

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

Module name	Data Mining and Business Intelligence	
Module level	Undergraduate	
Code	MII-4503	
Courses (if applicable)	Data Mining and Business Intelligence	
Semester	Fall (Gasal)	
Contact person	Dr. Sigit Priyanta, M.Kom. Isna Alfi Bustoni, M.Eng.	
Lecturer	Dr. Sigit Priyanta, M.Kom. Isna Alfi Bustoni, M.Eng.	
Language	Bahasa Indonesia and English	
Relation to curriculum	1. Undergraduate degree program, elective, 5 th or 7 th semester. 2. International undergraduate program, elective, 5 th or 7 th semester.	
Type of teaching, contact hours	1. Undergraduate degree program: lectures, < 60 students, 2. International undergraduate program: lectures, < 30 student,	
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 (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		
Learning outcomes and their corresponding PLOs	After completing this module, a student is expected to:	
	LO1 be able to explain difference between BI, Data warehousu, data mining, and distinguish different types	PLO2

	of models in data mining	
	LO2 be able to explain data warehouse architecture and design of data warehouse	PLO3
	LO3 be able to explain various types of data and collect the necessary data for data mining	PLO3
	LO4 be able to describe and implement methods to explore and prepare data	PLO3
	LO5 be able to explain the process of modeling classification, classification models, methods for the evaluation of the classification model, and is able to perform modeling and evaluating classification models	PLO3
	LO6 be able to explain the frequent itemset, association rule, sequential pattern, the algorithm to find it, and able to perform data mining to find frequent itemset, association rule, and sequential pattern	PLO3
	LO7 be able to explain the clustering methods, and able to perform clustering of data	PLO3
	LO8 be able to use data mining methods to solve the real problems (mining web and social media)	PLO4
	LO9 be able to explain the development trend of data mining technology and its use in the future	PLO8
Content	This course discusses the concept, methodology, and data warehouse models and data mining. Course material consist of: the right techniques in designing a data warehouse for a variety of business domains, and data mining concepts and techniques for the analysis of data stored in the data warehouse and other repositories. Students are expected to solve the problem using appropriate method according to the requirement.	
Study and examination requirements and forms of examination	Mid-terms examination and Final examination.	
Media employed	LCD, blackboard, websites, and big data tools.	
Assessments and Evaluation	LO1: Problem 1 in midterm (5%). LO2: Problem 2 in midterm (10%), and task 1 (5%). LO3: Problem 3 in midterm (10%) and task 2 (5%).	

	<p>L04: Problem 4 in midterm (5%), and task 3 (5%).</p> <p>L05: Problem 5 in midterm (10%), problem 1 in final (5%), and task 4 (5%).</p> <p>L06: Problem 2 in final (5%), problem 3 in final (5%) and task 5 (5%).</p> <p>L07: Problem 4 in final (5%),</p> <p>L08: Task 6 (15%).</p> <p>L09: Problem 5 in final (5%).</p>
Reading List	<p>W1: Kimball, Ross, Thornthwaite, Mundy & Becker. The Data Warehouse Lifecycle Toolkit (2nd Edition). Wiley, 2002</p> <p>W2: Pang-Ning Tan, Michael Steinbach, Vipin Kumar: Introduction to Data Mining. Addison-Wesley, 2006.</p> <p>A1: Jiawei Han, Micheline Kamber. Data Mining: Concepts and Techniques. The Morgan Kaufmann, 2011.</p>