CURRICULUM MAPPING

	1st Semester	2nd Semester	3rd Semester	4th Semester	5th Semester	6th Semester	7th Semester	8th Semester
PLO-01 Understanding of the concepts and principles of physics (classical and modern) and related fields in general.	Basic Physics I	▪ Basic Physics II ▪ Thermodynamics ▪ Wave ▪ Internet of Things ▪ Biology ▪ Basic Chemistry	▪ Basic Electronics ▪ Electromagnetics ▪ Modern Physics ▪ Mechanics ▪ Anatomy and Physiology ▪ Switching Theory ▪ Analysis of Electrical Circuit	▪ Statistical Physics ▪ Modern Optics ▪ Quantum Physics ▪ Radiobiology ▪ Material Thermodynamics ▪ Geoscience ▪ Structural Geology Practice	▪ Solid-State Physics ▪ Simulation and Modeling ▪ Nuclear Physics ▪ Physical System Analysis ▪ Geoelectrics and Electromagnetics Practice	▪ Introduction to Spectroscopy ▪ Introduction to Plasma and Nuclear Fusion Physics ▪ Wave and Material Interactions ▪ Nanomaterial Basics ▪ Superconductor Basics ▪ Environmental Physics ▪ Seismology	Petroleum Geology	
PLO-02 Solve physics problems using analytical and computational methods.	Calculus and Vector	Mathematical Physics I	▪ Mathematical Physics II ▪ Electromagnetics ▪ Biophysics	▪ Mathematical Physics III ▪ Computational Physics	▪ Signal and System ▪ Physical System Analysis	▪ Algorithm and Programming ▪ Automation System ▪ Sensor Technology		
PLO-03 Model and predict physical phenomena using physical and mathematical models.			▪ Modern Physics ▪ Introduction to Geophysics ▪ Physical Geology Practice	▪ Statistical Physics ▪ Quantum Physics ▪ Radiobiology ▪ Mechanical Properties of Materials ▪ Artificial Intelligence	▪ Simulation and Modeling ▪ Solid-State Physics ▪ Structural Geology	▪ Radiotherapy Planning ▪ Reactor Physics ▪ Wave and Material Interactions ▪ Geophysical Inversion ▪ Geophysical Data Processing		
PLO-04 Understanding of the basic principles of measurement, experimentation, instrumentation, and electronics, including sensor technology, data acquisition, data processing, data validation, data analysis, and drawing conclusions.	▪ Basic Physics Practice I ▪ Physical Measurement Methods	▪ Basic Physics Practice II ▪ Basic Chemistry ▪ Basic Chemistry Practice	▪ Basic Electronics Practice ▪ Modern Physics Practice ▪ Switching Theory ▪ Electric Circuit Analysis	▪ Instrumentation ▪ Modern Optics ▪ Computational Physics Practice ▪ Electronic Circuit and Mechanical Design ▪ Physical Geology ▪ Meteorology	▪ Standardization ▪ Laboratory Work Practice ▪ Introduction to Radiology and Dosimetry Physics ▪ Computer Network	▪ Data Processing Methods ▪ Medical Physics and Radiation Protection ▪ Introduction of Spectroscopy ▪ Radiation Detection Methods ▪ Medical Physics and Counting System Practice ▪ Seismic Exploration Practice ▪ Geophysics Data Processing ▪ Microprocessor and Interface ▪ Programmable Logic Controller	▪ Diagnostic Radiology Physics and Radiotherapy Practice ▪ Material Preparation and Characterization Practice ▪ Material Analysis and Characterization ▪ Medical Instrumentation ▪ Gravity and Geomagnetic ▪ Gravity and Geomagnetic Practice	Thesis

						▪ Industrial Instrumentation ▪ Geolectrics and Electromagnetics ▪ Seismology Practice ▪ Seismic Exploration		
	1st Semester	**2nd Semester**	**3rd Semester**	**4th Semester**	**5th Semester**	**6th Semester**	**7th Semester**	**8th Semester**
PLO-05 Apply the principles of physics to various fields, such as medical physics, geophysics, advanced materials, radiation physics, plasma physics, computational physics, electronics, and instrumentation.			▪ Anatomy and Physiology ▪ Introduction to Geophysics ▪ Physical Geology Practice ▪ Biomaterials ▪ Polymers and Composite	▪ Imaging Physics I ▪ Structural Geology Practice ▪ Geoscience ▪ Thermodynamics Material	▪ Imaging Physics II ▪ Introduction of Radiotherapy ▪ Health Physics and Radiation Protection ▪ Introduction of Radiology Physics and Dosimetry ▪ Structural Geology ▪ Electronic and Photonic Materials	▪ Radiation Application ▪ Radiotherapy Planning ▪ Reactor Physics ▪ Introduction to Plasma and Nuclear Fusion Physics ▪ Crystal Physics and X-ray Diffraction ▪ Algorithm and Programming ▪ Programmable Logic Controller ▪ Industry Instrumentation ▪ Seismology ▪ Geophysics Inversion ▪ Magnetic and Dielectric Materials ▪ Powder Technology ▪ Thin Layer Physics ▪ Basics of Nanomaterials ▪ Basics of Superconductor ▪ Automatic Control System ▪ Sensor Technology ▪ Environmental Physics ▪ Seismic Exploration	▪ Diagnostic Radiology Physics and Radiotherapy Practice ▪ Basics of Nuclear Medicine ▪ Medical Physics Quality Control ▪ Medical Instrumentation ▪ Software Engineering ▪ Computer Vision ▪ Petroleum Geology ▪ Geothermal	
PLO-06 Apply appropriate research methods in physics to produce final projects, write scientific papers, and participate in seminars as well as national or international competitions.					Research Methodology	Practical Work		Thesis

	1st Semester	2nd Semester	3rd Semester	4th Semester	5th Semester	6th Semester	7th Semester	8th Semester
PLO-07 Demonstrate competence in Indonesian and English, entrepreneurship, computing (IT), and experimental and field practices, with the ability to work independently or in teams.	▪ Pancasila & Citizenship ▪ Religious Education ▪ Indonesian Language ▪ Sport ▪ English				Laboratory Practical Work	▪ Entrepreneurship ▪ Practical Work	Community Service Program	