

Module Description

Module name	Course Module
Module level, if applicable	Master of Physics Education
Code, if applicable	32363063
Subtitle, if applicable	-
Course, if applicable	Electronic Instrumentation for Physics Education
Semester(s) in which the module istaught	III (Odd Semester)
Person responsiblefor the module	Lecturer of Courses
Lecturer	1. Dr. Iwan Sugihartono
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, case-based learning, cooperative learning, and blended learning.) - Structured assignments (i.e., essays and case studies) <p>The class size for lecture is 20 students. Contact hours for lecture is 40 hours, assignments are 96 hours, and privat study is 96 hours.</p>
Workload	For this course, students required to meet a minimum of 232 hours in one semester, which consist of: 40 hours for lecture, 96 hours for structured assignments, 96 hours for private study,
Credit points	7.8 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>

Content	<p>Students will learn about:</p> <p>This course aims to enrich students' knowledge and skills in building educational aids using electronic instruments to produce physics learning aids. The topic of discussion covers various aspects in the development of electronic instruments, including the basic concepts of electronics, semiconductors, analog and digital circuits, sensors, microprocessors, microcontrollers, and interfaces, and their applications in the development of physics education teaching aids. Lectures are equipped with practicums so that students have practical experience on how to design and produce teaching aids. Lectures will be carried out using a case- and project-based learning approach. Through this lecture, it is expected that students will be skilled and able to create innovative and tested works through the development of knowledge in the field of Physics education.</p>
Forms of Assessment	Assessment of the learning process follows the following components: attendance 5%; assignments and presentations 30%; mid-test 30%, and final-test 35%.
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	Powerpoint slides, simulation videos, learning management system (LMS), ZOOM application, and UNJ e-learning.

Reading list	
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