

Modulname Modulname	<b>PI Fundamentals of Laser Technology</b>	416
Modulverantwortlicher/ Modulverantwortliche Module responsibility	Prof. Dr. Christian Rödel (Modulverantwortung)	
Qualifikationsziele Qualification goals	On completion of this course, the students should have some background knowledge on the special properties of laser radiation and their application. The students should understand the functional principles of a laser. They should know the design and some typical applications of some basic laser types.	
Modulinhalte Module contents	Physical properties of laser radiation; laser principles: light amplification, 4-level-laser system, gain profile and longitudinal modes, laser resonator, transverse modes; generation of short pulses, frequency doubling; laser types: HeNe-laser, CO <sub>2</sub> -laser, Nd:YAG-laser, fiber laser; laser applications: interferometry, holography, materials processing	
Lehrformen Forms of teaching	Vorlesung (2 SWS) Praktikum (2 SWS)	
Voraussetzungen für die Teilnahme Requirements for participation	Fundamentals of Physics especially wave optics	
Literatur/multimediale Lehr- und Lernprogramme Further readings/Learning programmes	<p>J. Wilson/J.F.B. Hawkes, "Lasers Principles and Applications", Prentice Hall, ISBN 0-13-523705-X</p> <p>B. Hitz/J.J. Ewing/J. Hecht, „Introduction to Laser Technology“ , IEEE Press ISBN0-7803-5373-0</p> <p>R. Poprawe, "Tailored Light 2", RTWH edition (2011), ISBN 987-3-642-01236-5</p> <p>K.J. Kuhn, "Laser Engineering", Prentice Hall ISBN 0-02-366921-7</p> <p>M.J. Weber, "Handbook of Lasers", CRC Press (2001), ISBN 0-8493-3509-4</p> <p>A.R. Henderson, "A Guide to Laser Savety" Chapman &amp; Hall, ISBN0-412-72940-7</p> <p>A. Rhody/F. Ross, "Holography Marketplace", Ross Books, ISBN 0-89496-110-1</p>	
Lehrbriefautor Textbook author	keiner	
Verwendbarkeit Usability	Pool International (English Lectures for Contact students) F MB PI	
Arbeitsaufwand/Gesamtworkload Workload/Total workload	Präsenzzeit 60 h + Vorbereitung 90 h = 150 Stunden = 5.0 Credit Punkte presence 60 h + preparation 90 h = 150 hours = 5.0 credit points	

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