## Courses in English

<table>
<thead>
<tr>
<th>Department</th>
<th>06 Applied Sciences and Mechatronics</th>
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</thead>
<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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</tbody>
</table>
| 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      | Mathematics I                        |
|                    | G. Linß, Qualitätsmanagement für Ingenieure, 3. aktualisierte und erweiterte Auflage, fv Fachbuchverlag Leipzig im Carl Hanser Verlag, 2011  
|                    | R. Schmitt, T. Pfeifer, Qualitätmanagements Strategien, Methoden, Techniken, 4. völlig überarbeitete und erweiterte Auflage,Carl Hanser Verlag, 2010  
|                    | M. Sachs, Wahrscheinlichkeitsrechnung und Statistik für Ingenieurstudenten an Fachhochschulen, 2. erweiterte Auflage, Hanser, 2006  
|                    | D. Montgomery, Design and Analysis of Experiments, Wiley, 2006  
|                    | S. Ross, Statistik für Ingenieure und Naturwissenschaftler, Spektrum, 2006  |
| Teaching methods   | Lessons with exercises               |
| Assessment methods | 100% written exam                    |
| Language of instruction | English                    |
| Name of lecturer   | Prof. Holler, Dr. Preussger         |
| Email              | holler@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

Excercises with statistics software, e.g. Excel

## Remarks