MODULE HANDBOOK DESCRIPTION

Module designation	Software Defined Radio	
Code	FBC0010	
Semester(s) in which the module is taught	7 / Fourth year	
Person responsible for the module	Djul Fikry B., ST., MT.	
Language	Indonesian	
Relation to curriculum	Free elective for Telecommunication Engineering	
Teaching methods	Lectures, small group discussion.	
Workload (incl. contact hours, self-study hours)	Contact minutes every week, each week of the 16 weeks/semester: • Lectures: 2 x 50 minutes. • Exercises and Assignments: 2 x 60 minutes. • Private study: 2 x 60 minutes. Total study hours = 5 hours 40 minutes/week	
Credit points	2 SKS (~ 3.2 ECTS)	
Required and recommended prerequisites for joining the module	- Basic Telecommunications (FBS1217)	
Module objectives/intended learning outcomes	1. Students are able to analyze radio software and cognitive radio, as well as basic RF system architecture for building SDR (Software-Defined Radio) and radio software. They will also learn about the design of sampling rates and spectrum access, and be able to simulate and implement a system on software.	PLO3
	2. Students are able to design radio software and cognitive radio, as well as basic RF system architecture for building SDR (Software-Defined Radio) using various platforms. They will also learn to simulate and implement a system that was studied on both software and SDR platforms.	PLO4

	3. Students are able to understand the future technology of radio communication with the SDR (Software-Defined Radio) platform.	PLO9
Content	1. Introduction to software defined radio and cognitive radio, 2. Fundamentals of RF design and wireless communication systems, 3. Receiver architecture, 4. Transmitter architecture, 5. Digital radio system, 6. Software-defined radio and software radio, 7. Cognitive radio network, 8. Dynamic spectrum access.	
Examination forms	- Written case study, - Midterm and final test.	
Study and examination requirements	The final grade in the module is composed of: 1. Case I assessment: 15% 2. Case II assessment: 15% 3. Midterm assessment: 35% 4. Final assessment: 35% Students must have a final grade of 65% or higher to pass	
Reading list	1. Tony J. Rouphael, "RF and Digital Signal Processing for Software-Defined Radio: A Multi-Standard Multi-Mode Approach", Elsevier, 2009. 2. Charles W. Bostian, Nicholas J. Kaminski & Almohanad S. Fayed, "Cognitive Radio Engineering", Scitech, 2016. 3. Ezio Biglieri et al., "Principles of Cognitive Radio," Cambridge University Press, 2013.	