

**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.** | | | | | | | | | | | | | |
| **. Intended Learning Outcomes of Course (ILOs):** | | | | **a) Knowledge and Understanding** | | | | | | | | | | | | | |
| 1. Concepts and theories of mathematics and sciences, appropriate to the discipline. | | | | | | | | | | | | | |
|
| **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** | | | | | | | | | | | | | | | | | |
| -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** | | | | | | | | | | | | | | |

