

Program Learning Outcomes (PLO) with Respective Courses in the 2018 and 2023 Curricula

PLO	Respective Courses
<p>PLO-1 Aims for graduates to demonstrate scientific, educational, and religious attitudes and behaviors that contribute to improving the quality of life in society, nation, and state based on academic culture, norms, and ethics</p>	<ul style="list-style-type: none"> - Innovation in Physics Learning - Lesson Plan in Physics Learning** - Classical and Quantum Mechanics** - Electrodynamics** - Innovation in Physics Learning Material - Innovation In Physics learning Media - Assessment in Physics Learning - Development of Physics Education Curriculum** - Earth and Space Science Education** - Advanced Physics-Experiment - Scientific Article Writing Techniques** - Development of Standardized Physics Tests** - Literacy Learning in Technology and Engineering** - Quality Assurance in Physics Education - Applied Statistics - Pedagogy Studies - Taxonomy of Physics Education* - Analytical Mechanics* - Physics of the Earth* - Philosophy of Science* - Waves and Fields* - Research Design of Physics Education* - Academic publication in Physics Education* - Astronomy and Astro-physics* - ICT in Physics Learning* - Technology and Engineering in Physics Education* - Physics Education for Sustainable Development - Structures and Properties of Material* - Instrumentation System*
<p>PLO-2 Master the theoretical concepts of classical and modern physics to solve contextual problems.</p>	<ul style="list-style-type: none"> - Classical and Quantum Mechanics** - Electrodynamics** - Development of Physics Education Curriculum** - Earth and Space Science Education** - Advanced Physics-Experiment - Literacy Learning in Technology and Engineering** - Analytical Mechanics* - Physics of the Earth* - Waves and Fields* - Astronomy and Astro-physics* - ICT in Physics Learning* - Technology and Engineering in Physics Education* - Physics Education for Sustainable Development - Structures and Properties of Material* - Instrumentation System*
<p>PLO-3 Master the philosophy, concepts, and theories of learning in education and their implications for physics learning.</p>	<ul style="list-style-type: none"> - Innovation in Physics Learning - Lesson Plan in Physics Learning** - Innovation in Physics Learning Material - Innovation In Physics learning Media

PLO	Respective Courses
	<ul style="list-style-type: none"> - Assessment in Physics Learning - Development of Physics Education Curriculum** - Advanced Physics-Experiment - Literacy Learning in Technology and Engineering** - Applied Statistics - Pedagogy Studies - Taxonomy of Physics Education* - Philosophy of Science* - Research Design of Physics Education*
<p>PLO-4 Master quantitative, qualitative, or mixed-methods research methods in physics education to address physics education issues using interdisciplinary or multidisciplinary approaches.</p>	<ul style="list-style-type: none"> - Innovation in Physics Learning - Lesson Plan in Physics Learning** - Literacy Learning in Technology and Engineering** - Research Design of Physics Education* - Academic publication in Physics Education* - Astronomy and Astro-physics* - ICT in Physics Learning* - Technology and Engineering in Physics Education*
<p>PLO-5 Integrate learning and innovation skills, mastery of technology and information, career development, and life skills to become lifelong learners.</p>	<ul style="list-style-type: none"> - Innovation in Physics Learning - Perencanaan Pembelajaran Fisika** - Classical and Quantum Mechanics** - Electrodynamics** - Innovation in Physics Learning Material - Assessment in Physics Learning - Development of Physics Education Curriculum** - Earth and Space Science Education** - Advanced Physics-Experiment - Scientific Article Writing Techniques** - Development of Standardized Physics Tests** - Literacy Learning in Technology and Engineering** - Quality Assurance in Physics Education - Applied Statistics - Pedagogy Studies - Analytical Mechanics* - Physics of the Earth* - Philosophy of Science* - Waves and Fields* - Research Design of Physics Education* - Academic publication in Physics Education* - Astronomy and Astro-physics* - ICT in Physics Learning* - Technology and Engineering in Physics Education* - Physics Education for Sustainable Development - Structures and Properties of Material* - Instrumentation System*
<p>PLO-6 Develop and publish logical, critical, systematic, and creative thinking through scientific research, design creation, or artistic works using interdisciplinary or multidisciplinary approaches, considering and applying humanities values according to their expertise.</p>	<ul style="list-style-type: none"> - Electrodynamics** - Innovation in Physics Learning Material - Innovation In Physics learning Media - Assessment in Physics Learning - Development of Physics Education Curriculum** - Earth and Space Science Education**

PLO	Respective Courses
	<ul style="list-style-type: none"> - Advanced Physics-Experiment - Scientific Article Writing Techniques** - Development of Standardized Physics Tests** - Literacy Learning in Technology and Engineering** - Quality Assurance in Physics Education - Taxonomy of Physics Education* - Analytical Mechanics* - Physics of the Earth* - Philosophy of Science* - Waves and Fields* - Research Design of Physics Education* - Academic publication in Physics Education* - Astronomy and Astro-physics* - ICT in Physics Learning* - Technology and Engineering in Physics Education* - Physics Education for Sustainable Development - Structures and Properties of Material* - Instrumentation System*
<p>PLO-7 Conduct and manage physics education research to solve problems using interdisciplinary or multidisciplinary approaches, resulting in innovative and validated work</p>	<ul style="list-style-type: none"> - Scientific Article Writing Techniques** - Academic Publication in Physics Education*
<p>PLO-8 Publish research papers in nationally accredited journals or international seminar proceedings or international journals.</p>	<ul style="list-style-type: none"> - Scientific Article Writing Techniques** - Development of Standardized Physics Tests** - Academic Publication in Physics Education*

The table indicates the distribution of courses related to PLOs as follows:

- Courses without a star are available in both the 2018 and 2023 curricula.
- Courses marked with a single star (*) are only available in the 2018 curriculum.
- Courses marked with a double star (**) are only available in the 2023 curriculum.