

ENGR90013 Surface Mine Planning and Mining Methods

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| Credit Points: | 12.50 |
| Level: | 9 (Graduate/Postgraduate) |
| Dates & Locations: | 2010, Parkville This subject commences in the following study period/s: March, Parkville - Taught on campus. |
| Time Commitment: | Contact Hours: One 1 hour lecture and one 2 hour tutorial per week. Total 36 hours Total Time Commitment: 144 hours (including non-contact time). |
| Prerequisites: | 400-684 (ENGR0010) Mineral economics (can be taken concurrently). |
| Corequisites: | None |
| Recommended Background Knowledge: | Students undertaking this subject will be expected to be competent in the use of Microsoft Excel or alternative spreadsheet software. |
| Non Allowed Subjects: | None |
| Core Participation Requirements: | For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/ |
| Coordinator: | Prof Priyan Mendis |
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| Subject Overview: | <p>The primary objectives of the subject are to familiarise students with the way in which near-surface ore bodies are mined, how the required equipment is specified and selected, and how the productivity and costs can be estimated and optimised.</p> <p>The criteria, tools and methods for mine design, based on the patterns of mineralisation and on the geotechnical factors, will be investigated. Concepts such as Block economic value and cut-off grade, Determination of final pit limits, Bench geometry, Cut-back design, Long and short term planning, and Production scheduling will be covered.</p> <p>Mining methods for Open pit mining and Strip mining will be covered, involving mine development, pit layouts, mine operations, equipment selection, shovel-truck systems, productivity, cost factors, haul road design and construction, monitoring and control of operations, waste dump design, and eventual closure and restoration.</p> <p>The subject will benefit students intending to move into general surface mine management, as well as those who will in the actual technical design and mining operations.</p> |
| Objectives: | On completion of this subject, the students should have developed the skills and knowledge to understand the fundamentals of surface mine planning, mining method selection, optimisation, scheduling and reporting. |

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| Assessment: | <ul style="list-style-type: none"> Formally supervised written examination – 2 x 2 hours 20% each (end of semester). Specific Project (4,000 words limit) 40% (to commence at the middle of semester). Two assignments (1,000 words each) 20% (to be commenced in weeks 2 and 4). |
| Prescribed Texts: | Bruce A. Kennedy – Surface Mining. William Hustrulid – Blasting Principles for Open Pit Mining. W. Hustrulid & M. Kuchta – Open Pit Mine Planning & Design. W. Hustrulid, M. McCarter & D. Van Zyl – Slope Stability in Surface Mining. |
| Recommended Texts: | To be advised. |
| Breadth Options: | This subject is not available as a breadth subject. |
| Fees Information: | Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees |
| Generic Skills: | <p>On completion of this subject, the students should have developed:</p> <ul style="list-style-type: none"> Analytical, critical and creative thinking, with an aptitude for continued self-directed learning. Sense of intellectual curiosity. Ability to interpret data and research results. Sense of intellectual integrity and ethics of scholarship. Writing, problem-solving and communication skills. Ability to learn in a range of ways, including through information and communication technologies. Capacity to confront unfamiliar problems. Ability to evaluate and synthesise the research and professional literature. Ability to develop models of practical applications and evaluate their performance by rigorous analytical means and by programming computer simulations. Capacity to manage competing demands on time, including self-directed project work. |
| Notes: | Students will need access to a calculator or preferably a PC/laptop with spreadsheet software to conduct evaluation analyses. |
| Related Course(s): | Graduate Certificate in Engineering (Environmental Engineering) Master of Mining Engineering Postgraduate Certificate in Engineering |