

COURSE CODE: ENS-103
COURSE NAME: Environmental Physics
CREDIT HOURS: Theory = 02 Practical = 01 Total = 03
CONTACT HOURS: Theory = 32 Practical = 48 Total = 80
PREREQUISITE: None
MODE OF TEACHING: Instruction: 2 hours of Lecture per week (67%)
 Lab Demonstration: 3 hours of Lab work per week (33%)

Course Description:

The course will provide an introduction to the physical principles that underlie environmental issues and their relationship with different types of interactions with energy and matter.

TOPICS COVERED:

Week	Topic
1	Introduction to environmental physics, Scientific notations and mathematical hints for basic concepts
2	Introduction to environmental physics, Scientific notations and mathematical hints for basic concepts
3	Solar spectrum, interaction of light with matter
4	Ozone and UV light, Energy, Entropy, Energy conversion
5	Heat radiation and heat transfer
6	Nuclear energy
7	Transport of pollutants
8	Transport of pollutants
9	Mid Semester Exam
10	Diffusion, Conversion of mass, Solids, Liquids and Gasses
11	Diffusion, Conversion of mass, Solids, Liquids and Gasses
12	Equations of fluid dynamics

13	Turbulence, Turbulent diffusion, Gaussian plumes in the air, Turbulent jets and plumes
14	Particle physics, Sound and Noise, Basic acoustics, Human perceptions and noise criteria
15	Reducing the transmission of sound, Active control of sound
16	Radioactivity and nuclear physics
17	Isotopes and radioactive decay, Electromagnetic radiation
18	End Semester Exam

Lab/Practical:

Week	Practical
1	Study of the spectrum of light
2	Study of the spectrum of light
3	Structure and function of spectrophotometer for absorption and transmission of light
4	Structure and function of spectrophotometer for absorption and transmission of light
5	Structure and function of spectrophotometer for absorption and transmission of light
6	Measurement and comparison of the light intensity at different locations and times using lux meter
7	Measurement and comparison of the light intensity at different locations and times using lux meter
8	Measurement and comparison of the light intensity at different locations and times using lux meter
9	Mid Semester Exam
10	Measurement of noise level at different location to assess the noise pollution using sound level meter
11	Measurement of noise level at different location to assess the noise pollution using sound level meter
12	Measurement of noise level at different location to assess the noise pollution using sound level meter
13	Collection of particulate matter and its measurements by gravimetric methods

14	Collection of particulate matter and its measurements by gravimetric methods
15	Collection of particulate matter and its measurements by gravimetric methods
16	Field visit
17	Field visit
18	End Semester Exam

Text and Material:

1. Principles of Environmental Physics 4th Edition by John L. Monteith and Mike H. Unsworth 2014
2. Physics and the Environment by Kyle Forinash III 2017
3. Environmental Physics: Sustainable Energy and Climate Change 3rd Edition by Egbert Boeker, Rienk van Grondelle, 2011

ASSESSMENT SYSTEM:

Theoretical/Instruction	100%
Assignments	10%
Quizzes	15%
Mid Semester Exam	25%
End Semester Exam	50%

Practical Work	100%
Lab Work	70%
Lab Exam/Projects	30%