Module Description

Module name	Data Mining
Module level, if applicable	Bachelor of Informatics
Code, if applicable	312D4224
Subtitle, if applicable	-
Course, if applicable	-
Semester(s) in which the module is taught	6th
Person responsible for the module	Dr. Indrabayu., ST., MT., M.Bus.Sys
Lecturer	Dr. Indrabayu., ST., MT., M.Bus.Sys Dr. Ir. Ingrid Nurtanio, M.T Elly Warni, ST., MT
Language	Indonesian Language [Bahasa Indonesia]
Relation to Curriculum	This course is a compulsory course for the Cloud Computing and Big Data research group and is offered in the 6th semester.
Type of teaching, contact hours	Teaching methods: [group discussion], [case study]. Teaching forms: [lecture], [tutorial], [practicum]. CH : 08.00 - 16.00
Workload	For this course, students are required to meet a minimum of 181.33 hours in one semester, which consist of: - 53.33 hours for lecture, - 64 hours for structured assignments, - 64 hours for private study.
Credit points	4 credit points (equivalent with 6.8 ECTS)

Requirements according to the examination regulations	Students must have attended all minimum 80% of classes and submitted all class assignments that are scheduled before the final tests.
Recommended prerequisites	Artificial Intelligence
Module objectives/intended learning outcomes	After completing the course, Students are able: **Intended Learning Outcome (ILO):** **ILO 2 :** Have the knowledge of advanced topics in Informatics specific fields of either Artificial Intelligence, Data Science, Computer Network, Cloud Computing, or Internet of Things. **ILO 3 :** Apply the knowledge of computing and other related disciplines to analyze and identify solutions for any computing-based problem. **ILO 7 :** Communicate their ideas in a convincing and effective manner, either in written or orally, to propose solutions. **Course Learning Objectives (CLO):** After attending the Data Mining Course for 1 (one) semester, students have the knowledge of data mining, architecture, models, processes of data mining, preprocess data and linear and non-linear regression algorithms, classification, clustering, association and apply the knowledge to complete data mining case studies. **CLO 1 :** Students have the knowledge of data mining,architecture, models, processes of data mining, preprocess data and linear and non-linear regression algorithms, classification, clustering and association. **CLO 2 :** Students can apply the knowledge of data mining case studies (regression, classification, clustering, association).

	CLO 3 : Students present data mining case studies and understand new directions of research and conduct data mining research.

Content	Students will learn about :
	  1. The basic concept of Data Mining
	  2. Data Mining Architecture, Model and Process
	  3. Data Preparation
	  4. Linear and non-linear regression
	  5. Classification
	  6. Clustering
	  7. Association
	  8. Data Mining Case Study

Forms of Assessment	Assessment techniques: [observation], [participation], [written test]. Assessment forms: [quiz], [midterm exam], [assignment], [presentation]. Quiz = 15%, Midterm exam = 25%, Assignment = 30%, Presentation = 30% CLO 1 => ILO 2: 40% (Quiz and Mid term exam: written test) CLO 2 => ILO 3: 30% (Assignment: participation) CLO 3 => ILO 7: 30% (Presentation: observation)

Study and examination requirements and forms of examination	**Study and examination requirements:**
	  - Students must attend 15 minutes before the class starts.
	  - Students must switch off all electronic devices.
	  - Students must inform the lecturer if they will not attend the class due to sickness, etc.
	  - Students must submit all class assignments before the deadline.
	  - Students must attend the exam to get a final grade.
	Form of examination:
	Written test

Media employed	Video conference, slide presentation, Learning Management System (LMS)
Reading list	**Main :**

	1. Jiawei Han and Micheline Kamber, Data Mining: concepts and Techniques Third Edition, *Elsevier*, 2012 2. Ian H. Witten, Frank Eibe, Mark A. Hall, Data mining: Practical Machine Learning Tools and Techniques 3rd Edition, *Elsevier*, 2011 3. Daniel T. Larose, Discovering Knowledge in Data: an Introduction to Data Mining, *John Wiley & Sons*, 2005