



# UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

Department of Computer Science and Electronics

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## Doctoral Programme of Computer Science

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Module name : **ADVANCE COMPUTER NETWORK**

Module level, if applicable : **DOCTORAL**

Code, if applicable : MII7625

Semester(s) in which the module is taught : I (Odd)

Person responsible for the module : Dr.techn. Ahmad Ashari, M.Kom.

Lecturer(s) : Dr.techn. Ahmad Ashari, M.Kom.

Language : Indonesia

Relation to curriculum : Doctorate; elective; 1st or 3rd semester.

Credit points : 3 credits

Type of teaching, contact hours : Doctorate: lectures for < 5 students. Contact hours are lecture hours.

Workload : (1) Lectures and discussion: 3 x 50 = 150 minutes (2.5 hours) per week. (2) Exercises and assignments: 3 x 60 = 180 minutes (3 hours) per week. (3) Independent study: 3 x 60 = 180 minutes (3 hours) per week

Requirements according to the examination regulations : A student must have attended at least 75% of the lectures to sit in the exams.

Recommended prerequisite : -

Module objectives/ intended learning outcomes : Advanced Computer Network discusses concepts of computer network and technology, research topics and trend of computer network, internetworking and protocol layer.

On completion of the course, student will be able to  
CO1: Understanding the concept of Computer Networking and its technology  
CO2: Understanding research topics related to computer networks  
CO3: Understanding paper topics related to computer networks  
CO4: Making and submitting a review paper on computer network

Content : 1. Computer network concept and technology

	<ol style="list-style-type: none"> <li>2. Data communication and computer network</li> <li>3. Protocol layer and standard</li> <li>4. Research topic and trend of computer networks</li> <li>5. Creating and submitting a review paper on computer network</li> </ol>
Study and examination requirements and forms of examination	<p>: Evaluation is done in 3 forms, namely:</p> <ol style="list-style-type: none"> <li>1. Assignment and Presentation</li> <li>2. A review paper on state-of-the-art in Computer Network</li> </ol> <p>Assessment is done using benchmark assessment, with the aim of measuring the level of students' understanding related to the target and class rank.</p>
Media employed	: LCD, whiteboard, and zoom.
Reading List	<ol style="list-style-type: none"> <li>1. Andrew S. Tanenbaum, Computer Network 5<sup>th</sup> Ed., Prentice Hall, 2011</li> <li>2. James F. Kurose and Keith W. Ross, Computer Networking: A Top-Down Approach 6<sup>th</sup> Ed., Addison-Wesley, 2013</li> <li>3. William Stallings, Data and Computer Communication 10<sup>th</sup> Ed., Prentice Hall, 2011</li> </ol>

#### The Mapping of COs to PLOs

COs	PLOs							
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
CO1								
CO2								
CO3								
CO4								

#### The PLO of DP-CS

PLO	Knowledge Area	PLO Description
PLO1	[Values and principles]	A graduate should be devoted to God Almighty, uphold the humanity values, internalize academic values and ethics, responsible in working around expertise independently.
<b>Managerial Capability</b>		
PLO2	[Professional attitudes]	A graduate should have good interpersonal skills; able to work together within the organization, both as a leader and a member; able to be the initiator; able to manage and delegate tasks; and have a sense of responsibility for their own work as well as take responsibility for the achievement of the organization's work.
PLO3	[Communication skills]	A graduate should be able to communicate effectively and efficiently with stakeholders from various backgrounds; use English well; and able to write and present scientific papers correctly and well.

<b>PLO4</b>	[Life-long learning]	A graduate should be up to date with the state-of-the-art especially in computer science field, able to take parts in the development of computer science field that is engaged in and relate it to other fields throughout life.
<b>Working Capability</b>		
<b>PLO5</b>	[Problem-solving and Scientific skills]	A graduate should be able to analyse science and technology problems in the computer science field, develop alternative solutions through intra disciplinary, interdisciplinary, and trans disciplinary approaches to produce innovative, original, and tested works.
<b>PLO6</b>	[Ability to formulate and do research]	A graduate should be able to formulate research problems through critical, exploratory, and innovative studies both independently and in groups of computer science field that is engaged in and present research results in a scientific paper at regional or international level.
<b>Mastering Knowledge</b>		
<b>PLO7</b>	[Fundamental knowledge]	A graduate should be able to develop knowledge in the field of computer science that is engaged, which includes abstraction, complexity, evolution and philosophy of changes or developments in the field of science.
<b>PLO8</b>	[Applied knowledge]	A graduate should be able to develop theoretical, philosophical, and applied concepts in the field of computer science that is engaged in, and to represent them in a structured and systematic manner.