

Module Description

Module name	Course Module
Module level, if applicable	Master of Physics Education
Code, if applicable	32363232
Subtitle, if applicable	-
Course, if applicable	Computer Simulation for Physics Learning
Semester(s) in which the module istaught	III (Odd Semester)
Person responsiblefor the module	Lecturer of Courses
Lecturer	1. Dr. rer nat. Bambang Heru
Language	Indonesian Language [Bahasa Indonesia]
Relation to Curriculum	This course is an elective course and is offered in the 3 rd semester.
Type of teaching, contact hours	<p>Teaching methods used in this course are:</p> <ul style="list-style-type: none"> - Lecture (i.e., group investigation, small group discussion, case study, and video-based learning) - Structured assignments (i.e., essays and case study) <p>The class size for lecture is 20 students. Contact hours for lecture is 26.67 hours, assignments are 64 hours, and privat study is 64 hours.</p>
Workload	For this course, students required to meet a minimum of 154.67 hours in one semester, which consist of: 26.67 hours for lecture, 64 hours for structured assignments, 64 hours for private study
Credit points	5.2 ECTS
Requirements according to the examination regulations	Students should have attended all lectures and submitted all scheduled individual and group assignments prior to the final examination.
Recommended prerequisites	Students should have attended all lectures and submitted all scheduled individual and group assignments prior to the final examination.

Program learning outcomes	<p>PLO 2 Master advanced knowledge of classical physics and modern physics</p> <p>PLO 8 Able to produce scientific articles that have novelty, and publish them in accredited national scientific journals, proceedings of international seminars, or international journals</p>
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Content	<p>Students will learn about:</p> <p>In physics, computer simulations are now an integral part of basic and computational physics as important as theory and experimentation. This course aims to enrich students' knowledge in more depth about the importance of computers in physics, computer simulations, numerical methods, tools for building visual simulations, and object-oriented programming in the context of learning science. This course also facilitates students to develop practical skills on how to make interactive simulations, especially for the purpose of teaching and learning physics using discrete computer simulation software. To achieve this goal, lectures will be carried out using a case- and project-based learning approach.</p>
Forms of Assessment	<p>Assessment of the learning process follows the following components: attendance 5%; assignments and presentations 30%; mid-test 30%, and final-test 35%.</p>
Study and examination requirements	<p>Study and examination requirements:</p> <ul style="list-style-type: none"> - Students must attend 15 minutes before the class starts. - Students must switch off all electronic devices. - Students must inform the lecturer if they will not attend the class due to sickness, etc. - Students must submit all class assignments before the deadline. - Students must attend the exam to get final grade. <p>Form of examination: Forms of examination: project, presentation and written exam.</p>
Media employed	<p>Powerpoint slides, simulation videos, learning management system (LMS), ZOOM application, and UNJ e-learning.</p>
Reading list	