



UNIVERSITAS MATARAM
(University of Mataram)
FAKULTAS TEKNIK
(Faculty of Engineering)
PROGRAM STUDI TEKNIK INFORMATIKA
(Department of Informatics Engineering)

MODULE HANDBOOK DESCRIPTION

Simulation and Modelling (K22B62)

Module designation	Simulation and Modelling
Semester(s) in which the module is taught	<i>4 / fourth year</i>
Person responsible for the module	<i>Dr. Ario Yudo Husodo S.T., M.T. Arik Aranta, S.Kom, M.Kom.</i>
Language	<i>Indonesian</i>
Relation to curriculum	<i>Compulsory</i>
Teaching methods	<i>Lectures, Discussions, Project</i>
Workload (incl. contact hours, self-study hours)	Contact Hours every week, each week of the 16 weeks/semester including Evaluation <ul style="list-style-type: none"> ● 3 x 50 minutes lecturer/week ● 3 x 60 minutes class exercise/week ● Self Study hours = 120 minutes/week Total workload 450 minutes/week
Credit points	<i>3 (~ 3,2 ECTS)</i>
Required and recommended prerequisites for joining the module	- Probability Statistic

<p>Module objectives/intended learning outcomes</p>	<p>The course will introduce the basic concepts of computation through modeling and simulation that are increasingly being used by engineers to shorten design cycles, innovate new products, and evaluate designs and simulate the impacts of alternative approaches.</p> <ol style="list-style-type: none"> 1. Able to master the concept of modeling and simulation and their implementation in real life 2. Able to distinguish discrete data, continuous data, time series data and non time series data 3. Able to choose data processing tools according to the type of data to be processed, using complex data processing software 4. Students are able to carry out the plotting process on various types of data found in the form of charts (Pie, Scatter, Bar and Line Graphics) 5. Students are able to normalize / preprocess data and test with the normalization test method and the data homogeneity test method 6. Students are able to analyze data using data processing methods 7. Students are able to present the results of analysis of data using data processing methods
<p>Content</p>	<p>The course will introduce the basic concepts of computation through modeling and simulation that are increasingly being used by engineers to shorten design cycles, innovate new products, and evaluate designs and simulate the impacts of alternative approaches. Students will use R language to explore a range of programming and modeling concepts while acquiring those skills. They will then undertake a final project that analyzes one of a variety of scientific problems by designing a representative model, implementing the model, completing a verification and validation process of the model, reporting on the model in oral and written form, and changing the model to reflect corrections, improvements and enhancements.</p>
<p>Examination forms</p>	<p><i>Assignments, Quiz, Simulation, Project (Oral Presentation)</i></p>
<p>Study and examination requirements</p>	<p><i>Assignments 20%, Simulation 30%, Project 50%</i></p>

Reading list	<ol style="list-style-type: none"><li data-bbox="544 230 1321 309">1. Fatwa Ramdani <i>Kuriositas, Metode Ilmiah Penelitian Teknologi Informasi</i> ISBN 978-602-432-773-6<li data-bbox="544 338 1321 416">2. Law Averill M “<i>Simulation Modeling and Analysis</i>” Tucson, Arizona, USA 2015
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