

| Module description: Virtual Product Development and Machine Elements 3 | |
|---|---|
| Module Code | t.BA.MT.VPM3.19HS |
| ECTS Credits | 4 |
| Language of Instruction/Examination | German |
| Organizational Unit | IPP |
| Module Coordinator | Adrian Fassbind |
| Legal Framework | The module description is part of the legal basis in addition to the general academic regulations. It is binding. During the first week of the semester a written and communicated supplement can specify the module description in more detail. |
| Module Characteristic | Type 3a 2 lecture lessons per semester week and class+ 2 lab bi-weekly lessons per semester and half-class |
| Module Description | Fundamentals of machine elements in mechanical engineering 3 and CAD |
| Module Content | <ul style="list-style-type: none"> • In "Machine Elements 3" students acquire knowledge about the basics, the application as well as the design in gear technology, axle shafts and plain bearings. • Furthermore, they receive an introduction to the calculation software KISSsoft • VPE • - Consolidation Part/Sheet/Assembly Design • - Mechanical Systems (Fitting and kinematics simulation) • - PLM (approval processes and collaborative working) • - 3D-Master (3D-FTA and the generation of drawings from 3D-FTA onwards) • - Human Design (Ergonomics Tools) |
| Prerequisite Knowledge | https://gpmpublic.zhaw.ch/GPMDocProdDPublic/2_Studium/2_02_Grundlagen_Studium/T_C_L_Modulauspraegungen_SM2025.pdf |

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| Learning Objectives (Competences) | Students... | | Competencies | Taxonomies | |
|--|---|------------|---------------|------------|--------------------------|
| | Know the basics of gear technology / gear wheels, axle shafts, plain bearings and can list them | | F | K1 | |
| | Can describe the properties of the machine elements covered | | F | K2 | |
| | Know and understand the most important design rules of the machine elements covered and can present them | | F | K1, K2 | |
| | Are able to apply and explain the design rules in case studies | | F | K3 | |
| | Understand the calculation and design methods of the machine elements covered | | F | K2 | |
| | Can apply the calculation and design methods in case studies and carry out written calculations | | F | K3 | |
| | Introduction and explanation of the KISSsoft calculation software and application with practical examples | | F | K1, K2, K3 | |
| | have in-depth knowledge of the 1st semester CAD1 (Part/Sheet/Assembly) | | F | K3 | |
| | can set up kinematic systems for simulations in CAD | | F | K3 | |
| | gain knowledge of the approval process and collaborative working in a CAD/PLM environment | | F | K3 | |
| | know the principles of the 3D master and can create models with FTA and drawings from them | | F | K3 | |
| | Collaborative cooperation in PLM | | M | K3 | |
| | Building kinematic systems | | M | K3 | |
| Can independently acquire and implement knowledge from tutorials | | SE | K3 | | |
| Performance Assessment | End-of-module exam | Assessment | Length (min.) | Weighting | Form |
| | written exam | Grade | | 90 | acc. to module agreement |
| | Performance assessment during the semester | Assessment | Length (min.) | Weighting | Form |
| | written exam | Grade | | 10 | acc. to module agreement |
| Classroom Attendance Requirement | None | | | | |
| Learning material | | | | | |
| Comments | | | | | |