

**Bachelor degree programmes**

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

**Master degree programmes**

Advanced Electronic Engineering  
Engineering and Production Management  
Automotive Engineering  
Aviation

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**WE *FOCUS*  
ON INNOVATIVE  
MOBILITY AND  
SUSTAINABLE  
PRODUCTION.**



INNOVATION  
KRAFT  
Lufthansa Technik AG

Gestiftet von Euro

LUFTFAH

Bachelor degree programmes	Academic degree	Mode	Campus
Automotive Engineering	BSc	full-time	Graz
Aviation	BSc	full-time	Graz
Electronics and Computer Engineering	BSc	full-time	Graz
Production Technology and Organisation	BSc	full-time / co-op	Graz
Sustainable Food Management	BSc	full-time / practice integrated	Graz

Master degree programmes	Academic degree	Mode	Campus
Advanced Electronic Engineering	MSc	work-friendly	Kapfenberg
Automotive Engineering	DI	full-time	Graz
Aviation	MSc	full-time	Graz
Engineering and Production Management	MSc	co-op	Graz

The Engineering Department 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 foodstuffs. 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 degree programme*

# ELECTRONICS AND COMPUTER ENGINEERING

*ELECTRONICS > INFORMATICS > INTEGRATED CIRCUITS > MICROCONTROLLERS > PROGRAMMING > CONTROL ENGINEERING > SIGNAL PROCESSING > TELECOMMUNICATIONS > AUTOMATION > MOBILITY*

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This degree programme offers students some of the most advanced training in Austria. Throughout the course students gain hands-on experience in the use of state-of-the-art technologies. They acquire a sound basic and practical knowledge of the subject area, and undertake many exciting projects. The curriculum includes laboratory practicals and project work from the first semester onwards. The programme is taught in small, supervised groups, and in close cooperation with business and industry. The curriculum focuses on electronic systems and how to programme them.

A practical approach is taken to learning based on current developments including driverless cars and Industry 4.0. In addition to application-oriented technical knowledge, our students also learn methodology and acquire social skills. Courses in business, law, management and languages ensure our students are ideally equipped with the skills demanded by industry.

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 civil service. We would be delighted to provide more information and details about this option.

*“The degree programme provides us students with a broad range of knowledge, enabling us to find work in the various fields of the electronics industry. The numerous exercises completed during the course provide an introduction to some of the aspects of our future professional life.”*

Christoph Müller, Student

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### FACTS

- Bachelor of Science in Engineering (BSc)
- Full-time
- 6 semesters / 180 ECTS
- 20 places per year
- Language of instruction: German
- Head of Degree Programme: Priv.-Doz. DI Dr. Christian Vogel
- FH JOANNEUM Graz

[www.fh-joanneum.at/ece](http://www.fh-joanneum.at/ece)

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## CAREER PROSPECTS

After completing the bachelor degree programme, our graduates can undertake a master degree programme, e.g. in Advanced Electronic 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 many careers for our graduates with attractive local and international employers. Fields in which our graduates prove their worth include the electronics and automotive industries, telecommunications, automation and medical technologies.

*“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 lead to some interesting projects with a personal level of supervision at FH JOANNEUM.”*

Bertram Winter, BSc, Graduate, currently studying on the master degree programme in Advanced Electronic Engineering

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	Digital Systems 5 ECTS	Embedded Computing 8 ECTS	Industrial Automation 1 7 ECTS	Energy and Mobility 1 7 ECTS	Bachelor's Thesis 1 15 ECTS		Bachelor's Thesis 2 10 ECTS
Fundamentals of Electrical Engineering 10 ECTS	Applied Computer Science 2 7 ECTS	Power Electronics, Drives and Dynamic Control 5 ECTS	Object-Oriented Software Design 5 ECTS		Industrial Automation 2 7 ECTS		Internship 20 ECTS
Fundamentals of Science 1 7 ECTS	Power and AC Engineering 8 ECTS	Semiconductor Engineering 5 ECTS	Communication Technology 5 ECTS				
Technology Management 1 3 ECTS	Fundamentals of Science 2 7 ECTS	Signals and Systems 8 ECTS	Design of Electronic Devices 5 ECTS		Energy and Mobility 2 7 ECTS		
	Technology Management 2 4 ECTS	Technology Management 3 4 ECTS	Analog Signal Processing 5 ECTS		Model-Based Design 4 ECTS		
	Technology Management 4 3 ECTS	Technology Management 5 4 ECTS					
Electrical Engineering – Electronics (25%)	Computer Engineering – Embedded Software (24%)	Mathematics – Physics (8%)	Technology Management (10%)		Electives (8%)		Internship (25%)



Courses with strong focus on lab exercises

*Bachelor degree programme*  
**AUTOMOTIVE ENGINEERING**

*ENGINEERING > AUTOMOTIVE  
ENGINEERING > ELECTRONIC SYSTEMS >  
DESIGN & COMPUTATION >  
MODELLING & SIMULATION > SCIENCE*

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**T**he degree programme is unique in Austria and prepares young people interested in technology for successful international engineering careers. The programme focuses on the development of sustainable and innovative mobility technologies. Our principle of project based learning allows our students to work on application oriented projects throughout their studies with a focus on engineering mathematics, engineering mechanics, thermodynamics, electrical engineering and power train engineering.

In addition to learning about the technical and scientific aspects of automotive engineering students will also acquire social skills and an understanding of economic and legal contexts and environmental engineering issues. Close contacts with companies and partner universities facilitate access to an internship and give our graduates a head start into a successful career. After graduation, students may also choose to specialise further by enrolling on the FH JOANNEUM master degree programme in Automotive Engineering.

*“The degree programme provides a well-founded basis in engineering as well as a profound insight into automotive and vehicle engineering.”*

DI, DI (FH) Robert Kalcher, BSc, Graduate Development Engineer, AMSD Advanced Mechatronic System Development KG, Graz

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**FACTS**

- Bachelor of Science in Engineering (BSc)
- Full-time
- 6 semesters / 180 ECTS
- Language of instruction: German
- 54 places per year
- Head of Degree Programme:  
FH-Prof. DI Dr. Kurt Steiner
- FH JOANNEUM Graz

[www.fh-joanneum.at/fzt](http://www.fh-joanneum.at/fzt)

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## CAREER PROSPECTS

Our graduates are able to analyse vehicles and comparable complex systems in a holistic approach, including ecological aspects. Automotive engineers are qualified to work in a range of positions, from design, testing and trials through to production, sales and quality assurance.

*“The Automotive Engineering programme allowed me to obtain practical training and a broad range of expertise and was excellent preparation for my career. The project-related team work also provided a chance to improve my soft skills. As a graduate of this course, you are in demand across the world in the automotive industry.”*

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

CURRICULUM: 180 ECTS (30 ECTS per semester)

1st semester	2nd semester	3rd semester	4th semester	5th semester	6th semester
Engineering Mathematics 1 5 ECTS	Engineering Mathematics 2 6 ECTS	Engineering Mathematics 3 5 ECTS	Engineering Mechanics 3 (Kinetics) 5 ECTS	Mechanical Components 4 ECTS	Introduction to Quality Management 1 ECTS
					Logistics in the Automotive Sector 2 ECTS
Computer Science 2 ECTS	Strength of Materials 1 4 ECTS	Engineering Mechanics 2 (Kinematics) 4 ECTS	Thermodynamics 2 5 ECTS	Fluid Mechanics 5 ECTS	Internal Combustion Engines 2 3 ECTS
					Carbody and Safety Engineering 3 ECTS
Fundamentals of Science 4 ECTS	Software Development 3 ECTS	Strength of Materials 2 4 ECTS	Control Engineering 2 ECTS	Internal Combustion Engines 1 3 ECTS	Internship 14 ECTS
Basics of Engineering and Technology 3 ECTS	Materials Science 1 3 ECTS	Electrical Machines and Inverters 3 ECTS	CAx1 4 ECTS	CAx2 4 ECTS	
Engineering Mechanics 1 (Statics) 5 ECTS	Project Management 1 ECTS	Electronics Systems 3 ECTS	Bachelor's Thesis 1 4 ECTS	Vehicle Testing 3 ECTS	
Introduction to Automotive Engineering 2 ECTS	Business Administration 2 ECTS	English for Automotive Engineers 2 2 ECTS	The Global Workplace 1 2 ECTS	The Global Workplace 2 2 ECTS	
Engineering and Technology Fundamentals	Engineering Subjects	Project, Lab, Bachelor's Thesis, Internship	Business Subjects, Law, Social Skills	Language (English)	

# AIRCRAFT > HELICOPTERS > DRONES > DESIGN & SIMULATION > LIGHTWEIGHT DESIGN > PROPULSION > AIR TRANSPORT

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The fascination of aviation - this interdisciplinary programme combines mathematical and scientific principles, mechatronics, fluid mechanics, lightweight construction, design and simulation, with a passion for aircraft engineering and aviation. The training offered on this degree programme is unique in Austria, and graduates enjoy excellent career opportunities in almost all areas of aviation.

After learning the relevant principles during the first year of the programme, our students then move on to study aviation-related topics such as aircraft design, aerodynamics, flight mechanics, propulsion systems and avionics. The **Aviation** specialisation offers lectures in business studies, seminars in aviation industry English, and preparatory courses for qualifying as a certified project manager. Working with companies and partner universities abroad provides an early taste of the international flair which is typical of the aviation industry. The **Pilot** specialisation in the third year includes an extended internship during which students can join an airline or flying school and train as an airline pilot.\* Both specialisations require the student to write a bachelor's thesis.

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

*"I would like to emphasise in particular the competent teams and optimal group size. The internships enabled me to gather practical experience and formed the starting point for my professional career. The lecturers are experts in their field and offer unrivalled insight into the aviation industry. This intensive programme provides the best possible conditions for finding an attractive international job."*

Katharina-Maria Steinberger, MSc, Graduate

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### FACTS

- Bachelor of Science in Engineering (BSc)
- Full-time
- 6 semesters / 180 ECTS
- Language of instruction: German
- 35 places per year
- Head of Institute:  
FH-Prof. DI Dr. Holger Flühr
- FH JOANNEUM Graz

[www.fh-joanneum.at/lav](http://www.fh-joanneum.at/lav)

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## CAREER PROSPECTS

Graduates of the bachelor degree programme can specialise further on the master degree programme in Aviation at FH JOANNEUM, specialising either in aeronautical engineering or aviation management. Alternatively, they can immediately begin their professional careers. Their interdisciplinary and practical training qualifies them for employment in almost all areas of aviation, with exciting careers awaiting them in aircraft development and construction, production, sales and quality assurance, or at airports, airlines and aviation authorities.

*“The FH JOANNEUM bachelor degree programme in Aviation provided me with direct access to my career in the aviation industry.”*

Stefan Graml, Graduate  
Design Engineer Avionics / Electric Grob Aircraft AG,  
Germany

CURRICULUM: 180 ECTS (30 ECTS per semester)

1st semester	2nd semester	3rd semester	4th semester	5th semester	6th semester	
Applied Mathematics 1 6 ECTS	Applied Mathematics 2 6 ECTS	Applied Mathematics 3 5 ECTS	Usability Engineering 2 ECTS	Scientific Working Technique 2 ECTS	Technology and Society 5 ECTS	
		Scientific Computing 3 ECTS	CAX 3 2 ECTS	Aerodynamics 4 ECTS		
Physik 5 ECTS	Programming 2 3 ECTS	CAx 2 4 ECTS	Engineering Fundamentals 4 11 ECTS	Flight Mechanics & Flight Simulation 4 ECTS	Internship 19 ECTS	
Programming 1 2 ECTS	CAx 1 3 ECTS					
Engineering Fundamentals 1 8 ECTS	Engineering Fundamentals 2 7 ECTS	Engineering Fundamentals 3 8 ECTS		Aircraft Engineering 2 4 ECTS		Aircraft Engineering 3 9 ECTS
	Aviation Fundamentals 2 3 ECTS	Aircraft Engineering 1 4 ECTS				
Engineering Fundamentals 1 5 ECTS	+ Electives 2 ECTS		Aeronautical English 3 2 ECTS	Aeronautical English 4 2 ECTS	Aeronautical English 5 2 ECTS	Bachelor's Thesis 2 6 ECTS
Aeronautical English 1 2 ECTS	Aeronautical English 2 2 ECTS	Business Administration 2 2 ECTS	Project Management 2 ECTS	Project / Bachelor's Thesis 1 4 ECTS		
Aeronautical Engineering Lab 1 2 ECTS	Business Administration 1 2 ECTS	Business Administration 2 2 ECTS	Aeronautical Engineering Lab 4 2 ECTS			
Aeronautical Engineering Lab 1 2 ECTS	Aeronautical Engineering Lab 2 2 ECTS	Aeronautical Engineering Lab 3 2 ECTS	Aeronautical Engineering Lab 4 2 ECTS	Project, Lab, Bachelor's Thesis, Internship		

*Bachelor degree programme*  
**SUSTAINABLE FOOD MANAGEMENT**

**ENVIRONMENT > PRACTICE-  
INTEGRATED > FOOD PRODUCTION  
> BUSINESS > TECHNOLOGY >  
SUSTAINABILITY**

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**F**ood production is one of the largest economic sectors in Austria and one of the most successful worldwide. Experts in sustainable food production, processing, trade and logistics and the development of new products and cooperation models are therefore in high demand.

Our degree programme is centred around modules which focus on guaranteeing high quality foods and sustainable management. We explore all stages of the product life cycle from farming to processing, trade and consumption. Our students gain sound knowledge in quality and supply chain management, process engineering and biotechnology, business management and marketing, cultivation and livestock management and the relevant scientific disciplines.

The fifth semester is taught in English in order to promote international networking. Our students complete their internships with committed partner companies operating in the fields of agriculture, food processing, trade and retail.

*“High quality products will increasingly make their way onto the shelves in Central Europe in the future. The question is what defines a high quality foodstuff these days? Sustainable Food Management will answer this question.”*

Karl Schirnhofner, Styrian meat processing specialist

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**FACTS**

- Bachelor of Science in Engineering (BSc)
- Full-time / practice-integrated
- 6 semesters / 180 ECTS
- Language of instruction: German
- 25 places per year
- Head of Degree Programme:  
DI Johannes Haas
- FH JOANNEUM Graz

[www.fh-joanneum.at/leb](http://www.fh-joanneum.at/leb)

## CAREER PROSPECTS

A wide range of jobs in food production is open to our graduates with potential career opportunities 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 are also qualified to work for interest groups, in administration and consumer protection and as self-employed consultants and service providers.

*“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.”*

Sophie Baumhake, BSc, Graduate

CURRICULUM: 180 ECTS (30 ECTS per semester)\*

1st semester	2nd semester	3rd semester	4th semester	5th semester	6th semester
Study Project Life Cycle Analysis: Food 5 ECTS	Nutrition and Food Science 5 ECTS	Physiology of Nutrition and Health 5 ECTS	Applied Statistics and Data Processing 5 ECTS	Product Life Cycle and International Food Quality 5 ECTS	Selected Topics of Sustainable Food Management 5 ECTS
Fundamentals of Chemistry and Metrology 5 ECTS	Fundamentals of Biochemistry and Food Chemistry 5 ECTS	Introduction to Quality Management and Hygiene 5 ECTS	Quality Management and Logistics 5 ECTS	Supply Chain Management 5 ECTS	Elective Module 2 5 ECTS
Fundamentals of Crop Agriculture 5 ECTS	Fundamentals of Food Analysis and Hygiene 5 ECTS	Process Engineering and Biotechnology 1 5 ECTS	Process Engineering and Biotechnology 2 5 ECTS	Production Planning and Controlling 5 ECTS	Product Development and Innovation Management 5 ECTS
Fundamentals of Livestock Agriculture 5 ECTS	Selected Topics of Food Production 5 ECTS	Introduction to Business Management and Economics 5 ECTS	Advanced Business Management and Global Aspects of the Agricultural Market 5 ECTS	Elective Module 1 5 ECTS	Study Project Product Development and Innovation Management 5 ECTS
Intensive Professional English and Key Skill Development 1 5 ECTS	Intensive Professional English and Key Skill Development 2 5 ECTS	Practice Module 2 Food Processing (3 months) 10 ECTS	Practice Module 3 Food Trade and Marketing (3 months) 10 ECTS	Food Sales and Marketing 5 ECTS	Bachelor's Thesis 2 10 ECTS
Career Exploration and Excursions 5 ECTS	Practice Module 1 Agriculture (6 weeks) 5 ECTS			Bachelor's Thesis 1 5 ECTS	

Scientific Foundations	Engineering	Organisation	Practice and Key Skills
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\* A specialisation in Agricultural Production and Direct Marketing will be launched in the 2016/17 academic year subject to approval by the relevant bodies..

***CO-OP PROGRAMME > INDUSTRY  
> TECHNOLOGY > BUSINESS >  
INDUSTRIAL ENGINEERING***

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**T**he co-op bachelor degree programme is one of a kind in Austria, demonstrating collaboration between academia and business at the highest level. After a one-year grounding, the relevant theory and practice are provided alternately at FH JOANNEUM and the training company. During their first year, students explore the scientific, technological and organisational elements of modern production processes. From the very start, they get a taste of the fascination and complexity of modern industrial production processes when designing a concept for a concrete manufacturing plant in two semester projects.

From the second year, students start to apply what they have learnt in practice: they support their training company in developing and optimising methods, processes and products. They also refine their communication skills and expand their intercultural skills during a semester or internship abroad. During the third year, we offer a chance to specialise in Process Engineering or Manufacturing Technology. A production automation project and two bachelor's theses complete the course.

*“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

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**FACTS**

- Bachelor of Science in Engineering (BSc)
- Co-op programme
- 6 semesters / 180 ECTS
- Language of instruction: German
- 30 places per year
- Head of Degree Programme:  
FH-Prof. DI Dr. Georg Wagner
- FH JOANNEUM Graz

[www.fh-joanneum.at/pto](http://www.fh-joanneum.at/pto)

## CAREER PROSPECTS

Companies these days need engineers with a broad range of practical knowledge about all of the processes involved in production. Our graduates are qualified for assistant functions, project management and senior positions in production technology and automated manufacturing, quality management and logistics, production planning and control as well as product and process development and design. After completing their bachelor degree, students may also choose to enrol on the master degree programme in Engineering and Production Management at FH JOANNEUM.

*“Looking back I can say that studying Production Technology and Organisation was the right decision. The constant contact with colleagues and lecturers from the business world provided me with a high level of practical expertise.”*

DI (FH) Eva Volkheimer, 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	Thermodynamics and Heat Transfer 5 ECTS	Production Technology 4 (PE or ME) 5 ECTS
Materials Science 5 ECTS	Mechanics of Materials 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 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	Work Term 4 5 ECTS
Scientific Foundations	Scientific Foundations	Organisation	Practice and Key Skills		





***AUTOMOTIVE ELECTRONICS > MICRO-  
& NANO-ELECTRONICS > EMBEDDED  
SYSTEMS > CHIP DESIGN > ENERGY  
MANAGEMENT >***

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**T**he English taught master degree programme extends the knowledge of electronics obtained in a bachelor degree programme in two specialisations: Automotive Electronics and Micro- & Nano-Electronics. Automotive Electronics focuses on electric and hybrid drives, energy management, mechatronic systems, safety and comfort as well as communication and infotainment in vehicles. Micro- & Nano-Electronics addresses pioneering technologies such as chip design, communication technology, signal processing, audio and video applications, automation and photovoltaics.

Lectures are held only three days a week enabling students to work part-time while studying. Research is a key feature of the programme. Our R&D department is the largest of all such departments at Austrian Universities of Applied Sciences. Numerous national and international cooperation projects conducted in partnership with other universities and companies give our students the opportunity to get directly involved in innovative technology projects.

*“I opted for this degree programme to be able to play an active role in the technology of the future – whether in the field of renewable energy, vehicle electrification or the development of medical devices. The course also offered me the chance to work for AVL List GmbH in Graz at the same time.”*

Rainer Frauwallner, MSc, Graduate

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**FACTS**

- Master of Science in Engineering (MSc)
- Work-friendly
- 4 semesters / 120 ECTS
- 20 places per year
- Head of Degree Programme:  
FH-Prof. DI Dr. Hubert Berger
- Language of instruction: English
- FH JOANNEUM Kapfenberg

[www.fh-joanneum.at/aee](http://www.fh-joanneum.at/aee)

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## CAREER PROSPECTS

Our electronics experts are well-prepared for the global market. With diverse career opportunities available to them, our graduates can choose from a range of interesting and well-paid positions.

They perform key tasks in the fields of industrial research and product development: from development, production, testing and quality assurance through to customer support as an applications engineer. Our graduates are carving out successful careers in the automotive sector, semi-conductor industry, telecommunications, automation technology and medical technology.

*“This international programme offers a wide scope for students to get involved in projects during their studies, which in turn helps to understand the practical application of the subjects in the course work.”*

Thyagesh Sivaraman, MSc, Graduate

CURRICULUM: 120 ECTS (30 ECTS per semester)

1st semester		2nd semester		3rd semester		4th semester	
Mathematical Methods in Electronics 7 ECTS		Electrodynamics 5 ECTS		Nanostructured Materials 3 ECTS		Master's Thesis 20 ECTS	
Digital Signal Processing 5 ECTS		Analog Circuits 3 ECTS		Communication Systems 4 ECTS			
Microcontrollers 6 ECTS		Digital Control Systems 4 ECTS		Embedded Systems Programming 5 ECTS			
Power Electronics 4 ECTS		Project Management 1 ECTS		Design Process · Standards 3 ECTS			
Intercultural Communication 2 ECTS		Project 1 6 ECTS		Project 2 6 ECTS			
Micro- & Nano-Electronics 6 ECTS	Automotive Electronics 6 ECTS	Micro- & Nano-Electronics 11 ECTS	Automotive Electronics 11 ECTS	Micro- & Nano-Electronics 9 ECTS	Automotive Electronics 9 ECTS	Thesis Seminar 2 ECTS	
						International Management 5 ECTS	
						Innovation Management 1,5 ECTS	
						Presentations & Meetings 1,5 ECTS	
Scientific & Technological Foundations		Electronic Systems		Complementary Topics		Specialisation	
						Project Work · Master Thesis	

**CO-OP PROGRAMME >  
ENGINEERING SCIENCES  
> MANAGEMENT >  
INTERDISCIPLINARY >  
INTERNATIONAL**

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**O**ur master degree programme provides a chance to explore engineering and management issues in depth. Production relevant content relating to mechanical engineering, process and automation technology, management and internationalisation are combined with a focus on ecological, economic and social sustainability.

Students undertake applied research and development projects in cooperation with universities, partner institutions and R&D centres both in Austria and abroad. The course offers three modules exploring issues of engineering and materials sciences, modern production technologies as well as production and corporate organisation.

The third semester is taught in English and focuses primarily on interdisciplinary projects. Seminars on project management and the development of research collaborations, stays abroad and cooperation projects with international universities prepare our students for challenging roles in research and industry.

FH JOANNEUM is a partner of WACE, the World Association for Cooperative Education.

**International partner network**

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

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**FACTS**

- Master of Science in Engineering (MSc)
- Co-op
- 4 semesters / 120 ECTS
- Language of instruction: German / English
- 25 places per year
- Head of Degree Programme:  
FH-Prof. DI Dr. Georg Wagner
- FH JOANNEUM Graz

[www.fh-joanneum.at/enp](http://www.fh-joanneum.at/enp)

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## CAREER PROSPECTS

Graduates take on management roles in corporate organisation or in projects for the introduction of new production technologies and production optimisation as well as product and process development. Their extensive knowledge provides an ideal preparation for professional life. They make a key contribution to industrial research and development and 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.

## Training partnership:

The co-op programme requires students to spend a total of around 16 months at their training company based on a training agreement – ten months on practice modules of varying length and six months on the master’s thesis at the end of the course. The theory blocks are designed in such a way that they allow students to spend up to 80% of their time at the company. Special features of the training partnership include involvement in the company’s research and development activities, flexibility of the training agreement (65 to 100 % employment) and personal student responsibility for selecting the thematic content and organisational structure of the course.

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	Organisation and Personnel Management 2 5 ECTS
Computer Aided Engineering and Design 5 ECTS	Automation Technology 5 ECTS	Cleaner Production 5 ECTS	Master’s Thesis 20 ECTS
Reciprocating and Turbomachinery 5 ECTS	Energy Engineering and Management 5 ECTS	Sustainable Production Engineering 5 ECTS	
Environmental Technology 5 ECTS	Factory Planning 5 ECTS	Product Lifecycle Engineering 5 ECTS	
Integrated Management 5 ECTS	Organisation and Personnel 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	Engineering	Organisation	Practice and Key Skills

# Master degree programme AUTOMOTIVE ENGINEERING

## ENGINEERING > COMMERCIAL VEHICLES > RACE CAR ENGINEERING > TWO-WHEELER ENGINEERING > ALTERNATIVE DRIVES > DESIGN & COMPUTATION > MODELLING & SIMULATION

This programme focuses on sustainable mobility and innovative concepts in automotive engineering. Students have the chance to take part in exciting projects such as the international Formula Student (FS) competition and to gain valuable experience in internships at industry and research institutions. They can also spend a semester studying at one of our partner universities abroad.

We focus on the vehicle as a whole and explore selected subjects of mechanical engineering, electrical engineering and business management. During the second and third semester, students can select from the elective subjects below to develop their personal interests.

### \*Elective Subjects

#### Summer semester:

Lightweight Design  
Rail Vehicle Engineering  
Road Traffic Law / European Competition Law  
Applied Multibody Systems  
Advanced Vehicle Dynamics  
DoE/Application  
Methods for Surface Treatment  
Two Wheeler Technologies

#### Winter semester:

Large Engines  
Energy Management and Storage Systems  
Commercial Vehicles  
Electric Drive and Propulsion Systems  
Rail Vehicle Dynamics  
Marketing and Product Management

*“After completing my degree, I was qualified to work in various vehicle-related fields. Theory and practice are very well combined at FH JOANNEUM thanks to the various projects, especially Formula Student. I would now like to further develop my knowledge on the master degree programme.”*

DI (FH) Christoph Haidinger, Graduate  
Research assistant at FH JOANNEUM, Automotive  
Engineering degree programme

### FACTS

- Diplomingenieurin / Diplomingenieur (DI)
- Full-time
- 4 semesters / 120 ECTS
- Language of instruction: English (80 %) / German (20 %)
- 39 places per year
- Head of Degree Programme:  
FH-Prof. DI Dr. Kurt Steiner
- FH JOANNEUM Graz

[www.fh-joanneum.at/mae](http://www.fh-joanneum.at/mae)

## CAREER PROSPECTS

The automotive and supply industry has an increasing demand for highly qualified engineers with comprehensive knowledge and expertise. We prepare the students to design sustainable, resource-efficient and customer-friendly new products and to generate innovation in order to meet 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.

CURRICULUM: 120 ECTS (30 ECTS per semester)

1. Semester	2. Semester	3. Semester	4. Semester
Applied Engineering Mathematics 1 3 ECTS	Applied Engineering Mathematics 2 3 ECTS	FEM / CFD 3 ECTS	Master's Thesis 30 ECTS
Advanced Mechanics 4 ECTS	Continuum Mechanics 3 ECTS	Advanced Drive and Propulsion Technology 4 ECTS	
Control Systems 1 · Sensors & Actuators 3 ECTS	Control Systems 2 · Digital Control Engineering & Signal Processing 4 ECTS <span>FS</span>	Control Systems 3 · Supply and Storage Systems · Bus and On-board Diagnostics 2 ECTS	
Machine Dynamics · Acoustics 3 ECTS <span>FS</span>	Engineering Methods and Design 2 3 ECTS <span>FS</span>	Strategic Management 3 ECTS	
Methods of Product Development & Production 3 ECTS <span>FS</span>	Project Work 2 4 ECTS <span>FS</span>	Academic Writing and Speaking 2 ECTS	
Hydraulics and Pneumatics 2 ECTS <span>FS</span>	Quality Management 2 ECTS	Elective Subjects 2* 6 ECTS	
Engineering Methods and Design 1 4 ECTS <span>FS</span>	Leadership and Intercultural Business Practices 2 ECTS <span>FS</span>	Internship 10 ECTS	
Project Work 1 5 ECTS <span>FS</span>	Elective Subjects 1* 9 ECTS		
Human Resource Management 1 ECTS <span>FS</span>			
English for Scientific Studies 2 ECTS <span>FS</span>			
Theoretical Fundamentals	Engineering Subjects	Project · Master's Thesis	Business, Law and Social Skills
Language English	Elective Subjects	Internship	

FS Formula Student

A relevant bachelor or diploma degree with at least 180 ECTS or a post-secondary degree is a requirement for admission to the programme.

# *AEROPLANES > HELICOPTERS > DRONES > AIRCRAFT ENGINEERING > AIRPORTS > FLIGHT OPERATIONS*

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**T**his interdisciplinary degree programme combines the demanding technical principles of aviation with business management and organisation. This gives our students the opportunity to customise their studies by selecting from a range of electives. As part of the 'joanneum Aeronautics' team, students compete with teams from other universities to develop their own aircraft.

Students also undertake a final internship and write a master's thesis to consolidate their knowledge. The contacts they make here facilitate their entry into the world of work after graduation. The international focus of the course is reflected in intensive collaboration with partner universities and the large number of internationally renowned speakers at workshops and symposiums.

Our graduates are highly qualified engineers and ideally prepared for future roles in senior management. They gain the comprehensive know-how that was formerly only possible through years of work experience.

*“The studies at FH JOANNEUM in Graz opened the doors for me as the first female graduate to the international aviation industry.”*

Anna Dibbern, Graduate  
Key Account Management & Sales – Aviation  
Mankiewicz Gebr. & Co., Germany

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## **FACTS**

- Master of Science in Engineering (MSc)
- Full-time
- 4 semesters / 120 ECTS
- Language of instruction: English
- 25 places per year
- Head of Degree Programme:  
FH-Prof. DI Dr. Holger Flühr
- FH JOANNEUM Graz

[www.fh-joanneum.at/mav](http://www.fh-joanneum.at/mav)

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## CAREER PROSPECTS

The aviation industry has experienced continual growth over the last few years, resulting in a constant demand for highly qualified professionals. Our aviation engineers receive interdisciplinary training and have a comprehensive overview of both the aircraft and the processes associated with their development, production and operation. They take on challenging roles in the aviation industry such as concept and design, research and development (design, calculations, testing), innovation management, manufacturing and production.

*“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 pro Semester)

1st Semester	2nd Semester	3rd Semester	4th Semester
Human Factors 5 ECTS	Scientific Foundations 5 ECTS	Professional Internship (Seminar / Advising)	Social Skills 5 ECTS
Aerospace Electronic Systems 5 ECTS	Aircraft Systems 5 ECTS		Master's Thesis (Seminar / Advising)
Aircraft Design 5 ECTS	Propulsion Systems 5 ECTS		
Thermo- and Aerodynamics 5 ECTS	Air Transport 5 ECTS		
Aviation Management 5 ECTS	Aviation Industry 5 ECTS		
Elective Courses 1 5 ECTS	Elective Courses 2 5 ECTS		

Scientific Foundations	Aeronautical Engineering	Aviation Management	Specialization
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1st Semester: Elective Courses	2nd Semester: Elective Courses
Project 1 (Scientific work) (5 ECTS)	Project 2 (Scientific work) (5 ECTS)
Aeronautics for Mechanical & Electrical Engineers (3 ECTS)	Aerospace Measurement Techniques (3 ECTS)
Hydraulics & Pneumatics (3 ECTS)	Aerospace Materials (3 ECTS)
Elective Study 1 (2 ECTS)	Elective Study 2 (2 ECTS)
Product Management and Marketing (2 ECTS)	Quality Management (2 ECTS)
Certification (2 ECTS)	Flight Operations (2 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 stimuli 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 Department of Engineering



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

## **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](http://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](http://www.kapfenberg.at)