

**Module: Process Integration**

<b>Level</b>	Master	<b>Short Name</b>	PINT
<b>Responsible Lecturers</b>	Töbermann, J.-Christian, Prof. Dr.-Ing.		
<b>Department, Facility</b>	Electrical Engineering and Computer Science		
<b>Course of Studies</b>	Applied Information Technology, Master		
<b>Compulsory/elective</b>	Elective	<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>	150
<b>Frequency</b>	WiSe	<b>Presence Hours</b>	60
<b>Teaching Language</b>	English	<b>Self-Study Hours</b>	90

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

<b>Exam Type</b>	Project Work	<b>Exam Language</b>	German/English
<b>Exam Length (minutes)</b>		<b>Exam Grading System</b>	One-third Grades
<b>Learning Outcomes</b>	<p>The students:</p> <ul style="list-style-type: none"> <li>• understand concepts of integrated operation management systems, the digital factory, and in particular for the integration of the automation process level with Manufacturing Execution Systems (MES) and Enterprise Resource Planning (ERP) systems.</li> <li>• understand different systems, system concepts, system architectures and the reasons for each choice</li> <li>• can classify functionalities of an MES system such as production data acquisition, asset management, quality management, detailed production planning and control and can describe and evaluate them in an overall task context</li> <li>• can design and implement IT couplings between MES systems and the automation process level systematically and in a task-oriented manner</li> <li>• have gained first experiences in using industrial MES systems</li> </ul>		
<b>Participation Prerequisites</b>			

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: Process Integration (Lecture)

(of Module: Process Integration)

<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>	90
<b>Teaching Language</b>	English	<b>Presence Hours</b>	45
<b>Study Achievements ("Studienleistung", SL)</b>		<b>Self-Study Hours</b>	45
<b>SL Length (minutes)</b>		<b>SL Grading System</b>	

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>• Concepts and variants of integrated operations management and the digital factory</li> <li>• Modules of MES systems and their functionalities</li> <li>• Interface description, design and implementation between automation process level and higher operating levels (MES and ERP)</li> </ul>
<b>Literature</b>	Literature will be named in the lecture.
<b>Remarks</b>	

## Module Course: Process Integration (Practical Training)

(of Module: Process Integration)

<b>Course Type</b>	Practical Training	<b>Form of Learning</b>	Presence
<b>Mandatory Attendance</b>	yes	<b>ECTS Credit Points</b>	2
<b>Participation Limit</b>		<b>Semester Hours per Week</b>	1
<b>Group Size</b>	12	<b>Workload (hours)</b>	60
<b>Teaching Language</b>	English	<b>Presence Hours</b>	15
<b>Study Achievements ("Studienleistung", SL)</b>	Practical Training	<b>Self-Study Hours</b>	45
<b>SL Length (minutes)</b>		<b>SL Grading System</b>	Pass

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>	In the practical trainings during the semester, the students apply what they have learned in the lecture to given or self-study topics for selected application scenarios.
<b>Literature</b>	See lecture.
<b>Remarks</b>	