

**Module: Product development**

<b>Level</b>	Bachelor	<b>Short Name</b>	PD
<b>Responsible Lecturers</b>	Kohlhase, Nils, Prof. Dr.-Ing.		
<b>Department, Facility</b>	Mechanical Engineering and Business Administration		
<b>Course of Studies</b>	Mechatronik, Bachelor		
<b>Compulsory/elective</b>	Compulsory	<b>ECTS Credit Points</b>	5
<b>Semester of Studies</b>	2	<b>Semester Hours per Week</b>	4
<b>Length (semesters)</b>	1	<b>Workload (hours)</b>	120
<b>Frequency</b>	SuSe	<b>Presence Hours</b>	60
<b>Teaching Language</b>	English	<b>Self-Study Hours</b>	60

The following section is filled only if there is **exactly one** module-concluding exam.

<b>Exam Type</b>	Project Work	<b>Exam Language</b>	English
<b>Exam Length (minutes)</b>		<b>Exam Grading System</b>	One-third Grades
<b>Learning Outcomes</b>	In teams of 3 to 5 students the students learn to develop an innovative concept for a mechanical engineering development task according to VDI guideline 2221. They can present the concept with sketches and drawings and build a design model. The student learn to present their results.		
<b>Participation Prerequisites</b>	Knowledge of Machine Component Design Understanding technical interdependency		

The previous section is filled only if there is **exactly one** module-concluding exam.

<b>Consideration of Gender and Diversity Issues</b>	<ul style="list-style-type: none"> <li>✓ Use of gender-neutral language (THL standard)</li> <li>✗ Target group specific adjustment of didactic methods</li> <li>✗ Making subject diversity visible (female researchers, cultures etc.)</li> </ul>
<b>Applicability</b>	
<b>Remarks</b>	

## Module Course: Product development(lecture)

(of Module: Product development)

<b>Course Type</b>	Lecture	<b>Form of Learning</b>	Presence
<b>Mandatory Attendance</b>	no	<b>ECTS Credit Points</b>	3
<b>Participation Limit</b>		<b>Semester Hours per Week</b>	3
<b>Group Size</b>		<b>Workload (hours)</b>	60
<b>Teaching Language</b>	English	<b>Presence Hours</b>	45
<b>Study Achievements ("Studienleistung", SL)</b>		<b>Self-Study Hours</b>	15
<b>SL Length (minutes)</b>		<b>SL Grading System</b>	One-third Grades

The following section is filled only if there is a course-specific exam.

<b>Exam Type</b>		<b>Exam Language</b>	
<b>Exam Length (minutes)</b>		<b>Exam Grading System</b>	
<b>Learning Outcomes</b>			
<b>Participation Prerequisites</b>			

The previous section is filled only if there is a course-specific exam.

<b>Contents</b>	<ul style="list-style-type: none"> <li>• Principle approach for product development</li> <li>• Product planning, systematic clarification of the task and writing of a requirement list</li> <li>• Solution finding based on functional analysis</li> <li>• Systematic combination of solutions with the morphological matrix</li> <li>• Evaluation of solutions</li> <li>• Basic rules for embodiment design, construction methods, design principles and design rules</li> <li>• Economic product development</li> <li>• Planning of engineering projects</li> </ul>
<b>Literature</b>	Pahl, G., Beitz W., Feldhusen J., Grote, K. H.: Engineering Design, A Systematic Approach, 3rd Edition, Springer-Verlag London Limited 2007
<b>Remarks</b>	

## Module Course: Product development

(of Module: Product development)

<b>Course Type</b>	Project Work	<b>Form of Learning</b>	Presence
<b>Mandatory Attendance</b>	no	<b>ECTS Credit Points</b>	2
<b>Participation Limit</b>		<b>Semester Hours per Week</b>	1
<b>Group Size</b>		<b>Workload (hours)</b>	60
<b>Teaching Language</b>	English	<b>Presence Hours</b>	15
<b>Study Achievements ("Studienleistung", SL)</b>		<b>Self-Study Hours</b>	45
<b>SL Length (minutes)</b>		<b>SL Grading System</b>	One-third Grades

The following section is filled only if there is a course-specific exam.

<b>Exam Type</b>		<b>Exam Language</b>	
<b>Exam Length (minutes)</b>		<b>Exam Grading System</b>	
<b>Learning Outcomes</b>			
<b>Participation Prerequisites</b>			

The previous section is filled only if there is a course-specific exam.

<b>Contents</b>	<p>For a practical task the following contents have to be processed. The results are presented in 5 gates and described in a documentation</p> <ul style="list-style-type: none"> <li>• Writing a requirement list and presentation preparation (Gate 1)</li> <li>• Function analysis, finding partial solutions and presentation preparation for the Morphological Box (Gate 2)</li> <li>• Systematically combining the partial solutions to overall solutions, working out 2 - 3 complete solution variants and presentation preparation (Gate 3)</li> <li>• Evaluation of the overall solution variants and presentation preparation for the evaluation (Gate 4)</li> <li>• Preparation of a final presentation, an advertising poster and build a design model (Gate 5)</li> <li>• Preparation of a final documentation</li> </ul>
<b>Literature</b>	
<b>Remarks</b>	