

UNIVERSITY OF LAMPUNG

FACULTY OF TEACHER TRAINING AND EDUCATION

Department of Physics Education

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MODULE HANDBOOK

Bachelor in Physics education

Dania Mathamatica
Basic Mathematics
Undergraduate
KIE616101
Basic Mathematics
Discusses knowledge of various methods and techniques of
Physics Mathematics, and can use them in various problem solving
processes, related to Physics problems. This lecture discusses
material on various vector matrix equations and complex numbers
and their applications in Physics.
Odd
Dr. Kartini Herlina, M.Si.
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Indonesian
Elective
Discussion, Ask Answer Lectures, Presentation and Assignment
Contact hours: 14 weeks x 150 minutes
Structured learning: 14 weeks x 180 minutes
Independent study: 14 weeks x 180 minutes
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)
A student must have attended at least 80% of the lectures to sit in
the exams.

Learning	After completing this module, a student is expected to:
outcomes (course	1. KNO-1: Demonstrate knowledge of classical physics
outcomes) and	(mechanics, electrodynamics, thermodynamics, oscillations,
their	waves and optics) and are familiar with the fundamentals of
corresponding	quantum, atomic and molecular, nuclear, elementary particle
PLOs	and solid state physics.
	2. KNO-3: Applying Technology, Pedagogy, and Content
	Knowledge (TPACK) in planning, teaching, and evaluating
	physics learning.
	3. KNO-4: Using research methodology knowledge to solve
	physics education and learning problems.
Competencies/	Students are able to operate the real number system
Course Learning	2. Students are able to operate rational, irrational real numbers
Outcomes	3. Students are able to solve problem problems.
	4. Students are able to understand and operate functions.
	5. Students are able to: solve problems of function and limits.
	6. Students are able to understand and be able to determine the
	derivatives of functions.
	7. Students are able to determine the differential coefficient.
	8. Students are able to complete differentials in the form of
	functions of a function.
	9. Students are able to complete differential functions of implicit
	and parametric equations.
	10. Students are able to solve partial differential problems.
	11. Students are able to determine the differential inequality
	(integration) of a function.
	12. Students are able to solve integral parsial and integrant
	problems with partial fractions.
	13. Students are able to complete integrals with trigonometry.
	14. Students are able to complete integrals in squared form.
Contents	Rational and irrational real numbers, Inequality, Ineptitude with
35	absolute value, Function operation, Composite functions, Functions
	and function limits, Derivatives of functions, Differential of
	multiplication forms, Differential of division forms, Differential
	function of a function x, Differential of implicit functions,
	Differential of parametric equations, Partial differential, Integration,
	Integral function of a function, Partial integral, Partial fractional
	integral, Integral by form $\int \frac{d_z}{A^2-z^2}$ and Integral by form $\int \frac{d_z}{z^2-A^2}$

Study and	Written test
examination	
requirements and	
forms of	
examination	
Media employed	LCD, whiteboard, and online resources
Assessments and	Participants are evaluated based on ;
Evaluation	1. Participation Activities (15%)
	2. Presentation (15%)
	3. Final Semester Exam (25%)
	4. Midterm exams (25%)
	5. Assignment (20%)
Reading list	Calculus and analytical geometry vol. 1 C J. Purce