



 **Location:** Campus Villach  
Europastraße 4, 9524 Villach


 **Duration:** 4 semesters

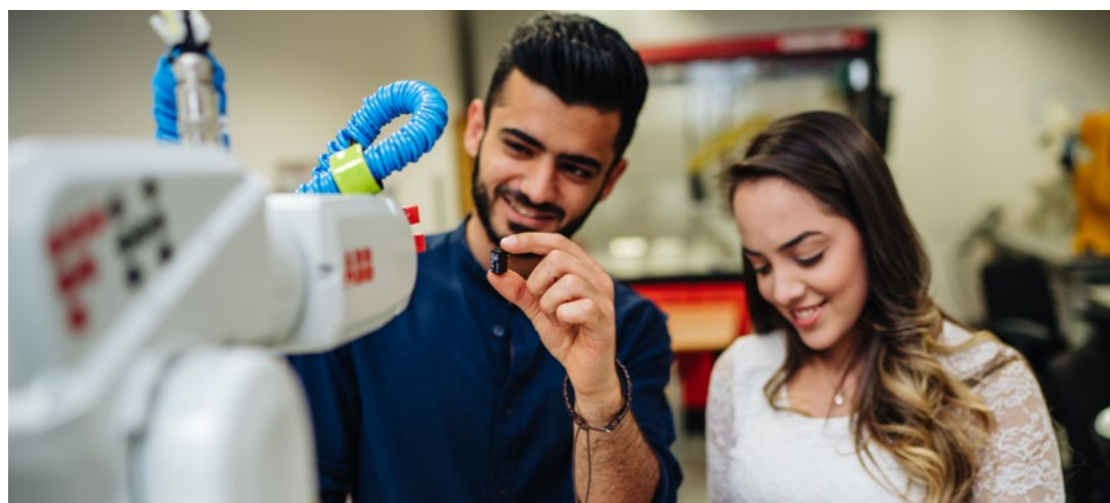
 **Schedule:** presence friday afternoon & saturday;  
remote learning activities during the week

 **Academic Degree:**  
Master of Science in Engineering (MSc)

 **ECTS Credits:** 120

 **Language:** English

 **Study places per year:** 16



The rapid digital transformation is posing new challenges for business and politics as well as society in general. At the same time, it is creating an increasing demand for a well-educated work force, especially in the field of microelectronic applications with a growing focus on power electronics and sustainable energy conversion. The new master's program "Industrial Power Electronics" will be an innovation driver for this dynamic technology sector. Creative ideas can be developed and actively promoted in this program, offering young people the opportunity to gain experience and shape the future with us.

## COURSE INFORMATION

Students of the master's program will be provided a comprehensive, theoretical and practical understanding of the technology, development and application of current power electronic components and systems. This educational program focuses on the conception, design, modeling and simulation, control and protection, construction, assembly and testing of power electronic circuits and systems for intelligent and efficient energy conversion. In the course of their education, graduates will acquire scientific competence in the field of technical research, ranging from literature study to systematic problem formulation and solving as well as the publication of their results. Moreover, they will gather valuable experience and self-confidence in professional teamwork, communication and discourse with colleagues and external contacts.

## JOBS AND CAREERS

Graduates of the master's program "Industrial Power Electronics" will easily be able to find employment with microelectronics companies and semiconductor manufacturers, electrical utility providers, public transport facilities and companies in the automotive, aerospace and aviation sectors as well as the telecommunications branch. Electrical engineers in the field of power electronics are concerned with the efficient conversion and transfer of electrical energy from its generation to its various application levels. In the master's program "Industrial Power Electronics" aspiring engineers are prepared for the technological and methodological challenges in their future field of modern power semiconductors and their industrial application in power electronics energy conversion.

# CURRICULUM

| 1 <sup>st</sup> Semester                     | SCH         | ECTS      |
|--|-------------|-----------|
| Physics of Electronic Devices                | 3,5         | 5         |
| Power Electronic Concepts & Circuits         | 3,5         | 5         |
| Advanced Engineering Mathematics             | 3,5         | 5         |
| Power Electr. Measurement & Sensing Concepts | 3           | 5         |
| Power Electronics Laboratory I - Basics      | 4           | 5         |
| Academic Skills                              | 3           | 5         |
| <b>Total</b>                                 | <b>20,5</b> | <b>30</b> |

| 2 <sup>nd</sup> Semester                   | SCH         | ECTS      |
|--|-------------|-----------|
| Power Devices and Technology               | 3,5         | 5         |
| Power Electronic Topologies & Applications | 3,5         | 5         |
| Converter Dynamics and Control             | 3,5         | 5         |
| Design of Power Electronic Systems         | 3           | 5         |
| Power Electronics Laboratory II - Advanced | 4           | 5         |
| Project I - Concept Study                  | 2           | 5         |
| <b>Total</b>                               | <b>19,5</b> | <b>30</b> |

| 3 <sup>rd</sup> Semester                   | SCH       | ECTS      |
|--|-----------|-----------|
| Industrial Drives & E-Mobility             | 3,5       | 5         |
| Advanced Topics in Industrial Applications | 3         | 5         |
| Smart Power Electronics                    | 3,5       | 5         |
| Analog & Digital Controller Design         | 3         | 5         |
| Management Skills                          | 3         | 5         |
| Project II - Practical Implementation      | 2         | 5         |
| <b>Total</b>                               | <b>18</b> | <b>30</b> |

| 4 <sup>th</sup> Semester | SCH        | ECTS      |
|--------------------------|------------|-----------|
| Master Thesis            | 0,5        | 25        |
| Master Thesis Seminar    | 2          | 2         |
| Master Exam              | 0          | 3         |
| <b>Total</b>             | <b>2,5</b> | <b>30</b> |

| Total | SCH         | ECTS       |
|-------|-------------|------------|
|       | <b>60,5</b> | <b>120</b> |

SCH = Semester Credit Hour

ECTS = European Credit Transfer System



"Our new post-graduate Master program offers you a unique opportunity to become an outstanding expert in power electronics design and applications. Driven by the requirements and ambitions of our industrial partners, who express their continuous request for academically educated and well-trained power electronics engineers, we provide a strong focus on power semiconductor technology and devices as well as present and future areas of industrial and automotive power conversion."

### DR. MICHAEL GLAVANOVICS

Project Manager & Principal Researcher, KAI Kompetenzzentrum Automobil- & Industrielektrotechnik GmbH, Scientific Director for Industrial Power Electronics, FH Kärnten – CUAS

### DATES

**Start:** September/October 2021

**Study Info Lounge:** always on the second Tuesday of the month from 2 to 6 o'clock p.m. - ONLINE

**FH Days and information events:**  
all facts at [www.fh-kaernten.at/fhday](http://www.fh-kaernten.at/fhday)

### COSTS

**Tuition fee:** € 363.36 per semester

**Student Union Fee:** around € 20, annual adjustment

### CONTACT

**T:** +43 5 90500-2003

**M:** [ipe@fh-kaernten.at](mailto:ipe@fh-kaernten.at)

**W:** [www.cuas.at/ipe](http://www.cuas.at/ipe)

