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

A- Basic Information

1.a. Title:	Electric Circuits II			**1.b. Code:**	ELC 202 B			
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:	This course introduces students who have only the knowledge of essential basic theorems and tools of circuits to new subjects of analysis of passive electric circuits such as frequency domain and spectrum analysis, transient and steady-state solutions of circuits with initial conditions as well as the subject of network synthesis.
2. Intended Learning Outcomes of Course (ILOs):	**a) Knowledge and Understanding**
	1. Explain how to perform spectral analysis to a given voltage or current and to calculate the power of the signal in different frequency ranges (1.7). 2. Explain the physical meaning of total harmonic distortion (1.7). 3. Explain the significance of transient analysis of electric circuits (1.7).
	b) Intellectual Skills
	1. Perform spectrum analysis of signals (3.1). 2. Solve circuit problems with initial conditions (3.1). 3. Synthesize circuits for impedance and admittance functions (3.9). 4. Calculate the transient and steady-state solution of a circuit using the Laplace transform (3.4). 5. Synthesize a driving point immittance using LC, RC & RL elements (3.9).
	c) Professional and Practical Skills
	1. Choose the best passive circuit required for a certain application (2.1). 2. Analyze practical passive circuits (2.6).
	d) General and Transferable Skills
	1. Acquire skills required for electronics, communications & control courses.

3. Contents

Topic	Total hours	Lectures	Tutorial/ Practical
Frequency Domain Analysis and Spectrum Calculations - Power Calculations in Time and Frequency Domain.	20	10	10
Application of the Laplace Transform to Circuit Analysis – Transient and Steady-State Solutions Using Laplace Transform	20	10	10
Synthesis Using LC,RC &RL Elements.	16	8	8

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

5. Student Assessment Methods	
5.a. Method	**To assess (with reference to the ILOs)**
-Class test	a1, a2, b1, d1, c2.
-Mid-term exam	a1, a2, a3, b1, b2, b4, d1.
-Final Exam	a1-a3, b1-b5, c1,c2, d1.
5.b. Assessment Schedule	**Week**
-Assessment 1; Class test	8
-Assessment 2; Mid-term exam	12
-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 :Students take notes during lectures & tutorials , all notes are available in electronic forms.

6.b. Essential Books (Text Books):

- James W. Nilson & Susan A. Riedel, “Electric Circuits”, Addison-Wesley Pub. Comp., New York, 2008.

6.c. Recommended Books.

- J. David Irwin, “Basic Engineering Circuit Analysis” Macmillan Pub. Comp., New York, 1990.

6.d. Periodicals, Web Sites, … etc

7. Facilities Required for Teaching and Learning

Laptop

Data show

Internet Connection

Course Coordinator:	**Prof. Dr. Afaf Abdel-Fattah Abdallah**
Head of Department:	**Prof. Dr. Mahmoud Elhadidy**
Date:	**May, 2011**