Faculty of Engineering at Shoubra

Model No.12
Course Specifications : Electrical Circuit 1

University : Benha university

Faculty : Faculty of Engineering at Shoubra

Department : Electrical Engineering Department

1- Course Data

Course Code : ECE112 Course Title : Electrical Circuit 1 Study Year : First Year
Specialization :
Teaching Hours:
Lecture : 4 Tutorial : 2 Practical :

2- Course Aim

For students undertaking this course, the aims are to:

2.1 Demonstrate the highest standards of personal and professional integrity, and ethical responsibility in the practice of electronics and communication engineering.
2.2- Identify, formulate, and solve a wide range of electronics and communication engineering problems using modern engineering tools and techniques.

3- Intended Learning Outcomes of Course (ILOS)

a- Knowledge and Understanding

On completing this course, students will be able to:
a.-1- Define concepts and theories of sciences, appropriate to the electrical circuit analysis.(a2)
a- 2- Describe principles of design including elements design, process and/or a system of electrical components (Resistance, coils, and capacitors).(a5)
a- 3 –Mention the basic of designing components of electrical circuits.(a18)
a- 4 – Describe principles of analyzing and design of DC and AC circuits.(a19)

b- Intellectual Skills

At the end of this course, the students will be able to:
b- 1 –think in a creative and innovative way in electrical circuits solving and design.(b4)
b- 2 –Synthesize electronic systems for certain specific function using the right equipment.(b18)

c- Professional Skills

On completing this course, the students are expected to be able to:
c- 1 –Allow students to use computational facilities, measuring instruments, workshops and laboratories equipment to design electrical circuits and analyze.(c5)

d- General Skills

At the end of this course, the students will be able to:
d- 1 - Collaborate effectively within multidisciplinary team. (d1)
d- 2 - Refer to relevant literatures. (d9)
d- 3- Develop skills related to creative and critical thinking as well as problem solving.(d12)

4- Course Contents

No.	Topics	No. of hours
1	Introduction to DC circuits	4
2	Voltage, Current and Resistance in Electric Circuits	4
3	Ohm's Law, Energy, and power.	4
4	Kirchhoff's laws	4
5	Methods of Solution of Electric Circuits	4
6	Capacitors and Inductors in DC circuits	4
7	Network Theorems	4
8	AC circuit	4
10	Power in AC and Effective and Average value of a sine wave	4
11	Complex power	4
12	Maximum power factor	4
13	Network Theorems in AC	4

5- Teaching and Learning Methods

5.1- Modified lectures
5.2- Class activity
5.3- Assignments / homework

6- Teaching and Learning Methods of Disables

6.1-No things

7- Student Assessment

a- Student Assessment Methods

1	Assignments to assess knowledge and intellectual skills.
2	Quiz to assess knowledge and intellectual skills.
3	Mid-term exam to assess knowledge and intellectual skills.
4	Oral exam to assess knowledge, intellectual skills, professional and general skills.
5	Final exam to assess knowledge and intellectual skills

b- Assessment Schedule

No.	Assessment	Week
1	Assignments	2, 5, 9, 11
2	Quizzes	4, 6, 10, 12
3	Mid-term exam	8
4	Oral Exam	14
5	Final exam	15

c- Weighting of Assessments

Assessment	Weight
Midterm Examination	10 %
Final Term Examination	60 %
Oral Examination	20 %
Practical Examination	0 %
Semester work	10 %
Other types of assessment	0 %
Total	100 %

8- List of References

a- Course Notes

1- Course notes prepared by instructor.

b- Recommended Books

1- Thomas l.floyed ,"Electric Circuit Fundamentals ",7th Edition,Published April 1st 2006 by Prentice Hall (first published 1983)

2- Allan Robbins and Wihelmmiller,"Circuit Analysis; theory and practice",4th Edition, Delamr Learning, 2007.

Faculty of Engineering at Shoubra

Model No.11A
Course Specifications : Electrical Circuit 1

University : Benha university

Faculty : Faculty of Engineering at Shoubra

Department : Electrical Engineering Department

Matrix of Knowledge and Skills of the course

No.	Topics	week	Basic Knowledge	Intellectual Skills	Professional Skills	General Skills
1	Introduction to DC circuits	1		b4		
2	Voltage, Current and Resistance in Electric Circuits	2		b4		
3	Ohm's Law, Energy, and power.	3	a2	b4	c5	
4	Kirchhoff's laws	4	a2	b4	c5	
5	Methods of Solution of Electric Circuits	5		b4	c5	
6	Capacitors and Inductors in DC circuits	6		b4	c5	
7	Network Theorems	7	a2,a5,a18,a19	b18	c5	
8	Midterm Exam	8	a5,a18	b4		
9	AC circuit	9	a5,a18,a19		c5	
10	Power in AC and Effective and Average value of a sine wave	10	a5	b18	c5	
11	Complex power	11	a5	b18	c5	
12	Maximum power factor	12	a5	b18	c5	
13	Network Theorems in AC	13	a5,a18,a19		c5	
14	Oral Exam	14	a5,a18	b4,b18	c5	d1,d9,d12
15	Final Exam	15	a5,a18	b4,b18		

Matrix of Course Content and ILO's

Course Title: Electrical Circuit 1 **Code**: ECE112
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: First Year / **First** Semester **2014-2015**
Date of specifications approval: 20/6/2010

Course Content	A1	A2	A3	A4	B1	B2	C1	d1	D2	D3
Introduction to DC circuits					✓		✓			
Voltage, Current and Resistance in Electric Circuits					✓		✓			
Ohm's Law, Energy, and power.	✓				✓		✓			
Kirchhoff's laws	✓				✓		✓			
Methods of Solution of Electric Circuits					✓		✓	✓	✓	✓
Capacitors and Inductors in DC circuits					✓		✓			
Network Theorems	✓	✓	✓	✓		✓	✓			
AC circuit		✓	✓	✓			✓			
AC circuit behavior		✓	✓	✓			✓			
Power in AC and Effective and Average value of a sine wave		✓				✓	✓			
Complex power		✓				✓	✓			
Maximum power factor		✓				✓	✓	✓	✓	✓
Network Theorems in AC		✓	✓	✓			✓	✓	✓	✓

- Course Coordinator : Ass. Prof. Mohamed Tarekelewa

- Course Instructor : Dr. HossamEldeen Mahmoud Ahmed

Dr. BasemMamdohHagagElHalawany

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

Date / /

Matrix of Course Aims and ILO's

Course Title: Electrical Circuit 1 **Code**: ECE112
Lecture: 4 Tutorials: 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: First Year / **First** Semester **2014-2015**
Date of specifications approval: 20/6/2010

Course Aims	A1	A2	A3	A4	B1	B2	C1	d1	D2	D3
Demonstrate the highest standards of personal and professional integrity, and ethical responsibility in the practice of electronics and communication engineering.		✓		✓			✓	✓	✓	✓
Identify, formulate, and solve a wide range of electronics and communication engineering problems using modern engineering tools and techniques.	✓		✓		✓	✓			✓	

- Course Coordinator : Ass. Prof. Mohamed Tarekelewa

- Course Instructor : Dr. HossamEldeen Mahmoud Ahmed

Dr. BasemMamdohHagagElHalawany

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

Date / /