



Faculty of
Engineering at
Shoubra

Model No.12

Course Specifications : Computer Aided Electronic Design

University : Benha university

Faculty : Faculty of Engineering at Shoubra

Department : Electrical Engineering Department

1- Course Data

Course Code : ECE343
(كحت ٣٤٣)

Course Title : Computer Aided Electronic
Design

Study Year : Third Year

Specialization :

Teaching Hours:

Lecture : 4

Tutorial : 2

Practical :

2- Course Aim

For students undertaking this course, the aims are to:

- 2.1- Build the student background in CAD process and automation
- 2.2- Improve the student skills in the definition, analysis, and solving of problems
- 2.3- Develop the student ability to use integrated circuit computer-aided design and verification tools
- 2.4- Use the different specialized software packages for the electronic engineering

3- Intended Learning Outcomes of Course (ILOS)

a- Knowledge and Understanding

On completing this course, students will be able to:

- a- 1.1) List different types of analog and digital IC simulations “a5”
- a- 1.2) Recognize the SPICE Internal Architecture and Building Blocks. “a5”
- a- 1.3) Recognize the Matlab and simulink Architecture and Building Blocks. “a5”
- a- 1.4) Recognize the LabVIEW Architecture and Building Blocks. “a5”
- a- 1.5) Recognize the Proteus software for PCB layout design. “a5”

b- Intellectual Skills

At the end of this course, the students will be able to:

- b.1) choose suitable simulation methods for modeling. “b1”
- b.2) pick out good computer-based methods for analyzing the problems such as Matlab program . “b2”
- b.3) Improve innovative solutions for the engineering problems. “b14”

c- Professional Skills

On completing this course, the students are expected to be able to:

- c.1) Apply and practice different types of simulation programs and to can think and solve the problems. “c1”
- c- 2) Use techniques and software packages to can improve the computer programs. “c6”

d- General Skills

At the end of this course, the students will be able to:

- d- 2) Work in stressful environment and use some of engineering constraints. “d2”.

4- Course Contents

No.	Topics	No of hours
1	Introduction to Electronic systems (analog and digitals)	4
2	Electronics standard components	4
3	Overview of PSPICE	4
4	How to Write a SPICE Netlist	4
5	Control Statements and Probe	4
6	SPICE Models	4
7	SPICE Internal Architecture and Building	4
8	Digital and Mixed-Mode Simulation	4
9	PCB software packages (Proteus)	4
10	Introduction to Matlab	4
11	Matlab Simulink	4
12	LabVIEW software	4

5- Teaching and Learning Methods

- 5.1- Modified lectures/ White board
- 5.2- Class discussion
- 5.3- Assignments

6- Teaching and Learning Methods of Disables

Nothing

7- Student Assessment

a- Student Assessment Methods

1	Assignments to assess knowledge and intellectual skills.
2	Mid-term exam to assess understanding of the fundamentals, problem solving and analytical and design capabilities
3	Design projects to assess intellectual, professional and skills
4	Final-exam to assess understanding of different aspects in the course, design capabilities, analytical skills

b- Assessment Schedule

No.	Assessment	Week
1	Assignments	2,3,5,6,7,9,11,12,13
2	Mid-term exam	8
3	Design project	4,10
4	Final exam	15

c- Weighting of Assessments

Assessment	Weight
Mid_Term Examination	18 %
Final_Term Examination	67 %
Oral Examination	0 %
Practical Examination	0 %
Semester work	15 %

Other types of assessment	0 %
Total	100 %

8- List of References

a- Books

- 1- Fitzpatrick, Dennis. "Analog Design and Simulation Using OrCAD Capture and PSpice" Oxford : Newnes, 2012
- 2- Steven T. Karris "Circuit Analysis II with MATLAB Applications"orchard publications, 2003

b- Recommended Books

- 1- Jeffrey Travis and Jim Kring. LabVIEW for Everyone: Graphical Programming Made Easy and Fun (3rd Edition) Prentice Hall Ptr, July

- **Course Coordinator :** Dr. Abdallah Hammad Zaki

Course Instructor

- **Head of Department :** Prof. Dr. Sayed Abu-Elsood Ward



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Model No.11A Course Specifications : Computer Aided Electronic Design

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University : Benha university

Faculty : Faculty of Engineering at Shoubra

Department : Electrical Engineering Department

Matrix of Knowledge and Skills of the course

No.	Topics	week	asic Knowledge	Intellectual Skills	Professional Skills	General Skills
1	Introduction to Electronic systems (analog and digitals)	1	a1.1	b2		
2	Electronics standard components	2	a1.1	b2		
3	Overview of PSPICE	3	a1.2	b2	c1	
4	How to Write a SPICE Netlist	4	a1.2	b2	c1	
5	Control Statements and Probe	5	a1.2	b2	c1	
6	SPICE Models	6	a1.2	b2,b3	c1	
7	SPICE Internal Architecture and Building	7	a1.2	b2,b3	c1	
8	Mid term Exam	8	a1.1,a1.2	b2,b3	c1	d1
9	Digital and Mixed-Mode Simulation	9	a1.2	b2,b3	c1	
10	PCB software packages (Proteus)	10	a1.5	b2,b3	c1	
11	Introduction to Matlab	11	a1.3	b1,b2,b3	c1,c2	
12	Matlab Simulink	12	a1.3	b1,b2,b3	c1,c2	
13	Matlab Simulink	13	a1.3	b1,b2,b3	c1,c2	
14	LabVIEW software	14	a1.4	b1,b2,b3	c1,c2	
15	Final Exam	15	a1	b1,b2,b3		d1

- Course Coordinator : Dr. Abdallah Hammad Zaki

Course Instructor

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Matrix of course aims and ILO's

Course Title: Computer aided electronic design **Code:** ECE343
Lecture: 4 **Tutorial:** 2 **Practical:** - **Total:**6
Program on which the course is given: B.Sc. Electrical Engineering (Communications)
Major or minor element of program: Major
Department offering the program: Electrical Engineering Department
Department offering the course: Electrical Engineering Department
Academic year / level: **Third**Year / **First** Semester
Date of specifications approval: 20/6/2010

Aim	a1	b1	b2	b3	c1	c2	d1
Build the student background in CAD process and automation	✓		✓		✓		
Improve the student skills in the definition, analysis, and solving of problems	✓	✓	✓	✓	✓	✓	
Develop the student ability to use integrated circuit computer-aided design and verification tools	✓	✓	✓		✓	✓	✓
Use the different specialized software packages for the electronic engineering	✓		✓	✓	✓	✓	

Course coordinator: Ass. Prof. Abdallah Hammad
Course instructor Ass. Prof. Abdallah Hammad
Head of department: Prof. Dr.Sayed **Abu-Elsood** Ward
Date: / /