



CAMPUS KAPFENBERG

International Programme

Summer Semester 2027

Contact Information

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Hightech-Campus

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<https://www.fh-joeanneum.at/en/studies/locations/kapfenberg/>

<https://www.fh-joeanneum.at/en/international/incoming-students/>

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FH JOANNEUM

GENERAL SEMESTER DATES FOR EXCHANGE STUDENTS

Mandatory Orientation Programme in Graz:
1-3 weeks before semester start

Official Semester Start: 1 March 2027
End of Lecture Period: 5 July 2027

Please note that the dates of your study programme might differ from the general dates – you can find our academic calender with all exceptions on our website:



8 STEPS TO A SUCCESSFUL EXCHANGE IN KAPFENBERG

1

Get nominated by your home university
Nomination deadline: October 15th

2

Apply on Mobility Online
Application deadline: November 1st

3

Hand in your course selection
Deadline: December 1st

4

Book your accommodation
Deadline: December 15th

5

Get in touch with your local buddy and arrange
your journey to Kapfenberg

Before the Mobility: Prepare at Home

During the Mobility: Arrange in Kapfenberg

6

Meet international students from all three
campuses during the Orientation Programme in Graz

7

Get to know the team in Kapfenberg during
your Welcome Day on campus Kapfenberg

8

Study hard and join the events on campus to be part
of the international community!

YOUR INTERNATIONAL OFFICE IN KAPFENBERG

Supports you with general questions about housing, international events as well as intercultural and language courses.



Olena Liubkovska

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YOUR ACADEMIC COORDINATORS

Support you with course selection and learning agreement, as well as any other questions about your classes, timetable, grades and your official transcript of records. Please use the contact information of your academic coordinator for your Learning Agreement!



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Marta Jordan ▽

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GENERAL GUIDELINES FOR YOUR COURSE SELECTION

- We require a minimum of 16 ECTS in your Learning Agreement.
- You can mix and match any suitable courses listed below from all study programmes.
- Choose the right languages courses - different levels at the same time are not possible!
- Pay attention to a well-balanced course selection (a minimum of 70% need to be technical or management courses, not only intercultural and language courses)!

Please note: Courses of our part-time programmes may also take place in the evenings and on Saturdays. Courses can as well be conducted online via MS Teams. There is a limited number of places in some courses.

■ Applied Computer Sciences

ITM (Software Design and Cloud Computing)
Bachelor | full-time

IMS (Cybersecurity and Ethical Hacking)
Master | part-time

SWD (Software Design and Cloud Computing)
Bachelor | part-time

IRM (IT Law and Management)
Master | part-time

■ Building, Environment and Society

EMU (Environmental Management)
Bachelor | full-time

MET (Energy and Transport Management)
Master | work-friendly

● Engineering

MEC (Industrial Mechatronics)
Bachelor | full-time

PEE (Power Electronic Engineering)
Master | work-friendly

■ Management and Business

IWV (Industrial Management)
Bachelor | full-time

IIM (International Industrial Management)
Master | full-time

IWB (Industrial Management)
Bachelor | part-time

IIB (International Industrial Management)
Master | part-time

Programme	Semester	Course Code	Course Name	ECTS
MEC	4	B21.0861402	Electric Drives	5
PEE	2	M24.0862209	Digital Control Systems	6
PEE	2	M24.0862211	Power Electronic Components	6
				17
EMU	4	B25.0591412	Storage Technologies	2,5
EMU	4	B25.0591413	International Mobility Aspects	2,5
MET	2	M19.0592201	Advanced Harvard Case Studies in Sustainability Management	5
MET	2	M19.0592204	Industrial Energy Efficiency	4
MET	2	M19.0592206	International Traffic Management and Transport log	4
MET	2	M19.0592207	Smart Urban and Regional Planning	4
MET	2	M19.0592212	International Project Development and Management*	4
MET	2	M19.0592210	Automation and Control – Energy and Transport	4
MET	4	M19.0529404	Crisis Communication, Coaching skills and Organizational Development	4
MET	4	M19.0529403	Innovation and Change Management	4
MET	4	M19.0529405	International Human Resource Management	4
				42
ITM	4	B22.0418404	Meetings and Negotiations	2
ITM	2	B22.0418220	IT Industry English	2
ITM	4	B22.0418421	3D-Programming	3
ITM	2	B22.0418207	Boot Camp	3
MSD	4	B18.0832408	Scientific Skills	2
IMS	2	M24.0419205	Machine Learning & AI for Security	2
IMS	2	M24.0419206	Privacy and Data protection	3
IMS	2	M.24.0419204	Database Security	2
				21
IIM	2	M.240590209	Change Management	2
IIM	2	M.240590211	AI Applications & Automation	5
IWV	6	B.220589603	Industrial Projects	9
IWV	2	B.220589212	Meetings (English II)	2
IWV	4	B.220589409	ERP Information Management	3
IWV	4	B.220589411	Negotiation (English IV)	2
				23
INT		S05.0502201 S05.0502203	German Beginners (A1/1 or A1/2)	5
INT		varies	German for all other levels	3
INT		S05.0502235	Tandem Programme	2
INT		INT.002	Cultural Diversity	1
				11

B21.0861402

Electric Drives

5 ECTS

Course type / Teaching activities and methods: Integrated Course**Location of the course in the curriculum:** Semester 4**Assessment:** Assessment and exam

Learning outcome: Elektrische Antriebe (Electric Drives) is a core course in the 4th semester of the Bachelor's programme in Industrial Mechatronics, designed to provide students with a comprehensive understanding of electric drive systems and their applications in mechatronics. It introduces fundamental concepts such as electromagnetism, electromechanical energy conversion, and the mechanical requirements of electric drives. Students will explore various drive technologies, including DC motor drives, reluctance drives, and AC machines such as synchronous and asynchronous motors, while also addressing energy efficiency considerations.

Course content: The course emphasizes both theoretical knowledge and practical application. Through classroom lectures and laboratory exercises, students will learn to analyze, design, and evaluate electric drive systems. Key skills include interpreting electromagnetic principles, selecting appropriate motor drives for specific applications, and implementing electronic commutation techniques. Additionally, students will gain experience in laboratory experiments, enabling them to deepen into the concepts learnt in the classroom. Prior knowledge in physics, mathematics, and electrical engineering is expected to ensure successful engagement with the course content.

Required/necessary literature: /

M24.0862209

Digital Control Systems

6 ECTS

Course type: Integrated Course**Location of the course in the curriculum:** Semester 2**Prerequisites and requirements:**

- Mathematics: Differential calculus and integral calculus
- Physics: Newtonian mechanics and basis of electromagnetism
- Electrical/Electronic engineering: Analysis of E/E circuits in time and frequency domain
- Control engineering: Feedback control in continuous-time and Laplace transform
- Basic knowledge of MATLAB and Simulink or self-training

Learning outcome: After finishing this course, students can

- analyze the difference between continuous-time control and discrete-time control.
- evaluate the operation of discrete-time control systems.
- justify the relevance of the sampling frequency in the design of digital controllers.
- set up a dynamic system's model based on sampled input-output measurement.
- apply direct synthesis methods for digital controllers using plant's transfer function.
- describe the state space model and use it for digital control design of multivariable systems including reference tracking.
- critically evaluate the influence of uncertainties of the plant's model and disturbances and can design controllers to reject them.
- demonstrate proficiency in computer aided control design and implementation of all studied control systems in particular for electrical and electromechanical systems.

Course content:

- Review of Control Systems: operation of analog and digital control systems, components, analog vs digital, transfer function, PID.
- Identification of dynamic systems based on discrete time models.
- Design and Implementation of Digital Controllers for SISO systems based on discrete transfer functions.
- Design and Implementation of Digital Controllers for multivariable systems (MISO, MIMO) using state space representation.
- Stability and robustness: design of control systems considering uncertainties of the plant's parameters and disturbances.
- Application of control design for electrical and electromechanical systems. - Evolution economics

Competency Acquisition: Graduates think critically about control systems, make informed decisions, and apply their knowledge in practical situations. They will be able to design, implement, and evaluate control systems for a variety of applications.

Planned Learning Activity and Teaching 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

Required/necessary literature: Ogata, K.: Discrete-Time Control Systems. 2nd Edition. Prentice Hall, 1996. | Wittenmark, B.; Åström, K. J.; Årzén, K.E.: Computer Control: An Overview. IFAC Professional Brief. (pdf available) | Åström, K. J.; Wittenmark, B.: Computer-Controlled Systems. Theory and Design. Upper Saddle River: Prentice Hall, 1997.

M24.0862211**Power Electronic Components****6 ECTS**

Course type: Integrated Course

Location of the course in the curriculum: Semester 2

Assessment: Lectures: exam, Exercises: continuous assessment

Learning outcome: After finishing this course, students can

- evaluate the principles and operation of DC-DC converters, e.g., buck and boost topologies.
- analyze the switching behavior and select gate drivers for MOSFET half-bridge circuits.
- design input and output filters to fulfill the performance specifications of power electronic circuits.
- compare the characteristics of passive power components such as capacitors, inductors, and transformers and select the most adequate for the application in turn.
- synthesize knowledge of the structure, operation, and selection criteria of power semiconductors such as diodes, Si-MOSFETs, SiC-MOSFETs, IGBTs, and GaN-HEMTs.
- design power electronic circuits that integrate sensors to measure physical quantities such as voltage, current, temperature, speed, vibration.
- apply 3D modeling and thermal simulation tools to analyze and optimize the performance of power electronic modules.

Competency Acquisition: By the end of the course, students should have developed a strong foundation in the field of power electronics, including the ability to design and analyze various power electronic circuits, select appropriate components, integrate sensors, and use simulation tools to optimize performance.

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

Recommended or compulsory literature and journals: Mohan N.: “First course on Power Electronics and Drives”. Ed. Mnperre, 2003. (Available online) | Femia, N.: “Power Management Lab Kit Buck Experiment Book”, Rev. A, Texas Instruments®

Course type: lecture

Location of the course in the curriculum: Semester 4

Assessment: Assessment consists of a written examination covering the three defined subject areas.

Written examination

- No supporting materials, AI tools or other documents are permitted.
- The examination consists of three parts:
 - Sumeder: 60% of the overall grade
 - Fluch: 40% of the overall grade
- Each part includes questions assessing theoretical knowledge and understanding as well as a calculation exercise.
- All examination parts must be taken together.
- Each individual examination part must receive a passing grade in order to pass the overall course.

Grading scheme

- Excellent / Sehr gut: 91–100%
- Good / Gut: 79–90%
- Satisfactory / Befriedigend: 63–78%
- Sufficient / Genügend: 51–62%
- Fail / Nicht genügend: 0–50%

Prerequisites and requirements: Students should have completed fundamental technical courses and have basic knowledge of mathematics. Relevant previous courses and subject areas include:

- Introduction to Energy Technology
- Energy Carriers
- Renewable Energy Technologies
- Electrical Engineering
- Thermodynamics
- Thermal Energy Technology

Learning outcome: The students are able to apply essential fundamentals from previous courses and to calculate, assess and discuss different energy storage technologies with regard to current and future applications.

After completing the course, students are able to:

- explain the chemical and physical fundamentals of energy storage technologies;
- dimension energy storage systems and assess efficiency, self-discharge, losses and costs;
- distinguish between short-term, long-term and seasonal energy storage;
- describe the fundamental operational aspects of different storage technologies;
- assess the integration of storage technologies into different energy systems;
- evaluate the state of the art of storage technologies for different energy carriers, including technical characteristics and boundary conditions for their integration.

Course content: The course covers the fundamental characteristics, operating principles and dimensioning of established and emerging energy storage technologies. Electrical, thermal, mechanical and chemical energy storage systems and their potential applications are addressed.

An additional focus is placed on the fundamentals required for the successful planning and optimisation of energy distribution networks, particularly electricity, gas and heat networks.

Main topics include:

- Electrochemical energy storage
- Electrical and magnetic energy storage
- Thermal energy storage
 - sensible heat storage
 - latent heat storage
 - phase change materials (PCM)
 - sorption storage
- Mechanical energy storage
 - flywheel storage
 - pumped-storage systems
 - compressed-air energy storage
- Gas storage

Teaching activities and methods:

The course is conducted as an integrated course combining theoretical instruction with practice-oriented activities.

Teaching and learning activities include:

- practice-oriented calculation exercises;
- discussions of technical concepts and applications;
- presentation and explanation of course content using practical examples;
- group-based research activities.

The use of AI-based assistance systems such as ChatGPT, DeepL or DALL-E is permitted to support coursework, provided that adopted content is correctly cited. Students remain responsible for the content they submit. Work that has predominantly been generated using such systems is considered invalid according to the applicable study regulations.

Required/necessary literature: Zahoransky, R. & Allelein, H. J. (2019). *Energiespeicherung*. Springer Vieweg, Wiesbaden. | Sterner, M. & Stadler, I. (2017). *Energiespeicher – Bedarf, Technologien, Integration*. Springer Vieweg, Berlin/Heidelberg. | Schmiegel (2019). *Energiespeicher für die Energiewende – Auslegung und Betrieb von Speichersystemen*. Hanser, Munich. | Crastan (2017). *Elektrische Energieversorgung 2*, Chapters 9 and 10. Springer, Berlin. | Kurzweil (2018). *Elektrochemische Speicher*. Springer Vieweg, Wiesbaden.

B250591413
International Mobility Aspects
2,5 ECTS
Course type: /ntegrated course

Location of the course in the curriculum: Semester 4

Assessment:
Learning outcome:

Course content: This lecture covers the fundamentals (material science, chemistry, physics and mathematics) and examples of applications of various storage technologies. The respective physical principle and technological realisation as well as system integration are taught, modelling and calculations are carried out, key figures, residual loads and gradients are determined. For heat and gas storage, special attention is paid to storage management, but also to pumped storage, battery storage, flywheels and Carnot batteries. For the storage of electricity, different technologies are taught: electrical (capacitor), magnetic (solenoid), electrochemical (cells, batteries, accumulators), chemical (hydrogen, fuel cell) and mechanical (water power, flywheel).

Teaching activities and methods:
Required/necessary literature: /

M19.0592201
Advanced Harvard Case Studies in Sust. Management
5 ECTS
Course type: Seminar

Location of the course in the curriculum: Semester 4

Assessment: Continuous assessment with additional written/oral examinations

Prerequisites and requirements: English B2 level

Learning outcome: After completion of this module, students will be able to put theoretical concepts of strategic and sustainable management into practice. They will be able to read, analyse and evaluate industry-specific case studies orally and in writing.

Course content: This integrated lecture builds on the knowledge acquired in the lecture "Strategic Management" and introduces students to the topic of "Sustainability Management" with the help of selected Harvard Business Cases. Students will learn how to read, interpret and write about classical industry case studies. Concepts of sustainable management from all over the world will be analysed, evaluated and discussed focusing on the core fields of this master degree programme, namely, energy, mobility and the environmental sector.

Required/necessary literature: Ellet: The Case Study Handbook, Harvard Business Review Press, 2007 | Ellet: The Case Study Handbook - A Student's Guide, Harvard Business Review Press, 2018 | Cohen: Sustainability Management: Lessons from New York City, America and the Planet, Columbia University Press, 2014 | Schmidpeter/Capaldi/Idowu/Lotter: International Dimensions of Sustainable Management, Springer Verlag, 2019 | Journals: Harvard Business Review, Harvard Business Case Studies, MIT Sloan Case Studies

M19.0592204
Industrial Energy Efficiency
4 ECTS

Course type: Integrated course

Location of the course in the curriculum: Semester 2

Assessment: written and/or oral exam

Learning outcome: This module provides students with sound knowledge concerning the planning and implementation stages in the area of applied energy plant planning and energy efficiency measures, including the development of energy management systems. Students learn how to carry out planning and maintenance of electrical installations or industrial plants, the principles applying to these stages and how improvement suggestions are prepared, on the basis of practical tasks

Course content: This integrated lecture deals with the procedures, planning approaches, implementation measures and corresponding controlling measures for the increase of energy efficiency measures with special emphasis on industrial plants. Students will learn about operational energy management systems and other technologies for increasing energy efficiency.

Required/necessary literature: Elgerd: Electric Power Engineering, Springer Science, 1998

M19.0592206
International Traffic Management and Transport Logistics
4 ECTS

Course type: Lecture

Location of the course in the curriculum: Semester 2

Assessment: written and/or oral exam

Learning outcome: Module MOB2 focuses on the practical application of different simulation programmes for traffic networks and traffic flows in the context of an extended laboratory tutorial. In addition, students discuss aspects of international traffic management, gain insight into traffic policy and develop possible traffic solutions for individual modes of transport as well as optimization possibilities in transport logistics. The methods of spatial planning and possible spatial planning concepts for smart urban and rural areas complete this module.

Course content: This lecture provides students with a sound understanding of both, international and national transport policy. Students deal with transport solutions for road, rail, shipping and air transport, taking into account technical, political and financial implications. Topics like, for instance, local, regional, national and international mechanisms of traffic flow control as well as "soft policies" regarding traffic behaviour and choice of means of transport complement this lecture.

Another focus of this lecture is the ideal use of resources (vehicles and personnel) by means of suitable routes, driving and duty schedules for the supply of regions and cities (distribution & logistics) including a detailed consideration of disposition concepts with appropriate evaluation of the advantages and disadvantages. In particular, the use of different means of transport in terms of economic efficiency and environmental impact is discussed with the students.

Teaching activities and methods: Tutorial

Required/necessary literature: White paper – Roadmap to a single European Transport area, towards a competitive and resource efficient transport system; European Commission, 2011 | Lowe: The Dictionary of Transport and Logistics; Kogan Page; The Institute of Logistics and Transport, 2002 | Lowe/Pidgeon: Lowe's Transport Manager's & Operator's Handbook 2018; Kogan Page, 2018 | Monios/ Bergqvist: Intermodal Freight Transport & Logistics; CRC Press Taylor & Francis Group, 2017

M19.0592207
Smart urban and regional planning
4 ECTS

Course type: Integrated course

Location of the course in the curriculum: Semester 2

Assessment: written and/or oral exam

Prerequisites and requirements: general knowledge of urban planning and mobility

Learning outcome: Module MOB2 focuses on the practical application of different simulation programmes for traffic networks and traffic flows in the context of an extended laboratory tutorial. In addition, students discuss aspects of international traffic management, gain insight into traffic policy and develop possible traffic solutions for individual modes of transport as well as optimization possibilities in transport logistics. The methods of spatial planning and possible spatial planning concepts for smart urban and rural areas complete this module.

Course content: In the course of this integrated lecture, students are introduced to the topic of smart urban and regional planning. For this purpose, concepts of spatial and urban planning serve as the basis for the development of future scenarios for an optimal design of habitats and regions. Students deal with the objectives and methods of spatial planning as well as planning concepts for the smart development of urban and regional areas, considering different optimization requirements such as economic efficiency, social justice and a healthy environment, with the help of practical examples.

Required/necessary literature: White paper – Roadmap to a single European Transport area, towards a competitive and resource efficient transport system; European Commission, 2011 | Lowe: The Dictionary of Transport and Logistics; Kogan Page; The Institute of Logistics and Transport, 2002 | Lowe/Pidgeon: Lowe's Transport Manager's & Operator's Handbook 2018; Kogan Page, 2018 | Monios/ Bergqvist: Intermodal Freight Transport & Logistics; CRC Press Taylor & Francis Group, 2017 | Macharis/Melo/Woxenius/Van Lier: Transport and Sustainability - Sustainable Logistics; Volume 6; Emerald Group Publishing Limited, 2014

M19.0592212
International Project Development and Management
4 ECTS

Course type: Integrated Course

Location of the course in the curriculum: Semester 2

Assessment: written and/or oral exam

Learning outcome: This module offers complementary 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 special environmental laboratory analyses, environmental and plant law, control engineering, data security aspects, international project management and traffic safety aspects.

Course content: This course will prepare an overview of tools and methods for the development of international Project Management and Program Management. It will highlight aspects and guidelines to analyze Private Public Partnership (PPP), Stakeholder Management and Risk Management. Practical experience and scientific knowledge will be used for the creation and evaluation of case studies.

Required/necessary literature: Agile Project Management, Quickstart Guide, Clyde Bank Media, 2016 | Probst / Haunerding: Projektmanagement leicht gemacht, Redline Verlag, 2007 | Public Private Partnerships, A Global Review, CIB NL, 2016 (E-Paper) | Optional: Kuster et al.: Handbuch Projektmanagement. Agil – Klassisch – Hybrid, Springer 2018 | World Bank Group: PPP LRC (Public Private Partnership Legal Resource Center), ppp.worldbank.org | JOURNALS: projektManagement aktuell, published by GPM; International Journal of Project Management, Research Gate; Journal of Construction Engineering and Management, published by ASCE Building.hk, China Trend Building Press, www.building.hk

M19.0592210	Automation and Control – Energy and Transport	4 ECTS
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Course type: Integrated Course

Location of the course in the curriculum: Semester 2

Assessment: written and/or oral exam

Learning outcome: This module provides students with sound knowledge concerning hardware and automation principles required for automation & control in the field of energy and transport. After completion of this module, students will be able to apply theoretical knowledge of different automation principles in practice.

Course content: This integrated lecture provides an in-depth overview of the methods of control engineering in theory and application. Students will focus on practical examples with programmable logic controllers (PLCs) and embedded systems.

Required/necessary literature: Manesis/Nikolakopoulos: Introduction to industrial automation, CRC Press, 2018 | Bosl: Einführung in MATLAB/Simulink, Berechnung, Programmierung, Simulation, Carl Hanser Verlag GmbH & Co. KG, 2017 | Tapken: SPS – Theorie und Praxis; Verlag Europa-Lehrmittel, 5. Auflage, 2017 | Tieste/Romberg: Keine Panik vor Regelungstechnik, Springer Vieweg, 2012 | Zacher/Reuter: Regelungstechnik für Ingenieure, Springer Vieweg, 2011

M19.0529404	Crisis Communication, Coaching-Skills and Org. Development	4 ECTS
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Course type: Integrated Course

Location of the course in the curriculum: Semester 4

Assessment: written and/or oral exam

Learning outcome: After successful completion of this module students are able to actively deal with the topics "innovation" and "change". They know the essential tools and strategies of HR management and are able to deal with staff members from different cultural backgrounds. Students are able to identify organizational change, categorize it and develop adequate strategies to deal with organizational change. Additionally, they are able communicate adequately in different situations and coach groups or individuals in times of change.

Course content: This integrated lecture deals with the topic of organizational development as well as different types of change in an organizational setting. Students will learn how to identify different types of organizational challenges and changes. In addition, the lecture focuses on different intervention strategies and their effects on groups, teams and individuals. Students will be trained in adequate communication strategies in difficult situations or situations of crisis. The development of coaching-skills should enable students to guide and lead teams or individuals through challenging organizational situations.

Required/necessary literature: Kotter: Leading Change, Harvard Business Review Press, 2012 | Dezenhall/Weber: Damage control - the essential lessons of crisis management, Penguin Group, 2011 | Coombs: Ongoing crisis communication, Sage, 2014

M19.0529403
Innovation and Change Management
4 ECTS

Course type: Integrated Course

Location of the course in the curriculum: Semester 4

Assessment: Continuous assessment with written and/or oral exam

Learning outcome: After successful completion of this module students are able to actively deal with the topics "innovation" and "change". They know the essential tools and strategies of HR Management and are able to deal with staff members from different cultural backgrounds. Students are able to identify organisational change, categorize it and develop adequate strategies to deal with organisational change. Additionally, they are able communicate adequately in different situations and coach groups or individuals in times of change.

Course content: In the course of this integrated lecture different methods for the identification and analysis of needs and the potentials for innovations are examined with special focus on companies in the environmental, energy and mobility sector. Furthermore, state-of-the-art creativity techniques for the systematic generation of innovations are presented and applied in a practical framework of a project. In addition, the basics of change management and related models as well as success factors are analysed and impacts due to increasing digitalization are discussed.

Required/necessary literature: Journal of Organizational Change management, Technology Review

M19.0529405
International Human Resource Management
4 ECTS

Course type: Integrated Course

Location of the course in the curriculum: Semester 4

Assessment: written and/or oral exam

Learning outcome: After successful completion of this module students are able to actively deal with the topics "innovation" and "change". They know the essential tools and strategies of HR Management and are able to deal with staff members from different cultural backgrounds. Students are able to identify organizational change, categorize it and develop adequate strategies to deal with organizational change. Additionally, they are able communicate adequately in different situations and coach groups or individuals in times of change.

Course content: This integrated lecture deals with the key concepts of human resource management in a global business environment. Students will learn about basic HR processes, such as, HR planning, the staffing process, training and development and performance management. Additionally, students will learn about different leadership styles, strategic human resource management and talent management. As the workplace has become multicultural in recent years, cases of cross-cultural management, expat management and issues of corporate culture will also be elaborated.

Required/necessary literature: Noe/Hollenbeck/Gerhart/Wright: Fundamentals of Human Resource Management, McGraw-Hill, 2016

B22.00418404

Meetings and Negotiations

2 ECTS

Course type: Seminar

Location of the course in the curriculum: Semester 4

Assessment: Continuous assessment and vocab exam

Prerequisites and requirements: English B2 level

Learning outcome: Increase confidence when using English with clients, colleagues and suppliers in meetings and negotiations · improve the participants' meeting and negotiation ability so that they are equipped to achieve their personal and corporate objectives

Course content: Development and consolidation of key competences in everyday working life, in particular building up the relevant vocabulary for meetings and negotiations. Presentation of productive approaches to different types of meetings and joint exploration of the basic ideas behind the principled negotiation as developed by Ury and Fisher.

Teaching activities and methods: The seminar offers the opportunity to experiment with different approaches and encourages students to actively participate and contribute to the learning process.

Required/necessary literature: Fisher, R., Ury, W., & Patton, B. (1991). Getting to yes: Negotiating agreement without giving in (2nd ed.). Penguin Books (available in our library)

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IT Industry English

2 ECTS

Course type: Seminar

Location of the course in the curriculum: Semester 4

Assessment: grade participation [60%], grade final written exam [40%]; Both grades have to be positive (>60%) for the overall performance assessment.

Learning outcome: Discussion of relevant technical topics; improvement of reading and listening comprehension by working with authentic material; emphasis on increasing students' vocabulary. Critical discussion of current developments in CS.

Course content: The target is to

- enable students to express themselves adequately in technical and work-related terms in an IT business environment with English as the target language.
- be able to make a short presentation in English without reading
- enhance student's language proficiency
- improve student's English skills in the context of reading, listening, speaking and writing
- write a summary of a previously read text
- topics: applied hacking, crowdfunding, digital detox, life on demand, cyber security

Teaching activities and methods: learner-centred approach, interactive in-class work, self-study

Required/necessary literature: Duckworth, M. (2003). Business Grammar and Practice. | Gairn, R. & Redman, S. (2009). Oxford Word Skills Advanced. | Gairn, R. & Redman, S. (2009). Oxford Word Skills Intermediate. | McCarthy, M. (2003) Academic English in Use.

220418204

Boot Camp

3 ECTS

Course type: Seminar

Location of the course in the curriculum: Semester 2

Assessment: Tasks and the project work's outcome will be evaluated.

Learning outcome: Students can participate in small projects using agile methods and version management. Furthermore, they gain knowledge of a specific topics linked to the project itself through given tasks.

Course content: Specific tasks and learning material in the field of information technologies are given based on the outcome of the lecture "Barcamp" from the first semester. This prepares for a project work done in one to two days using version management (Git) and agile methods (e. g. Scrum) in teams.

Teaching activities and methods: Flipped Classroom, Project work in Teams, Supervision

Required/necessary literature: None, any information will be provided as preparation, prior to the project work.

180418406

3D-Programming

3 ECTS

Course type: Integrated course

Location of the course in the curriculum: Semester 4

Assessment: Continuous assessment

Prerequisites and requirements:

- Profound programming knowledge
- Basic C/C++ and good Java/C# knowledge
- Understanding of object-oriented concepts
- Knowledge in object-oriented languages, you will need your own hardware where "Unity" is installed

Learning outcome: Students gain basic knowledge in programming with 3D in WebGL and Middle Ware. They can operate 3D development environments like the Unity or Three.js for their 3D projects.

Course content:

- Basics of 3D Graphics: Coordinate System, Vertices, Vectors, Matrices, Transformations, Quaternions, Graphics-Pipeline, Scene Graph, Shader
- Graphics Libraries: WebGL, etc. as an overview
- 3D Engines (Middleware): Overview on actual software (Three.js), Differences/Unique properties
- Focus on 3D Programming in the Web and in Unity
- Final Project

Teaching activities and methods: Lecture and Tutorial

Required/necessary literature: Direct3D "Three.js Essentials", Jos Dirksen, Packt Publishing Ltd. July, 2014 | "Professional WebGL Programming", Andreas Anyuru, John Wiley & Sons, 2012 | Unity Engine Documentation (<https://docs.unity3d.com/Manual/index.html>) | Sites: jmonkeyengine.org, unity.com, unrealengine.com, khronos.org

180832401

Scientific Skills

2 ECTS

Course type: Seminar

Location of the course in the curriculum: Semester 4

Assessment: Continuous assessment

Learning outcome: Students learn about

- Scientific work
- The formulation of scientific research questions and hypotheses
- Researching and evaluating scientific literature
- Dealing with tools for scientific work (e.g. Latex, scientific databases, ...)
- Concept and implementation of own scientific papers

Course content:

- Fundamentals in the theory of science, ethics of science and scientific hypothesis generation.
- The basis for scientific procedure and methodology.
- Writing and presenting a scientific article.

Teaching activities and methods: Learner-centred approach, interactive in-class work, self-study

Required/necessary literature: Booth, W.C., Booth, W.C., Colomb, G.G., Colomb, G.G., Williams, J.M. and Williams, J.M., 2003. The craft of research. University of Chicago press. | Shaw, M., 2003, May. Writing good software engineering research papers. In 25th International Conference on Software Engineering, 2003. Proceedings. (pp. 726-736). IEEE. | Shaw, Mary. "What makes good research in software engineering?" International Journal on Software Tools for Technology Transfer 4.1 (2002): 1-7

M270419205

Machine Learning & AI for Security

2 ECTS

Course type: Integrated course

Location of the course in the curriculum: Semester 2

Assessment: submission of practice exercises and a final exam

Learning outcome: Students will understand AI and ML applications in cybersecurity with the help of real-world examples. They will develop and implement methods like neural networks and tree-based algorithms through hands-on projects. Additionally, they will enhance their ability to analyze and adapt solutions to diverse security challenges.

Course content:

- Application scenarios for AI/ML in security-relevant practical issues
- are explained using concrete examples. The most important methods used,
- such as artificial neural networks and tree-based methods, are
- developed hands-on with the students so that the students themselves are able to handle similar application scenarios using AI/ML.

Teaching activities and methods: lectures and practical examples implemented in AI/ML tools

Required/necessary literature: Hands-On, Artificial Intelligence for Cybersecurity, Alessandro Parisi (2019)

M24.0419206	Privacy and Data Protection	ECTS
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Course type: Lecture

Location of the course in the curriculum: Semester 2

Assessment: homework and exam, see Syllabus

Prerequisites and requirements: no prerequisite, but participation is obligatory

Learning outcome: legal knowledge about privacy and data protection (GDPR, Austrian DSGVO)

Course content: privacy and data protection (GDPR), also Austrian law like data protection law

Required/necessary literature: will be provided for before and during the course on Moodle

M24.0419204	Database Security	2 ECTS
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Course type: Seminar

Location of the course in the curriculum: Semester 2

Assessment: Lab report and/or oral/written exam, seminar paper

Prerequisites and requirements: SQL and relational database systems basics and concepts. Containerization (podman, docker), Linux basics.

Learning outcome: Students are proficient in the practical application of the material covered.

Course content: This course covers all key aspects of database security (DB authentication, application and password security, DB authorization, granular access control, DB2-DB communication, DB encryption, and DB auditing). It also examines storage and database systems in the context of big data using real-world scenarios. In particular, however, the course discusses the security aspects of these technologies as well as related best practices. All exercises are run on the OpenStack platform to ensure a consistent environment for all students.

Required/necessary literature: will be shared during the course, with links included in the lecture notes

M240590209
Change Management
2 ECTS

Course type: Practical Lecture

Location of the course in the curriculum: Semester 2

Assessment: case presentation and open book exam

Learning outcome: The students will have a structured overview of the most significant concepts in change management and are able to combine elements of the different concepts according to a specific corporate change situation. Also, students will be able to identify and improve change relevant success factors.

Teaching activities and methods: group work, group discussion, practical case/challenge

Required/necessary literature: /

M240590211
AI Applications & Automation
5 ECTS

Course type: Practical Lecture

Location of the course in the curriculum: Semester 2

Assessment: exam

Learning outcome: Students are able to apply AI tools to tackle challenges in the industry.

Course Content:

- Concepts and methods of AI and machine learning, and corresponding tools
- Data preparation for AI applications
- AI applications in industry, illustrated by selected examples
- Classification, regression, prediction, clustering, AutoML, validation, deployment, selection, model accuracy

Teaching activities and methods: group work, group discussion, practical case

Required/necessary literature: Russell/Norvig: Artificial Intelligence A Modern Approach | Tariq Rashid: Make Your Own Neural Network | Foundations and Trends in Machine Learning, University of California, Berkeley | Industrial Artificial Intelligence, Springer | The Journal of Artificial Intelligence, Elsevier

B220589603
Industrial Projects
9 ECTS

Course type: Seminar / (max. 2 Teams a 3 Students)

Location of the course in the curriculum: Semester 6

Assessment: continuous assessment

Learning outcome: The students are able to analyse professionally relevant problems posed within projects, derive suggestions for solutions and assess processed results.

Course content: Working in a project in industry or working on a topic in research relevant to the study programme.

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

B220589212

Meetings (English II)

2 ECTS

Course type: Integrated lecture**Location of the course in the curriculum:** Semester 2**Assessment:** Discussion, reflection, exercises and presentations**Learning outcome:** The students are able to

- give a professional presentation on a specific topic.
- compose and adequate application for an international internship.
- moderate and participate in meetings and video conferences.
- describe basic material properties and common industrial processes in basic terms.
- apply the grammatical rules and structures acquired in English 1.

Examination and continuous assessment:

- Meetings and moderation with international participants
- Language functions in English as a participant, moderator, or chairperson.
- Telephone and video conferences
- Application of technical and scientific language in meeting situations
- Composing an application for an internship

Required/necessary literature: Tullis/Trappe: Intelligent Business | Vince: English Grammar in Context

B220589409

ERP Information Management

3 ECTS

Course type: Practical lecture**Location of the course in the curriculum:** Semester 2**Assessment:** Examination and continuous assessment**Content:**

- Definition, goals, structure and functions of Enterprise Resource Planning software (ERP) - How have ERP systems developed historically? - How are business processes supported within an ERP system? - How can ERP systems be implemented successfully?
- Positioning of ERP systems in companies- How does the company differ from other software solutions?
- Real-time systems using the example of SAP S / 4HANA- How can business processes be successfully integrated, automated, standardized and controlled?
- SAP S / 4 HANA - Finance and Logistics: Central organizational units, Master data of particular importance, Business processes in finance and logistics, Logistics functions and their integration relationships in the materials management, production planning and sales modules

Learning outcome: The students are able to:

- understand the role of ERP systems in Information Management.
- go through all steps in an ERP Roll out.
- describe the most important upsides and downsides from ERP Systems.
- map Business Processes with the ERP modules of Accounting and Logistics.

Required/necessary literature: Kurbel: Enterprise Resource Planning und Supply Chain Management in der Industrie | Brunner/Reichhardt/Munzel: Schnelleinstieg in SAP S/4 HANA | Bernstein: Messelektronik und Sensoren: Grundlagen der Messtechnik, Sensoren, analoge und digitale Signalverarbeitung | CIRP Journal of Manufacturing Science and Technology • ERP-Management (https://www.wiso-net.de/toc_list/ERP)

Course type: Seminar

Location of the course in the curriculum: Semester 4

Assessment: Final Exam and continuous assessment

Learning outcome: The students are able to

- learn argumentation methods and appropriate business etiquette in negotiations
- cause and effect for logical arguments
- write summaries of complex content and procedures
- quoting and paraphrasing information from scientific sources

Required/necessary literature: Ibbotson: Cambridge English for Engineering, Cambridge | Tullis/Trappe: Intelligent Business, Longman | 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.

S05.0502201 or S05.0502203

German Beginners (A1.1 or A1.2)

5 ECTS

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

Course type: Integrated course

Location of the course in the curriculum: flexible

Assessment: Continuous assessment

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

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, 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

Course content: speaking, listening, reading, writing

Required/necessary literature: Schritte plus (available at your International Relations Office, 19 EUR)

varies

German for all other levels (A2-C1)

3 ECTS

Depending on the number of interested students for each course, we are offering or the courses for the levels A2-C1. If no courses will be available in Kapfenberg, you can participate in the courses offered in Graz. The courses offered will be announced shortly before the beginning of the semester.

Course type: Integrated course

Location of the course in the curriculum: flexible

Assessment: Continuous assessment

Prerequisites and requirements: certificate or confirmation of the previous level (Einstufungstest)

Learning outcome: varies

Course content: speaking, listening, reading, writing

Required/necessary literature: Scripts of FH JOANNEUM (available at your International Relations Office, 19 EUR)

S05.0502235

Tandem Programme

2 ECTS

Course type: Integrated course

Location of the course in the curriculum: flexible

Assessment: Continuous assessment, presentation at the end of the semester

Prerequisites and requirements: /

Learning outcome: Insights into Austrian Culture and Language and cultural exchange with your Austrian Tandem Partner by joining provided activities.

Course content: Language and cultural exchange between Austrian and International students.

Teaching activities and methods: Participation in events organised by the International Relations Team during the semester, private meetings between tandem partners, mandatory info session at the beginning of the semester and presentation at the end of the semester

Required/necessary literature: /

****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.***

INT.002

Cultural Diversity

1 ECTS

Course type: Integrated course

Location of the course in the curriculum: flexible

Assessment: Continuous assessment, assignments

Prerequisites and requirements: /

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 students at FH JOANNEUM are presenting their own first experiences in Austria - followed by an interactive country presentation to point out the intercultural diversity at FH JOANNEUM.

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

Required/necessary literature: /

****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.***

WHY YOU SHOULD STUDY AND LIVE IN KAPFENBERG

an international
campus with students
and staff from all over
the world

an especially
designed
programme
completely taught
in English

**projects and
courses with local
industry partners**

**a central location
with well-
established
public transport
connections**

affordable
student housing
5 minutes
walking from
campus

A LOCAL BUDDY
FOR SUPPORT
BEFORE, DURING
AND AFTER
ARRIVING

extracurricular
events organised by
motivated students
and staff

**a historical alpine
town with easy
access to nature**

The industrial heart of Styria.
Medieval Charm with
Global Economic Impact.

THIS IS KAPFENBERG.





KAPFENBERG is a city located along the banks of the Mürz River in the foothills of the Alps with its own medieval castle close to the city center. It is primarily known for its longstanding steel industry, which makes Kapfenberg a hub of engineering and manufacturing.

Beyond its industrial background, Kapfenberg also offers cultural attractions and sporting opportunities. The surrounding mountains in the green heart of Austria create scenic views and make Kapfenberg a great place for outdoor enthusiasts: Hiking trails and skiing areas are all nearby and easily reachable by public transport.

Kapfenberg is very well-connected to destinations all over central Europe, with uncomplicated public transport connections to cities inside of Austria like Graz, Vienna and Salzburg as well international destinations such as Munich, Zurich, Prague, Budapest, Venice and many more...



STUDENT HOUSING

The WIST Steiermark student dorm in Kapfenberg is located only 5 minutes walking from campus and hosts a diverse international community.

Facilities Include:

- Gym
- Laundry Room
- Common Room / Movie Room / Party Room
- Inner Courtyard with Grill and Fireplace

Book through the International Relations office and get a local buddy for individual support before, during and after arriving to Kapfenberg!



Students who study and live in Kapfenberg receive financial support from the municipality of Kapfenberg:

- × 150 Euros public transport refund
- × 100 Euros shopping vouchers

International Pub Quiz



International Fair



Student Dorm Parties



Goodbye Picnic



Tandem Presentation



FOLLOW US ON INSTAGRAM



 fhj_internationalize_yourself

Info Stand



Student Dorm Parties



International Fair



Cultural Diversity

