GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. Semester: III

Bio-Medical Engineering

Subject Name: **Cardiovascular Mechanics**
Subject Code: **733102**

Sr. No	Course content
1.	Structure and Function of Heart
2.	Structure and Function of Vessels
3.	Blood Rheology
4.	Basic Mechanics Concepts
5.	Biofluid Mechanics
6.	Flow and Pressure Measurement
7.	Mathematical Modeling of Blood flow
8.	Cardiac Mechanics
9.	Cardiac Mathematical Modeling
10.	Cardiac Valve Mechanics
11.	Stress Analysis in Heart
12.	Vascular Mechanics
13.	Vascular Mathematical Modeling
14.	Stress Analysis in Vessels

Reference Books:

1. An introduction to biomechanics: solids and fluids, analysis and design
   Jay Dowell Humphrey, Sherry L. Delange
   Springer, 2004

2. Biomechanics: principles and applications
   -Daniel J. Schneck, Joseph D. Bronzino
   CRC Press, 2003

3. Biomechanical Systems Technology: Cardiovascular systems
   -Cornelius T. Leondes
   World Scientific, 2009

4. Theory of Heart: biomechanics, biophysics, and nonlinear dynamics of cardiac function
   - Leon Glass, Peter Hunter, Andrew McCulloch
   Springer-Verlag, 1991

5. Computational Cardiovascular Mechanics: Modeling and Applications in Heart
   -Julius Matteo Guccione, Ghassan S. Kassab, Mark Ratcliffe
   Springer, 2009

6. Cardiovascular solid mechanics: cells, tissues, and organ
   -Jay Dowell Humphrey
   Springer, 2002

7. Cardiovascular soft tissue mechanics
   -Stephen C. Cowin, Jay Dowell Humphrey
   Springer, 2001