Module Descriptions

A **module** is a self-contained **learning unit** within a higher education program that includes thematically related courses and is assigned a **fixed number of credits**. It follows specific **learning objectives**, includes an **assessment component**, and contributes to achieving the qualifications of a degree program. In some countries, “modules” are also named “courses”.

Please provide a module description for each module. In addition to the compulsory and elective modules, this also includes credited internships and the final thesis.

Please summarize all module descriptions in one document (Module Handbook) and create a table of contents so that the modules can be found easily.

Module designation	*Real Analysis*
Semester(s) in which the module is taught	*1*
Person responsible for the module	*Prof. Dr. Hartono M.Si.* *Dr. Karyati, M.Si.*
Language	*Indonesian.*
Relation to curriculum	*Compulsory.*
Teaching methods	*Lecture and discussion.*
Workload (incl. contact hours, self-study hours)	*Total workload is 90.67 hours per semester which consists of 100 minutes lectures, 120 minutes structured activities, and 120 minutes self-study per week for 16 weeks.*
Credit points	*2*
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	*After taking this course the students have ability to:* *CO1. Understand about Riemann integrable function.* *CO2. Understand about the derivative of a real valued function and Caratheodory theorem.* *CO3. Prove some theorems of derivative of real valued function.* *CO4. Solving the problems related with the derivative.* *CO5. Solving problems related with Riemann integral.*
Content	*This Real Analysis course covers the fundamentals of mathematical analysis related to differentiation and integration. The differential topics in $\mathbb{R}$ include derivatives, the interior maximum theorem, Rolle’s theorem, the mean value theorem and its applications, as well as Taylor’s theorem and its applications. The topics on Riemann integration in $\mathbb{R}$ include the definition of the Riemann integral, Riemann-integrable functions, the fundamental theorem of calculus, and its applications.*
Examination forms	*Presentations and written tests.*

Study and examination requirements	*The course assessment is divided into two main components:* 1. ***Cognitive Assessment (50%)*** *This includes the following elements:* ○ *Attendance: 5%* ○ *Quiz: 0%* ○ *Assignment:0%* ○ *Midterm Exam (UTS): 20%* ○ *Final Exam (UAS): 25%* 2. ***Participatory Assessment (50%)*** *This includes:* ○ *Case Study: 25%* ○ *Team-Based Project: 25%* ***Total: 100%***
Reading list	*1. Bartle, R.G. and Sherbert, D.R. 2011. Introduction to Real Analysis. 4th Edition. New York: John Wiley & Sons, Inc.* *2. Trench, W.F. 2003. Introduction To Real Analysis. New York: Pearson Publication.* *3. Sudhir R.G.and Balmohan V. L., 2018. A Course in Calculus and Real Analysis, 2nd Edition. Switzerland : Springer Nature*