UNIVERSITAS NEGERI YOGYAKARTA

FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF MATHEMATICS EDUCATION

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Bachelor of Science in Mathematics   **MODULE HANDBOOK**

Module name:	Coding Theory
Module level,if applicable:	Undergraduate
Code:	MAT6342
Sub-heading,if applicable:	-
Classes,if applicable:	-
Semester:	7th
Module coordinator:	Dwi Lestari, M.Sc.
Lecturer(s):	Dwi Lestari, M.Sc.
Language:	Bahasa Indonesia
Classification within the curriculum:	Elective course
Teaching format / class hours perweek during the semester:	150 minutes lectures and 180 minutes structured activities per week.
Workload:	Total workload is 136 hours per semester which consists of 150 minutes lectures, 180 minutes structured activities, and 180 minutes self-study per week for 16 weeks.
Creditpoints:	3
Prerequisites course(s):	Advanced Abstract Algebra (MAT6318)
Course Outcomes:	After taking this course the students have ability to: CO1. Appreciate the work and opinions of other groups in submitting ideas in writing or verbally CO2. Demonstrate collaborative attitude and independence in carrying out independent tasks and group assignments CO3. Communicate ideas in solving mathematical problems in

	writing or verbally
	CO4. Explain the basic concepts of error correction code theory and can apply them to solve related problems.
	CO5. Proving properties, lemmas, and theorems to be applied in logical reasoning
	CO6. Use algorithms to solve related problems
Content:	This course discusses about the basic concepts of error correction codes which includes the basic concepts of the finite field, vector space on a finite field, ring ideal, linear codes which includes the generator matrix, dual codes, Hamming codes, perfect codes, parity-check matrix, decoding a single error correction code, standard decoding arrays, cyclic codes.
Study/exam achievements:	CO1: Attitude assessment is carried out at each meeting by observation and / or self-assessment techniques using the assumption that basically every student has a good attitude. The student is given a value of very good or not good attitudeif they show it significantly compared to other students in general. The result of attitude assessment is not a component of the final grades, but as one of therequirements to pass the course. Students will pass from this course if at least have a good attitude.

The final mark will be weight as follow:

No	CO	Assesment Object	Assessment Techniques	Weight
1	CO 1, CO 3	Group Presentation	Observation/ presentation test	30%
2	CO 2	Collaborative skills	Observation	10%
3	CO 4, CO 5, CO 6	a. Individual assignments and group assignments b. Final Exam	Written Test	25 % 35%
			Total	100%

Formsof media:	Board, LCD Projector, Laptop/Computer
Literature:	1. Vanstone, S.A, and Oorschot, P.C.V. 1989. An

		Introduction to Error Correcting Codes with Applications. Kluwer Academic Publisher
	2.	Ling, S. and Xing, C. 2004. Coding Theory: A First Course. Cambridge: Cambridge University Press.
	3.	Hill, R. 1986. A First Course In Coding Theory. Oxford: Clarendon Press.

PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10
CO1		✓								
CO2			✓							
CO3				✓						
CO4					✓					
CO5						✓				
CO6								✓		