SLOVENSKO
OGRODJE
KVALIFIKACIJ

Magister inženir mehatronike/magistra inženirka mehatronike

Selected qualifications

Name of qualification	Magister inženir mehatronike/magistra inženirka mehatronike
Translated title (no legal status)	Master of Science in mechatronics
Type of qualification	Diploma druge stopnje
Category of qualification	Izobrazba
Type of education	Master's education
Duration	2 years
Credits	120 credits

Admission requirements

Enrolment in the second-cycle Mechatronics programme is open to candidates who have completed:
• a first-cycle study programme in a relevant field: engineering (broad programmes – mechatronics, 520), mechanics and metalwork (521), industrial engineering – mechanical engineering (521), electricity and energy (522), industrial engineering – electrical engineering (522), electronics and automation (523), motor vehicles, ships and aircraft (525), physical science (broad programmes, 440), physics and astronomy (441);
• a first-cycle study programme in another field: mathematics and statistics (46), computer science (48), chemical technology and process engineering (524) – if prior to enrolment in the programme the candidate has completed course units essential for further study, totalling 20 ECTS credits. These course units may be completed during the first-cycle programme, during supplementary study programmes or by passing differential examinations before enrolment in the programme. Candidates must complete the following course units: Basics of Electrical engineering (6 ECTS credits), Machine elements (8 ECTS credits), Electronics for mechatronic engineers (6 ECTS credits);
• a professional higher education programme, adopted before 11 June 2004, in a relevant field: engineering (broad programmes, 520), mechanics and metalwork (521), electricity and energy (522), electronics and automation (523), motor vehicles, ships and aircraft (525), physical science (broad programmes, 440), physics and astronomy (441);
• a professional higher education programme, adopted before 11 June 2004, in another field: mathematics and statistics (46), computer science (48), chemical technology and process engineering (524) – if prior to enrolment in the programme the candidate has completed course units essential for further study, totalling 20 ECTS credits. These course units may be completed during the first-cycle programme, during supplementary study programmes or by passing differential examinations before enrolment in the programme. Candidates must complete the following course units: Basics of Electrical engineering (6 ECTS credits), Machine elements (8 ECTS credits), Electronics for mechatronic engineers (6 ECTS credits);
• an academic higher education programme, adopted before 11 June 2004, in a relevant field: engineering (broad programmes – mechatronics and industrial engineering – mechanical engineering, industrial engineering – electrical engineering, 520), mechanics and metalwork (521), electricity and energy (522), electronics and automation (523), motor vehicles, ships and aircraft (525), physical science (broad programmes, 440), physics and astronomy (441). As a rule 60 ECTS credits are recognised for such candidates within the study programme and candidates may enrol in the second year of the programme if with these recognised course units they meet the conditions for transition laid down by an accredited study programme;
• academic higher education programme, adopted before 11 June 2004, from another field: mathematics and statistics (46), computing (48), chemical technology and process engineering (524). As a rule, 30 ECTS credits are recognised for such candidates within the study programme, and candidates may enrol in the corresponding year of the programme;
• a professional higher education programme, adopted before 11 June 2004, and a study programme leading to a specialisation, adopted before 11 June 2004, in a relevant field: engineering (broad programmes, 520), mechanics and metalwork (521), electricity and energy (522), electronics and automation (523), motor vehicles, ships and aircraft (525), physical science (broad programmes, 440), physics and astronomy (441). As a rule 60 ECTS credits are recognised for such candidates within the study programme and candidates may enrol in the second year of the programme if with these recognised course units they meet the conditions for transition laid down by an accredited study programme;
• a professional higher education programme, adopted before 11 June 2004, and a programme leading to a specialisation, adopted before 11 June 2004, in another field: mathematics and statistics (46), computing (48), chemical technology and process engineering (594). As a rule, 30 ECTS credits are recognised for such candidates within the study programme, and candidates may enrol in the corresponding year of the programme.

ISCED field	Field Tehnika, proizvodne tehnologije in gradbeništvo
ISCED subfield	subfield interdisciplinarne izobraževalne aktivnosti/izidi, pretežno tehnika, proizvodne tehnologije in gradbeništvo
Qualification level	SQF 8 EQF 7 Second level

Learning outcomes

The qualification holder will be able to:

(general competences)

- successfully perform the most difficult tasks (in the technical and R&D senses) within their field in accordance with performance standards;
- link theoretical concepts to technical and applied concepts and develop the ability to transfer and apply theoretical knowledge in practice in order to find creative solutions to the most difficult technical and R&D problems;
- communicate within the discipline and across disciplines, and within an organisation and outside it with partners and customers;
- show critical judgement, responsibility, initiative and autonomy in decision-making and in leading professional work and research of the greatest complexity;
- realise theoretical concepts and technically highly complex concepts in practice.

(subject-specific competences)

- design and construct the most complex mechatronic systems, assemblies, devices, machines and installations;
- apply methodology for development and research in a narrow technical field;
- use and develop computer-supported mechanical engineering construction and electrical engineering project design and also modern programming languages and online systems for the remote operation of mechatronic systems;
- use and develop procedures and tools to model, optimise and simulate mechatronic systems;
- devise, develop and use modern mechatronic manufacturing technologies and concepts;
- manage existing mechatronic manufacturing processes and technologies, analyse, assess and evaluate them, and update them as necessary;
- organise, plan and manage a mechatronic manufacturing process;
- ensure that products are of suitable quality by performing relevant quality measurements and checks;
- ensure measures for the faultless operation, maintenance and environmental integrity of products throughout their life cycle;
- demonstrate interdisciplinary understanding of activities in manufacturing systems,
- continuously develop skills in the application of knowledge in a specific professional field;
- demonstrate familiarity with and understanding of the history of mechatronics and its disciplines.

Assessment and completion

Students' knowledge is assessed by means of practical exercises and seminar papers, and also via products, projects, performances, services, etc. and by examinations. Examination performance is scored as follows: 10 (excellent); 9 (very good: above-average knowledge but with some mistakes); 8 (very good: solid results); 7 (good); 6 (adequate: knowledge satisfies minimum criteria); 5–1 (inadequate). In order to pass an examination, a candidate must achieve a grade between adequate (6) and excellent (10).

Progression

In order to progress to the second year, students must complete first-year course units totalling at least 48 ECTS credits.

Transitions

Third-cycle doctoral study programmes (SQF level 10)

Condition for obtaining certificate

In order to complete the programme, students must complete all course units prescribed by the programme for a total of at least 120 ECTS credits.

Awarding body

Faculty of Electrical Engineering, Computer Science and Information Science, Faculty of Mechanical Engineering, University of Maribor

URL

http://feri.um.si/en/