Algorithm and Data Structure (W22B31)

Module designation	Data Structure and Algorithm (W22B31)
Semester(s) in which the module is taught	*3 / second year*
Person responsible for the module	*Dr. Eng. Budi Irmawati, S.Kom., M.T.*
Language	*Indonesian*
Relation to curriculum	*Compulsory*
Teaching methods	*group discussions and presentation, coding, case-based problems, lectures*
Workload (incl. contact hours, self-study hours)	Contact Hours every week, each week of the 16 weeks/semester including Evaluation • 3 x 50 minutes lecturer/week • 3 x 60 minutes class exercise/week • Laboratory hours = 180 minutes/week Total workload 510 minutes/week
Credit points	*3 (~ 4,8 ECTS)*
Required and recommended prerequisites for joining the module	Algorithm and Programming
Module objectives/intended learning outcomes	1. Being able to implement Abstract Data Type and inherit it to various data types.	PLO6: 10%
	2. Being able to implement various Linked List Data Types to solve various simple computational problems	PLO7: 35%
	3. Being able to implement Stack and Queue to solve various simple computational problems.	PLO7: 30%
	4. Being able to sort and search data efficiently with basic complexity calculation.	PLO8: 10%
	5. Being able to implement Tree and Graph data structures to solve various simple computational problems	PLO8: 15%
Content	Students learn how to analyze efficiency of algorithms for handling data by implementing appropriate structures for computational problems. Aside of searching and sorting algorithm, the course also consists of abstract data type, linkedList (single and double), Stack, Queue, Tree, and Graph. Students activities include design an abstract data type in a group discussion, working on programming, and the lesson are delivered in simulations or games.