Automata and Formal Language (K22B57)

Module designation	Formal Language and Automata Theory (K22B57)
Semester(s) in which the module is taught	*5 / fifth year*
Person responsible for the module	*Dr. Eng. Budi Irmawati, S.Kom., M.T.*
Language	*Indonesian*
Relation to curriculum	*Compulsory*
Teaching methods	*simulation, group discussions and presentation, 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 • Self-study hours = 180 minutes/week Total workload 510 minutes/week
Credit points	*3 (~ 4,8 ECTS)*
Required and recommended prerequisites for joining the module	Discrete Mathematics: set theory, function, relation, logic, and mathematical reasoning.
Module objectives/ intended learning outcomes	1. Students are able to solve daily problems with automata and able to differentiate language concept in linguistics and in computer science — PLO8: 10%
	2. Students are able to design a finite automata (Deterministic, Non-Deterministic, Transducer, Push Down Automata) for a given problem. — PLO7: 35%
	3. Students are able to write a regular expression (RE), able to convert a DFA to RE, and able to define a regular grammar. — PLO7: 25%
	4. Students are able to design a Turing machine — PLO6: 30%
Content	Computational theory contains theory of automata; formal language and grammar; computability (ability to solve problems effectively using computation); and complexity as a foundation of computer science. This course learns the first one, yield what that computer can do. The contents are 1. Language and Automata Theory 2. Finite Automata (Deterministic, Non-Deterministic, Transducer, Push Down Automata)