

**UNDERGRADUATE PROGRAM IN COMPUTER SCIENCE
DEPARTMENT OF COMPUTER ENGINEERING
FACULTY OF INTELLIGENT ELECTRICAL AND INFORMATICS TECHNOLOGY**

Module name	[Data Structure and Algorithm Analysis]	
Module level	Undergraduate	
Code		
Courses (if applicable)	[Data Structure and Algorithm Analysis]	
Semester	3 / Fall (Ganjil)	
Contact person	Eko Mulyanto Yuniarno	
Lecturer	[Dosen pengajar]	
Language	[Indonesia / English]	
Relation to curriculum	Undergraduate degree program, mandatory, 3th semester. {semester}	
Type of teaching, contact hours	Lecture, < 60 students, 170 minutes * SKS	
Workload	<ol style="list-style-type: none"> 1. Lectures: 3 x 50 = 150 minutes (2.5 hours) 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 75% of the lectures to sit in the exams.	
Mandatory prerequisites		
Learning outcomes and their corresponding PLOs	<p>CLO 1 Students are able to explain and apply the basic data structure concepts: stack, queue, lists, and matrices.</p> <p>CLO 2 Students are able to explain and apply the concepts of tree and graph: tree, binary search tree, AVL tree, various sorting and searching types</p> <p>CLO 3 Students are able to explain iterative and recursive algorithms</p> <p>CLO 4 Students are able to explain and apply advanced data structure concepts: Huffman tree, Dijkstra shortest path.</p> <p>CLO 5 Students are able to complete a case by using one or a combination of data structures that have been studied.</p>	<p>PLO3</p> <p>PLO3</p> <p>PLO3</p> <p>PLO5</p> <p>PLO6</p>

Content	In this course, students will study the data structures that can be used for programming. Topics include linked list, stack, queue, tree, binary search tree, AVL tree, tree traversal, various sorting and searching types.
Study and examination requirements and forms of examination	<ul style="list-style-type: none"> • <i>In-class exercises</i> • <i>Quiz 1 and 2</i> • <i>Assignment 1, 2, 3</i> • <i>Mid-term examination</i> • <i>Final examination</i>
Media employed	<i>LCD, whiteboard, websites (myITS Classroom).</i>
Reading List	<ol style="list-style-type: none"> 1. "Data Structures and Algorithms", Granville Branett, 2008 2. "Data Structures and Algorithm Analysis Edition 3.2 (C++ Version)", Clifford A. Shaffer, Department of Computer Science Virginia Tech Blacksburg, VA 24061 January 2, 2012