Real Analysis 2

Module designation	Real Analysis 2
Semester(s) in which the module is taught	5
Person responsible for the module	Dr. Yudi Mahatma, M.Si.
Language	Indonesia
Relation to curriculum	*Compulsory*
Teaching methods	Teaching methods used in this course are: • Lecture (i.e., small group discussions and project-based learning) • Structured assignments (i.e., project development and presentations)
Workload (incl. contact hours, self-study hours)	Total workload is 510 minutes per week which consists of 150 minutes learning activity, 180 minutes structured task and 180 minutes individual learning per week for 16 weeks. **TOTAL WORKLOAD PER SEMESTER** **510 X 16 = 8160 minutes = 136 hours**
Credit points	136 hours / 30 hours ≈ 4,5 ECTS
Required and recommended prerequisites for joining the module	Real Analysis 1 course
Module objectives/intended learning outcomes	- Students master the concept of limits including definitions, properties, and theorems related to limits - Students master the extensions of the limit concept including one-sided limits, infinite limits, and limit at infinity - Students master the concept of continuity of a function and are able to mention the properties of a continuous function - Students master the concept of the derivative of a function including definition, properties, and techniques for calculating derivatives - Students are familiar with the Mean Value Theorem, L'Hospital's Rule, and are able to apply it in solving problems - Students master the concept of Riemann integral, indefinite integral, and the Fundamental Theorem of Calculus

Content	**Students will learn about:** Limits, Continuous Functions, Monotone Functions, Inverse Functions, Derivatives, Mean Value Theorem, L'Hospital's Rule, Riemann Integral, and Fundamental Theorem of Calculus
Examination forms	Assessment for this course includes: 50% structured assignments, 20% midterms and 30% final exams
Study and examination requirements	**Study and examination requirements:** Students should have attended all lectures and submitted all scheduled individual and group assignments prior to the final examination.
Reading list	**Main References:** Bartle, R. G. and Donald R. Sherbert, Introduction to Real Analysis, Fourth Edition, John Wiley & Sons **Additional References:** Purcell, R. J. and Dale Varberg, Calculus with Analytic Geometry, Fifth Edition, Prentice Hall, 1987