Name of programme: International Semester Information Technology / System Engineering

Title of Module	**Access networks and technologies Lab**
Responsible person	Prof. Dr. Joachim Habermann, Prof. Dr. Karl-Friedrich Klein
Teacher	Prof. Dr. Joachim Habermann, Prof. Dr. Karl-Friedrich Klein
Module Code	E2F255
Type of Module	O obligatory module (Pflichtmodul), x elective module (Wahlpflichtmodul)
Level (BA / MA)	Bachelor
Language	English (German on demand)
Related Degree Programme/s	Communications Engineering and Computer Networks
Department	IEM
Location	O Gießen, x Friedberg
Availability/frequency of module	O every semester, O anually in the Winter Semester, x anually in the Summer Semester,
Hours per Week / Workload	2 HpW, contact hours per week 60 H in total
Number of CrP/ECTS	2 ECTS/CrP
Forms of instruction	O lecture O seminar O supervised training x Laboratory Practical Course
Qualifications and Goals	Learning outcomes: Knowledge: Applied basics of fiber-optic systems & metrology and wireless communications; selected laboratory experiments based on practical experience; fiber optic systems including transmitter, receiver (opto-electronic) and integrated optical waveguide; configuration and measurement acquisition wireless access technologies. Skills: Design and dimensioning, implementation and evaluation of fundamental and practical experiments related to modern access technologies and associated measuring techniques Competences: Design and evaluation of simple optical transmission links and wireless access networks and the necessary test equipment, Self Organisationespecially in the team.
Short Description of Contents	Fiber-optic Systems: • Splicing and OTDR • Lightguidance in singlemode and multimode fibers • Optical characteristics of the sources receivers Wireless access networks and technologies: • Wireless internet access • Wireless mesh networks • LTE
Description of Contents	Fiber-optic Systems: • Splicing and OTDR (Optical Time Domain Reflektrometry) • Lightguidance in singlemode and multimode fibers • Optical characteristics of the sourcesand/or receiver; with measurement programs Wireless access networks and technologies: • Principle of the wireless communication • Wireless internet access • Wireless mesh networks • LTE
Prerequisites	participation in “Access networks and technologies (E2F254)“ (Lecture) before or parallel
Assessment	O oral (O examination of xx minutes, O presentation), O written (O examination of xx minutes, O term paper), other: Successful completion of the module Module 'access networks and access technologies E2F254". The laboratory tests must be successfully processed. This will be confirmed by certificate.

Literature/Textbooks	Rongqing Hui; Maurice O'Sullivan: “Fiber Optic Measurement Techniques”, Academic Press 2008 & 2013 J. Laferrière, G. Lietaert, R. Taws, S. Wolszczak (JDS Uniphase): Reference Guide to Fiber Optic Testing, 2007 VDE/VDI-Standards „Polymerfasern“ provided with the lab setup DIN-Normen „Faseroptik“ provided with the lab setup EIA/TIA Standards „Spezialfasern für industrielle Anwendungen“ provided with the lab setup comprehensive lab instructions
Other	