UNIVERSITAS MATARAM

(University of Mataram)

FAKULTAS TEKNIK

(Faculty of Engineering)

PROGRAM STUDI TEKNIK INFORMATIKA

(Department of Informatics Engineering)

MODULE HANDBOOK DESCRIPTION

Numerical Method (W22K31)

Module designation	Numerical Method
Semester(s) in which the module is taught	*3 / Second year*
Person responsible for the module	*Prof. Dr. Eng. I Gede Pasek Suta Wijaya, S.T., M.T.* *IBK Widiartha, ST., MT* *Arik Aranta, SKom., M.Kom*
Language	*Indonesian*
Relation to curriculum	*Compulsory*
Teaching methods	*Lectures, Discussions, Practical Work*
Workload (incl. contact hours, self-study hours)	Contact Hours every week, each week of the 16 weeks/semester including Evaluation ● 3 x 50 minutes lecturer/week ● 1 x 60 minutes class exercise/week ● 2 x 60 minute Laboratory ● Self Study hours = 180 minutes/week Total workload 520 minutes/week
Credit points	*3 (~ 4,8 ECTS)*
Required and recommended prerequisites for joining the module	Algorithm and Programming (W22K22)

Module objectives/intended learning outcomes	The main objective of Numerical Method courses is to provide an understanding of numerical methods for solving engineering problems with the help of computers. Topics covered include: Errors, Systems of linear equations, systems of nonlinear equations, approximation and interpolation, integration and differentiation, eigenvectors and eigenvalues, ordinary differential equations, and partial differential equations. Based on the objective, the learning outcomes of Numerical Method course: 1. Able to solve certain mathematical problems using the numerical method with good performance, 2. Able to create algorithms and computer programs for solving certain mathematical problems with good performance 3. Able to apply the numerical method to handle problems in the field of engineering and engineering with good performance.
Content	The Numerical Method course contains topics: 1. Introduction to numerical methods 2. Concept Error / Error 3. Solution of Nonlinear Equations 4. Solution of Linear Equations 5. Regression/Curve Fitting 6. Interpolation 7. Numerical Derivatives and Integration 9. Ordinary Differential Equations 10. Partial Differential Equation.
Examination forms	*Assignments, Practicum, Quiz, Middle and Final Exam*
Study and examination requirements	*Assignements 10%,* *Quiz 15 %,* *Practicum 30%* *Middle Exam 20 %,* *Final Exam 25%*

Reading list	1. S. Chapra and R. Canale, **Numerical Methods for Engineering**, McGraw Hill, 2014
	2. Ir Rinaldi Munir , **Metode Numerik untuk Teknik Informatika**, Informatika, 2000
	3. Ir. Djoko Luknanto, MSc., PhD., **Metode Numerik**, Universitas Gadjah Mada
	4. John W. Eaton, David Bateman, Søren Hauberg, **GNU Octave A high-level interactive language for numerical computations**, Edition 3 for Octave version 3.0.2, August 2008