

<b>Course of study/ focus of study:</b> M.Sc. Produktionstechnik und -management	
<b>Module name / title</b>	<b>Global Customer Processes</b>
<b>Module number</b>	GCP
<b>Module coordinator/ person responsible</b>	Herr Prof. Dr. Randolph Isenberg
<b>Duration of the module/ semester/ frequency</b>	1 Semester/ first or second semester/ annually
<b>Credits (CP)/ semester hours per week (SHW)</b>	5 LP/ 3.00 SWS
<b>Type of module , Applicability of the module</b>	Wahlpflichtmodul im studiengangsspezifischen Angebot
<b>Workload</b>	Contact hours: 54 h and Self-study: 96 h (Basis: 18 semester weeks (incl. exam time), 1 SHW = 60 minutes)
<b>Module prerequisites Requirements for participation/ previous knowledge</b>	
<b>Teaching language</b>	Teaching language: English Alternate teaching language: German If there is more than one teaching language, the used teaching language will be announced by the lecturer.
<b>Competencies gained/ Learning Outcome</b>	<p>Steadily increasing competition forces industry to accept customer order in a short term manner. If there is short before the series start a request for change from the customer then this results often in drastic influences on design, production and logistics, because processes are not optimized for these changes. This asks for highly flexible processes and high demands on the knowledge of people and the technology.</p> <p>The students will be able to optimize the processes in a company so that even short term customer specific changes can be handled profitably in the company. The competencies in detail are the ability to:</p> <ol style="list-style-type: none"> <li>1) analyse the influence and risk of customer orders on technique, deadline and budget, earnings and the human in the organization. By this also get an insight in basic influences on globalization including ethical questions.</li> <li>2) design processes with a total process view, i.e., optimizing the whole process rather than its single parts.</li> <li>3) handle insecure decisions in a badly structured environment</li> <li>4) use tool of information techniques for process coordination, so that they will we able to define for the humans, organisation, technologies and information systems solutions.</li> <li>5) chose and apply IoT Tools using examples from technologies like Collaborating Robot, Mikrocontroller, Virtual-/Augmented Reality and Artificial Intelligence in a basic understanding to solve the above challenges.</li> <li>5) To reach sensibility in the consequences of technical decision making in products or processes and its influence on inner and outer social structures with emphasis on global environment. This should finally result in a saver social environment of employees.</li> </ol>

<b>Content of the module</b>	<p>The lecture focuses on the influence of changes from customers on the total process from customer order over development until series production.</p> <ol style="list-style-type: none"> <li>1) Design networks in global context with internal and external customer, supplier relations management.</li> <li>2) Development of interfaces between design and production with concepts for efficient failure handling and prevention.</li> <li>3) Risk management for systematic prevention, analysis, conception and control of risks with total process view. This includes the discussion of globalisation aspects.</li> <li>4) Workflow methods using SAP as information system.</li> <li>5) Methods to improve the learning efficiency of labour force to handle changed processes.</li> <li>6) Cooperation with industry management for actual case studies (such as Airbus, Ferchau, Siemens, Jungheinrich)</li> <li>7) Laboratory-Cases to get basic understanding of the IoT-Tools like Collaborating Robot, Mikrocontroller, Virtual-/Augmented Reality and Artificial Intelligence. Students will get help to do first steps and get basic understanding with assistance and self guided learning.</li> </ol>
<b>Requirements for the award of credit points (Study and exam requirements)</b>	<p>Seminar: Regelmäßige Prüfungsform für die Modulprüfung: Klausur (PL)  Weitere mögliche Prüfungsformen: Mdl. Prüfung, Portfolio-Prüfung  Laborpraktikum: Laborabschluss (SL)  Bei mehr als einer möglichen Prüfungsform im Modul wird die zu erbringende Prüfungsform von dem bzw. der verantwortlichen Lehrenden zu Beginn der Lehrveranstaltung bekannt gegeben.</p>
<b>Learning and teaching types/ methods/ media types</b>	<p>Powerpoint-Presentation with beamer, slides and blackboard. E-Learning using Internet-Courses and self-guided learning techniques.</p>
<b>Literature</b>	<p>Aalst, W. (2004): Workflow Management, MIT Press (März 2004)</p> <p>Gleißner, W. (2005): Risikomanagement. Mit CD-ROM, Umsetzung, Werkzeuge, Risikobewertung, Haufe (Mai 2005)</p> <p>Isenberg, Randolph (2011): International aspects of knowledge management and its sustainability in the quality function. In Paul Young, John Geraghty (Eds.): IMC28 - Manufacturing Sustainability. International Manufacturing Conference IMC28. Dublin, 30.8.11 bis 1.9.11. Dublin City University.</p> <p>Isenberg, Randolph; Riesselmann, Julia (2009): Sustainable structure for knowledge management in the quality department. In Garret O'Donnell, Kevin Kelly (Eds.): International Manufacturing Conference IMC26. Energy Efficient &amp; Low Carbon Manufacturing. Trinity College Dublin.</p> <p>Isenberg, R. (2005): The customer gating concept to deal with late changes in product development accepted for publication at The International Manufacturing Conference (IMC 22) - Challenges Facing Manufacturing # The Institute of Technology Tallaght, Dublin (31st August to the 2nd September 2005)</p> <p>Isenberg, Randolph (2002): Wege zur prozeßorientierten Arbeitsvorbereitung, Workshop: Moderne Aufbau- und Ablauforganisation - Wo steht die Arbeitsvorbereitung?, NORTEC2002, Hamburg 24.1.2002</p> <p>Vogel-Heuser, B. , Bauernhansl, T., ten Hompel, M. (2017): Handbuch Industrie 4.0 Bd. 1 Produktion, 2te Auflage, (Springer Reference Technik), 27.1.2017</p>