MODULE HANDBOOK DESCRIPTION

Module designation	Telecommunication Network Laboratory	
Code	FBC3209	
Semester(s) in which the module is taught	6/third year	
Person responsible for the module	Djul Fikry Budiman, ST., MT.	
Language	Indonesian	
Relation to curriculum	Concentration Elective for Telecommunication Engineering	
Teaching methods	Contextual Instruction (CI)	
Workload (incl. contact hours, self-study hours)	Contact minutes every week, each week of the 16 weeks/semester : ● Practice : 1 x 50 minutes ● Data analysis : 1 x 60 minutes ● Writing report : 1 x 60 minutes. Total study hours = 2 hours 50 minutes/week	
Credit points	1 (~ 1,6 ECTS)	
Required and recommended prerequisites for joining the module	- Telecommunication Network (FBC3103) - Traffic Engineering (FBC3105) - Digital Signal Processing (FBC3207)	
Module objectives/intended learning outcomes	1. Students are able to analyze parallel and serial data communication networks, propagation of radio wave communication, wireless Communication, WLAN network and optical fiber network.	PLO3
	2. Students are able to design radio network communication including Base Transceiver Station, WLAN network with router and fiber optic network based on the practicum module.	PLO4
	3. Students are able to compare series and parallel communication networks, wireless and cable data communication network, radio dan fiber optic equipment on data communication by experiment.	PLO5

Content	1. Data communication using RJ 45. 2. Serial data communication using RS232. 3. Propagation of radio wave communication. 4. Characteristics of each area for radio waves to pass through. 5. Knowing and planning BTS in areas A1 (BTS 1) and A2 (BTS 2) and their advantages and disadvantages. 6. WLAN systems and networks 7. Communication on WLAN 8. Basic ROUTER configuration 9. Knowing function of the ROUTER 10. Knowing the attenuation of optical fiber based on the wavelength. 11. the effect of changing the frequency of various types of transmission lines. 12. Knowing the effect of changing the impedance of various types of transmission lines. 13. Determine the effect of changes in permittivity resistance on the wavelength of various types of transmission lines.
Examination forms	1. Pre-test 2. Practice skills 3. Practice report 4. Response
Study and examination requirements	The final grade in the module is composed of: 1. Pre-test and practice skills = 20% 2. Practice report and response = 80% Students must have a final grade of 65% or higher to pass
Reading list	1. Suhana and Shoji, S., 1981, Pengantar Teknik Telekomunikasi, Penerbit: PT Pradnya Paramita. 2. Hayt, W.H., and Buck, J.A., 2011, Engineering Electromagnetics, Eight. Edition, McGraw-Hill Companies. 3. Schenk, T.C.W., Bultitude, R.J.C., Augustin, L.M., Van Poppel, R.H., and Brussaard, G., 2002, Analysis of Propagation Loss in Urban Microcells at 1.9 GHz and 5.8 GHz, Proc. URSI Commison F Open Symposium on Radiowave Propagation and Remote Sensing, Garmisch-Partenkirchen, Germany. 4. Shanmugam, K.S., 2013, Digital And Analog Communication System, Wiley. 5. Usman, U.K., 2010, Pengantar Ilmu Telekomunikasi, Penerbit Informatika Bandung.