

## Laboratory Metal Forming Technology

1	<b>Module Number</b> 7920	<b>Study Programme</b> MBB	<b>Semester</b> 6	<b>Offered in</b> ☑WS ☑SS	<b>Duration</b> 1 Semester	<b>Module Type</b> optional	<b>Workload (h)</b> 30	<b>ECTS Points</b> 1
2	<b>Courses</b>  a) Laboratory Metal Forming Technology		<b>Teaching and Learning Forms</b>  Lab		<b>Contact Time</b>  (SWS)   (h) 1   10		<b>Self-Study Time</b> (h) 20	<b>Language</b>  English
3	<p><b>Learning Outcomes and Competences</b> Once the module has been successfully completed, the students can...</p> <p><b>Knowledge and Understanding</b></p> <ul style="list-style-type: none"> <li>• Explain the basic processes of metal forming</li> <li>• Describe sheet metal forming processes mostly used in industry</li> <li>• Describe the functionality of forming presses</li> </ul> <p><b>Use, Application and Generation of Knowledge</b></p> <p><i>Use and Transfer</i></p> <ul style="list-style-type: none"> <li>• Create reports and presentations in English</li> <li>• Calculate sheet metal processes by FEM simulations</li> </ul> <p><i>Scientific Innovation</i></p> <ul style="list-style-type: none"> <li>• Optimize existing process chains by further use of simulation tools</li> </ul> <p><b>Communication and Cooperation</b></p> <ul style="list-style-type: none"> <li>• Interpret the results of FEM process simulation of sheet metal forming</li> <li>• Working in groups and present results</li> </ul> <p><b>Scientific Self-Conception/ Professionalism</b></p> <ul style="list-style-type: none"> <li>• Justify the feasibility of sheet metal forming process chains and methodically</li> </ul>							
4	<p><b>Contents</b></p> <p>a) Material behaviour experiments: Work hardening, digital strain measurement Sheet metal forming experiments: Deep drawing, bending, cutting Machines: Modern servo press technology in comparison to conventional presses Learning the industrially used FEM simulation programme AutoForm, carrying out own process designs. Independent development of a process chain: FEM, tool production, production of a component by deep drawing, trimming with laser. At the end of this exercise, each student can take an own component.</p>							
5	<p><b>Participation Requirements</b> Lecture "Metal Forming Technology" (parallel to lab exercises)</p>							
6	<p><b>Examination Forms and Prerequisites for Awarding ECTS Points</b> a) Report, not graded</p>							
7	<p><b>Further Use of Module</b> Automotive Engineering</p>							
8	<p><b>Module Manager and Full-Time Lecturer</b> Prof. Dr.-Ing. Stefan Wagner</p>							
9	<p><b>Literature</b></p> <ul style="list-style-type: none"> <li>• Instructions during the exercises</li> </ul>							
10	<p><b>Last Updated</b> 16.02.2022</p>							