

Name of module:	Laser Material Processing
Keywords:	Cutting, forming, laser, manufacturing, metal sheet, punching, welding
Module number:	MB 601, 602 (partial)
Target groups:	6 Semester, exchange students
ECTS-Credits:	3
Language of instruction:	English
Module owner:	Prof. Dr.-Ing. Armin Horn
Date of last change:	25.08.2013

Extent of work (hours)

Workload	Contact hours	Self study	Exam preparation
90	45	30	15

Prerequisites:	Engineering materials, manufacturing technology
Total target:	To understand the laser material processing
Module content:	<p>Summary of lecture:</p> <ul style="list-style-type: none"> • Laser beam sources • principle of laser and beam characteristics • beam guidance and -forming • laser security <p>Laser material processes</p> <ul style="list-style-type: none"> • cutting/welding/removing/hardening/marking • quality systems for laser material processing <p>Laser- and sheet metal processing systems</p> <ul style="list-style-type: none"> • cutting and welding systems • punching and forming of sheet metal • design of sheet and pipe constructions <p>Summary of lab:</p> <ul style="list-style-type: none"> • Design of sheet metal parts in 3D-CAD-systems • Programming of machines for sheet metal processing • Manufacturing of sheet metal parts • Marking • Demonstration of complete sheet metal process chain
Reference material:	Lecture notes
Offered:	Every semester
Relevance for other study programs:	Automotive Engineering

Submodules and assessments

Title of submodule:	Laser Material Processing
Type of instruction / form of learning:	Lectures, practices and exam preparation
Hours per week:	2
Aims, learning outcomes:	See above
Estimated student workload:	60 h

Modulbeschreibung Mechanical Engineering - Design and Development 1

Title of submodule:	Laboratory Laser Material
Type of instruction / form of learning:	Practices in laboratory
Hours per week:	1
Aims, learning outcomes:	Deepening and using the knowledge obtained in the lectures
Estimated student workload:	30 h

Type of assessment:	Lecture: Written exam Laboratory: Certificate
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