502133	Tandem+ Programme	2 ECTS

Course type: Integrated course
Location of the course in the curriculum: flexible
Learning outcome:
Insights into Austrian Culture and Language and a lot of fun with your Austrian Tandem Partner by joining provided activities.

Course content:
Language, experience and cultural exchange among Austrian and International students.

Required/necessary literature:
No literature, but mandatory participation at: Tandem+ Start-up in the first week of classes.

Teaching activities and methods:

Start-up info session at the beginning of the semester and presentation at the end of the semester are mandatory. The Tandem+ Certificate can also be credited towards the ISC (Intercultural Skills Certificate): https://www.fh-joanneum.at/international/services/intercultural-skills-certificate/

Assessment: Continuous assessment

Please note that for this course you will not receive a mark on the Transcript of Records, but the designation "attended" with the corresponding 2 ECTS. Please check in advance with your home university whether this course will be accredited.

0502236	Cultural Diversity at FH JOANNEUM	1 ECTS

Course type: Integrated course
Location of the course in the curriculum: flexible

Learning outcome:
Learning about other cultures, developing new perspectives concerning the home culture, meeting International and Austrian Students, desire to travel, tasting food of other cultures

Course content:
International degree seeking students and exchange students at FH JOANNEUM are presenting their own first experiences in Austria - followed by an entertaining country presentation to point out the cultural diversity at FH JOANNEUM.

Teaching activities and methods:
Presentations of international students and assignments during the semester (activities on MS Teams platform)

The ECTS for Cultural Diversity at FH JOANNEUM can also be credited towards the ISC (Intercultural Skills Certificate): https://www.fh-joanneum.at/international/services/intercultural-skills-certificate/

Please note that for this course you will not receive a mark on the Transcript of Records, but the designation "attended" with the corresponding number of ECTS. Please check in advance with your home university whether this course will be accredited.