PLANNING AND OPTIMIZATION OF SURFACE MINES

Code	Credit Hours
MinE-814	3-0

Course Description

Introduction to Surface Mines, Planning and Industrial practices in surface mines, Risk Analysis in surface mines, Open pit economies and cut-off grade optimization, Fleet Selection and matching for open pit Mines, Geology and Resource Modelling, Mine Management, Sustainability, Environmental consideration, and closure planning, Introduction to computer programs in open pit planning and optimization

Textbooks:

1. University of Wits, “Planning and Optimization of Surface Mines”

References Book:

1. Martin L. Smith, “Mine Plan Optimization” ISBN-10: 0415665787, ISBN-13: 9780415665780

Pre-Requisites:

Nil

ASSESSMENT SYSTEM FOR THEORY

Quizzes	15%
Assignment	5%
Mid Terms	30%
ESE	50%

Teaching Plan

Week No	Topics	Learning Outcomes
1	Introduction	CourseOutline,objectives,teachingplan,assessmentmethod, conceptsreview.
2	Introduction to Surface Mines	Introduction to surface mines and its application for extraction of various types of minerals,
3-4	Planning and Industrial practices in surface mines	Various factors such as mineral type, geology, rock strength responsible in deciding surface mining

5-6	Risk Analysis in surface mines	Various risk such as pit instabilities, optimum pit limit, economic viability associated with surface mining
7-8	Open pit economies	Open pit economic assessment, cut of grade description, and grade optimization.
9	**MID TERM EXAM**	
10	Fleet Selection and matching for open pit Mines	Selection of appropriate machinery such as excavator, dump trucks and shovels for mineral extraction.
11-12	Geology and Resource Modelling	Various geostatistical modeling techniques for resource modelling
13	Mine Management	Mine management such as economic assessment, human resource management
14-15	Sustainability	Sustainability, Environmental consideration, and closure planning
16-17	Computer designing	Introduction to computer programs in open pit planning and optimization such as block modelling.
18	**END SEMESTER EXAM**	