

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

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| Module name | Database Labworks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Module level | Undergraduate | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Code | MII-2502 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Courses (if applicable) | Database Labworks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Semester | Odd (Ganjil) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Contact person | Guntur Budi Herwanto, M.Cs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lecturer | Guntur Budi Herwanto, M.Cs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Language | Indonesian and English | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Relation to curriculum | 1. Undergraduate degree program, compulsory, 3 rd semester. 2. International undergraduate program, compulsory, 3 rd semester. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Type of teaching, contact hours | 1. Undergraduate degree program: lectures, < 25 students, 2. International undergraduate program: lectures, < 25 student | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Workload | 1. Lectures and Labwork: 10x100 = 1000 minutes (100 minutes) per week. 2. Exercises and Assignments: 7 x 20 = 140 minutes (20 minutes) per week. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Credit points | 1 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 | <p>After completing this module, a student is expected to:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">CO1</td> <td style="width: 80%;">Learn and understand database design using Entity Relationship Diagram (ERD) method.</td> <td style="width: 15%; text-align: right;">PLO3</td> </tr> <tr> <td>CO2</td> <td>Introduce the normalization process in database design, and provide an overview of the advantages and disadvantages of normalization.</td> <td style="text-align: right;">PLO3</td> </tr> <tr> <td>CO3</td> <td>Introducing MySQL software, and studying MySQL installation from download to ready to use.</td> <td style="text-align: right;">PLO4</td> </tr> <tr> <td>CO4</td> <td>Introduce DDL and implement basic commands to define objects from the database.</td> <td style="text-align: right;">PLO4</td> </tr> <tr> <td>CO5</td> <td>Create a new table and implement create commands, and examples of queries that can be used.</td> <td style="text-align: right;">PLO4</td> </tr> <tr> <td>CO6</td> <td>Implement the alter, drop and query examples used.</td> <td style="text-align: right;">PLO4</td> </tr> <tr> <td>CO7</td> <td>Implement the insert, select, update, delete command along with some examples of queries that can be used.</td> <td style="text-align: right;">PLO4</td> </tr> <tr> <td>CO8</td> <td>Implement operator join (inner and outer join) along with some examples of queries that can be used.</td> <td style="text-align: right;">PLO4</td> </tr> <tr> <td>CO9</td> <td>Explains and implements nested queries on MySQL.</td> <td style="text-align: right;">PLO4</td> </tr> <tr> <td>CO10</td> <td>Explains and implements the aggregate functions that exist in MySQL (eg: sum, count, average).</td> <td style="text-align: right;">PLO4</td> </tr> </table> | CO1 | Learn and understand database design using Entity Relationship Diagram (ERD) method. | PLO3 | CO2 | Introduce the normalization process in database design, and provide an overview of the advantages and disadvantages of normalization. | PLO3 | CO3 | Introducing MySQL software, and studying MySQL installation from download to ready to use. | PLO4 | CO4 | Introduce DDL and implement basic commands to define objects from the database. | PLO4 | CO5 | Create a new table and implement create commands, and examples of queries that can be used. | PLO4 | CO6 | Implement the alter, drop and query examples used. | PLO4 | CO7 | Implement the insert, select, update, delete command along with some examples of queries that can be used. | PLO4 | CO8 | Implement operator join (inner and outer join) along with some examples of queries that can be used. | PLO4 | CO9 | Explains and implements nested queries on MySQL. | PLO4 | CO10 | Explains and implements the aggregate functions that exist in MySQL (eg: sum, count, average). | PLO4 |
| CO1 | Learn and understand database design using Entity Relationship Diagram (ERD) method. | PLO3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO2 | Introduce the normalization process in database design, and provide an overview of the advantages and disadvantages of normalization. | PLO3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO3 | Introducing MySQL software, and studying MySQL installation from download to ready to use. | PLO4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO4 | Introduce DDL and implement basic commands to define objects from the database. | PLO4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO5 | Create a new table and implement create commands, and examples of queries that can be used. | PLO4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO6 | Implement the alter, drop and query examples used. | PLO4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO7 | Implement the insert, select, update, delete command along with some examples of queries that can be used. | PLO4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO8 | Implement operator join (inner and outer join) along with some examples of queries that can be used. | PLO4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO9 | Explains and implements nested queries on MySQL. | PLO4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO10 | Explains and implements the aggregate functions that exist in MySQL (eg: sum, count, average). | PLO4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Content | Database Practicum is a compulsory subject that is given for the first semester students of Computer Science Department of FMIPA UGM. The purpose of this course so that students are able to manage data in accordance with the type and function. Students are introduced how to pour the results of database design analysis on Entity Relationship Diagram, and then design it in a database management system (DBMS). The role of DBMS is vital in storage and database processing. The communication mechanism for storage and processing can be written in a Structured Query Language (SQL). Knowledge of the various SQL syntax will make it easier to perform the necessary operations within the DBMS. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|-----------|-------------------|------|------------|-----|--------------|-----------|----|---------------------------|----------|----|-----|--------------|----------|----|---------------------------|----------|----|-----|--------------|----------|----|-----|--------------|----------|----|-----|--------------|----------|----|---------------------------|----------|-----|-----|--------------|----------|----|-----|--------------|----------|----|-----|--------------|----------|----|-------------------------|----------|----|-----|--------------|----------|----|---------------|----------|----|-------------------------|----------|----|------|---------------|----------|----|-------------------------|----------|----|-------------------------|----------|-----|
| Study and examination requirements and forms of examination | Midterms examination and Final examination. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Media employed | LCD, blackboard, websites, e-Learning and grader tools | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Assessments and Evaluation | <table border="1"> <thead> <tr> <th>CO</th> <th>Evaluation Method</th> <th>Type</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td rowspan="2">CO1</td> <td>Coursework 1</td> <td>Formative</td> <td>5%</td> </tr> <tr> <td>Problem 1 in midterm exam</td> <td>Summatif</td> <td>5%</td> </tr> <tr> <td rowspan="2">CO2</td> <td>Coursework 2</td> <td>Formatif</td> <td>5%</td> </tr> <tr> <td>Problem 2 in midterm exam</td> <td>Summatif</td> <td>5%</td> </tr> <tr> <td>CO3</td> <td>Coursework 3</td> <td>Formatif</td> <td>5%</td> </tr> <tr> <td>CO4</td> <td>Coursework 4</td> <td>Formatif</td> <td>5%</td> </tr> <tr> <td rowspan="2">CO5</td> <td>Coursework 5</td> <td>Formatif</td> <td>5%</td> </tr> <tr> <td>Problem 3 in midterm exam</td> <td>Summatif</td> <td>10%</td> </tr> <tr> <td>CO6</td> <td>Coursework 6</td> <td>Formatif</td> <td>5%</td> </tr> <tr> <td>CO7</td> <td>Coursework 7</td> <td>Formatif</td> <td>5%</td> </tr> <tr> <td rowspan="2">CO8</td> <td>Coursework 8</td> <td>Formatif</td> <td>5%</td> </tr> <tr> <td>Problem 1 in final exam</td> <td>Summatif</td> <td>5%</td> </tr> <tr> <td rowspan="3">CO9</td> <td>Coursework 9</td> <td>Formatif</td> <td>5%</td> </tr> <tr> <td>Coursework 10</td> <td>Summatif</td> <td>5%</td> </tr> <tr> <td>Problem 2 in final exam</td> <td>Summatif</td> <td>5%</td> </tr> <tr> <td rowspan="3">CO10</td> <td>Coursework 11</td> <td>Formatif</td> <td>5%</td> </tr> <tr> <td>Problem 3 in final exam</td> <td>Summatif</td> <td>5%</td> </tr> <tr> <td>Problem 4 in final exam</td> <td>Summatif</td> <td>10%</td> </tr> </tbody> </table> | CO | Evaluation Method | Type | Percentage | CO1 | Coursework 1 | Formative | 5% | Problem 1 in midterm exam | Summatif | 5% | CO2 | Coursework 2 | Formatif | 5% | Problem 2 in midterm exam | Summatif | 5% | CO3 | Coursework 3 | Formatif | 5% | CO4 | Coursework 4 | Formatif | 5% | CO5 | Coursework 5 | Formatif | 5% | Problem 3 in midterm exam | Summatif | 10% | CO6 | Coursework 6 | Formatif | 5% | CO7 | Coursework 7 | Formatif | 5% | CO8 | Coursework 8 | Formatif | 5% | Problem 1 in final exam | Summatif | 5% | CO9 | Coursework 9 | Formatif | 5% | Coursework 10 | Summatif | 5% | Problem 2 in final exam | Summatif | 5% | CO10 | Coursework 11 | Formatif | 5% | Problem 3 in final exam | Summatif | 5% | Problem 4 in final exam | Summatif | 10% |
| CO | Evaluation Method | Type | Percentage | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO1 | Coursework 1 | Formative | 5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Problem 1 in midterm exam | Summatif | 5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO2 | Coursework 2 | Formatif | 5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Problem 2 in midterm exam | Summatif | 5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO3 | Coursework 3 | Formatif | 5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO4 | Coursework 4 | Formatif | 5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO5 | Coursework 5 | Formatif | 5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Problem 3 in midterm exam | Summatif | 10% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO6 | Coursework 6 | Formatif | 5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO7 | Coursework 7 | Formatif | 5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO8 | Coursework 8 | Formatif | 5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Problem 1 in final exam | Summatif | 5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO9 | Coursework 9 | Formatif | 5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Coursework 10 | Summatif | 5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Problem 2 in final exam | Summatif | 5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO10 | Coursework 11 | Formatif | 5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Problem 3 in final exam | Summatif | 5% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Problem 4 in final exam | Summatif | 10% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Reading List | <ol style="list-style-type: none"> 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |