MODULE HANDBOOK
Database System

BACHELOR DEGREE PROGRAM
DEPARTMENT OF MATHEMATICS
FACULTY OF SCIENCE AND DATA ANALYTICS

INSTITUT TEKNOLOGI SEPULUH NOPEMBER

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Database System

Module name	**Database System**	
Module level	Undergraduate	
Code	KM184722	
Course (if applicable)	**Database System**	
Semester	Fall (Ganjil)	
Person responsible for the module	Dr. Budi Setiyono, MT	
Lecturer	Dr. Budi Setiyono, MT	
Language	Indonesia and English	
Relation to curriculum	Undergraduate degree program, **elective**, 7th semester.	
Type of teaching, contact hours	Lectures, <60 students	
Workload	1. Lectures : 2 x 50 = 100 minutes per week. 2. Exercises and Assignments : 2 x 60 = 120 minutes (2 hours) per week. 3. Private learning : 2 x 60 = 120 minutes (2 hours) per week.	
Credit points	2 credit points (sks)	
Requirements according to the examination regulations	A student must have attended at least 80% of the lectures to sit in the exams.	
Mandatory prerequisites	Object Oriented Programming	
Learning outcomes and their corresponding PLOs	Course Learning Outcome (CLO) after completing this module, 1. Able to understand and describe the concept of database system 2. Able to understand the concept of data management in storage (storage organizations) 3. Be able to identify and analyze user needs related to data 4. Able to design and model data with good database structure and implement it in RDBMS 5. Able to understand and implement queries in the database	
Content	This course is the basis for software development, both desktop and web based. In the course students are given the understanding and mastery of the concept of database systems, management in storage media, designing and modeling data based on user needs analysis and implement it in a DBMS.	

	1. Understanding the basic concepts of database systems
	a. Why database is needed
	b. Data Viewpoint
	c. Instance and schema
	d. Database Administration
	e. Database Users
	2. Able to understand the concept of relational model
	a. The Relational Model Concept
	b. Constraints and schemes on relational models and Constraint integrity
	3. Data modeling using ER Model
	a. Data design using Conceptual Data Model
	b. Entity, Attribute and Key, Weak entity
	c. Examples of other ER diagram notations
	d. Mapping ER scheme into a Relational Database Schema.
	4. Structured Query Language (SQL)
	a. Data Definition Languager (DDL)
	b. Data Manipulation Language (DML)
	5. Introduction of database design theory and normalization
	a. Functional Dependency
	b. Normalization
Study and examination requirements and forms of examination	• In-class exercises • Assignment 1, 2 • Mid-term examination • Final examination
Media employed	LCD, whiteboard, websites (myITS Classroom), zoom.
Reading lists	Main: 1. Ramakrishnan, Raghu, Gehrke, Johannes, Database Management Systems, 3rd Edition, New York: The McGraw-Hill Companies, Inc., 2003