	Universitas Negeri Surabaya Faculty of Mathematics and Natural Sciences Undergraduate Mathematics Study Program	Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Database Systems	4420103117		T=3	P=0	ECTS=4.77	6	July 18, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	.....	.....	Prof. Dr. Raden Sulaiman, M.Si.

Learning model	**Project Based Learning**
Program Learning Outcomes (PLO)	**PLO study program that is charged to the course**
	Program Objectives (PO)
	PLO-PO Matrix

	P.O

PO Matrix at the end of each learning stage (Sub-PO)

P.O	Week															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Short Course Description	This course examines very basic database theory without requiring prior knowledge of databases. The material in this course focuses on three main things, namely: database basics, data models and how to create good data models. Apart from that, this course also discusses examples of rules that apply in the field which are reflected in database design. A number of other relevant aspects, such as DBMS, SQL, database applications and the latest technological developments are also discussed in this course.
References	**Main :**

1. Silberschatz, Korth & Sudarshan, Database System Concepts, 6th Edition, Mc Graw Hill, International Edition, 2010.
2. Elmasri & Navathe, Fundamental of Database Systems, 7th Edition, Addison-Wesley, 2015.
3. Connoly, Thomas & Begg, Carolyn, Database Systems 6th edition, Prentice Hall, 2014.

	Supporters:
Supporting lecturer	Dr. Elly Matul Imah, 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	Students understand basic database concepts	Understand the meaning of Database Systems. · Understand database operations. · Know examples of database applications.		Discussion and presentation 3 X 50			0%

2	Students understand database system components, database abstraction, database language and database system structure	Be able to mention the components of a database system. Able to use languages in databases. Able to explain database system structure Able to explain database abstraction		Discussion and presentation 3 X 50			0%
3	Students understand database system components, database abstraction, database language and database system structure	Be able to mention the components of a database system. Able to use languages in databases. Able to explain database system structure Able to explain database abstraction		Discussion and presentation 3 X 50			0%
4	Students understand the theory and concepts of relational database systems.	1. Students are able to: Explain the definition of a relational database 2. Describes the MDK database 3. Explains database operations and language 4. Explain the relationship between tables		3 X 50			0%
5	Students understand the theory and concept of data normalization and are able to implement it in database system design	Students are able to: Explain table attributes. Explain domains and data types. Explain normalization with functional dependencies. Explain normal shapes		3 X 50			0%
6	Students understand data models, entity-relationships and are able to implement them as one of the stages in designing a database system	Students are able to: Explain facts Explain entity-relationship models Explain and create entity-relationship diagrams Explain entity variants Explain relationship variants Explain specialization and generalization Explain aggregation Explain advanced processes		3 X 50			0%
7	Students understand data models, entity-relationships and are able to implement them as one of the stages in designing a database system	Students are able to: Explain facts Explain entity-relationship models Explain and create entity-relationship diagrams Explain entity variants Explain relationship variants Explain specialization and generalization Explain aggregation Explain advanced processes		3 X 50			0%
8				3 X 50			0%

9	Students understand the transformation of data models to databases, DBMS and table structures, indexes and storage structures in designing database systems	1. Students can: Explain the transformation of data models to databases 2. Explain DBMS and table structure 3. Explains Indexes and storage structures		3 X 50			0%
10	Students understand the concept of data denormalization and are able to implement it in database system design	Students can: · Explain redundancy and forms of denormalization · Explain derived attributes · Explain redundant attributes · Explain recapitulation tables		3 X 50			0%
11	Students understand the concept of data denormalization and are able to implement it in database system design	Students can: · Explain redundancy and forms of denormalization · Explain derived attributes · Explain redundant attributes · Explain recapitulation tables		3 X 50			0%
12	Students understand database system architecture, selection of system development software, translation of database operations, and maintenance of data integrity in applications.	Students are able to: · Explain database system architecture · Explain the selection of system development software · Explain the translation of database operations · Explain maintaining data integrity in applications		3 X 50			0%
13	Students understand the scope of application of databases, object-oriented databases, databases for multimedia, databases for the web.	Students are able to: · Explain the scope of application of databases · Explain object-oriented databases · Explain databases for multimedia · Explain databases for the web		3 X 50			0%
14	Students understand the basic structure of SQL, aggregation functions and Null values.	1. Students can: Explain the basic structure of SQL 2. Explain the aggregation function 3. Explains Null values		SQL basic structure 3 X 50 Null Values aggregation function			0%

15	Students understand data manipulation, transaction control and Data Definition Language (DDL)	1. Students are able to: Explain data manipulation 2. Explain transaction controls 3. Explaining Data Definition Language (DDL)		3 X 50			0%
16							0%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
		0%

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.