

Bachelor's degree programmes

Electronics and Computer Engineering
Automotive Engineering
Aviation
Sustainable Food Management
Production Technology and Organisation

Master's degree programmes

Electronics and Computer Engineering
Engineering and Production Management
Automotive Engineering
Aviation

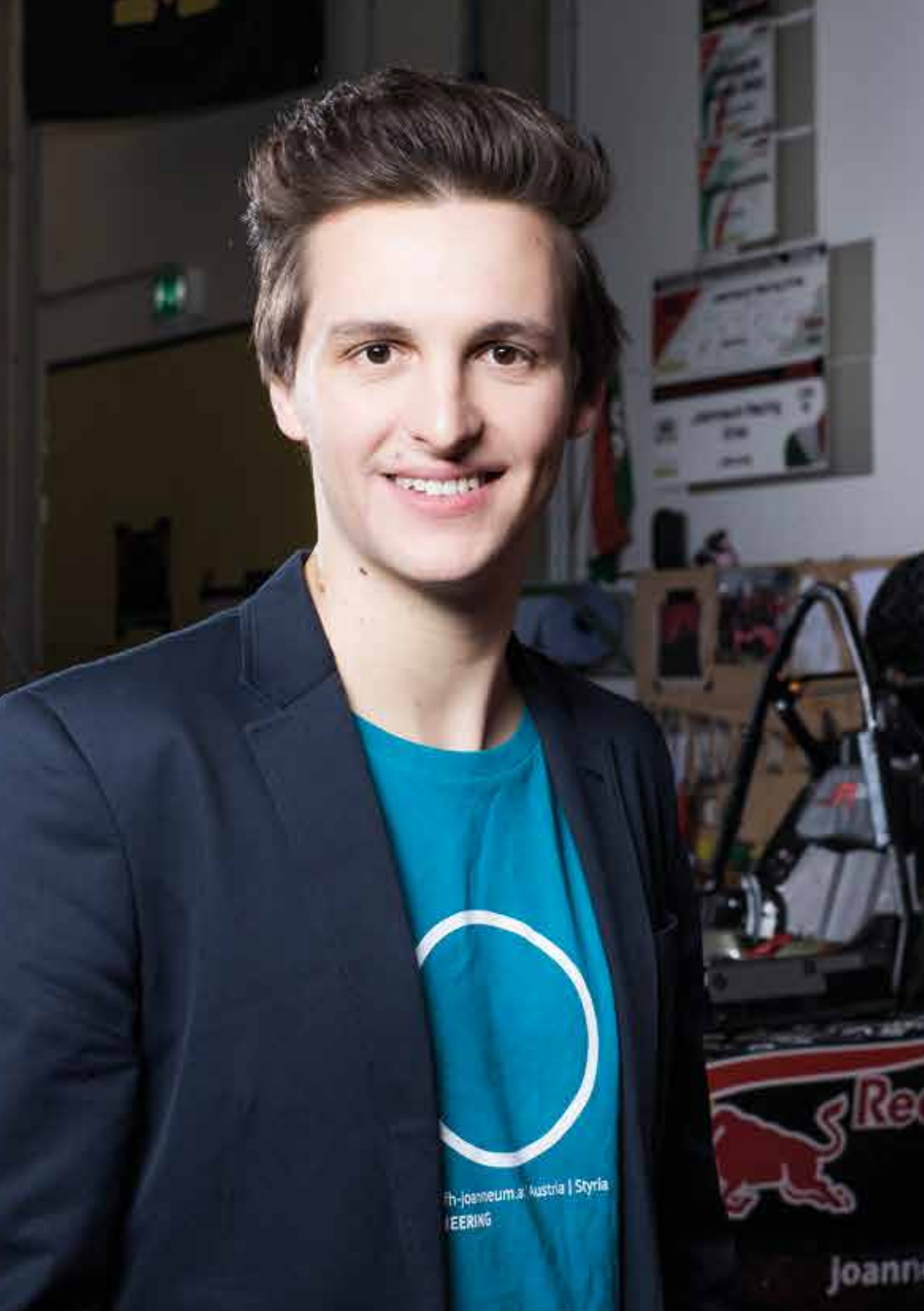
Postgraduate Master's course

Air Traffic Management

EN



STUDY
YOUR
DREAM



Bachelor's degree programmes	Degree	Organisation	Campus
Electronics and Computer Engineering	BSc	Full-time	Graz
Automotive Engineering	BSc	Full-time	Graz
Aviation	BSc	Full-time	Graz
Sustainable Food Management	BSc	Full-time / practice-integrated	Graz
Production Technology and Organisation	BSc	Co-op	Graz

Master's degree programmes	Degree	Organisation	Campus
Electronics and Computer Engineering	MSc	Work-friendly	Kapfenberg
Engineering and Production Management	MSc	Co-op	Graz
Automotive Engineering	DI	Full-time	Graz
Aviation	MSc	Full-time	Graz

Postgraduate Master's course	Degree	Organisation	Campus
Air Traffic Management	MSc	Part-time	Graz

The Department of Engineering focuses on innovations in mechanical engineering, electronics and process engineering, working in close cooperation with leading companies and institutions. We carry out large-scale international projects to develop new solutions for the e-mobility sector and for all kinds of industrial products: from cars to aircraft and food. What motivates us is taking a product idea through to successful implementation in a life cycle approach. We are fully aware of our responsibility towards future generations and are committed to sustainability as a key aspect of our applied research activities. Graduates from our engineering degree programmes are in international demand and are well-qualified to meet the challenges of technological innovation while using their extensive skills in contributing towards sustainable development.

Bachelor's degree programme ELECTRONICS AND COMPUTER ENGINEERING

Electronics and computer engineering are impacting practically all spheres of our lives. Mobile phones, medical devices and airplanes wouldn't work without innovative technologies. Our students are fascinated by high-tech solutions and develop and program sophisticated electronics.

What you will learn:

- Developing hardware
- Writing software
- Setting up communications
- Networking electronic devices
- Moving robots and vehicles
- Managing projects


Throughout the course students gain hands-on experience in the use of state-of-the-art technologies: from laboratory practicals and projects from the first semester onwards to the professional internship in the sixth semester. In addition to application-oriented technical knowledge, our students also learn methodology and acquire social skills

Organisation

Electronics and Computer Engineering is a full-time course. This means the classes are held at FH JOANNEUM over a 15 week period each semester, generally all day Monday to Friday. You receive a current timetable at the start of each semester.

Tip: Austrian pupils graduating from technical secondary schools (HTL) with relevant subject specialisms may join the degree programme in the second semester, after having completed their compulsory military or community service. We would be happy to provide more information and details about this option.


FACTS

 Bachelor of Science in Engineering (BSc)

 Full-time

 6 semesters / 180 ECTS

 FH JOANNEUM Graz

 Language of instruction: German

- 26 places per year
- Head of Degree Programme: FH-Prof. Priv.-Doz. DI Dr. Christian Vogel
- Tuition fees: no tuition fees for students from the EU, EEA and Switzerland
- All information about deadlines, application and admission can be found online.
- www.fh-joanneum.at/ece

Did you know ...

... that we love technology? We program robots, develop self-driving model vehicles and design small high-performance chips.



Practice as you learn

Practical experience is an essential element of this course and so we provide state-of-the-art infrastructure for learning, practising and experimenting. You have access to laboratories kitted out with top class equipment where you can plan, design and carry out practical projects.

“The main reasons for choosing this degree programme were the chance to obtain practical training as well as the modern labs. The combination of study and practical work leads to interesting projects with a personal level of supervision at FH JOANNEUM.”

Gerald Ferner, BSc, Graduate

Career prospects

Our graduates can undertake a Master's degree programme at FH JOANNEUM, e.g. Electronics and Computer Engineering, or else start out on their professional career. The interplay between electronics and computer sciences is the key technology of the future. This opens up a range of job prospects, from the electronics and automotive industry or the telecommunications sector and semiconductor industry to automation and medical engineering. As an electronics expert you will develop systems for vehicles, design chips for new communications technologies and design electronics for the industry of the future.

CURRICULUM: 180 ECTS (30 ECTS per semester)

1st semester	2nd semester	3rd semester	4th semester	5th semester	6th semester
Applied Computer Science 1 10 ECTS	Applied Computer Science 2 12 ECTS	Embedded Systems 8 ECTS	Industrial Auto- mation 1 5 ECTS	Energy and Mobility 1 5 ECTS	Electronics and Computer Engineering Project 7 ECTS
Fundamentals of Electrical Engineering 8 ECTS	Applied Electrical Engineering 1 9 ECTS	Control Engineering and Electric Drives 5 ECTS	Embedded Computing 1 5 ECTS	Industrial Auto- mation 2 5 ECTS	Energy and Mobility 2 5 ECTS
Fundamentals of Science 1 9 ECTS	Fundamentals of Science 2 5 ECTS	Semiconductor Technology 6 ECTS	Communication Technology 5 ECTS	Embedded Computing 2 4 ECTS	Bachelor's Thesis 16 ECTS
Technology Management 1 3 ECTS	Technology Management 2 4 ECTS	Applied Electrical Engineering 2 7 ECTS	Design and Test of Electronic Devices 7 ECTS	Applied Signal Processing 5 ECTS	Internship 14 ECTS
			Analog Signal Processing 5 ECTS	Model-Based Design 5 ECTS	
		Technology Management 3 4 ECTS	Technology Management 4 3 ECTS	Technology Management 5 4 ECTS	
Technology Management (10 %)	Fundamentals of Science (7.8 %)	Computer Engineering (30 %)	Electronics (26 %)	Elective Subjects (5.6 %)	Projects & Practicals (20.6 %)

Bachelor's degree programme AUTOMOTIVE ENGINEERING

This degree programme trains young people with an enthusiasm for technology and transforms them into successful engineers who work across the world. The course focuses on developing environmentally-friendly and innovative technologies in the field of future mobility.

What you will learn:

- Understanding the automotive industry
- Designing the mobility technology of the future
- Exploring autonomous driving
- Using artificial intelligence
- Project-based learning
- Communicating in English
- Interdisciplinary work
- Improving your social skills

Close contacts with companies and partner universities facilitate access to an internship and give our graduates a head start into a successful career.

Organisation

Automotive Engineering is a full-time course. This means the classes are held at FH JOANNEUM over a 15 week period each semester, generally all day Monday to Friday. You receive a current timetable at the start of each semester.

Career prospects

Automotive engineers are able to consider vehicles as complete integrated systems and to advance technical innovation. Our graduates have professional skills in diverse fields ranging from systems development, testing and trials through data and signal processing to construction, model development and simulation. So a wide spectrum of jobs is open to them within the automotive industry, both nationally and internationally.

FACTS



Bachelor of Science in Engineering (BSc)



Full-time



6 semesters / 180 ECTS



FH JOANNEUM Graz



Language of instruction:
German

- 54 places per year
- Head of Degree Programme:
FH-Prof. DI Dr. Kurt Steiner
- Tuition fees: no tuition fees for students from the EU, EEA and Switzerland
- All information about deadlines, application and admission can be found online.
- www.fh-joanneum.at/fzt

Did you know ...

... that we have top class facilities? Our students have access to modern test facilities, design studios and mobility labs at any time.



“Thanks to the high quality of the teaching I was able to publish scientific papers while still on my Bachelor’s degree course. This secured me a place on the Master’s programme at Imperial College London, one of the best universities in the

world. There’s no doubt the Bachelor’s course provides a solid foundation for an academic career as well as one in engineering and industry.”

Andreas Zwölfer, BSc, Graduate

CURRICULUM: 180 ECTS (30 ECTS per semester)

1st semester	Type	SWS	ECTS
Engineering Mathematics 1	ILV	4	5
Informatics	ILV	2	2
Chemistry	VO	2	2
Physics	VO	2	2
Technical Drawing and Introduction to CAx	ILV	3	5
Basics of Technology with Tutorials	ILV	3	3
Engineering Mechanics 1 (Statics)	ILV	4	5
Written Communication and Seminar Paper 1	SE	2	2
Introduction to Automotive Engineering	ILV	1	2
English Foundation Bachelor's	SE	2	2
		25	30

3rd semester	Type	SWS	ECTS
Engineering Mathematics 3	ILV	4	5
Engineering Mechanics 2 (Kinematics)	ILV	3	4
Strength of Materials 2	ILV	3	4
Thermodynamics 1	ILV	4	5
Electrical Machines and Inverters	ILV	2	3
Materials Science 2	VO	2	2
Electronic Systems	ILV	2	3
Electronics Lab	LB	2	2
English for Automotive Engineers 2	SE	2	2
		24	30

5th semester	Type	SWS	ECTS
Vehicle Dynamics	ILV	2	2
Chassis Engineering	ILV	2	2
Fluid Mechanics	ILV	4	5
Drive and Propulsion Technology	VO	2	2
Vehicle, Industry and Environment	VO	2	2
Internal Combustion Engines 2	ILV	2	3
Electrical and Physical Testing in the Vehicle	ILV	4	4
CAx2	ILV	3	4
ICE & Powertrain Testing	LB	3	2
Carbody and Safety Engineering	VO	2	2
The Global Workplace 2	SE	2	2
		28	30

2nd semester	Type	SWS	ECTS
Engineering Mathematics 2	ILV	5	6
Strength of Materials 1	ILV	3	4
Software Development	ILV	2	3
Introduction to Electrical Engineering	ILV	3	4
Materials Science 1	VO	2	3
Programming Project	PR	1	3
Project Management	SE	1	1
Business Administration	ILV	2	2
Law	VO	2	2
English for Automotive Engineers 1	SE	2	2
		23	30

4th semester	Type	SWS	ECTS
Mechanical Components	ILV	3	4
Engineering Mechanics 3 (Kinetics)	ILV	4	5
Thermodynamics 2	ILV	4	5
Control Engineering	ILV	2	2
CAx1	ILV	3	4
Internal Combustion Engines 1	VO	3	2
Introduction to Quality Management	ILV	1	1
Mechatronics Lab	LB	2	2
Logistics in the Automotive Sector	ILV	1	1
Vehicle Testing	LB	3	2
The Global Workplace 1	SE	2	2
		28	30

6th semester	Type	SWS	ECTS
Internship	PR	2	14
Bachelor's Thesis	BA	2	14
Bachelor's Examination	BA	0	1
Scientific Work	SE	1	1
		5	30

BA = Bachelor's Thesis
 ILV = Integrated course
 LB = Laboratory
 PR = Internship
 SE = Seminar
 VO = Lecture
 SWS = Hours per week
 ECTS = European Credit Transfer and Accumulation System

Bachelor's degree programme

AVIATION

Understanding the background to aviation is even better than flying itself. Our course enables you to either develop your knowledge of aviation technology or train to be a pilot. Afterwards, it's time for 'take off' as you embark on a career in the national or international aviation industry.

What you will learn:

- Understanding aviation
- Applying aeronautical knowledge
- Simulating aircraft components
- Designing aircraft
- Optimising aerodynamics
- Managing projects
- Improving your soft skills

In the fifth semester you can choose one of two specialisations:

- Aeronautical Engineering
- Aviation Licences

In the Aviation Licences specialisation you can complete airline pilot training. It is also possible to obtain a maintenance licence and to train as an air traffic controller.*

Organisation

Aviation is a full-time course. This means the classes are held at FH JOANNEUM over a 15 week period each semester, generally all day Monday to Friday. You receive a current timetable at the start of each semester.

Career prospects

After your Bachelor's degree you can specialise further with a Master's in Aviation here at FH JOANNEUM. Or you can take up a professional post straight away. From development and design through quality assurance to work with airports and airlines, there are job opportunities in virtually every sector of air travel.

FACTS



Bachelor of Science in Engineering (BSc)



Full-time



6 semesters / 180 ECTS



FH JOANNEUM Graz



Language of instruction:
German

- 35 places per year

- Head of Degree Programme:
Dr.-Ing. Holger Friehmelt

- Tuition fees: no tuition fees for students from the EU, EEA and Switzerland

- All information about deadlines, application and admission can be found online.
- www.fh-joanneum.at/lav

*This part of the course does not take place at FH JOANNEUM and must be organised and financed by the students themselves.

Did you know ...

... that our degree programme in Aviation is unique in Austria? You will learn everything from aircraft design to air traffic control and management.



CURRICULUM: 180 ECTS (30 ECTS per semester)

1st semester	Type	SWS	ECTS
Aviation Industry English	SE	2	2
Air Law	ILV	2	2
Principles of Flight	ILV	3	3
Mechanics 1	ILV	4	5
Materials Science	ILV	3	3
Computer Engineering 1	ILV	2	2
Physics	ILV	4	5
Applied Mathematics 1	ILV	4	5
Linear Algebra	ILV	1	1
Aeronautical Engineering Lab 1	LB	3	2
		28	30

3rd semester	Type	SWS	ECTS
English for Aeronautical Technology	SE	2	2
Business Studies 2	ILV	2	2
Avionics and Air Traffic Control Technology	ILV	3	4
Applied Design 1	KU	2	2
3D Geometry and Design	KU	2	2
Mechanics 2	ILV	4	5
Thermodynamics 1	ILV	3	3
Scientific Computing	ILV	2	3
Applied Mathematics 3	ILV	4	5
Aeronautical Engineering Lab 3	LB	2	2
		26	30

5th semester	Type	SWS	ECTS
Project / Bachelor's Thesis	SE	2	4
Aeronautical Engineering			
Professional Communication and Presentation	SE	2	2
Aircraft Design 2	ILV	2	3
Rotorcraft and Unmanned Aerial Systems	ILV	1	1
Thermal Turbomachinery and Jet Engines	ILV	2	3
Reciprocating and Combustion Engines	ILV	2	2
Flight Mechanics and Flight Simulation	ILV	3	4
Aerodynamics	ILV	3	4
Scientific Working Techniques	SE	2	2
Electives			
Lightweight Engineering	ILV	2	2
Plastics and Composites Technology	ILV	2	3
Applied Design	KU	4	5
Electrical Aircraft Systems and Digital Avionics	ILV	4	5
Aviation Licences			
Internship Aviation 1 (Seminar / Supervision)	SE	1	26
		23	30

2nd semester	Type	SWS	ECTS
English for Aeronautical Engineering	SE	2	2
Business Studies 1	ILV	2	2
Air Navigation	ILV	2,5	2,5
Meteorology	ILV	0,5	0,5
Fundamentals of Design and Mechanical Components	KU	3	3
Strength of Materials	ILV	3	4
Introduction to Aircraft Electronic Systems	ILV	3	3
Computer Engineering 2	ILV	2	3
Applied Mathematics 2	ILV	3	4
Probability Theory and Statistics	ILV	2	2
Aeronautical Engineering Lab 2	LB	2	2
Electives			
Certification of Aeronautical Equipment	ILV	2	2
General Radiotelephone Operator's Certificate for Aeronautical Service	ILV	2	2
		27	30

4th semester	Type	SWS	ECTS
Global Workplace Interaction in Aeronautics	SE	2	2
Project Management	ILV	2	2
Aircraft Design 1	ILV	2	2
Production Engineering in Aeronautics	ILV	2	2
Applied Design 2	KU	2	2
Fundamentals of Control Engineering and Systems Theory	ILV	3	4
Thermodynamics 2	ILV	2	3
Fluid Mechanics	ILV	3	4
Human-Machine Interaction and Usability Engineering	ILV	2	2
Aeronautical Engineering Lab 4	LB	2	2
Electives			
Numerical Analysis of Structures (FEM)	ILV	3	5
Numerical Fluid Mechanics (CFD)	ILV	3	5
Model-Based Systems Development	ILV	3	5
		25	30

6th semester	Type	SWS	ECTS
Management Systems	ILV	3	3
Innovation and Technology Strategies in the Aviation Industry	ILV	2	2
Bachelor's Thesis 2 (Seminar / Supervision)	BA	1	6
Aeronautical Engineering			
Internship Aviation Industry (Seminar / Supervision)	PR	1	19
Aviation Licences			
Internship Aviation 2 (Seminar / Supervision)	PR	1	19
		7	30

BA = Bachelor's Thesis, ILV = Integrated course, KU = Construction practical, LB = Laboratory, PR = Internship, SE = Seminar, SWS = Hours per week
ECTS = European Credit Transfer and Accumulation System

Bachelor's degree programme SUSTAINABLE FOOD MANAGEMENT

This degree programme is as varied as food itself! With us, you will explore sustainable aspects of food development, production and marketing. After completing the course, your expertise will be in demand in a wide range of fields, from agriculture or industrial and commercial production to trade.

What you will learn:

- Understanding primary production
- Applying food analysis
- Learning about (food) chemistry
- Analysing the product lifecycle
- Observing quality criteria
- Producing organic food
- Considering food from a global perspective
- Learning about harvesting robots

Practice makes perfect: in the three internships which you carry out at our partner firms, you will put your theoretical knowledge into practice bit by bit. Four optional modules from the fourth semester onwards also allow you to concentrate on developing your individual skills in your chosen professional field. Projects, English and study visits complete your education.

Organisation

Sustainable Food Management is a full-time programme with a substantial practical element. Classes at FH JOANNEUM generally take place all day Monday to Friday. In the second semester you undertake a four-week agricultural internship. Three months in the fifth and sixth semesters are allocated to internships in food processing and in trade respectively. You receive a current timetable at the start of each semester.

FACTS



Bachelor of Science in Engineering (BSc)



Full-time / practice-integrated



6 semesters / 180 ECTS



FH JOANNEUM Graz



Language of instruction:
German

- 36 places per year
- Head of Degree Programme:
DI Johannes Haas
- Tuition fees: no tuition fees for students from the EU, EEA and Switzerland
- All information about deadlines, application and admission can be found online.
- www.fh-joanneum.at/leb

Did you know ...

... that you will be a certified hygiene manager after the fourth semester? The certificate opens the doors to a range of attractive careers in trade and industry.



Career prospects

Food production is one of the largest economic sectors in Austria and one of the most successful worldwide. A wide range of jobs is therefore open to our graduates: in farming (e.g. business succession with new product and marketing ideas), processing (e.g. production, purchasing, sales, quality and environmental management) and retail. Our graduates can also choose to specialise further in a Master's degree programme at FH JOANNEUM or another university.

"I became interested in the programme from the very first time I heard of it, simply because food is a subject we all deal with every day, and something people get enthusiastic about. I wanted to gain more background knowledge about this broad and fascinating area. I especially liked the opportunity to complete vocational agricultural training in the sixth semester."

Sophie Baumhake, BSc, Graduate

CURRICULUM: 180 ECTS (30 ECTS per semester)*

1st semester	2nd semester	3rd semester	4th semester	5th semester	6th semester
Field Study and Excursions	Food Chemistry and Analytics	Applied Statistics and Data Processing	Process Engineering in Food Processing	Product Life Cycle and International Food Quality	Emerging Trends in the Food Chain
Study Project Life Cycle Analysis: Food	Biochemistry and Microbiology	Fundamentals of Livestock Keeping	Food Hygiene Management 2	Production Planning in Food Processing	Product Development and Innovation Management
Applied Chemistry	Scientific Fundamentals of Crop Farming	Fundamentals of Process Engineering	Elective module 1: Technologies of Food Production *)	Supply Chain Management	Study Project - Product Development and Innovation Management
Applied Physics	Applied Business Studies	Food Hygiene Management 1	Elective module 2: Management of Food Production *)	Food Sales and Marketing	Elective Module 4 *)
Nutrition	Intensive Professional English and Key Skill Development 2	Practice Module 2: Food Processing or Trade (13 weeks)	Practice Module 3: Food Processing or Trade (13 weeks)	Elective Module 3*)	Bachelor's Thesis
Intensive Professional English and Key Skill Development 1	Practice Module 1: Agriculture and Marketing (4 weeks)			Bachelor's Thesis	

*) Parallel courses in Agricultural Food Processing and Direct Marketing and Industrial Food Processing and Marketing.

Scientific Foundations 35 ECTS	Engineering 50 ECTS	Organisation 40 ECTS	Practice and Key Skills 55 ECTS
-----------------------------------	------------------------	-------------------------	------------------------------------

Bachelor's degree programme

PRODUCTION TECHNOLOGY AND ORGANISATION

Study while at the same time gaining practical experience at a company and earn money – this is what our co-op Bachelor's programme offers. You will become an all-rounder in production technology and the organisation of manufacturing companies. Our motto: no theory without practice.

What you will learn:

- Planning production processes
- Developing products
- Establishing networks for the exchange of knowledge and experience
- Protecting resources
- Using new resources and energy sources
- Commitment to quality
- Implementing a manufacturing plant in projects

You can choose one of the following two specialisations in the third semester:


- Process Engineering
- Production Technology

From the second year of your studies onwards you put into practice the knowledge you have acquired by helping your training firm optimise procedures, processes and products. You can also obtain internationally recognised certification in quality management and spend a semester abroad.

Organisation

Production Technology and Organisation is a co-op course. This means that, after a twelve month foundation course, theoretical components taken at the university alternate with practical blocks spent at selected training companies. Classes at FH JOANNEUM generally take place all day Monday to Friday. You receive a current timetable at the start of each semester.


FACTS

 Bachelor of Science in Engineering (BSc)

 Co-op

 6 semesters / 180 ECTS

 FH JOANNEUM Graz

 Language of instruction: German

- 30 places per year
- Head of Degree Programme: FH-Prof. DI Dr. Georg Wagner
- Tuition fees: no tuition fees for students from the EU, EEA and Switzerland
- All information about deadlines, application and admission can be found online.
- www.fh-joanneum.at/pto

Did you know ...

... that some of Austria's biggest companies are partners of this course – from Andritz AG, BMW and Magna to OMV, Siemens and voestalpine?



Career prospects

Companies these days need highly qualified engineers to develop and optimise modern sustainable industrial production processes. Our graduates are qualified for assistant functions, project management and senior positions in production technology and automated manufacturing, quality management and production planning through to product design and process development. After completing their Bachelor's degree, students may also choose to enrol on the Master's degree programme in Engineering and Production Management at FH JOANNEUM.

“The Production Technology and Organisation programme offers a chance to understand and study a company in all its facets and to gain valuable work experience. The combination of theory and practical application has made me a passionate engineer.”

DI (FH) David Schneider, Graduate

CURRICULUM: 180 ECTS (30 ECTS per semester)

1st semester	2nd semester	3rd semester	4th semester	5th semester	6th semester
Introduction to Physics and Mechanics 5 ECTS	Mathematics 1 5 ECTS	Mathematics 2 5 ECTS	Hydrodynamics and Fluid Mechanics 5 ECTS	Engineering Thermodynamics 5 ECTS	Production Technology 4 (PE or ME) 5 ECTS
Materials Science 5 ECTS	Engineering Mechanics 5 ECTS	Dynamics 5 ECTS	Chemistry 5 ECTS	Mechatronics 2 5 ECTS	Production Automation (PE or ME) 5 ECTS
Introduction to Informatics and Electronics 5 ECTS	Production Technology 2 5 ECTS	Production Technology 3 10 ECTS	Mechatronics 1 5 ECTS	Process Engineering 5 ECTS	Production Organisation 4 5 ECTS
Production Technology 1 5 ECTS	Machine Elements and Design 5 ECTS		Materials Handling Engineering 5 ECTS	Production Organisation 3 5 ECTS	Bachelor's Thesis 2 10 ECTS
Production Technology Project 10 ECTS	Production Organisation Project 10 ECTS	Production Organisation 1 5 ECTS	Production Organisation 2 5 ECTS	Production Planning and Control 5 ECTS	
		Work Term 1 5 ECTS	Work Term 2 5 ECTS	Work Term 3 5 ECTS	
Scientific Foundations 50 ECTS	Engineering 65 ECTS	Organisation 35 ECTS	Practice and Key Skills 30 ECTS		

Master's degree programme

ELECTRONICS AND COMPUTER ENGINEERING

Engineering expertise at the highest level: this Master's degree programme will make you an expert in tomorrow's computer-based electronic systems. The focus is on highly efficient power electronics, green mobility and autonomous driving and will provide you with the best opportunities for your future career.

What you will study:

Electronic systems.

You examine how embedded systems function and learn how to combine hardware and software to develop easy-to-use systems. You also delve into digital signal processing, sensor technology, digital communications and control systems. From the third semester you can specialise in Power Electronics or Automotive Control.

Power electronics.

In the Power Electronics specialisation you focus on the use of state-of-the-art power electronics in electric mobility and in renewable energy. You examine the development of efficient components and their use in resource-conserving systems.

Automotive control.

In the Automotive Control specialisation you focus on embedded software in the application areas of autonomous vehicle control systems and advanced testing techniques. Applications in automotive electronics such as driver assistance systems and traction control are key here.

Applied research.

You take an active part in innovative technology projects through cooperation with universities and companies at a national and international level. In addition you extend your in-depth knowledge in your Master's thesis.

FACTS



Master of Science in Engineering (MSc)



Work-friendly



4 semesters / 120 ECTS



FH JOANNEUM Kapfenberg



Language of instruction: English

- 20 places per year
- Head of Degree Programme
FH-Prof. Priv.-Doz. DI Dr. Christian Vogel
- Tuition fees: no tuition fees for students from the EU, EEA and Switzerland
- All information about deadlines, requirements, application and admission can be found online.
- www.fh-joanneum.at/ecm

Did you know ...

... that, during your course, you can explore and develop the power electronics of tomorrow at the JOANNEUM Power Electronics Center?



Organisation

The work-friendly organisation of the programme means that modules are taught in blocks to allow you to work part-time. From the first to third semesters classes generally take place from Wednesday to Friday. There are three blocks of classes in the fourth semester. During the remainder of the time you devote yourself to your Master's thesis.

"I have chosen the Master's degree programme in Electronics and Computer Engineering because I am fascinated by digital technologies. I enjoy solving challenging problems in the fields of electronics and informatics and finding solutions for the future. This course opens up a wide range of excellent career opportunities."

Ing. Elisabeth Schreck, BSc, Student

CURRICULUM: 120 ECTS (30 ECTS per semesters)

1st semester	Type	SWS	ECTS
Analog Circuit Design	ILV	2	3
Digital Circuit Design	ILV	4	6
Electronic Packaging	ILV	2	4
Power Electronics Laboratory	LB	1	2
Microcontroller Architecture & Programming	ILV	4	6
Intercultural Communication	SE	1	1.5
Presentations & Meetings	SE	1	1.5
Mathematical Methods in Electronics	ILV	4	6
		19	30

3rd semester	Type	SWS	ECTS
Communication Systems & Protocols	ILV	3	5
Project 1	SE	3	13
Project Management	SE	1	2
Field Power Electronics			
Power Electronic Circuits	ILV	2	4
Power Electronic Components	ILV	2	3
Renewable Energy and Electric Mobility	ILV	2	3
Field Automotive Control			
Advanced Driver Assistance Systems	ILV	2	3
Automotive Control Units	ILV	2	4
Instrumentation and Test Systems	ILV	2	3
		13	30

Career prospects

A range of exciting and well-paid jobs are open to our graduates thanks to the diverse potential uses of electronic components, systems and the associated software. They work as application engineers in industrial research and product development. Specialising in embedded systems you are valued in the automotive and semiconductor industry, in telecommunications and in automation engineering and medical technology. You can also pursue your studies further by taking a doctoral degree.

2nd semester	Type	SWS	ECTS
Data Structures & Algorithms	ILV	2	4
Realtime Computing	ILV	3	5
Electromagnetic Systems	ILV	3	4
Scientific Working	SE	1	2
Digital Control Systems	ILV	3	5
Digital Signal Processing	ILV	3	5
Model-Based Software Development	ILV	3	5
		18	30

4th semester	Type	SWS	ECTS
Innovation Management	VO	1	1,5
International Technology Management	ILV	2	3,5
Master's Thesis Seminar	SE	2	4
Master's Thesis	MA	0	21
		5	30

ILV = Integrated course, LB = Laboratory, SE = Seminar, SWS = Hours per week, ECTS = European Credit Transfer and Accumulation System

Master's degree programme

ENGINEERING AND PRODUCTION MANAGEMENT

Engineers with the confidence to innovate are in greater demand than ever. Our co-op Master's degree programme in Engineering and Production Management will prepare you for a managerial role in the production companies of the future – and our academic course incorporating extensive experience of the working world is your key to success.

What you will study:

Technologies. Materials.

You focus on solutions to current issues in production technology. You extend your knowledge of new production and process technologies – from new materials through innovative production processes and flexible automation systems to intelligent robotic systems.

Factory planning. Organisation.

In the face of global competition it is crucial to offer sustainable production solutions. You learn about innovative methods of production planning, control and optimisation as well as the basics of modern transportation and logistics systems. You also study organisational management.


Sustainable production engineering.

As a central process of value creation, production is always linked to the use of raw materials and energy. In subjects such as Product Lifecycle Management and Sustainable Production Engineering you learn to design energy and resource efficient production processes.

Professional experience. Master's thesis.

The co-op programme allows you to consolidate what you have learned through practical experience working at your training company while, at the same time, laying the foundation for your Master's thesis. Interdisciplinary projects complete your education.


FACTS

 Master of Science in Engineering (MSc)

 Co-op

 4 semesters / 120 ECTS

 FH JOANNEUM Graz

 Language of instruction: German / English

- 25 places per year
- Head of Degree Programme:
FH-Prof. DI Dr. Georg Wagner
- Tuition fees: no tuition fees for students from the EU, EEA and Switzerland
- All information about deadlines, requirements, application and admission can be found online.
- www.fh-joanneum.at/enp

Did you know ...

... that we are a partner of WACE, the World Association for Cooperative Education? As part of this international network we cooperate with the following universities:

University of Waterloo, Canada | University of Victoria, Canada
| University West, Sweden | Victoria University, Australia | KITO Corporation, Japan | Windesheim University, Netherlands



Organisation

The co-op programme requires you to spend a total of around 16 months at your training company: ten months on practice modules of varying length and six months on the Master's thesis. The theory blocks at university are designed in such a way that they allow students to spend up to 75 percent of their time at the company. Special features of the training partnership include involvement in the company's process and product development activities, flexibility of the training agreement and personal student responsibility for selecting the thematic content and organisational structure of the course.

Career prospects

Our graduates take on management roles in corporate organisation or in projects for the introduction of new production technologies, production optimisation as well as product and process development. They are also active in industrial research or support production companies in their internationalisation strategies. Graduates involved in implementing innovation projects in their training company have the opportunity to undertake a doctoral degree at a university of technology.

CURRICULUM: 120 ECTS (30 ECTS per semester)

1st semester	2nd semester	3rd semester	4th semester
Applied Science 5 ECTS	Materials Science 5 ECTS	Advanced Production Technologies 5 ECTS	Corporate Management 2 5 ECTS
Computer Aided Engineering and Design 5 ECTS	Automation Engineering 5 ECTS	Cleaner Production 5 ECTS	Master's Thesis 20 ECTS
Fluid Flow Engines 5 ECTS	Energy Technologies and Management 5 ECTS	Sustainable Production Engineering 5 ECTS	
Environmental Engineering 5 ECTS	Factory Planning 5 ECTS	Product Lifecycle Engineering 5 ECTS	
Integrated Management 5 ECTS	Corporate Management 1 5 ECTS	Internationalization 5 ECTS	
Professional Practice 1 5 ECTS	Professional Practice 2 5 ECTS	Professional Practice 3 5 ECTS	Professional Practice 4 5 ECTS
Scientific Foundations 20 ECTS	Engineering 30 ECTS	Organisation 30 ECTS	Practice and Key Skills 40 ECTS

Master's degree programme AUTOMOTIVE ENGINEERING

The Master's degree programme focuses on sustainable mobility and innovative concepts in automotive engineering. As a future engineer you advance innovation and progress in the automotive industry through your engineering skills and management expertise.

What you will study:

Innovation. Automotive engineering.

You extend your knowledge of model development and simulation, engine development or process and product management. To be innovative in automotive engineering, you focus on designing sustainable, resource-efficient and user-friendly products.

Complete vehicle. Leadership.

You delve into the various phases of the product development cycle – from design, development and testing to production, sales and quality assurance. You also learn to supervise organisational units and identify and implement development trends.

Project. Race car engineering.

The international Formula Student project is an integral part of the programme. This applied project gives you the opportunity to explore cutting-edge race car technology and, as part of a team, build a competitive racing car.

Elective subjects. Internship. Master's thesis.

In the second and third semesters you choose from a list of subjects to specialise in an area of particular interest to you. In addition you extend your in-depth knowledge during your internship and your Master's thesis. You can also spend a semester at one of our partner universities abroad.

FACTS



Diplomingenieurin / Diplomingenieur (DI)



Full-time



4 semesters / 120 ECTS



FH JOANNEUM Graz



Language of instruction: English

- 39 places per year
- Head of Degree Programme:
FH-Prof. DI Dr. Kurt Steiner
- Tuition fees: no tuition fees for students from the EU, EEA and Switzerland
- All information about deadlines, requirements, application and admission can be found online.
- www.fh-joanneum.at/mae

Did you know ...

... that you can gain valuable experience with our partners in industry and research? The internship in the third semester provides the ideal opportunity.



Career prospects

The automotive and supply industry has an increasing demand for highly qualified engineers with comprehensive knowledge and expertise. We prepare our students for the challenges of the mobile and multi-cultural world of automotive engineering. Our graduates are in demand on an international level and tackle technological innovation as well as contributing their expertise to sustainable development in the automotive industry. Graduates also have the option to embark on an academic career by enrolling on a doctoral programme.

CURRICULUM: 120 ECTS (30 ECTS per semester)

1st semester	Type	SWS	ECTS
Applied Engineering Mathematics 1	ILV	2	3
Advanced Mechanics	ILV	3	4
Control Systems 1 / Sensors & Actuators	ILV	2	3
Machine Dynamics / Acoustics	VO	2	3
Methods of Product Development & Production	VO	2	3
Project Work 1	PT	1	5
Hydraulics and Pneumatics	VO	2	2
Engineering Methods and Design 1	SE	2	4
Human Resource Management	VO	1	1
English for Scientific Studies	SE	2	2
		19	30

3rd semester	Type	SWS	ECTS
FEM / CFD	ILV	2	3
Advanced Drive and Propulsion Technology	ILV	3	4
Advanced Driving Dynamics	VO	2	3
Control Systems 3 / Supply and Storage Systems	ILV	1	1
Control Systems 3 / Bus and On-board Diagnostics	ILV	1	1
Internship	PR	1	10
Academic Writing and Speaking	SE	2	2
Elective Subjects 2			
Large Engines	VO	2	3
Energy Management and Storage Systems	ILV	2	3
Commercial Vehicles	VO	2	3
Electric Drive and Propulsion Systems	ILV	2	3
Rail Vehicle Dynamics	VO	2	3
Race Car Data Analysis	VO	2	3
		16	30

Organisation

Automotive Engineering is a full-time course. This means the classes are held at FH JOANNEUM over a 15 week period each semester, generally all day Monday to Friday. You receive a current timetable at the start of each semester.

“The Automotive Engineering programme allowed me to obtain practical training and a broad range of expertise and was excellent preparation for my career. As a graduate of this course, you are in demand across the world in the automotive industry.”

DI (FH) Pina Michaela Writzler, Graduate
Automatic gearbox testing, Audi AG

2nd semester	Type	SWS	ECTS
Applied Engineering Mathematics 2	ILV	2	3
Continuum Mechanics	ILV	2	3
Control Systems 2 / Digital Control Engineering	ILV	2	2
Control Systems 2 / Signal Processing	ILV	2	2
Engineering Methods and Design 2	LB	2	3
Project Work 2	PT	1	4
Quality Management	VO	2	2
Leadership and Intercultural Business Practices	SE	2	2
Elective Subjects 1			
Lightweight Design	VO	2	3
Rail Vehicle Engineering	ILV	2	3
Road Traffic Law / European Competition Law	VO	2	3
Applied Multibody Systems	VO	2	3
Tire Modelling	VO	2	3
DoE / Application	VO	2	3
Strategic Management	VO	2	3
2 Wheeler Technologies	ILV	2	3
		21	30

4th semester	Type	SWS	ECTS
Master's Thesis and Master's Examination	MA	6	30
		6	30

ILV = Integrated course, LB = Laboratory, PT = Project, PR = Internship, SE = Seminar, VO = Lecture, SWS = Hours per week, ECTS = European Credit Transfer and Accumulation System

Master's degree programme AVIATION

Students who have already acquired a grounding in aviation technology or a related subject can specialise further in an aeronautical discipline of their choice, from aeronautical engineering to aviation management.

What you will study:

Aircraft construction.

You delve into various aspects of aircraft construction: alongside calculation, design and simulation the focus lies on using fibre-reinforced composites and hybrid materials. In addition you consider parameters such as lightweight construction and manufacturability of the complete aircraft.

Aircraft systems.

We teach you the basics of complex aviation systems such as jet engines, avionic systems or flight control systems. You also learn about elements such as data busses, computer systems and flight controllers which process sensor data to generate control commands for electro-hydraulic or electro-mechanical actuators.

Aviation management.

You acquire business expertise in aviation management, especially relevant knowledge about flight operations and air traffic. The programme also covers topics such as airline and airport management, modern air transport management or quality and innovation management.

Elective subjects. Internship. Master's thesis.

In the first and second semesters you can choose from a list of electives to specialise in aeronautical engineering or aviation management. You can also specialise further within your internship and Master's thesis.

FACTS



Master of Science in Engineering (MSc)



Full-time



4 semesters / 120 ECTS



FH JOANNEUM Graz



Language of instruction: English

- 25 places per year
- Head of Degree Programme:
Dr.-Ing. Holger Friehmelt
- Tuition fees: no tuition fees for students from the EU, EEA and Switzerland
- All information about deadlines, requirements, application and admission can be found online.
- www.fh-joanneum.at/mav

Did you know ...

... that you can become a member of the 'joanneum aeronautics' team and compete with other universities? Our student team design and build aircraft which take part in international competitions.



Organisation

Aviation is a full-time course. This means the classes are held at FH JOANNEUM over a 15 week period each semester, generally all day Monday to Friday. You receive a current timetable at the start of each semester.

"I owe the positive development of my career to the technical and economic knowledge I gained during my studies at the Institute of Aviation. Thank you!"

Günter Schindl, Graduate
Managing Director, Aviation Safety & Quality Solutions, Luxembourg

CURRICULUM: 120 ECTS (30 ECTS per semester)

1st semester	Type	SWS	ECTS
Human Factors	ILV	4	5
Digital Avionic Systems	ILV	3	3
CNS/ATM Systems	ILV	1	2
Aircraft Assembly	ILV	1	1
Engine and Components Dynamics	ILV	1	1
Advanced Design and Mechanical Components	KU	3	3
Heat Transfer	ILV	3	3
Fluid Mechanics & Aerodynamics	ILV	2	2
Aviation Management	ILV	3	4
Finance	ILV	1	1
Elective Courses			
Project 1	SE	4	5
Aeronautics for Mechanical & Electrical Engineers	ILV	2	3
Hydraulics	ILV	2	3
Elective Study 1	SE	2	2
Product Management and Marketing	ILV	2	2
Certification	ILV	2	2
		26	30

3rd semester	Type	SWS	ECTS
Professional Internship (Seminar / Advising)	SE	2	30

ILV = Integrated course, KU = Design exercise,
SE = Seminar, SWS = Hours per week,
ECTS = European Credit Transfer and Accumulation System

Career prospects

Our graduates are highly qualified engineers and optimally prepared for future executive positions in the aviation industry. Their interdisciplinary training gives them a comprehensive overview of both the aircraft and the processes associated with their development, production and operation. They work as design engineers for aircraft manufacturers or as test and quality engineers in the supply industry, but they're also employed in management positions in airlines, airports and aeronautical companies.

2nd semester	Type	SWS	ECTS
Statistics and Data Analysis	ILV	2	2
Database Systems	ILV	1	1
Scientific Writing and Speaking in Aeronautics	SE	2	2
Aircraft Systems	ILV	2	2
Flight Control Systems	ILV	3	3
Jet Propulsion Technology	ILV	2	2
Piston Engines	ILV	1	2
Chemistry and Fuels	ILV	1	1
Maintenance Management	ILV	3	3
Air Transport Management	ILV	2	2
Industrial Management	ILV	3	4
Supply Chain Management	ILV	1	1
Elective Courses			
Project 2	SE	4	5
Aerospace Measurement Techniques	ILV	2	3
Aerospace Materials	ILV	2	3
Elective Study 2	SE	2	2
Quality Management	ILV	2	2
Flight Operations	ILV	2	2
		27	30

4th semester	Type	SWS	ECTS
Strategies and Visions in Aeronautics	ILV	2	2
Teams and Interaction	ILV	2	3
Master's Thesis (Seminar / Advising)	SE	2	25
		6	30

Postgraduate Master's course AIR TRAFFIC MANAGEMENT

Well-qualified experts are in demand all over the world to take up positions in the aviation industry of the future. This part-time postgraduate Master's course provides you with comprehensive technical, legal and business knowledge in the field of air traffic management. Take this opportunity to contribute to shaping the future of mobility.

What you will study:

Management.

The programme provides you with an in-depth insight into business operations within the airline industry. In addition to the complex safety and security considerations prevailing in aviation (both on the ground and in the air), you also gain a professional understanding of the issue of sustainability. You also become familiar with advanced methods of project, environmental and quality management.

Air traffic control.

You acquire comprehensive skills in the field of air traffic control – from CNS/ATM systems to the use of satellite positioning systems through to future prospects offered by the Global Navigation Satellite System.

Aviation law.

You learn about the multifaceted aspects of national and international aviation law. Experts from the EASA and Austrocontrol will explain aspects of the various rules and regulations established by the European Aviation Safety Agency.

Specialisation.

You expand and extend your knowledge in fields such as air traffic management, airline strategy and fleet management or airport design and flight safety. A case study from your professional life and your Master's thesis complete your specialisation.

FACTS



Master of Science in Engineering (MSc)



Part-time



4 semesters / 120 ECTS



FH JOANNEUM Graz



Language of instruction:
German / English

- 16 places per year
- Course Head
Capt. DI Gerald Nittnaus
- Tuition fee: EUR 3,900 per semester
- All information about deadlines, requirements, application and admission can be found online.
- www.fh-joanneum.at/atm

Our partner:



Did you know ...

... that it is the declared goal of the postgraduate Master's course to promote entrepreneurial thinking and start-ups?



Organisation

The course is organised on a part-time basis and includes modular phases in which attendance is compulsory. Following an introductory week held at the FH JOANNEUM Institute of Aviation in Graz at the start of the first, second and third semesters, the course content is taught over 12 weekends per semester. Lectures are held on Fridays and Saturdays. During the fourth semester the lectures are scheduled individually to allow students to study while working. The classroom-based units are held alternately in Graz and Vienna.

Career prospects

The aviation sector has witnessed continuous growth over many years. Well-qualified experts are therefore in demand all over the world. Graduates of the Master's course have broad-based technical, legal and business know-how in the field of air traffic management. This opens up a wide range of career options since they are qualified to assume management responsibility in many aviation-related areas: from aviation companies, airports and aviation authorities to aeronautical engineering companies and air traffic control.

“Aviation is taking an ever increasing share in both national and global traffic systems, making it important to retain an overview of the complex environment of air traffic management. This course offers graduates aspects and perspectives for how to be successful with new strategies and ideas.”

Capt. DI Gerald Nittnaus, Course Head

CURRICULUM: 120 ECTS (30 ECTS per semester)

1st semester	2nd semester	3rd semester	4th semester
National and International Air Law 5 ECTS	EASA Regulation 5 ECTS	Creating Technical Reports 5 ECTS	Maintenance Management 5 ECTS
Scientific Writing and Statistics 5 ECTS	Airline Strategy and Fleet Management 5 ECTS	Aeronautical Business 5 ECTS	Visions & Strategies in Aeronautics 2 ECTS
Air Traffic Management 5 ECTS	Airport Design & Management 5 ECTS	Flight Safety and Flight Accident Investigation 5 ECTS	Master's Thesis (5 groups) 23 ECTS
Principles of Flight 5 ECTS	Aircraft Systems & Air Traffic Control 5 ECTS	Certification of Aeronautical Equipment 5 ECTS	
Business Administration I 5 ECTS	Business Administration II 5 ECTS	Management Systems (Quality, Environment, Safety) 5 ECTS	
Project Management I 5 ECTS	Project Management II 5 ECTS	Case Study 5 ECTS	
Professional Fundamentals 17 ECTS	Management Knowledge 25 ECTS	Aeronautical Engineering 15 ECTS	Specialisation 63 ECTS



“The strength of the Department of Engineering lies in the interdisciplinary cooperation of the Institutes of Electronic Engineering, Automotive Engineering, Aviation, and Applied Production Sciences. This enables us to solve complex problems in research while encouraging an active exchange of ideas which in turn provides new input for teaching. This ensures our students are well prepared to meet the professional challenges they will face.”

FH-Prof. DI Dr. Kurt Steiner
Head of the Department of Engineering

FH JOANNEUM

FH JOANNEUM offers students sound academic training – our programmes are practice-oriented, project-based and interdisciplinary. Our university’s large network enables students to complete internships with leading companies and institutions in Austria and abroad and spend a semester studying at one of over 200 partner universities around the world.

GRAZ – Science and Culture

... in a nutshell: population over 270,000, student population around 50,000 at a total of eight universities. A historic centre, which is listed as a UNESCO world heritage site. Contemporary art and music, modern architecture, which has gained international renown as the Graz School. Eco-city, City of Design, business and innovation centre. Mediterranean flair, bustling urban atmosphere and exciting night life, plus many great places to dine out are part and parcel of the Graz experience.

www.graz.at

KAPFENBERG – High Tech and Sports

Kapfenberg is home to a large number of innovative high-tech companies which act as global players in a worldwide business network. FH JOANNEUM Kapfenberg is therefore surrounded by the region’s major industrial and manufacturing companies. State-of-the-art laboratories and excellent business contacts throughout the world give graduates a head start in their careers. FH JOANNEUM Kapfenberg offers not only first rate education, but also a wide range of leisure opportunities, such as running and mountain bike trails, as well as cultural highlights.

www.kapfenberg.at

For more detailed information about our degree programmes, application and admission please contact:
T: +43 (0)316 5453-8800
E: info@fh-joanneum.at, www.fh-joanneum.at
www.facebook.com/fhjoanneum