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| Shoubra Faculty of Engineering | Model No.12 Course Specifications : Principles of Electromagnetic |  |
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| **1-  Course Aim** |
| For students undertaking this course, the aims are to: |
| |  | | --- | | 2.1- List the broad classifications of Electromagnetic Fields. | | 2.2- Demonstrate Faraday’s laws and Poisson’s equation. Understand continuity equation and Maxwell’s equations of Electric & magnetic fields | | 2.3- Demonstrate the analogy between Electric & Magnetic Fields. | |

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| **2- 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 electric and magnetic fields.(a.1)  a.2 - Define concepts and theories of sciences, for Faraday's laws and Poisson's equation.(a.2) | | a.3 - Demonstrate methodologies of data collection interpretation and solving engineering problems.(a.6) | | a.4 - Define current engineering technologies for electric and magnetic fields. (a.9) | | |  | | | **b-  Intellectual Skills** |  | | At the end of this course, the students will be able to: |  | | |  | | --- | | b.1 - Select appropriate mathematical for modeling.(b.1) | | b.2 - Select appropriate solutions for engineering problems based on analytical thinking.(b.3) | | b.3 - Think in a creative and innovative way in problem solving and design.(b.4) | | b.4 - Assess and evaluate the characteristics and performance of components, systems and processes.(b.6) | | b.5 - Solve engineering problems, often on the basis of limited and possibly contradicting information.(b.8) | |  | |  | | | **c-  Professional Skills** |  | | On completing this course, the students are expected to be able to: |  | | |  | | --- | | c.1 - Apply knowledge of mathematics, science, information technology, design, business context and engineering practice to solve engineering problems. (c.1) | | c.2 - Professionally merge the engineering knowledge, understanding, and feedback to improve design, product and/or services.(c.2) | | c.3 - Use appropriate mathematical methods or IT tools. (c.13) | |  | |  | | | **d-  General Skills** |  | | At the end of this course, the students will be able to: |  | | |  | | --- | | d.1 - Collaborate effectively within classifications of Electromagnetic Fields. | | d.2 - Work in stressful environment and within constraints. | | d.3 - Communicate effectively | |  | |  | | |