UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF MATHEMATICS EDUCATION
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Module name:	Real Analysis
Module level, if applicable:	Undergraduate
Code:	MAT6325
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	5th
Module coordinator:	Kus Prihantoso Krisnawan, M.Si.
Lecturer(s):	Kus Prihantoso Krisnawan, M.Si. Husna Arifah, M.Sc. Fitriana Yuli S., M.Si.
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory course
Teaching format / class hours per week 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.
Credit points:	3
Prerequisites course(s):	Advanced Calculus (MAT 6313)
Course outcomes:	After taking this course the students have ability to: CO 1. Demonstrating individual independence in carrying out tasks CO 2. Communicating, in writing or verbally, ideas to understand or solve mathematical problems

<table>
<tr><td></td><td>CO 3. Demonstrating collaborative attitudes in the learning process or completing group assignments
CO 4. Explaining the definition of a term and the intent of the theorem or properties in mathematics
CO 5. Using related definitions and theorems to prove another properties or theorems.</td></tr>
<tr><td>Content:</td><td>This course contains some foundations on mathematical proofs, real number systems (ℝ), sequences and series, some concepts of sets topology, and functions. Firstly, it will be given the foundations, such as; reviews on bijective functions, mathematical induction, countable and uncountable sets. Secondly, the subject of the real number system includes: rational and irrational numbers, the order properties of ℝ, and the completeness property of ℝ. The subject sequences and series include: limit sequence, monotonous sequence, sub-sequences, Cauchy criteria, and several properties of series. Finally, the subject of several topological concepts includes: open set, closed set, and compact set. And, at the end of the course we discussed the limit of functions, piecewise and uniform continuity of functions.</td></tr>
<tr><td>Study / exam achievements:</td><td>1. Assessment is carried out to measure all learning outcomes, namely the outcomes of attitude learning (CO 1), general skills (CO 2 and 3), knowledge (CO 4), and special skills (CO 5).
2. 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.
3. The final grades will be weight as follow:
<table>
<tr><th>No</th><th>CO</th><th>Objek Penilaian</th><th>Teknik Penilaian</th><th>Bobot</th></tr>
<tr><td>1</td><td>CO 2 and 4</td><td>a. Presentation
b. Individual Assignment
c. Quiz</td><td>Observation
Written

Written</td><td>10%
10%

20%</td></tr>
<tr><td>2</td><td>CO 3 and 5</td><td>a. Group Assignment
b. Mid test
c. Final test</td><td>Written</td><td>10%

20%
30%</td></tr>
<tr><td colspan="4">Total</td><td>100%</td></tr>
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</td></tr>
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Forms of media:	Board, LCD Projector, Laptop/Computer
Literature:	1. Abbot, S. 2010. *Understanding Analysis*. New York: Springer Science Business Media, Inc. 2. Bartle,R.G.& Sherbet D.R. 2000. *Introduction to Real Analysis*. Third Edition. New York: Jhon Wiley & Sons. 3. Brannan, D.A. 2006. *A First Course in Mathematical Analysis*. Cambridge: Cambridge University Press. 4. Davidson, K.R. & Donsig, A.P. 2010. *Real Analysis with Applications*. Upper Sadle River: Prentice-Hall, Inc. 5. Walter Rudin, 2000. *Principles of Mathematical Analysis, Third Edition.* McGraw-Hill, Inc.

PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO 11	PLO 12
CO1		✓										
CO2			✓									
CO3			✓									
CO4						✓						
CO5							✓					