



COURSE OUTLINE: ARB607 - HEALTH & SAFETY

Prepared: Jeff Gales

Approved: Sherri Smith, Chair, Natural Environment, Business, Design and Culinary

Course Code: Title	ARB607: WORKPLACE HEALTH AND SAFETY
Program Number: Name	6560: UTILITY ARBORIST I
Department:	UTILITY ARBORIST - APPR.
Academic Year:	2022-2023
Course Description:	<p>Upon successful completion of this reportable subject, the apprentice is able to explain legislation related to safe workplace practices for the trades of arboriculture and utility arboriculture such as the managing of dangerous on-site conditions, emergency protocols and the handling, storage and disposal of hazardous material explain risks associated with working in an energized environment.</p> <p>In all aspects of the program, the principles covered in this learning outcome are reinforced and evaluated to ensure apprentices are continually adhering to industry regulations.</p>
Total Credits:	3
Hours/Week:	32
Total Hours:	36
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
Vocational Learning Outcomes (VLO's) addressed in this course:	<p>6560 - UTILITY ARBORIST I</p> <p>VLO 1 Utility Arborist - L1</p>
<small>Please refer to program web page for a complete listing of program outcomes where applicable.</small>	
Essential Employability Skills (EES) addressed in this course:	<p>EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.</p> <p>EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication.</p> <p>EES 4 Apply a systematic approach to solve problems.</p> <p>EES 5 Use a variety of thinking skills to anticipate and solve problems.</p> <p>EES 7 Analyze, evaluate, and apply relevant information from a variety of sources.</p> <p>EES 8 Show respect for the diverse opinions, values, belief systems, and contributions of others.</p> <p>EES 9 Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals.</p> <p>EES 10 Manage the use of time and other resources to complete projects.</p> <p>EES 11 Take responsibility for ones own actions, decisions, and consequences.</p>

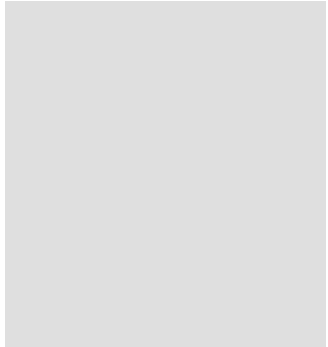


Course Evaluation:	<p>Passing Grade: 50%, D</p> <p>A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.</p>	
Other Course Evaluation & Assessment Requirements:	<p>Instruction is presented using a variety of teaching methodologies, lectures, presentations, demonstration and assignments.</p>	
Books and Required Resources:	<p>Pocket Ontario OH&S Act & Regulations 2021 Publisher: Thomson Reuters Softbound Book</p> <p>Electrical Utility Safety Rule Book</p>	
Course Outcomes and Learning Objectives:	Course Outcome 1	Learning Objectives for Course Outcome 1
	Interpret industry legislation.	<p>1.1 Identify the legislative requirements (federal, provincial and municipal) governing all aspects of the Arboricultural industry such as: The Occupational Health and Safety Act (OHSA) for Construction and Industrial legislation, WHMIS, First Aid Requirements, Dangerous Goods Transportation Act, Criminal Liability of Organizations and Forest Fire Prevention Act.</p> <p>1.2 Describe sections of Ontario Traffic Manual (OTM) Book 7 Traffic Control related to controlling various work zones.</p> <p>1.3 Describe sections of the Electrical Utility Safety Rules related to authorization of work, authorized worker, competent worker, controlling authority and proximity to energized apparatus/lines.</p> <p>1.4 Describe sections of the Highway Traffic Act, relating to circle checks maintenance and trip logs, dimension and weight limits.</p> <p>1.5 Describe sections of the Ontario Regional Common Ground Alliance best practices relevant to location, marking, excavation and compliance.</p> <p>1.6 Describe the prohibition to exterminations in the Pesticides Act-Ontario.</p> <p>1.7 Identify Migratory Birds Convention Act, 1994.</p> <p>1.8 Identify Endangered Species Act, 2007.</p> <p>1.9 Identify Fish and Wildlife Conservation Act, 1997.</p> <p>1.10 Identify the legal requirements for working with drones - Canadian Aviation Regulations (CARs) and Standards 900.01 - Part IX - Remotely Piloted Aircraft Systems.</p>
	Course Outcome 2	Learning Objectives for Course Outcome 2

	Interpret bylaws from municipalities related to tree preservation, tree removal, wood lots/ forestry tracts, Municipal property standards, hazards/nuisance trees and the Right-of-Way(s) on public/private lands.	2.1 Identify municipal by-laws related to Off Road Vehicle Act.
	Course Outcome 3	Learning Objectives for Course Outcome 3
	Explain the electrical theory, electrical generation and the transmission process.	3.1 Describe electrical theory - Ohm`s Law. 3.2 State the relationships between, resistance, voltage and current. 3.3 Describe parallel and series circuits 3.4 Describe the following processes: <ul style="list-style-type: none"> • Generation of electricity • Generation voltage to transmission voltage • Transmission voltage to distribution voltage 3.5 Define: <ul style="list-style-type: none"> • Second point of contact • Backfeed • Touch potential - ground gradients • Step potential - ground gradients
	Course Outcome 4	Learning Objectives for Course Outcome 4
	Describe the electrical system from generation to distribution through the transformation of voltage.	4.1 Identify transmission voltage and distribution voltage systems. 4.2 Identify protective devices within the electrical system. 4.3 Identify electrical System Configuration, Loop feeds, Radial feeds.
	Course Outcome 5	Learning Objectives for Course Outcome 5
	Describe the rules and procedures for identifying, eliminating and controlling electrical hazards based on the following:	5.1 <ul style="list-style-type: none"> • The Electrical Utility Safety Rule Book • Utility Work Protection Code • Application of appropriate safe limits of approach • Application of appropriate job planning • Proximity to other workers/equipment • Application of protocol for establishing clear communication between work groups and the controlling authority.
	Course Outcome 6	Learning Objectives for Course Outcome 6
	Differentiate overhead and underground utilities such as hydro, cable, television, natural gas and water lines and the need to request	6.1 Identify electrical equipment such as: <ul style="list-style-type: none"> • Switches • Transformers • Service wire identification - triplex, open bus • Underground hardware identification - pad mounted

	locates from One Call/local utilities.	transformers, pole markers, guy wires, buried gas or cable conductors <ul style="list-style-type: none"> • Pole anchors
	Course Outcome 7	Learning Objectives for Course Outcome 7
	Identify the hazards of working in an energized environment including:	7.1 <ul style="list-style-type: none"> • Second point of contact • Backfeed • Touch potential - ground gradients • Step potential - ground gradients • Flashover • Induction (electrostatic and electromagnetic)
	Course Outcome 8	Learning Objectives for Course Outcome 8
	Describe the effect of electricity on the body.	8.1 Identify minimum current for injury to the body 8.2 Identify effects (physiological and psychological problems) and severity to the human body from electrical contact.
	Course Outcome 9	Learning Objectives for Course Outcome 9
	Describe the types and applications of utility protective barriers (nonphysical and physical) such as:	9.1 Non-Physical: Electrical Safety Rule Book Limits of Approach Application of proximity to electrical conductors for unauthorized workers and equipment Application of limits of approach to energized electrical apparatus Utility Work Protection Code Job Planning Documentation 9.2 Physical Electrically tested insulated Tools Fences PPE/ Rubber Gloves Flame retardant clothing Electrically tested rubber cover-up
	Course Outcome 10	Learning Objectives for Course Outcome 10
	Identify environmental, tree, ground and poisonous plant hazards.	
	Course Outcome 11	Learning Objectives for Course Outcome 11
	Describe potential sources, types and characteristics of fires.	11.1 Sources of ignition such as: Open flame Spontaneous combustion Electricity Sources of high temperature, e.g.: hot muffler Combustible materials Static electricity Flashover Types/characteristics of fire hazards

	<p>Explosion Ignition of combustibles and flammables Dust Vapour Static electricity Gaseous Liquid Solid Size of fire</p>
Course Outcome 12	Learning Objectives for Course Outcome 12
Describe methods for prevention and suppression of fires based on type and characteristics.	<p>12.1 Identify suppression methods based on type and characteristics of the fire and availability of equipment.</p> <p>12.2 Identify the types of fire suppression equipment used based on type and characteristics of fire, such as backpack pumps, dry, chemical based extinguishers and water pumps.</p>
Course Outcome 13	Learning Objectives for Course Outcome 13
Explain the methods for safe handling, storage and disposal of hazardous materials in the work place.	<p>13.1 Identify hazardous materials such as:</p> <ul style="list-style-type: none"> • Lubricants • Solvents • Liquid and pressurized fuels • Pressurized materials • Wood debris • Corrosives • Pesticides • De-hydrants (isopropanol, isopropyl-alcohol) <p>13.2 Describe the considerations for handling and storing hazardous materials according to manufacturers' recommendations and legislative requirements.</p> <p>Considerations to include:</p> <ul style="list-style-type: none"> • WHMIS • Personal/worker safety • Personal protective equipment (PPE) • Securing for transport/site clean up • Loading and unloading of materials • Storage procedures • Emergency reporting <p>13.3 Describe the procedures for handling, labelling, dispensing and transporting of and disposal of hazards materials according to jurisdictional requirements.</p> <p>13.4 Describe spill preparedness and response.</p>
Course Outcome 14	Learning Objectives for Course Outcome 14
Describe the requirements for the use of pedestrian and vehicular traffic control devices.	<p>14.1 Identify hazards to control such as:</p> <ul style="list-style-type: none"> • Collision hazards • Operating machinery • Obstacles to pedestrian and vehicular traffic



- Struck by from falling material
- 14.2 Identify site securing methods such as the use:
- Traffic cones
 - Hazard tape
 - Traffic Control Person
 - Signage
 - Temporary barricades
 - Temporary traffic signals
 - Safe distances to maintain
 - Deployment methodology
 - Crash truck
 - Dedicated spotter

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Assignment	25%
Attendance / Participation	25%
Quizzes	25%
Scenario Based Test	25%

Date:

June 30, 2022

Addendum:

Please refer to the course outline addendum on the Learning Management System for further information.

