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

Module name:	Introduction to Lebesque Measure Theory and Integral
Module level,if applicable:	Undergraduate
Code:	MAT6346
Sub-heading,if applicable:	-
Classes,if applicable:	-
Semester:	7th
Module coordinator:	Dr. Hartono
Lecturer(s):	1. Dr. Hartono 2. Kus Prihantoso Krisnawan, M.Si.
Language:	Bahasa Indonesia
Classification within the curriculum:	Objective course
Teaching format / class hoursperweekduring 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 Linear Algebra (MAT6326)
Course outcomes:	After taking this course the students have ability to: CO 1. Respecting other people's views, opinions,and original ideas CO 2. Understanding definitions, theorems, and some characteristics in mathematics using critical and

	systematic thinking in a manner individually or groups CO 3. Communicating, in writing or verbally, ideas to understand or solve mathematical problems. CO 4. Explaining the meaning or definition of terms and the intent of the theorems or properties in mathematics CO 5. Using related definitions and theorems to prove other properties or theorems.
Content:	This course contains some foundations on real number systems ($\mathbb{R}$), Lebesgue measure sets, Lebesgue measure functions, andLebesgue Integration. Firstly, it will be given the foundations, such as; reviewsonsets, countable and uncountable sets, sequences, and functions. Secondly, the subject of Lebesgue measure sets includes: Lebesgue outer measure, measurable sets, and non-measurable sets. Finally, the subject of Lebesgue measure functionscontains: sums, products and compositions,measurable functions, and sequences of measurable functions. And, at the end of the course we discussed the Lebesgue integration which contains:the Riemann integral, the Lebesgue integral for functions on sets of finite measure, the Lebesgue integral for nonnegative measurable functions, and the general Lebesgue integral.
Study/exam achievements:	CO1: Attitude assessment is carried out at each meeting using observation and / or self-assessment techniques by the assumption that every student is good. The student will be given a value as very good or not good if he/she shows, significantly,excellent or poor attitude. The results of attitude assessment used as one of the graduation requirements. The final grades will be weight as follow:

No	CO	Objek Penilaian	Teknik Penilaian	Bobot
1	CO 2 and 4	a. Presentation b. Individual Assignment	Observation Written	10% 10%

			c. Quiz	Written	20%	
	2	CO 3 and5	a. Group Assignment	Written	10%	
			b. Mid test		20%	
			c. Final test		30%	
				Total	100%	

Forms of media:	Board, LCD Projector, Laptop/Computer
Literature:	1. Royden, H.L. and Fitzpatrick, P.M. 2010. *Real Analysis*. Fourth Edition.Pearson Education Asia Limited and China Machine Press. 2. Frank Burk. 1998. *Lebesgue Measure and Integration: An Introduction*. New York: Jhon Wiley&Sons. 3. Bear, H.S. 2002. *A Primer of Lebesgue Integration*. Second Edition. New York: Academic Press. 4. Wilcox, H. and Myers, D.L. 1978. *An Introduction to Lebesgue Integration and Fourier Series*. Huntington, New York: Robert E. Krieger Publishing Company, Inc.

PLO and CO mapping

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