Module Description of Special Topics in Combinatorics

Module Name	:	Special Topics in Combinatorics
Module Level	:	Bachelor
Code, if applicable	:	23H01131803
Subtitle, if applicable	:	-
Courses, if applicable	:	Special Topics in Combinatorics
Semester(s) in which the module is taught	:	5 (Fifth Semester)
Module coordinator(s)	:	Prof. Dr. Hasmawati, M.Si.
Lecturer(s)	:	Prof. Dr. Hasmawati, M.Si. Dr. Nurdin, S.Si., M.Si.
Language	:	Bahasa (Indonesian language)
Relation to curriculum	:	Elective course in third year for Bachelor degree in Mathematics
Type of teaching/teaching method	:	Lecturing, Small Group Discussion, Cooperative Learning, Self-Directed Learning
Contact hours	:	150 minutes lectures per week, 180 minutes structured activities per week, and 180 minutes independent study per week
Workload	:	Total workload is 135 hours per semester which consists of 40 hours per semester for Learning and Teaching, 47.5 hours per semester for Self-Study, and 47.5 hours per semester for Structured Works
Credit points	:	3 SKS (4.8 ECTS)
Requirements according to the examination regulations		Students are required to attend at least 80% of the total meetings which is recorded via the attendance menu at https://sikola-v2.unhas.ac.id/, complete all mandatory assignments, and obtain permission from the lecturer to participate in the written examination.
Recommended prerequisites	:	Students have completed and taken the exams for Discrete Mathematics and Graph Theory
Module objectives/intended learning outcomes	:	After completion of this module, students are able to: CLO 1. solve simple problems of a graph labeling problems, Ramsey problem, metric dimension, and partition problem CLO 2. construct a state of the art of a research topic in a structured and grammatically correct manner CLO 3. develop the fundamentals of one research topic in the area CLO 4. present the state of the art by internalizing academic values, norms, and ethics The following is the mapping of the ILO and the CO of this course:

	ILO 6	ILO 7	ILO 8	ILO 9
CLO 1	X	X		
CLO 2	X		X	
CLO 3		X	X	
CLO 4				X

Content	:	The course provides four main groups of study materials, namely graph labeling, Ramsey theory, metric dimension, and partition dimension. All of these topics are within the scope of graph theory and are designed to help students in identifying and developing their final project topics
Study and examination requirements		Study and examination requirements: ● Students must attend 15 minutes before the class starts. ● Students must switch off all electronic devices. ● Students must inform the lecturer if they will not attend the class due to sickness, etc. ● Students must submit all class assignments before the deadline. ● Students must attend the exam to get final grade.
Exams and assessment formats		Participants are marked based on their performance in theory: Report (95%), and Assignments (5%). Assignments assess student's ability to apply concepts independently, while Reports measure analytical and writing skills. Altogether, these components account for 100% of the final grade. In this course, there are four assessments component, i.e. individual work, team work, team presentation, and team discussion. The score is the all-assessments component is 5% for assignments and 95% for report. Students are marked based on their percentage of points obtained and based on the following grade scale:

Percentage of Achievement	Grade	Conversion Value
85 – 100	A	4.00
80 - <85	A-	3.75
75 - < 80	B+	3.5
70 - < 75	B	3.0
65 - < 70	B-	2.75
60 - < 65	C+	2.5
50 - < 60	C	2.00
40 - < 50	D	1.00
< 40	E	0.00

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| Reading list | | 1. Lase, D., Hinding, N., & Amir, A. K. (2022). Modular Irregular Labeling on Firecrackers Graphs. Proximal: Jurnal Penelitian Matematika Dan Pendidikan Matematika, 6(1), 94-102. https://doi.org/10.30605/proximal.v6i1.2188
2. Hinding, N., Sugeng, K.A., Nurlindah, Wahyudi, T.J., Simanjuntak, R., Two types irregular labelling on dodecahedral modified generalization graph, *Heliyon*, 2022, 8(11), e11197.
3. Hasmawati, Hinding, N., Nurwahyu, B., Syukur Daming, A., Kamal Amir, A., The partition dimension of the vertex amalgamation of |

		some cycles, **Heliyon**, 2022, 8(6), e09596 Gary Chartrand, Ortrud R. Oellermann, (1993), Applied and algorithmic Graph Theory, McGRAW-HILL 4. Sugeng, K.A., Barack, Z.Z., Hinding, N., Simanjuntak, R, *Modular Irregular Labeling on Double-Star and Friendship Graphs*, **Journal of Mathematics**, 2021, 2021, 4746609. 5. J.A. Gallian, *Graph Labeling*, Electron. J. Combin. Dyn. Surv. DS6 (2023). 6. Reinhard Diestel (2000), Graph Theory, Graduate Texts In Mathematics, Springer. 7. Prof. Dr. Hasmawati, M.Si (2020), PENGANTAR TEORI DAN JENIS-JENIS GRAF, UPT Unhas Press. 8. Ronald L. graham, Bruce H. Rothschild, Joel H. Spencer. Ramsey Theory, JOHN WILEY & SONS, New York. 9. Reinhard Diestel (2000), Graph Theory, Graduate Texts In Mathematics, Springer. 10. Peraturan Rektor nomor 29/UN4.1/2023 tentang Penyelenggaraan Program Sarjana Universitas Hasanuddin
Last revision date		July 28th, 2025