



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	Data Mining																										
Module level	Undergraduate																										
Code	MII-3508																										
Courses (if applicable)	NA																										
Semester	Fall (Odd)																										
Contact person	Drs. Edi Winarko, M.Sc., Ph.D.																										
Lecturer	Drs. Edi Winarko, M.Sc., Ph.D.																										
Language	Bahasa Indonesia & English																										
Relation to curriculum	1. Undergraduate degree program, compulsory, 6th semester. 2. International undergraduate program, compulsory, 6th semester.																										
Type of teaching, contact hours	1. Undergraduate degree program: lectures, < 60 students, 2. International undergraduate program: lectures, < 30 students.																										
Workload	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.																										
Recommended prerequisites	Machine Learning																										
Learning outcomes (course outcomes) and their corresponding PLOs	<p>After completing this module, a student is expected to:</p> <p>CO1. Be able to explain the data mining process model (CRISP-DM), data types and attributes, data collection methods, and be able to perform data collection.</p> <p>CO2. Be able to explain and apply methods for data exploration and preparation.</p> <p>CO3. Be able to explain, create, evaluate, and select supervised models.</p> <p>CO4. Be able to explain clustering methods, as well as perform data clustering and evaluate the results.</p> <p>CO5. Be able to explain and find frequent itemset patterns, association rules, and sequential patterns.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">PLO</th> <th>CO1</th> <th>CO2</th> <th>CO3</th> <th>CO4</th> <th>CO5</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Program Learning</td> <td>PLO1</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PLO2</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> </tr> <tr> <td>PLO3</td> <td></td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> </tr> </tbody> </table>	PLO		CO1	CO2	CO3	CO4	CO5	Program Learning	PLO1						PLO2	√	√	√	√	√	PLO3		√	√	√	√
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	Outcome (PLO)	PLO4			√	√	√																																																		
		PLO5																																																							
Contents	1. Data mining, data mining process model (CRISP-DM) 2. Types of data and attribute, data similarity/disimilarity 3. Data gathering methods 4. Data exploration and data Preparation 5. Supervised modeling and evaluation 6. Clustering and evaluation 7. Pattern discovery: frequent itemset, association rule, and sequential pattern mining 8. Model deployment																																																								
Study and examination requirements and forms of examination	The evaluation is done in 2 forms, namely: 1. Exam: mid exam and final exam. 2. Quiz and individual assignment. 3. Group assignments: before and after mid exam (including one final project).																																																								
Media employed	e-learning Platform (ELOK), LCD, blackboard, website, Youtube video																																																								
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>Quiz</td> <td>10</td> <td>√</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Group assign. 1</td> <td>20</td> <td>√</td> <td>√</td> <td>√</td> <td></td> <td></td> </tr> <tr> <td>Mid exam</td> <td>25</td> <td>√</td> <td>√</td> <td>√</td> <td></td> <td></td> </tr> <tr> <td>Group assign. 2</td> <td>20</td> <td></td> <td></td> <td></td> <td>√</td> <td>√</td> </tr> <tr> <td>Final exam</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	Quiz	10	√					Group assign. 1	20	√	√	√			Mid exam	25	√	√	√			Group assign. 2	20				√	√	Final exam	25				√	√	Total	100					
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Reading List	1. Jiawei Han, Micheline Kamber. Data Mining: Concepts and Techniques. The Morgan Kaufmann, 2011. 2. Pang-Ning Tan, Michael Steinbach, Vipin Kumar. Introduction to Data Mining. Addison-Wesley, Second Edition, 2021.																																																								

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