

**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:** | | | | | | | **Metallurgical Engineering** | | | | | | | | | | |
| **Department offering the course:** | | | | | | | **Mining, Petroleum and Metallurgical Engineering** | | | | | | | | | | |
| **Academic Level:** | | | | | | | 2nd year | | | | | | | | | | |
| **Date** | | | | | | | 2014 | | | | | | | | | | |
| **Semester (based on final exam timing)** | | | | | | | Fall ● Spring | | | | | | | | | | |
| **A- Basic Information** | | | | | | | | | | | | | | | | | |
| **1. Title:** | **Ores and Mineralogy** | | | | | | | | | **Code:** | | | **MIN 222** | | | | |
| **2. Units/Credit hours per week:** | | Lectures | | | 3 | | | Tutorial | | | 2 | Practical | | **0** | | Total | 5 |
| **B- Professional Information** | | | | | | | | | | | | | | | | | |
| **1. Course description:** | | | | Student should learn the following items:- Introduction, crystal systems, forms and crystal types, their phisical, chemical and mineralogical composition - Bravis lattices and method af their projections, ferrous and non-ferous ores and slages, their composition, physical, chemical and mechanical properties - Ore and slag microspcopy, powder X-ray diffraction, principles, uses and applications in case of metals and non metals - Practical / demonstration and exercise on the above mentioned articles. | | | | | | | | | | | | | |
| **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 including information and computer technology. | | | | | | | | | | | | | |
| 2. Concepts and theories of mathematics and sciences, appropriate to the discipline. | | | | | | | | | | | | | |
| **b) Intellectual Skills** | | | | | | | | | | | | | |
| 3. Combine, exchange, and assess different ideas, views, and knowledge from a range of sources in topics related to material processing, manufacturing, development and selection.. | | | | | | | | | | | | | |
| 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. Professionally merge the engineering knowledge, understanding, and feedback to improve design, products and/or services. | | | | | | | | | | | | | |
| 6. Prepare and present technical reports observing ethical aspects and using proper referencing and citation. | | | | | | | | | | | | | |
| **d) General and Transferable Skills** | | | | | | | | | | | | | |
| 7. 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** | | |
| Introduction ,crystal systems, physical and chemical properties | | | | | | 12 | | | 8 | | | | | | 4 | | |
| Minerals and ores | | | | | | 18 | | | 12 | | | | | | 6 | | |
| Somposition and mechanical properties of Slags-  X-ray diffraction | | | | | | 24 | | | 16 | | | | | | 8 | | |
| Ores and applications- lab work | | | | | | 10 | | | 6 | | | | | | 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, 6 | | | | | | | | |
| -Assessment 2; Project Assignment | | | | | | | | |  | | | | | | | | |
| -Assessment 3; Presentations | | | | | | | | | 12 | | | | | | | | |
| -Assessment 3; Midterm Exam | | | | | | | | | 8 | | | | | | | | |
| -Assessment 4; Final Exam | | | | | | | | | End of term | | | | | | | | |
| * **Weighting of Assessments** | | | | | | | | | | | | | | | | | |
| -Mid-Term Examination | | | | | | | | | 20% | | | | | | | | |
| -Final-term Examination | | | | | | | | | 70% | | | | | | | | |
| -Project | | | | | | | | |  | | | | | | | | |
| -Class Test | | | | | | | | |  | | | | | | | | |
| -Presentation | | | | | | | | | 10% | | | | | | | | |
| -Total | | | | | | | | | 100% | | | | | | | | |
| **6. List of References** | | | | | | | | | | | | | | | | | |
| **6.1- Course Notes** | | | | | | | | | | | | | | | | | |
| **6.2- Essential Books (Text Books)** | | | | | | | | | | | | | | | | | |
| **7. Facilities Required for Teaching and Learning** | | | | | | | | | | | | | | | | | |
| **Screen - Small group of Student - Data Show- New Reference in library- White Board.** | | | | | | | | | | | | | | | | | |
| **Course Coordinator:** | | | **Prof. Dr. Ahmed A. EL-Aziez** | | | | | | | | | | | | | | |
| **Head of Department:** | | | **Prof. Dr. E. M. Elbana** | | | | | | | | | | | | | | |

