LESSON PLAN

Name of Faculty : Punjab Singh
Discipline : Electronics & Comm. Engg.
Semester : 6th
Subject : Medical Electronics
Lesson Plan Duration : 16 weeks
Institute Name : GBN Govt. Polytechnic Nilokheri, Karnal

Work load (Lecture /Practical) per week (in hours): Lectures—02, Practical—02

Week			Practical	
	Lecture Day		Practical Day	Topic
1st	1	Overview of Medical Electronics, classification of medical Equipments	1st	To operate and familiarization with: a) B.P. Apparatus b) ECG Machine
	2	Application and specifications of diagnostic		
	3	Therapeutic and clinical laboratory equipment		
2nd	4	Method of operation of these instruments	2nd	To operate and familiarization with: a) Ventilator b) Incubator
	5	Typical waveforms & signal characteristics		
	6	Assignment		
3rd	7	Origin of Bioelectric signals	3rd	To measure the concentration of blood sugar with Glucometer (fasting, P.P., Random)
	8	Bio electrodes, Electrode tissue interface		
	9	contact impedance		
4th	10	Types of Electrodes	4th	To measure a) Respiration rate and interface to PC b) Pulse rate
	11	Biological Amplifiers		
	12	Electrodes used for ECG		
5th	13	Electrodes used for EEG, EMG	5th	To Measure The EMG Signals and interface with PC
	14	Assignment		
	15	Typical signals from physiological parameters		
6th	16	Classification of Bio transducers	6th	Body Temperature measurement and recording in excel form in pc.
	17	Pressure transducer		
	18	Photoelectric transducer		
7th	19	Transducer for body temperature measurement	7th	To study the Body positions and interfacing of body position sensor and data recording
	20	Pulse sensor		
	21	Respiration sensor		
8th	22	Revision	8th	Installation of small medical equipment in laboratories of Hospital precautions to be taken
	23	Assignment		
	24	Test		
9th	25	Block diagram description and application of following instruments Electrocardiograph (ECG) Machine	9th	Study of large medical equipment in Hospital / Nursing home
	26	Block diagram description and application of		

		following instruments Electroencephalograph (EEG) Machine		
	27	Block diagram description and application of following instruments Electromyography (EMG) Machine		
10th	28	Block diagram description and application of following instruments Phonocardiogram (PCG)	10th	Operation and use of Electro-physiotherapy
	29	Block diagram description and application of following instruments Vector cardiogram (VCG)		
	30	Block diagram description and application of following instruments Digital Stethoscope		
11th	31	Assignment	11th	Maintenance schedule for different equipment and their records in a hospital
	32	Test		
	33	Heart rate measurement		
12th	34	Pulse rate measurement	12th	Getting body parameters from Bluetooth to android App and PC
	35	Respiration rate measurement		
	36	Blood pressure measurement		
13th	37	Need of defibrillator and Cardiac Pace maker	13th	Creating body Area network using Zigbee devices
	38	Bedside patient monitoring System		
	39	Assignment		
14th	40	Test	14th	Logging of various body parameters in SD card as excel format
	41	Modern Imaging System		
	42	X Ray Machine		
15th	43	Magnetic Resonance Imaging System	15th	Revision
	44	Ultrasonic Imaging System		
	45	Electric shock hazards		
16th	46	Leakage currents Electrical safety analyser	16th	Revision
	47	Safety standards		
	48	Revision		