UNIVERSITAS INDONESIA
Faculty of Mathematics and Natural Sciences
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MODULE HANDBOOK

Module designation	*Graph Theory*
Semester(s) in which the module is taught	*4*
Person responsible for the module	*Dr. Kiki Ariyanti Sugeng*
Language	*Indonesia and English*
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/credit point* *Contact hours: 50 minutes synchronous and 120 minutes asynchronous (independent study/ reading, doing homework, discussion with peers)*
Credit points	*3 SKS (4.77 ECTS)*
Required and recommended prerequisites for joining the module	*Linear Algebra* *Discrete Mathematics*
Module objectives/intended learning outcomes	*After completing this module, student be able to* 1. *Explain the basic concepts of graph theory and graph properties.* 2. *Using graphs as a tool to model real-world problems (Transportation, clustering, etc.).* 3. *Using graph labeling as a tool to solve several related problems.* 4. *Communicate well to explain the concept of graph theory.* 5. *Present the results of group discussions / research.*

Content	*Undirected Graph, Isomorphism, Tree, Connectivity, Graph Coloring, Directed Graph* *Project: Graph Labeling; Combinatorial Optimisation.*
Examination forms	*Essay, Presentation Slide*
Study and examination requirements	*The final score is the composition of mid-test scores, quizzes, and assignments with the following weight:* *Quiz : 10 %* *Discussion : 20 %* *Presentation : 10 %* *Mid-test : 30 %* *Paper : 30 %* *Total : 100 %* <table><tr><td>*Mark*</td><td>*Grade*</td></tr><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></table>
Reading list	1. *Chartrand, G. and Zhang, P., 2012, A First Course to Graph Theory, Mc Graw Hill.* 2. *D. B. West, Introduction to Graph Theory, Prentice Hall, 2001.* 3. *K. Sugeng, S. Slamet dan D. Riama, Teori Graf dan Aplikasinya, Departemen Matematika FMIPA UI, 2014.* 4. *Various articles*