

**International Programme
Spring semester 2018
FH JOANNEUM, Campus Kapfenberg**

Study your dream



International Programme

FH JOANNEUM, Campus Kapfenberg

Summer Semester 2018 (29.02. – 27.07.2018)

Kapfenberg is the right place for you ...

The four degree programmes offered at the Kapfenberg Campus of the University of Applied Sciences JOANNEUM have joined forces to create and offer you a programme in English.

ITM (Internet Technology, Bachelor) – **IMS** (IT & Mobile Security, Master) – **IRM** (IT Law & Management, Master)
EVU (Energy Transport and Environmental Management, Bachelor) – **MET** (Energy and Transport Management, Master)
AEE/ECM (Advanced Electronic Engineering, Master)
IWI (Industrial Management, Bachelor) – **IIM** (International Industrial Management, Master)

Please note: IMS, IRM and AEE/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 AEE/ECM are taught almost entirely in English. Should applicants fulfil the course requirements, they may choose courses from the MET curriculum which are not listed in the “International Programme”.
*ECM courses only take place after approval by the relevant bodies.

Hand in

- a filled-in application form
- a transcript of records
- your learning agreement

and spend a semester in Austria, Kapfenberg!

Application deadline is **31st of October 2017**

The number of participants for this programme is limited.



List of all courses offered in the International Programme

Deg.prog.	semester	cours no.	Course	ECTS
*ECM	2		Scientific working	2
*ECM	2		Model based software development	5
*ECM	2		Data structures and algorithms	4
AEE	4	90421401	International Management	5
AEE	4	90421402	Innovation Management	1,5
AEE	4	90421404	Meetings & Presentations	1,5
				19
EVU	4	140591402	Thermal Engines	2
MET	2	130592204	Water supply & Drainage	2
MET	2	130592202	Traffic Telematics	4
MET	2	130592209	Economics Infrastructure Financing	4
MET	2	130592205	Environmental Chemistry	2
MET	2	130592211	Human Ressource Management	3
MET	2	130592208	Environmental Control for E&T	2
				19
ITM	4	110418408	IT-Project Work 1	4
ITM	4	110418411	Professional English Advanced	2
ITM	4	110418402	Distributed Computing	2,5
IMS	2	140419203	Scientific Working	3
IMS	2	140419204	Mobile Operating Systems	5
IMS	2	140419205	Cross-Platform Development	6
IRM	2	140472205	Legal English	4
IRM	2	140472208	Entrepreneurship	2
IRM	2	140472202	e-business applications	2
				30,5
IWI	6	080589605	Scientific project work	6
IWI	6	080589603	Industrial Projects	4
IWI	2	170589212	Language of meetings (English II)	2
IWI	6	80589609	Cross-cultural Communication	4
IWI	4	80589402	Negotiation & Argumentation (English IV)	2
				18
			German beginners (A1/1 or A1/2)	3
			German intermediate	3
			Austria – People and Culture	2
				8
			Total ECTS	94,5



Scientific working

(ECM/2. Semester)

2 ECTS

Description of course elements:

This course deepens knowledge about scientific working and includes the following topics:

- scientific methods
- literature research Literaturrecherchen
- technical and scientific description and documentation
- scientific publishing

Learning outcome from related module:

The students improve their understanding of scientific research and paper writing and get the tools for writing bigger scientific documents (i.e. master thesis) in a scientifically appropriate manner.

Assessment:

Immanent Assessment and/or exam.

Model based software development

(ECM/2. Semester)

5 ECTS

The course gives an overview on electrical components in vehicles.

The content is structured as follows:

- On-board generation of electric energy
- Energy storage (batteries, super-caps, hydrogen with fuel cell)
- Board-net architectures and board-net control
- Auxiliaries (air-condition, fans, pumps, etc.)
- Automotive sensors

Prerequisites:

Good understanding of Control engineering (continuous and discrete time) and of electromechanical Systems including their math

Basic understanding of Embedded Systems including FPGA and of the modeling and simulation tool MATLAB/Simulink or willingness of self-study

Assessment:

50% Report of lab exercises, 50% Final exam

Data structures and algorithms

(ECM/2. Semester)

4 ECTS

This course deepens the technical knowledge about programming techniques and the according structures.

It covers the following topics:

- Integer Arithmetics
- Sorting and Selection
- Hash tables
- Graph Representation
- Shortest paths
- practical examples

Prerequisites:

Microcontroller Architecture and Programming on a user level

Assessment:

Immanent evaluation and/or exam at the end of the semester



International Management

(AEE/4. Semester)

5 ECTS

This **BLOCKED** course examines the dimensions of international business. It is structured beginning with the macro-environment, transitions to the firm level, and concludes with the individual manager in the international setting. Students will be introduced to theories of international management in the context of current and emerging realities in the global marketplace. This course will take a practical approach to International Management with a special emphasis on cases & examples that are relevant to the actual practices of international business today.

Assessment:

Immanent Assessment and final exam.

Innovation Management (AEE/4. Semester) **1.5 ECTS**

The blocked course gives an introduction to the following topics:

- Importance of innovation
- Evolutionary economics
- The theory of inventor's problem solving (TRIZ)
- Managing technology and knowledge
- Managing intellectual property
- Innovation as an operations process
- Development of new products

Assessment:

Accompanying (immanent) Assessment based on case studies.

Presentations and Meetings (AEE/4. Semester) **1.5 ECTS**

The blocked course will be held as a workshop focussing on the following topics:

- Developing effective oral presentations
- Designing effective visual aids for presentations
- Preparing and leading efficient meetings
- Practical cases

Assessment:

Accompanying (immanent) Assessment based on practical exercises

Thermal Engines (EVU/4. Semester) **2 ECTS**

In Thermal Engines the following topics will be covered:

- Basic thermodynamics of heat engines
- Historical aspects
- Design aspects, operating performance, etc.: piston engines, internal combustion engine (Otto, Diesel), steam turbine, gas turbine, combined cycle

Assessment:

Written and/or oral exam

Water supply & drainage (MET/2.Semester) **(2 ECTS)**

Description from application:

Urban irrigation and drainage; in-depth treatment of water supply/distribution in urban networks and wastewater engineering/drainage in urban networks, hydrology, hydraulics; road drainage and wastewater discharge in road networks.

Learning outcome from related module:

In-depth knowledge about the management of energy & transport networks including the underlying infrastructure and environmental influences/emissions; network design, including modelling and simulation; network operation including issues of stability, quality levels and controlled access to networks; network maintenance; network stability; restoration of power in the event of grid failures

(e.g. power grid blackout; power interruption due to accidents or maintenance work); ability to understand and specify quality parameters (Quality of Service).

Teaching and Learning Methods:

integrated course

Assessment:

written and/or oral exam

(Elective course): This course requires a minimum number of participants to be held!

Traffic telematics (MET/2. Semester)

4 ECTS

Description from application:

Key areas 1) Quality parameters of mobile phone systems in the transport sector 2) Mobile phone systems; positioning system and RFID, possible applications and their Assessment (no details about functional principles) 3) Operation and configuration of telematic networks 4) Intelligent transport systems (“ITS” intelligence in vehicles, intelligence in infrastructure). 5) Road-to-car communication, car-to-car communication 6) Application of current wireless communication systems and determination of quality parameters required for specific applications 7) Applied telecommunications; quality of service of telecommunication networks, service level agreement, availabilities, interfaces, time response.

Learning outcome from related module:

In-depth knowledge of transport planning, transport modes (road, rail, aviation), transport industry and traffic telematics for application by transport providers, authorities, consulting firms or the manufacturing industry; knowledge about the financing and legal status of companies, special knowledge about environmental impacts in the transport sector.

Teaching and Learning Methods:

integrated course

Assessment:

written and/or oral exam

(Elective course): This course requires a minimum number of participants to be held!



Economics Infrastructure Financing (MET/2. Semester) **4 ECTS**

Investment rating, financing methods (e.g. PPP, BOT), efficient economic and political risk management, financial institutions (local banks, development banks), current exemplary infrastructure projects, real option theory, project calculation; composition of tariffs in the energy and transport sector.

Assessment:

written and/or oral exam

Environmental chemistry (MET/2. Semester) **2 ECTS**

Description from application:

Representative methods of environmental analysis and operation of typical equipment (e.g. flue gas analysis)

Learning outcome from related module:

In-depth knowledge about the management of energy & transport networks including the underlying infrastructure and environmental influences/emissions; network design, including modelling and simulation; network operation including issues of stability, quality levels and controlled access to networks; network maintenance; network stability; restoration of power in the event of grid failures (e.g. power grid blackout; power interruption due to accidents or maintenance work); ability to understand and specify quality parameters (Quality of Service).

Teaching and Learning Methods:

tutorial

Assessment:

written and/or oral exam

Elective course: This course has a limited number of participants

Human Resource Management (MET/2. Semester) **3 ECTS**

Human resources management (agreeing on targets, giving feedback, motivation, meaning-oriented leadership), conflict management, behavior and tactics in negotiations, people management, people development, time management, training and further education management, personnel recruiting and aptitude diagnostics.

Assessment:

Written and/or oral exam

Environmental Control for E&T (MET/2. Semester) **2 ECTS**

Environmentally relevant topics in the field of energy and transport; emissions <-> immissions; different kinds of emission (pollutants, exhaust gases, noise, air pollution control, dusts (e.g. particulate matter), CO, nitrogen oxide, sulphur dioxide, hydrocarbons, secondary reactions (aerosols, ozone formation); exhaust aftertreatment systems in vehicles (catalytic converters, filter systems), limit values for key pollutants (particulate matter measurement), noise, emission sources; emission reduction measures; environmental impact assessment; EU-law related subject

Learning outcome from related module:

In-depth knowledge about the management of energy & transport networks including the underlying infrastructure and environmental influences/emissions; network design, including modelling and

simulation; network operation including issues of stability, quality levels and controlled access to networks; network maintenance; network stability; restoration of power in the event of grid failures (e.g. power grid blackout; power interruption due to accidents or maintenance work); ability to understand and specify quality parameters (Quality of Service).

Teaching and Learning Methods:

integrated course

Assessment:

written and/or oral exam

IT- Project Work 1 (ITM/4. Semester) 4 ECTS

By working independently on projects of average difficulty students learn to apply project management skills.

Assessment:

Project Assessment and final presentation

Professional English Advanced (ITM/4. Semester) 2 ECTS

Consolidation of relevant skills for the students' professional careers: Improvement of negotiation and meeting skills, critical reflection of relevant topics from the fields of business, law and engineering; English for specific purposes: specific language used in meetings and negotiations; simulated meetings in class.

Assessment:

Continuous assessment and/or final exam

Distributed Computing (ITM/4. Semester) 2,5 ECTS

Designing software for distributed environments, managing remote objects (naming, discovery, serialization; Java RMI), aspects of parallel and distributed computing (concurrency, multithreading and synchronization, deadlocks, map reduce, producer consumer), messaging systems (message broker; RabbitMQ, worker queues, event-based, asynchronous communication, publish-subscribe model, mobile code), caching (memcached/redis) for REST web services and/or real time clients (web sockets).

Learning outcome from the related module:

On completion of the course, students know about design and implementation of selected distributed software systems.

Assessment:

Team project and written exam

Scientific Working (IMS/2. Semester) 3 ECTS

This course teaches students about the basic principles of scientific work in the field of applied computer sciences. It is an introduction into the fascinating field of research. The course shows the power of theory and literature, helps formulating intriguing research questions, provides an overview of scientific

methods and data analysis, and gives hints on how to derive insightful conclusions out of results. Using this topic area, we will understand what it means to 'do science' and to develop skills such as how to do literature review, how to critically read and review written papers, hold oral presentations and posters.

Learning outcome from related module:

The graduate possesses detailed knowledge in the foreign language. He/she can express himself/herself spontaneously and fluently. He/ she can use language flexibly and effectively for social, academic and professional purposes. Moreover, the student can produce clear, well-structured, detailed text on complex subjects, showing controlled use of organizational patterns, connectors and cohesive devices. In addition to that, the student 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.

Prior knowledge from related module:

English Proficiency in B2/ C1

Assessment:

Seminar: continuous assessment



Mobile Operating Systems (IMS/2. Semester) 5 ECTS

Operating system basics, architectures and functional principles; special focus on operating systems in mobile systems and the specific requirements in this field, Introduction to C as a systems programming language and its application; Virtualization principles

Learning outcome from related module:

Proper knowledge about operating systems for mobile environments and their architectures. Based on that sound knowledge about operating system safety and security

Prior knowledge from related module:

general informatics

Teaching and Learning Methods:

3 ECTS lecture, 2 ECTS tutorial

Assessment:

Lecture: final exam, tutorial: continuous assessment

Cross-Platform Development (IMS/2. Semester) 6 ECTS

Development of HTML5 web apps for different platforms - including social media frameworks and real-time web application - are covered. Aspects of cross-platform code generation are treated.

Learning outcome from related module:

Students gather knowledge of design, development and Assessment of secure mobile applications on different platforms.

Assessment:

Lecture: final exam, lecture: continuous assessment

Prerequisites:

Advanced knowledge in:

- OO-Programming and Debugging, Javascript (async, callbacks), Responsive Web Design (HTML5, CSS3, WebSockets), Restful Webservices, ...

Basic experiences with:

- Linux/Unix, Network Troubleshooting, NoSQL Databases, git repositories, ...

Further helpful/suggested competences:

- Android Development (design, implement, debug and deploy Android Apps)

Legal English 2 (IRM/2. Semester) 4 ECTS

The course covers the following topics:

- Sale of goods, warranties, terms and conditions of sale, retention of title; writing a memorandum
- Company Law: capitalization, shares, rights issue; contrasting, expressing opinions
- Changes in the company: mergers, acquisitions etc.; explaining procedure;
- Intellectual Property; the case of Joel Tennenbaum; discourse markers; phrases for discussions;
- IT law and cybercrime; the case of the Palin hacker

- Secured Transactions; formal letter writing; financial crisis
- ILEC test examples and tips on preparing for and passing the ILEC exam; Competition law; Employment Law Contracts: repetition of express and implied terms; case studies on contract law and intellectual property law; Licensing agreement theory and sample contract

Assessment:

Immanent evaluation and/or final exam

Entrepreneurship

(IRM/2. Semester)

2 ECTS

Entrepreneurs generate substantial economic growth by pursuing innovations, introducing new products and services, opening new markets as well as adapting themselves to new knowledge. Therefore the present course focuses on starting and growing new businesses. We investigate concepts, tools, and practices of entrepreneurship by assessing the value of a new venture, writing a business plan, and selected guest speakers. Above that we identify and exercise entrepreneurial skills and behaviors that lead to firm performance and growth.

The course consists of two modules:

MODULE 1: Entrepreneurial concepts, tools, and practices

MODULE 2: Entrepreneurial skills and behaviors



E-Business Applications - project (IRM/2. Semester) 2 ECTS

E-business models are the theoretical basis for e-business applications. In this lecture the focus is on the practical implementation of e-business concepts. This implementation occurs via the use of appropriate software engineering methods, such as specifications, requirements specification, project plan, schedule, resource plan. E-business Applications also includes the implementation and testing of the developed concept. You will have to do a project on your own.

Scientific Project Work (Bachelor's Thesis 2) (IWI/6. Semester) 6 ECTS

Students, supervised by a lecturer, will write an academic paper, using scientific methods and techniques, as well as formalities. Within the scope of this project work, the participants should adapt industry-related tasks and autonomously work on solutions for their research problems.

Industrial Projects (IWI/6. Semester) 4 ECTS

Description:

Small project groups, supervised by a lecturer, will work on subjects, case studies or real situations given by an industry partner or the degree program Industrial Management. Participants will learn the basic principles of project management improve their teamwork skills and gain an insight into the daily business of an industrial environment.

Attention: There are only a view places for an English Industrial Project. If you want to participate in a German Industrial Project good German skills are required. To check your skills you will have a talk to the international coordinator before starting the project.

Prerequisites:

Knowledge in topics related to the project
Good language skills in English or German

Negotiation & Argumentation (English IV) (IWI/4. Semester) 2 ECTS

In the course Negotiation & Argumentation the following topics will be covered:

- *Professional English
- * Negotiations and proper business etiquette
- * High level questions to clarify information
- * Argumentation methods
- * Quoting and paraphrasing information from different sources



Language of Meetings (English 2)

(IWI/2. Semester)

2 ECTS

In the course Language of Meetings the following topics will be covered:

- Meetings and moderation with multi-cultural participants.
- Language functions in English as a participant, moderator or chairperson.
- Telephone conferences
- Plan of action
- High level questions to clarify information

Cross-cultural Communication

(IWI/6. Semester)

4 ECTS

This course will teach students the appropriate language skills to:

- Use English for business and socializing in a globalised world
- Express themselves adequately in technical and financial terms in an industrial business environment with English as the target language.
- Use English as the business language for presentations and other professional settings while understanding the differences of communication with culturally diverse participants.
- Implement academic writing skills for abstracts and introductions.

Requirements:

Students will have to prepare and conduct project presentations; engage in topical classroom debate based on readers; write homework assignments on questions from script/reader; prepare and write a final abstract for BSc Thesis.



German Courses and Intercultural Subjects:

There might be slight changes in the course offerings due to student numbers and required levels!
Please note that several German courses of different levels cannot be taken at once.

German Beginners 1 (A1/1) or German Beginners 2 (A1/2)	3 ECTS
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Whether both or just one of the above mentioned courses will be offered depends on the student numbers.

The beginner courses (first and second level) integrate the skills of listening, speaking, reading and writing and emphasize oral communication and listening comprehension in a culturally authentic context.

More information about the contents: www.fh-joanneum.at/daf

Prerequisites:

No command of the German language for German Beginners 1 (A1/1). The course German Beginners 1 is a prerequisite for German Beginners 2.

Assessment:

Continuous assessment, written exams

Bibliography: Schritte international 1, A1/1 or 2, A1/2 (Hueber 2006) with Audio-CD and interactive exercises, about € 13,-

German Intermediate 2 (B1/2)	3 ECTS
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The course "German Intermediate 2" focuses on your grammar competences and the structure of the German language. It will also enlarge the students' range of vocabulary and expressions. Students will be exposed to more complex issues of grammar at level B1/2 such as: Temporal and local connectors and prepositions, passive voice in past tense and perfect tense ("Präteritum" and "Perfekt"), future tense I, ("Futur I"), unreal comparison, conditional II, word order, conditional II ("Konjunktiv II") etc.

Prerequisites:

Level B1/1

Bibliography: You will get up-to-date and didactic teaching materials in the course, which are designed specifically to meet the needs of your language level: € 13,-

Assessment:

Continuous assessment, written exams



Austria – People and Culture

2 ECTS

In this course, the intercultural experiences of the participants will be discussed and the cultural differences between Austria and the participants' home countries analysed. It will not only provide useful information about Austria, but also focus on the basics of the German language and on how to handle difficult situations caused by the cultural differences discussed.

Prerequisites:

None

Bibliography: Teaching materials are provided by the lecturer: € 13,--

Assessment:

Class participation and presentation

Minimum number of participants: **8**

*Have you always wanted to get to know Austria and learn some German?
Do you enjoy being part of a small and very intimate community of students?
Do you relax best when doing sports?*

Kapfenberg is just the place to go!

Why Kapfenberg?

It not only offers the best out and indoor sports facilities but also a first class educational environment. With about 23.000 inhabitants Kapfenberg is the third biggest town of the province of Styria. It is one of the most modern and innovative high-tech industrial cities in Austria.

In Kapfenberg students can enjoy a unique campus atmosphere: after lectures, students are encouraged to meet and talk with professors and lecturers, who spend much of their time attending to their students' needs. Due to the small campus our students form a real community and it will be easy for you to get fully involved in student life. State-of-the-art laboratories, a canteen, a comfortable students' lounge and a residence hall, which is also a starting point for great running and mountain bike trails, provide you with the perfect study environment.

How to get to Kapfenberg?

The campus is easy to reach as railway station and bus stops are located directly in front of the building. And Graz, the capital of Styria, is less than an hour away.



Where to stay?

Kapfenberg provides a range of accommodation facilities for students. The nearest housing possibility is the student home WIST. For more information please contact us directly via mail.