Mathematical Modelling

Module designation	Course Module: Mathematical Modelling
Semester(s) in which the module is taught	2 (even semester)
Person responsible for the module	Dr. Eti Dwi Wiraningsih
Language	Bahasa Indonesia
Relation to curriculum	Elective
Teaching methods	Lecture and Project
Workload (incl. contact hours, self-study hours)	For this course, students required to meet a minimum of 231,99 hours in one semester, which consist of 39,99 hours for lecture 96 hours for structured assignments 96 hours for private study
Credit points	5,2 ECTS / 2 Credit Point
Required and recommended prerequisites for joining the module	Completing Mathematical course.
Module objectives/intended learning outcomes	Students are able to: 1. Formulate questions as a basis for modeling a problem. 2. Describe the mathematical variables needed in modeling to solve a problem. 3. Construct a mathematical model. 4. Determine appropriate strategy in completing the mathematical model. 5. Analyze solutions from mathematical models. 6. Solve problems in non-mathematical language
Content	Students will learn about: Introduction to modeling concepts and theory, Modeling methodology, Application of mathematical concepts in mathematical modeling, Selection of topics/cases of mathematical modeling, Model design and independent work, Model analysis, solution model, Model analysis for model development.
Examination forms	Assessment of the learning process according to the following components: assignments 20%; mid-term project 40%, and final-term project 40%.
Study and examination requirements	**Study and examination requirements:** • Students must attend 15 minutes before the class starts. • Students must inform the lecturer if they cannot attend the class due to sickness, etc. • Students must submit all class assignments before the deadline. **Form of examination:** Individual and group projects
Reading list	1. V. Capasso, "Lecture Notes in Biomathematics: Mathematical Structures of Epidemic Systems," New York : Springer-Verlag , 2008. 2. E. A. Bender, "An Introduction to Mathematical Modelling," New York : John Wiley & Sons, Inc., 1978. 3. C. L. Dym, "Principles of Mathematical Modelling" Second Edition, Elsevier Academic Press, 2004.

	4. Haberman, Richard. 1998. Mathematical Models. SIAM, Pentice Hall, Inc, New Jersey. 5. Edward, Diwlyn. 2001. Guide to Mathematical Modelling. 2nd Ed. Palgrave