

COURSE CODE	COURSE TITLE	L	T	P	C
1154EC109	MEDICAL ELECTRONICS	3	0	0	3

Course Category:

Program Elective (2)

Preamble:

Medical electronics provides the ideas and the basic knowledge of human anatomy, physiology and the need of electronics principle and applications of equipments used in the medical field as well as introduce the concept of safety aspects for medical instruments.

a. Prerequisite Courses:

- Linear integrated circuits
- Biology for Engineers
- Basic Electronics Engineering
- Measurements & Instrumentation

b. Related Courses:

- Internet of things(IOT)

c. Course Educational Objectives :

- Understand the basic concepts of human anatomy and physiology.
- Know the classification, application and specification of medical electronic equipments and electrodes like needle, pad and micro electrodes
- Understand the concept of various transducers, sensors and bio electrical machines like pressure transducers, flow sensor etc
- Learn about the patient monitoring systems and measurements like pulse, BP.
- Study about the types of shocks like macro, micro shock and the concept of safety aspects

d. Course Outcomes :

Upon the successful completion of the course, students will be able to:

CO Nos.	Course Outcomes	Knowledge Level (Based on revised Bloom's Taxonomy)
CO1	Explain the basic concepts of human anatomy and physiology	K2

UNIT V Safety Aspects of Medical Instruments**9**

Radiation safety instrumentation, Radiation monitoring instruments, Physiological Effects due to 50 Hz current passage, Gross current shock, Micro current shock, Special design from safety consideration, Safety standards.

TOTAL: 45 periods**g. Learning Resources****(i) Text Books:**

1. Leislle Cromwell, "Biomedical instrumentation and measurement", Prentice Hall of India, NewDelhi, 2007.
2. Khandpur, R.S., "Handbook of Biomedical Instrumentation", TATA McGraw-Hill, New Delhi, 2003.

(ii) References:

2. Joseph J.Carr and John M.Brown, "Introduction to Biomedical equipment Technology", JohnWileyandSons, NewYork, 2004.
3. Introduction to BioMedical Electronics by Edward J. Perkstein; Howard Bj, USA.

(iii) Online resources

- <http://www.medicalelectronicsdesign.com>
- <http://electronicsforu.com>
- <http://engineering.careers360.com>