



# UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

Department of Computer Science and Electronics

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## Bachelor in Computer Science

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## MODULE HANDBOOK

Module name	<b>Cloud Computing</b>
Module level, if applicable	Undergraduate
Code, if applicable	MII-2610
Courses, if applicable	NA
Semester(s) in which the module is taught	Fall (Odd)
Person responsible for the module	Dr. Mardhani Riasetiawan, MT
Lecturer(s)	Dr. Mardhani Riasetiawan, MT
Language	Bahasa Indonesia & English
Relation to curriculum	1. Undergraduate degree program, compulsory, 6th semester. 2. International undergraduate program, compulsory, 6th semester.
Teaching methods	1. Undergraduate degree program: lectures, < 60 students, 2. International undergraduate program: lectures, < 30 students.
Workload (incl. contact hours, self-study hours)	1. Lectures: 3 x 50 = 150 minutes per week. 2. Exercises and Assignments: 2 x 50 = 100 minutes per week. 3. Private study: 1 x 50 = 50 minutes per week.
Credit points	3 credit points (sks).
Requirements according to the examination regulations	A student must have attended at least 75% of the lectures to sit in the exams.
Required and recommended prerequisites for joining the module	Computer Networks
Learning outcomes and their corresponding PLOs	After completing this module, a student is expected to: CO1. Able to explain and identify the concepts and characteristics of cloud computing CO2. Able to describe and identify components of Cloud Computing: IaaS, PaaS, SaaS, Cloud Private, Public Cloud, Hybrid Cloud CO3. Be able to explain processes and manage cloud computing resources CO4. Able to explain and know cloud computing operations in support of services CO5. Able to present and present the results of cloud computing development based on specific case studies using a particular cloud

	PLO		CO1	CO2	CO3	CO4	CO5																																																								
	Program Learning Outcome (PLO)	PLO1	√																																																												
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		PLO4				√																																																									
PLO5							√																																																								
Content	1. Concepts and definitions, Cloud Computing Technology 2. Forms and types of cloud computing IaaS, PaaS, SaaS, Private Cloud, Public Cloud, Hybrid Cloud 3. Management of computing resources for cloud computing 4. Cloud Computing environment supporting technology in environments on AWS, Google Cloud, Azure and others 5. Prototype of cloud computing development																																																														
Study and examination requirements and examination forms	The evaluation is done in 2 forms, namely: <ol style="list-style-type: none"> <li>1. Trial, either midterm or semester test,</li> <li>2. Two tasks, including individual,</li> <li>3. Two group assignments to be completed within a certain timeframe, and</li> </ol> Assessment is done using benchmark assessment, with the aim of measuring the level of student understanding related to the target and class rank.																																																														
Media employed	e-learning Platform (ELOK), LCD, blackboard, and websites.																																																														
Assessments and evaluation	<table border="1"> <thead> <tr> <th>Type</th> <th>Percentage</th> <th>CO1</th> <th>CO2</th> <th>CO3</th> <th>CO4</th> <th>CO5</th> </tr> </thead> <tbody> <tr> <td>Task 1</td> <td>10</td> <td>√</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Group Task 1</td> <td>15</td> <td></td> <td>√</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Midsem Test</td> <td>25</td> <td></td> <td>√</td> <td>√</td> <td></td> <td></td> </tr> <tr> <td>Task 2</td> <td>10</td> <td></td> <td></td> <td>√</td> <td></td> <td></td> </tr> <tr> <td>Group Task 2</td> <td>15</td> <td></td> <td></td> <td></td> <td>√</td> <td></td> </tr> <tr> <td>FinalSem test</td> <td>25</td> <td></td> <td></td> <td></td> <td>√</td> <td>√</td> </tr> <tr> <td>Total</td> <td>100</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>							Type	Percentage	CO1	CO2	CO3	CO4	CO5	Task 1	10	√					Group Task 1	15		√				Midsem Test	25		√	√			Task 2	10			√			Group Task 2	15				√		FinalSem test	25				√	√	Total	100					
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Reading list	<ul style="list-style-type: none"> <li>• Cloud Computing: Concepts, Technology and Architecture, The Pearson Service Technology Series from Thomas Earl, Earl Thomas, Puttini Ricardo, Mahmood Zalgham</li> <li>• WA: Birman, K.P., Guide to Reliable Distributed System: Building High-Assurance Applications and Cloud-Hosted Services, Springer, 2012.</li> <li>• WB: Lynch, N. A., Distributed Algorithms, Morgan Kaufman, 1996</li> <li>• AA: Hwang, K., Dongarra, J., dan Fox, G.C., Distributed and Cloud Computing: Clusters, Grids, Clouds, and the Future Internet, Elsevier, 2012.</li> <li>• AB: Schneider, F.B., Birman, K.P., The Monoculture Risk Put in Context, IEEE Security &amp; Privacy, Jan./Feb. 2009, pp. 14-17, IEEE Computer Society, 2009.</li> </ul>																																																														

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