Module code | SP-4302
---|---
Module Title | Environmental Physics
Degree/Diploma | Bachelor of Science (Applied Physics)
Type of Module | Major Option
Modular Credits | 4
Total student Workload | 8 hours/week
Contact hours | 4 hours/week
Prerequisite | None
Anti-requisite | None

Aims
The module is designed for students to understand the physics principles underpinning the environment.

Learning Outcomes
*On successful completion of this module, a student will be expected to be able to:*

| Lower order: 40% | - describe the basic physical principles that govern the atmosphere, atmospheric motions, transport of pollution, radioactivity and techniques in Environmental Physics |
| Middle order: 40% | - apply these principles in analysing various systems concerning the atmosphere and its motion, transport of pollution and radioactivity using quantitative methods |
| Higher order: 20% | - evaluate example scenarios pertaining to energy balance, atmospheric stability, pollutant dispersion, radioactivity and meteorological measurements |
- Present case studies or current issues on the environment

Module Contents
- *Transport of Pollution*: Atmospheric stability, temperature inversion, dispersion equation. Gaussian plume model – dry deposition of pollutant from stacks.
- *Radioactivity*: Characteristics of radioactive radiations, measurement and application of radio-isotopes, units of radiation dose, biological effects of nuclear radiation and safety measures.
- *Techniques in Environmental Physics*: Common weather and Doppler radar, SODAR, LASER, LIDAR, biosensors - principles and applications, bio-acoustic - perception of loudness, combination of tones – sound analysis, noise pollution index, interference level and measurement of noise level. Ultrasound imaging and applications.

Assessment
| Formative assessment | In-class questions and feedback |
| Summative assessment | Examination: 60%
- 2 reports (20%)
- 1 class test (10%)
- 1 project (10%)
| Coursework: 40% |