MODULE HANDBOOK
Master Program in Computer Science
Department of Computer Science and Electronics
Faculty of Mathematics and Natural Sciences
Universitas Gadjah Mada

Business Problem and Data Science Solution

Module name	**Business Problem and Data Science Solution**	
Module level	Master	
Code	MII-6837	
Courses (if applicable)	**Data Science**	
Semester	Winter (Ganjil)	
Contact person	Drs. Edi Winarko, M.Sc., Ph.D.	
Lecturer	Drs. Edi Winarko, M.Sc., Ph.D. Dr. Mardhani Riasetiawan, M.T	
Language	Bahasa Indonesia	
Relation to curriculum	Master program, Elective, 3rd semester	
Type of teaching, contact hours	Master program: lectures, 14 student, Saturday 10.00 - 12.30.	
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	-	
Recommended prerequisites		
Learning outcomes and their corresponding PLOs	After completing this module, a student is expected to: **CO-1**: be able to identify a business case that can be solved by a data science approach **CO-2**: be able to explain various types of data and be able to collect data needed to formulate business cases. **CO-3**: be able to explain methods to explore the potential for solving business problems using data science **CO-4**: Able to use data science tools to process, analyze and recommend decisions that can solve business problems **CO-5**: be able to present data science solutions in the form of visualization and analysis.	PLO2, PLO3 PLO2, PLO3 PLO3, PLO4 PLO3, PLO4 PLO5, PLO6, PLO9
Content	This course provides an advanced understanding in the identification and analysis of business problems in an organizational environment. Business problems discussed are taken from several industries. In this course, quantitative and qualitative data collection methods are presented based on statistical approaches and data scraping approaches from the internet, as well as utilizing complementary data from open data provider	

<table>
<tr><td></td><td>institutions. Methods for exploring potential solutions with pareto, monte carlo, descriptive and qualitative approaches are discussed. The use of data science tools is introduced both for data preparation, manipulation, processing and visualization. The visualization of business solutions from the data science approach is explained along with the business intelligence approach.</td></tr>
<tr><td>Study and examination requirements and forms of examination</td><td>Mid-terms examination and Final examination.</td></tr>
<tr><td>Media employed</td><td>LCD, blackboard, websites, and e-learning.</td></tr>
<tr><td>Assessments and Evaluation</td><td>
<table>
<tr><th>CO</th><th>Methods</th><th>Persentase</th></tr>
<tr><td rowspan="2">CO1</td><td>Quiz 1</td><td>2,5%</td></tr>
<tr><td>Question 1 mid-exam</td><td>5%</td></tr>
<tr><td rowspan="3">CO2</td><td>Kuis 2</td><td>2,5%</td></tr>
<tr><td>Question 2 mid-exam</td><td>5%</td></tr>
<tr><td>Question 3 mid-exam</td><td>10%</td></tr>
<tr><td rowspan="3">CO3</td><td>Question 4 mid-exam</td><td>10%</td></tr>
<tr><td>Assignment 1: Case study</td><td>15%</td></tr>
<tr><td>Quiz 3</td><td>2,5%</td></tr>
<tr><td rowspan="3">CO4</td><td>Quiz 4</td><td>2,5%</td></tr>
<tr><td>Question 1 final exam</td><td>5%</td></tr>
<tr><td>Question 2 final exam</td><td>5%</td></tr>
<tr><td rowspan="3">CO5</td><td>Question 3 final exam</td><td>10%</td></tr>
<tr><td>Question 4 final exam</td><td>10%</td></tr>
<tr><td>Assignment 2: Case study</td><td>15%</td></tr>
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<tr><td>Reading List</td><td>W1: Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data 1st Ed. , EMC Education Services

ata Analytics: Practical Guide to Leveraging the Power of Algorithms, Data Science, Data Mining, Statistics, Big Data, and Predictive Analysis to Improve Business, Work, and Life, March 10, 2017, Arthur ZhangBusiness, Work, and Life, March 10, 2017, Arthur Zhang.</td></tr>
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