	Universitas Negeri Surabaya Vocational Faculty, D4 Informatics Management Study Program	Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Database	5730102155		T=2	P=0	ECTS=3.18	2	July 17, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
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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 explains the concepts and definitions of databases, starting from the components that make up a database, architecture and database design using a relational model approach (entity relationship diagram). Apart from that, the concept of mapping between the conceptual model and the physical database model is discussed. Next, the concept of database normalization is introduced as part of the database design quality testing method. After that, we studied the concept of database processing using a relational algebra notation approach which was strengthened by an introduction to the concept and implementation of the use of query language (SQL) through DDL and DML.
References	**Main :**
	1. Ramakrishnan, Raghu, Gehrke, Johannes.2003.Database Management Systems, 3rd Edition. New York: The McGraw-Hill Companies, Inc 2. Elmasri & Navathe.2016.Fundamental of Database Systems, 7th edition.Edinburg : Pearson Education Limited.
	Supporters:
Supporting lecturer	Ari Kurniawan, S.Kom., M.T. Asmunin, S.Kom., M.Kom. Dodik Arwin Dermawan, S.ST., S.T., M.T. Andi Iwan Nurhidayat, S.Kom., M.T.

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 are able to explain database concepts	1. Students can conclude the definition of a database 2. Students can tell the history of databases 3. Students can name the components that make up a database 4. Students can show database architecture 5. Students can name various DBMS models	**Criteria:** Holistic Rubric	Contextual Teaching Learning (CTL) 3 X 50			0%
2	Students are able to design conceptual models of relational databases	1. Students can state the meaning of the ERD symbol 2. Students are able to define information in the real world into ERD symbols 3. Students can use ERD symbols to draw a conceptual model of a case study	**Criteria:** Holistic Rubric	Contextual Teaching Learning (CTL) Problem Based Learning (PBL) 3 X 50			0%
3	Students are able to map the conceptual model into the physical model of the database	1. Students can use DIA software to draw a CDM for a case study 2. Students can mention mapping rules from CDM to PDM 3. Students can use mapping rules to draw a physical database model from a case study	**Criteria:** Holistic Rubric	Contextual Teaching Learning (CTL) Problem Based Learning (PBL) 3 X 50			0%
4	Students are able to solve database design problems using the ERD method	1. Students can translate the results of system analysis into ERD concepts 2. Students can translate the results of the ERD concept into a database in the form of tables 3. Students can determine relationships between tables	**Criteria:** Holistic Rubric	Contextual Teaching Learning (CTL) Problem Based Learning (PBL) 3 X 50			0%

5	Students are able to use certain application programs for database design	1. Students can mention various database designer software. 2. Students can draw CDM using software. 3. Students can change CDM to PDM using software. 4. Students can connect the design to the RDBMS software	**Criteria:** Holistic Rubric	Problem Based Learning (PBL) 3 X 50			0%
6	Students are able to design databases using normalization techniques	1. Students can show FD from a table. 2. Students can differentiate between forms of normalization. 3. Students can normalize tables	**Criteria:** Holistic Rubric	Problem Based Learning (PBL) 3 X 50			0%
7	Students are able to solve database design problems using normalization techniques	1. Students can show FD from a table. 2. Students can distinguish normal conditions from a table 3. Students can normalize tables 4. Students can draw a table relationship scheme resulting from normalization	**Criteria:** Holistic Rubric	Contextual Teaching Learning (CTL) Problem Based Learning (PBL) 3 X 50			0%
8	Midterm Exam (UTS)	1. Students can answer questions related to basic database concepts 2. Students can solve database design problems using ERD techniques 3. Students can solve database design problems using Normalization techniques	**Criteria:** -	Virtual Learning 2 X 50			0%

9	Students are able to write query algorithms using relational algebra	1. Students can name the basic operators in Relational Algebra (AR) 2. Students can use AR symbols to solve problems	**Criteria:** Holistic Rubric	Contextual Teaching Learning (CTL) Problem Based Learning (PBL) 3 X 50			0%
10	Students are able to solve query problems using Relational Algebra (AR) notation	1. Students can write problem solving algorithms with AR 2. Students can translate AR symbols into simple SQL syntax	**Criteria:** Holistic Rubric	Contextual Teaching Learning (CTL) Problem Based Learning (PBL) 3 X 50			0%
11	Students are able to write queries using SQL (Structure Query Language)	1. Students can state the SQL syntax for DDL. 2. Students can state the SQL syntax for DML 3. Students can use Query Builder in RDBMS applications 4. Students can write SQL syntax to solve problems	**Criteria:** Holistic Rubric	Contextual Teaching Learning (CTL) Problem Based Learning (PBL) 3 X 50			0%
12	Students are able to write complex SQL queries	1. Students can distinguish various types of SQL syntax for DML 2. Students can demonstrate various SQL Functions, Operators and Parameters. 3. Students can write SQL syntax to solve more complex problems	**Criteria:** Holistic Rubric	Contextual Teaching Learning (CTL) Problem Based Learning (PBL) 3 X 50			0%
13	Students are able to use RDBMS to create simple database systems	1. Students can create tables in DBMS software 2. Students can create queries in RDBMS software	**Criteria:** Holistic Rubric	Contextual Teaching Learning (CTL) Problem Based Learning (PBL) 3 X 50			0%
14	Students are able to use RDBMS to create simple database systems	1. Students can create forms in RDBMS software 2. Students can create reports in RDBMS software	**Criteria:** Holistic Rubric	Contextual Teaching Learning (CTL) Problem Based Learning (PBL) 3 X 50			0%

15	Students are able to use RDBMS to create simple database systems	Students can create Switchboard applications with RDBMS software	**Criteria:** Holistic Rubric	Contextual Teaching Learning (CTL) Problem Based Learning (PBL) 3 X 50			0%
16	Final Semester Examination (UAS)	Students Can Demonstrate Final Project Results in Making an RDBMS	**Criteria:** -	Project Based Learning 2 X 50			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.