

## Module Description

<b>Module name</b>	Course Module
<b>Module level, if applicable</b>	Master of Physics Education
<b>Code, if applicable</b>	32363182
<b>Subtitle, if applicable</b>	-
<b>Course, if applicable</b>	Physics Education Research Study
<b>Semester(s) in which the module istaught</b>	II (Even Semester)
<b>Person responsible for the module</b>	Lecturer of Courses
<b>Lecturer</b>	1. Prof. Dr. I Made Astra, M.Si
<b>Language</b>	Indonesian Language [Bahasa Indonesia]
<b>Relation to Curriculum</b>	This course is a compulsory course and offered in the 2 <sup>st</sup> semester.
<b>Type of teaching, contact hours</b>	<p>Teaching methods used in this course are:</p> <ul style="list-style-type: none"> <li>- Lecture (i.e., group investigation, small group discussion, casestudy, and video-based learning)</li> <li>- Research &amp; writing for assignments.</li> </ul> <p>The class size for the lecture is 20 students. Contact hours for lecture is 26.67 hours, assignments are 64 hours, and privat study is 64 hours.</p>
<b>Workload</b>	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,
<b>Credit points</b>	5.2 ECTS
<b>Requirements according to the examination regulations</b>	Students should have attended all lectures and submitted all scheduled individual and group assignments prior to the final examination.

<b>Recommended prerequisites</b>	Students should have attended all lectures and submitted all scheduled individual and group assignments prior to the final examination.
<b>Program learning outcomes</b>	<p>PLO 2 Master advanced knowledge of classical physics and modern physics</p> <p>PLO 3 Able to design innovative physics learning in accordance with the demands of the curriculum by using appropriate evaluation and assessment techniques.</p> <p>PLO 6 Able to design scientific research to solve physics education problems</p> <p>PLO 7 Able to carry out scientific research in the field of physics education based on scientific methodology, logical, critical, systematic and creative thinking.</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>

<b>Content</b>	<p><b>Students will learn about:</b></p> <p>The course develops students' abilities in problem identification, analysis of research results, and research trends in the field of physics education based on the latest reputable national and international journal papers. Topics of study include the development of current issues, research trends, and problems in physics education and their solutions based on the results of journal paper studies. Studies were also carried out on several aspects, such as learning methods, learning processes, learning tools, assessment, curriculum, and government policies in the education sector. Students will also learn how to technically find reputable journal papers, conduct bibliometric research, identify research originality and novelty based on the journal papers studied. At the end of the lecture students will be guided to produce a literature study paper on selected topics in the field of physics education. Lectures will be carried out using a case-based learning approach so that it is expected to be able to help students improve their knowledge, professionalism, and carry out quality research in the field of physics education.</p>
<b>Forms of Assessment</b>	Assessment of the learning process follows the following components: attendance 5%; assignments and presentations 30%; mid-test 30%, and final-test 35%.
<b>Study and examination requirements</b>	<p><b>Study and examination requirements:</b></p> <ul style="list-style-type: none"> <li>- Students must attend 15 minutes before the class starts.</li> <li>- Students must switch off all electronic devices.</li> </ul>

	<ul style="list-style-type: none"> <li>- Students must inform the lecturer if they will not attend the class due to sickness, etc.</li> <li>- Students must submit all class assignments before the deadline.</li> <li>- Students must attend the exam to get final grade.</li> </ul> <p><b>Form of examination:</b> Forms of examination: project and presentation</p>
<b>Media employed</b>	Powerpoint slides, simulation videos, learning management system (LMS), ZOOM application, and UNJ e-learning.
<b>Reading list</b>	<ol style="list-style-type: none"> <li>1. Eunjeong Yun (2020) Review of trends in physics Education research using Topic Modeling, Journal of Baltic Science Education Vol. 19 No. 3, 2020.</li> <li>2. Michael R. Matthews (2018) History, Philosophy and Science Teaching, New Perspectives. Springer.</li> <li>3. Mauricio Pietrocola (2019) Upgrading Physics Education to Meet the Needs of Society. Springer.</li> <li>4. Anne Hume, Rebecca Cooper, Andreas Borowski (2019) Repositioning Pedagogical Content Knowledge in Teachers' Knowledge for Teaching Science.</li> <li>5. Keith S. Taber (2013) Modelling Learners and Learning in Science Education: Developing Representations of Concepts, Conceptual Structure and Conceptual Change to Inform Teaching and Research. Springer Netherlands.</li> </ol>