



**FS**

**UNIVERSITY OF LJUBLJANA**  
**Faculty of Mechanical Engineering**

**2<sup>nd</sup> CYCLE MASTER'S STUDY PROGRAMME**

**MECHANICAL ENGINEERING –  
RESEARCH AND  
DEVELOPMENT PROGRAMME**

**PROGRAMME CURRICULUM**

for the academic year 2026/2027

Ljubljana, 2026

## THE “MECHANICAL ENGINEERING – RESEARCH AND DEVELOPMENT PROGRAMME” INFORMATION

### Basic information

|                                       |  |
|---------------------------------------|--|
| Programme title                       | <b>Mechanical Engineering – Research and Development Programme</b>   |
| Programme features                    |  |
| Type                                  | Master's degree  |
| Study level (cycle)                   | Second cycle   |
| KLASIUS-SRV                           | Master's education (second Bologna cycle)/Master's degree (second Bologna cycle) (17003)   |
| ISCED                                 | • Technics (52)  |
| KLASIUS-P                             | • Mechanical engineering and metalworking (not further defined) (5210)   |
| M KLASIUS-P-16                        | • Metallurgy, mechanical engineering and metalwork (0715)  |
| Frascati                              | • Natural sciences (1)<br>• Technical sciences (2)<br>• Social sciences (5)  |
| SOK level                             | SOK level 8  |
| EOK level                             | EOK level 7  |
| EOVK level                            | Second cycle   |
| Fields/modules/courses of study       | <ul style="list-style-type: none"> <li>• Energy engineering (course of study)</li> <li>• Process engineering (course of study)</li> <li>• Engineering design (course of study)</li> <li>• Mechanics (course of study)</li> <li>• Process engineering (course of study)</li> <li>• Mechatronics and laser technology (course of study)</li> </ul> |
| Member of the University of Ljubljana | • Faculty of Mechanical Engineering, Aškerčeva 6, 1000 Ljubljana, Slovenia   |
| Duration (years)                      | 2  |
| Number of ECTS credits per year       | 60   |
| Modes of study                        | Full-time  |

### Key objectives of the programme

In an effort to create the conditions for increased global competitiveness of the Slovenian economy, which is primarily based on the ability to constantly design and develop new products, process technologies and technological procedures, while taking into account the criteria of sustainable development and environmental protection, the primary objective of the second-cycle master's degree programme “MECHANICAL ENGINEERING – Research and Development Programme” is to educate future mechanical engineers who will be qualified for independent R&D and project-oriented work and generating new knowledge both in the field of mechanical sciences as well as areas that require interdisciplinary integration. Accordingly, the key factor of the programme is to address the needs and preferences of the national economy and, therefore, the students’ needs to acquire the necessary competencies that will ensure immediate employability upon completion of the study programme. The main emphasis is on the following aspects:

- Students are allowed to acquire in-depth fundamental and specific technical engineering expertise, especially in the field of mechanical engineering; in this way, students are trained to assume professional responsibility in resolving challenging technical issues in practice, which often leads to new added value. Master’s graduates in mechanical engineering – graduates of the second-cycle master's degree programme “MECHANICAL ENGINEERING – Research and Development Programme”, therefore become indispensable for the flourishing of the national economy.
- Students get a broader underpinning of knowledge and use the acquired skills to cover and master the core professional areas of mechanical engineering, while developing scientific thinking in their research work,

which is supported by the acquired methodological approaches. In this way, students are trained to handle R&D tasks; and finding solutions to these problems enables the enterprises to survive in international markets.

- Students are made aware of the importance of interdisciplinary integration by mastering new products and technologies. Through a wide range of knowledge, the ability to think analytically, the knowledge of methodologies, and by approaching research and development work in various professional areas of mechanical engineering, the master's graduates in mechanical engineering will be provided with both the expertise and the ability to connect different fields through interdisciplinary integration. This also fulfils the basic requirements for the successful continuation of their studies in a doctoral degree programme (third-cycle studies).

We strive to uphold the principles of the Bologna Declaration, the European University Association (EUA), the European Federation of National Engineering Associations (FEANI) and the German accreditation agency ASIIN. By providing a wide range of courses to choose from, which is expressed both in the number of professional courses in the study programme and in elective courses, as well as mobility, the programme enables our master's graduates in engineering to acquire skills and employment qualifications that are comparable across Europe. Accordingly:

- Students receive an education that is comparable to similar study programmes in Central and Western Europe.
- Students can transfer to another similar undergraduate study at home or abroad using a transfer credit statement of completed coursework.

The above-mentioned features enable our master's graduates in engineering – graduates of the second-cycle master's degree programme “MECHANICAL ENGINEERING – Research and Development Programme” to master specialized areas of expertise within the technical science field, which enables them to be employed and work successfully in the technical research and development departments of companies, in research laboratories of research institutes, in educational institutions, etc.

### General competencies (learning outcomes)

The general competencies as well as qualifications of a master's graduate in engineering after completing the second-cycle master's degree programme “MECHANICAL ENGINEERING – Research and Development Programme” include:

- the ability to define and understand fundamental scientific problems and creatively solve professional challenges;
- expanding the ability to think critically, analytically and synthetically; developing new knowledge and comprehension of his field of expertise; developing higher cognitive skills related to the generation of new knowledge;
- the ability to take responsibility for one's professional development and learning by evaluating and reflecting on one's work (experiential learning, supervision);
- independent participation in various social activities and freelance work;
- proficiency in professional communication and writing, including in the international arena;
- the ability to make use of information and communication technology;
- the ability to make use of the acquired knowledge to independently solve technical problems in the field of mechanical engineering;
- the ability to search for sources, critically assess information, independently expand the acquired knowledge and to broaden the skills in specific specialized areas of mechanical engineering;
- the ability to work in a group and take part in interdisciplinary networking; establishing partnerships with users and other groups; leadership and organisational skills;
- the ability to use modern research methods and procedures; the ability to do research and transfer the findings into practice.

### Course-specific competencies (learning outcomes)

The course-specific competencies of a master's graduate in engineering upon completing the second-cycle master's degree programme “MECHANICAL ENGINEERING – Research and Development Programme” are:

- the ability to upgrade and use basic mechanical engineering expertise and its development and technical implementation;
- proficiency in basic theoretical and applied knowledge, which is essential for mastering the technical field of mechanical engineering;
- great proficiency in the field of mechanical engineering, which enables the continuation of studies in a doctoral degree programme.
- proficiency in physical, mathematical and numerical problem modelling with a well-developed ability to critically analyse the results;
- the ability to independently acquire new expertise and skills;
- the ability to carry out independent research, development, engineering and technical organizational work and the ability to handle specific tasks in the field of mechanical engineering in a creative manner;
- a well-developed ability to find optimal solutions based on analysis and synthesis.

The specific competencies (more narrowly defined) are listed in the syllabi of individual courses.

## Entry requirements

The second-cycle master's degree programme "Mechanical Engineering – Research and Development Programme" can be entered by anyone who has completed at least:

- a first-cycle study programme, comprising of at least 180 credits, in the field of mechanical engineering with research and development content or an equivalent study programme pursuant to the current regulations in the Republic of Slovenia or abroad;
- a first-cycle study programme, comprising at least 180 credits, in the field of mechanical engineering with project-oriented content or an equivalent study programme pursuant to the current regulations in the Republic of Slovenia or abroad, if prior to enrolment, he has completed the requirements essential for continuing his studies ranging from 10 to 15 credits;
- a first-cycle study programme, comprising at least 180 credits, from other technical fields or an equivalent study programme pursuant to the current regulations in the Republic of Slovenia or abroad, if prior to enrolment, he has completed the requirements essential for continuing his studies. The fulfilment of these requirements-related conditions shall be determined by the Admissions Committee. Depending on the different areas of expertise, the credited requirements range from 10 to a maximum of 60 credits.

## Selection criteria in the event of admission quotas

In the event of admission quotas, the selection of candidates for enrolment in the study programme will take into account their academic performance in first-cycle studies (average grade and the diploma thesis grade). Where a diploma thesis is not part of the first-cycle study programme, only the average grade shall be taken into account.

## Criteria for the recognition of knowledge and skills acquired before enrolment in the programme

Before enrolling in the second-cycle master's degree programme "MECHANICAL ENGINEERING – Research and Development Programme", the students' previously acquired skills can be recognized as completed requirements if the content and scope of these skills correspond to the educational content of the subjects in this programme. The decision on whether or not to acknowledge the expertise and skills acquired by a particular student prior to enrolment is made by the UL FME Master's Studies Committee, based on the written application of the student, the attached written certificates and other documents proving the successfully acquired skills and the content of these skills, and in accordance with the Rules on the Procedure and Criteria for the Acknowledgement of Informally Acquired Knowledge and Skills.

The number of ECTS credits acquired outside of this study programme is not capped or limited. Upon enrolment in the second-cycle master's degree programme "MECHANICAL ENGINEERING – Research and Development Programme", the scope and content of comparable knowledge and skills are evaluated according to the ECTS system and, after the assessment of the Master's Studies Committee, recognized as completed requirements of the programme. This ensures that the range of professional content within the study programme, which is necessary for achieving the set objectives and competencies, is not reduced.

## Methods of assessment

The methods of assessment are compliant with [the UL Statute](#) and are listed in the course syllabi.

## Requirements for the progression through the programme

The prerequisite for progressing from 1st to 2nd year is the completion of the study requirements amounting to a minimum of 48 ECTS credits. Exceptionally, a student may enrol in the 2nd year of study even if he has not completed all the requirements required for enrolment in a higher year (as stipulated in the study programme), when there are justifiable grounds for doing so, as defined in Article 153 of the UL Statute (maternity, prolonged illness, extenuating family and social circumstances, disability status, active participation in top professional, cultural and sporting events and active participation in the bodies of the university) or reasons of study commitments to do with parallel studies, transferring from one university to another, language difficulties (foreign students), additional burdens due to international exchange or increased workload to do with additional research and development work. Pursuant to Article 240 of the UL Statute, students are entitled to suspend their student status during maternity, paternity or sick leave lasting over one year.

A student who has not fulfilled all the requirements set by the study programme for enrolment into a higher year may repeat a year if he has earned at least 24 ECTS credits. A year can only be repeated once during the studies.

## Conditions for transferring between programmes

The transfer between programmes shall mean the termination of the student's education in the study programme in which he initially enrolled and the continuation of education in the second-cycle master's degree programme "MECHANICAL ENGINEERING – Research and Development Programme", whereby part of the requirements or all of the requirements that the student has already passed as part of the initial study programme shall be deemed to have been completed. It should be noted, however, that transferring is only possible between study programmes that provide comparable competencies upon completion. Applications for transferring to the second-cycle master's degree programme "MECHANICAL ENGINEERING – Research and Development Programme" and the scope of satisfied requirements within the study programme will be reviewed by the Master's Studies Committee.

In accordance with the Criteria for Transfers Between Study Programmes, the candidate can enrol in the second-cycle master's degree programme "MECHANICAL ENGINEERING – Research and Development Programme", provided that he is entitled to at least half of the ECTS credits from the initial study programme pertaining to the compulsory subjects of the second-cycle master's degree programme "MECHANICAL ENGINEERING – Research and Development Programme". If, during the recognition procedure, the candidate is found to be entitled to at least as many (and specifically those) credit points that are the prerequisite for enrolment in the second year of the second-cycle master's degree programme "MECHANICAL ENGINEERING – Research and Development Programme", the candidate shall be allowed to enrol in the second year of the second-cycle master's degree programme "MECHANICAL ENGINEERING – Research and Development Programme".

## Requirements for the completion of studies

The prerequisite for completing the studies is that the candidate successfully completes all of the programme-specific study requirements amounting to 120 ECTS credits and successfully defends his master's thesis.

## Requirements for completing individual parts of the programme, if any exist:

There are no options to complete individual parts of the study programme. The programme is implemented and treated as a whole.

## Professional or scientific or artistic title (male)

- Magister inženir strojništva / MSc in Mechanical Engineering

Professional or scientific or artistic title (female)

- Magistrica inženirka strojništva / MSc in Mechanical Engineering

Professional or scientific or artistic title (abbreviation)

- mag. inž. str. / MSc, Mech. Eng.

Professional or scientific or artistic title in English including abbreviation

- Magister inženir strojništva (mag. inž. str.) / Master of Science (MSc, Mech. Eng.)

## STUDY PROGRAMME CURRICULUM

### MECHANICAL ENGINEERING - RESEARCH AND DEVELOPMENT PROGRAMME

|                                 |   |
|---------------------------------|---|
| Name of study programme         | <b>Mechanical engineering - research and development programme</b>          |
| Programme characteristics       |   |
| Type                            | master's  |
| Cycle                           | master  |
| University of Ljubljana members | • Faculty of Mechanical Engineering, Aškerčeva 6, 1000 Ljubljana, Slovenija |

Energy engineering (direction/track)

Year 1

|    | University Course Code | Course title  | Lecturers                                | Contact hours |         |           |                    |                      | Individual student work | Total hours | ECTS | Semesters    | Elective |
|----|------------------------|---|--|---------------|---------|-----------|--------------------|----------------------|-------------------------|-------------|------|--------------|----------|
|    |                        |   |  | Lectures      | Seminar | Tutorials | Clinical tutorials | Other forms of study |                         |             |      |              |          |
| 1. | 0566850                | Experimental Modeling in Energy and Process Engineering | Marko Hočevar, Matevž Dular              | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 2. | 0566851                | Advanced Combustion Processes                           | Mitja Mori, Tomaž Kutrašnik, Tine Seljak | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 3. | 0566852                | Energy Conversion Systems                               | Mitja Mori, Mihael Sekavčnik             | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 4. | 0548392                | Professional elective course S01                        |  | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |
| 5. | 0548393                | Professional elective course S02                        |  | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |
| 6. | 0548394                | General elective course 1                               |  | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |
| 7. | 0566856                | Turbomachinery  | Lovrenc Novak,                           | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 2nd semester | no       |

|       |         |                                  |                         |     |   |     |   |   |     |      |    |              |     |
|-------|---------|----------------------------------|-------------------------|-----|---|-----|---|---|-----|------|----|--------------|-----|
|       |         |                                  | Marko Hočevar           |     |   |     |   |   |     |      |    |              |     |
| 8.    | 0566857 | Processes in Heat Engines        | Tomaž Katrašnik         | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | no  |
| 9.    | 0566858 | Chemical Energy Carriers         | Mitja Mori, Tine Seljak | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | no  |
| 10.   | 0548401 | Professional elective course S03 |                         | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | yes |
| 11.   | 0548402 | Professional elective course S04 |                         | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | yes |
| 12.   | 0548403 | General elective course 2        |                         | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | yes |
| Total |         |                                  |                         | 360 | 0 | 360 | 0 | 0 | 780 | 1500 | 60 |              |     |

The professional elective courses S01, S02, S03 and S04 in the amount of 20 ECTS are selected by the student of his/her own choice from the set of all compulsory courses of other fields of study of the Master's study programme Mechanical Engineering – Research and Development Programme with the exception of the Energy Mechanical Engineering field of study.

The General elective courses 1 and 2 in the amount of 10 ECTS are chosen by the student at his/her own choice from the set of all compulsory courses of other fields of study of the Master's study programme Mechanical Engineering – Research and Development Programme with the exception of the Energy Engineering field of study, or at their own choice at any programme, faculty or university.

Year 2

|    | University Course Code | Course title                               | Lecturers   | Contact hours |         |           |                    |                      | Individual student work | Total hours | ECTS | Semesters    | Elective |
|----|------------------------|--|---|---------------|---------|-----------|--------------------|----------------------|-------------------------|-------------|------|--------------|----------|
|    |                        |  |   | Lectures      | Seminar | Tutorials | Clinical tutorials | Other forms of study |                         |             |      |              |          |
| 1. | 0566862                | Noise, Vibrations and Acoustic Engineering | Jurij Prezelj   | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 2. | 0566863                | Electromobility                            | Klemen Zelič, Tomaž Katrašnik                                 | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 3. | 0566864                | Energy Supply in Circular Economy          | Mitja Mori, Tomaž Katrašnik, Tine Seljak, Urban Žvar Baškovič | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |

|    |         |  |  |    |  |    |  |  |     |     |    |              |     |
|----|---------|--|--|----|--|----|--|--|-----|-----|----|--------------|-----|
| 4. | 0566865 | Sustainable Sources of Electric Energy | Martin Petkovšek, Marko Hočevar  | 30 |  | 30 |  |  | 65  | 125 | 5  | 1st semester | no  |
| 5. | 0548411 | Professional elective course S05       |  | 30 |  | 30 |  |  | 65  | 125 | 5  | 1st semester | yes |
| 6. | 0548412 | Professional elective course S06       |  | 30 |  | 30 |  |  | 65  | 125 | 5  | 1st semester | yes |
| 7. | 0566826 | Research in Mechanical Engineering     | Andraž Kravos, Boštjan Mavrič, Darja Rupnik Poklukar, Dominik Kozjek, Drago Bračun, Jovan Trajkovski, Katja Klinar, Lidija Slemenik Perše, Marko Polajnar, Martin Česnik, Primož Potočnik, Tomaž Berlec, Tomaž Kek, Vid Agrež, Aljoša Peperko, Boris Jerman, Ciril Arkar, Damjan Klobčar, Davorin Kramar, Domen Šeruga, Franc Majdič, Joško Valentinčič, Jože Kutin, Jurij Prezelj, Marko Šimic, Matevž Zupančič, Miha Brojan, Miroslav Halilović, Mitja Mori, Nikola Vukašinić, Nikolaj | 90 |  | 90 |  |  | 195 | 375 | 15 | 2nd semester | no  |

|       |         |                               |  |     |    |     |   |     |     |      |    |              |    |
|-------|---------|-------------------------------|--|-----|----|-----|---|-----|-----|------|----|--------------|----|
|       |         |                               | Mole, Peter<br>Gregorčič, Robert<br>Kunc, Rok Vrabič,<br>Simon Oman,<br>Tomaž Pepelnjak,<br>Uroš Stritih, Jaka<br>Tušek, prof. ddr.<br>Janez Žerovnik,<br>Andrej Kitanovski,<br>Božidar Šarler,<br>Edvard Govekar,<br>Franci Pušavec,<br>Gregor Čepon, Iztok<br>Golobič, Janko<br>Slavič, Jernej<br>Klemenc, Marko<br>Hočevar, Marko<br>Nagode, Matevž<br>Dular, Matija<br>Jezeršek, Mihael<br>Sekavčnik, Mitjan<br>Kalin, Niko<br>Herakovič, Primož<br>Podržaj, Rok<br>Petkovšek, Roman<br>Šturm, Sašo Medved,<br>Tomaž Kutrašnik |     |    |     |   |     |     |      |    |              |    |
| 8.    | 0562803 | Project<br>Practicum -<br>MAG | All course holders in<br>the programme   |     | 15 |     |   | 80  | 30  | 125  | 5  | 2nd semester | no |
| 9.    | 0562804 | Master Thesis                 | All course holders in<br>the programme   |     | 35 |     |   | 70  | 145 | 250  | 10 | 2nd semester | no |
| Total |         |                               |  | 270 | 50 | 270 | 0 | 150 | 760 | 1500 | 60 |              |    |

The Professional elective courses S05 and S06 in the amount of 10 ECTS are selected by the student of his/her own choice from the set of all compulsory courses of other fields of study of the Master's study programme Mechanical Engineering – Research and Development Programme with the exception of the Energy Engineering field of study.

## Process engineering (direction/track)

Year 1

|     | University Course Code | Course title  | Lecturers                       | Contact hours |         |           |                    |                      | Individual student work | Total hours | ECTS | Semesters    | Elective |
|-----|------------------------|---|---------------------------------|---------------|---------|-----------|--------------------|----------------------|-------------------------|-------------|------|--------------|----------|
|     |                        |   |                                 | Lectures      | Seminar | Tutorials | Clinical tutorials | Other forms of study |                         |             |      |              |          |
| 1.  | 0566913                | Transport Phenomena                                   | Katja Klinar, Andrej Kitanovski | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 2.  | 0566914                | Thermodynamics of Mixtures                            | Matic Može, Iztok Golobič       | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 3.  | 0566915                | Solar Utility Technologies                            | Primož Poredoš, Ciril Arkar     | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 4.  | 0548392                | Professional elective course S01                      |                                 | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |
| 5.  | 0548393                | Professional elective course S02                      |                                 | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |
| 6.  | 0548394                | General elective course 1                             |                                 | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |
| 7.  | 0566919                | Air-Conditioning, Heating, Refrigeration, Ventilation | Uroš Stritih                    | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 2nd semester | no       |
| 8.  | 0566920                | Computational Fluid Dynamics                          | Boštjan Mavrič, Božidar Šarler  | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 2nd semester | no       |
| 9.  | 0566921                | Refrigeration and Heat Pumps - MAG                    | Katja Klinar, Andrej Kitanovski | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 2nd semester | no       |
| 10. | 0548401                | Professional elective course S03                      |                                 | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 2nd semester | yes      |
| 11. | 0548402                | Professional elective course S04                      |                                 | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 2nd semester | yes      |

|     |         |                           |  |     |   |     |   |   |     |      |    |              |     |
|-----|---------|---------------------------|--|-----|---|-----|---|---|-----|------|----|--------------|-----|
| 12. | 0548403 | General elective course 2 |  | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | yes |
|     |         | Total                     |  | 360 | 0 | 360 | 0 | 0 | 780 | 1500 | 60 |              |     |

The professional elective courses S01, S02, S03 and S04 in the amount of 20 ECTS are selected by the student of his/her own choice from the set of all compulsory courses of other fields of study of the Master's study programme Mechanical Engineering – Research and Development Programme with the exception of the Process Engineering field of study.

The General elective courses 1 and 2 in the amount of 10 ECTS are chosen by the student at his/her own choice from the set of all compulsory courses of other fields of study of the Master's study programme Mechanical Engineering – Research and Development Programme with the exception of the Process Engineering field of study, or at their own choice at any programme, faculty or university.

Year 2

|    | University Course Code | Course title                       | Lecturers   | Contact hours |         |           |                    |                      | Individual student work | Total hours | ECTS | Semesters    | Elective |
|----|------------------------|------------------------------------|---|---------------|---------|-----------|--------------------|----------------------|-------------------------|-------------|------|--------------|----------|
|    |                        |                                    |   | Lectures      | Seminar | Tutorials | Clinical tutorials | Other forms of study |                         |             |      |              |          |
| 1. | 0566925                | Heat Exchangers                    | Katja Klinar, Jože Kutin, Andrej Kitanovski, Iztok Golobič  | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 2. | 0566926                | Process Engineering                | Matevž Zupančič, Iztok Golobič  | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 3. | 0566927                | Smart Cities                       | Ciril Arkar, Andrej Kitanovski  | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 4. | 0566928                | Multiphase Systems                 | Boštjan Mavrič, Božidar Šarler  | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 5. | 0548411                | Professional elective course S05   |   | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |
| 6. | 0548412                | Professional elective course S06   |   | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |
| 7. | 0566826                | Research in Mechanical Engineering | Andraž Kravos, Boštjan Mavrič, Darja Rupnik Poklukar, Dominik Kozjek, Drago Bračun, Jovan Trajkovski, Katja Klinar, Lidija Slemenik | 90            |         | 90        |                    |                      | 195                     | 375         | 15   | 2nd semester | no       |



|       |         |                         |                                     |     |    |     |   |     |     |      |    |              |    |
|-------|---------|-------------------------|-------------------------------------|-----|----|-----|---|-----|-----|------|----|--------------|----|
| 8.    | 0562803 | Project Practicum - MAG | All course holders in the programme |     | 15 |     |   | 80  | 30  | 125  | 5  | 2nd semester | no |
| 9.    | 0562909 | Master Thesis           | All course holders in the programme |     | 35 |     |   | 70  | 145 | 250  | 10 | 2nd semester | no |
| Total |         |                         |                                     | 270 | 50 | 270 | 0 | 150 | 760 | 1500 | 60 |              |    |

The Professional elective courses S05 and S06 in the amount of 10 ECTS are selected by the student of his/her own choice from the set of all compulsory courses of other fields of study of the Master's study programme Mechanical Engineering – Research and Development Programme with the exception of the Process Engineering field of study.

### Engineering design (direction/track)

#### Year 1

|    | University Course Code | Course title                     | Lecturers                                  | Contact hours |         |           |                    |                      | Individual student work | Total hours | ECTS | Semesters    | Elective |
|----|------------------------|----------------------------------|--|---------------|---------|-----------|--------------------|----------------------|-------------------------|-------------|------|--------------|----------|
|    |                        |                                  |  | Lectures      | Seminar | Tutorials | Clinical tutorials | Other forms of study |                         |             |      |              |          |
| 1. | 0566871                | Engineering Design Techniques    | Ivan Demšar, Leon Kos, Nikola Vukašinović  | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 2. | 0566872                | Surface and Contact Engineering  | Mitjan Kalin                               | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 3. | 0566873                | Design of Advanced Systems       | Jernej Klemenc, Marko Nagode               | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 4. | 0548392                | Professional elective course S01 |  | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |
| 5. | 0548393                | Professional elective course S02 |  | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |
| 6. | 0548394                | General elective course 1        |  | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |
| 7. | 0566877                | Fatigue Design                   | Domen Šeruga, Jernej Klemenc, Marko Nagode | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 2nd semester | no       |

|       |         |                                  |                         |     |   |     |   |   |     |      |    |              |     |
|-------|---------|----------------------------------|-------------------------|-----|---|-----|---|---|-----|------|----|--------------|-----|
| 8.    | 0566878 | Nanotechnologies                 | Mitjan Kalin            | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | no  |
| 9.    | 0566879 | Geometric Product Specifications | Samo Zupan, Robert Kunc | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | no  |
| 10.   | 0548401 | Professional elective course S03 |                         | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | yes |
| 11.   | 0548402 | Professional elective course S04 |                         | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | yes |
| 12.   | 0548403 | General elective course 2        |                         | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | yes |
| Total |         |                                  |                         | 360 | 0 | 360 | 0 | 0 | 780 | 1500 | 60 |              |     |

The professional elective courses S01, S02, S03 and S04 in the amount of 20 ECTS are selected by the student of his/her own choice from the set of all compulsory courses of other fields of study of the Master's study programme Mechanical Engineering – Research and Development Programme with the exception of the Engineering design field of study.

The General elective courses 1 and 2 in the amount of 10 ECTS are chosen by the student at his/her own choice from the set of all compulsory courses of other fields of study of the Master's study programme Mechanical Engineering – Research and Development Programme with the exception of the Engineering design field of study, or at their own choice at any programme, faculty or university.

Year 2

|    | University Course Code | Course title                             | Lecturers                                | Contact hours |         |           |                    |                      | Individual student work | Total hours | ECTS | Semesters    | Elective |
|----|------------------------|--|--|---------------|---------|-----------|--------------------|----------------------|-------------------------|-------------|------|--------------|----------|
|    |                        |  |  | Lectures      | Seminar | Tutorials | Clinical tutorials | Other forms of study |                         |             |      |              |          |
| 1. | 0566883                | Hydraulic Components and Systems         | Franc Majdič                             | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 2. | 0566884                | Complex Powertrains in Mobile Machinery  | Simon Oman, Jernej Klemenc, Marko Nagode | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 3. | 0566885                | Lightweight Structures                   | Boris Jerman                             | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 4. | 0566886                | Reliability Evaluation and Demonstration | Jernej Klemenc, Marko Nagode             | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 5. | 0548411                | Professional elective course S05         |  | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |

|    |         |                                    |  |    |  |    |  |  |     |     |    |              |     |
|----|---------|------------------------------------|--|----|--|----|--|--|-----|-----|----|--------------|-----|
| 6. | 0548412 | Professional elective course S06   |  | 30 |  | 30 |  |  | 65  | 125 | 5  | 1st semester | yes |
| 7. | 0566826 | Research in Mechanical Engineering | Andraž Kravos, Boštjan Mavrič, Darja Rupnik Poklukar, Dominik Kozjek, Drago Bračun, Jovan Trajkovski, Katja Klinar, Lidija Slemenik Perše, Marko Polajnar, Martin Česnik, Primož Potočnik, Tomaž Berlec, Tomaž Kek, Vid Agrež, Aljoša Peperko, Boris Jerman, Ciril Arkar, Damjan Klobčar, Davorin Kramar, Domen Šeruga, Franc Majdič, Joško Valentinčič, Jože Kutin, Jurij Prezelj, Marko Šimic, Matevž Zupančič, Miha Brojan, Miroslav Halilović, Mitja Mori, Nikola Vukašinović, Nikolaj Mole, Peter Gregorčič, Robert Kunc, Rok Vrabič, Simon Oman, Tomaž Pepelnjak, Uroš Stritih, Jaka Tušek, prof. ddr. | 90 |  | 90 |  |  | 195 | 375 | 15 | 2nd semester | no  |

|       |         |                               |   |     |    |     |   |     |     |      |    |              |    |
|-------|---------|-------------------------------|---|-----|----|-----|---|-----|-----|------|----|--------------|----|
|       |         |                               | Janez Žerovnik,<br>Andrej Kitanovski,<br>Božidar Šarler,<br>Edvard Govekar,<br>Franci Pušavec,<br>Gregor Čepon, Iztok<br>Golobič, Janko<br>Slavič, Jernej<br>Klemenc, Marko<br>Hočevar, Marko<br>Nagode, Matevž<br>Dular, Matija<br>Jezeršek, Mihael<br>Sekavčnik, Mitjan<br>Kalin, Niko<br>Herakovič, Primož<br>Podržaj, Rok<br>Petkovšek, Roman<br>Šturm, Sašo Medved,<br>Tomaž Katrašnik |     |    |     |   |     |     |      |    |              |    |
| 8.    | 0562803 | Project<br>Practicum -<br>MAG | All course holders in<br>the programme  |     | 15 |     |   | 80  | 30  | 125  | 5  | 2nd semester | no |
| 9.    | 0562867 | Master Thesis                 | All course holders in<br>the programme  |     | 35 |     |   | 70  | 145 | 250  | 10 | 2nd semester | no |
| Total |         |                               |   | 270 | 50 | 270 | 0 | 150 | 760 | 1500 | 60 |              |    |

Strokovni izbirni predmet S05 in S06 v iznosu 10 ECTS izbere študent po lastni izbiri iz nabora vseh obveznih predmetov drugih smeri Magistrskega študijskega programa II. stopnje Strojništvo - Razvojno raziskovalni program z izjemo smeri Konstruiranje.

### Mechanics (direction/track)

Year 1

|    | University<br>Course<br>Code | Course title                         | Lecturers                     | Contact hours |         |           |                       |                            | Individual<br>student<br>work | Total<br>hours | ECTS | Semesters    | Elective |
|----|------------------------------|--------------------------------------|-------------------------------|---------------|---------|-----------|-----------------------|----------------------------|-------------------------------|----------------|------|--------------|----------|
|    |                              |                                      |                               | Lectures      | Seminar | Tutorials | Clinical<br>tutorials | Other<br>forms<br>of study |                               |                |      |              |          |
| 1. | 0566892                      | Advanced<br>Strength of<br>Materials | Miha<br>Brojan, Jaka<br>Tušek | 30            |         | 30        |                       |                            | 65                            | 125            | 5    | 1st semester | no       |

|       |         |                                     |                                  |     |   |     |   |   |     |      |    |              |     |
|-------|---------|-------------------------------------|----------------------------------|-----|---|-----|---|---|-----|------|----|--------------|-----|
| 2.    | 0566893 | Advanced Dynamics                   | Gregor Čepon, Janko Slavič       | 30  |   | 30  |   |   | 65  | 125  | 5  | 1st semester | no  |
| 3.    | 0566894 | Mechanics of Structural Elements    | Miroslav Halilović               | 30  |   | 30  |   |   | 65  | 125  | 5  | 1st semester | no  |
| 4.    | 0548392 | Professional elective course S01    |                                  | 30  |   | 30  |   |   | 65  | 125  | 5  | 1st semester | yes |
| 5.    | 0548393 | Professional elective course S02    |                                  | 30  |   | 30  |   |   | 65  | 125  | 5  | 1st semester | yes |
| 6.    | 0548394 | General elective course 1           |                                  | 30  |   | 30  |   |   | 65  | 125  | 5  | 1st semester | yes |
| 7.    | 0566898 | FEM Structural Analysis             | Miroslav Halilović, Nikolaj Mole | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | no  |
| 8.    | 0566899 | Dynamics of Machines and Structures | Gregor Čepon                     | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | no  |
| 9.    | 0566900 | Signal Processing                   | Janko Slavič                     | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | no  |
| 10.   | 0548401 | Professional elective course S03    |                                  | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | yes |
| 11.   | 0548402 | Professional elective course S04    |                                  | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | yes |
| 12.   | 0548403 | General elective course 2           |                                  | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | yes |
| Total |         |                                     |                                  | 360 | 0 | 360 | 0 | 0 | 780 | 1500 | 60 |              |     |

The professional elective courses S01, S02, S03 and S04 in the amount of 20 ECTS are selected by the student of his/her own choice from the set of all compulsory courses of other fields of study of the Master's study programme Mechanical Engineering – Research and Development Programme with the exception of the Mechanics field of study.

The General elective courses 1 and 2 in the amount of 10 ECTS are chosen by the student at his/her own choice from the set of all compulsory courses of other fields of study of the Master's study programme Mechanical Engineering – Research and Development Programme with the exception of the Mechanics field of study, or at their own choice at any programme, faculty or university.

## Year 2

|    | University Course Code | Course title                                   | Lecturers   | Contact hours |         |           |                    |                      | Individual student work | Total hours | ECTS | Semesters    | Elective |
|----|------------------------|--|---|---------------|---------|-----------|--------------------|----------------------|-------------------------|-------------|------|--------------|----------|
|    |                        |  |   | Lectures      | Seminar | Tutorials | Clinical tutorials | Other forms of study |                         |             |      |              |          |
| 1. | 0566904                | Mechanics of Light-Weight Structures           | Miha Brojan   | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 2. | 0566905                | Experimental Modal Analysis                    | Domen Ocepek, Gregor Čepon, Janko Slavič  | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 3. | 0566906                | Rheology of Polymers                           | Lidija Slemenik Perše   | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 4. | 0566907                | Numerical Modelling of Technological Processes | Bojan Starman, Miroslav Halilović, Nikolaj Mole   | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 5. | 0548411                | Professional elective course S05               |   | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |
| 6. | 0548412                | Professional elective course S06               |   | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |
| 7. | 0566826                | Research in Mechanical Engineering             | Andraž Kravos, Boštjan Mavrič, Darja Rupnik Poklukar, Dominik Kozjek, Drago Bračun, Jovan Trajkovski, Katja Klinar, Lidija Slemenik Perše, Marko Polajnar, Martin Česnik, Primož Potočnik, Tomaž Berlec, Tomaž Kek, Vid Agrež, Aljoša Peperko, Boris Jerman, Ciril Arkar, | 90            |         | 90        |                    |                      | 195                     | 375         | 15   | 2nd semester | no       |



|       |         |                         |                                     |     |    |     |   |     |     |      |    |              |    |
|-------|---------|-------------------------|-------------------------------------|-----|----|-----|---|-----|-----|------|----|--------------|----|
| 8.    | 0562803 | Project Practicum - MAG | All course holders in the programme |     | 15 |     |   | 80  | 30  | 125  | 5  | 2nd semester | no |
| 9.    | 0562804 | Master Thesis           | All course holders in the programme |     | 35 |     |   | 70  | 145 | 250  | 10 | 2nd semester | no |
| Total |         |                         |                                     | 270 | 50 | 270 | 0 | 150 | 760 | 1500 | 60 |              |    |

The Professional elective courses S05 and S06 in the amount of 10 ECTS are selected by the student of his/her own choice from the set of all compulsory courses of other fields of study of the Master's study programme Mechanical Engineering – Research and Development Programme with the exception of the Mechanics field of study.

### Production engineering (direction/track)

Year 1

|    | University Course Code | Course title                     | Lecturers                      | Contact hours |         |           |                    |                      | Individual student work | Total hours | ECTS | Semesters    | Elective |
|----|------------------------|----------------------------------|--------------------------------|---------------|---------|-----------|--------------------|----------------------|-------------------------|-------------|------|--------------|----------|
|    |                        |                                  |                                | Lectures      | Seminar | Tutorials | Clinical tutorials | Other forms of study |                         |             |      |              |          |
| 1. | 0566829                | Micromanufacturing Technologies  | Joško Valentinčič              | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 2. | 0566830                | Advanced Machining Processes     | Davorin Kramar, Franci Pušavec | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 3. | 0566831                | Heat Treatment                   | Sebastjan Žagar, Roman Šturm   | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 4. | 0548392                | Professional elective course S01 |                                | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |
| 5. | 0548393                | Professional elective course S02 |                                | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |
| 6. | 0548394                | General elective course 1        |                                | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |
| 7. | 0566835                | Advanced Forming Processes       | Tomaž Pepelnjak                | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 2nd semester | no       |
| 8. | 0566836                | Assembly and Handling Systems    | Mihael Debevec, Marko Šimic,   | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 2nd semester | no       |

|       |         |                                      |                |     |   |     |   |   |     |      |    |              |     |
|-------|---------|--------------------------------------|----------------|-----|---|-----|---|---|-----|------|----|--------------|-----|
|       |         |                                      | Niko Herakovič |     |   |     |   |   |     |      |    |              |     |
| 9.    | 0566837 | Production Planning and Organization | Tomaž Berlec   | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | no  |
| 10.   | 0548401 | Professional elective course S03     |                | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | yes |
| 11.   | 0548402 | Professional elective course S04     |                | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | yes |
| 12.   | 0548403 | General elective course 2            |                | 30  |   | 30  |   |   | 65  | 125  | 5  | 2nd semester | yes |
| Total |         |                                      |                | 360 | 0 | 360 | 0 | 0 | 780 | 1500 | 60 |              |     |

The professional elective courses S01, S02, S03 and S04 in the amount of 20 ECTS are selected by the student of his/her own choice from the set of all compulsory courses of other fields of study of the Master's study programme Mechanical Engineering – Research and Development Programme with the exception of the Production Engineering field of study.

The General elective courses 1 and 2 in the amount of 10 ECTS are chosen by the student at his/her own choice from the set of all compulsory courses of other fields of study of the Master's study programme Mechanical Engineering – Research and Development Programme with the exception of the Production Engineering field of study, or at their own choice at any programme, faculty or university.

Year 2

|    | University Course Code | Course title                     | Lecturers                               | Contact hours |         |           |                    |                      | Individual student work | Total hours | ECTS | Semesters    | Elective |
|----|------------------------|----------------------------------|---|---------------|---------|-----------|--------------------|----------------------|-------------------------|-------------|------|--------------|----------|
|    |                        |                                  |   | Lectures      | Seminar | Tutorials | Clinical tutorials | Other forms of study |                         |             |      |              |          |
| 1. | 0566841                | Quality Engineering              | Davorin Kramar                          | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 2. | 0566842                | CAM Systems                      | Franci Pušavec, Peter Krajnik           | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 3. | 0566843                | Additive Technologies            | Damjan Klobčar, Edvard Govekar          | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 4. | 0566844                | Smart Factories                  | Miha Pipan, Marko Šimic, Niko Herakovič | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | no       |
| 5. | 0548411                | Professional elective course S05 |   | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |
| 6. | 0548412                | Professional elective course S06 |   | 30            |         | 30        |                    |                      | 65                      | 125         | 5    | 1st semester | yes      |

|    |         |                                    |   |    |  |    |  |  |     |     |    |              |    |
|----|---------|------------------------------------|---|----|--|----|--|--|-----|-----|----|--------------|----|
| 7. | 0566826 | Research in Mechanical Engineering | <p>           Andraž Kravos,<br/>           Boštjan Mavrič, Darja<br/>           Rupnik Poklukar,<br/>           Dominik Kozjek,<br/>           Drago Bračun, Jovan<br/>           Trajkovski, Katja<br/>           Klinar, Lidija Slemenik<br/>           Perše, Marko Polajnar,<br/>           Martin Česnik, Primož<br/>           Potočnik, Tomaž<br/>           Berlec, Tomaž Kek,<br/>           Vid Agrež, Aljoša<br/>           Peperko, Boris<br/>           Jerman, Ciril Arkar,<br/>           Damjan Klobčar,<br/>           Davorin Kramar,<br/>           Domen Šeruga, Franc<br/>           Majdič, Joško<br/>           Valentinčič, Jože<br/>           Kutin, Jurij Prezelj,<br/>           Marko Šimic, Matevž<br/>           Zupančič, Miha<br/>           Brojan, Miroslav<br/>           Halilović, Mitja Mori,<br/>           Nikola Vukašinić,<br/>           Nikolaj Mole, Peter<br/>           Gregorčič, Robert<br/>           Kunc, Rok Vrabič,<br/>           Simon Oman, Tomaž<br/>           Pepelnjak, Uroš<br/>           Stritih, Jaka Tušek, prof.<br/>           ddr. Janez Žerovnik,<br/>           Andrej Kitanovski,<br/>           Božidar Šarler, Edvard<br/>           Govekar, Franci<br/>           Pušavec, Gregor<br/>           Čepon, Iztok Golobič,<br/>           Janko Slavič, Jernej         </p> | 90 |  | 90 |  |  | 195 | 375 | 15 | 2nd semester | no |
|----|---------|------------------------------------|---|----|--|----|--|--|-----|-----|----|--------------|----|

|       |         |                               |  |     |    |     |   |     |     |      |    |              |    |
|-------|---------|-------------------------------|--|-----|----|-----|---|-----|-----|------|----|--------------|----|
|       |         |                               | Klemenc, Marko<br>Hočevar, Marko<br>Nagode, Matevž Dular,<br>Matija Jezeršek, Mihael<br>Sekavčnik, Mitjan<br>Kalin, Niko Herakovič,<br>Primož Podržaj, Rok<br>Petkovšek, Roman<br>Šturm, Sašo Medved,<br>Tomaž Katrašnik |     |    |     |   |     |     |      |    |              |    |
| 8.    | 0562824 | Project<br>Practicum -<br>MAG | All course holders in<br>the programme   |     | 15 |     |   | 80  | 30  | 125  | 5  | 2nd semester | no |
| 9.    | 0562804 | Master Thesis                 | All course holders in<br>the programme   |     | 35 |     |   | 70  | 145 | 250  | 10 | 2nd semester | no |
| Total |         |                               |  | 270 | 50 | 270 | 0 | 150 | 760 | 1500 | 60 |              |    |

The Professional elective courses S05 and S06 in the amount of 10 ECTS are selected by the student of his/her own choice from the set of all compulsory courses of other fields of study of the Master's study programme Mechanical Engineering – Research and Development Programme with the exception of the Production Engineering field of study.

Mechatronics and laser technology (direction/track)

Year 1

|    | University<br>Course<br>Code | Course title                           | Lecturers                          | Contact hours |         |           |                       |                            | Individual<br>student<br>work | Total<br>hours | ECTS | Semesters    | Elective |
|----|------------------------------|--|------------------------------------|---------------|---------|-----------|-----------------------|----------------------------|-------------------------------|----------------|------|--------------|----------|
|    |                              |  |                                    | Lectures      | Seminar | Tutorials | Clinical<br>tutorials | Other<br>forms<br>of study |                               |                |      |              |          |
| 1. | 0566808                      | Digital Control<br>Technology          | Dominik<br>Kozjek,<br>Gašper Škulj | 30            |         | 30        |                       |                            | 65                            | 125            | 5    | 1st semester | no       |
| 2. | 0566809                      | Robotic<br>Systems -<br>MAG            | Rok Vrabič                         | 30            |         | 30        |                       |                            | 65                            | 125            | 5    | 1st semester | no       |
| 3. | 0566810                      | Algorithms<br>and Protocols            | Dominik<br>Kozjek, Rok<br>Vrabič   | 30            |         | 30        |                       |                            | 65                            | 125            | 5    | 1st semester | no       |
| 4. | 0548392                      | Professional<br>elective<br>course S01 |                                    | 30            |         | 30        |                       |                            | 65                            | 125            | 5    | 1st semester | yes      |



|    |         |                                       |   |    |  |    |  |  |     |     |    |              |     |
|----|---------|---------------------------------------|---|----|--|----|--|--|-----|-----|----|--------------|-----|
| 1. | 0566820 | Laser Measurement Systems             | Matija Jezeršek   | 30 |  | 30 |  |  | 65  | 125 | 5  | 1st semester | no  |
| 2. | 0566821 | Laser Processing Technology           | Peter Gregorčič, Matija Jezeršek  | 30 |  | 30 |  |  | 65  | 125 | 5  | 1st semester | no  |
| 3. | 0566822 | Advanced Sensory Systems and Networks | Primož Podržaj  | 30 |  | 30 |  |  | 65  | 125 | 5  | 1st semester | no  |
| 4. | 0566823 | Manufacturing Automation              | Drago Bračun  | 30 |  | 30 |  |  | 65  | 125 | 5  | 1st semester | no  |
| 5. | 0548411 | Professional elective course S05      |   | 30 |  | 30 |  |  | 65  | 125 | 5  | 1st semester | yes |
| 6. | 0548412 | Professional elective course S06      |   | 30 |  | 30 |  |  | 65  | 125 | 5  | 1st semester | yes |
| 7. | 0566826 | Research in Mechanical Engineering    | Andraž Kravos, Boštjan Mavrič, Darja Rupnik Poklukar, Dominik Kozjek, Drago Bračun, Jovan Trajkovski, Katja Klinar, Lidija Slemenik Perše, Marko Polajnar, Martin Česnik, Primož Potočnik, Tomaž Berlec, Tomaž Kek, Vid Agrež, Aljoša Peperko, Boris Jerman, Ciril Arkar, Damjan Klobčar, Davorin Kramar, Domen Šeruga, Franc Majdič, Joško Valentinčič, Jože | 90 |  | 90 |  |  | 195 | 375 | 15 | 2nd semester | no  |

|       |         |                               |  |     |    |     |   |     |     |      |    |              |    |
|-------|---------|-------------------------------|--|-----|----|-----|---|-----|-----|------|----|--------------|----|
|       |         |                               | Kutin, Jurij Prezelj,<br>Marko Šimic, Matevž<br>Zupančič, Miha<br>Brojan, Miroslav<br>Halilović, Mitja Mori,<br>Nikola Vukašinović,<br>Nikolaj Mole, Peter<br>Gregorčič, Robert<br>Kunc, Rok Vrabič,<br>Simon Oman, Tomaž<br>Pepelnjak, Uroš<br>Stritih, Jaka Tušek,<br>prof. ddr. Janez<br>Žerovnik, Andrej<br>Kitanovski, Božidar<br>Šarler, Edvard<br>Govekar, Franci<br>Pušavec, Gregor<br>Čepon, Iztok<br>Golobič, Janko Slavič,<br>Jernej Klemenc,<br>Marko Hočever,<br>Marko Nagode,<br>Matevž Dular, Matija<br>Jezeršek, Mihael<br>Sekavčnik, Mitjan<br>Kalin, Niko<br>Herakovič, Primož<br>Podržaj, Rok<br>Petkovšek, Roman<br>Šturm, Sašo Medved,<br>Tomaž Kutrašnik |     |    |     |   |     |     |      |    |              |    |
| 8.    | 0562803 | Project<br>Practicum -<br>MAG | All course holders in<br>the programme   |     | 15 |     |   | 80  | 30  | 125  | 5  | 2nd semester | no |
| 9.    | 0562804 | Master Thesis                 | All course holders in<br>the programme   |     | 35 |     |   | 70  | 145 | 250  | 10 | 2nd semester | no |
| Total |         |                               |  | 270 | 50 | 270 | 0 | 150 | 760 | 1500 | 60 |              |    |

The Professional elective courses S05 and S06 in the amount of 10 ECTS are selected by the student of his/her own choice from the set of all compulsory courses of other fields of study of the Master's study programme Mechanical Engineering – Research and Development Programme with the exception of the Mechatronics and laser technology field of study.

Optional contents for students from other faculties

|       |                        |   |                   | Contact hours |         |           |                    |                      |                         |             |      |              |          |
|-------|------------------------|---|-------------------|---------------|---------|-----------|--------------------|----------------------|-------------------------|-------------|------|--------------|----------|
|       | University Course Code | Course title  | Lecturers         | Lectures      | Seminar | Tutorials | Clinical tutorials | Other forms of study | Individual student work | Total hours | ECTS | Semesters    | Elective |
| 1.    | 0644721                | Sustainability Assessment Methodologies (LCA, LCC, S-LCA) | Mitja Mori        | 30            | 15      | 30        |                    |                      | 75                      | 150         | 6    | 2nd semester | yes      |
| 2.    | 0644722                | Rapid prototyping technologies                            | Joško Valentinčič | 30            | 15      | 30        |                    |                      | 75                      | 150         | 6    | 1st semester | yes      |
| Total |                        |   |                   | 60            | 30      | 60        | 0                  | 0                    | 150                     | 300         | 12   |              |          |