



Course Title:Life Sciences
Course Code: LS114
Credit Units: 02

L	T	P/ S	SW/F W	TOTAL CREDIT UNITS
2	0	0	0	02

Course Objectives:

The objective of this course is to impart knowledge about basic molecules of life.

Prerequisites: Biological Sciences

Student Learning Outcomes:

- Students will have an understanding of very basic molecules of life-DNA,RNA, proteins.
- Students will be able to knowhow these molecules, when form further complex molecules like carbohydrates, vitamins and lipids, then functioning of body takes place.

Course Contents/Syllabus-Theory:

	Weightage (%)
Module I: Introduction to Cell Biology	
Organization of cell (Inorganic-Water and Ions; Organic-Proteins, Lipids and Carbohydrates constituents) Physical structure of the cell-Brief introduction to the Cell Membrane, Cytoplasm and its Organelles (Nucleus, Mitochondria, Golgi, Endoplasmic Reticulum, Lysosomes, Peroxisomes, Ribosomes, Chloroplasts) Cell cycle.	35
Module II: Introduction to Cell Physiology	
Transport of substances through the cell membrane- Osmosis, Diffusion and its types, Active transport (Sodium potassium pump) and Passive transport, Membrane potential, Action Potential Electrocardiogram (ECG) Electromyography (EMG) Electroencephalography (EEG)	30

Module III: Environmental Biotechnology	
Biosensors, Biochips and Biofilms GMO's and Biofertilizers Biofuels Gene Therapy, Stem cell and Nanobiomolecules Bio Informatics- Introduction and Applications	35

Pedagogy for Course Delivery:

Lectures: 26

Tutorial: 0

Presentation/ Seminar: 2

Class Test: 2

Total: 30

Assessment/ Examination Scheme:

Theory L/T (%)	Lab/Practical/Studio (%)	Total (%)
100%	NA	100

Theory Assessment (L&T):

Continuous Assessment/Internal Assessment					End Term Examination
Components (Drop down)	Class Test	Home Assignment	Presentation/ Seminar	Attendance	

Weightage (%)	15	10	0	5	70
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Text and References:

- **Textbook of Medical Physiology, Guyton and Hall, Saunders; 2010, 12th edition, ISBN: 978-1-4160-4574.**
- **Cell and Molecular Biology, E. D. P. De Robertis, Lea &Febiger, 1987,8thedition, ISBN-13: 978-0812110128.**
- **Environment, Power and Society, H.T.Odum, 1971, John Wiley & Sons Inc; 1st edition,ISBN-10: 047165275X**

Any Other Study Material:

- Research Papers