**Courses in English**  
**Course Description**

<table>
<thead>
<tr>
<th>Department</th>
<th>06 Applied Sciences and Mechatronics</th>
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<tbody>
<tr>
<td>Course title</td>
<td>Quality management and applied statistics</td>
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<tr>
<td>Hours per week (SWS)</td>
<td>4</td>
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<tr>
<td>Number of ECTS credits</td>
<td>6</td>
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| Course objective    | Knowledge on Quality Management System based on ISO standards.  
                        Knowledge how to apply QM tools and methods in business processes.  
                        Knowledge how to qualify and assess hardware and software and how to qualify products  
                        Describing data with statistical methods  
                        Developing an understanding of probability distributions  
                        Using statistics for testing of a hypothesis |
| Prerequisites       | none                                  |
| Recommended reading | Mathematics I                         |
| Teaching methods    | Interactive lecture, tutorials, team exercises |
| Assessment methods  | Written exam                          |
| Language of instruction | English                             |
| Name of lecturer    | Dr. rer. nat. Preussger, Prof Dr Weber |
| Email               | ulrich.weber@hm.edu                  |
| Link                |                                       |

**Course content**

- Quality management:
  - Norms and standards
  - ISO 9000 and 9001
  - Application standards of ISO 9001
  - Business process management: process model, roles and responsibilities, controlling, continuous improvement
  - Software Quality Metric (ISO 9126)
  - Qualification of products
  - Continuous improvement in production: SPC, AQL, MSA, Supplier Management, PDCA, DMAIC
  - Risk management: DOE, FMEA, Pareto Diagram, FTA, design review, milestone release
  - QM tools in production: change management, complaint management (FAR, 8D)
  - The quality organization: resource management, customer satisfaction, documentation, Audits
  - Exercises how to apply QM tools
  - Review of application scenarios

- Applied statistics
  - Descriptive statistics in one and two dimensions
    - Mean, median, variance
    - Linear regression
  - Probability theory
    - Probability density function
    - Probability distribution
    - Binomial, normal and poisson distribution
  - Statistical hypothesis testing

**Remarks**