SLOVENSKO
OGRODJE
KVALIFIKACIJ

Magister inženir oblikovanja izdelkov/magistrica inženirka oblikovanja izdelkov

Selected qualifications

Name of qualification	Magister inženir oblikovanja izdelkov/magistrica inženirka oblikovanja izdelkov
Translated title (no legal status)	Master of Science in product design engineering
Type of qualification	Diploma druge stopnje
Category of qualification	Izobrazba
Type of education	Master's education
Duration	2 years
Credits	120 credits

Admission requirements

• A completed first-cycle programme consisting of at least 180 ECTS credits in the field of engineering sciences, manufacturing technologies, architecture and civil engineering, mathematics and statistics, computing, environmental protection, transport services, natural sciences, design, industrial design; or
• a completed first-cycle study programme consisting of at least 180 ECTS credits in another field not covered in the preceding paragraph; such candidates are required to complete the following course units consisting of 24 ECTS credits before enrolling in the programme: Materials I (3 credits), Materials II (3 credits), Manufacturing technologies I (4 credits), Engineering tools I (5 credits); Manufacturing technologies II (3 credits), Physical modelling of engineering systems (3 credits), Construction methodology (3 credits); or
• a completed study programme leading to a professional higher education qualification, adopted before 11 June 2004, in the field of engineering sciences, manufacturing technologies, architecture and civil engineering, mathematics and statistics, computing, environmental protection, transport services, natural sciences, design, industrial design; or
• a completed study programme leading to a professional higher education qualification, adopted before 11 June 2004, in another field not covered in the preceding paragraph; such candidates are required to complete the following course units consisting of 24 ECTS credits before enrolling in the programme: Materials I (3 credits), Materials II (3 credits), Manufacturing technologies I (4 credits), Engineering tools I (5 credits); Manufacturing technologies II (3 credits), Physical modelling of engineering systems (3 credits), Construction methodology (3 credits); or
• equivalent education in another country.

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)

- analyse, synthesise and anticipate solutions and consequences;
- demonstrate proficiency in research methods, procedures and processes of product design, and develop critical and self-critical assessment;
- apply knowledge in practice;

- demonstrate autonomy in professional work;
- develop communication skills and abilities, particularly in the international environment;
- demonstrate a capacity for ethical reflection and a commitment to professional ethics;
- demonstrate cooperativeness with well-developed social and cultural sensitivity and linguistic and communication skills, partly acquired through experiences of teamwork and periods of study abroad, work in a group, in the international environment;

(subject-specific competences)

- demonstrate knowledge and understanding of the foundations and development of product design engineering;
- solve specific work problems through the application of scientific methods and procedures for the development of products from the inside out, starting with the function of products;
- demonstrate coherent mastery of basic knowledge in the field of design and engineering and integrate knowledge from various technical fields and applications;
- place new information and interpretations in the context of product design engineering;
- demonstrate understanding of the general structures of the engineering design of products and connections with sub-disciplines;
- demonstrate understanding of and apply critical analysis methods and the development of theories in solving specific technical design problems;
- develop skills and expertise in the application of knowledge in the field of product design engineering;
- use information and communication technologies and systems in the field of product design engineering;
- develop innovative products and combinations of products in order to satisfy the needs of the individual consumer on the basis of a balancing of the interests of the designer, the user, industry and society, taking into account international ethics;
- professionally implement the whole process of product design with an emphasis on concept and show the ability to do this autonomously or as a member or leader of an international group,
- demonstrate knowledge of relevant technical, human, aesthetic and environmental issues and the organisational and economic aspects of products and their use, and inclusion of these aspects in product development;
- select and use engineering materials;
- select strategies and methods of spatial modelling, select suitable software and construct complex computer geometrical models;
- systematically manage the life cycle of products with the help of technologies, methods, tools and systems for product life-cycle management;
- participate in or lead concurrent engineering, take a systematic and concurrent approach to ensuring structural objectives and demonstrate familiarity with guidelines and recommendations for targeted product development;
- select, use and integrate programming tools in the analysis, design, implementation and management of intelligent control systems;
- integrate the design discipline with social, cultural and economic frameworks;
- evaluate the multiple meanings of a space and its elements in their scientific, social and cultural dimensions;
- analyse, synthesise and critically evaluate aesthetic theses and the semiotics of form;
- plan, construct, model, optimise, evaluate, manage, design and build technologically complex products and systems that can potentially be offered in global markets;
- develop and use research methods across a broad spectrum of problems and in this way respond rapidly to new circumstances in both national and international contexts;
- demonstrate familiarity with the theory and practice of graphical representation;
- demonstrate mastery of the principles of two- and three-dimensional design and translate content into form;
- demonstrate mastery of the aims, methods, procedures and tools to ensure the ergonomic

suitability of products;
- design a complex product and analyse it from the point of view of the materials and manufacturing processes used;
- autonomously and creatively address design problems with the help of reverse engineering technology;
- demonstrate in-depth knowledge of the possibilities, advantages and practical use of prototype technologies;
- demonstrate mastery of the principles of colour harmony.

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 45 ECTS credits.
If a student fails to meet all progression requirements, the Studies Committee of the Senate of the Faculty of Mechanical Engineering may approve enrolment in the second year at the student's request in accordance with the provisions of the Statute of the University of Maribor.

Transitions

Third-cycle doctoral study programmes (SQF level 10)

Condition for obtaining certificate

In order to complete the second-cycle (master's) programme in product design engineering, students must complete all course units, for a total of 120 credits (pass all examinations prescribed by the study programme and write and successfully defend a master's thesis).

Awarding body

Faculty of Mechanical Engineering, University of Maribor

URL

http://www.fs.um.si/en/study/study-programme/second-cycle/