

Indian Institute of Technology Gandhinagar

## Short Course on “Biology for Engineers”

August 2-4, 2011

### Course Objective :

In recent years, mathematical modeling of developmental processes have not only validated hypotheses made from experimental data, but designing and testing these models has led to testable experimental predictions. There are now impressive cases in which mechanical models have provided fresh insight into biological systems, suggesting how connections between local interactions among system components relate to their wider biological effects. This short course aims to make students familiar with the fact that how the basic laws of mechanics and the common mathematical tools, which have been used in traditional engineering branches for years (*and students are familiar with most of them since class 11<sup>th</sup>*), can be used to explain complex biological phenomenon that govern functioning of an organism.

**Duration :** 8 hours (*preferably over 3 days*)

**Prerequisite :** Any elementary course on Differential Equations

**Students :** Anyone in 3rd Semester or higher (B. Tech/M.Tech)

**Suggested Reading :** What Is Life? *Erwin Schrodinger* (Cambridge University Press)

**Homeworks :** All the home works assigned during the course require only physical reasoning. Minimum paper work will be expected.

**Day 1:** Basic Mechanics & Basic Biology (August 2, 2011 from 5pm – 8pm)

**Day 2:** Bridging the Gaps (Basic Models) (August 3, 2011 from 6pm – 8pm)

**Day 3:** Fundamental Understanding (Advanced Models) (August 4, 2011 from 4pm – 7pm)

To register, please send an email to Dr. Supreet Saini, IIT Gandhinagar at [saini@iitgn.ac.in](mailto:saini@iitgn.ac.in) with your Name, Department, Institute, Standing, Contact Number, Contact Address, and email address.