Course Syllabus

Second Semester – 2013/2014

General Information

Course name	Course code	Credits	Contact hours
Biomaterials	BMTS246	2 lecture	2 lecture

Instructors/ Coordinators

	Instructor	Coordinator
Name	Mr. Ahmed Alassaf	Dr. Santanaraj Balakrishnan
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Ext	2853	2895

Text Book

Title	Biomaterials – an Introduction
Author/Year	Joon Park, R. S. Lakes / 2007

Supplemental materials

Recommended Textbooks and Reference Material	
Title	Biomaterials Principles and Applications
Author/ Year	Joon Park, Joseph D. Bronzino / 2002
Electronic Materials (e.g. Web Sites, Social Media, Blackboard, etc.)	
Web sites	http://www.efn.uncor.edu/escuelas/biomedica/Plandeestudios/materias%20completas/biomateriales/Biomaterials%20Science%20-%20An%20Introduction%20to%20Materials%20in%20Medici.pdf
	http://doc.sciencenet.cn/upload/file/2012426164735679.pdf

Specific Course Information

a. Brief description of the content of the course (Catalog Description)
This course focuses on mechanical properties of biomaterials such as composite minerals, polymers, viscoelastic. It focuses also on synthetic replacement, and methods of linking the orthopedic organs with tissue and bone inside the body.
b. Prerequisites (P) or Co-requisites (C)
None
c. Course type (Mandatory or Elective)
Mandatory

Specific Goals

a. Specific outcomes of instruction.
By the end of this course, the student should be able to: - Define the properties and characteristics of biomaterials. (a) - Classify various Biomaterials based on physicochemical properties. (b) - Identify suitable materials for hard and soft tissue replacements. (b) - Recognize the importance of biocompatibility tests. (j) - Apply the knowledge of biomaterials for development of artificial organs. (j)

b. Student outcomes addressed by the course.

a	b	c	d	e	f	g	h	i	j	k
✓	✓								✓	

Brief list of topics to be covered

Topics	No of Weeks	Contact hours
Revision – force, elastic modulus, moments	1	4
Biomaterials definition, biocompatibility, classification	1	4
Metallic biomaterials	2	8
Bioceramics	2	8
Biocomposites	1	4
Biopolymers	2	8
Materials and tissue interaction	1	4
Synthetic replacement	1	4
Orthopedic organs	1	4
Biocompatibility tests	1	4
Application of biomaterials	2	8