Course Syllabus

First Semester – 2013/2014

General Information

Course name	Course code	Credits	Contact hours
Biomedical Digital Signal Processing	BMTS476	2 lecture+1 lab	2 lecture+2 lab

Instructors/ Coordinators

	Instructor	Coordinator
Name	Mr. Anand Bose	Prof. Tarek Haweel
Email	a.bose@mu.edu.sa	t.haweel@mu.edu.sa
Ext	2834	2511

Text Book

Title	Digital Signal Processing
Author/Year	R.S. Kaler, M. Kulkarni, Umesh Gupta / 2010

Supplemental materials

Recommended Textbooks and Reference Material	
Title	Signals and Systems
Author/Year	Thomas L. Floyd / 2010
Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)	
Web sites	http://www.pearsonhighered.com/educator/product/Signals-and-Systems/9780138147570.page

Specific Course Information

a. Brief description of the content of the course (Catalog Description)
Throughout this course student learn some digital signal processing techniques, including sampling and quantization, operation on digital signal, interpolation, decimation, shift, discrete convolution, correlation, discrete Fourier series and transform, Z-transform, application of Z-transform on biomedical signals, and finally digital filters design with some application.
b. Prerequisites (P) or Co-requisites (C)
(P) Biomedical Analog Signal Processing - BMTS361
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:

- Recognize the main concepts of Digital Signal Processing. (a)
- Describe the basics of digital signals and systems and how they are processed. (b)
- Analyze a discrete system using z-transform. (c)
- Evaluate a discrete system. (d)
- Design a digital filter. (d)
- Differentiate between time and frequency domains digital signal processing. (c)

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
Introduction to Digital Signal processing system.	1	2
Sampling and Quantizing.	1	2
Discrete signals	2	4
Discrete convolution and correlation	2	4
Discrete Fourier Transform	2	4
Z transform and Properties	2	4
Inverse Z transform	1	2
System analysis using Z transform	2	4
Digital filter design	2	4