

HANDBOOK

BACHELOR OF INFORMATICS PROGRAM

DEPARTMENT OF INFORMATICS

FACULTY OF INTELLIGENT ELECTRICAL AND INFORMATICS TECHNOLOGY

INSTITUT TEKNOLOGI SEPULUH NOPEMBER

Module name	Data Compression
Module level	Undergraduate
Code	IF184948
Courses (if applicable)	Data Compression
Semester	7
Contact person	
Lecturer	
Language	Bahasa Indonesia and English
Relation to curriculum	<ol style="list-style-type: none"> 1. Undergraduate degree program; mandatory; 7th semester. 2. International undergraduate program; mandatory; 7th semester.
Type of teaching, contact hours	<ol style="list-style-type: none"> 1. Undergraduate degree program: lectures, < 60 students, 2. International undergraduate program: lectures, < 40 students
Workload	<ol style="list-style-type: none"> 1. Lectures: 3 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	A student must have attended at least 80% of the lectures to sit in the exams.

regulations	
Mandatory prerequisites	Computer Network
	After completing this module, a student is expected to:

<p>Learning outcomes and their corresponding PLOs</p>	<p>CO1 Students are able to implement various methods of data compression techniques including statistical-based and dictionary-based techniques on textual data, image, audio and video</p>	<p>PLO3</p>
<p>Content</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> - Mastering concept and principles of Intelligent System such as representation and reasoning techniques, searching technique, intelligent agent, data mining, machine learning, and development of intelligent application in various fields, and also mastering concept and principles of computation science such as manage information, multimedia data processing, and numerical analysis - Mastering principles and methods to solve computation problems by using calculus, matrixs, statistics, approximation, linear optimization, modelling and simulation - Mastering concepts and principles of collecting, processing and storing the information in various formats - Mastering principles of algorithm development and various programming language concepts <p>Specific Skill:</p> <ul style="list-style-type: none"> - Able to design and develop applications using principles of intelligent systems and computing science to produce intelligent applications in various fields - Able to solve computation problems, and mathematical modelling through exact, stochastic, probabilistic, and numeric approaches effectively and efficiently 	

	<ul style="list-style-type: none"> - Capable of collecting, digitalizing, representing and transforming data into new useful information by using data modeling and storage in effective and efficient manners - Capable of designing and analysing of algorithms to solve problems effectively and efficiently based on programming principles, and able to apply programming model in various programming language; and able to choose programming languages in producing appropriate applications
Study and examination requirements and forms of examination	Mid-terms examination and Final examination.
Media employed	LCD, whiteboard, websites, books (as references), etc.
Assessments and Evaluation	<p>CO1: Problem 1 in mid-term exam (5%) and exercise 1 (5%) - 10%</p> <p>CO2: Problem 2 in mid-term exam (5%) and exercise 2 (5%) - 10%</p> <p>CO3: Problem 3 in mid-term exam (5%); problem 4 in mid-term exam (5%); assignment 1: make an algorithm and computer program (5%); and exercise 3 (5%) - 20%</p> <p>CO4: Problem 5 in mid-term exam (5%); problem 1 in final exam (5%) and exercise 4 (5%) - 15%</p> <p>CO5: Problem 2 in final exam (5%); assignment 2: make a function and recursive (5%); and exercise 5 (5%) - 15%</p> <p>CO6: Problem 3 in final exam (5%) and exercise 6 (5%) - 10%</p> <p>CO7: Problem 4 in final exam (5%) and exercise 7 (5%) - 10%</p> <p>CO8: Problem 5 in final exam (5%) and assignment 3: make a program based on a real-life problem (5%) - 10%</p>
Reading List	<p>Sayood, K., "Introduction to Data Compression 4th Edition", Morgan Kaufman, San Fransisco, 2012</p> <p>Pu, I.M., "Fundamental Data Compression 1st Edition", Butterworth-Heinemann, Burlington, 2006</p> <p>Salomon, D., Motta, G., "Handbook of Data Compression 5th Edition", Springer, London, 2010</p>