

E – Charakteristika studijního předmětu/Subject Specification					
Název studijního předmětu / Subject title	Optical sensors				
Typ předmětu / Subject type	Obligatory selectable		dopor. ročník / semester/ recommended year / semester	3	
Rozsah studijního předmětu / Study load in hours and credits		hod. za týden / weekly load	1 +1 h	Kreditů / Credits	4
Jiný způsob vyjádření rozsahu / Other expression of study load	15 weeks, each 1 hour of lectures and 1 hour of seminary				
Způsob zakončení / Assessment	Exam		Forma výuky / Form of teaching	Full-time course	
Další požadavky na studenta / Other demands on students					
Basic electrotechnics and physics (electromagnetism) knowledge					
Vyučující / Lecturer					
Reiner Thiele					
Stručná anotace předmětu / Subject annotation					
<p>This subject teaches students necessary theory of light needed for design of optical sensors. The aim is industrial applications from single mode sensors based on the laws of interferometers and polarization effects. The main topics of lectures are:</p> <ul style="list-style-type: none">- Jones calculus for optical networks- Scattering matrices of optical components- Signal-Flow-Graphs for optical networks- Theory of time invariant optical sensor networks- Theory of time variant optical sensor networks- Examples for optical sensors- Signal Processing in optical sensor networks- Optical current sensors <p>Students get basic of computation for optical sensors at the lessons. The teaching is based on my Book: “Optical Communication Systems and Sensor Networks.” The students can get from me.</p>					
Informace ke kombinované nebo distanční formě / Information for students in external form of study					
Rozsah konzultací (soustředění) / Consultations, study meetings	1h		hodin za týden / hours per week		
Rozsah a obsahové zaměření individuálních prací studentů a způsob kontroly / Individual student work – type, load, content and way of checking					
Individual project of optical sensor design.					
Studijní literatura a studijní pomůcky / Reading list and study utilities					
Weissman, Y.: Optical Network Theory. Artech House, Boston, London, 1992					
Grattan, K.T.V.; Meggitt, B. T.: Optical Fiber Sensor Technology. Volume 2: Devices and Technology. Chapman & Hall, London, 1998					