

**Department of Electronics and Electrical Communications
Engineering**

**Cairo University
Faculty of Engineering**

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| **Course Specifications** |
| **Program(s) on which this course is given:** | Metallurgical Engineering |
| **Department offering the program:** | Metallurgical Engineering |
| **Department offering the course:** | **Electrical Power and Machines** |
| **Academic Level:** | 2nd year |
| **Date**  | 2014 |
| **Semester (based on final exam timing)** |  Fall ● Spring |
| **A- Basic Information** |
| **1. Title:** | **Electrical Engineering**  | **Code:** | **ELEC 222** |
| **2. Units/Credit hours per week:**  | Lectures | 3 | Tutorial | 2 | Practical | **0** | Total | 5 |
| **B- Professional Information** |
| **1. Course description:** | * **Demonstrate the methods of analysis and solution of DC and AC electrical circuits.**
* **Obtain suitable information about some electrical machines**
* **Grasp the basic principle of operation as well as the configuration of electrical power network and its components.**
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| **. Intended Learning Outcomes of Course (ILOs):** | **a) Knowledge and Understanding** |
| 1. Concepts and theories of mathematics and sciences, appropriate to the discipline. |
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| **b) Intellectual Skills** |
| 2. Select appropriate mathematical and computer-based methods for modeling and analyzing metallurgical problems.  |
| 3. Assess and evaluate the characteristics, performance and failure of components, systems and processes. |
| **c) Professional and Practical Skills** |
| 4. Apply knowledge of mathematics, science, information technology, design, business context and engineering practice integrally to solve metallurgical engineering problems. |
| 5. Prepare and present technical reports observing ethical aspects and using proper referencing and citation.  |
| **d) General and Transferable Skills** |
| 6. Collaborate effectively within multidisciplinary team in stressful environment and within constraints and effectively manage tasks, time, and resources. |
| **3. Contents** |
| **Topic** | **Total hours** | **Lectures hours** | **Tutorial/ Practical hours** |
| DC circuits | 16 | 8 | 8 |
| AC circuits | 12 | 6 | 6 |
| Basic Introduction to Electrical Machines  | 12 | 6 | 6 |
| Electrical Power Network (Generation, Transmission and Distribution) | 8 | 4 | 4 |
| **4. Teaching and Learning Methods** | Lectures (● )  | Practical Training/ Laboratory ( )  | Seminar/Workshop ( ●)  |
| Class Activity ( ●)  | Case Study ( ●)  | Projects ( )  |
| E-learning ( )  | Assignments /Homework ( )  | Other:  |
| **5. Student Assessment Methods** |
| * **.Assessment Schedule**
 | **Week** |
| -Assessment 1; Class test  | 4 |
| -Assessment 2; Project Assignment  |  |
| -Assessment 3; Presentations  |  |
| -Assessment 3; Midterm Exam | 10 |
| -Assessment 4; Final Exam | End of term |
| * **Weighting of Assessments**
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| -Mid-Term Examination | 20% |
| -Final-term Examination  | 70% |
| -Project |  |
| -Class Test | 5% |
| -Presentation | 5% |
| -Total | 100% |
| **6. List of References** |
| 6.1- Course Notes |
| 6.2- Essential Books (Text Books) **- Boylestad, Robert. - Introductory circuit analysis. - 9th ed. - Upper Saddle River, N.J. : Prentice Hall, 2000.** **- Wildi, Theodore - Electrical Machines, Drives and Power Systems – Fifth Edition - Upper Saddle River, Prentice Hall, 2002.** |
| 6.3- Recommended Books **- Nilsson, James W. - Electric circuits / James W. Nilsson, Susan A. Riedel. - 6th ed. - Upper Saddle River, N.J. : Prentice Hall; London : Prentice-Hall International, 2000.**  |
| 6.4- Periodicals, Web Sites, … etc |
| **7. Facilities Required for Teaching and Learning** |
| . **White board, Data Show, up to date references should be available in the library such as a recent edition of ‘Introductory circuit analyses by Robert Boylestad.**  |
| **Course Coordinator:** |  |
| **Head of Department:**  | **Prof. Dr. E. M. Elbana** |

