

## Master of Science (M.Sc.) in Mechanical Engineering

| Course Group  | ECTS                          | Course Code | Course name                                       | Course type | ECTS | Pre-requisite |
|---------------|-------------------------------|-------------|---|-------------|------|---------------|
| Required      | 6                             | MATH517     | Advanced Mathematics for Engineers and Scientists | required    | 6    |               |
| Elective      | 30                            | IE425       | Computer Aided Design and Manufacturing           | elective    | 6    |               |
|               |                               | IE502       | Advanced Quality and Reliability Engineering      | elective    | 6    |               |
|               |                               | ME411       | Renewable Energy Technology                       | elective    | 6    |               |
|               |                               | ME414       | Energy Conversion Technology                      | elective    | 6    |               |
|               |                               | ME415       | Computational Methods                             | elective    | 6    |               |
|               |                               | ME416       | Turbomachinery                                    | elective    | 6    |               |
|               |                               | ME502       | Measuring techniques and Instrumentation          | elective    | 6    |               |
|               |                               | ME503       | Advanced Fluid Dynamics                           | elective    | 6    |               |
|               |                               | ME504       | Advanced Thermodynamics                           | elective    | 6    |               |
|               |                               | ME507       | Computational Fluid Dynamics                      | elective    | 6    |               |
|               |                               | ME510       | Physical Transport Phenomena                      | elective    | 6    |               |
|               |                               | ME518       | Advanced Materials                                | elective    | 6    |               |
|               |                               | ME520       | Welding and Joining Technologies                  | elective    | 6    |               |
| ME580         | Special Topics in Engineering | elective    | 6   |             |      |               |
| ME605         | Research Activity             | elective    | 6   |             |      |               |
| Master Thesis | 24                            | ME595       | Master Thesis                                     | required    | 24   |               |
| <b>total</b>  | <b>60</b>                     |             |   |             |      |               |

### Graduate Studies: summary of conditions for successful completion of studies

| Category             | ECTS      | Note:  |
|----------------------|-----------|--|
| <b>Courses</b>       | <b>36</b> | The one-year master's program requires the completion of 6 courses, each valued with 6 ETCS. One course is mandatory (as shown in the above table) and five are elective. Minimum three of those five elective courses have to be chosen from the pool of the Program Elective Courses (as shown in the above table). The rest of the courses (Two) can be chosen from the Area Elective Courses of Mechanical, Industrial, Electrical, Computer Science, and Software engineering programs. The Area Elective courses are those courses with level 400 and higher. The Master's thesis is worth 24 ETCS. The total requirement for a one-year master's degree is 60 ETCS. The set of elective courses, to be chosen in consultation with the supervisor, shapes the professional profile. |
| <b>Master Thesis</b> | <b>24</b> |  |
| <b>Total</b>         | <b>60</b> |  |

## Master of Science (M.Sc.) in Mechanical Engineering (*Professional Master*)

| Course Group         | ECTS                          | Course Code | Course name                                       | Course type | ECTS | Pre-requisite |
|----------------------|-------------------------------|-------------|---|-------------|------|---------------|
| Required             | 6                             | MATH517     | Advanced Mathematics for Engineers and Scientists | required    | 6    |               |
| Elective             | 42                            | IE425       | Computer Aided Design and Manufacturing           | elective    | 6    |               |
|                      |                               | IE502       | Advanced Quality and Reliability Engineering      | elective    | 6    |               |
|                      |                               | ME411       | Renewable Energy Technology                       | elective    | 6    |               |
|                      |                               | ME414       | Energy Conversion Technology                      | elective    | 6    |               |
|                      |                               | ME415       | Computational Methods                             | elective    | 6    |               |
|                      |                               | ME416       | Turbomachinery                                    | elective    | 6    |               |
|                      |                               | ME502       | Measuring techniques and Instrumentation          | elective    | 6    |               |
|                      |                               | ME503       | Advanced Fluid Dynamics                           | elective    | 6    |               |
|                      |                               | ME504       | Advanced Thermodynamics                           | elective    | 6    |               |
|                      |                               | ME507       | Computational Fluid Dynamics                      | elective    | 6    |               |
|                      |                               | ME510       | Physical Transport Phenomena                      | elective    | 6    |               |
|                      |                               | ME518       | Advanced Materials                                | elective    | 6    |               |
|                      |                               | ME520       | Welding and Joining Technologies                  | elective    | 6    |               |
| ME580                | Special Topics in Engineering | elective    | 6   |             |      |               |
| ME605                | Research Activity             | elective    | 6   |             |      |               |
| Professional project | 12                            | ME585       | Master Thesis                                     | required    | 12   |               |
| <b>total</b>         | <b>60</b>                     |             |   |             |      |               |

### Graduate Studies: summary of conditions for successful completion of studies

| Category                    | ECTS      | Note:   |
|-----------------------------|-----------|---|
| <b>Courses</b>              | <b>48</b> | The one-year master program requires the completion of 8 courses, each valued with 6 ETCS, of which 1 course is mandatory and 7 are elective. Minimum 3 elective courses have to be chosen from the pool of the Program Elective Courses while the rest of the courses (four) can be chosen from the Area of Elective Courses. The Area Elective Courses are all courses offered at FENS faculty with levels 400 and higher. The Master's thesis is worth 12 ETCS. The total requirement for a one-year master's degree is 60 ETCS. The set of elective courses, to be chosen in consultation with the supervisor, shapes the professional profile. |
| <b>Professional project</b> | <b>12</b> |   |
| <b>Total</b>                | <b>60</b> |   |