inf657 - Product Engineering

Module label: Product Engineering
Module code: inf657
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Master's Programme Business Informatics > Akzentsetzungsmodul Bereich Wirtschaftsinformatik
- Master's Programme Computing Science > Angewandte Informatik

Contact person:
- Module responsibility: Axel Hahn, Die im Modul Lehrenden
- Authorized examiners: Axel Hahn, Die im Modul Lehrenden

Entry requirements:
Focus of this module is to learn and apply the product engineering process. A project will enable the students to design a product from the idea to the prototype. More specifically, a systematic, partial domain-specific, approach to solve technical problems and aspects of project management will be learned.

Regular meetings are used to train the presentation capabilities of the students and to schedule working packages within the teams.

Skills to be acquired in this module:

Professional competence:
The students:
- learn and try out the handling of virtual and physical prototypes
- learn and try out the construction and validation of virtual prototypes with the aid of CAD-applications
- learn and combine different basic development concepts from the mechanical engineering, microelectronics, control engineering and software engineering

Methodological competence:
The students:
- learn and try out project management concepts
- learn and recognise the connections of different development concepts from different fields, e.g., mechanical engineering, control engineering, microelectronics and software engineering
- develop own products with creativity techniques
- schedule and organise the product development supported by project management techniques independently
- learn the systematic refining of their own product idea with SysML
- design and test products with state-of-the-art CAD-applications

Social competence:
The students:
- impart their structure and mode of action to other people
- develop their own products in small teams
- present their solutions to groups
- integrate criticism to their solutions
- support other groups by giving appropriate criticism

Self-competence:
The students:
- recognise and reflect their own limitations to get familiar and to plan a project in an unknown field (e.g. maritime construction/industries)

Module contents:
This module is a lecture accompanied by a hands-on project. The students work on one product
The product development starts with the idea-finding/brainstorming process which is used to create a digital product concept. During the semester a digital prototype will be created and validated by its initial requirements. Finally, a physical prototype is produced with a 3D-Printer (Rapid Prototyping). The progress of the project has to be documented and presented at different milestones.

**Reader’s advisory**
- Ehrlenspiel (2003): Integrierte Produktentwicklung

**Links**
- Languages of instruction: German, English
- Duration (semesters): 1 Semester
- Module frequency: Once a year
- Module capacity: unlimited
- Reference text: The lecture material contains English parts
- Modul level: AS (Akzentsetzung / Accentuation)
- Modulart: Pflicht o. Wahlpflicht / compulsory or optional
- Lern-/Lehrform / Type of program: V+Ü
- Vorkenntnisse / Previous knowledge:
  - Software Engineering (UML / SysML)
  - Kreativitätstechniken
  - Projektmanagement
  - 3D Modellierung

**Examination**
- Time of examination: At the end of the lecture period
- Type of examination: Written exam or oral exam, or written documentation or Presentation or Portfolio

**Course type**

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<th>Course type</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
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<td>2.00</td>
<td>WiSe</td>
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<tr>
<td>Exercises</td>
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<td>2.00</td>
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**Total time of attendance for the module**: 56 h