

Module Description

Module title	Course Module of Electronic Instrumentation for Physics Education
Persons responsible for each module	Dr. Iwan Sugihartono, M.Si
Teaching Methods	<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>
Credits and Workload	<p>Credit points : 7.8 ECTS</p> <p>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,</p>
Intended 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>
Module 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</p>

	Physics education.
Admission and examination requirements	<p>Admission 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.
Forms of exams and details explaining how to the module mark is calculate	<p>Form of examination: Project, Presentation, and Written Exam</p> <p>Form of Assasement: Assessment of the learning process follows the following components: attendance 5%; assignments and presentations 30%; mid-test 30%, and final-test 35%.</p>
Recommended Literature	1. Harvey Gould, Jan Tobochnik, and Wolfgang Christian, An Introduction to Computer Simulation Methods, Third Edition, 2016.
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