

**List of the Courses taught in English at the Department of Mechanical and Process Engineering of the Duesseldorf University of Applied Sciences**

**Remarks:**

- 1) The elective courses may not be opened every semester. The list of the elective courses will be announced at the beginning of the semester
  - 2) Although the lectures are usually offered only in one of the two semesters of the year (winter or summer) the exams can be taken at the end of both semesters.
- Thus, it is possible to take the exams of the courses, the lectures of which were not offered in the respective semester.

| Bachelor Courses |                                                                                                       |      |          |             |                         |            |                 |
|------------------|-------------------------------------------------------------------------------------------------------|------|----------|-------------|-------------------------|------------|-----------------|
| Code             | Title of the Course                                                                                   | ECTS | Semester | Course Type | Study Program           | Language   | Lecturer        |
| 60031            | Energetische Projektstudien (Selected case studies of energy technologies)                            | 5    | WS / SS  | WF          | EUT, UVT, WIM           | e          | Adam/Riegebauer |
| 21011            | Erneuerbare Energien und energieeffiziente Technologien (Renewable energies and energy efficiency)    | 5    | SS       | PF, WF      | EUT, MPE, MPT, UVT, WIM | d / e (X)  | Adam/Riegebauer |
| 60011            | Biofluid Dynamics                                                                                     | 5    | WS / SS  | WF          | EUT, MPE, MPT, UVT      | e          | Benim           |
|                  | Projects in Energy Technology                                                                         | 5    | WS / SS  | WF          | EUT, MPE, MPT, UVT, WIM | e          | Benim           |
| 11021            | Heat Transfer                                                                                         | 5    | WS       | PF          | EUT, UVT                | e          | Benim           |
| 60021            | Selected Topics in Energy Technology                                                                  | 5    | WS / SS  | WF          | EUT, MPE, MPT, UVT      | e          | Benim           |
| 21021            | Technical Combustion                                                                                  | 5    | SS       | PF          | EUT                     | e          | Benim           |
| 24021            | Beschaffung & Supply Chain Management                                                                 | 4    | SS       | PF          | WIM                     | d / e* (X) | Deckert         |
|                  | Technology Management                                                                                 | 5    | WS / SS  | WF          | EUT, MPE, MPT, UVT, WIM | e          | Deckert         |
| 60721            | Cost Analysis und/oder Business Plan für einen Formula Student Rennwagen (e-Traxx)                    | 5    | WS / SS  | WF          | EUT, MPE, MPT, UVT, WIM | d / e (X)  | Deckert, Wrede  |
| 60621            | Informatik III Weiterführende JAVA Programmierung                                                     | 5    | WS / SS  | WF          | EUT, MPE, MPT, UVT, WIM | d / e (X)  | Eckgold         |
| 60051            | WEB-Programmierung und -Sicherheit (WEB-Programming and Security)                                     | 5    | SS       | WF          | EUT, MPE, MPT, UVT, WIM | d / e (X)  | Eckgold         |
| 60381            | Verfahrenstechnik der Zementherstellung 1 (Process Engineering of Cement Production 1)                | 5    | SS       | WF          | EUT, MPE, MPT, UVT      | d / e (X)  | Fleiger         |
| 60391            | Verfahrenstechnik der Zementherstellung 2 (Process Engineering of Cement Production 2)                | 5    | WS       | WF          | EUT, MPE, MPT, UVT      | d / e (X)  | Fleiger         |
| 60751            | Applied Artificial Intelligence in Instrumentation and Control                                        | 5    | SS       | WF          | EUT, MPE, MPT, UVT, WIM | e          | Grote-Ramm      |
| 60251            | Dynamik (Dynamics)                                                                                    | 5    | SS       | WF          | EUT, UVT, WIM           | d / e (X)  | Jahr            |
| 60261            | Festigkeitslehre (Strength of Materials)                                                              | 5    | WS / SS  | WF          | EUT, UVT                | d / e (X)  | Jahr            |
| 60291            | Konstruktion von Maschinen (Design of Machines)                                                       | 5    | SS       | WF          | MPT, EUT, UVT           | d / e (X)  | Jahr            |
| 60301            | Maschinenelemente (Machine Elements)                                                                  | 5    | WS       | WF          | EUT, UVT                | d / e (X)  | Jahr            |
| 60311            | Mechanik Computerorientiert (Mechanics Computeroriented )                                             | 5    | WS       | WF          | MPE, MPT, WIM           | d / e (X)  | Jahr            |
| 60431            | Produktentwicklungsstudien (Product Development Studies)                                              | 5    | WS / SS  | WF          | MPE, MPT, WIM           | d / e (X)  | Jahr            |
| 60731            | Entwicklung/Auslegung und Konstruktion von Teilsystemen für einen Formula Student Rennwagen (e-Traxx) | 5    | WS / SS  | WF          | EUT, MPE, MPT, UVT, WIM | d / e (X)  | Jahr, Wrede     |
|                  | Konvexe Optimierung                                                                                   | 5    | SS       | WF          | EUT, MPE, MPT, UVT, WIM | d / e (X)  | Stuhlsatz       |
| 23021            | Luftreinhaltung (Air Quality Control)                                                                 | 6    | SS       | PF          | EUT, UVT                | d / e* (X) | Weber           |
| 60341            | Sondergebiete der Physik (Advanced Special Topics of Physics)                                         | 5    | WS / SS  | WF          | EUT, MPE, MPT, UVT, WIM | d / e (X)  | Weber           |
| 60351            | Umwelttechnische Projektstudien (Selected Case Studies of Environmental Engineering)                  | 5    | WS / SS  | WF          | EUT, MPE, MPT, UVT, WIM | d / e (X)  | Weber           |
| 60431            | Innovative KFZ-Antriebe                                                                               | 5    | WS / SS  | WF          | EUT, MPE, MPT, UVT, WIM | d / e (X)  | Weber           |
| 60701            | Elektromobilität (Electromobility)                                                                    | 5    | WS / SS  | WF          | EUT, MPE, MPT, UVT, WIM | d / e (X)  | Weber           |
| 60631            | Machine Learning                                                                                      | 5    | SS / SS  | WF          | EUT, MPE, MPT, UVT, WIM | d / e (X)  | Zielke          |
| 60131            | Advanced Reading and Conversation Class                                                               | 5    | WS / SS  | WF          | EUT, MPE, MPT, UVT, WIM | e          | Zupfer          |
| 60451            | English for Engineers                                                                                 | 5    | WS / SS  | WF          | EUT, MPE, MPT, UVT, WIM | e          | Zupfer          |
| 60611            | English Business Communication                                                                        | 5    | WS / SS  | WF          | EUT, MPE, MPT, UVT, WIM | e          | Zupfer          |
| 10411            | Technical English (Technisches Englisch)                                                              | 5    | WS       | PF          | EUT, MPE, MPT, UVT, WIM | e          | Zupfer          |

| Master Courses |                                                                                                                            |      |          |             |               |            |                           |
|----------------|----------------------------------------------------------------------------------------------------------------------------|------|----------|-------------|---------------|------------|---------------------------|
| Code           | Title of the Course                                                                                                        | ECTS | Semester | Course Type | Study Program | Language   | Lecturer                  |
| 11301          | Computational Fluid Dynamics (CFD) (if this course is chosen, the corresponding Practical Training must be chosen, too)    | 6    | SS       | PF          | SET, ME       | e          | Benim                     |
| 11302          | Computational Fluid Dynamics (CFD) Practical Training                                                                      |      |          |             |               |            |                           |
| 40021          | Turbulent Flows                                                                                                            | 6    | WS / SS  | WF          | ME            | e          | Benim                     |
| 40181          | Two-Phase Flows                                                                                                            | 6    | WS / SS  | WF          | ME            | e          | Benim                     |
|                | Turbulent Combustion                                                                                                       | 6    | WS       | WF          | ME            | e          | Benim                     |
| 21001          | Heating and Cooling – Renewable Energies, Combustion, Heat and Mass Transfer                                               | 6    | SS       | PF          | SET, IWI      | e          | Benim                     |
| 17001          | Innovation and Technology Management (if this course is chosen, the corresponding Practical Training must be chosen, too)  | 6    | SS       | PF          | IWI           | e          | Deckert                   |
| 17002          | Innovation and Technology Management Practical Training                                                                    |      |          |             |               |            |                           |
| 40311          | Behavioral Economics                                                                                                       | 6    | WS       | WF          | IWI           | e          | Deckert                   |
| 27021          | Operations Management (if this course is chosen, the corresponding Practical Training must be chosen, too)                 | 6    | WS       | PF          | IWI           | e          | Deckert                   |
| 27022          | Operations Management Practical Training                                                                                   |      |          |             |               |            |                           |
| 40271          | Applied Simulation in Process Technology (Angewandte verfahrenstechnische Simulation)                                      | 6    | WS / SS  | WF          | SET           | d / e (X)  | Fleiger                   |
| 40151          | Automation with Microcontrollers                                                                                           | 6    | WS       | WF          | SET, IWI, ME  | d / e (X)  | Grote                     |
| 40091          | Polymer Technology                                                                                                         | 6    | WS       | WF          | SET, IWI, ME  | e          | Heinemann                 |
| 40031          | Innovative Product Development                                                                                             | 6    | WS       | WF          | ME, IWI       | e          | Jahr                      |
| 12001          | Simulation of Mechanical Systems (if this course is chosen, the corresponding Practical Training must be chosen, too)      | 6    | WS       | PF          | ME            | e          | Jahr                      |
| 12002          | Simulation of Mechanical Systems Practical Training                                                                        |      |          |             |               |            |                           |
| 40231          | Heterogeneous Catalysis                                                                                                    | 6    | WS / SS  | WF          | SET, IWI      | d / e (X)  | Kaluza                    |
| 11201          | Computer-Based Measurement Technology (if this course is chosen, the corresponding Practical Training must be chosen, too) | 6    | SS       | PF          | SET, ME       | e          | Kameier                   |
| 11202          | Computer-Based Measurement Technology Practical Training                                                                   |      |          |             |               |            |                           |
| 40071          | Low Noise Design                                                                                                           | 6    | WS       | WF          | SET, IWI, ME  | e          | Kameier                   |
| 17301          | Life Cycle and Services Management                                                                                         | 6    | WS       | PF          | IWI           | e          | Niemann                   |
| 40281          | Digital Business Transformation in Industry 4.0                                                                            | 6    | SS       | WF          | SET, IWI, ME  | d / e (X)  | Niemann                   |
| 40201          | Industrial Services Marketing & Business Development                                                                       | 6    | SS       | WF          | SET, IWI, ME  | e          | Niemann                   |
| 17201          | International Technical Sales Management                                                                                   | 6    | SS       | PF          | IWI           | e          | Niemann                   |
| 40321          | Industrial Robots in Industry 4.0 Environments                                                                             | 6    | WS       | WF          | SET, IWI, ME  | e          | Niemann                   |
| 40211          | Advanced Computational Methods                                                                                             | 6    | WS / SS  | WF          | SET, IWI, ME  | e          | Ruess                     |
| 12101          | Finite Element Method (FEM) (if this course is chosen, the corresponding Practical Training must be chosen, too)           | 6    | WS       | PF          | SET, ME       | e          | Ruess                     |
| 12102          | Finite Element Method (FEM) Practical Training                                                                             |      |          |             |               |            |                           |
| 11401          | Engineering Mathematics (if this course is chosen, the corresponding Practical Training must be chosen, too)               | 6    | SS       | PF          | SET, ME       | e          | Ruess                     |
| 11402          | Engineering Mathematics Practical Training                                                                                 |      |          |             |               |            |                           |
| 40221          | Software Lab                                                                                                               | 6    | WS / SS  | WF          | SET, IWI, ME  | e          | Ruess                     |
| 40191          | Energy Storage and Flexibility Options                                                                                     | 6    | WS / SS  | PF          | SET, IWI, ME  | e          | Schaube                   |
| 21011          | Electrical Power – Conversion, Storage, Distribution                                                                       | 6    | WS       | PF          | SET, IWI      | d / e* (X) | Schaube, Kiel, Riegebauer |
| 40171          | Pollutant Sensors in Ambient Air Control and Automobiles (Schadstoff-Sensoren in der Luftreinhaltung und bei Automobilen)  | 6    | WS / SS  | WF          | SET, IWI, ME  | e          | Weber                     |
| 21021          | Environment – Noise Protection, Measurement Technology Air                                                                 | 6    | WS       | PF          | SET, IWI      | d / e (X)  | Weber/Biedermann          |
| 40291          | Advanced English for Engineers                                                                                             | 6    | SS       | WF          | SET, IWI, ME  | e          | Zupfer                    |
| 40131          | Advanced Business English                                                                                                  | 6    | WS / SS  | WF          | SET, IWI, ME  | e          | Zupfer                    |
| 40081          | Intercultural Competence                                                                                                   | 6    | SS       | WF          | SET, IWI, ME  | e          | Zupfer                    |
| 30011          | Project R & D                                                                                                              | 6    | WS / SS  | PF          | SET, IWI, ME  | d / e (X)  | various                   |

| Key            |                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Language:      | <p>d = German</p> <p>e = English</p> <p>d / e = The course is taught normally in german, but can be taught in english, as well, upon request.</p> <p>d / e* = The course is taught in german, but the written exam can be taken in english. Please contact the lecturer at the beginning of the semester, if you wish to do so.</p> <p>X : Course material (lecture notes etc.) sufficient for exam preparation is available in english.</p> |
| Semester:      | <p>WS = Winter Semester</p> <p>SS = Summer Semester</p>                                                                                                                                                                                                                                                                                                                                                                                      |
| Course Type:   | <p>PF = Compulsory</p> <p>WF = Elective</p>                                                                                                                                                                                                                                                                                                                                                                                                  |
| Study Program: | <p>EUT = Energy and Environmental Technology</p> <p>MPE = Product Development</p> <p>MPT = Production Technology</p> <p>UVT = Environmental and Process Technology</p> <p>WIM = Industrial Engineering</p>                                                                                                                                                                                                                                   |
|                | <p>SET = Simulation and Experimental Technology</p> <p>IWI = International Industrial Engineering</p> <p>ME = Mechanical Engineering</p>                                                                                                                                                                                                                                                                                                     |