

## Masterstudiengang Robotic Systems Engineering an der RWTH Aachen (International Academy)

PO 2019

| Compulsory Courses     |           |  |    |   |     |       |                 |           |      |       |
|------------------------|-----------|--|----|---|-----|-------|-----------------|-----------|------|-------|
| Responsible for Module | Lecturers | Module   | CP | L | P/L | Σ SWS | Summer / Winter | Module ID | Σ CP | Σ SWS |
| Corves                 | Corves    | Advanced Robotic Kinematics and Dynamics               | 5  | 2 | 2   | 4     | w               | 4018564   | 47   | 37    |
| Abel                   | Abel      | Linear Control Systems                                 | 3  | 2 | 2   | 4     | w               | 4011476   |      |       |
| Trimpe                 | Trimpe    | Fundamentals of Machine Learning                       | 5  | 2 | 2   | 4     | w               | 4018565   |      |       |
| Leibe                  | Leibe     | Computer Vision  | 6  | 3 | 1   | 4     | s               | 1215724   |      |       |
| N.N.                   | N.N.      | German Language Course                                 | 2  | 2 | 0   | 2     | sw              | 4013868   |      |       |
| Leibe                  | Leibe     | Machine Learning                                       | 6  | 3 | 1   | 4     | w               | 1215744   |      |       |
| Corves                 | Corves    | Multibody Dynamics                                     | 5  | 2 | 2   | 4     | s               | 4011462   |      |       |
| Schmitt                | Schmitt   | Robotic Sensor Systems                                 | 5  | 4 | 0   | 4     | w               | 4018566   |      |       |
| Hüsing                 | Hüsing    | Robotic Systems  | 5  | 2 | 2   | 4     | w               | 4018563   |      |       |
| Roßmann                | Roßmann   | Simulation of Robotic Systems, Sensors and Environment | 5  | 2 | 1   | 3     | w               | 6020083   |      |       |
|                        |           | Internship or Research Project                         | 10 |   |     |       | sw              |           | 30   |       |
| RWTH                   |           | Master Thesis  | 20 |   |     |       | sw              |           |      |       |

| Elective Courses       |                   |  |    |   |     |       |                 |           |      |       |
|------------------------|-------------------|--|----|---|-----|-------|-----------------|-----------|------|-------|
| Responsible for Module | Lecturers         | Module   | CP | L | P/L | Σ SWS | Summer / Winter | Module ID | Σ CP | Σ SWS |
| Leonhardt / Misgeld    | Misgeld           | Advanced Control Systems                                     | 4  | 2 | 1   | 3     | w               | 6010486   | 43   | *     |
| De Doncker             | Wördle            | Advanced Electrical Drives                                   | 4  | 2 | 1   | 3     | s               | 6017063   |      |       |
| Itskov                 | Itskov            | Advanced Finite Element Methods for Engineers                | 5  | 2 | 2   | 4     | w               | 4013866   |      |       |
| Leibe                  | Leibe             | Advanced Machine Learning                                    | 6  | 3 | 1   | 4     | s               | 1211912   |      |       |
| Mitsos                 | Mitsos            | Applied Numerical Optimization Engineering                   | 4  | 2 | 2   | 4     | w/s             | 4018569   |      |       |
| Kohlschein             | Kohlschein        | Artificial Intelligence and Data Analytics for Engineers     | 5  | 2 | 1   | 3     | s               | 4018567   |      |       |
| Leibe                  | Leibe             | Computer Vision 2  | 6  | 4 | 0   | 4     | w/s             | 1211921   |      |       |
| Schuh                  | Dannapfel         | International Factory Planning                               | 6  | 2 | 2   | 4     | s               | 4011481   |      |       |
| Schuh                  | Schuh / Stich     | Industrial Logistics   | 5  | 2 | 1   | 3     | s               | 4011473   |      |       |
| Schrader               | Lakemeyer         | Introduction to Artificial Intelligence                      | 6  | 2 | 2   | 4     | w               | 1220228   |      |       |
| Corves                 | Corves            | Machine Dynamics of Rigid Systems                            | 6  | 2 | 2   | 4     | s               | 4017428   |      |       |
| Brettel                | Brettel           | Management and Engineering Perspectives                      | 5  | 2 | 2   | 4     | w               | 4022679   |      |       |
| Brecher                | Brecher           | Mechatronics and Control Techniques for Production Plants    | 6  | 2 | 2   | 4     | w               | 4011451   |      |       |
| Ban                    | Ban               | Numerical Methods in Mechanical Engineering                  | 7  | 3 | 2   | 5     | w               | 4011449   |      |       |
| De Doncker             | van der Broek     | Power Electronics - Control, Synthesis and Applications      | 5  | 3 | 1   | 4     | w               | 6010377   |      |       |
| Jacobs / Schröder      | Jacobs / Schröder | Processes and Principles for Lightweight Design              | 6  | 2 | 2   | 4     | w               | 4011411   |      |       |
| Schmitt                | Schmitt           | Production Metrology   | 5  | 2 | 2   | 4     | s               | 4011467   |      |       |
| Trimpe                 | Trimpe / Solowjow | Reinforcement Learning and Learning-based Control            | 6  | 2 | 2   | 4     | s               | 4026526   |      |       |
| Salge / Antons         | Salge / Antons    | Strategic Technology Management                              | 5  | 2 | 2   | 4     | w               | 8015425   |      |       |
| Mertens                | Mertens           | Summer School Advanced Topics in Robotic Systems Engineering | 3  | 2 | 2   | 4     | s               | 4018568   |      |       |

\* The total amount of weekly contact hours (SWS) depends on the modules selected.