

CURRICULUM MAPPING 2024

	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 Chemistry	▪ Basic Physics II ▪ Thermodynamics ▪ Wave	▪ Modern Physics ▪ Mechanics	▪ Statistical Physics ▪ Modern Optics ▪ Electromagnetics	▪ Quantum Physics ▪ Solid-State Physics ▪ Nuclear Physics	▪ Introduction of Spectroscopy ▪ Reactor Physics ▪ Introduction to Plasma and Nuclear Fusion Physics	Introduction to Particle Physics	
	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	▪ Mathematical Physics III ▪ Computational Physics ▪ Introduction to Artificial Intelligence	▪ Signal and System ▪ Algorithm and Programming	▪ Analysis of Electrical Circuit ▪ Artificial Intelligence ▪ Automatic Control System ▪ Computer Vision ▪ Geophysical Data Processing	Geophysical Inversion	
	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.				Statistical Physics	▪ Quantum Physics ▪ Simulation and Modeling ▪ Cartography	▪ Reactor Physics ▪ Material Thermodynamics ▪ Mechanical Properties of Materials ▪ Wave and Material Interactions ▪ Meteorology ▪ Seismology ▪ Seismic Exploration I ▪ Geophysical Data Processing ▪ Pasive Seismik	▪ Radiotherapy Planning ▪ Structural Geology ▪ Geophysical Inversion ▪ Gravity and Geomagnetic ▪ Seismic Exploration II	
	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-04 Understanding the basic principles of measurement, experiments, instrumentation, and electronics, including sensor	▪ Basic Physics Practice I ▪ Physical Measurement Methods ▪ Basic Chemistry Practice	Basic Physics Practice II	▪ Basic Electronics ▪ Basic Electronics Practice ▪ Modern Physics Practice	▪ Instrumentation ▪ Modern Optics Practice ▪ Computational Physics Practice ▪ Laboratory Work Practices	▪ Solid-State Physics Practice ▪ Nuclear Physics Practice ▪ Data Processing Methods ▪ Medical Physics Practice ▪ Microprocessor and Interface	▪ Standarization ▪ Radiology Physics and Dosimetry ▪ Health Physics and Radiation Protection ▪ Radiation Detection Methods	▪ Medical Physics Quality Control ▪ Physics of Radiology Diagnostic and Interventional II ▪ Medical Instrumentation	

technology, data acquisition, data processing, data validation, data analysis, and drawing conclusion.						▪ Physics of Radiology Diagnostic and Interventional I ▪ Analysis of Electrical Circuit ▪ Switching Theory ▪ Electronic Circuit and Mechanical Design ▪ Computer Network ▪ Automatic Control System ▪ Programmable Logic Controller (PLC) ▪ Sensor Technology ▪ Physical Geology Practice ▪ Meteorology ▪ Geoelectrics & Electromagnetics ▪ Geoelectrics & Electromagnetics Practice ▪ Seismology Practice ▪ Seismic Exploration Practice ▪ Geophysical Data Processing	▪ Optics and Laser Instrumentation ▪ Industrial Instrumentation ▪ Material Preparation Practice ▪ Material Analysis and Characterization ▪ Structural Geology Practice ▪ Gravity and Geomagnetism 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.	Introduction to Applied Physics		Biophysics	Computational Physics	▪ Solid-State Physics ▪ Nuclear Physics ▪ Anatomy and Physiology ▪ Medical Physics Practice ▪ Microprocessor and Interface ▪ Algorithm and Programming ▪ Biomaterials ▪ Thin Layer Technology ▪ Cartography ▪ Geoscience	▪ Radiation Application ▪ Radiology Physics and Dosimetry ▪ Radiobiology ▪ Health Physics and Radiation Protection ▪ Radiation Detection Methods ▪ Introduction of Spectroscopy ▪ Physics of Radiology Diagnostic and Interventional I ▪ Physics of Nuclear Medicine ▪ Reactor Physics ▪ Introduction to Plasma and Nuclear Fusion Physics	▪ Radiotherapy Planning ▪ Introduction to Particle Physics ▪ Medical Physics Quality Control ▪ Physics of Radiotherapy ▪ Physics of Radiology Diagnostic and Interventional II ▪ Medical Instrumentation ▪ Optics and Laser Instrumentation ▪ Industrial Instrumentation	

						▪ Analysis of Electrical Circuit ▪ Switching Theory ▪ Electronic Circuit and Mechanical Design ▪ Computer Network ▪ Artificial Intelligence ▪ Automatic Control System ▪ Programmable Logic Controller (PLC) ▪ Sensor Technology ▪ Software Engineering ▪ Computer Vision ▪ Polymers and Composite ▪ Material Thermodynamics ▪ Mechanical Properties of Materials ▪ Electronic and Photonic Materials ▪ Magnetic and Dielectric Materials ▪ Wave and Material Interactions ▪ Powder Technology ▪ Nanomaterial Basics ▪ Crystal Physics and X-ray Diffraction ▪ Superconductor Basics ▪ Physical Geology ▪ Physical Geology Practice ▪ Meteorology ▪ Environmental Physics ▪ Geoelectrics & Electromagnetics ▪ Geoelectrics & Electromagnetics Practice ▪ Seismology ▪ Seismology Practice ▪ Seismic Exploration I ▪ Seismic Exploration Practice ▪ Geophysical Data Processing ▪ Pasive Seismik	▪ Material Preparation Practice ▪ Material Analysis and Characterization ▪ Structural Geology ▪ Structural Geology Practice ▪ Geophysical Inversion ▪ Gravity and Geomagnetic ▪ Gravity and Geomagnetism Practice ▪ Petroleum Geology ▪ Geothermal ▪ Seismic Exploration II ▪ Practical Work	
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	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 national or international competitions.					Research Methodology	Practical Work	Practical Work	Thesis
	1st Semester	2nd Semester	3rd Semester	4th Semester	5th Semester	6th Semester	7th Semester	8th Semester
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.	▪ English I ▪ Pancasila ▪ Sport	▪ Islamic Education ▪ Christian Education ▪ Catholic Education ▪ Hindu Education ▪ Buddhist Education ▪ Confucian Education ▪ Internet of Things (IoT) ▪ English II	▪ Citizenship ▪ English III	▪ Computational Physics ▪ Introduction to Artificial Intelligence ▪ Laboratory Work Practices ▪ Indonesian Language	Algorithm and Programming	▪ Entrepreneurship ▪ Computer Network ▪ Artificial Intelligence ▪ Software Engineering ▪ Computer Vision ▪ Practical Work	▪ Community Service ▪ Practical Work	