



UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

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Bachelor in Computer Science

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MODULE HANDBOOK

Module name	Database Lab Work
Module level, if applicable	Bachelor
Code, if applicable	MII21-2502
Courses, if applicable	Database Lab Work
Semester(s) in which the module is taught	Fall (Odd)
Person responsible for the module	Edi Winarko, M.Sc., Ph.D.
Lecturer(s)	Isna Alfi Bustoni, S.T., M.Eng. Diyah Utami Kusumaning Putri, S.Kom., M.Sc., M.Cs. Dzikri Rahadian Fudholi, S.Kom., M.Comp.
Language	Bahasa Indonesia and English
Relation to curriculum	Bachelor degree, compulsory, 2 rd semester.
Teaching methods	100 minutes of lectures and 120 minutes of structured activities per week.
Workload (incl. contact hours, self-study hours)	1. Lectures: 2 x 50 = 100 minutes (1.6 hours) per week. 2. Exercises and Assignments: 2 x 60 = 120 minutes (2 hours) per week. 3. Private study: 2 x 60 = 120 minutes (2 hours) per week.
Credit points	1 credit point
Requirements according to the examination regulations	-
Required and recommended prerequisites for joining the module	MII21-2501 Database

<p>Learning outcomes and their corresponding PLOs</p>	<p>After completing this module, a student is expected to:</p> <p>LO1 Learning and understanding database design using the Entity Relationship Diagram (ERD) method.</p> <p>LO2 Introduces DDL and implements basic commands (create, alter, drop) to define objects from the database along with examples of queries used.</p> <p>LO3 Implement the insert, select, update, delete commands along with some examples of queries that can be used.</p> <p>LO4 Implement commands for sorting and filtering along with some examples of queries that can be used (eg: order by, where, limit, and, or, in, between, like, is null)</p> <p>LO5 Explain and implement the aggregate and grouping functions found in MySQL (eg: max, min, sum, count, average, group by, having)</p> <p>LO6 Explain and implement join operators (inner join, left outer join, right outer join, full outer join, union) along with some examples of queries that can be used.</p> <p>LO7 Describe and implement nested queries in MySQL.</p> <p>LO8 Explain and implement stored procedure variables, stored procedure statements, IF and Case statements in MySQL and implement functions to solve simple problems in MySQL</p> <p>LO9 Describe and implement Triggers to automate MySQL</p> <p>LO10 Introduce the normalization process in database design, and provide an overview of the advantages and disadvantages of normalization.</p> <table border="1" data-bbox="630 1117 1396 1411"> <thead> <tr> <th colspan="2">PLO</th> <th>L O 1</th> <th>L O 2</th> <th>L O 3</th> <th>L O 4</th> <th>L O 5</th> <th>L O 6</th> <th>L O 7</th> <th>L O 8</th> <th>L O 9</th> <th>L O 10</th> </tr> </thead> <tbody> <tr> <td rowspan="5">Program Learning Outcome (PLO)</td> <td>PLO1</td> <td></td> <td></td> <td></td> <td></td> <td></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> <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> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> </tr> <tr> <td>PLO4</td> <td></td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td></td> <td></td> </tr> <tr> <td>PLO5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	PLO		L O 1	L O 2	L O 3	L O 4	L O 5	L O 6	L O 7	L O 8	L O 9	L O 10	Program Learning Outcome (PLO)	PLO1											PLO2	√	√	√	√	√	√	√	√	√	√	PLO3	√	√	√	√	√	√	√	√	√	√	PLO4		√	√	√	√	√	√	√			PLO5										
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<p>Content</p>	<p>Database Lab work is a compulsory subject that is given to first semester students of the Computer Science study program at the Faculty of Mathematics and Natural Sciences UGM. The purpose of this course is for students to be able to manage data according to its type and function. Students are introduced to how to put the results of database design analysis on an Entity Relationship Diagram, and then design it in a database management system (DBMS). The role of DBMS is very vital in database storage and processing. The communication mechanism for storage and processing can be written in a Structured Query Language (SQL). Knowledge of various SQL syntax will make it easier to perform various operations needed in the DBMS.</p>																																																																				

Study and examination requirements and examination forms	In class group discussion, Practicum task, Final examination
Media employed	LCD, Whiteboard, websites.
Assessments and evaluation	LO1 Practicum task 1 (5%), Final Examination 1 (5%) LO2 Practicum task 2 (5%), Final Examination 2 (5%) LO3 Practicum task 3 (5%), Final Examination 3 (5%) LO4 Practicum task 4 (5%), Final Examination 4 (5%) LO5 Practicum task 5 (5%), Final Examination 5 (5%) LO6 Practicum task 6 (5%), Final Examination 6 (5%) LO7 Practicum task 7 (5%), Final Examination 7 (5%) LO8 Practicum task 8 (5%), Final Examination 7 (5%) LO9 Practicum task 9 (5%), Final Examination 7 (5%) LO10 Practicum task 10 (5%), Final Examination 7 (5%)
Reading list	1. Silberschatz, A., Korth,H.F. and Sudarshan, Database System Concepts, 6th Edition, McGraw-Hill, 2010. 2. Ramakrishnan, R.andGehrke, J., Database Management Systems, 3rd Edition, McGraw- Hill, 2003

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