

Medical Instrumentation

Module Information

2022.01, Approved

Summary Information

Module Code	5501ICBTBE
Formal Module Title	Medical Instrumentation
Owning School	Pharmacy & Biomolecular Sciences
Career	Undergraduate
Credits	15
Academic level	FHEQ Level 5
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
International College of Business and Technology

Learning Methods

Learning Method Type	Hours
Lecture	45
Off Site	6
Seminar	6
Tutorial	6

Module Offering(s)

Display Name	Location	Start Month	Duration Number	Duration Unit
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APR-PAR	PAR	April	12 Weeks
JAN-PAR	PAR	January	12 Weeks
SEP-PAR	PAR	September	12 Weeks

Aims and Outcomes

Aims	This module is intended to provide learners a comprehensive idea about working principle, operation and characteristics of electronic and electronic components, Digital Electronics and Communication Systems in Medical Devices and to understand the basic principles, working of biomedical instruments.
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Evaluate the different types of bio potential recorders and physiological assist devices available.
MLO2	2	Identify the wireless methods used along with the medical devices to transmit.
MLO3	3	Evaluate cardiovascular and respiratory related diagnostic equipment.
MLO4	4	Identify the basic functions of medical devices available in the following hospital environment via a hospital visit (operation theatre, intensive care unit, radiology unit, dental unit).
MLO5	5	Troubleshoot small scale medical devices.

Module Content

Outline Syllabus	1. Bio potential Recorders: Characteristics of the recording systems, ECG, EEG, EMG, ERG, EOG, PCG, 2. Physiological Assist devices: General Introductions, Haemodialysis Machine, Pacemakers, Defibrillators3. Operation Theatre Equipment: General Introduction, Electrosurgical Devices, Diathermy, Ventilators, Oximeters4. Cardiovascular and Respiratory Related diagnostic Equipment: Blood pressure monitoring, ECG Measurement, Plethysmograph, Spirometers5. Bio telemetry and Telemedicine : Elements and Design of bio-telemetry system, Radio telemetry system, Wireless Telemetry, Single Channel Telemetry Systems, Multi-channel Wireless Telemetry Systems, Multi-patient Telemetry, Implantable Telemetry Systems, Telemedicine
Module Overview	
Additional Information	Learners will need access to appropriate library, IT facilities and tutorials.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Exam	Formal Written Exam	70	2	MLO1, MLO2, MLO3
Essay	Essay	30	0	MLO4, MLO5

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Karl Jones	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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