



UNIVERSITAS INDONESIA
Faculty of Mathematics and Natural Sciences
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MODULE HANDBOOK

Module designation	<i>Discrete Mathematics</i>
Semester(s) in which the module is taught	4
Person responsible for the module	<i>Dr. Kiki Ariyanti Sugeng</i>
Language	<i>Indonesia and English</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Flipped Class and Problem-based learning using E-learning</i>
Workload (incl. contact hours, self-study hours)	<i>Total workload: 170 minutes/credit point Contact hours: 50 minutes synchronous and 120 minutes asynchronous (independent study/ reading, doing homework, discussion with peers)</i>
Credit points	3 SKS (4.77 ECTS)
Required and recommended prerequisites for joining the module	<i>Logic and Set</i>
Module objectives/intended learning outcomes	<i>After completing discrete mathematics courses, students are</i> <ol style="list-style-type: none">1. <i>able to apply the basic theories of mathematical thinking in discrete structure (C4).</i>2. <i>Able to explain the nature of number theory (C4)</i>3. <i>Able to solve simple combinatorics problems (C3)</i>4. <i>Able to solve advanced counting techniques (C3, A3)</i>5. <i>Able to solve problems related to recursive functions (C3)</i>6. <i>Able to explain operations on Boolean algebra (C4, A3)</i>7. <i>Able to choose the appropriate graph model to solve optimal solution problems. (C4)</i>

Content	<i>Integer Representation, Prime Number and GCD, Congruence, Recursive Function, Counting, Permutation and Combination, Linear/Non-Linear Homogeneous Recurrence Relation, Divide and Conquer, Generating Function, Inclusive and Exclusive Principle, Equivalence Relation, Lattices, Graph, Boolean Algebra.</i>																																
Examination forms	<i>Essay, Poster</i>																																
Study and examination requirements	<p><i>The final score is the composition of mid-test scores, quizzes, and assignments with the following weight:</i></p> <table data-bbox="667 633 1098 864"> <tr> <td><i>Quiz</i></td> <td><i>: 15 %</i></td> </tr> <tr> <td><i>Assignment</i></td> <td><i>: 20 %</i></td> </tr> <tr> <td><i>Poster</i></td> <td><i>: 10 %</i></td> </tr> <tr> <td><i>Mid-test</i></td> <td><i>: 25 %</i></td> </tr> <tr> <td><i>Paper</i></td> <td><i>: 30 %</i></td> </tr> <tr> <td><i>Total</i></td> <td><i>: 100 %</i></td> </tr> </table> <table data-bbox="831 931 1206 1413"> <thead> <tr> <th>Mark</th> <th>Grade</th> </tr> </thead> <tbody> <tr> <td>85–100</td> <td>A</td> </tr> <tr> <td>80–<85</td> <td>A-</td> </tr> <tr> <td>75–<80</td> <td>B+</td> </tr> <tr> <td>70–<75</td> <td>B</td> </tr> <tr> <td>65–<70</td> <td>B-</td> </tr> <tr> <td>60–<65</td> <td>C+</td> </tr> <tr> <td>55–<60</td> <td>C</td> </tr> <tr> <td>40–<55</td> <td>D</td> </tr> <tr> <td><40</td> <td>E</td> </tr> </tbody> </table>	<i>Quiz</i>	<i>: 15 %</i>	<i>Assignment</i>	<i>: 20 %</i>	<i>Poster</i>	<i>: 10 %</i>	<i>Mid-test</i>	<i>: 25 %</i>	<i>Paper</i>	<i>: 30 %</i>	<i>Total</i>	<i>: 100 %</i>	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
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Reading list	<ol style="list-style-type: none"> 1. <i>K. H. Rosen, Discrete Mathematics and Its Applications, 7th Edition, McGraw-Hill, Inc., International Editions, 2013.</i> 2. <i>Kolman/Busby/Ross, Discrete Mathematical Structures, 5th ed., 2003, Prentice Hall.</i> 																																