

## Course Name: Science of Living Systems

### Course Objectives:

- a. Knowing basic concepts of biology with their application in more meaningful way
- b. Understanding natural biological processes in view of increasing efficiency of engineering
- c. Discussion on biological solutions resolving problems caused by technical revolution
- d. Introduction of concept of designs and environmental engineering to Civil engineers
- e. Introduction of biomaterials and nanomaterials to Metallurgy and Material Engineering.
- f. Introduction of biomechanics to Mechanical Engineering.
- g. Introduction of cell to cell communication and biosensors to Electronics and Telecommunication Engineering.
- h. Introduction of bioinformatics and computational biology to Computer Science and Information Technology.
- i. Introduction of biomedical instrumentation and bioimaging (ECG/EEG/CT Scan etc.) to Instrumentation & Control Technology and Electrical Engineering.
- j. Introduction of interdisciplinary topics like energy transduction, cellular evolution, genetic, tissue and chemical engineering.

## Course Name: Biology for Engineers

### Course Objectives:

Students would be able to

1. correlate basic biological and engineering principles in the organizational structure of living systems at molecular, cellular and system level
2. appreciate the applications of energy transformations in biological systems in view of solving energy conservation targets
3. analyse information processing in biological systems
4. evaluate basic biological processes of transport, communication and defense mechanism with engineering perspectives
5. apply the modern developments in biology and engineering for society, human health and environmental sustainability