

**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**  | 2014-2015 |
| **Semester (based on final exam timing)** |  Fall Spring |
| **A- Basic Information** |
| **1. Title:** | **Environment and Industry** | **Code:** | **GEN 402** |
| **2. Units/Credit hours per week:**  | Lectures |  2 | Tutorial |  | Practical |  | Total | 2 |
| **B- Professional Information** |
| **1. Course description:** | **Overall Aims of Course**Student should learn the following items:- Main principles, natural resources, effects of metal industries on environment, industrial wastes (Solids, liquids, gases), environment protection technology, controlling wastes during production processes, industrial waste treatments and management, economy and protection law. |
| **2. Intended Learning Outcomes of Course (ILOs):** | **a) Knowledge and Understanding** |
| 1. Wastes from metallurgical processes and their use, with special reference to melting and thermal processes.
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| **b) Intellectual Skills** |
| 1. Select and identify the appropriate material and manufacturing aspects considering environmental impact and recycling issues.
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| 1. Think in a creative and innovative way to recycle metal products and wastes considering assurance systems, codes of practice and standards, health and safety requirements, professional ethics and impacts of engineering solutions on society and environment.
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| 1. Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.
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| **c) Professional and Practical Skills** |
| 1. Evaluate a metallurgical process in view of environmental impact assessment EIA matrix, and considering all inputs: the process, component or system, engineering designs, safety, quality assurance procedures, management skills and environmental aspects.
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| **d) General and Transferable Skills** |
| 1. Collaborate effectively within multidisciplinary team in stressful environment and within constraints and effectively manage tasks, time, and resources.
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| **3. Contents** |
| **Topic** | **Total hours** | **Lectures hours** | **Tutorial/ Practical hours** |
| 1. Thermal metallurgical furnaces.
 | 4 | 4 |  |
| 1. Blast furnace, basic oxygen furnaces, melting furnaces.
 | 4 | 4 |  |
| 1. Wastes from metallurgical processes.
 | 4 | 4 |  |
| 1. Recycling options for wastes from metallurgical processes.
 | 4 | 4 |  |
| 1. Laws and regulations governing environment.
 | 4 | 4 |  |
| 1. EIA elements and methods.
 | 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  |  |
| -Assessment 2; Project Assignment  | To assess understanding and ability to conduct EIA.  |
| -Assessment 3; Presentations  |  |
| -Assessment 3; Midterm Exam | To assess gain of completed topics.  |
| -Assessment 4; Final Exam |  |
| * **Weighting of Assessments**
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| -Mid-Term Examination | 15% |
| -Final-term Examination  | 70% |
| -Projects and Reports | 15% |
| -Class Test |  |
| -Presentation |  |
| Other types of assessment |  |
| -Total | 100% |
| **6. List of References** |
| Internet resources. |
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| **7. Facilities Required for Teaching and Learning** |
| . Screen - Small group of Student - Data Show- New Reference in library- White Board. |
| **Course Coordinator:** | **Prof. Dr. Saad El Raghee** |
| **Head of Department:**  | **Prof. Dr. El-sayed Mahmoud El-Banaa**  |

