



Faculty of Engineering At
Shoubra.

Model No.12

Course Specifications : Electronic Circuit 3B

University : Benha university

Faculty : Faculty of Engineering at Shoubra.

Department : Electrical Engineering Department

1- Course Data

Course Code : ECE322

Course Title : Electronic Circuit 3B

Study Year : Third Year

Specialization :

Electronic and Communication Engineering

Teaching Hours:

Lecture : 3

Tutorial : 3

Practical :

2- Course Aim

For students undertaking this course, the aims are to:

- 2.1- State basic principles of electronic circuits for communication engineering.
- 2.2- Demonstrate the electronic circuits that efficiently used in many systems and applications (Signals generators – Filters) .
- 2.3- Implement and design electronic circuits.
- 2.4- UseCAD packages in analyzing and designing the electronic circuits.

3- Intended Learning Outcomes of Course (ILOS)

a- Knowledge and Understanding

On completing this course, students will be able to:

- a- 1- Describe principles of design including elements design and process for Operational Amplifier.(a5)
- a- 2 - Mention basics of design and analyzing electronic engineering systems as Function generators. (a18)
- a- 3- Describe principles of design including elements design and process of Signals generators and Filters.(a5)
- a- 4- Describe principles of design including elements design and process of Voltage regulators and Phase locked loop circuits.(a5)
- a- 5- Being familiar of using differentCAD packages in analyzing and designing the electronic circuits.
- a- 6-Mention Methods of integrated circuits industry (a28).

b- Intellectual Skills

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

- b- 1- Combine, exchange, and assess different ideas, views, and knowledge for design of electronic circuits.(b5)
- b-2- Evaluate the characteristics and performance of components used in operational amplifier circuits and its applications.(b6)
- b- 3- Synthesize and integrate electronic systems for certain specific function using proteus and Xilinx programs. (b18)

c- Professional Skills

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

- c- 1- Create and/or re-design a process or component carry out specialized designs of Operational Amplifier circuits. (c3)
- c- 2- Identify appropriate specifications for Function generators, Signals generators and Filters. (c17)
- c- 3- Identify appropriate specifications for Voltage regulators and Phase locked loop circuits. (c17)

d- General Skills

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

d- 1 - Communicate effectively. (d3)

d- 2- Search for information and engage in life-long self learning electronics. (d7)

4- Course Contents

No.	Topics	No of hours
1	Operational amplifier circuits	6
2	Differential amplifiers	3
3	Function generators	3
4	Signals generators	3
5	Active filters	3
6	Voltage regulators	3
7	Phase locked loop circuits	3
8	Using CAD packages in analyzing and designing the electronic circuits- PROTEUS and VHDL	6

5- Teaching and Learning Methods

- 5.1- modified Lectures
- 5.2- Class activity
- 5.3- Case study
- 5.4- Assignments / homework

6- Teaching and Learning Methods of Disables

Nothing

7- Student Assessment

a- Student Assessment Methods

1	Assignments to assess knowledge and intellectual skills.
2	Quiz to assess assess knowledge and intellectual skills.
3	Mid-term exam to assess knowledge and intellectual skills.
4	Oral exam to assess knowledge and intellectual skills, professional and general skills.
5	Practical Examination of some individual and group projects.
6	Final exam to assess knowledge and intellectual skills.

b- Assessment Schedule

No.	Assessment	Week
1	Reports	4,9
2	Quizzes	3, 6, 10, 12
3	Mid-term exam	8
4	Oral Exam	14
5	Final exam	15

c- Weighting of Assessments

Assessment	Weight
Mid_Term Examination	10 %
Final_Term Examination	60 %

Oral Examination	10 %
Practical Examination	10 %
Semester work	5 %
Other types of assessment	5 %
Total	100 %

8- List of References

a- Course Notes

1- Course notes

b- Books

1- Robert L. Boylestad, Electronic devices and circuit theory, 11th Edition , Prentice hall,2001

2- Thomas L. Floyd, Electronic devices, 9th Edition, Pearson Education, Limited, 2011

c- Recommended Books

1- Kenneth Carless Smith, Adel S. Sedra, Microelectronic Circuits,6 thedition,Oxford University Press, Incorporated, 2010

Course Instructor:

- Course Coordinator : Dr. Ahmad AbdelAziz El-Banna

- Head of Department : Prof. Dr. Sayed Abo -Elsood Ward



Faculty of
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Model No.11A Course Specifications : Electronic Circuit 3B

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Matrix of Knowledge and Skills of the course

No.	Topics	we ek	Basic Knowledge	Intellectual Skills	Professional Skills	General Skills
1	Operational amplifiers	1	a1			
2	Operational amplifier circuits	2	a1,a6	b1	c1	
3	Bias Current And Offset Voltage Compensation	3	a1	b1,b2	c1	
4	Differential amplifiers	4	a1	b2	c1	
5	Function generators	5	a2	b2, b3	c2	
6	Signals generators	6	a1, a3	b3	c2	d2
7	Mid term exam	7	a1, a3	b1, b2		
8	active Low-pass Filters	8	a3	b1, b3	c2	
9	active High-Pass Filters	9	a3	b1, b3	c2	
10	Voltage regulators	10	a4	b3	c3	
11	phase locked loop circuits	11	a4	b3	c3	
12	using CAD packages in analyzing and designing the electronic circuits- PROTEUS and VHDL	12	a1, a5,a6	b1	c1,c3	d2
13	using CAD packages in analyzing and designing the electronic circuits- VHDL	13	a1, a5	b1	c1,c3	d2
14	Oral exam and project delivery	14	a1, a2, a5	b2,b3	c1, c2 ,c3	d1,d2
15	Final exam	15	a1, a2, a3, a4	b1, b2		

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

Matrix of course content and ILO's

Course Title: Electronic Circuit 3B **Code:** ECE322
Lecture: 3 **Tutorial:** 3 **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 / Second Semester 2014/2015**
Date of specifications approval: 20/6/2010

Course content	a1	a2	a3	a4	a5	a6	b1	b2	b3	c1	c2	c3	d1	d2
Operational amplifier circuits	✓					✓	✓	✓		✓				
Differential amplifiers	✓							✓		✓				
Function generators		✓						✓	✓		✓			
Signals generators	✓		✓						✓		✓			✓
Active filters			✓				✓		✓		✓			
Voltage regulators				✓					✓			✓		
Phase locked loop circuits				✓					✓			✓		
Using CAD packages in analyzing and designing the electronic circuits- PROTEUS and VHDL	✓				✓	✓	✓			✓		✓		✓

Matrix of course aims and ILO's

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Course aims	a1	a2	a3	a4	a5	a6	b1	b2	b3	c1	c2	c3	d1	d2
State basic principles of electronic circuits for communication engineering.	✓	✓	✓				✓	✓		✓	✓			

Demonstrate the electronic circuits that efficiently used in many systems and applications (Signals generators – Filters).	✓		✓			✓	✓		✓		✓			✓
Implement and design electronic circuits.				✓		✓		✓	✓			✓		
Use CAD packages in analyzing and designing the electronic circuits.	✓				✓	✓	✓			✓		✓		✓

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