

GUJARAT TECHNOLOGICAL UNIVERSITY
Biomedical Engineering
M.E. Semester: II

Subject Name: **Artificial Organs and Biomechanics (Major Elective III)**

(A) Artificial organs

Sr. No.	Course Content
1.	Artificial Heart & cardiac assisted devices
2.	Testing Artificial Hearts
3.	The Artificial Heart Driven by Atomic Energy
4.	Methods of Mechanical Assistance to the Circulation
5.	Cardiac pacemaker
6.	Artificial kidney
7.	Liver substitution
8.	Artificial pancreas
9.	Artificial sphincter
10.	Cochlear implants
11.	Visual prosthesis

(B) Biomechanics

Sr. No.	Course Content
1.	Mechanics of Body movement
2.	Blood flow in arteries, lung, heart, veins
3.	Respiratory gas flow
4.	Biomechanical aspects of growth and tissues engineering
5.	Biomechanics of joints (Knee, hip, shoulder)
6.	Biomechanics of foot and ankle joint
7.	Biomechanics of elbow
8.	Biomechanics of wrist

Reference Books:

1. Artificial organs, Gerald E. Miller, Morgan & Claypool, 2006
2. Artificial organs, Nadey S. Hakim, Springer, 2009
3. Biomechanics, Yuan-cheng Fung, Y. C. Fung, Springer-verlag, 2003
4. Basic Biomechanics Of The Musculoskeletal System, Margareta Nordin, Victor H. Frankel, Nordin, Lippincott Williams & Wilkins, 2001