

Cambrian College

School of Skills Training/SkyTech

Course Outline

Course Name: Mine Hoist Braking Systems

Course Codes: MHP 1004

Credits: 2

Description:

This course is one of seven in the Mine Hoist Plant Program and is designed to raise participant awareness of Mine Hoist Brakes and related mechanical systems, as well as relevant applicable legislation to the inspection and maintenance of such systems in Ontario mines.

Last Revised: November 2007

Developed by:
School of Skills Training/SkyTech

Approved by:

Prerequisites: Mine Hoist Overview

The course is 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 and or training in mechanical trades involved in fluid power and mechanical power transmission systems such as an HDM and/or Millwright will benefit the participant in their understanding of the material in this module, however such training is not a prerequisite.

Equivalencies

Not applicable

PLA/Transfer Credit

Not applicable

Resources Required

Students are provided with the training materials for this course. Approved safety glasses and steel toe boots will be required for the lab portions of the course.

Course Objectives:

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

Learning Outcomes:

Upon successful completion of this module the participants will:

- Have been exposed to some historical perspective on the evolution of mine hoist brake systems.
- Be familiar with various Types of Hoist Brake systems in use, their purpose and application.
- Understand basic principles of Mine Hoist Brake Design (fail safe, interlocks, etc.)
- Be familiar with general Legislation and performance objectives that apply to mine hoist Brakes.
- Be familiar with Basic Mechanical Components found on Mine Hoist Plant Brake systems and various configurations such components that can be arranged in.
- Be familiar with Fluid Power laws and concepts which affect Hoist Brake system performance.
- Have demonstrated the ability to correctly identify a variety of basic fluid power components according to their ANSI symbol.
- Have demonstrated an Understanding of the function of a variety of fluid power system components.
- Have demonstrated an understanding of a variety of basic fluid power circuits, and how various components are used to create them.
- Have demonstrated an Understanding of how to interpret Fluid Power circuit Diagrams.
- Have demonstrated an understanding of how such drawings can be used in diagnosing problems.
- Understand the role and responsibilities of various Personnel who Work on Mine Hoist Plant Brakes.
- Be familiar with some of the common terminology used with respect to Mine Hoist Plant Brake Systems.
- Be aware of Industry and Technology Trends World Wide
- Be aware of some pertinent Safety Stats with respect to mine hoist Brakes

Course Content

History

Fluid Power Systems

Components, Symbols, Basic circuits, Interpreting Circuit Diagrams, Trouble shooting

Mine hoist Brake Design

Types, (component specific variations in use)
Purpose and application,
Safety circuits,
Control systems.
Adjustment,
Service and emergency systems
Types of pad lining

Legislation and Safety Stats

Performance objectives of regulations
Relevant Guidelines
Examples of brake related incidents and hoisting incidents

General Roles and responsibilities with respect to legislation pertaining to brake systems of various personnel working in a mine hoist plant

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

Hoist plant commissioning

Review of process

Industry and technology trends worldwide

Delivery Mode

This course is offered as a series of lectures, presentations, and practical exercises over the scheduled delivery dates.

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%. 20% will be derived from in class participation, which will be added to test scores from invigilated computer based tests which will be held at the end of classroom sessions on both days. Each test will be worth 40% of the final grade.