

CURRICULUM MAPPING

	1 st Semester	2 nd Semester	3 rd Semester	4 th Semester	5 th Semester	6 th Semester	7 th Semester	8 th Semester
PLO-01 Understanding 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	
	1 st Semester	2 nd Semester	3 rd Semester	4 th Semester	5 th Semester	6 th Semester	7 th Semester	8 th Semester
PLO-02 Solving 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		
	1 st Semester	2 nd Semester	3 rd Semester	4 th Semester	5 th Semester	6 th Semester	7 th Semester	8 th Semester
PLO-03 Modeling and predicting physical phenomena with physical models 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		
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PLO-04 Understanding the basic principles of measurement, experiments, instrumentation, and electronics, including sensor technology, data acquisition, data processing, data validation, data analysis, and drawing conclusion.	▪ 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	▪ Diagnostic Radiology Physics and Radiotherapy Practice ▪ Material Preparation and Characterization Practice ▪ Material Analysis and Characterization ▪ Medical Instrumentation ▪ Gravity and Geomagnetic	Thesis

						▪ Programmable Logic Controller ▪ Industrial Instrumentation ▪ Geoelectrics and Electromagnetics ▪ Seismology Practice ▪ Seismic Exploration	▪ Gravity and Geomagnetic Practice	
	1st Semester	2nd Semester	3rd Semester	4th Semester	5th Semester	6th Semester	7th Semester	8th Semester
PLO-05 Applying physics principles 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	
	1st Semester	2nd Semester	3rd Semester	4th Semester	5th Semester	6th Semester	7th Semester	8th Semester
PLO-06 Understanding appropriate research methods in physics for producing final projects, writing scientific papers, seminars, and					Research Methodology	Practical Work		Thesis

national or international competitions.								
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PLO-07 Equipping with skills in Indonesian and English languages, entrepreneurship, computing (IT), experimental and field practices with excellent competence to work independently or in teams.	▪ Pancasila & Citizenship ▪ Religious Education ▪ Indonesian Language ▪ Sport ▪ English				Laboratory Practical Work	▪ Entrepreneurship ▪ Practical Work	Community Service	