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MODULE HANDBOOK

Module name	Introduction to Analysis I
Module level, if applicable	Bachelor
Code, if applicable	MMM-3101
Subtitle, if applicable	-
Courses, if applicable	Introduction to Analysis I
Semester(s) in which the module is taught	5th (fifth)
Person responsible for the module	Chair of Analysis Laboratory
Lecturer(s)	Prof. Dr. Supama, M.Si Drs. Yusuf, M.A.
Language	Indonesia
Relation to curriculum	Compulsory course in the third year (5th semester) Bachelor Degree
Type of teaching, contact hours	150 minutes lectures, 180 minutes structured activities.
Workload	Total workload is 136 hours per semester, which consists of 150 minutes lectures per week for 14 weeks, 180 minutes structured activities per week, 180 minutes individual study per week, in total is 16 weeks per semester, including mid exam and final exam.
Credit points	3
Requirements according to the examination regulations	Students have taken Introduction to Analysis I course (MMM-3101) and have an examination card where the course is stated on.
Recommended prerequisites	Advanced Calculus.
Module objectives/intended learning outcomes	After completing this course, the students: CO 1. have ability to determine limit points, interior points, and boundary points of sets, and indicate whether a set is open or closed.. CO 2. have ability to prove the convergence of sequences and the limits. CO 3. have ability to prove the limit and the continuity of functions. CO 4. have ability to prove properties relates to derivative and apply the derivative to Rolle's Theorem, Mean Value Theorem, and Taylor's Theorem.
Content	• Real Numbers system $\mathbb{R}$: properties of real numbers system, order relation, absolute value, topology on $\mathbb{R}$, completeness of $\mathbb{R}$, nested interval. • Sequence of real numbers: convergence, monotonic sequences, Cauchy criteria, relation between Cauchy criteria and convergence of sequences. • Limit of functions: definition and properties of limit. • Continuity: definition, properties of continuous functions, uniformly continuous, monotonic functions, invers functions, approximation. • Derivative: definition and properties of derivative, Rolle's Theorem, Mean Value Theorem, and Taylor's Theorem.
Study and examination requirements and forms of examination	The final mark will be weighted as follows: No — Assessment methods (components, activities) — Weight (percentage) 1 — Final Examination — 45% 2 — Mid-Term Examination — 30% 3 — Class Activities: Quiz, Homework, etc. — 25% The initial cut-off points for grades A, B, C, and D should not be less than 80%, 70%, 50%, and 40%, respectively.

Media employed	White-board
Reading List	1. Robert G. Bartle and Donald R. Sherbert, 2011, Introduction to Real Analysis, 4th Edition, John Wiley and Sons, USA. 2. Halsey L. Royden, and Patrick M. Fitzpatrick, 2010, Real Analysis, 4th Edition, Prentice Hall.

PI and CO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CO 1			v			v	v		v
CO 2			v				v		v
CO 3			v				v		v
CO 4			v			v	v		