Discrete Mathematics

Module designation	Discrete Mathematics
Semester(s) in which the module is taught	3 (odd semester)
Person responsible for the module	Dr. Eti Dwi Wiraningsih
Language	Bahasa Indonesia
Relation to curriculum	*Elective*
Teaching methods	Lecture and Project
Workload (incl. contact hours, self-study hours)	For this course, students required to meet a minimum of 231,99 hours in one semester, which consist of 39,99 hours for lecture 96 hours for structured assignments 96 hours for private study
Credit points	3 CP = 7,8 ECTS
Required and recommended prerequisites for joining the module	NA
Module objectives/intended learning outcomes	Students are able to: 1. construct modeling of a problem with generating functions and solve real world problems using generating functions. 2. understand recursive relations, linear recursive relations with constant coefficients and solve real world problems using linear recursive relations with constant coefficients. 3. describe homogeneous linear recursive relations with constant coefficients and solve recursive relation problems with generator functions. 4. describe the principles of Inclusion – Exclusion and apply them to solve real world problems. 5. describe the meaning of Boolean functions and apply Boolean functions in solving everyday life problems. 6. solve logic gates and construct minimal circuits. 7. understand the meaning and terms in Graph, Isomorphism, Characteristics of trees, directed graphs and related theorems.
Content	**Students will learn about:** Generating functions, recursive relations, homogeneous linear recursive relations, inclusion-exclusion principles, Boolean functions, logic gates and minimal circuits, graphs, isomorphism, trees, directed graphs.
Examination forms	Assessment of the honors thesis research is carried out by the defense committee using rubric developed by program study based on students' presentation
Study and examination requirements	**Study and examination requirements:** 1. Students must attend 15 minutes before the class starts. 2. Students must inform the lecturer if they cannot attend the class due to sickness, etc. 3. Students must submit all class assignments before the deadline. **Form of examination:** Individual and group projects
Reading list	1. Rosen, Kenneth. H., *Discrete Mathematics And Its Applications*, Seventh Edition, McGraw-Hill, 2012

	2. Liu, C.L., *Dasar-Dasar matematika Diskret,* Gramedia Pustaka Utama, 1995 3. Wijaya, Belawati., *Pengantar Matematika Diskret,* Pusat Antar Universitas Ilmu Komputer UI, 1987 4. Daliyo dan Wardoyo,Retantyo. *Matematika Diskrit,* Proyek Pembinaan Tenaga Kependidikan, Persiapan Perkuliahan Program Lanjutan MIPA LPTK (Program B), FMIPA UGM, 1990 5. Budayasa, I Ketut, *Matematika Diskrit 1,* Program Pascasarjana Pendidikan Matematika IKIP Surabaya, 1994