UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF MATHEMATICS EDUCATION
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Bachelor of Science in Mathematics

Module name:	Fractal Geometry
Module level,if applicable:	Undergraduate
Code:	MAT6349
Sub-heading,if applicable:	-
Classes,if applicable:	-
Semester:	7th
Module coordinator:	Nikenasih Binatari, M.Si.
Lecturer(s):	Nikenasih Binatari, M.Si.
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):	Real Analysis(MAT6325)
Courseoutcomes:	After taking this course the students have ability to: CO1. Demonstrate collaborative attitude and independence in carrying out independent tasks and group assignments CO2. Communicate ideas in solving mathematical problems in writing or verbally CO3. Understand the basics of fractal geometry.

	CO4. Explain the application of fractal geometry. CO5. Use Fractal IFS and Geogebra to draw Fractals
Content:	This course discusses about Introduction Hausdorff measure and dimension, alternative definition of dimensions, local structure of fractal, operations on fractal, Iterated Function System, application on number theory and dynamic system, Julia set, Brownian motion and surface.
	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 the requirements 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:
Formsof media:	Board, LCD Projector, Laptop/Computer
Literature:	1. Kenneth Falconer. 2003. *Fractal Geometry: Mathematical Foundations and Applications.*Second edition. John Wiley & Sons: Chichester England 2. Larry S. Liebovitch. 1998. *Fractals and Chaos: Simplified for the Life Sciences*. Oxford University Press: New York. 3. Mandelbrot, Benoit B. 1983. *The Fractal Geometry of Nature*. W. H Freeman and Company. New York.

No	CO	Assesment Object	Assessment Techniques	Weight
1	CO 2	Presentation	Observation	10%
2	CO 3 and CO 4	a. Individual assignments b. group assignments c. Quiz d. Mid Exam e. Final Exam	Written test	10% 10% 10% 20% 25%
3	CO 5	Media to demonstrate	Observation	15%
			Total	100%

PLO and CO mapping

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