

# INTERNATIONAL PROGRAMME

*Winter Semester, 2020/21*

FH JOANNEUM, Campus Kapfenberg

Study your dream

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# INTERNATIONAL PROGRAMME

*Summer Semester, 28.09.2020 - 05.02.2020*

## FH JOANNEUM, Campus Kapfenberg

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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.

**ECM (Electronics and Computer Engineering, Master)**

**EMU (Energy Mobility and Environmental Management, Bachelor)**

**MET (Energy and Transport Management, Master)**

**ITM (Internet Technology, Bachelor)**

**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 ECM are part time programmes. This means that the courses may also take place in the evenings and on Saturdays. Courses of the programmes IMS and IRM are partly conducted online via eLearning.

MET and ECM are taught entirely in English. Should applicants fulfil the course requirements, they may choose courses from the ECM (2 places available) and MET curricula which are 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!

## Hand in:

- A filled-in application form
- A transcript of records
- Your learning agreement

and spend a semester in Austria, Kapfenberg!

## Application deadline

1<sup>st</sup> of June 2020. 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
ECM	1	090412_S1_08	Mathematical Methods in Electronics	6
ECM	1	090421_S1_04	Power Electronics Laboratory	2
ECM	1	090421_S1_03	Electronic Packaging	4
ECM	1	090421_S1_01	Presentations and Meetings	1,5
ECM	1	090421_S1_02	Intercultural communication	1,5
ECM	3	090421_S3_02	ECM - Project Management	2
ECM	3	090421_S3_09	Advanced driver assistance systems	3
ECM	3	090421_S3_06	Renewable Energy and Electric Mobility	3
				<b>23</b>
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	190592104	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
				<b>59</b>

Deg. prog.	Semester	Course no.	Course	ECTS
ITM	3	180418301	Server Technologies	2
ITM	3	180418302	Rich internet applications	3
ITM	3	180418311	Business practices in IT	2
ITM	3	180418307	Software design	3
ITM	5	180418503	Research skills and practices	2
ITM	5	180418508	Internet economy	2
ITM	5	180418504	Marketing and online marketing	3
IMS	1	180419101	Software Security	3
IMS	1	180419108	Operating systems	2
IMS	3	180419302	Project work	10
IMS	3	180419307	Secure Big Data	2
IMS	3	180419303	Scientific Research	3
IRM	1	140472105	Management - Leadership	2
IRM	1	140472106	Legal English	6
IRM	3	140472308	Economic mediation	2
IRM	3	140472306	Service level agreements	2
				<b>49</b>
IWI	5	170589506	Scientific project work *	4
IWI	5	170589507	Seminar Scientific Project Work *	1
IWI	1	170589111	Business English	2
IWI	3	170589310	Career & Performance Evaluation	2
IIM	1	170590105	Social Competences & Conflict Management	2
IIM	1	170590101	International Marketing & Market Research	2,5
IIM	3	170590323	Intercultural Management (Free elective course)	2
				<b>15,5</b>
INT	Flexible	0502101 or 0502112	German beginners (A1/1 or A1/2)	5
INT	Flexible	0502103 or 0502113	German intermediate (A2/1 or A2/2)	3
INT	Flexible	0502120 or 0502106	German advanced (B1/B2: Speaking or Writing)	3
INT	Flexible	0502133	Tandem+ Programme	2
INT	flexible	0502236	Cultural Diversity at FH JOANNEUM	2
				<b>15</b>
<b>Total ECTS</b>				<b>146,5</b>

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.

090412\_S1\_08

Mathematical Methods in Electronics

6 ECTS

Course type: Integrated course

Location of the course in the curriculum: S<sub>1</sub>

Learning outcome: Graduates are proficient in the mathematical fundamentals of electronics

Prerequisites and requirements: relevant bachelor degree

Course content:

This course deepens the knowledge about following topics:

- Z-transform
- Multivariate analysis
- Vector analysis
- Partial differential equations

Required/necessary literature:

Books:

- Kreyszig: Advanced Engineering Mathematics

Journals:

- Physics Today

- The Industrial Physicist

Teaching activities and methods: Integrated course

Assessment: Continuous assessment

090421\_S1\_04

Power Electronics Laboratory

2 ECTS

Course type: Laboratory

Location of the course in the curriculum: S<sub>1</sub>

Learning outcome:

Graduates are

- familiar with the various aspects of electronic hardware development
- able to design, build and test power electronic circuits
- proficient in the fundamentals of analog circuit design
- able to develop digital designs in VHDL

Prerequisites and requirements:

Fundamentals of electronics, Analog electronics circuits, Microelectronic components, Electrical circuit analysis (SPICE), Laboratory experience

Course content:

- DC-DC conversion (buck, boost)
- MOSFet half bridge (switching analysis, gate drivers)
- Input/output filtering
- Inductors and transformers
- Design project (linked with lecture Electronic Packaging)

Required/necessary literature:

Books: - Mohan: Power Electronics

Horowitz, Hill: The Art of Electronics

Analog Devices: Linear Circuit Design Handbook

Teaching activities and methods:

Assessment: Continuous assessment

090421\_S1\_03

## Electronic Packaging

4 ECTS

Course type: Integrated course

Location of the course in the curriculum: S<sub>1</sub>

Learning outcome:

Graduates are

- are familiar with the various aspects of electronic hardware development
- are able to design, build and test power electronic circuits
- are proficient in the fundamentals of analog circuit design
- are able to develop digital designs in VHDL

Prerequisites and requirements: basic knowledge PCB-design

Course content:

- Levels of electronic packaging (chip, board, device)
- Chip-level packaging
- Board-level packaging
- PCB-Design with Altium
- Model design of a small power supply circuit including commissioning and test
- Aspects of manufacturability, EMI, Cooling
- Compact enclosures for electronic equipment

Required/necessary literature:

Books:

- Books:
- Altium Designer Tutorial
- QU, Liu: Wafer-level Chip-scale Packaging
- Elison: Thermal Computations for Electronics
- Mohan: Power Electronics
- Horowitz, Hill: The Art of Electronics
- Analog Devices: Linear Circuit Design Handbook
- Perry: VHDL
- Crouch: Design for Test
- Martin, Ho: Digital Integrated Circuit Design
- Katz, Borriello: Contemporary Logic Design
- Plummer, Deal, Griffin: Silicon VLSI Technology: Fundamentals, Practice and Modeling

Journals:

- European Power Electronic Conference
- Xilinx: Xcell journal

Teaching activities and methods: Integrated course

Assessment: Continuous assessment

**In this course there are only 2 places for incoming students available!**



090421_S1_01	Presentations and Meetings	1,5 ECTS
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Course type: Seminar

Location of the course in the curriculum: S<sub>1</sub>

Learning outcome:

Graduates

- are proficient in presentation, communication and moderation techniques
- are familiar with the problems and solutions for collaboration in intercultural teams

Prerequisites and requirements:

Course content:

- presentation techniques
- training of presentations
- Conversation techniques
- moderation skills

Required/necessary literature:

Teaching activities and methods: Integrated Course

Assessment: Continuous assessment, exam

090421_S1_02	Intercultural Communication	1,5 ECTS
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Course type: Seminar

Location of the course in the curriculum: S<sub>1</sub>

Learning outcome:

Students shall be motivated to open their eyes regarding different cultures and behaviours by getting theoretical input and by reflected discussions and learning activities during the course units. They shall be able to be more successful when working in an intercultural environment or in an international group.

Prerequisites and requirements: -

Course content:

Students receive some theoretical inputs about the terms of culture (E.T. Hall's iceberg model) and communication itself as well as the basic concepts of intercultural communication. Stereotypes, non-verbal language and engineering cultures will be discussed as well. Students learn to reflect on their own culture as well as to know other people's view and have to prepare an analysis by the end of the semester.

Required/necessary literature:

BENNETT Milton J.: Basic concepts of intercultural communication

HOFSTEDE G., HOFSTEDE G.J., PEDERSEN P.: Exploring Culture

HARSHMAN, PHILLIPS: Team Training. From Startup to High Performance

Teaching activities and methods: Seminar

Assessment: Continuous assessment and exam

090421_S3_02	ECM - Project Management	2 ECTS
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Course type: Seminar

Location of the course in the curriculum: S<sub>3</sub>

Learning outcome:

Graduates can apply their acquired technical knowledge to a specific technical task. They are able to develop technical solutions using structured project processes.

Prerequisites and requirements:

Course content:

The course provides methodological support in the project:

- Planning of R&D projects
- Project controlling (in terms of content, deadlines and costs)

Required/necessary literature:

Garton, McCulloch: Fundamentals of Technology Project Management 2nd Ed.

Teaching activities and methods: Seminar

Assessment: Continuous assessment



090421\_s3\_09

Advanced driver assistance systems

3 ECTS

Course type: Integrated course

Location of the course in the curriculum: S3

Learning outcome:

Graduates

- are familiar with current topics of automotive engineering
- understand the interactions in modern automotive electronics (control units, communication networks, control of key electric actuators)
- are familiar with current topics of autonomous driving

Prerequisites and requirements:

Course content:

- Advanced sensors (LIDAR, GPS, RGB-D cameras, gestures)
- Image processing
- Signal reliability and safety aspects
- Sensor fusion
- Advanced control algorithms (adaptive cruise control, emergency stop, lane detection and lane keeping)
- Integration concepts and case studies

Required/necessary literature:

- Bosch. Automotive Handbook
- Bosch. Automotive Electrics and Automotive Electronics -System and components, networking and hybrid drive. Springer Vieweg 5th edition.
- J. Schäuffele, T. Zurawka. Automotive Software Engineering: Principles, processes, methods and tools. SAE International
- K. Reif (Ed.), Automotive Mechatronics. Bosch Professional Automotive Information, Springer Fachmedien Wiesbaden 2015
- M. Paulweber, K. Lebert. Powertrain Instrumentation and Test Systems: Development, hybridization and electrification. Springer 2016.

Journals:

- SAE: International Journal of passenger Cars /Electronic and electrical systems

Teaching activities and methods: Integrated course

Assessment: Continuous assessment, exam

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

090421\_S3\_06

Renewable Energy and Electric Mobility

3 ECTS

Course type: Integrated Course

Location of the course in the curriculum: S3

Learning outcome: Graduates

- are familiar with the most important power electronic circuits
- are familiar with the structure and properties of power electronic components (filter components, power semiconductors including wide-bandgap semiconductors)
- are familiar with major applications of electronic power conversion

Prerequisites and requirements:

Course content:

- Power generation from renewable sources with a focus on the associated power electronic devices (photovoltaics, wind energy, hydropower)
- Electric mobility (electric drives, battery, fuel cell, charging systems)
- Power grids of the future (smart grids)

Required/necessary literature:

- Mohan: Power Electronics
- Lidow: GaN-Transistors for Efficient Power Conversion
- de Rooij: Wireless Power Handbook Teaching activities and methods: Seminar

Assessment: Continuous assessment

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

180326310 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.

**180326110 English for Communication**
**2 ECTS**

Course type: Seminar

 Location of the course in the curriculum: S<sub>1</sub>

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: B<sub>2</sub> 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., &amp; 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.

**190592101 Climate Change and Dynamics**
**4 ECTS**

Course type: Lecture

 Location of the course in the curriculum: S<sub>1</sub>

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 Commission-Joint Research Center: Well-to-wheels Report (2006);

Kavalov/Peteves: Status and perspectives of biomass 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

190592102 Digital Modelling and Big Data Simulation

4 ECTS

Course type: Integrated course

Location of the course in the curriculum: S<sub>1</sub>

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

190592103 Environmental Process Engineering

4 ECTS

Course type: Lecture

Location of the course in the curriculum: S<sub>1</sub>

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

190592104 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

190592104 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

190592106 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

190592107 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



**190572108 Advanced Traffic Technologies**

**5 ECTS**

Course type: Integrated course

Location of the course in the curriculum: S<sub>1</sub>

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

**190592109 Trends in international and urban mobility**

**5 ECTS**

Course type: Integrated course

Location of the course in the curriculum: S<sub>1</sub>

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

190592110	Mobile Infrastructure	4 ECTS
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Course type: Integrated course

Location of the course in the curriculum: S<sub>1</sub>

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

190592301	Integrated Management Systems and Sustainability Reporting	4 ECTS
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Course type: Integrated course

Location of the course in the curriculum: S<sub>3</sub>

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

190592309	Environmental System Aspects and Natural Resource Planning	4 ECTS
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Course type: lecture

Location of the course in the curriculum: S<sub>1</sub>

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

190592314	Autonomous Driving Technologies and Impact	3 ECTS
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Course type: lecture

Location of the course in the curriculum: S<sub>3</sub>

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

180418301 Server Technologies

2 ECTS

Course type: Integrated course

Location of the course in the curriculum: S<sub>3</sub>

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, POP<sub>3</sub>, IMAP, FTP, TLS (ietf.org)

Professional Journals: iX

Teaching activities and methods: Lecture and Tutorial

Assessment: Continuous Assessment

180418302 Rich Internet Applications

3 ECTS

Course type: Integrated Course

Location of the course in the curriculum: S<sub>3</sub>

Learning outcome:

On completion of this module, students know how to set up and administrate different types of servers and server programmes are able to develop rich internet applications.

Prerequisites and requirements: Web Engineering 2, Software Engineering 2

Course content:

Design and implementation of rich internet applications with main focus on mobile devices: support for offline functionality and different screen sizes as well as semantic HTML Tags and canvas/SVG animation, various JavaScript APIs to support location based services and real time communication with web sockets.

Furthermore, analysis and optimisation of performance as well as automated testing are of relevance.

Required/necessary literature:

A BOOK APART by JEREMY KEITH, DAN CEDERHOLM, ERIN KISSANE, ETHAN MARCOTTE, AARRON WALTER, LUKE WROBLEWSKI, MIKE MONTEIRO, and KAREN MCGRANE

(<http://www.abookapart.com/products/complete-library>)

Teaching activities and methods: Lecture and Tutorial

Assessment: Continuous assessment, written exam

180418311	Business Practices in IT	2 ECTS
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Course type: Seminar

Location of the course in the curriculum: S<sub>3</sub>

Learning outcome:

Introduction to and consolidation of business administration skills; students know the various functional areas of business administration and are able to draw connections between the respective fields and apply them in practice.

Prerequisites and requirements:

Course content:

Introduction to the topic of business processes; development of organization theory in the 20th century, definition of business processes; process analysis, inventory-and as-is-analysis; organization of labour - Taylor's structure of labour; optimization of business processes, Business Process Reengineering; modelling, controlling and benchmarking of business processes.

Teaching activities and methods: lecture and tutorial

Required/necessary literature:

Assessment: Continuous Assessment, final exam

180419302	Project work (master)	10 ECTS
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Course type: Project

Location of the course in the curriculum: S<sub>3</sub>

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: Supervision

Assessment: Final project work

180418503	Research skills and practices	2 ECTS
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Course type: Seminar

Location of the course in the curriculum: S5

Learning outcome:

After having successfully completed this module students have knowledge about practical software development in the field of interactive applications. They have practised the use of usability engineering, mobile development, agile software development methods and tools as well as working in distributed teams. In addition, students have ample knowledge in security issues and in IoT-specific communication protocols and how they are used.

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

180418508	Internet economy	3 ECTS
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Course type: Seminar

Location of the course in the curriculum: S5

Learning outcome:

Introduction to and consolidation of business administration skills; students know the various functional areas of business administration and are able to draw connections between the respective fields and apply them in practice.

Students will be taught the basics of marketing and PR and will further consolidate their knowledge. They know the various functions of marketing and are able to make cross-references and use the material taught throughout the course in practical examples.

Prerequisites and requirements:

Course content:

Students learn about the difference between old and new economy (with regard to new technologies) on the macro- and micro-economic level as well as on the business administration level; traditional, digital and hybrid business models will be analyzed with respect to client focus and quality awareness.

Online Marketing emphasizes the diversity of this current business philosophy and links the various existing marketing tools with each other by assessing them from different viewpoints. The course aims to give students a general understanding of the behaviour of buyers and sellers and to teach them how to best use online marketing.

Required/necessary literature:

Teaching activities and methods: Seminar

Assessment: Continuous assessment

180418507 Marketing and online marketing

3 ECTS

Course type: Seminar

Location of the course in the curriculum: S5

Learning outcome:

Students will be taught the basics of marketing and PR and will further consolidate their knowledge. They know the various functions of marketing and are able to make cross-references and use the material taught throughout the course in practical examples.

Prerequisites and requirements:

Course content:

Students will generate a concept of a start up in groups and have to handle the following challenges:

- Brainstorming
- Develop a strategic plan (mission/vision)
- Segmentation of the target group
- Value proposition design
- Development of implantation concept
- Presentation "pitch"

Required/necessary literature:

<https://www.strategyzer.com/books/value-proposition-design>

Teaching activities and methods: Seminar

Assessment: Continuous assessment, presentation, final paper

180418307 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, *Continuous 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: -

Teaching activities and methods: Integrated course

Assessment: Final exam, continuous assessment



180419101	Software Security	3 ECTS
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Course type: Integrated course

Location of the course in the curriculum: S<sub>1</sub>

Learning outcome:

The students know the most important activities in the secure software development life cycle.

Students are able to apply reverse engineering methods for C and Java binaries, as well as code obfuscation techniques. Students can apply the principles of Secure Coding in practice and identify and eliminate security-relevant weaknesses in the implementation of software systems

Prerequisites and requirements: Basic C und Java knowledge

Course content:

Introduction to software security (software engineering practices, secure software development life cycle, knowledge for software security)

Reverse engineering (C environment, Java environment, code obfuscation)

Secure coding (taxonomy of coding errors, encapsulation, data validation, buffer overflow, error handling & logging, security features))

Required/necessary literature:

Gary R. McGraw, *Software Security: Building Security In*, Addison Wesley, 2006

Laura Bell & Michael Brunton-Spall, *Agile Application Security*, O'Reilly, 2017

Jon Erickson, *Hacking: The Art of Exploitation*, No Starch Press, 2008

Bruce Dang, *Practical Reverse Engineering*, Wiley, 2014

Ginger Myles, *Surreptitious Software*, Pearson Education, 2009

Robert C. Seacord, *CERT® C Coding Standard*, Addison-Wesley, Second Edition 2014

Fred Long et al., *The CERT Oracle Secure Coding Standard for Java*, Addison-Wesley, 2011

Jeffrey E.F. Friedl, *Mastering Regular Expressions*, O'Reilly, 2006

David Hook, *Beginning Cryptography with Java*, 2005

Joshua Bloch, *Effective Java*, Addison-Wesley, 2017

Teaching activities and methods:

Inverted classroom model:

Lectures (almost exclusively online), examples and model solutions for self-directed learning

Problem based learning in the lab

Assessment:

Practical laboratory tests (40% of the evaluation)

Final exam at the end of the semester (60% of the evaluation)

180419307	Secure Big Data	2 ECTS
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Course type: Seminar

Location of the course in the curriculum: S<sub>3</sub>

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:

Course content:

The course offers an application-oriented study of Big Data data models, architectures and principles. Storage and database systems in the Big Data environment are tested using practice-oriented scenarios. In particular, the security aspects of these technologies, as well as related best practices, are discussed. Special care is taken to provide enough room for discussion of current technological developments in the area of Big Data.

Required/necessary literature:

Teaching activities and methods: Integrated course

Assessment: continuous assessment

180419303

Scientific Research

3 ECTS

Course type: Seminar

Location of the course in the curriculum: S<sub>3</sub>

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:

Course content:

System near apps using the competences acquired in "Mobile Operating Systems" (C-Programming). Mobile Platform Native app development for several mobile operating systems (iOS, WP8, ...) including their special approaches and differences are covered.

Required/necessary literature:

Books: Natan R. Database Security, Ambler S. Database Refactoring;

Marz N. Big Data;

King, Ronald (2012). Research Methods for Information Systems.

Orca Dorcauk Orphan; Hoboken, NJ. Robson, C. (2002). Real World Research. Blackwell Publishing, Oxford.

Lebrun, J.-L.

Teaching activities and methods: Seminar

Assessment: continuous assessment

140472105

Management - Leadership

2 ECTS

Course type: lecture

Location of the course in the curriculum: S<sub>1</sub>

Learning outcome:

Given the key role that management and leadership play in determining organizational success, this course focuses on a realistic view of management and leadership through the study of the evolution of management, the identification of current issues and problems, the examination of future trends, and to learn the fundamentals of leading people. Putting emphasis on these areas, it is possible to provide the required depth of study to facilitate an understanding and a transfer of newly acquired competences to the job.

Prerequisites and requirements:

Course content:

- To develop an awareness of multiple approaches to solve management issues and problems
- To understand the impact of surrounding social, political, and economic environment
- To comprehend principles, functions, and responsibilities of management
- To identify important skills, attitudes and success factors of successful leaders
- To understand how leaders grow by developing an individual development plan
- To build self-awareness and understand how your personal work style and strengths impact your ability to lead and manage

Required/necessary literature:

Teaching activities and methods:

lecture and group activities

Assessment: The grading is based on an individual performance and a group performance. Regarding the individual performance students are free to choose between a learning portfolio or a traditional examination.

- 70% Learning portfolio OR test (individual performance)
- 30% Operational management case (group performance)

140472205	Legal English	4 ECTS
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Course type: Seminar

Location of the course in the curriculum: S<sub>1</sub>

Learning outcome:

The aim of this course is to build up a basic set of legal vocabulary, familiarize the students with country-specific differences of legal practices, enable them to discuss legal matters in English, help them understand contracts, legal codes and other legal texts and improve the students' formal writing skills.

Prerequisites and requirements: minimum of B<sub>2</sub> (better C<sub>1</sub>) language skills

Course content:

Students discuss law-related profound texts, get the necessary vocabulary and improve their formal writing skills.

Required/necessary literature:

Assessment: Immanent evaluation and/or final exam

140472308	Economic Mediation	2 ECTS
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Course type: Seminar

Location of the course in the curriculum: S<sub>3</sub>

Learning outcome:

The aim of this course is to get a better understanding of how communication and conflicts work, get familiar with communication tools as well as conflict management tools.

By learning theory and practising it during the course in role plays as well as writing one paper about conflict management case, students will be able to approach conflicts in a more professional manner and also communicate more efficiently.

Prerequisites and requirements: none

Course content:

Communication and conflict management theories as well as practice through role-plays.

Required/necessary literature: will be provided for in the course

Teaching activities and methods: theory and practice (role-play)

Assessment: Immanent evaluation and one paper

140472306	Service level agreements	2 ECTS
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Course type: Integrated course

Location of the course in the curriculum: S<sub>2</sub>

Learning outcome:

The aim of this course is to get a better understanding of contracts in general and of Service Level agreements in particular. Different types of service (level) agreements will be discussed, one focus however, is on cloud computing.

The issue will be covered theoretically (scientific articles and books), case law and by writing their own service level agreement in a group.

Prerequisites and requirements: none

Course content:

Service level agreements in theory and practice.

Required/necessary literature: will be provided for in the course

Teaching activities and methods: theory and practice (role-play/writing of a contract)

Assessment: Immanent evaluation and one group contract

170589506	Scientific Project Work & Seminar Scientific Project Work	4+1 ECTS
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Course type: Seminar

Location of the course in the curriculum: S<sub>5</sub>

Learning outcome:

Students are able to

- evaluate a professionally relevant complex problem independently in accordance with scientific criteria
- display new findings and research questions in writing
- independently apply the basic principles of scientific writing (referencing, formal structure etc.)

Prerequisites and requirements:

Course content: -

Required/necessary literature:

The lecturer agrees to pass on an updated list of recommended literature to the students in accordance with the syllabus.

Journals

Teaching activities and methods: BA/SC

Assessment: Evaluation of the Scientific's Thesis Paper

170589111	Business English	2 ECTS
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Course type: Integrated Lecture

Location of the course in the curriculum: S<sub>1</sub>

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

Prerequisites and requirements: -

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

170589310	Career & Performance Evaluation	2 ECTS
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Course type: Integrated lecture

Location of the course in the curriculum: S<sub>3</sub>

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

170590105 Social Competences & Conflict Management

2 ECTS

Course type: Seminar

Location of the course in the curriculum: S1

Learning outcome:

The students are able to

- analyse their self-image based on aspect of the concept of the self and self-esteem.
- show the dynamics of group processes.
- explain the role of attitudes and values in workplace scenarios.
- assess their own behavioural patterns in groups.
- apply social-psychological theories to everyday workplace scenarios.
- develop healthy and productive workplace relationships based on the methods learned.
- illustrate different types of conflicts, incl. how they develop.
- apply methods of conflict management.
- describe triggers and obstacles of change processes.
- show reasons for failed corporate change.
- analyse the success factors for change processes - especially leadership, vision, communication, participation, integration, employee development, project management, consulting, continuous improvement.

Course content:

- Intrapersonal Competences
- Individual Psychology
- Self-concept/ self-esteem
- Topic-centred interaction
- Riemman's model
- Interpersonal Competences:
- Social Thinking /Attributions theory
- Social Influence /Conformity
- Social Relations / Relationships
- Social Competencies and new media
- Non-violent Communication
- Different types of conflicts
- Appearance and conflict analysis
- Conflict diagnosis and conflict progression
- Levels of conflict escalation in directions

Required/necessary literature:

Books:

Rosenberg, M.B: Nonviolent Communication: a Language of Life

- Goleman, D: Working with Emotional Intelligence
- Bandura, A: Social Learning Theory
- Zimbardo, P.G: Psychology: Core Concepts 7th Edition
- Harmon-Jones, E / Mills J: Cognitive Dissonance: Progress on a Pivotal Theory in social Psychology
- Glasl, F: Konfliktmanagement: ein Handbuch für Führungskräfte, Beraterinnen und Berater
- Hinsch, R / Pfingsten, U : Gruppentraining sozialer Kompetenzen GFK: Grundlagen, Durchführung, Anwendungsbeispiele.
- Lauer, T.: Change Management: Grundlagen und Erfolgsfaktoren
- Kotter, J.P.: Leading Change (English or German)

The lecturer agrees to communicate an updated list of recommended literature in accordance with the syllabus.

Journals:

- Journal of Communication
- Journal of Management
- Journal of Personality and Social Psychology
- Journal of Organizational Behaviour
- Personality and Social Psychology Review
- Research in Language and Social Interaction
- Harvard Business Manager
- Journal of Organizational Change Management • Technology Review.

Teaching activities and methods: Seminar

Assessment: Continuous assessment



170590101 International Marketing & Market Research

2 ECTS

Course type: Integrated course

Location of the course in the curriculum: S1

Learning outcome:

The students are able to:

- independently 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

Part I Case studies

#### PART II DECIDING WHICH MARKETS TO ENTER

- 5 Global marketing research
- 6 The political and economic environment
- 7 The sociocultural environment
- 8 The international market selection process

Part II Case studies

#### PART III MARKET ENTRY STRATEGIES

- 9 Some approaches to the choice of entry mode
- 10 Export modes
- 11 Intermediate entry modes
- 12 Hierarchical modes
- 13 International sourcing decisions and the role of the subsupplier

Part III Case studies

#### PART IV DESIGNING THE GLOBAL MARKETING PROGRAMME

- 14 Product decisions
- 15 Pricing decisions and terms of doing business
- 16 Distribution decisions
- 17 Communication decisions (promotion strategies)

Part IV Case studies

#### PART V IMPLEMENTING AND COORDINATING THE GLOBAL

## MARKETING PROGRAMME

18 Cross-cultural sales negotiations  
19 Organization and control of the global marketing programme  
Part V Case studies

Required/necessary literature:

Books:

Global Marketing, 7/E  
Svend Hollensen, University of South Denmark  
ISBN-10: 1292100117 • ISBN-13: 9781292100111  
©2017 • Pearson • Paper, 872 pp

The lecturer agrees to communicate an updated list of recommended literature in accordance with the syllabus.

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

170590323 Intercultural Management (Free elective course)

2 ECTS

Course type: Integrated course

Location of the course in the curriculum: S<sub>3</sub>

Learning outcome:

The students are able to:

Course content:

- International Management
- International Strategies
- Definition of culture. Theories and approaches
- Intercultural communication and negotiation
- International Human Resources

Required/necessary literature:

Books:

The lecturer agrees to communicate an updated list of recommended literature in accordance with the syllabus.

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: room 211

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, wh-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: Schritte plus (available at your International Relations Office, 15 EUR)

Teaching activities and methods: Integrated course

Assessment: Continuous assessment

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

Location of the course: room 211

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 indefinite 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, 15 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

Location of the course: room 211

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, 15 EUR)

Teaching activities and methods:

Communicative Teaching focusing on listening and speaking

Assessment: Continuous assessment

## Reading and Writing B1/B2

Learning outcome:

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 fairytale
- ... 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, 15 EUR)

Teaching activities and methods:

Communicative Teaching focusing on reading and writing

Assessment: Continuous assessment

0502133	Tandem+ Programme	2 ECTS
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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.

Teaching activities and methods:

Start-up at the beginning of the semester and poster presentation/Tandem Learning Objectives Form at the end of the semester.

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 number of ECTS. Please check in advance with your home university whether this course will be accredited.*

0502236	Cultural Diversity at FH JOANNEUM	2 ECTS
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Course type: Integrated course

Location of the course in the curriculum: flexible

Location of the course: room 101

Learning outcome:

Learning about other cultures, developing new perspectives of 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 Kapfenberg are presenting their own first experiences in Austria - followed by an entertaining country presentation to point out the intercultural diversity at Campus Kapfenberg.

Teaching activities and methods:

Presentations of international students and report at the end of the semester (activities on Moodle platform)

The Certificate 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.*