



8766

APPLIED GREENHOUSE
MAINTENANCE AND
PRODUCTION (12C)

40S/40E/40M

A Horticulture Course

8766: APPLIED GREENHOUSE MAINTENANCE AND PRODUCTION (12C) 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 greenhouse maintenance and production. Students participate in the planning and implementation of a greenhouse crop with a focus on productivity.

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 12C.1.1.1: Describe workplace safety and health procedures (e.g., S.A.F.E., right to refuse). (A3.1)
- SLO 11C.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 11C.1.1.3: Outline the safety principles for working on and around electrical equipment. (A3.8) (TSA 18)
- SLO 11C.1.1.4: Follow the directions of the teacher/supervisor in regard to safe work practices.
- SLO 11C.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 11C.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 11C.1.1.7: Locate the first aid and eyewash stations.
- SLO 11C.1.1.8: Identify the process for reporting injuries.
- SLO 11C.1.1.9: Identify ergonomically correct procedures to avoid injury (e.g., stress, strain, lifting).
- SLO 11C.1.1.10: Identify and outline workplace fire safety principles. (A3.10) (TSA 19)
- SLO 11C.1.1.11: Identify emergency evacuation and response procedures.

- SLO 11C.1.1.12: Identify potential hazards with regard to personal apparel and grooming.
- SLO 11C.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 11C.1.1.14: Describe the purpose of Material Safety Data Sheets (MSDS).
- SLO 11C.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 11C.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 11C.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 11C.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 12C.2.1.1: Demonstrate the safe and appropriate maintenance and management of equipment, tools, consumables, and materials used in greenhouse maintenance and construction.
- SLO 12C.2.1.2: Demonstrate an awareness of safe handling and applications of chemical controls according to the label.
- SLO 12C.2.1.3: Develop a safety checklist related to landscaping and horticulture (e.g., chainsaw, power lawnmower, garden tractor).
- SLO 12C.2.1.4: Perform routine maintenance for common hand tools and power equipment.
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GLO 2.2: Demonstrate the safe **operation of horticultural tools and equipment.**

SLO 12C.2.2.1: Demonstrate the safe operation of tools and equipment used in greenhouse maintenance and production.

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 12C.3.2.1: Demonstrate the ability to choose an appropriate selection of plants to be utilized for greenhouse production. (A6.7, A6.8)

SLO 12C.3.2.2: Describe how various species are used in a greenhouse. (GHCP A4)

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

SLO 12C.3.3.1: Perform the maintenance of plants in a greenhouse.

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

SLO 12C.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 12C.4.1.1: Describe the differences between soils and growing media.

SLO 12C.4.1.2: Describe the characteristics of growing media.

SLO 12C.4.1.3: Select growing media based on plant characteristics.

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

SLO 12C.4.2.1: Demonstrate knowledge of the atmospheric conditions in a greenhouse that influence water availability when growing plants.

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 12C.6.1.1: Install plant material. (GHCP B1)

SLO 12C.6.1.2: Demonstrate different methods of plant propagation in a greenhouse.

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

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

SLO 12C.7.1.1: Practise pre-harvest and post-harvest tasks that affect quality.

SLO 12C.7.1.2: Plan a greenhouse crop.

SLO 12C.7.1.3: Grow crops suitable for greenhouse production.

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

SLO 12C.7.2.1: Propose practices to improve plant quality.

SLO 12C.7.2.2: Manipulate cultural practices that affect crop production.

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

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

No applicable SLOs.

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 12C.9.1.1: Describe education and career opportunities, and professional organizations in greenhouse maintenance and production.

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 12C.10.1.1: Read, interpret, and communicate information relevant to greenhouse maintenance and production.

GLO 10.2: Apply **mathematics** knowledge and skills relevant to horticulture.

No applicable SLOs.

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

No applicable SLOs.

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 12C.11.1.1: Discuss the benefits of greenhouses, their ambiance, and their produce to human health and well-being.

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

SLO 12C.11.2.1: Describe sustainability practices and the environmental impacts of greenhouses.

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

SLO 12C.11.3.1: Discuss sustainable business practices that pertain to the maintenance and management of greenhouses.

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 12C.12.1.1: Demonstrate awareness of patented plant material.

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

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

SLO 12C.13.1.1: Arrive on time and be prepared for work.

SLO 12C.13.1.2: Meet deadlines.

SLO 12C.13.1.3: Use time effectively.

SLO 12C.13.1.4: Follow written and oral directions.

SLO 12C.13.1.5: Ask questions for clarification.

SLO 12C.13.1.6: Initiate work independently.

SLO 12C.13.1.7: Work effectively without supervision.

SLO 12C.13.1.8: Complete tasks without supervision.

SLO 12C.13.1.9: Fulfill commitments to self and others.

SLO 12C.13.1.10: Perform tasks to a high standard.

SLO 12C.13.10.11: Cooperate with others.

SLO 12C.13.10.12: Act respectfully towards oneself and others.

SLO 12C.13.10.13: Participate in group activities.

SLO 12C.13.10.14: Dress appropriately for the workplace.

SLO 12C.13.10.15: Demonstrate appropriate site etiquette. (GHCP D3)

SLO 12C.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 12C.14.1.1: Describe the evolution and technological progression of, and the emerging trends in greenhouse maintenance and production.
