Skilled Trades Ontario | Métiers spécialisés Ontario

Apprenticeship Curriculum Standard

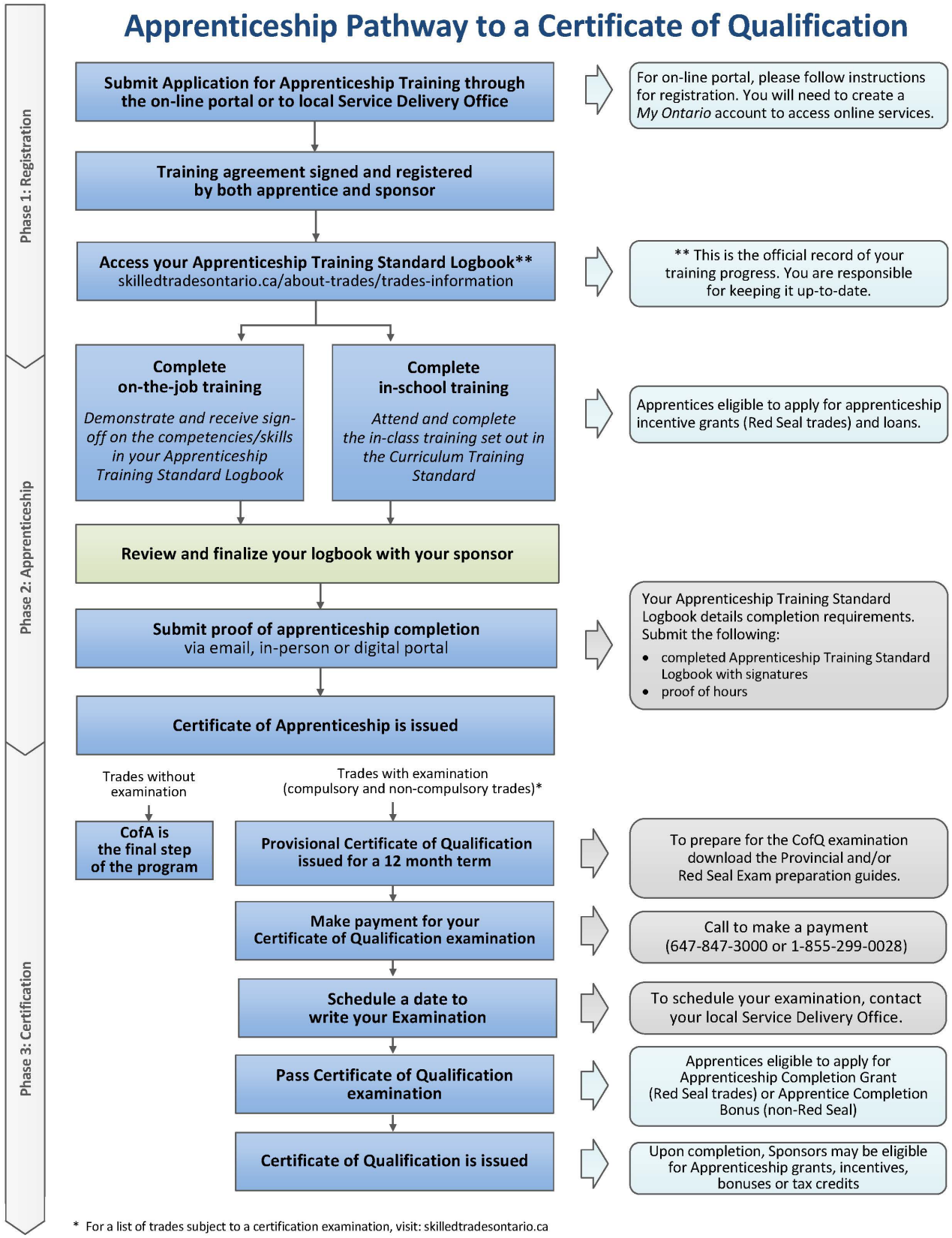
Construction Craft Worker

Levels 1 and 2

450A

2002

Apprenticeship Pathway to a Certificate of Qualification



* For a list of trades subject to a certification examination, visit: skilledtradesontario.ca

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Please Note: This Standard has been revised to reflect the visual identity of Skilled Trades Ontario (STO) which replaced the Ontario College of Trades on January 1, 2022. The content of this Standard may refer to the former organization; however, all trade specific information or content remains relevant and accurate based on the original date of publishing.

Please refer to STO's website: **skilledtradesontario.ca** for the most accurate and up to date information. For information about BOSTA and its regulations, please visit ***Building Opportunities in the Skilled Trades Act, 2021* (BOSTA).**

Any updates to this publication are available on-line; to download this document in PDF format, please follow the link: Skilled Trades Ontario.ca.

Maintained with transfer to Skilled Trades Ontario 2002 (V100)

Preface

This curriculum standard for the Construction Craft Worker trade program is based upon the on-the-job performance objectives, located in the industry-approved training standard.

The curriculum is organized into 2 levels of training. The Reportable Subjects Summary chart (located on page 5) summarizes the training hours for each reportable subject.

The curriculum identifies the learning that takes place in-school. The in-school program focuses primarily on the theoretical knowledge and the essential skills required to support the performance objectives of the Apprenticeship Training Standards.

Employers/Sponsors are expected to extend the apprentice's knowledge and skills through practical training on a work site. Regular evaluations of the apprentice's knowledge and skills are conducted throughout training to verify that all apprentices have achieved the learning outcomes identified in the curriculum standard.

It is not the intent of the in-school curriculum to perfect on-the-job skills. The practical portion of the in-school program is used to reinforce theoretical knowledge. Skill training is provided on the job.

Please refer to Skilled Trades Ontario website (www.skilledtradesontario.ca) for the most accurate and up-to-date information about Skilled Trades Ontario. For information on *Building Opportunities in the Skilled Trades Act, 2021 (BOSTA)*) and its regulations, please visit Building Opportunities in the Skilled Trades Act, 2021, S.O. 2021, c. 28 - Bill 288 (ontario.ca)

Pre-requisites

In order to advance to Level 2 of the apprenticeship program, an individual must have completed all of the units outlined in Level 1.

Hours Disclaimer (if applicable)

It is agreed that Training Delivery Agents (TDAs) may need to make slight adjustments (with cause) according to particular apprentice needs and may deviate from the unit sequencing and the prescribed practical and theoretical hours shown within the standard. However, all TDAs will comply with the hours at the reportable subject level.

Suggested Equipment for Training Delivery Agencies

Personal and Safety Equipment: Personal protective equipment is at the discretion of the TDA who must conform to Ontario Provincial Health and Safety Regulations.

Introduction

The Proponents of the Construction Craft Worker Curriculum Project (LIUNA Local Training Trust Funds 1059 and 506) wish to express their thanks to the industry stakeholders who generously offered their time, expertise, insight, constructive criticism and support throughout the project development period. They made an invaluable contribution to the entire learning outcomes document and corresponding curriculum.

This Curriculum Standard has been developed in keeping with the related Ministry of Labour, Immigration, Training and Skills Development (MLITSD) Training Standard. The Curriculum Standard provides a standard of theoretical knowledge and practical application to complement the on-the-job experience of apprentices.

The design of the Curriculum Standard facilitates cross-referencing between in-school learning outcomes and related workplace performance objectives as defined in the Training Standard for the occupation. Apprentices, therefore, are expected to complete the learning associated with these objectives by applying the prescribed in-school knowledge to the required practical experiences in the work setting.

Innovation and the use of complex equipment and techniques in occupations are resulting in increasing demands for qualified personnel who are not only skilled in the practical aspects of the craft, but who also have a sound theoretical knowledge.

The objectives of the curriculum standard, therefore, are to provide a basis for:

1. Sound theoretical training to meet the challenges presented by innovation and increasingly complex tasks and equipment within the work environment.
2. Reinforcement of fundamental proficiency in the occupation through the practice of work skills as identified in specific Learning Outcomes.
3. Development of high standards of craftsmanship and problem-solving skills.
4. Development of a desirable work attitude and a keen sense of responsibility, particularly concerning public and personal safety.

To assure maximum consistency in delivery, a time allocation has been included for each reportable subject, along with a theoretical and practical breakdown of the Learning Content.

While setting out content requirements as prescribed in the Acts and Regulations for the trades, the curriculum standard has been designed to give the instructor every reasonable opportunity for flexibility and innovation in curriculum development, lesson planning and delivery.

In all practical learning activities, the apprentices will abide by the *Occupational Health and Safety Act* and all other regulations and policies relating to safety, particularly the use of personal protective equipment.

Evaluation and Testing

The program's evaluation structure is based on the distribution of content within the program.

For each Reportable Subject there are three evaluation elements. Progress Testing, Application Testing and Final Testing.

Progress Testing

Throughout the delivery of the Reportable Subject a series of on-going tests are administered. The frequency of delivery should reflect the delivery structure established by the Instructor e.g., daily or weekly. The composition of these tests are standard multiple choice questions based on the approved standard and consistent with the format outlined in the Mandatory Procedures for the Development of Apprenticeship In-School Exemption Tests.

For each Reportable subject, the overall value assigned to Progress Testing is forty percent (40%) of the overall assigned grade.

Application Testing

Each Reportable Subject contains content that should be delivered through a practical manner. The training institution, instructional staff and resource base determine the structure and composition of these activities. The promotion of flexibility and non-traditional delivery strategies are to be accommodated. This may involve competency demonstrations through controlled simulations of work events, team based work projects, investigations, and field trip activities. In any event, these activities are to be framed within the timelines and context of the in-school portion of training and are designed to reinforce and support the on-the-job competency development of the Apprentice.

For each Reportable Subject the overall value assigned to Application Testing is twenty percent (20%) of the overall assigned grade.

Final Testing

Upon completion of a Reportable Subject a final multiple-choice test is administered. The Final Test is also based on the approved standard and consistent with the format outlined in the Mandatory Procedures for the Development of Apprenticeship In-School Exemption Tests.

For each Reportable subject, the overall value assigned to Final Testing is forty percent (40%) of the overall assigned grade.

Program Summary

Level	Hours Total	Hours Theory	Hours Practical
Level 1	252	198	54
Level 2	228	177	51
Total	**480**	**375**	**105**

Program Summary by Level

Number	Reportable Subjects	Hours Total	Hours Theory	Hours Practical	Prerequisites
Level 1					
1.0	Construction Safety I	24	6	30	None
2.0	Blueprints and Specification s	15	3	18	None
3.0	Construction Tools	27	9	36	None
4.0	Equipment Handling Practices and Procedures I	18	6	24	Modules 1.0, 2.0 and 3.0
5.0	Rigging, Hoisting and Material Handling I	24	6	30	Modules 1.0, 2.0 and 3.0
6.0	Introduction to Formwork I	24	6	30	Modules 1.0, 2.0 and 3.0
7.0	Introduction to Concrete I	18	6	24	Modules 1.0, 2.0 and 3.0
8.0	Introduction to Scaffolding I	21	6	27	Modules 1.0, 2.0 and 3.0
9.0	Earthwork, Barriers and Controls I	27	6	33	Modules 1.0, 2.0 and 3.0
	Total	**198**	**54**	**252**	
Level 2					
10.0	Construction Safety II	24	6	30	Module 1.0
11.0	Equipment Handling Practices and Procedures II	33	9	42	Module 4.0
12.0	Rigging, Hoisting and Material Handling II	27	9	36	Module 5.0
13.0	Introduction to Formwork II	27	9	36	Module 6.0
14.0	Introduction to Concrete II	18	6	24	Module 7.0
15.0	Introduction to Scaffolding II	21	6	27	Module 8.0
16.0	Earthwork, Barriers and Controls II	27	6	33	Module 9.0
	Total	**177**	**51**	**228**	

Note: There are no assigned co-requisites in this program.

Level 1

Reportable Subject Summary – Level 1

Number	Reportable Subjects	Hours Total	Hours Theory	Hours Practical
1.0	Construction Safety I	24	6	30
2.0	Blueprints and Specification s	15	3	18
3.0	Construction Tools	27	9	36
4.0	Equipment Handling Practices and Procedures I	18	6	24
5.0	Rigging, Hoisting and Material Handling I	24	6	30
6.0	Introduction to Formwork I	24	6	30
7.0	Introduction to Concrete I	18	6	24
8.0	Introduction to Scaffolding I	21	6	27
9.0	Earthwork, Barriers and Controls I	27	6	33

Number:	1.0		
Title:	**Construction Safety I**		
Duration:	Total Hours: 30	Theory: 24	Practical: 6
Prerequisites:	None		
Corequisites:	None		
Cross Reference to Learning Outcomes/Training Standard: 5700.0 (5700.01 – 5700.07)			

General Learning Outcome

Upon successful completion of the reportable subject, the apprentice is able to describe safety practices and procedures to protect self and others according to industry standards of practice.

Learning Outcomes

Upon successful completion, the apprentice is able to:

1.0.1 Describe housekeeping duties according to company and occupational health and safety standards.

1.0.2 Describe work site hazards according to company and occupational health and safety standards.

1.0.3 Explain the need for and use of personal protective equipment to manufacturer and occupational health and safety standards.

1.0.4 Interpret tools and equipment inspection and maintenance requirements according to company, manufacturer, and occupational health and safety standards.

1.0.5 Apply first aid, at a standard level, according to company policy and occupational health and safety standards.

1.0.6 Recommend scaffolding system component inspection procedures according to blueprint specifications and occupational health and safety standards.

1.0.7 Demonstrate work site communication skills to company and occupational health and safety standards.

Learning Content

1.0.1 Describe housekeeping duties according to company and occupational health and safety standards.

- identify the characteristics of a clean work area
- identify the characteristics of a hazard and debrisfree work area
- describe tool storage methods and procedures
- describe material stockpiling methods and procedures
- illustrate related company policies
- interpret related occupational health and safety regulations

1.0.2. Describe work site hazards according to company and occupational health and safety standards.

- identify biological hazards
- identify chemical hazards
- identify physical hazards
- recognize the activities associated with a work site inspection
- interpret work site inspection documentation
- recognize incident reporting requirements and the role of the supervisor
- discuss probable responses to identified hazards
- illustrate related company policies regarding work site hazards
- interpret occupational health and safety regulations

1.0.3 Explain the need for and use of personal protective equipment to manufacturer and occupational health and safety standards.

- recognize the need for personal protective equipment use on the job
- interpret the need for and use of eye protection, ear protection, gloves, safety and life lines and a respirator
- recognize personal protective equipment maintenance requirements
- distinguish between functional and dysfunctional personal protective equipment
- describe manufacturer specifications
- interpret related occupational health and safety regulations

1.0.4 Interpret tools and equipment inspection and maintenance requirements according to company, manufacturer, and occupational health and safety standards.

- recognize the procedures associated with tool and equipment inspection
- perform a visual inspection of a selected tool or piece of equipment
- identify defects requiring service
- discuss the defect in relation to the safe operation of tools and equipment
- interpret the maintenance of tool and equipment fluid levels
- illustrate related company policy regarding tool and equipment operations
- describe manufacturer specifications
- interpret related occupational health and safety regulations

1.0.5 Apply first aid, at a standard level, according to company policy and occupational health and safety standards.

- complete an approved Standard level first aid course
- complete an approved CPR course
- describe how to identify the location of a first aid station on the work site
- demonstrate documentation requirements associated with first aid and/or CPR incident reports
- illustrate related company policies regarding first aid and CPR
- interpret related occupational health and safety regulations

1.0.6 Recommend scaffolding system component inspection procedures according to blueprint specifications and occupational health and safety standards.

- identify ladder placement and inspection procedures
- identify scaffold system components
- list the steps associated with a visual safety inspection of a scaffold system and components
- identify common scaffold system defects
- distinguish between a safe and unsafe ladder and scaffold system placement
- interpret blueprint specifications related to ladders and scaffold systems
- interpret related occupational health and safety regulations related to ladders and scaffold systems

1.0.7 Demonstrate work site communication skills to company and occupational health and safety standards.

- Demonstrate how to communicate effectively in the workplace
- recognize the sender and receiver relationship in communication
- demonstrate oral skills
- demonstrate listening skills
- describe hand signals used in construction
- demonstrate the use of hand signal communication
- demonstrate the use of a drawing or a sketch as a means to communicate
- demonstrate the acceptance of directions from others
- demonstrate the provision of directions to others
- demonstrate the use of a radio communication device
- illustrate related company communication policies
- interpret related occupational health and safety regulations

Evaluation Structure

Evaluation will consist of multiple choice test items related to trade theory and an Instructor determined evaluation of application. Upon completion of the Reportable Subject, a final trade theory test will be administered. The recommended percentage distribution is:

Tools and Equipment List

- Selection of Safety Apparel (Personal Protective Equipment) including applicable legislation and regulations, safety vest, gloves, ear protection devices, safety goggles, lifelines, and respirators;
- Standard First Aid and CPR Training Equipment;
- Ladders and Scaffolding components (safety focused);
- Hand Signal Cards and Handheld Radios.

Evaluation Structure		
Theory Testing	Application Exercises	Final Assessment
40%	20%	40%

Number:	2.0		
Title:	**Blueprints and Specifications**		
Duration:	Total Hours: 18	Theory: 15	Practical: 3
Prerequisites:	None		
Corequisites:	None		
Cross Reference to Learning Outcomes/Training Standard: 5701.0 (5701.01 – 5701.04)			

General Learning Outcome

Upon successful completion of the reportable subject, the apprentice is able to interpret blueprints, drawings and layouts using architectural and measurement conventions according to industry standards of practice.

Learning Outcomes

Upon successful completion, the apprentice is able to:

2.0.1 Interpret sketches and drawings for symbol identification and layout according to architectural engineering specifications.

2.0.2 Apply the use of scales and tapes for the interpretation of blueprints to architectural standards.

2.0.3 Apply the use of measurement conventions for trade related calculations to engineering specifications.

2.0.4 Describe the use of survey measurement devices for trade related calculations to engineering, blueprint and manufacturer specifications.

Learning Content

2.0.1 Interpret sketches and drawings for symbol identification and layout according to architectural engineering specifications.

- define the terms “blueprint” “sketch”, “drawing”, “layout”, “convention”, “symbol”, “view”, “line”, “specification”, and “reference point”
- describe the purpose for and use of a sketch and a drawing
- locate on a blueprint selected conventions and symbols for a given project
- identify reference points and utilities for a given project
- interpret the use of drawings in layout activities
- interpret architectural engineering specifications

2.0.2 Apply the use of scales and tapes for the interpretation of blue prints to architectural standards.

- interpret measurements from the drawing
- identify the measurement scale
- interpret the symbol conventions
- illustrate the use of a scale ruler
- illustrate the use of a measuring tape
- apply measurements to a given layout
- interpret architectural standards

2.0.3 Apply the use of measurement conventions for trade related calculations to engineering specifications.

- define the terms “length”, “perimeter”, “area”, “volume”, “percentage” and “ratio”
- interpret the metric system of measurement and its conventions
- interpret the imperial system of measurement and its conventions
- interpret angle measurement in degrees
- calculate length in metric and imperial conventions
- calculate perimeter in metric and imperial conventions
- calculate area in metric and imperial conventions
- calculate volume in metric and imperial conventions
- interpret the Pythagorean theorem
- calculate a percentage
- calculate a ratio

2.0.4 Describe the use of survey measurement devices for trade related calculations to engineering, blue print and manufacturer specifications.

- identify surveying equipment, including: tripod, level, transit, laser level, surveyor’s chain and rod
- interpret the use of a tripod, level, transit, laser level and surveyor’s chain and rod
- defines the term “bench mark”
- illustrate the set up of a level, transit and laser level on a tripod
- illustrate the use of the instruments in calculation of distance, levels and heights
- describe calculation of a grade through the use of a bench mark
- interpret engineered drawings
- interpret related blueprints
- describe manufacturer specifications

Evaluation Structure

Evaluation will consist of multiple choice test items related to trade theory and an Instructor determined evaluation of application. Upon completion of the Reportable Subject, a final trade theory test will be administered. The recommended percentage distribution is:

Tools and Equipment List

- A Selection of Blueprints suitable for classroom exploration of each Reportable Subject;
- A selection of measuring tapes, scales and devices reflective of field practice;
- Survey Instruments including: Plump Bob, Dry Line, Tripod, Builders Level, Laser Level, Transit and Total Station and Chain and Rod.

Evaluation Structure		
Theory Testing	Application Exercises	Final Assessment
40%	20%	40%

Number:	3.0		
Title:	**Construction Tools**		
Duration:	Total Hours: 36	Theory: 27	Practical: 9
Prerequisites:	None		
Corequisites:	None		
Cross Reference to Learning Outcomes/Training Standard: 5702.0 (5702.01 – 5702.04)			

General Learning Outcome

Upon successful completion of the reportable subject, the apprentice is able to describe methods and procedures for the use of hand and power tools according to industry standards of practice.

Learning Outcomes

Upon successful completion, the apprentice is able to:

3.0.1 Describe methods and procedures for the operation of a powder actuated tool according to manufacturer, company and safety standards.

3.0.2 Describe method and procedures for the use of power tools according to manufacturer, company and safety standards.

3.0.3 Describe methods and procedures for the use of hand tools according to manufacturer, company and safety standards.

3.0.4 Describe the methods and procedures related to the operation of a cutting torch according to manufacturer, company and safety standards.

Learning Content

3.0.1 Describe methods and procedures for the operation of a powder actuated tool according to manufacturer, company and safety standards.

- list required personal protective equipment
- identify a powder actuated tool
- distinguish between a high and low velocity powder actuated tool
- identify various fasteners, uses and parts
- identify powder loads and strengths
- identify wood, steel and concrete base materials

- describe the selection of powder load in relation to the application of the tool
- describe the selection of a fastener in relation to application of the tool
- illustrate the operation of a powder actuated tool in wood, steel and concrete applications
- illustrate how to clean and maintain a powder actuated tool
- describe manufacturers specifications
- illustrate related company policies
- interpret related occupational health and safety legislation

3.0.2 Describe method and procedures for the use of power tools according to manufacturer, company and safety standards.

- list required personal protective equipment
- identify an electrical circular saw, chipper and grinder
- identify various cutting blades, chisels and grinding wheels
- describe the operational considerations related to the use of a listed power tool in wood, steel and concrete applications
- illustrate an inspection of a circular saw, chipper and grinder
- describe maintenance procedures related to the use of a circular saw, chipper and grinder
- describe manufacturers specifications
- illustrate related company policies
- interpret related occupational health and safety legislation

3.0.3 Describe methods and procedures for the use of hand tools according to manufacturer, company and safety standards.

- list required personal protective equipment
- illustrate tool selection based on assessment of work task to be performed
- identify a hand saw, hammer and shovel
- illustrate the use of a hand saw, hammer and shovel
- describe tool cleaning methods
- recommend storing tools in a designated gang box or location
- describe manufacturers specifications
- illustrate related company policies
- interpret related occupational health and safety legislation

3.0.4 Describe the methods and procedures related to the operation of a cutting torch according to manufacturer, company and safety standards.

- list required personal protective equipment
- identify an oxygen and an acetylene cylinder
- differentiate between the physical characteristics and storage media of the two gases
- identify the regulators gauges and hoses, noting their respective colour and attachment
- identify the torch handle, cutting attachment and cutting tips
- identify and describe the purpose for the use of flashback arresters
- outline procedures for locating a fire extinguisher, fire blankets and a fire hose outlet
- illustrate the assembly of an oxyacetylene torch kit
- illustrate torch lighting procedures
- illustrate torch shut down procedures
- illustrate the use of the cutting torch to preheat, pierce and cut mild plate steel
- describe oxyacetylene torch kit storage and handling procedures
- describe manufacturers specifications
- illustrate related company policies
- interpret related occupational health and safety legislation

Evaluation Structure

Evaluation will consist of multiple choice test items related to trade theory and an Instructor determined evaluation of application. Upon completion of the Reportable Subject, a final trade theory test will be administered. The recommended percentage distribution is:

Tools and Equipment

- High and low velocity Powder Actuated Tools, Accessories and Charges;
- Selection of Power Tools, including: Circular Saws, Chippers, and Grinders;
- Selection of Hand Tools, including: Hammers, Shovels, Sledge Hammers, and Hand Saws;
- A selection of Oxyacetylene cutting torch kits, including: cutting accessories, tanks, gauges, hoses, and fire protection equipment.

Evaluation Structure		
Theory Testing	Application Exercises	Final Assessment
40%	20%	40%

Number:	4.0		
Title:	**Equipment Handling Practices and Procedures I**		
Duration:	Total Hours: 24	Theory: 18	Practical: 6
Prerequisites:	1.0, 2.0 and 3.0		
Corequisites:	None		
Cross Reference to Learning Outcomes/Training Standard: 5703.0 (5703.01)			

General Learning Outcome

Upon successful completion of the reportable subject, the apprentice is able to describe the methods and procedures required for the use of stationary equipment according to manufacturer specifications.

Learning Outcomes

Upon successful completion, the apprentice is able to:

4.0.1 Describe the methods and procedures required for the placement of stationary equipment according to manufacturer, environmental and occupational heath and safety standards.

Learning Content

4.0.1 Describe the methods and procedures required for the placement of stationary equipment according to manufacturer, environmental and occupational heath and safety standards.

- list required personal protective equipment
- list related equipment, including: pumps, compressors, generators and lighting stations
- describe the movement of equipment into place
- describe levelling equipment
- describe procedures to secure equipment with blocks and pads
- describe the use of barricades in relation to the location of equipment
- describe procedures to check equipment fluid levels
- identify equipment ventilation requirements
- describe manufacturer specifications
- interpret related environmental standards
- interpret related occupational health and safety legislation

Evaluation Structure

Evaluation will consist of multiple choice test items related to trade theory and an Instructor determined evaluation of application. Upon completion of the Reportable Subject, a final trade theory test will be administered. The recommended percentage distribution is:

Tools and Equipment

- A selection of stationary equipment and accessories, including: pumps, compressors, generators and lighting stations

Evaluation Structure		
Theory Testing	Application Exercises	Final Assessment
40%	20%	40%

Number:	5.0		
Title:	**Rigging, Hoisting and Material Handling I**		
Duration:	Total Hours: 24	Theory: 18	Practical: 6
Prerequisites:	1.0, 2.0 and 3.0		
Corequisites:	None		
Cross Reference to Learning Outcomes/Training Standard: 5706.0 (5706.015706.06)			

General Learning Outcome

Upon successful completion of the reportable subject, the apprentice is able to describe the methods and procedures required for rigging and hoisting operations according to industry standards of practice.

Learning Outcomes

Upon successful completion, the apprentice is able to:

5.0.1 Describe the use of rigging and hoisting equipment for a lift application according to company, manufacturer and occupational health and safety standards.

5.0.2 Describe methods and procedures required to perform a rigging and hoisting application according to company, manufacturer and occupational health and safety standards.

5.0.3 Describe methods and procedures required for communicating with rigging application coworkers through the use of radio and international hand signals according to company and occupational health and safety standards.

5.0.4 Describe the methods and procedures required to maintain control of a rigged load from place of origin to place of destination according to company and occupational health and safety standards.

5.0.5 Describe the methods and procedures required for the use of jacks in the installation of blocking according to company, manufacturer and occupational health and safety standards.

5.0.6 Describe methods and procedures required for the operation of manual lifting devices according to company, manufacturer and occupational health and safety standards.

Learning Content

5.0.1 Describe the use of rigging and hoisting equipment for a lift application according to company, manufacturer and occupational health and safety standards.

- list required personal protective equipment
- describe the process of determining site conditions prior to lift
- identify the following hoisting and rigging components, including:
  - wire rope
  - nylon slings
  - chains
  - softeners
  - cables
  - hook diameter and size
  - leveling devices
  - tag lines
- illustrate the assembly of the stated components in relation to lift requirements
- describe typical load characteristics encountered in the field
- interpret load weight data
- apply the use of knots
- recommend a hoisting and rigging apparatus in relation to a stated application
- describe manufacturer specifications
- illustrate related company policies
- interpret related occupational health and safety legislation

5.02 Describe methods and procedures required to perform a rigging and hoisting application according to company, manufacturer and occupational health and safety standards.

- list required personal protective equipment
- describe the choking technique
- describe the cradling technique
- interpret the procedure to determine the centre of gravity of a load
- describe the procedure to determine the location on the load for fastening
- outline procedures to attach selected hardware to load, including:
  - turnbuckles
  - chains
  - shackles
  - wire rope
  - nylon slings
  - softeners;

- describe manufacturer specifications
- illustrate related company policies
- interpret related occupational health and safety legislation
- perform a rigging and hoisting application

5.0.3 Describe methods and procedures required for communicating with rigging application coworkers through the use of radio and international hand signals according to company and occupational health and safety standards.

- list required personal protective equipment
- describe the use of a portable two way radio device to communicate information regarding lift activities
- identify international rigging and hoisting hand signals, including:
  - raising/lowering
  - load line
  - boom up/down
  - boom extend
  - walking
  - turning
  - swinging
  - landing
  - pick up
- illustrate the use of stated international rigging and hoisting hand signals
- describe the movement of a load
- demonstrate the movement of a load using hand signals
- illustrate related company policies
- interpret related occupational health and safety legislation

5.0.4 Describe the methods and procedures required to maintain control of a rigged load from place of origin to place of destination according to company and occupational health and safety standards.

- list required personal protective equipment
- outline location requirements for load destination and placement
- describe the installation of cribbing/blocks at load destination
- describe the use of chains
- describe the use of bear traps
- outline procedures to secure a load
- outline procedures to direct a load
- outline procedures to place a load
- outline procedures to block a load
- outline procedures to release a load
- outline procedures to disassemble the rigging hardware
- demonstrate the procedures stated above
- illustrate related company policies
- interpret related occupational health and safety legislation

5.0.5 Describe the methods and procedures required for the use of jacks in the installation of blocking according to company, manufacturer and occupational health and safety standards.

- list required personal protective equipment
- identify jacks and blocking components
- interpret job requirements
- outline the procedure to determine load weight characteristics
- describe the procedure to determine jack points in reference to the load material
- describe the procedure to determine jacking and blocking requirements
- describe the process of jack and block installation
- demonstrate jack and block installation procedures
- describe manufactures specifications
- illustrate related company policies
- interpret related occupational health and safety legislation

5.0.6 Describe methods and procedures required for the operation of manual lifting devices according to company, manufacturer and occupational health and safety standards.

- list required personal protective equipment
- identify manual lifting devices, including:
  - chain falls
  - ratchet hoist
  - turfer
- describe the lifting characteristics of various materials, loads, and formwork
- describe the procedures to determine the suspension of a load
- describe the procedures to determine the attachment point
- describe procedures to determine load bearing capacity requirements
- describe the alignment of the load
- interpret the selection of a stated manual lifting device in relation to a load
- describe the use of a stated manual lifting device
- describe the procedures to direct a material lift from point of origin to point of destination
- demonstrate the use of selected manual lifting devices
- describe manufacturers specification
- illustrate related company policies
- interpret related occupational health and safety legislation

Evaluation Structure

Evaluation will consist of multiple choice test items related to trade theory and an Instructor determined evaluation of application. Upon completion of the Reportable Subject, a final trade theory test will be administered. The recommended percentage distribution is:

Tools and Equipment

- A selection of Rigging and Hoisting equipment, hardware and accessories including:
- wire rope
- nylon slings
- chains
- softeners
- cables
- hooks various diameters and sizes
- leveling devices
- tag lines
- turnbuckles
- shackles
- binders, clamps and tensioners
- cribbing
- bear traps
- jacks and blocking
- A selection of Manual Lifting devices, including: chain falls, ratchet hoists, cable jacks, and turfers.

Evaluation Structure		
Theory Testing	Application Exercises	Final Assessment
40%	20%	40%

Number:	6.0		
Title:	**Introduction to Formwork I**		
Duration:	Total Hours: 30	Theory: 24	Practical: 6
Prerequisites:	1.0, 2.0 and 3.0		
Corequisites:	None		
Cross Reference to Learning Outcomes/Training Standard: 5705.0 (5705.015705.02)			

General Learning Outcome

Upon successful completion of the reportable subject, the apprentice is able to describe methods and procedures required for form setting according to industry standard of practice

Learning Outcomes

Upon successful completion, the apprentice is able to:

6.0.1 Read basic blueprints and layout requirements for form setting activities according to specifications.

6.0.2 Describe the methods and procedures required for the use of form setting tools according to manufacturer and occupational health and safety standards.

Learning Content

6.0.1 Read basic blueprints and layout requirements for form setting activities according to specifications.

- interpret formsetting work plan
- read blueprint to determine dimensions and location of forming system ie., columns and walls
- describe footing and layout requirements
- interpret the determination of a forming system layout from a benchmark
- describe the process of squaring corners and dropping lines
- interpret industry formsetting standard of practice

6.0.2 Describe the methods and procedures required for the use of formsetting tools according to manufacturer and occupational health and safety standards.

- list required personal protective equipment
- identify formsetting tools, including:
  - circular saw
  - sledge hammer
  - leveling instrument
  - dry line
  - plumb bob
- interpret the purpose and use of stated formsetting tools
- demonstrate the use of form setting tools
- describe cleaning procedures related to the use of formsetting tools
- outline the procedures for the storage of stated formsetting tools
- describe manufacturer specifications
- interpret related occupational health and safety legislation

Evaluation Structure

Evaluation will consist of multiple choice test items related to trade theory and an Instructor determined evaluation of application. Upon completion of the Reportable Subject, a final trade theory test will be administered. The recommended percentage distribution is:

Tools and Equipment

- A selection of form setting tools, equipment and system components.

Evaluation Structure		
Theory Testing	Application Exercises	Final Assessment
40%	20%	40%

Number:	7.0		
Title:	**Introduction to Concrete I**		
Duration:	Total Hours: 24	Theory: 18	Practical: 6
Prerequisites:	1.0, 2.0 and 3.0		
Corequisites:	None		
Cross Reference to Learning Outcomes/Training Standard: 5708.0 (5708.01 and 5708.02)			

General Learning Outcome

Upon successful completion of the reportable subject, the apprentice is able to describe the methods and procedures required for the placement of concrete according to industry standards of practice.

Learning Outcomes

Upon successful completion, the apprentice is able to:

7.0.1 Describe the operation of concrete placement tools and equipment according to company and occupational health and safety standards.

7.0.2 Describe methods and procedures required for installation of concrete and grout material and reinforcement components according to manufacturer and occupational health and safety standards.

Learning Content

7.0.1 Describe the operation of concrete placement tools and equipment according to company and occupational health and safety standards.

- list required personal protective equipment, including: rubber gloves and boots
- identify concrete placement tools and equipment, including:
  - rakes
  - screeds
  - darbys
  - trowels
  - vibrators;
- describe the selection and use of stated tool(s) and equipment based on the concrete placement activity
- illustrate related company policies
- interpret related occupational health and safety legislation

7.0.2 Describe methods and procedures required for installation of concrete and grout material and reinforcement components according to manufacturer and occupational health and safety standards.

- list required personal protective equipment
- interpret material placement work activity
- identify concrete and grout placement tools and equipment, including:
  - pumps
  - concrete buggies
  - curb/barrier wall machines
  - cranes
  - wheelbarrows
- describe the coordination of work activities in the presence of equipment, including:
  - pumps
  - concrete buggies
  - curb/barrier wall machines
  - cranes
- outline the use of a wheelbarrow for material placement
- interpret the selection of reinforcement materials, including: rebar and wire mesh
- interpret the placement of stated reinforcement materials
- describe the installation of concrete and grout
- perform a basic concrete and grout installation procedure
- illustrate related company policies
- interpret related occupational health and safety legislation

Evaluation Structure

Evaluation will consist of multiple choice test items related to trade theory and an Instructor determined evaluation of application. Upon completion of the Reportable Subject, a final trade theory test will be administered. The recommended percentage distribution is:

Tools and Equipment

- Selected personal protective equipment, including: rubber gloves and boots;
- A selection of Concrete placement tools and equipment, including: Wheel Barrows, Concrete Buggies, Pumps, Mixers, Rakes, Screeds, Darbys, Trowels and Vibrators.

Evaluation Structure		
Theory Testing	Application Exercises	Final Assessment
40%	20%	40%

Number:	8.0		
Title:	**Introduction to Scaffolding I**		
Duration:	Total Hours: 27	Theory: 21	Practical: 6
Prerequisites:	1.0, 2.0 and 3.0		
Corequisites:	None		
Cross Reference to Learning Outcomes/Training Standard: 5707.0 (5707.015707.05)			

General Learning Outcome

Upon successful completion of the reportable subject, the apprentice is able to describe methods and procedures required for scaffold erection and dismantlement according to industry standards of practice.

Learning Outcomes

Upon successful completion, the apprentice is able to:

8.0.1 Interpret scaffolding requirements from blueprints, layout and sketches according to industry standards of practice.

8.0.2 Describe methods and procedures required for scaffold inspection prior to installation according to company and occupational heath and safety standards.

8.0.3 Describe methods and procedures required for scaffold base preparation according to company and occupational health and safety standards.

8.0.4 Describe methods and procedures required for the placement of scaffold mudsill and components according to site and occupational health and safety standards.

8.0.5 Describe the methods and procedures required to install three scaffolding system types (standard frame, tube and clamp, stick built) according to manufacturer, engineering, blueprint and occupational health and safety standards.

Learning Content

8.0.1 Interpret scaffolding requirements from blueprints, layout and sketches according to industry standards of practice.

- identify required blueprints
- identify relevant symbols and notation
- interpret scaffold location requirements from blueprint
- interpret scaffolding material requirements from blueprint and schedule
- interpret scaffolding layout
- interpret work sketches
- interpret industry standards of practice

8.0.2 Describe methods and procedures required for scaffold inspection prior to installation according to company and occupational heath and safety standards.

- list required personal protective equipment
- read blueprints and work sketches
- interpret material list requirements
- identify scaffolding system and components
- describe preinstallation inspection procedures for a scaffolding system and components
- describe tagging of components
- demonstrate scaffold inspection procedures
- illustrate related company policy
- interpret related occupational health and safety legislation

8.0.3 Describe methods and procedures required for scaffold base preparation according to company and occupational health and safety standards.

- list required personal protective equipment
- identify base preparation tools, including:
  - shovels
  - chains
  - tapes
- describe surveying methods in relation to the scaffold base
- describe area layout procedures for scaffold base
- describe the use of stated base preparation tools
- interpret work coordination activities in relation to heavy equipment, including:
  - bulldozers
  - excavators

- describe procedures for the excavation of the base area
- demonstrate the use of base preparation tools
- illustrate related company policy
- interpret related occupational health and safety legislation

8.0.4 Describe methods and procedures required for the placement of scaffold mudsill and components according to site and occupational health and safety standards.

- lists required personal protective equipment
- reads required blueprints
- identifies mud sill component materials, including
  - planks
  - concrete
  - blocking
- describes layout procedures for the location of the mudsill
- describes procedures to check the base level
- describes procedures to check soil compaction
- describes procedures to place stated mudsill component materials
- demonstrates the installation of mud sill components
- interprets job site specifications
- interprets related occupational health and safety legislation

8.0.5 Describe the methods and procedures required to install three scaffolding system types (standard frame, tube and clamp, stick built) according to manufacturer, engineering, blueprint and occupational health and safety standards.

- list required personal protective equipment
- read related blueprints;
- identify three scaffolding systems and respective components, including: standard frame, tube and clamp and stick built
- identify hand and power tools used in the erection and dismantlement of each scaffolding system type, including: transits and levels
  - string line
  - plumb bob
  - wrenches
  - impact tools
- describe the installation procedures associated with the placement of a screw leg
- describe the use of stated hand and power tools in the erection of each scaffolding system type
- describe the procedures to check alignment during installation
- demonstrate basic installation procedures for selected scaffolding system
- describe manufacturer specifications
- interpret engineering specifications
- interprets occupational health and safety legislation

Evaluation Structure

Evaluation will consist of multiple choice test items related to trade theory and an Instructor determined evaluation of application. Upon completion of the Reportable Subject, a final trade theory test will be administered. The recommended percentage distribution is:

Tools and Equipment

Scaffold Equipment, components, assembly tools and accessories for each type noted including, Standard frame, tube and clamp and stick build.

Evaluation Structure		
Theory Testing	Application Exercises	Final Assessment
40%	20%	40%

Number:	9.0		
Title:	**Earthwork, Barriers and Controls I**		
Duration:	Total Hours: 33	Theory: 27	Practical: 6
Prerequisites:	1.0, 2.0 and 3.0		
Corequisites:	None		
Cross Reference to Learning Outcomes/Training Standard: 5711.0 (5711.015711.06) and 5710.01			

General Learning Outcome

Upon successful completion of the reportable subject, the apprentice is able to describe earthwork, barrier and environmental control practices and procedures according to industry standards of practice.

Learning Outcomes

Upon successful completion, the apprentice is able to:

9.0.1 Interpret blueprints and plans with regard to back fill and compaction procedures according to industry standards of practice.

9.0.2 Describe the method and procedures required for traffic control during backfill and compaction operations according to highway traffic act and occupational health and safety standards.

9.0.3 Describe the methods and procedures required for the placement of protection board and insulation materials according to drawings and specifications, company and occupational health and safety standards.

9.0.4 Describe methods and procedures required for material placement and compaction activities according to job site, company, and occupational health and safety standards.

9.0.5 Describe methods and procedures required for the installation of vapour barrier according to job site, company and occupational health and safety standards.

9.0.6 Describe methods and procedures required for material installation according to company and occupational health and safety standards.

9.0.7 Interpret work requirements from an environmental plan according to company and occupational health and safety standards.

Learning Content

9.0.1 Interpret blueprints and plans with regard to back fill and compaction procedures according to industry standards of practice.

- interpret blueprints and site plans
- list required personal protective equipment requirements
- identify required tool and equipment
- interpret industry standards of practice

9.0.2 Describe the method and procedures required for traffic control during backfill and compaction operations according to highway traffic act and occupational health and safety standards.

- list required personal protective equipment including: signal vest and radio device
- interpret heavy equipment operator traffic control requirements during backfill and compaction operations
- interpret the role of a signal person during backfill and compaction operations
- interpret signage and barricade control device requirements during backfill and compaction operations
- describe the placement of signs and barricades, including: caution tape
- demonstrate basic traffic control procedures and applications
- interpret related traffic control requirements found in the Highway Traffic Act
- interpret related occupational health and safety legislation

9.0.3 Describe the methods and procedures required for the placement of protection board and insulation materials according to drawings and specifications, company and occupational health and safety standards.

- list required personal protective equipment
- describe the preparation of materials for placement, including: protection board and insulation
- describe the installation of stated materials
- demonstrate the installation of stated materials
- interpret drawings and specifications
- illustrate related company policies
- interpret related occupational health and safety legislation

9.0.4 Describe methods and procedures required for material placement and compaction activities according to job site, company, and occupational health and safety standards.

- list required personal protective equipment
- identify equipment, including: plate tampers, rollers and jumping jacks
- interpret the selection of stated compaction equipment in relation to the work application
- describe procedures to check equipment fluid levels
- describe procedures required to place fill material
- describe procedures required to compact fill material
- demonstrate the uses of stated compaction equipment
- interpret job site specifications
- describe manufacturers specifications
- illustrate related company policies
- interpret related occupational health and safety legislation

9.0.5 Describe methods and procedures required for the installation of vapour barrier according to job site, company and occupational health and safety standards.

- list required personal protective equipment
- calculate an area measurement
- estimate vapour barrier material requirements
- describe work area preparation procedures for receipt of the vapour barrier
- describe process of cutting vapour barrier to fit measurement requirements
- describe the installation procedures for vapour barrier
- describe measures used to secure vapour barrier in place
- demonstrate basic installation of vapour barrier
- interpret job site specifications
- illustrate related company policies
- interpret related occupational health and safety legislation

9.0.6 Describe methods and procedures required for material installation according to company and occupational health and safety standards.

- list required personal protective equipment
- describe the process required in the installation of materials
- describe the process of inspecting work area for the presence of debris
- describe the process of removal of unwanted debris
- interpret process of bringing material to grade
- illustrate related company policies
- interpret related occupational health and safety legislation

9.0.7 Interpret work requirements from an environmental plan according to company and occupational health and safety standards.

- list required personal protective equipment
- interpret environmental planning document and activities
- interpret material requirements from environmental plan
- interpret work site methods from environmental plan
- interpret equipment requirements from environmental plan
- describe compliance with work site practices outlined in the environmental plan
- illustrate related company policies
- interpret related occupational health and safety legislation

Evaluation Structure

Evaluation will consist of multiple choice test items related to trade theory and an Instructor determined evaluation of application. Upon completion of the Reportable Subject, a final trade theory test will be administered. The recommended percentage distribution is:

Tools and Equipment

- Personal protective equipment: signal vest and radio device';
- Traffic signage and barricade control;
- Caution tape;
- Earthwork and Compaction equipment including, Plate Tampers, Rollers and Jumping Jacks, Skid Steer Loaders, Augers and Post Pounders;
- Vapour barrier materials.

Evaluation Structure		
Theory Testing	Application Exercises	Final Assessment
40%	20%	40%

Level 2

Reportable Subject Summary – Level 2

Number	Reportable Subjects	Hours Total	Hours Theory	Hours Practical
10.0	Construction Safety II	24	6	30
11.0	Equipment Handling Practices and Procedures II	33	9	42
12.0	Rigging, Hoisting and Material Handling II	27	9	36
13.0	Introduction to Formwork II	27	9	36
14.0	Introduction to Concrete II	18	6	24
15.0	Introduction to Scaffolding II	21	6	27
16.0	Earthwork, Barriers and Controls II	27	6	33

Number:	10.0		
Title:	**Construction Safety II**		
Duration:	Total Hours: 30	Theory: 24	Practical: 6
Prerequisites:	1.0		
Corequisites:	None		
Cross Reference to Learning Outcomes/Training Standard: 5700.0 (5700.08 – 5700.16)			

General Learning Outcome

Upon successful completion of the reportable subject, the apprentice is able to describe safety practices and procedures to protect self and others according to industry standards of practice.

Learning Outcomes

Upon successful completion, the apprentice is able to:

10.0.1 Describe traffic control device placement procedures according to government standards.

10.0.2 Describe the methods and procedures required to perform traffic control duties to occupational health and safety and related government standards.

10.0.3 Describe the methods and procedures required for the placement of safety barriers and railings according to company policy and occupational health and safety standards.

10.0.4 Describe the methods and procedures required for the use of a fall arrest system to company, manufacturer, and occupational health and safety standards.

10.0.5 Interpret soil conditions and hazards according to occupational health and safety standards.

10.0.6 Describe the methods and procedures related to site maintenance duties under winter conditions according to occupational health and safety standards.

10.0.7 Demonstrate the operation of a fire extinguisher to manufacturer specifications and occupational health and safety standards.

10.0.8 Describe lock out and tagging procedures according to company, manufacturer and occupational health and safety standards.

10.0.9 Describe confined space work procedures according to company policy and occupational health and safety standards.

Learning Content

10.0.1 Describe traffic control device placement procedures according to government standards.

- list the elements of a traffic control system
- interpret various traffic control scenarios encountered on the job site
- describe the placement of traffic control reflectors, barricades, pylons and signs
- interpret related government legislation and regulations

10.0.2 Describe the methods and procedures required to perform traffic control duties to occupational health and safety and related government standards.

- list the required personal protective equipment
- identify the conditions that affect the maintenance of traffic flow
- describe the use of a bullhorn, radio and signs in traffic control related activities
- interpret methods used to protect, self, coworkers, the general public and equipment
- interpret related occupational health and safety regulations
- interpret related government legislation and regulations

10.0.3 Describe the methods and procedures required for the placement of safety barriers and railings according to company policy and occupational health and safety standards.

- describe the use of caution tape
- describe the use of snow fencing
- describe methods used to secure barriers and railings with fasteners
- determine methods used to protect, self, coworkers and equipment
- illustrate related company policies
- interpret related occupational health and safety regulations

10.0.4 Describe the methods and procedures required for the use of a fall arrest system to company, manufacturer, and occupational health and safety standards.

- list work site conditions that require the use of a fall arrest system
- identify the elements of a fall arrest system
- describe the use of a fall arrest system
- illustrate ladder inspection procedures
- illustrate harness inspection procedures
- illustrate net inspection procedures
- describe manufacturers specifications
- illustrate related company policies
- interpret related occupational health and safety regulations

10.0.5 Interpret soil conditions and hazards according to occupational health and safety standards.

- identify soil types;
- identify soil conditions and related hazards;
- describe inspection procedures related to the determination of soil condition;
- describe a procedure to report soil related hazards to a supervisor;
- interpret related occupational health and safety regulations.

10.0.6 Describe the methods and procedures related to site maintenance duties under winter conditions according to occupational health and safety standards.

- identify snow and ice removal hand tools
- describe hand tool procedures used to remove snow and ice
- identify snow removal work coordination activities when in the presence of large equipment, including: Loaders, SnowPlows and Trucks equipped with a plow
- interpret the use of sand and salt deicers
- describe measures that ensure a safe work area in winter conditions
- interpret related occupational health and safety regulations

10.0.7 Demonstrate the operation of a fire extinguisher to manufacturer specifications and occupational health and safety standards.

- identify types of fires, their causes and the fire triangle relationship
- apply knowledge of fire and its causes in the selection of fire extinguisher, including: types A, B, C, and Halon
- identifies the components of a fire extinguisher system
- interpret the operational status of fire extinguisher equipment
- describe the documentation procedures related to the operational status of fire extinguisher equipment
- describe manufacturers specifications
- interpret related occupational health and safety regulations

10.0.8 Describe lock out and tagging procedures according to company, manufacturer and occupational health and safety standards.

- determine methods used to protect, self and coworkers;
- recognize locks, tags, blanks and blocking equipment;
- describe the use of lock out and tagging equipment;
- describe work site conditions that require lock out and tagging procedures;
- illustrate related company policies;
- describe manufacturer specifications;
- interpret related occupational health and safety regulations.

10.0.9 Describe confined space work procedures according to company policy and occupational health and safety standards.

- define the terms “confined space”, “access” and “egress”
- identify conditions and situations that relate to a confined space
- list the required personal protective equipment, related safety equipment and monitoring devices used in confined space procedures
- describe procedures related to working in and around a confined space
- describe the methods and procedures required to use air monitoring equipment for confined space testing
- interpret air monitoring results
- describe air monitoring documentation procedures
- illustrate related company policies
- interpret related occupational health and safety regulations

Evaluation Structure

Evaluation will consist of multiple choice test items related to trade theory and an Instructor determined evaluation of application. Upon completion of the Reportable Subject, a final trade theory test will be administered. The recommended percentage distribution is:

Tools and Equipment

- Selection of Safety Apparel (Personal Protective Equipment) including applicable legislation and regulations, safety vest, gloves, ear protection devices, safety goggles, lifelines, and respirators;
- Traffic control devices, barriers and controls;
- Fall arrest system components;
- Soil type display items (standard lab item);
- Snow and Ice Removal Tools (Hand Tools);
- Fire Extinguishers (each type);
- Lock out and Tag out kit;
- Confined Space Air Monitoring Equipment.

Evaluation Structure		
Theory Testing	Application Exercises	Final Assessment
40%	20%	40%

Number:	11.0		
Title:	**Equipment Handling Practices and Procedures II**		
Duration:	Total Hours: 42	Theory: 33	Practical: 9
Prerequisites:	4.0		
Corequisites:	None		
Cross Reference to Learning Outcomes/Training Standard: 5703.0 (5703.025703.03)			

General Learning Outcome

Upon successful completion of the reportable subject, the apprentice is able to describe the methods and procedures required for the use of stationary equipment according to manufacturer specifications.

Learning Outcomes

Upon successful completion, the apprentice is able to:

11.0.1 Inspect stationary equipment on a daily basis to manufacturer, environmental and occupational heath and safety standards.

11.0.2 Describe the method and procedures required for the operation of pumps and hoses to manufacturer, environmental and occupational heath and safety standards.

Learning Content

11.0.1 Inspect stationary equipment on a daily basis to manufacturer, environmental and occupational heath and safety standards.

- list required personal protective equipment
- describe the procedure of monitoring equipment oil and fuel levels
- describe the procedure of checking equipment for leaks and structural cracks
- describe the procedure of recording information regarding the operational status of equipment
- describe manufacturer specifications
- interpret related environmental standards
- interpret related occupational health and safety legislation

11.0.2 Describe the method and procedures required for the operation of pumps and hoses to manufacturer, environmental and occupational heath and safety standards.

- list required personal protective equipment
- interpret pump working principles
- illustrate the connection of a pump and hoses
- describe the procedure to check the foot valves
- describe pump start up procedures
- describe pump shut down procedures
- describe pump and hose disconnection procedures
- illustrate the process of moving pump and hoses to a new location
- describe manufacturer specifications
- interpret related environmental standards
- interpret related occupational health and safety legislation

Evaluation Structure

Evaluation will consist of multiple choice test items related to trade theory and an Instructor determined evaluation of application. Upon completion of the Reportable Subject, a final trade theory test will be administered. The recommended percentage distribution is:

Tools and Equipment

- A selection of stationary equipment and accessories including: pumps, compressors, generators and lighting stations.

Evaluation Structure		
Theory Testing	Application Exercises	Final Assessment
40%	20%	40%

Number:	12.0		
Title:	**Rigging, Hoisting and Material Handling II**		
Duration:	Total Hours: 36	Theory: 27	Practical: 9
Prerequisites:	5.0		
Corequisites:	None		
Cross Reference to Learning Outcomes/Training Standard: 5704.0 (5704.01, 5704.02, 5704.04, 5704.05, 5704.06)			

General Learning Outcome

Upon successful completion of the reportable subject, the apprentice is able to describe the methods and procedures required for rigging and hoisting operations according to industry standards of practice.

Learning Outcomes

Upon successful completion, the apprentice is able to:

12.0.1 Describe the use of material handling tools, equipment and personal protective equipment according to manufacturer and occupational heath and safety standards.

12.0.2 Describe the methods and procedures required for material and equipment load and unload operations according to manufacturer, company and occupational health and safety standards.

12.0.3 Describe the methods and procedures required for the reconditioning of job site materials according to manufacturer, company and occupational health and safety standards.

12.0.4 Describe the methods and procedures required for material inventory and distribution according to manufacturer and contractor specifications.

12.0.5 Describe the methods and procedures required for moving material around the job site according to job site, manufacturer, company, and occupational health and safety standards.

Learning Content

12.0.1 Describe the use of material handling tools, equipment and personal protective equipment according to manufacturer and occupational heath and safety standards.

- list required personal protective equipment
- identify required respirator protection
- illustrate the use of eye, ear, hand and respirator protection equipment
- describe manufacturer specifications
- interpret related occupational health and safety legislation

12.0.2 Describe the methods and procedures required for material and equipment load and unload operations according to manufacturer, company and occupational health and safety standards.

- list required personal protective equipment
- identify rigging and hoisting equipment for the work application, including:
  - slings
  - cables
  - chains
  - binders
  - clamps
  - tensioners
- describe the selection and use of related rigging and hoisting equipment for the work application
- describe load/unload procedural signals required for coworker(s) communication
- illustrate the documentation requirements related to a load/unload procedure
- illustrate the preparation of a load for shipping to a new destination
- describe manufacturer specifications
- illustrate related company policies
- interpret related occupational health and safety legislation

12.0.3 Describe the methods and procedures required for the reconditioning of job site materials according to manufacturer, company and occupational health and safety standards.

- list required personal protective equipment
- identify used material sources which can be cleaned and stored
- identify appropriate hand and power tool(s) for reconditioning application
- describe the material application procedures required for the use of form oil
- describe used material cleaning procedures
- describe used material storage procedures
- describe manufacturer specifications
- illustrate related company policies
- interpret related occupational health and safety legislation

12.0.4 Describe the methods and procedures required for material inventory and distribution according to manufacturer and contractor specifications.

- illustrate the counting of received inventory items
- illustrate the checking of received items in relation to a shipping bill
- describe a procedure to verify the receipt of materials
- illustrate the documentation of items ordered and not received
- illustrate reporting on the status of an inventory supply to a designated supervisor
- define the term “material storage area”
- describe distribution procedures to a material storage area
- describe manufacturer specifications
- illustrate related company policies

12.0.5 Describe the methods and procedures required for moving material around the job site according to job site, manufacturer, company, and occupational health and safety standards.

- list required personal protective equipment;
- identify the rigging and hoisting equipment for movement of material, including:
  - slings
  - cables
  - chains
  - binders
  - clamps
  - tensioners;
- recommend rigging and hoisting equipment for movement of material
- illustrate the manual techniques to be used for movement of material
- apply the use of knots
- illustrate signaling methods to coworkers regarding movement of material
- interpret material location from a job site plan
- describe manufacturers specifications
- illustrate related company policies
- interpret related occupational health and safety legislation.

Evaluation Structure

- Evaluation will consist of multiplechoice test items related to trade theory and an Instructor determined evaluation of application. Upon completion of the Reportable Subject, a final trade theory test will be administered. The recommended percentage distribution is:

Tools and Equipment

- A selection of Rigging and Hoisting equipment, hardware and accessories, including:
  - wire rope
  - nylon slings
  - chains
  - softeners
  - cables
  - hooks various diameters and sizes
  - leveling devices
  - tag lines
  - turnbuckles
  - shackles
  - binders, clamps and tensioners
  - cribbing
  - bear traps
  - jacks and blocking
- A selection of Manual Lifting devices, including: chain falls, ratchet hoists, cable, jacks, and turfers.

Evaluation Structure		
Theory Testing	Application Exercises	Final Assessment
40%	20%	40%

Number:	13.0		
Title:	**Introduction to Formwork II**		
Duration:	Total Hours: 36	Theory: 27	Practical: 9
Prerequisites:	6.0		
Corequisites:	None		
Cross Reference to Learning Outcomes/Training Standard: 5705.0 (5705.025705.03) and 5704.03			

General Learning Outcome

Upon successful completion of the reportable subject, the apprentice is able to describe methods and procedures required for formsetting according to industry standards of practice.

Learning Outcomes

Upon successful completion, the apprentice is able to:

13.0.1 Describe the methods and procedures required for the construction of a forming system according to blueprint and occupational health and safety standards.

13.0.2 Describe the procedures and methods required for the disassembly of formwork and accessories according to industry and occupational health and safety standards.

Learning Content

13.0.1 Describe the methods and procedures required for the construction of a forming system according to blueprint and occupational health and safety standards.

- list required personal protective equipment
- identify related tools, materials and equipment, including:
  - 4X4’s
  - jacks
  - brackets
  - cable jacks and turfers
  - plumb bob
  - builders level

- describe the alignment of forms
- describe the bracing of forms
- demonstrate the erection of a form setting system
- read related blueprints
- interpret related occupational health and safety legislation

13.0.2 Describe the procedures and methods required for the disassembly of formwork and accessories according to industry and occupational health and safety standards.

- list required personal protective equipment
- identify rigging and hoisting equipment used in formwork disassembly, including:
  - slings
  - cables
  - chains
  - binders
  - clamps
  - tensioners
- describe the use of rigging and hoisting equipment in formwork disassembly
- interpret formwork industry standards of practice
- interpret related occupational health and safety legislation

Evaluation Structure

Evaluation will consist of multiple choice test items related to trade theory and an Instructor determined evaluation of application. Upon completion of the Reportable Subject, a final trade theory test will be administered. The recommended percentage distribution is:

Tools and Equipment

- A selection of formsetting tools, equipment and system components.

Evaluation Structure		
Theory Testing	Application Exercises	Final Assessment
40%	20%	40%

Number:	14.0		
Title:	**Introduction to Concrete II**		
Duration:	Total Hours: 24	Theory: 18	Practical: 6
Prerequisites:	7.0		
Corequisites:	None		
Cross Reference to Learning Outcomes/Training Standard: 5708.0 (5708.03 and 5708.04)			

General Learning Outcome

Upon successful completion of the reportable subject, the apprentice is able to describe the methods and procedures required for the placement of concrete according to industry standards of practice.

Learning Outcomes

Upon successful completion, the apprentice is able to:

14.0.1 Describe methods and procedures required to level concrete to grade according to drawings, manufacturer and occupational health and safety standards.

14.0.2 Describe methods and procedures required for concrete surface protection according to engineering and occupational health and safety standards.

Learning Content

14.0.1 Describe methods and procedures required to level concrete to grade according to drawings, manufacturer and occupational health and safety standards.

- list required personal protective equipment
- identify tools, including: rakes and screeds
- outline procedures to determine grade
- interpret the use of tools to top off and bring concrete level to grade
- read related drawings
- demonstrate concrete leveling procedures
- interpret related work site specifications
- interpret related occupational health and safety legislation

14.0.2 Describe methods and procedures required for concrete surface protection according to engineering and occupational health and safety standards.

- list required personal protective equipment
- identify concrete surface protection materials and substances, including:
  - burlap
  - straw
  - frost blankets
  - commercial chemicals
- interpret the application of stated material and/or substance surface protection
- describe concrete surface protection application procedures
- demonstrate basic concrete surface protection installation procedures
- interpret related engineering specifications
- interpret related occupational health and safety legislation

Evaluation Structure

Evaluation will consist of multiple choice test items related to trade theory and an Instructor determined evaluation of application. Upon completion of the Reportable Subject, a final trade theory test will be administered. The recommended percentage distribution is:

Tools and Equipment

- A selection of Concrete placement tools and equipment including, Wheel Barrows, Concrete Buggies, Pumps, Mixers, Rakes, Screeds, Darbys, Trowels and Vibrators;
- Reinforcement materials: rebar and wire mesh (various sizes);
- Concrete Surface Protection materials including burlap, straw, frost blankets and appropriate chemicals.

Evaluation Structure		
Theory Testing	Application Exercises	Final Assessment
40%	20%	40%

Number:	15.0		
Title:	**Introduction to Scaffolding II**		
Duration:	Total Hours: 27	Theory: 21	Practical: 6
Prerequisites:	8.0		
Corequisites:	None		
Cross Reference to Learning Outcomes/Training Standard: 5707.0 (5707.065707.09)			

General Learning Outcome

Upon successful completion of the reportable subject, the apprentice is able to describe methods and procedures required for scaffold erection and dismantlement according to industry standards of practice.

Learning Outcomes

Upon successful completion, the apprentice is able to:

15.0.1 Describe scaffold system access and egress installation measures according to company and occupational health and safety standards.

15.0.2 Describe the methods and procedures required for the installation of scaffold tie ins and components according to drawings and manufacturer, engineering and safety standards.

15.0.3 Describe methods and procedures required for scaffold equipment and component maintenance according to manufacturer and occupational health and safety standards.

15.0.4 Describe methods and procedures required for the dismantlement and storage of scaffold equipment and component according to manufacturer, company and occupational health and safety standards.

Learning Content

15.0.1 Describe scaffold system access and egress installation measures according to company and occupational health and safety standards.

- list required personal protective equipment;
- list types of access and egress measures, including:
  - ladders
  - stairs
  - platforms
- describe inspection procedures required for the installation of access and egress measures
- demonstrate basic installation of access and egress measures
- illustrate related company policies
- interpret related occupational health and safety legislation

15.0.2 Describe the methods and procedures required for the installation of scaffold tie ins and components according to drawings and manufacturer, engineering and safety standards.

- list required personal protective equipment
- describe installation procedures for scaffold tieins and components
- read required drawings
- demonstrate basic installation of scaffold tieins and components
- describe manufacturer specifications
- interpret related engineering specifications
- interpret related occupational health and safety legislation

15.0.3 Describe methods and procedures required for scaffold equipment and component maintenance according to manufacturer and occupational health and safety standards.

- list required personal protective equipment
- identify hand and power tools, including: wrenches and levels
- outlines the procedures required for conducting a visual inspection of scaffold equipment and components
- describe documentation requirements related to recording missing equipment and/or components
- illustrate the documentation of missing parts and the tagging of defective equipment and/or components
- outline procedures to replace missing equipment and/or components
- illustrate the replacement of defective equipment and/or components
- illustrate reporting on the maintenance status of the scaffolding system to the supervisor
- describe manufacturer specifications
- interpret related occupational health and safety legislation

15.0.4 Describe methods and procedures required for the dismantlement and storage of scaffold equipment and component according to manufacturer, company and occupational health and safety standards.

- list required personal protective equipment
- identify tools for disassembly, including: wrenches
- describe the use of stated tools for disassembly
- describe the selection of a designated storage area for scaffold equipment and components
- describe the removal of scaffold equipment and components in reverse order to assembly
- outline procedures for the placement of scaffold equipment and components in a designated storage area
- demonstrate scaffold system dismantlement and storage procedures
- describe manufacturer disassembly and storage recommendations
- interpret related occupational health and safety legislation

Evaluation Structure

Evaluation will consist of multiple choice test items related to trade theory and an Instructor determined evaluation of application. Upon completion of the Reportable Subject, a final trade theory test will be administered. The recommended percentage distribution is:

Tools and Equipment

- Scaffold Equipment, components, assembly tools and accessories for each type noted including, Standard frame, tube and clamp and stick build;
- Access and egress measures (ladders, platforms and stairs).

Evaluation Structure		
Theory Testing	Application Exercises	Final Assessment
40%	20%	40%

Number:	16.0		
Title:	**Earthwork, Barriers and Controls II**		
Duration:	Total Hours: 33	Theory: 27	Practical: 6
Prerequisites:	9.0		
Corequisites:	None		
Cross Reference to Learning Outcomes/Training Standard: 5709.0 (5709.015709.04) and 5710.0 (5710.025710.03)			

General Learning Outcome

Upon successful completion of the reportable subject, the apprentice is able to describe earthwork, barrier and environmental control practices and procedures according to industry standards of practice.

Learning Outcomes

Upon successful completion, the apprentice is able to:

16.0.1 Interpret blueprints required in the installation of highway barrier system components according to company and occupational health and safety and related regulatory standards.

16.0.2 Describe methods and procedures required for the installation of temporary barriers and related components according to blueprints and specifications and occupational health and safety standards.

16.0.3 Describe methods and procedures required for the installation of temporary and permanent fencing and related components according to layout, blueprints and specifications, and occupational health and safety standards.

16.0.4 Describe methods and procedures required for the dismantlement, storage and shipping of barriers and fencing according to job site, occupational health and safety and environmental standards.

16.0.5 Describe methods and procedures for work site containment according to company, environment, and occupational health and safety standards.

16.0.6 Describe methods and procedures required for spill and solid waste containment according to company, site, environmental, and occupational health and safety standards.

Learning Content

16.0.1 Interpret blueprints required in the installation of highway barrier system components according to company and occupational health and safety and related regulatory standards.

- interpret blueprints
- interpret specifications
- list required personal protective equipment
- identify tools and equipment, including:
  - backhoes
  - loaders
  - rigging equipment
- interpret the coordination of work activities with stated equipment
- describe the process of aligning and drilling post holes
- describe the selection and installation of posts
- recommend rigging procedures
- describe the selection, installation and attachment of panels, rails and cables
- describe the application of a transaction end treatment to a barrier system
- illustrate company policy
- interpret occupational health and safety legislation
- interpret highway barrier construction related legislation

16.0.2 Describe methods and procedures required for the installation of temporary barriers and related components according to blueprints and specifications and occupational health and safety standards

- list required personal protective equipment
- identify tools and equipment, including:
  - backhoes
  - loaders
  - rigging equipment
- interpret the coordination of work activities with equipment operators
- recommend rigging procedures
- describe the installation of temporary barriers, including: jersey barriers, guard rails and transaction end treatments
- describe the installation of panels, rails and cables
- interpret blueprints and job site specifications
- interpret occupational health and safety legislation

16.0.3 Describe methods and procedures required for the installation of temporary and permanent fencing and related components according to layout, blueprints and specifications, and occupational health and safety standards.

- list required personal protective equipment
- identify tools and equipment, including: augers, skid steer loaders, wrenches and hammers
- identify temporary and permanent fencing types, including:
  - chain link
  - barb wire
  - wood panel
  - metal panel
- distinguish between types of fencing systems
- interpret the layout of post holes
- interpret the use of tools and equipment, including: augers, skid steer loaders, wrenches and hammers
- describe procedures to drill post holes
- describe procedures to insert, plumb and align posts
- describe procedures to stretch fencing materials
- describe procedures to install rails, panels and related components
- demonstrate basic fencing installation procedures
- interpret related blueprints and specifications
- interpret related occupational health and safety legislation

16.0.4 Describe methods and procedures required for the dismantlement, storage and shipping of barriers and fencing according to job site, occupational health and safety and environmental standards.

- list required personal protective equipment
- interpret job site specifications
- describe the process of removal of barriers, fencing and components in a prescribed order
- outline the procedures for placement of barriers, fencing and components on a vehicle
- outline the procedures for securing barriers, fencing and components on vehicle prior to transport
- describe the selection of a designated storage area
- describe the transportation of barriers, fencing and components to designated storage area
- describe the placement of barriers, fencing and components in designated storage area
- interpret the restoration of job site area
- interpret related occupational health and safety legislation
- interpret related environmental legislation.

16.0.5 Describe methods and procedures for work site containment according to company, environment, and occupational health and safety standards.

- list required personal protective equipment
- identify hand tools, including: shovels, sledgehammers and post pounders
- identify work site containment materials, including: straw
- burlap posts gabions riprap fencing
- describe the installation of work site containment materials and measures
- demonstrate basic work site containment measures
- interpret related environmental legislation
- illustrate related company policies
- interpret environmental plan
- interpret occupational health and safety legislation

16.0.6 Describe methods and procedures required for spill and solid waste containment according to company, site, environmental, and occupational health and safety standards.

- list required personal protective equipment
- interpret a waste containment plan
- identify containment absorbent materials, including:
  - straw
  - baffles
  - sand
  - sawdust
- identify tool and equipment, including:
  - pumps
  - hand tools
  - vacuums
- interpret containment absorbent material requirements
- describe the selection of stated containment absorbent materials
- interpret the coordination of work activities in the presence of machinery
- outline procedures for the containment of spills and solid wastes
- describe the disposal of spill and solid waste in relation the waste containment plan
- demonstrate spill and solid waste disposal procedures
- illustrate related company policies
- interpret related environmental legislation
- interpret related occupational health and safety legislation

Evaluation Structure

Evaluation will consist of multiple choice test items related to trade theory and an Instructor determined evaluation of application. Upon completion of the Reportable Subject, a final trade theory test will be administered. The recommended percentage distribution is:

Tools and Equipment

- Fencing and Barrier materials including: chain link, barb wire, wood and metal panel, jersey barriers, cables, guard rails, and transaction end treatments;
- Waste Containment Tools including pumps and vacuums and Spill kits.

Evaluation Structure		
Theory Testing	Application Exercises	Final Assessment
40%	20%	40%

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Construction Craft Worker