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
Date of original/modified specification approval:	2003/
Semester of course offering:	First Semester

A- Basic Information

1.a. Title:	Circuits (1)			**1.b. Code:**		ELC 102 A		
2. Units/Credit hours per week:	2.a. Lectures	2	2.b. Tutorial	2	2.c. Practical		2.d. Total	4

B- Professional Information

1. Overall Aims of the Course:	The course is the most important course for an electrical engineering student, and always an excellent starting point for a beginning student in electrical engineering education. It covers the fundamental laws and theorems for both DC and AC circuits. It also introduces the concepts of frequency response and three-phase systems.
2. Intended Learning Outcomes of Course (ILOs):	**a) Knowledge and Understanding** 1. Explain basic Kirchoff circuit laws (1.7). 2. Explain Mesh analysis methods (1.7). 3. Explain Nodal analysis methods (1.7). 4. Explain basic circuit theorems such as superposition, Thevenin and Norton transformations (1.7). 5. Explain the maximum power transfer theorem (1.7). **b) Intellectual Skills** 1. Apply electric circuits simplification methods and Star-Delta transformations (3.1). 2. Apply basic circuit theorems such as superposition, Thevenin and Norton transformations (3.1). 3. Analyze circuits with AC excitation in the time domain (3.1). 4. Analyze circuits with AC excitation in the frequency domain (3.1). 5. Apply Mesh analysis methods to electric circuits (3.1). 6. Apply Nodal analysis methods to electric circuits (3.1).

3. Contents

Topic	Total hours	Lectures	Tutorial/ Practical
Introduction & Course Syllabus	4	2	2
Basic Circuit Laws	4	2	2
Introduction to methods of Solution of DC Circuits:	4	2	2
Simplification Method - Star-Delta Transformations	4	2	2
Mesh analysis Methods	4	2	2
Nodal analysis Methods	4	2	2
Basic Circuit Theorems: Superposition-Thevenin-Norton-Maximum power	12	6	6
Analysis of circuits with AC excitation in the time domain	8	4	4
Analysis of AC circuits in the frequency domain	12	6	6

4. Teaching and Learning Methods	Lectures (Y)	Practical Training/ Laboratory (N)	Seminar/Workshop (N)
	Class Activity (N)	Case Study (N)	Projects (N)
	E-learning (N)	Assignments /Homework (Y)	Other:

5. Student Assessment Methods	
5.a. Method	**To assess (with reference to the ILOs)**
-Class test	b3, b4.
-Mid-term exam	a1 - a5, b1, b2, b5, b6.
-Final Exam	a1 - a5, b1 - b6.
5.b. Assessment Schedule	**Week**
-Assessment 1; Class test	4
-Assessment 2; Mid-term exam	8
-Assessment 3; Final-Exam	15
5.c. Weighting of Assessments	
-Mid-Term Examination	20 %
-Final-term Examination	70 %
-Class test	10 %
-Total	100 %

6. List of References
6.a. Course Notes
6.b. Essential Books (Text Books)
• J. W. Nilsson and S. A. Riedel, Electric Circuits, Prentice Hall, 2005.
6.c. Recommended Books.
• C. Alexander and M. Sadiku, Fundamental of Electric Circuits, Mc-Graw Hill, 2006.
6.d. Periodicals, Web Sites, … etc: N/A
7. Facilities Required for Teaching and Learning
- Small group of students.
- Up-to-date references in library.

Course Coordinator:	**Prof. Dr. Mohamed Fathy Abu El-Yazeed**
Head of Department:	**Prof. Dr. Mahmoud El-Hadidi**
Date:	**2011**