



8765

APPLIED LANDSCAPE
MAINTENANCE AND
CONSTRUCTION (12B)

40S/40E/40M

A Horticulture Course

8765: APPLIED LANDSCAPE MAINTENANCE AND CONSTRUCTION (12B) 40S/40E/40M

Course Description

This course is intended for students in the transition phase of the horticulture program. The curriculum focuses on increasing students' knowledge and skills in landscape maintenance and construction. Students participate in the design, construction, and maintenance of landscape structures and sites.

Goal 1: Describe and apply appropriate **safety** and **health** practices as they relate to horticulture.

GLO 1.1: Create and maintain a **safe work** environment in horticulture.

- SLO 12B.1.1.1: Describe workplace safety and health procedures (e.g., S.A.F.E., right to refuse). (A3.1)
- SLO 11B.1.1.2: Identify and report hazards (e.g., electrical safety, ergonomics, material handling, chemicals) related to processes, materials, tools, and equipment used in horticulture and landscaping. (A3.7) (D1.2)
- SLO 11B.1.1.3: Outline the safety principles for working on and around electrical equipment. (A3.8) (TSA 18)
- SLO 11B.1.1.4: Follow the directions of the teacher/supervisor in regard to safe work practices.
- SLO 11B.1.1.5: Follow safe practices and procedures for facilities, processes, materials, tools, and equipment used in horticulture and landscaping (e.g., keep work area clean and organized). (A3.3)
- SLO 11B.1.1.6: Describe and use appropriate personal protective equipment (PPE) (e.g., gloves, safety glasses or goggles, hearing protection, respirator mask) and identify PPE and procedures related to PPE. (A3.2) (TSA 16)
- SLO 11B.1.1.7: Locate the first aid and eyewash stations.
- SLO 11B.1.1.8: Identify the process for reporting injuries.
- SLO 11B.1.1.9: Identify ergonomically correct procedures to avoid injury (e.g., stress, strain, lifting).
- SLO 11B.1.1.10: Identify and outline workplace fire safety principles. (A3.10) (TSA 19)
- SLO 11B.1.1.11: Identify emergency evacuation and response procedures.
- SLO 11B.1.1.12: Identify potential hazards with regard to personal apparel and grooming.

- SLO 11B.1.1.13: Demonstrate awareness of the principles of the Workplace Hazardous Materials Information Systems (WHMIS) as they apply to the horticulture industry and identify safety requirements as they apply to WHMIS. (A3.11) (TSA 13)
- SLO 11B.1.1.14: Describe the purpose of Material Safety Data Sheets (MSDS).
- SLO 11B.1.1.15: Demonstrate knowledge of the need and purpose of safe handling and application of chemical controls according to the label. (A3.4, A3.14)
- SLO 11B.1.1.16: Identify the hazards associated with working in a confined space and the preparation required to work safely in a confined space. (A3.9) (TSA 20)
- SLO 11B.1.1.17: Identify the hazards and precautions related to working with and around horticulture and landscaping equipment, including ladders and scaffolding. (A3.8)
- SLO 11B.1.1.18: Identify the need for a safety checklist in the landscaping and horticulture industries (e.g., chainsaw, power lawnmower, garden tractor).
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GLO 1.2: Demonstrate knowledge of the **Trade Safety Awareness Manual** (<www.gov.mb.ca/tce/apprent/apprentice/trade_safety/>).

No applicable SLOs.

Goal 2: Demonstrate the safe and appropriate **maintenance, management, and operation of equipment, tools, consumables, and materials.** (GHCP B3)

GLO 2.1: Demonstrate the safe and appropriate **maintenance and management of equipment, tools, consumables, and materials.**

- SLO 12B.2.1.1: Demonstrate the safe and appropriate maintenance and management of equipment, tools, consumables, and materials used in landscape maintenance and construction.
- SLO 12B.2.1.2: Demonstrate an awareness of safe handling and applications of chemical controls according to the label.
- SLO 12B.2.1.3: Develop a safety checklist related to landscaping and horticulture (e.g., chainsaw, power lawnmower, garden tractor).
- SLO 12B.2.1.4: Perform routine maintenance for common hand tools and power equipment.

- SLO 12B.2.1.5: Describe the safe storage of stock equipment in service vehicles. (A3.13)
 - SLO 12B.2.1.6: Describe the procedures used to inspect, maintain, sharpen, clean, and store hand and power tools. (A4.4, A4.6)
 - SLO 12B.2.1.7: Describe the procedures used to inspect, clean, maintain, and store measuring tools and equipment. (A4.8)
 - SLO 12B.2.1.8: Use and maintain hand, power, and measuring tools applicable to the workplace. (A4.9)
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GLO 2.2: Demonstrate the safe operation of horticultural tools and equipment.

- SLO 12B.2.2.1: Demonstrate the safe operation of tools and equipment used in landscape maintenance and construction.
- SLO 12B.2.2.2: Demonstrate the ability to select and use measuring and hand tools, and power equipment correctly for a task. (A4.3, A4.5, A4.7)
- SLO 12B.2.2.3: Identify hazards and describe safe work practices pertaining to vehicles/trailers, equipment, and machinery. (A5.1)
- SLO 12B.2.2.4: Describe the implications of vehicle, equipment, and machinery selection and use on the practice of environmental stewardship. (A5.2)
- SLO 12B.2.2.5: Interpret codes and regulations pertaining to vehicles/trailers, equipment, and machinery. (A5.3)
- SLO 12B.2.2.6: Identify types of engines and describe their characteristics, applications, and operation. (A5.4)
- SLO 12B.2.2.7: Identify basic vehicle systems and components, and describe their characteristics and operation. (A5.5)
- SLO 12B.2.2.6: Describe the daily/seasonal operating procedures used to inspect, clean, and maintain engines. (A5.6)
- SLO 12B.2.2.9: Identify types of equipment and machinery, and describe their characteristics, applications, and operation. (A5.7)
- SLO 12B.2.2.10: Describe the daily/seasonal operating procedures used to inspect, maintain, clean, and store equipment. (A5.8)
- SLO 12B.2.2.11: Describe the procedures used to load/unload, secure, and transport tools, equipment, and machinery. (A5.9)
- SLO 12B.2.2.12: Describe the daily/seasonal operating procedures used to inspect, maintain, clean, and store vehicles/trailers. (A5.10)
- SLO 12B.2.2.13: Describe the operating procedures used when hauling a trailer. (A5.11)

SLO 12B.2.2.14: Demonstrate the ability to operate, clean, and maintain vehicles and trailers. (A5.12)

SLO 12B.2.2.15: Demonstrate the ability to operate, clean, and maintain equipment and machinery. (A5.13)

Goal 3: Demonstrate an understanding of the fundamentals of horticulture.

GLO 3.1: Demonstrate a basic understanding of plant anatomy, morphology, and physiology.

No applicable SLOs.

GLO 3.2: Identify and select plants.

SLO 12B.3.2.1: Demonstrate the ability to choose an appropriate selection of plants to be established in a landscaped environment under given conditions. (A6.7, A6.8)

SLO 12B.3.2.2: Describe how each species is used in landscape maintenance and construction. (GHCP A4)

GLO 3.3: Demonstrate an understanding of plant care. (GHCP B2)

SLO 12B.3.3.1: Perform the maintenance of new and established plants in a landscaped environment.

SLO 12B.3.3.2: Describe the procedures and equipment used for the application of fertilizers. (D1.7)

SLO 12B.3.3.3: Calibrate application equipment. (D1.9)

Goal 4: Demonstrate an understanding of soils and growing media.

GLO 4.1: Demonstrate an understanding of soils and growing media.

SLO 12B.4.1.1: Perform field soil assessments.

SLO 12B.4.1.2: Select plants based on the results of soil assessments.

SLO 12B.4.1.3: Determine and apply cultural practices based on soil assessments.

GLO 4.2: Demonstrate knowledge of the **effects of soils and growing media on plants.** (GHCP A7)

- SLO 12B.4.2.1: Describe the procedures for taking soil samples. (A9.5, A9.6)
- SLO 112B.4.2.2: Describe types of soil amendments, their characteristics, and their applications. (A9.7)
- SLO 112B.4.2.3: Describe the considerations when selecting soil amendments for plants. (A9.8)
- SLO 112B.4.2.4: Describe the procedures to select and incorporate soil amendments for plants. (A9.9)
- SLO 112B.4.2.5: Describe the procedures used to store, transport, and dispose of soil, and soil amendment products and packaging. (A9.10)
- SLO 112B.4.2.6: Select and incorporate soil amendments. (A9.11)
- SLO 112B.4.2.7: Conduct a soil sample and interpret results. (A9.12)

Goal 5: Understand **pest management.**

GLO 5.1: Understand the principles of **integrated pest management.**

No applicable SLOs.

Goal 6: Demonstrate an understanding of the principles of **plant installation and propagation.**

GLO 6.1: Demonstrate an understanding of the principles of **plant installation and propagation.**

SLO 12B.6.1.1: Install plant material. (GHCP B1)

Goal 7: Demonstrate an understanding of the principles of **crop production and management.**

GLO 7.1: Demonstrate an understanding of **crop production.**

No applicable SLOs.

GLO 7.2: Demonstrate an understanding of **crop management.**

No applicable SLOs.

Goal 8: Demonstrate an understanding of the **construction techniques** relevant to the horticulture industry.

GLO 8.1: Identify and demonstrate different **construction techniques**.

- SLO 12B.8.1.1: Extract information from landscape plans and documentation, and layout a construction project with assistance. (C1.4)
- SLO 12B.8.1.2: Assist in the layout of a modest construction project from drawings and other related documents. (GHCP C2)
- SLO 12B.8.1.3: Demonstrate knowledge of pre-construction procedures. (GHCP C3)
- SLO 12B.8.1.4: Construct basic hardscape elements. (GHCP C3)
- SLO 12B.8.1.5: Construct basic site grading and preparation. (GHCP C3)
- SLO 12B.8.1.6: Install basic irrigation and drainage. (GHCP C3)
- SLO 12B.8.1.7: Construct/install basic softscape elements. (GHCP C3)
- SLO 12B.8.1.8: Demonstrate knowledge of infrastructure maintenance. (GHCP B4)

Goal 9: Understand **career opportunities** in horticulture and related environmental fields. (GHCP D1)

GLO 9.1: Describe **education and career opportunities, and professional organizations** in horticulture and related environmental fields.

- SLO 12B.9.1.1: Describe education and career opportunities, and professional organizations in landscape management and construction.

Goal 10: Describe and demonstrate the transferable, **cross-curricular** knowledge and skills as they pertain to horticulture.

GLO 10.1: **Read, interpret, and communicate** information relevant to horticulture.

- SLO 12B.10.1.1: Read, interpret, and communicate information relevant to landscape maintenance and construction.
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GLO 10.2: Apply **mathematics** knowledge and skills relevant to horticulture.

SLO 12B.10.2.1: Estimate materials required for landscape structures.

SLO 12B.10.2.2: Estimate time to complete tasks.

GLO 10.3: Apply **other subject areas** (art, physical education/health education) knowledge and skills relevant to horticulture.

SLO 12B.10.3.1: Incorporate design principles to create a landscape plan.

SLO 12B.10.3.2: Demonstrate knowledge of First Aid and CPR. (A3.10)

Goal 11: Demonstrate an awareness of **sustainability** as it pertains to horticulture.

GLO 11.1: Describe the impact of **sustainability** on the health and well-being of horticulture workers and their clients, as well as the role of horticulture in society.

SLO 12B.11.1.1: Discuss the benefits of landscape structures to human health and well-being.

GLO 11.2: Describe the horticulture industry's **sustainability practices and environmental impacts**.

SLO 12B.11.2.1: Describe sustainability practices and the environmental impacts of landscape structures.

GLO 11.3: Describe **sustainable business practices** within the horticulture industry.

SLO 12B.11.3.1: Discuss sustainable business practices that pertain to the maintenance and construction of landscape structures.

Goal 12: Demonstrate an awareness of the **ethical and legal standards** as they pertain to horticulture.

GLO 12.1: Apply the **ethical and legal standards** as they pertain to horticulture.

SLO 12B.12.1.1: Demonstrate awareness of legal land surveys and building codes.

SLO 12B.12.1.2: Demonstrate awareness of legislation governing the application of potentially hazardous horticultural products.

Goal 13: Demonstrate **employability skills** related to horticulture.
(GHCP D1) (GHCP D4)

GLO 13.1: Demonstrate **fundamental employability skills**.

- SLO 12B.13.1.1: Arrive on time and be prepared for work.
- SLO 12B.13.1.2: Meet deadlines.
- SLO 12B.13.1.3: Use time effectively.
- SLO 12B.13.1.4: Follow written and oral directions.
- SLO 12B.13.1.5: Ask questions for clarification.
- SLO 12B.13.1.6: Initiate work independently.
- SLO 12B.13.1.7: Work effectively without supervision.
- SLO 12B.13.1.8: Complete tasks without supervision.
- SLO 12B.13.1.9: Fulfill commitments to self and others.
- SLO 12B.13.1.10: Perform tasks to a high standard.
- SLO 12B.13.10.11: Cooperate with others.
- SLO 12B.13.10.12: Act respectfully towards oneself and others.
- SLO 12B.13.10.13: Participate in group activities.
- SLO 12B.13.10.14: Dress appropriately for the workplace.
- SLO 12B.13.10.15: Demonstrate appropriate site etiquette. (GHCP D3)
- SLO 12B.13.10.16: Maintain a clean and organized work area. (A3.3)

Goal 14: Demonstrate an understanding of the **evolution and technological progression of, and the emerging trends in** horticulture.

GLO 14.1: Demonstrate an understanding of the **evolution and technological progression of, and the emerging trends in** horticulture.

- SLO 12B.14.1.1: Describe the evolution and technological progression of, and the emerging trends in landscape maintenance and construction.
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