

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN BIOMEDICAL ENGINEERING

Semester: 4

Subject Name HOSPITAL MANAGEMENT & CLINICAL ENGINEERING

Sr.No	Course content
1.	HOSPITAL MANAGEMENT 1.1 Management Information System [MIS] for hospitals – 1.1.1 Information gathering and acquisition, 1.1.2 Flow of information 1.1.3 Storage, processing analysis 1.2 Hospital statistics. 1.2.1 Patient Data Management. 1.2.2 Materials, personnel and quality management. 1.3 Maintenance management. Waste management. Manpower training.
2.	HOSPITAL SUPPORT SERVICES 2.1 Various aspects of out patient and indoor supportive emergency, dietary, nursing and medical supply services.
3.	DATA BANK FOR ECG, EMG AND EEG SIGNALS INTER AND INTRA HOSPITAL NETWORKING
4.	ORGANIZATION OF OPERATION THEATRE 4.1 ICU, 4.2 ICCU 4.3 PICU 4.4 NICU 4.5 Central sterilization unit, physiotherapy and rehabilitation center.
5.	HEALTH CARE FACILITIES PLANNING AND DESIGN 5.1 Computer support 5.2 Telecommunication facilities 5.3 Operations and strategic planning 5.4 Hospital Standards, codes and practice
6.	ROLE OF A CLINICAL ENGINEER 6.1 General organizational structure of a clinical engineering department of a large hospital 6.2 General safety in the clinical environment.
7.	ELECTRICAL SAFETY 7.1 Physiological effect of electric current. 7.2 Protection against electrical hazards. 7.3 Isolated patient connections. 7.4 Isolated power systems. 7.5 Ground fault circuit interrupts. 7.6 Electrical safety programs. 7.7 Treatment of electrical accident victims.

8.	SAFETY STANDARDS FOR ELECTRICAL EQUIPMENTS 8.1 Test Equipments for checking safety parameters of biomedical equipments. 8.2 Safety measures in electrical stimulators, 8.3 Defibrillators and pacemakers, 8.4 Safety aspects in electro-surgical units. 8.5 Noise and interference problems with electro-surgical units.
9.	SAFETY ASPECTS 9.1 Protection from ionizing radiation 9.2 X-ray interlocks and safety devices 9.3 Exposure timers.
10.	REGULATORY AGENCIES 10.1 Food and Drug Administration (FDA) 10.2 Joint commission of accreditation of hospitals (JCAH) 10.3 National fire protection association (NFPA)

REFERENCES BOOKS:

1. Electrical Stimulation and Electropathology, 1992 Ed.
By: Reilly, J.P.
Pub: Cambridge University Press, New York
2. Management of Medical Technology, 1992 Ed.
By: Bronzing, J. D.
Pub: Butterworth, Boston
3. Medical Instrumentation Application and Design, 1992 Ed.
By: Webster, J.G.
Pub: Wiley New York
4. Hospital Planning and Administration
By: Ckewelyn Davis
Pub: J.P. Brothers
5. Managing a Modern Hospital
By: A.B. Srinivasan
Pub: Response Book
6. Principles of Hospital Administration and planning
By: Dr. B.M. Sakharkar
Pub: J.P. Brothers
7. Hospital and Health Care Administration
By: Shakti Gupta
Pub: J.P. Brothers
8. Clinical Engineering By: Yadin David et al
9. Clinical Engineering Handbook By: Joseph Dyro