

**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:** | | | | | | | **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:** | **Computer application in metallurgical processes** | | | | | | | | | **Code:** | | | **MET 408** | | | | |
| **2. Units/Credit hours per week:** | | Lectures | | | 2 | | | Tutorial | | | 1 | Practical | | 1 | | Total | 4 |
| **B- Professional Information** | | | | | | | | | | | | | | | | | |
| **1. Course description:** | | | | **Overall Aims of Course**  Student should learn the following items:- Introduction to computers - programing by high level Languages: Basic - Fortran - Numerical techniques to solve typical model equations - Construction and running of programs that cover different - Energy and material balance of the distribution of a specific property within a system - Computations of a shaping process - Computations of a heat treatment procedure | | | | | | | | | | | | | |
| **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. Basics of information and communication technology (ICT) and the role of information technology in providing support for metallurgical engineers. | | | | | | | | | | | | | |
| **b) Intellectual Skills** | | | | | | | | | | | | | |
| 3. Select appropriate mathematical and computer-based methods for modeling and analyzing metallurgical problems. | | | | | | | | | | | | | |
| 4. 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** | | | | | | | | | | | | | |
| 5. Apply knowledge of mathematics, science, information technology, design, business context and engineering practice integrally to solve metallurgical engineering problems | | | | | | | | | | | | | |
| 6. Create and/or re-design a process, component or system, and carry out specialized engineering designs considering safety, Quality assurance procedures, management skills and environmental aspects. | | | | | | | | | | | | | |
| 7. Apply numerical modeling methods to metallurgical engineering problems. | | | | | | | | | | | | | |
| **d) General and Transferable Skills** | | | | | | | | | | | | | |
| 8. Collaborate effectively within multidisciplinary team in stressful environment and within constraints and effectively manage tasks, time, and resources. | | | | | | | | | | | | | |
|  | | | | 9. Communicate and collaborate effectively within a multidisciplinary team. | | | | | | | | | | | | | |
| 10. 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; Class test | | | | | | | | | Weakly | | | | | | | | |
| -Assessment 2; Project Assignment | | | | | | | | |  | | | | | | | | |
| -Assessment 3; Presentations | | | | | | | | |  | | | | | | | | |
| -Assessment 3; Midterm Exam | | | | | | | | | Week 7 | | | | | | | | |
| -Assessment 4; Final Exam | | | | | | | | | At the end of term | | | | | | | | |
| * **Weighting of Assessments** | | | | | | | | | | | | | | | | | |
| -Mid-Term Examination | | | | | | | | | 14% | | | | | | | | |
| -Final-term Examination | | | | | | | | | 70% | | | | | | | | |
| -Project | | | | | | | | |  | | | | | | | | |
| -Class Test | | | | | | | | | 5% | | | | | | | | |
| -Presentation | | | | | | | | |  | | | | | | | | |
| Other types of assessment | | | | | | | | | 11% | | | | | | | | |
| -Total | | | | | | | | | 100% | | | | | | | | |
| **6. List of References** | | | | | | | | | | | | | | | | | |
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| **7. Facilities Required for Teaching and Learning** | | | | | | | | | | | | | | | | | |
| **Screen - Small group of Student - Data Show- New Reference in library- White Board- Computer lab.** | | | | | | | | | | | | | | | | | |
| **Course Coordinator:** | | | **Dr. Mahmoud talaat** | | | | | | | | | | | | | | |
| **Head of Department:** | | | **Prof. Dr. El-sayed Mahmoud El-Banaa** | | | | | | | | | | | | | | |

