Cairo University
Faculty of Engineering

Department of Electronics and Electrical Communications Engineering

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 and electrical communications Engineering
Department offering the course:	Electronics and electrical communications Engineering
Academic year / Level:	Fourth Year
Date of original/modified specification approval:	2003
Semester of course offering:	Second

A- Basic Information

1.a. Title:	Robotics			**1.b. Code:**	ELC 466			
2. Units/Credit hours per week:	2.a. Lectures	3	2.b. Tutorial	1	2.c. Practical	0	2.d. Total	4

B- Professional Information

1. Overall Aims of the Course:	To give an introduction to robotic systems, robot kinematics and sensors.
2. Intended Learning Outcomes of Course (ILOs):	**a) Knowledge and Understanding**
	1. Recognize the different types of robots and how to choose coordinate systems to fully describe robot motion (1.1, 1.2, 1.7). 2. Recognize the different types of sensors and camera models to be used with robots (1.2, 1.7).
	b) Intellectual Skills
	1. Analyze a robotic system (3.1, 3.4).
	c) Professional and Practical Skills
	1. Build a real flying robot through a course project (2.4, 2.9). 2. Design a robot arm given the specifications (2.4, 2.9). 3. Construct a drive system for a desired motion (2.4, 2.9).
	d) General and Transferable Skills
	1. Work efficiently within a multi-disciplinary team and communicate effectively both orally and in writing (4.7).

3. Contents

Topic	Total hours	Lectures	Tutorial/ Practical
1-Introduction to robotics	4	4	0
2-Homogeneous transformations.	16	8	8
3-Some Examples for existing robots	24	12	12
4- Robot sensors and drives	12	8	4

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

5. Student Assessment Methods

5.a. Method	**To assess (with reference to the ILOs)**
- Home work	a1, a2, b1
- Mid-term exam	a1,b1
- Project	c1, c2, c3, d1
- Final Exam	a1, a2, b1
5.b. Assessment Schedule	**Week**
- Assessment 1; Home work	4, 10
- Assessment 2; Mid-term exam	8
- Assessment 3; Project	12
- Assessment 4; Final Exam	15
5.c. Weighting of Assessments	
- Mid-Term Examination	10 %
- Final-term Examination	70 %
- Home Work	5%
- Project	15%
- Total	100 %
6. List of References	
6.a. Course Notes: Course Notes are available.	
6.b. Essential Books (Text Books)	
• Robot Dynamics and Control, M. Spong and M. Vydiazagar, Prentice Hall 1989.	
6.c. Recommended Books.	
• Robotics, Gonzaliz and Lee, McGraw Hill 1987.	
6.d. Periodicals, Web Sites, … etc : N/A	
7. Facilities Required for Teaching and Learning	
• White Board, - Data Show	
• Physical Robot Models	
Course Coordinator:	**Prof. Ahmed Ali Abouelsoud**
Head of Department:	**Prof. Ahmed Ali Abouelsoud**
Date:	**25-6-2011**