



**Universitas Negeri Surabaya**  
**Faculty of Economics and Business**  
**Digital Business Undergraduate Study Program**

Document  
Code

## SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
database system:	6120906016	Compulsory Study Program Subjects	T=0	P=3	ECTS=4.77	3	March 31, 2022
AUTHORIZATION	SP Developer		Course Cluster Coordinator			Study Program Coordinator	
	Anita Safitri, S.Kom., M.Kom., Riska Dhenabayu, S.Kom., M.M.		Riska Dhenabayu, S.Kom., M.M.			Hujjatullah Fazlurrahman, S.E., MBA.	

<b>Learning model</b>	<b>Project Based Learning</b>
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<b>Program Learning Outcomes (PLO)</b>	<b>PLO study program that is charged to the course</b>																																																																																																																				
	<b>PLO-2</b>	Demonstrate the character of being tough, collaborative, adaptive, innovative, inclusive, lifelong learning and entrepreneurial spirit																																																																																																																			
	<b>PLO-3</b>	Develop logical, critical, systematic and creative thinking in carrying out specific work in their field of expertise and in accordance with work competency standards in the field concerned																																																																																																																			
	<b>PLO-4</b>	Develop yourself continuously and collaborate.																																																																																																																			
	<b>PLO-5</b>	Able to master the theory of digital business thoroughly																																																																																																																			
	<b>PLO-6</b>	Able to adapt to the context of digital business problems faced well																																																																																																																			
	<b>PLO-8</b>	Able to develop knowledge in the field of digital business appropriately																																																																																																																			
	<b>PLO-11</b>	Able to apply information and communication technology in business management appropriately																																																																																																																			
	<b>Program Objectives (PO)</b>																																																																																																																				
	<b>PO - 1</b>	C2. Students are able to understand database concepts. C2. Students are able to understand the concept of algorithms and programming.																																																																																																																			
	<b>PO - 2</b>	C3. Students are able to design databases. C3. Students are able to design databases																																																																																																																			
	<b>PO - 3</b>	C3. Students are able to program the C3 database. Students are able to do database programming																																																																																																																			
	<b>PO - 4</b>	C4. Students are able to implement databases in system projects. C4. Students are able to apply database in system project																																																																																																																			
	<b>PLO-PO Matrix</b>																																																																																																																				
		<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>P.O</th> <th>PLO-2</th> <th>PLO-3</th> <th>PLO-4</th> <th>PLO-5</th> <th>PLO-6</th> <th>PLO-8</th> <th>PLO-11</th> </tr> </thead> <tbody> <tr> <td>PO-1</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>PO-2</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>PO-3</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>PO-4</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> </tbody> </table>								P.O	PLO-2	PLO-3	PLO-4	PLO-5	PLO-6	PLO-8	PLO-11	PO-1	✓	✓	✓	✓	✓	✓	✓	PO-2	✓	✓	✓	✓	✓	✓	✓	PO-3	✓	✓	✓	✓	✓	✓	✓	PO-4	✓	✓	✓	✓	✓	✓	✓																																																																				
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PO-4	✓	✓	✓	✓	✓	✓	✓																																																																																																														
<b>PO Matrix at the end of each learning stage (Sub-PO)</b>																																																																																																																					
	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th rowspan="2">P.O</th> <th colspan="16">Week</th> </tr> <tr> <th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>11</th><th>12</th><th>13</th><th>14</th><th>15</th><th>16</th> </tr> </thead> <tbody> <tr> <td>PO-1</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>PO-2</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>PO-3</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>PO-4</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>																P.O	Week																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	PO-1																	PO-2																	PO-3																	PO-4																
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<b>Short Course Description</b>	This course uses the project based learning method. learn about database system concepts, types of database modeling, database design, Entity Relationship Diagrams (ERD) and database programming. Implementation of database programming using structured query language (SQL) and developing applications using databases. This course study used a project-based learning method. the concepts of database systems, types of database modeling, database design, entity relationship diagrams (ERD), and database programming. Implementation of database programming using a structured query language (SQL) and developing applications using databases						
<b>References</b>	<b>Main :</b>						
	<ol style="list-style-type: none"> <li>1. Ramez and Shamkant B.Navathe. 2015, Fundamentals of Database Systems.7th Edition. Addison-Wesley</li> <li>2. Taylor, Allen G. 2019. SQL for Dummies 9th Edition. Willey Publishing, Inc.</li> <li>3. Raharjo, Budi. 2022. Belajar Otodidak MySQL Teknik Pembuatan dan Pengelolaan Database. Edisi Kedua. Informatika.</li> </ol>						
	<b>Supporters:</b>						
	<ol style="list-style-type: none"> <li>1. Modul Praktikum Sistem Basis Data Bisnis Digital</li> </ol>						
<b>Supporting lecturer</b>	Dr. Nanang Hoesen Hidroes Abbrori, S.T., M.T.I. Riska Dhenabayu, S.Kom., M.M. Anita Safitri, M. Kom.						
Week-	Final abilities of each learning stage (Sub-PO)	Evaluation		Help Learning, Learning methods, Student Assignments, [ Estimated time]		Learning materials [ References ]	Assessment Weight (%)
		Indicator	Criteria & Form	Offline ( offline )	Online ( online )		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

1		<p>1.1.1. Students are able to understand the meaning and distinguish between data, databases and database management systems. 1.1. Students are able to understand the meaning and distinguish between data, databases, and database management systems</p> <p>2.1.2. Students are able to understand the actors that play a role in database systems. 1.2. Students are able to understand the actors who play a database system</p> <p>3.1.3. Students are able to understand the benefits of implementing database systems in business. 1.3. Students are able to understand the benefits of implementing database systems in business.</p> <p>4.1.4. Students are able to understand the stages in designing a database. 1.4. Students are able to understand the stages in designing a database</p>	<p><b>Criteria:</b> Criteria: Holistic rubric Non-test form</p> <p><b>Forms of Assessment :</b> Project Results Assessment / Product Assessment, Practical Assessment, Practice / Performance, Test</p>	Discussion, Lecture 3x50		<p><b>Material:</b> Database Systems <b>Bibliography:</b> <i>Ramez and Shamkant B.Navathe. 2015, Fundamentals of Database Systems. 7th Edition. Addison-Wesley</i></p> <hr/> <p><b>Material:</b> Database Management System (DBMS) <b>Reference:</b> <i>Ramez and Shamkant B.Navathe. 2015, Fundamentals of Database Systems. 7th Edition. Addison-Wesley</i></p> <hr/> <p><b>Material:</b> Database Design <b>Bibliography:</b> <i>Ramez and Shamkant B.Navathe. 2015, Fundamentals of Database Systems. 7th Edition. Addison-Wesley</i></p>	5%
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2	Understand the types of database modeling. Understand the types of database modeling.	1.2.1. Students are able to understand the meaning and benefits of database modeling 2.2.2. Students understand database application architecture 3.2.3. Students are able to understand the forms of database modeling: hierarchical, network, relational and object-oriented	<b>Criteria:</b> Criteria: Holistic rubric  <b>Form of Assessment :</b> Participatory Activities	Lectures, Discussions, Presentations 3x50		<b>Material:</b> Database Modeling References : Ramez and Shamkant B.Navathe. 2015, <i>Fundamentals of Database Systems. 7th Edition.</i> Addison-Wesley  <b>Material:</b> Relational Model <b>Bibliography:</b> Ramez and Shamkant B.Navathe. 2015, <i>Fundamentals of Database Systems. 7th Edition.</i> Addison-Wesley	5%
3	Modeling data using the ERD Model. Modeling data using the ERD Model	1.3.1. Students are able to understand the meaning and benefits of ERD in database modeling 2.3.2. Students are able to understand the definition, types of Entity notation 3.3.3. Students are able to understand definitions, types of attributes and keys 4.3.4. Students are able to understand definitions and types of relationship notation	<b>Criteria:</b> Criteria: Holistic rubric  <b>Form of Assessment :</b> Participatory Activities	Lectures, Discussions, Presentations, Practicum 3x50		<b>Material:</b> Relational Model <b>Bibliography:</b> Ramez and Shamkant B.Navathe. 2015, <i>Fundamentals of Database Systems. 7th Edition.</i> Addison-Wesley  <b>Material:</b> Entity Relationship Diagram (ERD) Model <b>Reference:</b> Ramez and Shamkant B.Navathe. 2015, <i>Fundamentals of Database Systems. 7th Edition.</i> Addison-Wesley	5%
4	Modeling data using the ERD Model. Modeling data using the ERD Model	4.1 Students are able to model ERD data using the ERD tool. 4.1 Students are able to model ERD data using the ERD tool	<b>Criteria:</b> Criteria: Holistic rubric  <b>Form of Assessment :</b> Participatory Activities	Lectures, Discussions, Presentations, Practicum 3x50		<b>Material:</b> Relational Model <b>Bibliography:</b> Ramez and Shamkant B.Navathe. 2015, <i>Fundamentals of Database Systems. 7th Edition.</i> Addison-Wesley  <b>Material:</b> Entity Relationship Diagram (ERD) Model <b>Reference:</b> Ramez and Shamkant B.Navathe. 2015, <i>Fundamentals of Database Systems. 7th Edition.</i> Addison-Wesley	5%

5	Able to design databases using tables and relationships. Able to design databases using tables and relationships.	1.5.1. Students understand the concept of relational modeling. 5.1. Students understand the concept of relational modeling 2.5.2. Students understand the components in a relational database: tables, constraints, indexes. 5.2. Students understand the components in a relational database: tables, constraints, indexes	<b>Criteria:</b> Non-test form of holistic rubric  <b>Forms of Assessment :</b> Participatory Activities, Practical Assessment, Practical / Performance	Lectures, Discussions, Practicum 3x50		<b>Material:</b> Relational Model <b>Bibliography:</b> <i>Ramez and Shamkant B.Navathe. 2015, Fundamentals of Database Systems. 7th Edition. Addison-Wesley</i>  <b>Material:</b> Entity Relationship Diagram (ERD) Model <b>Reference:</b> <i>Ramez and Shamkant B.Navathe. 2015, Fundamentals of Database Systems. 7th Edition. Addison-Wesley</i>	5%
6	Able to design databases using tables and relationships. Able to design databases using tables and relationships.	1.6.1 Students are able to explain the definition of normalization and normalization rules. 6.1 Students are able to explain the definition of normalization and normalization rules. 2.6.2 Students know the forms of data normalization: unnormalized, 1NF, 2NF, 3NF, BCNF. 6.2 Students know the forms of data normalization: unnormalized, 1NF, 2NF, 3NF, BCNF	<b>Criteria:</b> Non-test form of holistic rubric  <b>Forms of Assessment :</b> Participatory Activities, Practical Assessment, Practical / Performance	Lectures, Discussions, Practicum 3x50		<b>Material:</b> Entity Relationship Diagram (ERD) Model <b>Reference:</b> <i>Ramez and Shamkant B.Navathe. 2015, Fundamentals of Database Systems. 7th Edition. Addison-Wesley</i>  <b>Material:</b> Database Normalization <b>Reference:</b> <i>Ramez and Shamkant B.Navathe. 2015, Fundamentals of Database Systems. 7th Edition. Addison-Wesley</i>	5%

7	Able to design databases using tables and relationships. Able to design databases using tables and relationships.	7.1 Students are able to transform ERD into a relational model. 7.1 Students are able to transform ERD into a relational model	<b>Criteria:</b> Non-test form of holistic rubric  <b>Forms of Assessment :</b> Participatory Activities, Practical Assessment, Practical / Performance	Lectures, Discussions, Practicum 3x50		<b>Material:</b> Entity Relationship Diagram (ERD) Model <b>Reference:</b> <i>Ramez and Shamkant B.Navathe. 2015, Fundamentals of Database Systems. 7th Edition. Addison-Wesley</i>  <b>Material:</b> Database Normalization <b>Reference:</b> <i>Ramez and Shamkant B.Navathe. 2015, Fundamentals of Database Systems. 7th Edition. Addison-Wesley</i>	10%
8	Midterm exam	Midterm exam	<b>Criteria:</b> Holistic Rubric Test Form (UTS)	Written Exam 3 x 50		<b>Material:</b> SBD <b>Reader:</b> <i>Ramez and Shamkant B. Navathe. 2015, Fundamentals of Database Systems. 7th Edition. Addison-Wesley</i>  <b>Material:</b> SQL <b>Reference:</b> <i>Taylor, Allen G. 2019. SQL for Dummies 9th Edition. Willey Publishing, Inc.</i>	20%
9	Able to understand and apply Data Definition Language (DDL). Able to understand and apply Data Definition Language (DDL).	1.9.1 Able to understand the definition and function of SQL 2.9.2 Able to understand SQL classification based on its function. 3.9.3 Understand the functions and apply DDL commands such as: Create, Drop, Alter in the database 4.9.4 Understand the functions and apply view commands in the database	<b>Criteria:</b> Non-test form of holistic rubric  <b>Form of Assessment :</b> Practical Assessment, Practice/Performance	Lectures, Practical 3x50		<b>Material:</b> Structured Query Language (SQL) <b>References:</b> <i>Taylor, Allen G. 2019. SQL for Dummies 9th Edition. Willey Publishing, Inc.</i>  <b>Material:</b> Database Programming (SQL) - Database Definition Language (DDL) <b>References:</b> <i>Taylor, Allen G. 2019. SQL for Dummies 9th Edition. Willey Publishing, Inc.</i>	10%

10	Able to understand and apply Data Definition Language (DDL). Able to understand and apply Data Definition Language (DDL).	10.1 Able to understand and apply DML commands such as: insert, update, delete in a database. 10.1 Able to understand and apply DML commands such as: insert, update, delete in database	<b>Criteria:</b> Holistic Rubric  <b>Form of Assessment :</b> Practical Assessment, Practice/Performance	Lectures, Practical 3x50		<b>Material:</b> Database Programming (SQL) - Database Manipulation Language (DML) <b>References:</b> <i>Taylor, Allen G. 2019. SQL for Dummies 9th Edition. Willey Publishing, Inc.</i>	10%
11	Able to understand and apply Data Definition Language (DDL). Able to understand and apply Data Definition Language (DDL).	11.1 Able to understand and apply DQL commands such as: select in a database. 11.1 Able to understand and apply DQL commands such as: select in the database.	<b>Criteria:</b> Non-test form of holistic rubric  <b>Form of Assessment :</b> Practical Assessment, Practice/Performance	Lectures, Practical 3x50		<b>Material:</b> 11. Database Programming (SQL) - Database Query Language (DQL) <b>References:</b> <i>Taylor, Allen G. 2019. SQL for Dummies 9th Edition. Willey Publishing, Inc.</i>	10%
12	Able to implement databases in system projects. Able to implement database in system project	12.1 Able to design a database in the form of an ERD.	<b>Form of Assessment :</b> Participatory Activities	Presentation, Discussion, Practicum 3x50		<b>Material:</b> Database implementation in the project system <b>Reader:</b> <i>Raharjo, Budi. 2022. Self-taught MySQL Database Creation and Management Techniques. Second Edition. Informatics.</i>	5%
13	Able to implement databases in system projects. Able to implement database in system project	13.1 Able to design databases in the form of a relational model	<b>Criteria:</b> Holistic Rubric  <b>Form of Assessment :</b> Participatory Activities, Practical Assessment	Presentation, Discussion, Practicum 3x50		<b>Material:</b> Database implementation in the project system <b>Reader:</b> <i>Raharjo, Budi. 2022. Self-taught MySQL Database Creation and Management Techniques. Second Edition. Informatics.</i>	5%
14	Able to implement databases in system projects. Able to implement database in system project	14.1 Able to create a database using the MySQL programming language	<b>Criteria:</b> Non-test form of holistic rubric  <b>Forms of Assessment :</b> Participatory Activities, Practical Assessment, Practical / Performance	Presentation, Discussion, Practicum 3x50		<b>Material:</b> Database implementation in the project system <b>Reader:</b> <i>Raharjo, Budi. 2022. Self-taught MySQL Database Creation and Management Techniques. Second Edition. Informatics.</i>	10%

15	Able to implement databases in system projects. Able to implement database in system project	15.1 Able to apply query language commands to present information on the system	<b>Criteria:</b> Non-test form of holistic rubric  <b>Form of Assessment :</b> Participatory Activities, Practical Assessment	Presentation, Discussion, Practicum 3x50		<b>Material:</b> Database implementation in the project system <b>Reader:</b> <i>Raharjo, Budi. 2022. Self-taught MySQL Database Creation and Management Techniques. Second Edition. Informatics.</i>	10%
16	Final exams . Final Exam	Final exams	<b>Criteria:</b> Holistic Rubric test form (UAS)	Discussion, Presentation		<b>Material:</b> Database Systems <b>Bibliography:</b> <i>Ramez and Shamkant B.Navathe. 2015, Fundamentals of Database Systems. 7th Edition. Addison-Wesley</i>  <b>Material: SQL Reference:</b> <i>Taylor, Allen G. 2019. SQL for Dummies 9th Edition. Willey Publishing, Inc.</i>  <b>Material:</b> mySQL <b>Reader:</b> <i>Raharjo, Budi. 2022. Self-taught MySQL Database Creation and Management Techniques. Second Edition. Informatics.</i>	25%

#### Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	37.5%
2.	Project Results Assessment / Product Assessment	1.25%
3.	Practical Assessment	33.75%
4.	Practice / Performance	26.25%
5.	Test	1.25%
		100%

#### Notes

- 1. Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
- 2. The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
- 3. Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
- 4. Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
- 5. Indicators for assessing** ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
- 6. Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
- 7. Forms of assessment:** test and non-test.
- 8. Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
- 9. Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.



10. **Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
11. **The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
12. TM=Face to face, PT=Structured assignments, BM=Independent study.