Cambrian College

School of Skills Training/SkyTech

Course Outline

Course Name: Mine Hoist Overview

Course Codes: MHP 1000

Credits: 1

Description:

This course is the first of seven in the Mine Hoist Plant Program and is designed to give an overview of the complete hoist plant. Hoisting applications in different countries will also be looked at.

Last Revised: November 2006

Developed by:
School of Skills Training/SkyTech

Approved by:

Prerequisites
No prerequisites required –intended for millwrights, HDM, electricians, supervisors and any one associated with hoist maintenance.

- Completion of NORCAT module on Conveyance Regulations is recommended as preparation for testing with respect to applicable legislation.

- Experience as a welder and/or a millwright will benefit the participant in their understanding of the material in this and subsequent modules.

Equivalencies
Not applicable

PLA/Transfer Credit
Not applicable

Resources Required
Students are provided with the training materials for this course.

Course Objectives:

This course is intended to raise the participants level of awareness of how a mine hoist plant and its various components function as a system, as well as the respective roles various people play in the systems operation and maintenance.

Learning Outcomes:

Upon successful completion of this module the participants will

- Be familiar with the Basic Components of a Mine Hoist Plant
- Be familiar with the various Types of Hoists and their appropriate applications
- Understand basic principles of Mine Hoist Design
- Be familiar with Shaft Sinking Equipment and their applications
- Be familiar with general Legislation and Safety Stats that apply to Mine Hoists
- Understand how Hoist Plants are Commissioned
- Be aware of Industry and Technology Trends World Wide
- Understand the role and responsibilities of the various Personnel Working in a Mine Hoist Plant
- Be familiar with some of the terminology used with respect to Mine Hoist Plants.

Course Content

Basic Components

Hoist Plant as a System

Hoists
Ropes:
Head frames: sheave Wheels and Sheave Deck, dumps.
Conveyances: types and uses
Shafts: decks, floors, levels, operating levels, Loading pockets and spill pockets (Sumps,) compartments: man-way, pipe, electrical, pumping

Hoists

Brief History

Mine hoist Design Principles

Hoist house
Types (Drum, BMR, Friction, capstan, windlass, emergency hoists and auxiliary hoists)
Hoist controls and communication: manual, remote, automatic, voice, video
Hoist drives: Prime movers, geared, direct
Hoist safety controller types
Hoist brake basics
Hoist drums: risers kickers, fillers and shell types
Hoist capacity and certificate
General regulations pertaining to: hoists, brakes etc.

Ropes

Basic types, uses and factors of safety

Headframes

Basic types, uses and factors of safety

Sheave Wheels and Sheave Deck

Conveyances

Shafts

Shaft sinking equipment and applications

Hoist types: drum, winze, auxiliary, Staging
Sheaves
Bucket and crossheads
Stagings
Dump arrangements and safety doors

Legislation and Safety Stats

Reasons for regulations
Examples of shaft incidents and hoisting incidents

Hoist plant commissioning

Review of process

Industry and technology trends worldwide

Introduction to general trends.

General Roles and responsibilities of various personnel working in a mine hoist plant

Hoistmen
Shaftmen
Cagetenders
Maintenance
Supervision
Control room
Working safely in and around the hoist plant

Delivery Mode

This course is offered as a series of lectures and presentations over the scheduled delivery dates. Where appropriate, participants will visit various sites to enhance their understanding of the topics presented.

Evaluation Method

The Mine Hoist Conveyance course is a Pass/Fail course. A grade is awarded at the conclusion of the course based on the results of the written tests as well as in process assessment. The minimum score required for a Pass is an average of 70%.