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MODULE HANDBOOK

Module designation	*Logic and Set*
Semester(s) in which the module is taught	*1*
Person responsible for the module	*Kiki A. Sugeng, Bevina D. Handari, Nora Hariadi, Dipo Aldila*
Language	*Indonesia*
Relation to curriculum	*Compulsory*
Teaching methods	*Flipped Class and Problem based learning using E-learning*
Workload (incl. contact hours, self-study hours)	*Total workload: 170 minutes* *Contact hours (please specify whether lecture, exercise, laboratory session, etc.):* *Private study including examination preparation, specified in hours[1]:*
Credit points	*3 SKS (4.77 ECTS)*
Required and recommended prerequisites for joining the module	*Linear Algebra, Algorithm and Programming, Discrete Mathematics*
Module objectives/intended learning outcomes	*After completing the course, students have the ability:* 1. *to explain the concept of propositional logic.* 2. *to explain the properties of sets and their operations* 3. *to use the concept of predicate and quantifier* 4. *to use proof techniques* 5. *to use propositional logic and predicate logic in simple mathematical proofs.* 6. *to test the truth of statements in simple math problems using direct, indirect, and mathematical induction techniques.*

[1] When calculating contact time, each contact hour is counted as a full hour because the organisation of the schedule, moving from room to room, and individual questions to lecturers after the class, all mean that about 60 minutes should be counted.

Content	1. *Propositional logic (valid statement, truth table)* 2. *Set, properties of set and operation on set* 3. *Predicate and quantifier* 4. *Predicate logic (inference rule)* 5. *Technique of proofing (direct and indirect proof, proof by contradiction, mathematical induction)*
Examination forms	Essay, multiple choice
Study and examination requirements	*The final mark will be weighted as follows:* 1. *Online Quiz (10%)* 2. *Homework (15%).* 3. *Written Quiz (10%)* 4. *Lab sessions (5%)* 5. *Mid-term examination (30%)* 6. *Final examinations (30%)* *To succesfully pass the module it requires minimum 55% of the total mark.* *Mark — Grade* *85—100 — A* *80—<85 — A-* *75—<80 — B+* *70—<75 — B* *65—<70 — B-* *60—<65 — C+* *55—<60 — C* *40—<55 — D* <40 — E
Reading list	1. *K.H. Rosen, Discrete Mathematics and Its Application, 7th ed, Mac Graw Hill, 2012* 2. *U. Daepp dan P. Gorkin, Reading, Writing and Proving, Springer, 2003* 3. *E. Mandelson, Introduction to Mathematical Logic, 6th ed, CRC Press, 2015*