Biomaterials

Module Information

2022.01, Approved

Summary Information

Module Code	6503ICBTBE
Formal Module Title	Biomaterials
Owning School	Pharmacy & Biomolecular Sciences
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 6
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	33
Tutorial	9

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-PAR	PAR	September	12 Weeks

Aims and Outcomes

Aims	To provide the student a clear understanding about the different biomaterials required for construction of implants and artificial organs. To understand the requirements of a biomaterial before implantation into the body.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Analyse the requirements of implant material using in external appliances, materials in prosthetics and materials in orthotics.
MLO2	2	Compare the general characteristics and material properties and biocompatibility.
MLO3	3	Analyse the structure, function and applications of material implants.
MLO4	4	Appraise the Biomedical engineering principles of amputations and prosthetics.

Module Content

Outline Syllabus	Requirements of implant materialsMaterial implants: metals, ceramics, plastics (UHMWPE), composites, neoligaments, materials in external appliances, materials in prosthetics and materials in orthotics.General characteristics and material properties and biocompatibilityCharacteristics of implant materials – metals, ceramics, plastic and composites.Structure, function and applications of material implantsBiologic biomaterials, tissue derived biomaterials (collagen), soft tissue replacement: blood interfacing implants, non-blood interfacing implants, hard tissue replacement: bone repair and joint implants, dental implants. The relationship of materials characteristics to biological properties.Biomedical principles of amputation and prostheticsPrinciples of upper limb prosthesis and lower limb prosthesis.
Module Overview	
Additional Information	This module is part of the Level 6 of the BEng(Hons) in Biomedical Engineering

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Exam	Examination	70	2	MLO1, MLO2, MLO3
Report	Coursework Assignment	30	0	MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Katie Evans	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings