Ski Area Management department

Gogebic Community College
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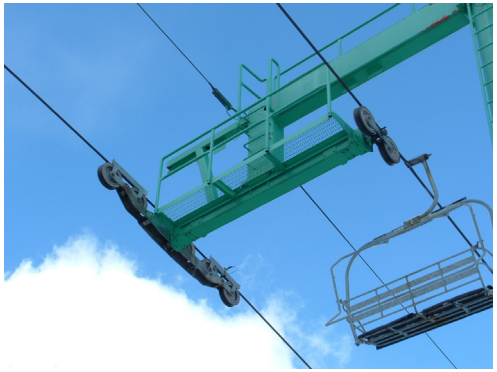
Ski Lift Maintenance Technology Program

Gogebic Community College
Ironwood, Michigan

Ski Area Management department



Date: May, 14th to June 1st, 2012

This program offers the opportunity for Ski Lift Maintenance employees to develop the skills necessary for the successful completion of their job responsibilities.

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Ski Lift Maintenance Technology

The Ski Area Management program at Gogebic Community College will be offering a new continuing education program in Lift Maintenance starting in May of 2007. This program offers the opportunity for Ski Area Lift Maintenance employees to develop the skills necessary for the successful completion of their job responsibilities. This program will be offered in three consecutive parts.

The successful participant in this program will…

- Improve lift maintenance skills through pertinent technical classroom training backed up with practical hands-on laboratory experience.
- Become more effective and efficient in their job performance by a better understanding of how ski lift systems operate.
- Enhance their safety awareness and improve your overall operational reliability.
- Receive Gogebic Community College Certificate of Occupational Proficiency as they successfully complete each phase of training.

Upon completion of this program, having acquired the formal training and hands-on skills necessary, improve safety, efficiency, and profitability of your ski area.

This intense three and one half week course will utilize Gogebic's training facilities and resources. On campus lodging will be included in the package. For more information on this new opportunity, contact Jim Vander Spoel, Director of Ski Area Management at (906)-932-4231 ext. 269 or jimv@gogebic.edu

Ski Lift Maintenance Technology Program Gogebic Community College Ski Area Management

Dates: May 14th thru June 1st, 2012

five days per week eight hours per day

Course Fees: $1600 per three week session

Lodging: On campus dormitory lodging is available for $525 single occupancy and $325 for double occupancy per person. Dorms are set up as efficiency units. There is also motel and chalet lodging available in the area.

Meals: Participants responsibility

Payment: Gogebic Community College can charge to VISA or MasterCard or bill Employer.

For more information please contact::

Jim Vander Spoel

Interim Director Ski Area Management

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Ironwood, MI 49938

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Advanced Electrical Controls: An advanced course in high and low voltage electrical control that are utilized on our lift systems. Special emphasis will be placed on troubleshooting and repair of electrical controls.

PLC Programming: This is an advanced course in how to read and write ladder programs for our PLC's. We will also look at how to access our PLC's to get the information we need for maintenance and the safe operation of our lifts.

Maintenance Requirements and Planning: This lecture course will deal with record keeping, quality assurance programs and predictive/ preventative maintenance programs. We will discuss the importance of record keeping and how to use these records in our predictive maintenance program. We will also discuss how to use our QA and PDM programs to aide us in running a more efficient and cost effective lift operation.

Line and Tower Equipment: This hands-on course will discuss tower types, service and alignment. It will also discuss line equipment types, service and adjustments to operate a safe efficient lift.

Wire Rope Inspection and Service: In this course the tech will learn about wire rope types, classifications, construction, rope maintenance and rope splicing. We will look at different types of ropes and their uses.

Surveying: This hands-on course will teach the use of surveying equipment to locate foundations, towers and how to align our lift system.

Welding and cutting II: A continuation of welding and cutting I. An emphasis will be on fabrication and flame straightening.

This program will be offered in three consecutive parts and the participants must complete each level in order before taking the next level. The courses will run for one hundred and sixty hours, during the months of May through August, each year, as yet to be determined.

Ski Lift Maintenance Technology program: year 1

Certificate of Occupational Proficiency level: Apprentice

Course title and contact hours

Math for Maintenance	32
Print/Schematic Reading	16
Measurement Techniques	16
Basic Hydraulics	16
A.C./D.C. Theory Introduction	32
Basic Wire Rope Rigging	8
Introduction to Seals and Bearings	12
Introduction to Gears and Gearing	12
Fitting and Fastener Identification	4
Basic Troubleshooting	4
Interpersonal Communications I	16

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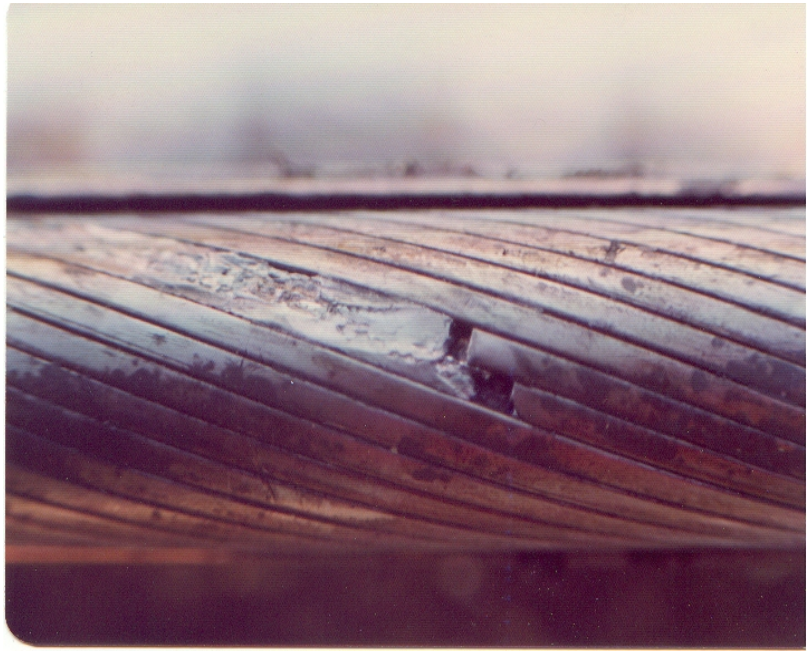
Ski Lift Maintenance Technology program: year 2

Certificate of Occupational Proficiency level: Master Tech I

Course title and contact hours

Couplings, Chains and Sprockets, Belts and Sheaves	16
Shaft Alignment	20
Gear Reducers	12
Diesel and Gasoline Engine Service	8
Welding and Cutting Techniques I	16
Braking Systems	8
Lubrication	4
Hydraulics I	16
Electrical Controls	24
Interpersonal Communications II	16
N.D.T. Nondestructive Testing Procedures	20



Electrical Controls: This is an introduction to AC/DC motor controls that are used on our lifts. We will look at the different types and applications that we find on our lifts

N.D.T. Nondestructive Testing: This course will look at the different types of NDT, where, when and how we use NDT to meet state and ANSI codes. We will also look at how NDT can aide us in predictive/preventative maintenance on our lift systems.

Grips: Discuss the different types of fixed and detachable grips, what to look for while doing an inspection, tools needed for the job, and use of those tools.

Dynamic testing: What is dynamic testing and procedures for testing as well as interpreting results of dynamic testing. A discussion of why we are required to dynamic test our lifts and where the requirements came from.

Shaft Alignment, Chains and Sprockets, V-Belts and Sheaves: This course will identify the different types of chains, sprockets, v-belts, and sheaves; their proper use, installation, alignment, and tension. When this course is completed the student should be able to identify problems, repair, install and set up for optimum efficiency and trouble.

Gear Reducers: A more in depth look at gear reducers, tricks of the trade and service techniques. We will also look at some of the other types of reducers not commonly found on current ski lifts (ring and pinion, helical, ect.) and their applications.

Diesel and Gasoline Engine Service: This course will cover the basic areas of doing tune-ups on gas and diesel engines. Although this is an overview course, some of the topics to be covered include, setting static timing, injector timing, checking injectors, valves, and other areas that would be checked during normal tune-ups. We will also look at various methods of troubleshooting were applicable.

Welding and Cutting I: This is a hands-on introduction to the basics of arc and mig welding, and the use of oxy acetylene torches for cutting, heating and brazing as well as the use of plasma cutters for the maintenance person. We will cover some fabrication techniques, proper use and safety of this equipment.

Brake Systems: This overview course on brake system types will cover holding or braking hydraulics, pneumatics, mechanical and electrical systems. We will also discuss stopping distances, holding force and proper adjustment of our brakes.

Lubrication: This class is designed for the ski lift maintenance technician. It will discuss the different types of lubrication, why, where, when and how we use lubricants in our ski lift systems.

Hydraulics: A continuation and in-depth look at hydraulics than the basic course.

Ski Lift Maintenance Technology program: year 3

Certificate of Occupational Proficiency level: Master Tech II

Course title and hours

Grips	8
Dynamic Testing	20
Advanced Electrical Controls	24
Programmable Ladder Controls PLC Programming	32
Maintenance Requirements and Planning	16
Tower and Line Equipment	8
Wire Rope Identification and Inspection	16
Surveying	16
Welding and Cutting II	20

Course Descriptions

Math for Maintenance: This math class deals with every day math used in the maintenance of ski lifts. Some of the topics to be covered include fractions, decimals, percents, algebraic equations, geometry, trigonometry, drive ratios, load and horsepower calculations, and other pertinent math.

Print/ Schematics Reading: This is a hands-on class of basic print reading for the mechanic (millwright) to help better understand their equipment, installation, service, and troubleshooting. This course utilizes prints of existing lift installations similar to what you would have in your shop.

Measurement Techniques: This course will familiarize the student with the proper use of scales, micrometers (inside and outside to .0001), dial calipers, squares, machinists levels, and other precision measurement tools. The student should feel comfortable in the use of these tools at the completion of this course.

Basic Hydraulics: This hands-on course will cover basic industrial hydraulic components. Example of topics to be covered include control of hydraulic energy, directional control valves, flow control valves, pressure control valves, graphic symbols, hydraulic transmission of force (Pascal's Law), and much more.

AC/DC Theory Introduction: This is a introduction to electrical power and transmission of that power. We will cover voltage, current, resistance, power, series circuits, parallel circuits, series-parallel circuits, electrical components found in motor starters and feed back systems, ladder diagrams, electrical symbols ,and the proper use of electrical test equipment

Basic Rigging: This is a basic hands-on course covering the definitions, safe operating practices, inspection of equipment and rigging of equipment.

Introduction to Seals and Bearings: This course will cover the different types of seal use and installation such as, static, lip, and mechanical. With bearings we will cover the different types and classifications and how to properly inspect, lubricate, remove and install the different types.

Introduction to Gearing and Reducers: We will cover the different types of gearing and their applications in the ski industry. We will also cover backlash, preload, end play for proper adjustment and special tools required for the disassembly and assembly of our gear reducers.

Fitting and Fastener Identification: This course will work on the identification of the different types of hydraulic fittings (SAE, JIC, British, Metric, ect.) as well as fastener types, applications, torques, thread types and grades.

Basic Troubleshooting: This course will identify troubleshooting aides, systems, techniques and tools to solve our mechanical and electrical problems.

Interpersonal Communications I and II: An introduction to the theory and practice of interpersonal communication. The focus of the course is on learning and practicing the skills needed to improve the quality of interpersonal communication.

Couplings: This is a course dealing with industrial style couplings; their proper installation, removal and troubleshooting