

**Department:** Mining Engineering

**Division:** Mining Exploitation

**Level and Major:** MSc, Mining Exploitation

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**Course Title:** Mining and Sustainable Development

**Number of Credits:** 2

**Lecturer:** Dr. Morteza Gholi Osanloo

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### **Course Goals and Objectives**

Sustainable management of mines design and operation.

### **Course Topics**

- Mining Characteristics and its trend
- Definition of mine sustainability and its characteristics
- Definition of Sustainability, background and its index
- Review of Surface mining methods classification
- What Sustainability and Sustainable development mean for Surface mining
- Some definition about the course subject such as sustainable cutoff grade, Push back, Nested pits, incremental pits, Phases, UPL
- Green mining as a preliminary step of sustainable mine development
- Comprehensive design of surface mines about sustainability issues
- Underground mining methods and sustainable development
- Mining Strategy and Sustainability

### **Reading Resources**

- Hall, B; Cut-off Grade and Optimizing the Strategic Mine Plan; Spectrum Series 2.0; AusIMM; 2015; 299 pages.
- Mine planning and equipment selection (MPES) edited by Erkan Topal, The Australian Institute of mining and metallurgy, Fremantle, Western Australia, (1-3 Dec 2010), 747 pages.
- 5<sup>th</sup> International Conference on Sustainable Development in the mineral industry (SDIMI), Edited by Dr. P. N. Martens Aachen- Germany RWTH Aachen University 14-17 June 2011, pages 847.
- Bhattacharya, I- Principle of mine planning, Allied Publisher Co, New Dehli, (2003) 450 pages
- Hustrulid, W, and Kuchta, M- open pit mine planning and design, 2<sup>nd</sup> edition, Taylor and Francis Group, London (2006) page 733 Chapter and Responsible Mining.
- Rendu, J M, An introduction to cut off grade estimation, SME, pages 106, (2008)

- Lane K F, The economic definition of ore: Cut off grades in theory and practice, London mining Journal Books, (1991), pages 212
- Kennedy B A, Surface mining, 2<sup>nd</sup> edition, SME, USA, (1990), pages 1177
- J. A. Botin, Sustainable management of mining operations, published by SME-USA, (2009), 381 pages.
- SME annual meeting, Seattle, Washington, Feb. 19-22, (2012), [www.smenet.org](http://www.smenet.org)
- Rajaram, V. Dutta, S, Parameswaran, K., Sustainable mining practices- A global perspective, A.A. Balkema Publishers, London, (2005), 300 pages
- Nathanail, C.P., and Bardos, R.P., Reclamation of contaminated land, Jihn Wiley and Sons, INC., (2004), 238 pages
- Singhal et. Al. (editors), Proceedings of the 21<sup>st</sup> international symposium on mine planning and equipment selection (MPES 2012), New Delhi, 959 pages
- HAO et.al. (Editors), Proceedings of the 13<sup>th</sup> international symposium on environmental issues and waste management in energy and mineral production, (SWEMP 2012), New Delhi, 492 pages
- HAO et al. (editors), Proceedings of the 13<sup>th</sup> international symposium on environmental issues and waste management's in energy and mineral production, (SWEMP 2012), New Delhi, 492 pages
- Rendu.J.M, An Introduction to Cut off grade estimation SME, Second Edition 158P (2014).
- Behzad Chodрати et.al (editors) Proceedings of the 26<sup>th</sup> International Symposium on Mine Planning and Equipment Selection (MPES-2017) Lulea- Sweden 495p Aug 29-31, 2017.