

21B33C303 – Data Structure

Module designation	Data Structure (Undergraduate)
Semester(s) in which the module is taught	2 nd
Person responsible for the module	Andi Baso Kaswar, S.Pd.,M.Kom Abd. Rahman Patta, S.Kom.,M.T Fhatiah Adiba, S.Pd.,M.Cs. Andi Akram Nur Risal, S.Pd.,M.Kom Dr.Eng Abdul Wahid, M.Kom Dr. Eng Jumadi M Parenreng, M.Kom
Language	Indonesia - English
Relation to curriculum	This course is a compulsory course
Teaching methods	Lecture, Presentation, Practice
Workload (incl. contact hours, self-study hours)	CH: 09.00-17.00 Face to face: 4x50 minutes / week Independent Study: 4x50 minutes / week Structured assignment: 4x50 minutes / week
Credit points	4 SKS (equivalent 6.8 ECTS)
Required and recommended prerequisites for joining the module	Basic Algorithms & Programming
Module objectives/intended learning outcomes	Program Learning Outcomes (PLO) PLO 3: Able to apply logical, critical, systematic and innovative thinking in the context of the development or implementation of science and technology that pays attention to and applies humanities values appropriate to their field of expertise. PLO 4: Able to demonstrate independent, quality and measurable performance. PLO 8: Implement computer engineering methods with the ability to plan, analyze, design, implement, maintain and document computer systems with limited resources. PLO 10: Plan, design, implement, and analyze artificial intelligence algorithms to solve a problem.

	Course Learning Objectives (CLO) The Data Structure course is a course that studies the concepts, techniques and manipulation of organizing large amounts of data that are applied to a programming language using related algorithms. The material taught includes linear and non-linear data structures. The core material includes an introduction to data structures, primitive data types and formations, condition selection and repetition, sorting techniques, searching techniques, stack & queue, linked lists, trees, and graphs. Practicum in C/C++ language is carried out to implement the structure. Sub CLO: Sub-CLO 1: Students can explain the definition of data structures Sub-CLO 2: Students are able to abstract data based on the concept of linear and non-linear data structures using the C++ programming language Sub-CLO 3: Students are able to implement data access algorithms in linear structures using the C++ programming language Sub-CLO 4: Students are able to implement data access algorithms in non-linear structures using the C++ programming language
Content	Students will learn about: ● Introduction to Data Structures ● Primitive data type ● Formed data type ● Derived data types ● Sorting Technique ● Searching techniques ● Stack & Queue ● Linked Lists ● Trees ● Graphs
Examination forms	Assessment Techniques: Exam, Presentation, Practice Assessment Forms: Assignment, Presentation Assessment, Practical Report
Study and examination requirements	● Students have to inform the lecturer when they are not able to attend the class due to sickness etc ● Active in making projects by showing participation in making projects in class ● Able to present and answer questions that exist during project presentations
Reading List	● Robert Lafore, Data Structures & Algorithms in Java Second edition, 2003, Sams Publishing, United State of America. ● Cay Horstmann, C++ for Everyone Second edition, 2012, John Wiley & Sons, United State of America.