A. Basic Information

Course Title: Electromagnetic fields  
Code: EP212
Lecture: 3  
Tutorial: 2  
Practical: -  
Total: 5

Program on which the course is given: BSc Electrical Engineering (Electrical Power and machines)

Major or minor element of program: NA

Department offering the program: Electrical Engineering Department

Department offering the course: Electrical Engineering Department

Academic year / level: second Year / First Semester

Date of specifications approval: 10/5/2006

B. Professional Information

1. Overall aims of course
   By the end of the course the students will be able to:
   - Understand the vector analysis, the electrostatic and static magnetic field and learn practical applications about the electromagnetic fields.
   - Understand the graduates with sufficient information about Static electric field laws and the static magnetic field laws and their practical application.

2. Intended Learning outcomes of Course (ILOs)

   a. Knowledge and Understanding:
      a1) Concepts and theories of mathematics and sciences, appropriate to the discipline
      a3) Characteristics of engineering materials related to discipline
      a5) Methodologies of solving engineering problems, data collection interpretation
      a8) Current engineering technologies as related to disciplines
a18) Theories and techniques for calculating short circuit, motor starting and voltage drop

b. Intellectual Skills
b2) Select appropriate solutions for engineering problems based on analytical thinking
b3) Think in a creative and innovative way in problem solving and design
b4) Combine, exchange, and assess different ideas, views, and knowledge from a range of sources
b5) Assess and evaluate the characteristics and performance of components, systems and processes
b7) Solve engineering problems, often on the basis of limited and possibly contradicting information
b12) Create systematic and methodic approaches when dealing with new and advancing technology
b13) Identify and formulate engineering problems to solve problems in the field of electrical power and machines engineering

C. Professional and Practical Skills
c1) Apply knowledge of mathematics, science, information technology, design, business context and engineering practice to solve engineering problems
c5) Use computational facilities and techniques, measuring instruments, workshops and laboratories equipment to design experiments, collect, analyze, and interpret results

d. General and Transferable Skills
d1) Collaborate effectively within multidisciplinary team
d3) Communicate effectively

3. Contents
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4. Teaching and Learning Methods
   Lectures
   Class activity
   Case study
   Assignments / homework

5. Student Assessment Methods
   Assignments to assess knowledge and intellectual skills
   Quiz to assess knowledge, intellectual and professional skills
   Mid-term exam to assess knowledge, intellectual, professional and general skills
   Oral exam to assess knowledge and intellectual skills
   Final exam to assess knowledge, intellectual, professional and general skills

6. Assessment schedule
   Assessment 1 on weeks 2, 5, 9, 11
   Assessment 2 Quizzes on weeks 4, 6, 10, 12
   Assessment 3 Mid-term exam on week 8
   Assessment 4 Final exam on week 15

7. Weighting of Assessments
   Mid- Term Examination  10%
   Final- Term Examination 60%
   Oral Examination 00%
8. List of References

8.1 Course Notes
   Course notes (Part I) prepared by Prof. Dr. Sayed A. Ward.
   Course notes (Part II) prepared by Dr. Samia Mansour

8.2 Essential Books (Text Books)


8.3 Periodicals Web sites, etc

   Researchcom, www Googlecom

Recommended books


   2. Shaume’s series for electromagnetic fields

9. Facilities Required for Teaching and learning

   Presentation board, computer and data show
   Laboratory
Course coordinator: Prof Dr Said El- Ward
Course instructor: Dr Samia Mansour
Head of department: Prof Dr Mousa Abd-Allah  Date : 7/12/2011