

MINE 425 MINE CLOSURE AND RECLAMATION

COURSE OUTLINE

Instructor: Prof. Dr. H. Şebnem Düzgün , Room: MinE-304 Tel:2102668 E-mail:duzgun@metu.edu.tr

Lecture Hours: 14:40 – 17:30 on Thursday in MN 104

Grading:

- ❖ Field trips (at least 1) (20 %)
- ❖ Assignments (4 or 5) (20 %)
- ❖ 1 Midterm (25 %)
- ❖ 1 Term Project (35 %)

References:

- Duzgun,H.S.B. and Demirel, N., 2011. Remote Sensing of the Mine Environment, Taylor & Francis
- Bell, F.G., 2006. Mining and Its Impact on the Environment, Taylor & Francis [TD 195. M5 B 45]
- Sengupta, M., 1993. Environmental Impacts of Mining, Monitoring, Restoration and Control, Lewis Pub. [TD 195.M5 S46]
- Rainbow, A.K.M., 1990. Reclamation, Treatment and Utilization of Coal Mining Wastes, Balkema Pub.[TN802 I 611990C2]
- Hossner, L.R., 1988. Reclamation of Surface-Mined Lands, CRC Press [TD195.C58 R43 V.1, V.2]
- Syms, P. 2002. Land Development and Design, Blackwell Pub. [HD596 S967 2002]
- Aranof, S., 1991. Geographical Information Systems: A Management Perspective
- Cracknell, A.P., 1991. Introduction to Remote Sensing, Taylor and Francis Pub. [G.70.4.C73]

Outline:

1. Principles of Mine Closure (3 weeks)
 - 1.1. Introduction
 - 1.2. Time span of mine closure
 - 1.3. Factors to be considered
 - 1.4. Mine closure planning
 - 1.5. Activities of mine closure
 - 1.6. Stakeholders of mine closure
 - 1.7. Legislation and regulations
 - 1.8. Social impacts
 - 1.9. Financial aspects
2. Mine Reclamation (3 weeks)
 - 2.1. Introduction
 - 2.2. Reclamation planning: Early mining
 - 2.3. Reclamation planning: Routine mining
 - 2.4. Reclamation planning: Post mining
 - 2.5. Financial aspects
 - 2.6. Regulatory authorities
 - 2.7. Laws and regulations in the world
 - 2.8. Laws and regulation in Turkey
3. IT Tools of Mine Closure and Reclamation: GIS (4 weeks)
 - 3.1. Introduction to Geographic Information Systems (GIS)
 - 3.2. Spatial data models
 - 3.3. Database management systems
 - 3.4. Coordinate systems and map projections
 - 3.5. GIS analyses functions
 - 3.6. GIS in mine closure and reclamation
4. Remote Sensing in Mine Closure and Reclamation (4 weeks)
 - 4.1. Introduction
 - 4.2. Electromagnetic radiation and Principles of RS
 - 4.3. Data collection
 - 4.4. Properties of RS data
 - 4.5. Types of optical satellites
 - 4.6. Analyses of RS data
 - 4.7. RS in mine closure and reclamation