Universität Ulm

Master of Science Physics (PO 2017)

Seminar Fourier Optics

Code	8812875021
ECTS credits	3
Attendance time	2
Language of instruction	English
Duration	1 Semester
Cycle	irregular
Coordinator	Dean of Physics Studies
Instructor(s)	Prof. Dr. Ute Kaiser
Allocation of study programmes	Physics M.Sc., elective Physics and Management M.Sc., elective
Recommended prerequisites	Fundamentals of electromagnetic waves
Learning objectives	
Syllabus	Fourier optics is systematically developed on the basis of its mathematical fundamentals. Then examples of their application in physics will be discussed. The following topics will be covered: • Fourier transformations • diffraction integrals of Kirchhoff and Sommerfeld • diffraction in near field and Fresnel's zone plate • diffraction in the far field (Fraunhofer diffraction); • phase shift of lenses • optical propagation (4f systems) • optical filtering • coherence, temporal, spatial and partial spatial coherence;

	• holography
Literature	-
Teaching and learning methods	Seminar (2 hours per week)
Workload	90 hours
Assessment	The credit points will be awarded once the colloquium (presentation and discussion) has been passed. No prerequisites are necessary for exam registration.
Grading procedure	The grade of the module will be the grade of the exam.
Basis for	Research in light and electron optics.