

Module designation	IF120 Discrete Mathematics		
Semester(s) in which the module is taught	1		
Person responsible for the module	Angga Aditya Permana		
Language	Indonesian		
Relation to curriculum	Compulsory		
Didactic methods	Lecture		
Workload (incl. contact hours, self-study hours)	Total workload: 136.08 hours - 35.01 hours of synchronous lecture. - 84.06 hours of self-study and assignments in the form of essays. - 17.01 hours related to exam and self study		
Credit points	3 SKS (5.04 ECTS)		
Required and recommended prerequisites for joining the module	-		
Module objectives/intended learning outcomes	Course Learning Outcome	Related ELOs	
		ELO	Performance Indicator
	Students are able to apply the basic concepts of Discrete Mathematics to solve various problems.	J	Understand algorithms and mathematical principles upon which the computer system is founded to solve engineering problems.
Content	Discrete Mathematics aims to teach students to know and understand the basic concepts of Discrete Mathematics. Some of the materials taught in this course include the basic ideas of sets; Mathematical logic and proof; basic concepts of functions, sequences, and series; relations and relation matrices; introduction to number theory; calculation method; discrete opportunities; recurrence relation; graph and tree theory; and Boolean algebra and circuit combinatorial. Specifically, this course contains these topics: <ol style="list-style-type: none"> <li>1. Sets</li> <li>2. Logics</li> <li>3. Proofs</li> <li>4. Functions and Sequences</li> </ol>		

	<ul style="list-style-type: none"> <li>5. Relations and Matrices of Relations</li> <li>6. Number Theory</li> <li>7. Counting Methods</li> <li>8. Discrete Probability</li> <li>9. Recurrence Relations</li> <li>10. Graph 1 (Basic)</li> <li>11. Graph 2 (Advance)</li> <li>12. Trees 1 (Basic)</li> <li>13. Trees 2 (Advance)</li> <li>14. Combinational Circuits and Boolean Algebra</li> </ul>
Examination forms	Written Test
Study and examination requirements	The total average score for the assignment (30%), midterm (30%), and final (40%) exams must be more than or equal to 55 (C).
Reading list	<p>Main:</p> <ul style="list-style-type: none"> <li>1. Johnsonbaugh, R., 2005, <i>Discrete Mathematics</i>, New Jersey: Pearson Education, Inc</li> <li>2. Rosen, Kenneth H., 2005, <i>Discrete Mathematics and Its Applications</i>, 6<sup>th</sup> edition, McGraw-Hill</li> <li>3. Hansun, S., 2021, <i>Matematika Diskret Teknik</i>, Deepublish</li> </ul> <p>Supporting:</p> <ul style="list-style-type: none"> <li>1. Lipschutz, Seymour, Lipson, Marc Lars, <i>Schaum's Outline of Theory and Problems of Discrete Mathematics</i>, McGraw-Hil</li> <li>2. Liu, C.L., 1995, <i>Dasar-Dasar Matematika Diskret</i>, Jakarta: Gramedia Pustaka Utama.</li> </ul>