Data Warehouse

Module name	Data Warehouse	
Module level	Undergraduate	
Code	IF221202	
Courses (if applicable)	Data Warehouse	
Semester	5/6	
Lecturer	Yisti Vita Via, S.ST, M.Kom	
Language	Bahasa Indonesia and English	
Relation to curriculum	Elective; 5th/6th semester	
Type of teaching, contact hours	Lectures, < 60 students,	
Teaching Methods	simulation, case study, project-based learning, problem-based learning	
Workload	1. Lectures: 3 sks x 50 = 150 minutes (2 hours 30 minutes) per week. 2. Exercises and Assignments: 3 x 60 = 180 minutes (3 hours) per week. 3. Private study: 3 x 60 = 180 minutes (3 hours) per week	
Credit points	3 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	Software Engineering	
Courses description	Data Warehouse Manipulation is a course that delves into the principles and practical applications of methods used in the manipulation of data in Warehouse format. This course addresses problem-solving in the context of Web Data Warehouse manipulation and the incorporation of Data Warehouse concepts into third-party applications. Topics encompassed in this course include fundamental concepts of data manipulation within a Warehouse format, stages in the data manipulation process within a Warehouse, statistical and syntactic approaches related to Data Warehouse Configuration and Data Warehouse Extraction, introduction to various methods of Web Data Warehouse and Desktop Data Warehouse manipulation, calculation methods for the evaluation of data manipulation within a Warehouse, as well as several case studies illustrating the application of data manipulation methods within Warehouse contexts to resolve issues related to Web Data Warehouse and Desktop Data Warehouse manipulation.	
Learning outcomes and their corresponding PLOs	After completing this module, a student is expected to:	
	CO1 Students are adept at providing comprehensive explanations of the definitions and terminologies associated with data manipulation in Warehouse format. Additionally, they are proficient in engaging in discussions concerning real-world applications of data manipulation methods in Warehouse format, supported by references from published journal literature and correctly implemented practical applications. (C2, A2)	PLO9,PLO10

	CO2 Students exhibit a high level of proficiency in applying and constructing every stage of the data manipulation method in Warehouse format, both theoretically and practically, while employing programming languages accurately. (C3, P4)	PLO9,PLO10
	CO3 Students demonstrate the ability to evaluate and present the performance of Data Warehouse manipulation methods accurately, in both desktop and web contexts, utilizing proper performance measurement evaluation techniques. (C5, P3)	PLO9,PLO10
Content	The Definition and Stages of Data Manipulation in Warehouse Format; Application of Data Manipulation Methods in Warehouse Format; Sequence of Data Manipulation Stages in Warehouse Format; Statistical and Syntactic Approaches to Data Warehouse Configuration and Data Warehouse Extraction in Data Manipulation in Warehouse Format; Methods for Manipulating Web Data in Data Manipulation in Warehouse Format; Methods for Manipulating Desktop Data in Data Manipulation in Warehouse Format; Performance Algorithm Measurement and Evaluation Techniques in Data Manipulation in Warehouse Format; Implementation of Methods in Data Manipulation in Warehouse Format using Programming Languages.	
Media employed	LCD, whiteboard, websites, books (as references), online meeting, etc.	
Assessments and Evaluation	One written Midterm assessment (60 minutes) and one final oral exam (30 minutes), two short computer-based quizzes, takehome written assignments	
Study and examination requirements and forms of examination	The final grade in the module is composed of: • Two short computer-based quizzes: 15% x 2 = 30% • Take-home written assignments : 15% • Written Midterm assessment: 25% • Final oral exam: 30% Students must have a final grade of 55.6% or higher to pass.	
Reading List	● J. Reis and M. Housley, *Fundamentals of Data Engineering: A Comprehensive Guide to the Field of Data Engineering*. Sebastopol, CA: O'Reilly Media, 2022. ● Z. Dehghani, *Data Mesh: Delivering Data-Driven Value at Scale*. Sebastopol, CA: O'Reilly Media, 2021. ● P. Crickard, *Data Engineering with Python: A Guide to Building Data Pipelines*. Packt Publishing, 2020. ● J. Kumar, Data warehouse and data mining: concepts, techniques and real life applications. BPB Publications, 2024, 215 pp. [Online]. Available: https://portal.igpublish.com/iglibrary/search/BPB0000554.html . ● B. Lipp, *Modern data architectures with Python: a practical guide to building and deploying data pipelines, data warehouses, and data lakes with Python*. Packt Publishing, 2023, 318 pp. [Online]. Available: https://portal.igpublish.com/iglibrary/search/PACKT0006875.html	