

SRM UNIVERSITY
FACULTY OF ENGINEERING AND TECHNOLOGY
SCHOOL OF BIO ENGINEERING
DEPARTMENT OF BME

LESSON PLAN

Course Code: BM0403

Course Title: Diagnostic and Therapeutic Equipments

Semester: VII

Course Timings:

DAY	1	2	3	4	5	6	7
1		*					
2							
3			*				
4							
5				*			

Location :

Faculty Name : P.Vinupritha

Faculty email id : vinupritha.p@ktr.srmuniv.ac.in

TEXTBOOKS

1. Khandpur R.S, *Handbook of Biomedical Instrumentation*, Tata McGraw-Hill, New Delhi, 1997
2. John G.Webster, *Medical Instrumentation Application and Design*, John Wiley and sons, New York, 1998.
3. Joseph J.Carr and John M.Brown, *Introduction to Biomedical equipment technology*, John Wiley and sons, New York, 1997

Objectives:

- To study various display techniques and use of ultrasonic in various fields of medicine
- To understand various patient monitoring systems and transmission of bio-signals using telemetry principles
- To study the clinical application of diathermy principles
- To understand diagnostic applications of endoscopy and tomography
- To study sources of leakage current and method of monitoring it

Day	Topic	Books to be referred	Teaching Methodology
	Unit-I		
1	Ultrasonic Techniques for Diagnosis	T1	BB
2	Ultrasound-Introduction	T1	BB
3	Imaging by ultrasound	T1	BB
4	Basic principles of Echo technique	T1	BB
5	Display techniques A-mode	T1	BB
6	B-mode		BB
7	M-mode	T1	BB
8	Echo cardiogram	T1	BB
9	Echo encephalogram	T1	BB
10	Ultrasonic applied as diagnostic tool in ophthalmology	T1	BB
11	Ultrasonic applied as diagnostic tool in obstetrics	T1	BB
12	Ultrasonic applied as diagnostic tool in gynecology	T1	BB
	Unit-II		
13	Patient Monitoring and Biotelemetry	T1	BB
14	Introduction- Patient monitoring system	T1	BB
15	Classification of patient monitoring	T1	BB
16	Bedside monitoring	T1	BB
17	Central monitor	T1	BB
18	ICU	T1	BB
19	Post operative ,ICCU	T1	BB
20	Introduction- Telemetry	T1	BB
21	Single Channel Telemetry	T1	BB
22	Multi channel Telemetry	T1	BB
23	Frequency allotment, radio pill	T1	BB
24	Transmission of Bio signals over telephone lines	T1	BB
	Unit-III		
25	Diathermy-Introduction	T1	BB
26	Clinical applications of electrotherapy	T1	BB
27	Short wave diathermy	T1	BB
28	Ultrasonic diathermy	T1	BB
29	Microwave diathermy	T1	BB

30	Surgical diathermy unit	T1	BB
31	IR lamps	T1	BB
32	UV lamps.	T1	BB
	Unit-IV		
33	Principles of Cryogenic technique	T1	BB
34	Application of cryogenic technique	T1	BB
35	Endoscopy	T1	BB
36	Laparoscopy	T1	BB
37	Laparoscopy	T1	BB
38	Thermography	T1	BB
39	Thermography	T1	BB
	Unit-V		
40	Patient Safety	T1	BB
41	Sources of leakage current	T1	BB
42	Micro and Macro shock	T1	BB
43	Monitoring circuits	T1	BB
44	Earthing schemes	T1	BB
45	Electro Magnetic interference to medical electronic Equipment	T1	BB
46	Sources of EMI	T1	BB
47	EMI effects	T1	BB
48	EMI to Biomedical sensors and ECG equipment	T1	BB

Total hours: 45

Assessment details:

Cycle Test 1 - 10 marks

Cycle Test 2 - 10 marks

Model Exam - 20 marks

Announced Quiz-5 marks

Attendance – 5 marks