

**UNDERGRADUATE PROGRAM IN COMPUTER SCIENCE  
DEPARTMENT OF COMPUTER SCIENCE AND ELECTRONICS  
FACULTY OF MATHEMATICS AND NATURAL SCIENCES  
UNIVERSITAS GADJAH MADA**

Module name	<b>Telecommunication Network</b>
Module level	Undergraduate
Code	MII-4613
Courses (if applicable)	<b>Telecommunication Network</b>
Semester	Spring (Even)
Contact person	Dr.techn. Ahmad Ashari, M.Kom.
Lecturer	Dr.techn. Ahmad Ashari, M.Kom. Triyogatama Wahyu Widodo, S.Kom., M.Kom.
Language	Bahasa Indonesia and English
Relation to curriculum	1. Undergraduate degree program; elective; 2 <sup>nd</sup> , 4 <sup>th</sup> , or 6 <sup>th</sup> semester. 2. International undergraduate program; elective; 2 <sup>nd</sup> , 4 <sup>th</sup> , or 6 <sup>th</sup> semester.
Type of teaching, contact hours	1. Undergraduate degree program: lectures, < 30 students 2. International undergraduate program: lectures, < 30 students
Workload	1. Lectures: 3 x 50 = 150 minutes (2.5 hours) per week. 2. Exercises and Assignments: 3 x 60 = 180 minutes (3 hours) per week. 3. Private study: 3 x 60 = 180 minutes (3 hours) per week.
Credit points	3 credit points (cr).
Requirements according to the examination regulations	A student must have attended at least 75% of the lectures to sit in the exams.
Recommended prerequisites	Signal and Systems

Learning outcomes and their corresponding PLOs	<b>LO</b>	<b>Description</b>			<b>Supported PLO</b>
	L01	Ability to explain and to understand basic concepts of traffic pattern, and its theories.			PLO3
	L02	Ability to explain and understand concepts of wireless communication through radio e.g. propagation characteristics, mobile radio, encoding and failure control , cellular concepts , and accessing radio			PLO3
	L03	Understanding and ability to explain applications of wireless communications through radio which are mobile communication system, satellite systems, and ad hoc communication			PLO3
	L04	Ability to apply learned concepts to build wireless telecommunication network			PLO4
	L05	Ability to solve real problems in telecommunication fields, especially problems of wireless telecommunication, and to apply learned technique and concepts.			PLO5
	L06	Ability to keep up in the development of knowledges, and technologies of telecommunication field			PLO9
Content	This subject introduces modern day telecommunication technologies to the students. The focus of class discussion will be in mobile and mobile telecommunication especially in how wireless systems work, how to support its mobility, its infrastructures, and the interaction between its components.				
Study and examination requirements and forms of examination	Final examination.				
Media employed	LCD, whiteboard, websites, handouts				
Assessments and Evaluation	<b>LO</b>	<b>Method</b>	<b>Type</b>	<b>Percentage</b>	<b>Total Percentage</b>
	LO-1	Midterm exam problem no. 1	Summative	7%	7%

	LO-2	Midterm exam problem no. 2	Summative	7%	14,5%	
		Quiz 1	Formative	7,5%		
	LO-3	Midterm exam problem no. 3	Summative	7%	7%	
	LO-4	Midterm exam problem no. 4	Summative	7%	14,5%	
		Assignment 1	Formative	7,5%		
		Final exam problem no. 1, 2	Summative	14%	14%	
	LO-5	Midterm exam problem no. 5	Summative	7%	7%	
		Final exam problem no. 3	Summative	7%	7%	
	LO-6	Quiz 2	Summative	7,5%	21,5%	
		Assignment 2	Formative	7,5%		
		Final exam problem no. 4, 5	Formative	14%		
	<b>Total</b>				<b>100%</b>	

Reading List	<p><b>W1 Agrawal, D.P. &amp; Zeng, Q., 2011, "Introduction to Wireless and Mobile Systems", 3th ed., Cengage Learning</b></p> <p><b>W2 Stallings, W., 2013, "Data and Computer Communications", 8th ed., Pearson Education</b></p> <p><b>W3 Tanenbaum, A.S. &amp; Wetherall, D.J., 2011, "Computer Networks", 5th ed., Prentice Hall</b></p> <p><b>W4 Kurose, J.F. &amp; Ross, K.W., 2013, "Computer Networking: A Top Down Approach", 6th ed., Pearson</b></p>
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