UNIVERSITY OF MARIBOR
FACULTY OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE
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2ND-CYCLE STUDY PROGRAMMES:
1. **ELECTRICAL ENGINEERING**
   Three study options: *Automation and Robotics*, *Electronics*, and *Power Engineering*. The options are implemented in the first semester. Candidates select a desired option in their application.
2. **COMPUTER SCIENCE AND INFORMATION TECHNOLOGIES**
3. **INFORMATICS AND DATA TECHNOLOGIES**
4. **TELECOMMUNICATIONS**
5. **MEDIA COMMUNICATIONS**

The Faculty of Electrical Engineering and Computer Science also conducts an interdisciplinary 2nd-cycle (master's) study programme in *Mechatronics* (in cooperation with the Faculty of Mechanical Engineering). Information on the programme is published separately.

Location: Maribor
Duration: 2 years, 120 ECTS

Access requirements:

1. **ELECTRICAL ENGINEERING**

Candidates who completed the following may apply for the 2nd-cycle (master's) study programme in *Electrical Engineering*:
- A 1st-cycle (bachelor's) study programme corresponding to at least 180 ECTS credits in the field of electricity and energy (0713), electronics and automation (0714), mechatronics (0788), industrial engineering – electrical engineering option (0788), or physics (0533).
- A 1st-cycle (bachelor's) study programme corresponding to at least 180 ECTS credits in a field not specified in the previous paragraph.
  Prior to enrolment, candidates shall pass the following courses corresponding to 19 ECTS credits under the 1st-cycle (bachelor's) study programme in *Electrical Engineering: Principles of Electrical Engineering I* (7 ECTS) and *Principles of Electrical Engineering II* (6 ECTS). In addition, candidates applying for the *Automation and Robotics* option shall also pass the *Signals* course (6 ECTS), candidates applying for the *Electronics* option the *Introduction to Electronics* course (6 ECTS), and candidates applying for the *Power Engineering* option the *Electrical and Electromechanical Converters* course (6 ECTS). If the candidate has mastered course content during 1st-cycle studies, a course may be fully or partially recognized.
- An undergraduate professional study programme adopted prior to 11 June 2004 in the field of electricity and energy (0713), electronics and automation (0714), mechatronics (0788), industrial engineering – electrical engineering option (0788), or physics (0533).
- An undergraduate professional study programme adopted prior to 11 June 2004 in a field not specified in the previous paragraph.
  Prior to enrolment, candidates shall pass the following courses corresponding to 19 ECTS credits under the 1st-cycle (bachelor's) study programme in *Electrical Engineering: Principles of Electrical Engineering I* (7 ECTS) and *Principles of Electrical Engineering II* (6 ECTS). In addition, candidates applying for the *Automation and Robotics* option shall also pass the *Signals* course (6 ECTS), candidates applying for the *Electronics* option the *Introduction to Electronics* course (6 ECTS), and candidates applying for the *Power Engineering* option the *Electrical and Electromechanical Converters* course (6 ECTS). If the candidate has mastered course content during 1st-cycle studies, a course may be fully or partially recognized.
- An undergraduate academic study programme adopted prior to 11 June 2004 in the field of electricity and energy (0713), electronics and automation (0714), mechatronics (0788), industrial engineering – electrical engineering option (0788), or physics (0533).
  Upon demonstrating mastery of relevant study content, candidates are typically awarded 60 ECTS credits and may enrol in the second year of study provided they satisfy the transfer criteria laid down in the accredited study programme.

- An undergraduate academic study programme adopted prior to 11 June 2004 in the field of mathematics (0541), statistics (0542), Information and Communication Technologies - ICTs (061), chemistry and chemical technology (0531), mechanical engineering (0715), or civil engineering (0732). Upon demonstrating mastery of relevant study content, candidates are typically awarded 30 ECTS credits and may enrol in the corresponding year of study.

If the number of applications exceeds the number of available positions, candidates shall be ranked according to:
- grade point average including the thesis (100%).

Mode of study: full-time

Transfer criteria:

In accordance with the transfer criteria, candidates may transfer to the 2nd-cycle (master's) study programme in *Electrical Engineering* from study programmes in the field of electricity and energy (0713), electronics and automation (0714), mechatronics (0788), or industrial engineering – electrical engineering option (0788) provided they lead to the acquisition of comparable competencies and that at least half of the study obligations under the previous study programme relating to compulsory courses of the new study programme are recognized.

Under the recognition procedure, fulfilled study obligations that may be recognized fully or partially are identified, and study obligations required for completion of the new study programme are laid down.

2. **COMPUTER SCIENCE AND INFORMATION TECHNOLOGIES**

Candidates who completed the following may apply for the 2nd-cycle (master's) study programme in *Computer Science and Information Technologies*:
- A 1st-cycle (bachelor's) study programme corresponding to at least 180 ECTS credits in the field of Information and Communication Technologies (ICTs) (061), mathematics (0541), statistics (0542), or physics (0533).
- A 1st-cycle (bachelor's) study programme corresponding to at least 180 ECTS credits in a field not specified in the previous paragraph.
  Prior to enrolment, candidates shall pass the following courses corresponding to 24 ECTS credits under the 1st-cycle (bachelor's) study programme in *Computer Science and Information Technologies: Programming II* (6 ECTS), *Algorithms and Data Structures* (6 ECTS), *Computer Architecture* (6 ECTS), and *Operating Systems* (6 ECTS). If the candidate has mastered course content during 1st-cycle studies, a course may be fully or partially recognized.
- An undergraduate professional study programme adopted prior to 11 June 2004 in the field of Information and Communication Technologies (ICTs) (061), mathematics (0541), statistics (0542), or physics (0533).
- An undergraduate professional study programme adopted prior to 11 June 2004 in a field not specified in the previous paragraph.
  Prior to enrolment, candidates shall pass the following courses corresponding 24 ECTS credits under the 1st-cycle (bachelors') study programme in *Computer Science and Information Technologies: Programming II* (6 ECTS), *Algorithms and Data Structures* (6 ECTS), *Computer Architecture* (6 ECTS), and *Operating Systems* (6 ECTS). If the candidate has mastered course content during 1st-cycle studies, a course may be fully or partially recognized.
- An undergraduate academic study programme adopted prior to 11 June 2004 in the field of Information and Communication Technologies (ICTs) (061).
  Upon demonstrating mastery of relevant study content, candidates are typically awarded 60 ECTS credits and may enrol in the second year of study provided they satisfy the transfer criteria laid down in the accredited study programme.
- An undergraduate academic study programme adopted prior to 11 June 2004 in the field of mathematics (0541), statistics (0542), physics (0533), electricity and energy (0713), electronics and automation (0714), mechatronics (0788), chemistry and chemical engineering (0531), mechanical engineering (0715), or building and civil engineering (0732).
  Upon demonstrating mastery of relevant study content, candidates are typically awarded 30 ECTS credits and may enrol in the corresponding year of study.

If the number of applications exceeds the number of available positions, candidates shall be ranked according to:
- grade point average including the thesis (100%).

Mode of study: full-time

Transfer criteria:

In accordance with the transfer criteria, candidates may transfer to the 2nd-cycle (master's) study programme in *Computer Science and Information Technologies* from study programmes in the field of Information and Communication Technologies (ICTs) (061), mathematics (0541), statistics (0542), or physics (0533) provided they lead to the acquisition of comparable competencies and that at least half of the study obligations under the previous study programme relating to compulsory courses of the new study programme are recognized.

Under the recognition procedure, fulfilled study obligations that may be recognized fully or partially are identified, and study obligations required for completion of the new study programme are laid down.

3. INFORMATICS AND DATA TECHNOLOGIES

Candidates who completed the following may apply for the 2nd-cycle (master's) study programme in *Informatics and Data Technologies*:

- A 1st-cycle (bachelor's) study programme corresponding to at least 180 ECTS credits in the field of Information and Communication Technologies (ICTs) (061), media communications (0688), mathematics (0541), statistics (0542), or physics (0533).
- A 1st-cycle (bachelor's) study programme corresponding to at least 180 ECTS credits in a field not specified in the previous paragraph.
  Prior to enrolment, candidates shall pass the following courses corresponding to 24 ECTS credits under the 1st-cycle (bachelor's) study programme in *Informatics and Data Technologies: Object-Oriented Programming in Java* (6 ECTS), *Databases I* (6 ECTS), *Basics of Web Technologies* (6 ECTS), and *IS Architectures and Patterns* (6 ECTS). If the candidate has mastered course content during 1st-cycle studies, a course may be fully or partially recognized.
- An undergraduate professional study programme adopted prior to 11 June 2004 in the field of Information and Communication Technologies (ICTs) (061), media communications (0688), mathematics (0541), statistics (0542), or physics (0533).
- An undergraduate professional study programme adopted prior to 11 June 2004 in a field not specified in the previous paragraph.
  Prior to enrolment, candidates shall pass the following course corresponding to 24 ECTS credits under the 1st-cycle (bachelor's) study programme in *Informatics and Data Technologies: Object-Oriented Programming in Java* (6 ECTS), *Databases I* (6 ECTS), *Basics of Web Technologies* (6 ECTS), and *IS Architectures and Patterns* (6 ECTS). If the candidate has mastered course content during 1st-cycle studies, a course may be fully or partially recognized.
- An undergraduate academic study programme adopted prior to 11 June 2004 in the field of Information and Communication Technologies (ICTs) (061, 068).
  Upon demonstrating mastery of relevant study content, candidates are typically awarded 60 ECTS credits and may enrol in the second year of study provided they satisfy the transfer criteria laid down in the accredited study programme.
- An undergraduate academic study programme adopted prior to 11 June 2004 in the field of mathematics (0541), statistics (0542), physics (0533), electricity and energy (0713), electronics and automation (0714), mechatronics (0788), chemistry and chemical engineering (0531), mechanical engineering (0715), building and civil engineering (0732), economics (0311), accounting and taxation (0411), finance (0412), or management and administration (0413).
  Upon demonstrating mastery of relevant study content, candidates are typically awarded 30 ECTS credits and may enrol in the corresponding year of study.

If the number of applications exceeds the number of available positions, candidates shall be ranked according to:
- grade point average including the thesis (100%).

Mode of study: full-time

Transfer criteria:

In accordance with the transfer criteria, candidates may transfer to the 2nd-cycle (master's) study programme in *Informatics and Data Technologies* from study programmes in the field of Information and Communication Technologies (ICTs) (061), media communications (0688), mathematics (0541), statistics (0542), or physics (0533) provided they lead to the acquisition of comparable competencies and that at least half of the study obligations under the previous study programme relating to compulsory courses of the new study programme are recognized.

Under the recognition procedure, fulfilled study obligations that may be recognized fully or partially are identified, and study obligations required for completion of the new study programme are laid down.

4. TELECOMMUNICATIONS

Candidates who completed the following may apply for the 2nd-cycle (master's) study programme in *Telecommunications*:
- A 1st-cycle (bachelor's) study programme corresponding to at least 180 ECTS credits in the field of Information and Communication Technologies (ICTs) (061), electricity and energy (0713), electronics and automation (0714), mechatronics (0788), industrial engineering – electrical engineering option (0788), physics (0533), mathematics (0541), or statistics (0542).
- A 1st-cycle (bachelor's) study programme corresponding to at least 180 ECTS credits in a field not specified in the previous paragraph.

Prior to enrolment, candidates shall pass the following courses corresponding to 20 ECTS credits under the 1st-cycle (bachelor's) study programme in *Telecommunications: Introduction to Telecommunications* (6 ECTS), *Programming for Telecommunications* (8 ECTS), and *Fundamentals of Communications Networks* (6 ECTS). If the candidate has mastered course content during 1st-cycle studies, a course may be fully or partially recognized.

− An undergraduate professional study programme adopted prior to 11 June 2004 in the field of Information and Communication Technologies (ICTs) (061), electricity and energy (0713), electronics and automation (0714), mechatronics (0788), industrial engineering – electrical engineering option (0788), physics (0533), mathematics (0541), or statistics (0542).

− An undergraduate professional study programme adopted prior to 11 June 2004 in a field not specified in the previous paragraph.
Prior to enrolment, candidates shall pass the following courses corresponding to 20 ECTS credits under the 1st-cycle (bachelor's) study programme in *Telecommunications: Introduction to Telecommunications* (6 ECTS), *Programming for Telecommunications* (8 ECTS), and *Fundamentals of Communications Networks* (6 ECTS). If the candidate has mastered course content during 1st-cycle studies, a course may be fully or partially recognized.

− An undergraduate academic study programme adopted prior to 11 June 2004 in the field of telecommunications (0714). Upon demonstrating mastery of relevant study content, candidates are typically awarded 60 ECTS credits and may enrol in the second year of study provided they satisfy the transfer criteria laid down in the accredited study programme.

− An undergraduate academic study programme adopted prior to 11 June 2004 in the field of electricity and energy (0713), electronics and automation (0714), Information and Communication Technologies (ICTs) (061), chemistry and chemical engineering (0531), mechanical engineering (0715), building and civil engineering (0732), mathematics (0541), or statistics (0542).
Upon demonstrating mastery of relevant study content, candidates are typically awarded 30 ECTS credits and may enrol in the corresponding year of study.

If the number of applications exceeds the number of available positions, candidates shall be ranked according to:
− grade point average including the thesis (100%).

Mode of study: full-time

Transfer criteria:

In accordance with the transfer criteria, candidates may transfer to the 2nd-cycle (master's) study programme in *Telecommunications* from study programmes in the field of telecommunications (0714), Information and Communication Technologies (ICTs) (061), electricity and energy (0713), or electronics and automation (0714) provided they lead to the acquisition of comparable competencies and that at least half of the study obligations under the previous study programme relating to compulsory courses of the new study programme are recognized.

Under the recognition procedure, fulfilled study obligations that may be recognized fully or partially are identified, and study obligations required for completion of the new study programme are laid down.

5. MEDIA COMMUNICATIONS

Candidates who completed the following may apply for the 2nd-cycle (master's) study programme in *Media Communications*:
− A 1st-cycle (bachelor's) study programme corresponding to at least 180 ECTS credits in the field of media communications (0688), Information and Communication Technologies (ICTs) (061), audio-visual techniques and media production (0211), journalism and reporting (0321), or inter-disciplinary programmes and qualifications involving social sciences, journalism and information (038).

− A 1st-cycle (bachelor's) study programme corresponding to at least 180 ECTS credits in a field not specified in the previous paragraph.
Prior to enrolment, candidates shall pass the following courses corresponding to 22 ECTS credits under the 1st-cycle (bachelor's) study programme in *Media Communications: Introduction to* Communication (6 ECTS), *Informatics in Media* (6 ECTS), *Web Development* (5 ECTS), and *Audio and Video Techniques* (5 ECTS). If the candidate has mastered course content during 1st-cycle studies, a course may be fully or partially recognized.

− An undergraduate professional study programme adopted prior to 11 June 2004 in the field of media communications (0688), Information and Communication Technologies (ICTs) (061), audio-visual techniques and media production (0211), journalism and reporting (0321), or inter-disciplinary programmes and qualifications involving social sciences, journalism and information (038).

− An undergraduate professional study programme adopted prior to 11 June 2004 in a field not specified in the previous paragraph.
Prior to enrolment, candidates shall pass the following courses corresponding to 22 ECTS credits under the 1st-cycle (bachelor's) study programme in *Media Communications: Introduction to* Communication (6 ECTS), *Informatics in Media* (6 ECTS), *Web Development* (5 ECTS), and *Audio and Video Techniques* (5 ECTS). If the candidate has mastered course content during 1st-cycle studies, a course may be fully or partially recognized.

- An undergraduate academic study programme adopted prior to 11 June 2004 in the field of media communications (0688).
  Upon demonstrating mastery of relevant study content, candidates are typically awarded 60 ECTS credits and may enrol in the second year of study provided they satisfy the transfer criteria laid down in the accredited study programme.
- An undergraduate academic study programme adopted prior to 11 June 2004 in the field of Information and Communication Technologies (ICTs) (061), audio-visual techniques and media production (0211), journalism and reporting (0321), or inter-disciplinary programmes and qualifications involving social sciences, journalism and information (038).
  Upon demonstrating mastery of relevant study content, candidates are typically awarded 30 ECTS credits and may enrol in the corresponding year of study.

If the number of applications exceeds the number of available positions, candidates shall be ranked according to:
- grade point average including the thesis (100%).

Mode of study: full-time

Transfer criteria:

In accordance with the transfer criteria, candidates may transfer to the 2nd-cycle (master's) study programme in *Media Communications* from study programmes in the field of Information and Communication Technologies (ICTs) (061), audio-visual techniques and media production (0211), visual communications design (0213), or journalism and reporting (0321) provided they lead to the acquisition of comparable competencies and that at least half of the study obligations under the previous study programme relating to compulsory courses of the new study programme are recognized.

Under the recognition procedure, fulfilled study obligations that may be recognized fully or partially are identified, and study obligations required for completion of the new study programme are laid down.

3RD-CYCLE STUDY PROGRAMMES:
1. **ELECTRICAL ENGINEERING**
2. **COMPUTER SCIENCE AND INFORMATICS**
3. **MEDIA COMMUNICATIONS**

Location: Maribor
Duration: 3 years, 180 ECTS
Mode of study: part-time

Access requirements:

Candidates who completed the following may apply for the 3rd-cycle (doctoral) study programmes:
- A 2nd-cycle (master's) study programme.
- An undergraduate academic study programme adopted prior to 11 June 2004.
- A specialisation following an undergraduate professional study programme adopted prior to 11 June 2004.
  Prior to enrolment, candidates shall fulfil study obligations corresponding to a maximum of 35 ECTS credits under the 2nd-cycle (master's) study programme:
    - for the doctoral programme in *Electrical Engineering* in the field of electrical engineering,
    - for the doctoral programme in *Computer Science and Informatics* in the field of computer science and informatics, and
    - for the doctoral programme in *Media Communications* in the field of media communications.
  The Faculty's Academic Affairs Committee shall determine which study obligations are to be fulfilled by considering the candidate's field of expertise (type of the completed study programme).
- A study programme educating students for professions regulated by EU directives or another integrated (long-cycle) master's study programme corresponding to 300 ECTS credits.

A completed undergraduate academic study programme or a 2nd-cycle (master's) study programme in one of the following fields is considered adequate prior knowledge:
- for the doctoral programme in *Electrical Engineering* in the field of electrical engineering, telecommunications, or mechatronics;
- for the doctoral programme in *Computer Science and Informatics* in the field of computer science or informatics;
- for the doctoral programme in *Media Communications* in the field of media communications, computer science, or informatics.

If the number of applications exceeds the number of available positions, candidates shall be ranked according to:
- grade point average (20%) and
- grade awarded for the elective exam in the field of electrical engineering, computer science and informatics, or media communications (80%).

Regarding the elective exam, candidates may replace up to 50% of the grade with the grade awarded for scientific research and professional work. Evaluation criteria:
- original scientific papers or review articles in JCR journals or journals indexed in SCI, SSCI or A&HCI databases;
- contributions in international conference proceedings;
- other publications.

Transfer criteria:

In accordance with the Criteria for Transferring Between Study Programmes, candidates who completed the following may be admitted to the second year of the 3rd-cycle (doctoral) study programmes in *Electrical Engineering*, *Computer Science and Informatics,* and *Media Communications*:
- A master of science study programme adopted prior to 11 June 2004. Candidates are awarded 60 ECTS credits.
- A specialisation following an undergraduate academic study programme adopted prior to 11 June 2004. Candidates are awarded 60 ECTS credits.

Candidates may transfer to the study programme provided they fulfil the following criteria:
- they are transferring from a study programme leading to the acquisition of comparable competences or learning outcomes;
- at least half of the study obligations evaluated according to ECTS credit system of the previous study programme relating to compulsory courses of the new study programme are recognised.

The Committee for Scientific Research of the UM FERI establishes the extent of recognised study obligations for each candidate.

Number of available places: The number of available enrolment places is published in the table that represents an integral part of the Call.