

**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**
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| -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** |

