



Course Specifications

Program(s) on which this course is given:	Electronics & Electrical Communications Engineering
Major or Minor element of programs:	Major
Department offering the program:	Electronics & Electrical Communications Engineering
Department offering the course:	Electronics & Electrical Communications Engineering
Academic year / Level:	First Year
Date of original/modified specification approval:	2003
Semester of course offering:	Second

A- Basic Information

1.a. Title:	Measurements 1			1.b. Code:		ELC 104		
2. Units/Credit hours per week; 4	2.a. Lectures	0	2.b. Tutorial	0	2.c. Practical	4	2.d. Total	4

B- Professional Information

1. Overall Aims of the Course:	<ul style="list-style-type: none"> Perform measurements using Oscilloscope and multi-meter. Design and implement practical combinational and sequential circuits. Design and simulate small electronic circuits using SPICE simulator.
2. Intended Learning Outcomes of Course (ILOs):	<p>a) Knowledge and Understanding</p> <ol style="list-style-type: none"> Identify the different sections of an oscilloscope (1.2). Identify different regions of operation of a diode (1.2). Determine I-V characteristics of a transistor (1.2). Determine truth tables of simple logic circuits (1.2). <p>b) Intellectual Skills</p> <ol style="list-style-type: none"> Analyze simple electronic circuits using AC and DC (3.4). <p>c) Professional and Practical Skills</p> <ol style="list-style-type: none"> Produce SPICE simulations for electronic circuits Implement electronic circuits on breadboard (2.2, 2.3). Implement practical combinational circuits (2.2, 2.3). Design sequential circuits (2.4). <p>d) General and Transferable Skills</p> <ol style="list-style-type: none"> Perform measurements using oscilloscope and multi-meter (4.9) Produce academic grade written report (4.7).

3. Contents

Topic	Total hours	Lectures	Tutorial/ Practical
Introduction to oscilloscope	4	0	4
DC and AC measurements	4	0	4
Diode and transistor characteristics	4	0	4
Logic gates and arithmetic circuits	4	0	4
Flip flops and counters	4	0	4
Introduction to SPICE	4	0	4
Voltage and current Kirchoff's laws verification in SPICE	4	0	4
Design of differentiators and integrators using SPICE	4	0	4

Combinational and arithmetic circuits using SPICE		4	0	4
Counters using SPICE		4	0	4
4. Teaching and Learning Methods	Lectures (N)	Practical Training/ Laboratory (Y)		Seminar/Workshop (N)
	Class Activity (Y)	Case Study (N)		Projects (Y)
	E-learning (N)	Assignments /Homework (Y)		Other:
5. Student Assessment Methods				
5.a. Method		To assess (with reference to the ILOs)		
- Class assignment (Oral questions, check the results, attendance and effort)		a1, a2, a3, a4, b1, c1, c2, c3, c4, d1		
- Project		a1, a2, a3, a4, b1, c1, c2, c3, c4, d1, d2		
- Final-term examination		a1, a2, a3, a4, b1, c1, c2, c3, c4, d1		
5.b. Assessment Schedule		Week		
- Class assignment		Every week at the end of the lab		
- Project		8		
- Final-term Examination		15		
5.c. Weighting of Assessments				
- Class assignment		40%		
- Project		30%		
- Final-term Examination (Oral + Practical)		30% (10% + 20%)		
- Total		100%		
6. List of References				
6.a. Course Notes: Available in hard copies to the students				
6.b. Essential Books (Text Books): N/A				
6.c. Recommended Books: N/A				
6.d. Periodicals, Web Sites, ... etc: N/A				
7. Facilities Required for Teaching and Learning				
Boards, computers with SPICE software, and hardware elements				
Course Coordinator:	Dr. Ibrahim Kamar			
Head of Department:	Prof. Dr. Mahmoud El-Hadidi			
Date:	August 1 st , 2011			