

Undergraduate Programme in Physics

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MODULE HANDBOOK

Module Name	Computational Physics													
Module level, if applicable	Bachelor													
Code, if applicable	FIS414014													
Subtitle, if applicable	-													
Courses, if applicable	Computational Physics (Komputasi Fisika)													
Semester(s) in which the module is taught	3 rd (third)													
Person responsible for the module	Chair of Computational Laboratory													
Lecturer(s)	Cecilia Yanuarief, S.Si., M.Si													
Language	Indonesia													
Relation to curriculum	Elective course in the second year (3 th semester) Bachelor Degree													
Type of teaching, contact hours	150 minutes lectures and 180 minutes structured activities per week.													
Workload	Total workload is 136 hours per semester, which consists of 150 minutes lectures per week for 14 weeks, 180 minutes structured activities per week, 180 minutes individual study per week, in total is 16 weeks per semester, including mid exam and final exam													
Credit points	4													
Requirements according to the examination regulations	Minimum attendance 75%													
Recommended prerequisites	No prerequisites stated on													
Module objectives/intended learning outcomes	<p>After completing this course, the students:</p> <p>CO 1. Students can understand and apply the concept of computational errors</p> <p>CO 2. Students can understand numerical solutions to physics cases involving the roots of equations, matrices, linear equations, interpolation, derivatives, definite integrals, and ordinary differential equations.</p>													
Content	<p>a. Concept of Computational Error,</p> <p>b. Numerical Computation Methods,</p> <p>c. Practical application of numerical computing methods with computer programming.</p>													
Study and examination requirements and forms of examination	<p>The final mark will be weighted as follows:</p> <table border="1"> <thead> <tr> <th>NO</th> <th>Assessment methods (components, activities)</th> <th>Weight (percentage)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Final Examination</td> <td>40%</td> </tr> <tr> <td>2</td> <td>Mid-Term Examination</td> <td>30%</td> </tr> <tr> <td>3</td> <td>Class Activities : Quiz, Homework, etc.</td> <td>30%</td> </tr> </tbody> </table> <p>The final assessment is expressed in the form of a letter value converted from a number value with the following categories:</p>		NO	Assessment methods (components, activities)	Weight (percentage)	1	Final Examination	40%	2	Mid-Term Examination	30%	3	Class Activities : Quiz, Homework, etc.	30%
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1	Final Examination	40%												
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	NO	Number Value	Letter Value	NO	Number Value	Letter Value
	1	≥ 95	A	7	65-69.99	B/C
	2	90-94.99	A-	8	60-64.99	C+
	3	85-89.99	A/B	9	55-59.99	C
	4	80-84.99	B+	10	50-54.99	C-
	5	75-79.99	B	11	55-34.99	D
	6	70-74.99	B-	12	<35	E

Media employed	White-board, Lcd Projector, computer, computational software, e-learning (https://daring.uin-suka.ac.id/)
Reading list	Sanjaya, Made. 2015. <i>Komputasi Numerik Berbasis Python</i> .

PLO and CO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10
CO 1				√					√	
CO 2				√					√	