



UNIVERSITY OF LAMPUNG

FACULTY OF TEACHER TRAINING AND EDUCATION

Department of Physics Education

Jl. Prof. Dr. Soemantri Brodjonegoro No. 1 Bandar Lampung 35145

MODULE HANDBOOK

Bachelor in Physics education

Module name	Basic Physical Mathematics
Module level	Undergraduate
Code	KFI620103
Courses	Basic Physical Mathematics
Description	This course is a compulsory course that is classified as a supporting course for other study programme skills. other study programme expertise courses. After completing this course, students are expected to have a good mastery of knowledge of various mathematical methods and techniques and can apply them to solve various physics problems. In this course, the main materials discussed are complex numbers, ordinary integrals and fold integrals, matrices and determinants, partial derivatives of functions, and ordinary differential equations.
Semester	Odd
Lecturer	Drs. I Dewa Putu Nyeneng, M.Sc. Anggreini, S.Pd., M.Pd.
Contact Person	+62 813-7453-0256
Language	Indonesian
Relation to curriculum	Undergraduate degree program, Mandatory, 2rd semester
Type of teaching, contact hours	Lectures and Discussions
Workload	Contact hours: 14 weeks x 150 minutes Structured learning: 14 weeks x 180 minutes Independent study: 14 weeks x 180 minutes

Credit points	3 (3-0) CP or 4.8 (ECTS) ((14 weeks x 150 minutes) + (14 weeks x 180 minutes) + (14 weeks x 180 minutes) : 60 minutes/hour = 119 hours : 25 hours of study/ ECTS = 4.8 (ECTS)
Requirements according to the Examination regulations	A student must have attended at least 80% of the lectures to sit in the exams.
Learning outcomes (course outcomes) and their corresponding PLOs	After completing this module, a student is expected to: 1. KNO 1 : Demonstrate knowledge of classical physics (mechanics, electrodynamics, thermodynamics, oscillations, waves and optics) and are familiar with the fundamentals of quantum, atomic and molecular, nuclear, elementary particle and solid state physics. 2. KNO 2 : Formulate physical systems using mathematics to solve physics problems.
Competencies/ Course Learning Outcomes	1. Students are able to apply the formula of infinite series and rank series independently. 2. Students are able to apply complex number systems in Mechanics, Thermodynamics and Waves independently. 3. Students are able to applies the concepts of linear equations, matrices, and determinants in various physics problems independently. 4. Students are able to solve various physics problems with a system of partial differential equations independently. 5. Students are able to solve various physics problems with integral systems correctly and responsibly. 6. Students are able to solve various physics problems with vector analysis correctly and responsibly.
Contents	1. Infinity series and rank series 2. Complex numbers 3. Linear equations, matrices, and determinants 4. Partial differential 5. Integral systems
Study and examination requirements and forms of examination	participants evaluated based on ; 1. Participation Activities (5%) 2. Quizzes (25%) 3. Assignment (20%) 4. Final Semester Exam (25%) 5. Midterm exams (25%)

Media employed	LCD, whiteboard, and online resources
Assessments and Evaluation	Written tests, assignments and quizzes.
Reading list	1. Bradbury, T. C. (1984). Mathematical Method with Applications to Problems in The Physical Sciences. 2. M. L. Boas. (2006). Mathematical Methods in the Physical Science, 3rd Edition.