MINISTRY OF HIGHER EDUCATION, SCIENCE, AND TECHNOLOGY
UNIVERSITAS NEGERI SURABAYA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
UNDERGRADUATE PROGRAM OF MATHEMATICS EDUCATION
Ketintang Campus, Jalan Ketintang, C8 C9 Building, Surabaya 60231
Phone: +62 895335466373, email: s1-pmat@unesa.ac.id
Website: https://pendidikan-matematika.fmipa.unesa.ac.id/

Module Name:	Real Analysis Analisis Real
Module Level:	Sarjana (S-1) / Undergraduate
Abbreviation, if applicable:	8420203004
Sub-heading, if applicable:	-
Course included in the module, if applicable:	-
Semester/term:	3 / Second Year
Module Coordinator(s):	Prof. Dr. Manuharawati, M.Si
Lecturer(s):	Prof. Dr. Manuharawati, M.Si Dr. Abdul Haris Rosyidi, S.Pd., M.Pd. Dwi Nur Yunianti, S.Si., M.Sc. Dr. Nia Wahyu Damayanti, S.Pd., M.Pd. Muhammad Jakfar, S.Si., M.Si. Novita Vindri Harini, M.Pd
Language:	Indonesia
Classification within the curriculum:	Compulsory course~~/elective studies~~
Teaching format/class hours per week during the semester	Teaching format: lectures, tutorial assignment, and individual Study/3 x 170 minutes = 510 minutes = 8.5 hours lectures
Workload:	16 weeks per semester consisting of: • 1 hour lectures (1 x 50 minutes) per week, • 1 hours assignments (1 x 60 minutes) per week, ➢ 1 hours individual study (1 x 60 minutes) per week, Total workload : 16x3x170 minutes = 8,160 minutes = 136 hours=4.8 ECTS*
Credit Point:	3
Requirements:	Foundation of Mathematics

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Learning Goals :	**PLO-5**: Possesses basic mathematical knowledge to solve mathematical problems and their applications in education. **PLO-6**: Masters the principles of mathematical knowledge to support mathematical thinking skills in solving mathematical problems.
Content:	Study the real number system (algebra of real numbers and their properties, rational and irrational numbers, sequence of real numbers and their properties, absolute value, surrounding points, supremum and infimum of a set and their properties, intervals and their properties, topology on the real line (special points of a set and their properties, open sets and closed sets and their properties), sequences of real numbers (limits of sequences, properties of sequence limits, tails of sequences, monotone sequence, partial sequence, divergent sequence, Cauchy's criterion, contractive sequence).
Study/exam achievements	• Students are considered competent and pass if the final score is at least 55 or C. • Final score is calculated as follows:

Week	Course Learning Outcomes (CLO)	Programme Learning Outcomes (PLO)	Evaluation (%)
1	CLO-1	PLO-6	5
2	CLO-3	PLO-5	10
3	CLO-2	PLO-5	5
4	CLO-1	PLO-5	5
5	CLO-2	PLO-5	5
6	CLO-2	PLO-5	5
7	CLO-3	PLO-6	10
8	CLO-3	PLO-6	10
9	CLO-1	PLO-6	5
10	CLO-1	PLO-6	5
11	CLO-2	PLO-6	5
12	CLO-2	PLO-6	5

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	13 | CLO-1 | PLO-6 | 5 14 | CLO-2 | PLO-5 | 5 15 | CLO-2 | PLO-5 | 5 16 | CLO-3 | PLO-5 | 10 • Final index is defined as follow: Index | Converted Score | Score Range A | 4.00 | $85 \leq A \leq 100$ A- | 3.75 | $80 \leq A- < 85$ B+ | 3.50 | $75 \leq B+ < 80$ B | 3.00 | $70 \leq B < 75$ B- | 2.75 | $65 \leq B- < 70$ C+ | 2.50 | $60 \leq C+ < 65$ C | 2.00 | $55 \leq C < 60$ D | 1.00 | $40 \leq D < 55$ E | 0.00 | $0 \leq E < 40$
Forms of Media	Slides and LCD projectors, whiteboard
Literature	1. Bartle, R.G. Sherbert Donald R. 2011. Introduction to Real Analysis (Fourth Edition), New York, John Wiley and Sons. 2. DePree, J. D. and Swartz, C. W. 1988. Introduction to Real Analysis. New York. John Wiley & Sons. 3. Manuharawati. 2014. Analisis Real. Zifatama: Surabaya. 4. Fuad, Y dan Soedjadi, R. 1997. Handbook Matakuliah Analisis Riil. Pascasarjana IKIP Surabaya. 5. Parzynski, R. and Zipse, P. W. 1987. Introduction to Mathematical Analysis. Auckland. McGraw-Hill Book Company.
Note	Based on the regulation of the minister of education and culture of Indonesia number 3 of 2020 concerning national higher education standards, it is state 1 CU equals to 170 minutes per week. Therefore, in one semester (16 weeks, including midterm a final exam) 1 CU = 170 X 16 = 2.720 minutes or 45.3 hours. Therefore, workhours in 144 CU x 45.3 hours = 6.523,2 hours. Unesa decided that 1 ECTS with 144 CU, 6.523,2/229 ECTS = 28.48 hours, so that 1 CU = 1.59 ECTS

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