Cairo University
Faculty of Engineering

Department of Electronics and Electrical Communications Engineering

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 Communication Engineering
Department offering the course:	Electronics & Electrical Communication Engineering
Academic year / Level:	First year
Date of original/modified specification approval:	2003/
Semester of course offering:	Spring 2011

A- Basic Information

1.a. Title:	Electronics (1)			**1.b. Code:**	ELC 101 B			
2. Units/Credit hours per week:	2.a. Lectures	2	2.b. Tutorial	2	2.c. Practical		2.d. Total	4

1. Overall Aims of the Course:

This course introduces bipolar junction transistors and MOSFETS. Operating point analysis and small signal models are introduced and applied to simple circuits. Optoelectronic devices (photoconductor – photovoltaic detectors – solar cells – LEDS – and semiconductor laser and fiberoptics.

2. Intended Learning Outcomes of Course (ILOs):

a) Knowledge and Understanding

1. Describe the device properties of BJT, MOSFETS (1.2)
2. Distinguish large signal and small signal models (1.7)
3. Identify major single stage amplifier circuits. (1.7)
4. Describe properties of optoelectronic devices and applications. (1.2)

b) Intellectual Skills

1. Analyze the performance of single stage electronic circuits (3.1)
2. Compare BJT and MOSFET circuits and different amplifier topologies. (3.4)

c) Professional and Practical Skills

1. Produce operating point, DC and transient simulations of electronic circuits on a circuit simulator using BJT and MOSFETS in some electronic applications (2.1, 2.6)

d) General and Transferable Skills

1. Demonstrate efficient IT capabilities (4.2)
2. Illustrate ability to use multiple references and sources (4.6)

3. Contents

Topic	Total hours	Lectures	Tutorial/ Practical
BJT biasing	6	2	4
BJT small signal model	6	2	4
BJT amplifiers	6	2	4
MOSFET biasing	4	2	2
MOSFET small signal model	8	4	4
MOSFET amplifier	8	4	4
Basic logic circuits	8	4	4
Optoelectronic detectors	6	4	2
LEDS - Laser	2	2	0
Solar energy converter	2	2	0

4. Teaching and Learning Methods	Lectures (Y)	Practical Training/ Laboratory (N)	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 test	a1, b1 ….
-Mid-term exam	a1, a2, a3, a4, b1, b2
-Project	c1, c2, d1
-Quizes and homeworks	a1, a2, a3, a4, b1, b2, c1
5.b. Assessment Schedule	**Week**
-Assessment 1; Class test	4
-Assessment 2; Mid-term exam	8
-Project	12
-Final-term Examination	15

5.c. Weighting of Assessments	
-Mid-Term Examination	15 %
-Project	10%
-Final-term Examination	70 %
-Semester Work	5%
-Total	100 %

6. List of References

6.a. Course Notes

6.b. Essential Books (Text Books)

- Microelectronic circuits (Sedra and Smith)
- Semiconductor Devices (M. Sameh Said)

6.c.Recommended Books

- Microelectronic circuit design (Jaeger and Blaluck)
- Solid state electronic Devices (B. Streetman)

6.d. Periodicals, Web Sites, … etc: N/A

7. Facilities Required for Teaching and Learning

Course Coordinator:	Prof. Dr. Sameh Said
Head of Department:	Prof. Dr. Mahmoud El-Hadidi
Date:	2010 - 2011