

## Course Syllabus

### Second Semester - 2013/2014

#### General Information

Course name	Course code	Credits	Contact hours
Biomedical Digital Electronics 1	BMTS355	2 lecture+1 lab	2 lecture+2 lab

#### Instructors/ Coordinators

	Instructor	Coordinator
<b>Name</b>	Mr. Jamel Smida	Dr. Hedi Guesmi
<b>Email</b>	j.smida@mu.edu.sa	h.guesmi@mu.edu.sa
<b>Ext</b>	2840	2819

#### Text Book

<b>Title</b>	Digital Fundamentals
<b>Author/Year</b>	Thomas L. Floyd / 2010

#### Supplemental materials

Recommended Textbooks and Reference Material	
<b>Title</b>	Modern Digital Electronics
<b>Author/Year</b>	AP Jain / 2011
Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)	
<b>Web sites</b>	<a href="http://www.prenhall.com/floyd/">http://www.prenhall.com/floyd/</a>

#### Specific Course Information

<b>a. Brief description of the content of the course (Catalog Description)</b>
This course focuses on the basics of digital electronics which starts by introduction to the digital and analog systems, digital circuits, parallel and serial transmission. It also deals with logic gates and boolean algebra, design of combinational logic circuits, Memory, analog to digital conversion and vice versa, some application to biomedical devices will also be covered.
<b>b. Prerequisites (P) or Co-requisites (C)</b>
None
<b>c. Course type (Mandatory or Elective)</b>
Mandatory

### Specific Goals

#### a. Specific outcomes of instruction

By the end of this course, the student should be able to:

- Recognize the digital and analog systems and the relationship between them. (a)
- Describe combinational and sequential circuits. (b)
- Experiment various digital circuits. (c)
- Assemble small digital circuit applications in medical devices. (c)
- Design various digital circuits. (d)
- Develop digital circuit applications in medical devices. (d)

#### 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
Number Systems	1	4
Binary Codes	1	4
Digital Arithmetic	1	4
Logic Gates and Related Devices	1	4
Boolean Algebra and Simplification Techniques	2	8
Arithmetic Circuits	2	8
Multiplexers and Demultiplexers	1	4
Programmable Logic Devices	1	4
Flip-Flops and Related Devices	2	8
Counters and Registers	1	4
Data Conversion Circuits – D/A and A/D Converters	2	8