

**Department of Mining, Petroleum and Metallurgical Engineering**

**Cairo University  
Faculty of Engineering**

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| **Course Specifications** | | | | | | | | | | | | | | | | | |
| **Program(s) on which this course is given:** | | | | | | | Materials and Metallurgical Engineering | | | | | | | | | | |
| **Department offering the program:** | | | | | | | Department of Mining, Petroleum and Metallurgical Engineering | | | | | | | | | | |
| **Department offering the course:** | | | | | | | Department of Mining, Petroleum and Metallurgical Engineering | | | | | | | | | | |
| **Academic Level:** | | | | | | | 4th year B.Sc students | | | | | | | | | | |
| **Date** | | | | | | | 2014 | | | | | | | | | | |
| **Semester (based on final exam timing)** | | | | | | | Fall Spring | | | | | | | | | | |
| **A- Basic Information** | | | | | | | | | | | | | | | | | |
| **1. Title:** | Graduation project | | | | | | | | | **Code:** | | | **MET 480** | | | | |
| **2. Units/Credit hours per week:** | | Lectures | | |  | | | Tutorial | | |  | Practical | | **5** | | Total | 5 |
| **B- Professional Information** | | | | | | | | | | | | | | | | | |
| **1. Course description:** | | | | The aims of this course are to provide the student with experience in practice/design/research process and methodology by defining and studying a real life problem on group basis. | | | | | | | | | | | | | |
| **2. Intended Learning Outcomes of Course (ILOs):** | | | | **a) Knowledge and Understanding** | | | | | | | | | | | | | |
| 1. Engineering principles and Basic topics related with engineering generally and metals and alloys particularly are including information and computer technology. | | | | | | | | | | | | | |
| 2. Fundamentals of materials science and physical metallurgy their relation to metallurgical and materials related topics. | | | | | | | | | | | | | |
| **b) Intellectual Skills** | | | | | | | | | | | | | |
| 3. Select appropriate mathematical and computer-based methods for modeling and analyzing metallurgical problems. | | | | | | | | | | | | | |
| 4. Think in a creative and innovative way in problem solving and design considering quality assurance systems, codes of practice and standards, health and safety requirements, professional ethics and impacts of engineering solutions on society and environment | | | | | | | | | | | | | |
| 5. Combine, exchange, and assess different ideas, views, and knowledge from a range of sources in topics related to material processing, manufacturing, development and selection.. | | | | | | | | | | | | | |
| 6. Assess and evaluate the characteristics, performance and failure of components, systems and processes. | | | | | | | | | | | | | |
| 7. Solve engineering problems, often on the basis of limited and possibly contradicting information appreciating the role of information technology in providing support for metallurgical engineers. | | | | | | | | | | | | | |
| **c) Professional and Practical Skills** | | | | | | | | | | | | | |
| 8. Professionally merge the engineering knowledge, understanding, and feedback to improve design, products and/or services. | | | | | | | | | | | | | |
| 9. Apply numerical modeling methods to metallurgical engineering problems. | | | | | | | | | | | | | |
| **d) General and Transferable Skills** | | | | | | | | | | | | | |
| 10. Collaborate effectively within multidisciplinary team in stressful environment and within constraints and effectively manage tasks, time, and resources. | | | | | | | | | | | | | |
| 11. Communicate and collaborate effectively within a multidisciplinary team. | | | | | | | | | | | | | |
| 12. Search for information and engage in life-long self -learning discipline to learn ccurrent engineering technologies and contemporary metallurgical engineering topics related to metallurgical engineering. | | | | | | | | | | | | | |
| **3. Contents** | | | | | | | | | | | | | | | | | |
| **Topic** | | | | | | **Total hours** | | | **Lectures hours** | | | | | | **Tutorial/ Practical hours** | | |
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| **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; Interim Report | | | | | | | | | At the end of term 1 | | | | | | | | |
| -Assessment 2; Written Report in form of a Thesis or Technical Report | | | | | | | | | At the end of term 2 | | | | | | | | |
| -Assessment 3; Final Oral Exam and Presentation | | | | | | | | | At the end of term 2 | | | | | | | | |
| * **Weighting of Assessments** | | | | | | | | | | | | | | | | | |
| Interim Report | | | | | | | | | 20% | | | | | | | | |
| Written Report in form of a Thesis or Technical Report | | | | | | | | | 40% | | | | | | | | |
| Final Oral Exam and Presentation | | | | | | | | | 40% | | | | | | | | |
| -Total | | | | | | | | | 100% | | | | | | | | |
| **6. List of References** | | | | | | | | | | | | | | | | | |
| 6.a. Course Notes | | | | | | | | | | | | | | | | | |
| * Suggested by the Academic Advisor | | | | | | | | | | | | | | | | | |
| 6.c. Recommended Books.   * Suggested by the Academic Advisor | | | | | | | | | | | | | | | | | |
| 6.d. Periodicals, Web Sites, … etc: N/A | | | | | | | | | | | | | | | | | |
| **7. Facilities Required for Teaching and Learning** | | | | | | | | | | | | | | | | | |
| - Small group of students. | | | | | | | | | | | | | | | | | |
| - Up-to-date references in library. | | | | | | | | | | | | | | | | | |
| **Course Coordinator:** | | | **Programme Director** | | | | | | | | | | | | | | |
| **Head of Department:** | | | **Prof. Dr. El-sayed Mahmoud El-Banaa** | | | | | | | | | | | | | | |

