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Doctor in Mathematics

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MODULE HANDBOOK

Module Name	Advanced Graph and Combinatorics
Module level, if applicable	Doctor
Code, if applicable	MMM 7206
Subtitle, if applicable	-
Courses, if applicable	Advanced Graph and Combinatorics
Semester(s) in which the module is taught	First year
Person responsible for the module	Chair of Algebra Research Group
Lecturer(s)	Dr. Yeni Susanti Uha Isnaini, Ph.D.
Language	Indonesia
Relation to curriculum	Elective courses
Teaching methods	Lecture, presentation
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: Contact hours: 150 minutes lectures per week, 180 minutes structured activities per week, 180 hours individual study, 16 weeks per semester (including mid-term and final examinations), in total 136 hours per semester.
Credit points	3

Required and recommended prerequisites for joining the module	Before taking this course, students must master the introduction to graph theory and discrete mathematics and probably some other basic theory related to dissertation topic such as group theory, ring theory, linear algebra theory and number theory
Module objectives/intended learning outcomes	Upon successful completion of this course, students are able to: ● CO 1: clarify various concepts, philosophies, definitions and important properties of advanced theory in graph theory and combinatorics ● CO 2: prove the concepts of some theory in graph theory and combinatorics that is related to the topic of dissertation ● CO 3: make a conjecture on the continuation of the problem on the concept of graph theory and combinatorics ● CO 4: develop special knowledge related to graph theory and combinatorics concepts that is related to the topics of courses supporting dissertation
Content	● This course provides material to students about some topics in graph theory and combinatorics ● Topics and syllabus will be adjusted to the dissertation topic
Examination forms	Lectures, a compulsory project, compulsory assignments.
Study and examination requirements	The final mark will be weighted as follows: No Assessment methods (components, activities) Weight (percentage) 1 Final Examination 25 % 2 Assignment 25 % 3 Project 50 % To pass the course, the minimum grade is B (70%))
Media employed	White Board, LCD Projector, Laptop/Computer

Reading list	References may take from the following list: 1. Ravindra B. Bapat, 2010, Graphs and Matrices, Springer 2. Chris Godsil and Gordon Royle, 2001, Algebraic Graph Theory, Springer 3. Norman Biggs, 1996, Algebraic Graph Theory, Cambridge University Press 4. Ulrich Knauer, 2011, Algebraic Graph Theory, De Gruyter 5. Lowell W. Beineke, Jay S. Bagga, 2021, Line Graphs and Line Digraphs, Springer 6. Dougherty, S.T., 2020, Combinatorics and Finite Geometry, Springer International Publishing 7. Reinhard Diestel, 2005, Graph Theory, Springer Verlag Heidelberg New York 8. Rosen, K.H., 2011, Discrete Mathematics and Its Applications, Seventh Edition, Mc-Graw Hill Education 9. Robin J. Wilson, 1998, Introduction to Graph Theory, Fourth Edition, Addison Wesley Longman 10. Van Lint, J.H., Wilson, R.M., 1992, A Course in Combinatorics, Cambridge university Press 11. Bose, R.C., Manvel, B., 1983, Introduction to Combinatorial Theory, Colorado State University, John Wiley and Sons 12. Gallian J.A. , A Dynamic Survey of Graph Labelling: The Electronic Journal of Combinatorics

CO-PLO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6
CO-1	V	V				
CO-2	V	V				
CO-3	V	V				
CO-4	V	V				

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