



**MODULE HANDBOOK DESCRIPTION**

Module designation	Telecommunication System Measurement	
Code	FBC4114	
Semester(s) in which the module is taught	7 / fourth year	
Person responsible for the module	Made Sutha Yadnya., ST., MT	
Language	Indonesian/English	
Relation to curriculum	Elective for Telecommunication Engineering	
Teaching methods	Lectures, small group discussion, simulation and design, Quiz.	
Workload (incl. contact hours, self-study hours)	Contact Hours every week, each week of the 16 weeks/semester: (per week includes) <ul style="list-style-type: none"> <li>● 3 x 50 minutes: Lecture</li> <li>● 3 x 60 minutes: Exercise and Assignment</li> <li>● 3 x 60 minutes: Self-learning</li> </ul> Total study hours = 8 hours 30 minutes/week.	
Credit points	3 SKS (~ 4.8 ECTS)	
Required and recommended prerequisites for joining the module	-	
Module objectives/intended learning outcomes	1. Demonstrate an honest attitude and be responsible for work in the area of expertise in Telecommunication Measurement Systems sector independently.	PLO8
	2. Able to master the concepts and knowledge of Telecommunication Measurement Systems	PLO3
	3. Able to study the implications of the development or implementation of science and technology that pays attention to and applies the values of humanities in accordance with their expertise based on scientific principles, procedures and ethics in producing solutions, ideas, designs or art criticism, compiling scientific descriptions of the results of their studies in the form of a thesis or final project report, and upload it on the college website.	PLO3

	4. Able to develop theories and methods/techniques in the manufacture of software and hardware such as software modeling (matlab), stochastic analysis, measurements according to standards, with various telecommunication applications.	PLO4
Content	<ol style="list-style-type: none"> <li>1. Basic Telecommunication System Measurement.</li> <li>2. Measurement System Error.</li> <li>3. Telecommunication System Measurement.</li> <li>4. Modeling of Telecommunication System Measurements</li> <li>5. Traffic Generation from Telecommunication System Measurement</li> <li>6. Telecommunication System Media Measurement</li> <li>7. Direct and indirect measurements of telecommunications systems.</li> <li>8. Statistical Parameters in Telecommunication System Measurement.</li> <li>9. Performance (QoS) in Telecommunication System Measurement</li> <li>10. Indoor WiFi Telecommunication System Measurement</li> <li>11. Outdoor WiFi Telecommunication System Measurement.</li> <li>12. Telecommunication System Measurement Major Tasks in sunny and rainy conditions.</li> </ol>	
Examination forms	<ul style="list-style-type: none"> <li>- Essay</li> <li>- Presentation case study</li> <li>- Simulation</li> <li>- Final Project (make a report according a destination journal)</li> <li>- Midterm and Final test</li> </ul>	
Study and examination requirements	<p>The final grade in the module is composed of:</p> <ol style="list-style-type: none"> <li>a. Case I assessment: 10%</li> <li>b. Case II assessment: 10%</li> <li>c. Case III assessment: 10%</li> <li>d. Case IV assessment: 10%</li> <li>e. Final Project 20 %</li> <li>f. Midterm assessment: 20%</li> <li>g. Final assessment: 20%</li> </ol> <p>Students must have a final grade of 75% or higher to pass</p>	
Reading list	<ol style="list-style-type: none"> <li>1. Proakis John G, 1992, Communication System Engineering, ISBN : 9780071263788</li> <li>2. Rappaport, T.S., 1996, Wireless Communications Systems: Principles and Practices, Prentice Hall.</li> <li>3. Lee, C.Y., 1993, Mobile Communication Design Fundamentals, John Wiley and Sons.</li> <li>4. Parson, D., 1992, The Mobile Radio Propagation Channel, Pentech Press.</li> <li>5. M. Schwart, 1990, Information Transmission Modulation and Noise, McGraw Hill.</li> <li>6. BP Lathi, 1992, Modern Digital and Analog</li> </ol>	

	<p>Communication Systems, HIS.</p> <ol style="list-style-type: none"><li data-bbox="565 243 1344 348">7. Hwei Hsu, PhD, 2003 Analog and Digital Communication, McGraw Hill – Schaum's Outline Series.</li><li data-bbox="565 365 1344 432">8. John S. Seybold, 2005, Introduction to RF Propagation, John Wiley &amp; Sons, Inc, New Jersey</li><li data-bbox="565 449 1344 548">9. John G. Proakis and Masoud Salehi, 2000, Contemporary Communication Systems Using MATLAB, Brooks/Cole Thomson Learning, USA.</li></ol>
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