COURSE CODE:	ENS-111		
COURSE NAME:	Environmental Biology		
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 objective of this course is to provide knowledge the molecular basis of life to give a foundation for understanding the biochemical principles of structure and function of a living system as unity of life.

TOPICS COVERED:

Week	Topic
1	Introduction: Definition and concept of life
2	Chemical basis of structure and function of cell
3	Chemical diversity of functional groups
4	Molecular basis of life: carbohydrates, lipids, proteins
5	Molecular basis of life: carbohydrates, lipids, proteins
6	Molecular basis of life: carbohydrates, lipids, proteins
7	Phospholipids in membrane systems
8	Phospholipids in membrane systems
9	**Mid Semester Exam**
10	polypeptides in protein diversity, and enzymes as molecular tools in chemical transformations nucleic acids the molecule of genetic information
11	polypeptides in protein diversity, and enzymes as molecular tools in chemical transformations nucleic acids the molecule of genetic information
12	replication and protein synthesis

13	replication and protein synthesis
14	replication and protein synthesis
15	Overview of structure and function of cell organelles and cell cycle.
16	Overview of structure and function of cell organelles and cell cycle.
17	Overview of structure and function of cell organelles and cell cycle.
18	**End Semester Exam**

Lab/Practical:

Week	**Practical**
1	Identification of chemical nature of different animal and plant materials
2	Identification of chemical nature of different animal and plant materials
3	Cytochemical demonstration of DNA and RNA in Avian blood and Protozoa
4	Cytochemical demonstration of DNA and RNA in Avian blood and Protozoa
5	Cytochemical demonstration of DNA and RNA in Avian blood and Protozoa
6	Biochemical tests for carbohydrates, proteins and lipids
7	Biochemical tests for carbohydrates, proteins and lipids
8	Biochemical tests for carbohydrates, proteins and lipids
9	**Mid Semester Exam**
10	Protein digestion by enzyme pepsin
11	Protein digestion by enzyme pepsin
12	Study of mitosis in onion root tips
13	Study of mitosis in onion root tips
14	Study of mitosis in onion root tips
15	Study of meiosis in Grasshopper’s testis
16	Study of meiosis in Grasshopper’s testis
17	Study of meiosis in Grasshopper’s testis
18	**End Semester Exam**

Text and Material:

1. Campbell Biology. Reece, J.B., Urry, L.A., Cain, M.L. and Wasserman, S.A., 9thEdition, Pearson/ Benjamin Cummings Publishers, USA. 2010.
2. Campbell, N. A. 8th Edition, The Benjamin / Cummings Publishing Company Inc. New York. USA, Biology'2008.
3. Introduction to Environmental Science by Zehnder et al 2022

ASSESMENT 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%