



Horticulture Technician Program Standard

The approved program standard for the Horticulture Technician program of instruction leading to an Ontario College Diploma delivered by Ontario Colleges of Applied Arts and Technology (MCU funding code 53905).

Ministry of Colleges and Universities
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Introduction

This document is the Program Standard for the Horticulture Technician program of instruction leading to an Ontario College Diploma delivered by Ontario Colleges of Applied Arts and Technology (MCU funding code 53905).

Development of system-wide program standards

In 1993, the Government of Ontario initiated program standards development with the objectives of bringing a greater degree of consistency to college programming offered across the province, broadening the focus of college programs to ensure graduates have the skills to be flexible and to continue to learn and adapt, and providing public accountability for the quality and relevance of college programs.

The Program Standards Unit of the Ministry of Colleges and Universities has responsibility for the development, review and approval of system-wide standards for programs of instruction at Ontario Colleges of Applied Arts and Technology.

Program standards

Program standards apply to all similar programs of instruction offered by Colleges of Applied Arts and Technology across the province of Ontario. Each program standard for a postsecondary program includes the following elements:

- [Vocational standard](#) (the vocationally specific learning outcomes which apply to the program of instruction in question),
- [Essential employability skills](#) (the essential employability skills learning outcomes which apply to all programs of instruction); and
- [General education requirement](#) (the requirement for general education in postsecondary programs of instruction).

Collectively, these elements outline the essential skills and knowledge that a student must reliably demonstrate in order to graduate from the program.

Individual Colleges of Applied Arts and Technology offering the program of instruction determine the specific program structure, delivery methods and other curriculum matters to be used in assisting students to achieve the outcomes articulated in the standard. Individual colleges also determine whether additional local learning outcomes will be required to reflect specific local needs and/or interests.

The expression of program standards as vocational learning outcomes

Vocational learning outcomes represent culminating demonstrations of learning and achievement. They are not simply a listing of discrete skills, nor broad statements of knowledge and comprehension. In addition, vocational learning outcomes are interrelated and cannot be viewed in isolation from one another. As such, they should be viewed as a comprehensive whole. They describe performances that demonstrate that significant integrated learning by graduates of the program has been achieved and verified.

Expressing standards as vocational learning outcomes ensures consistency in the outcomes for program graduates, while leaving to the discretion of individual colleges, curriculum matters such as the specific program structure and delivery methods.

The presentation of the vocational learning outcomes

The **vocational learning outcome** statements set out the culminating demonstration of learning and achievement that the student must reliably demonstrate before graduation.

The **elements of the performance** for each outcome define and clarify the level and quality of performance necessary to meet the requirements of the vocational learning outcome. However, it is the performance of the vocational learning outcome itself on which students are evaluated. The elements of performance are indicators of the means by which the student may proceed to satisfactory performance of the vocational learning outcome. The elements of performance do not stand alone but rather in reference to the vocational learning outcome of which they form a part.

The development of a program standard

In establishing the standards development initiative, the Government of Ontario determined that all postsecondary programs of instruction should include vocational skills coupled with a broader set of essential skills. This combination is considered critical to ensuring that college graduates have the skills required to be successful both upon graduation from the college program and throughout their working and personal lives.

A program standard is developed through a broad consultation process involving a range of stakeholders with a direct interest in the program area, including employers, professional associations, universities, secondary schools and program graduates working in the field, in addition to students, faculty and administrators at the colleges themselves. It represents a consensus of participating stakeholders on the essential learning that all program graduates should have achieved.

Updating the program standard

The Ministry of Colleges and Universities will undertake regular reviews of the vocational learning outcomes for this program to ensure that the Horticulture Technician Program Standard remains appropriate and relevant to the needs of students and employers across the Province of Ontario. To confirm that this document is the most up-to-date release, please contact the [Ministry of Colleges and Universities](#).

Vocational standard

All graduates of the Horticulture Technician program have achieved the [fourteen vocational learning outcomes \(VLOs\)](#), in addition to achieving the essential employability outcomes and meeting the general education (GE) requirement.

Preamble

Graduates of the two-year Horticulture Technician diploma program will have the ability to prepare and maintain horticulture projects and crops for a variety of clients and audiences. Working with the natural environment, they will gain hands-on experience identifying and caring for plants, and applying horticulture design, installation, and construction practices to living green spaces. Utilizing knowledge of environmental, economic, and social approaches, graduates will learn proactive and restorative horticulture techniques that respect and honour the inter-relations between people, plants, and the land.

Throughout the program, graduates will gain skills to support their ongoing personal and professional development, and the required knowledge to meet the horticultural industry operational and safety needs. Further, they will be able to apply a sound theoretical knowledge of plant and soil sciences to the **propagation** and production of plant materials in **greenhouse, nursery**, landscape, and field settings. This approach to education which balances formal theory with laboratory and industry experience will support learners to become competent professionals who have the practical training and current technical knowledge consistent with the highest level of industry demand.

Graduates may expect to follow their chosen profession in a thriving industry. With such factors as the rapid growth in the recognition of the importance of living green infrastructure and the value of gardening, rethinking urban green spaces and local food production, and the increased concern for the beautification and protection of the environment, employment opportunities exist in the many related horticulture professions. While many graduates may choose to specialize in one aspect of the industry, their versatility upon graduation will make them attractive to a variety of employers, especially in small-medium size operations where a multi-skilled worker is vital. They may find employment in a variety of roles in landscaping firms, nurseries, greenhouses, parks, garden centers, golf courses, cemeteries, and doing sales, research, or retailing. The field also lends itself to many self-employment opportunities.

There are opportunities for graduates to pursue further educational qualifications. For example, through articulation agreements between the colleges and universities, graduates may be granted credit towards a degree. Students should contact individual colleges for further details of a college's pathway transfer option or articulation agreement for continued learning opportunities.

[See Glossary](#)

Note: The [Ontario Council on Articulation and Transfer](#) (ONCAT) maintains the provincial postsecondary credit transfer portal, [ONTransfer](#).

Synopsis of the vocational learning outcomes Horticulture Technician (Ontario College Diploma)

The graduate has reliably demonstrated the ability to:

1. Prepare soil according to the type of plants, how they interact in a variety of environments, and the maintenance required to ensure the viability of crops.
2. Perform maintenance of plant species utilizing economic, social, and environmental horticulture practices.
3. Participate in the design, preparation, planting, and maintenance of horticultural displays that meet the project needs.
4. Perform installations and constructions according to the horticultural setting and goal.
5. Implement proactive and restorative maintenance procedures for plants, property, landscapes, and equipment.
6. Identify plants and plant care requirements for a variety of settings and purposes.
7. Recognize the potential environmental impacts of projects to prevent environmental damage, promote and maintain healthy interconnected ecosystems.
8. Prepare an **Integrated Pest Management** plan to prevent, monitor and control insect infestation or disease found on the plants.
9. Contribute to the effective planning, implementation, and conclusion of horticultural projects and crop production.
10. Adhere to Occupational Health and Safety Act and the regulations that apply to this work.
11. Manage inventory to ensure products and services are available to meet operational needs.
12. Act in a professional manner, maintain professional relationships, and communicate effectively with clients, co-workers, supervisors, and others.
13. Develop strategies for ongoing personal and professional development to enhance work performance and career opportunities, and to keep pace with industry changes.
14. Act with respect for and reflect on Indigenous ways of knowing, being, and doing as they relate to horticulture.

[See Glossary](#)

Note: The learning outcomes have been numbered as a point of reference; numbering does not imply prioritization, sequencing, nor weighting of significance.

The vocational learning outcomes

1. The graduate has reliably demonstrated the ability to: prepare soil according to the type of plants, how they interact in a variety of environments, and the maintenance required to ensure the viability of crops.

Elements of the performance

- a. Apply knowledge of plant and soil science to undertake appropriate horticultural practices.
- b. Apply the principles of plant nutrition to grow and maintain healthy plants in a microclimate or climate zone.
- c. Apply knowledge of soils (physical and chemical properties) and methods of soil improvement to improve plant growth.
- d. Apply knowledge of plant pathology and entomology to prevent, diagnose, control, and treat pests and diseases utilizing the principles of **Integrated Pest Management**.
- e. Exercise strong observational skills as a diagnostic and analytical tool.

[See Glossary](#)

2. The graduate has reliably demonstrated the ability to: perform maintenance of plant species utilizing economic, social, and environmental horticulture practices.

Elements of the performance

- a. Apply industry-accepted **propagation** procedures to grow and maintain plants.
- b. Apply knowledge of plant culture and cultivation to contribute to the successful production of plant in **greenhouse, nursery**, and field settings.
- c. Calculate appropriate quantities of product to grow and maintain plant.
- d. Assess plant quality and needs and make cultural adjustments as needed.
- e. Contribute to the planning and development of production schedules.
- f. Apply sound **greenhouse/nursery** management practices to contribute to successful operations.

[See Glossary](#)

3. The graduate has reliably demonstrated the ability to: participate in the design, preparation, planting, and maintenance of horticultural displays that meet the project needs.

Elements of the performance

- a. Measure sites and draw a base plan.
- b. Perform site inventory and analysis.
- c. Measure, record, calculate grades, and identify new grades.
- d. Adhere/comply with all jurisdictional zoning and legislative requirements related to a site and the work.
- e. Apply knowledge of basic design principles such as form, balance, texture, scale, proportion, and context to plant layout and basic horticulture and landscape designs.
- f. Apply knowledge of design principles and computer software for basic design and planning projects.
- g. Perform calculations and quantity estimating.
- h. Interpret, prepare, and establish site grading, and perform plant layout according to planting plans and details.

[See Glossary](#)

4. The graduate has reliably demonstrated the ability to: perform installations and constructions according to the horticultural setting and goal.

Elements of the performance

- a. Adhere to all zoning and other legislative and by-law requirements related to the development of a site.
- b. Assess site conditions related to safety, access, preservation and storage.
- c. Interpret, explain, and implement plans.
- d. Complete trade calculations and estimating.
- e. Identify, select, and install materials for construction projects.
- f. Apply problem-solving skills to manage projects successfully.

[See Glossary](#)

5. The graduate has reliably demonstrated the ability to: implement proactive and restorative maintenance procedures for plants, property, landscapes, and equipment.

Elements of the performance

- a. Employ a variety of appropriate plant maintenance practices to maintain health and form.
- b. Employ a variety of appropriate property maintenance procedures.
- c. Consider interior and exterior environmental conditions when performing maintenance.
- d. procedures for plants and property.
- e. Perform regular maintenance procedures for tools and equipment.
- f. Select, use, and store tools and equipment correctly.
- g. Maintain awareness of the most current tools and equipment.
- h. Contribute to the preparation of routine maintenance schedules.
- i. Perform trade calculations.
- j. Maintain required records and documentation.

[See Glossary](#)

6. The graduate has reliably demonstrated the ability to: identify plants and plant care requirements for a variety of settings and purposes.

Elements of the performance

- a. Use accurate botanical names and accepted common names.
- b. Use knowledge of growth and maintenance requirements in plant selection.
- c. Select plants appropriately using criteria such as aesthetic appeal, hardiness, and site requirements.
- d. Specify plants in accordance with accepted and current industry standards (e.g., Canadian Nursery Landscape Association Standards, Canada Nursery Stock Standards, the Canadian Landscape Standard).
- e. Evaluate plant materials based on health and vigour.

[See Glossary](#)

7. The graduate has reliably demonstrated the ability to: recognize the potential environmental impacts of projects to prevent environmental damage, promote and maintain healthy interconnected ecosystems.

Elements of the performance

- a. Understand, appreciate, and respect the natural environment.
- b. Inform identification of environmental impact and mitigation factors when assessing a site. Employ environmentally responsible practices in the site development process.
- c. Promote, practice, and employ environmental responsibility in all aspects of horticulture and landscape work.
- d. Use the principles and practices of **Integrated Pest Management** to support environmentally responsible pest management.
- e. Understand, apply, and promote the principles of sustainability and waste reduction.

[See Glossary](#)

8. The graduate has reliably demonstrated the ability to: prepare an **Integrated Pest Management** plan to prevent, monitor and control insect infestation or disease found on the plants.

Elements of the performance

- a. Apply knowledge of the biology of plants and the way they are influenced by the surrounding ecosystem.
- b. Identify a wide range of key pests and know their biology.
- c. Demonstrate awareness of the damage inflicted by key pests.
- d. Recognize the economic, environmental, and aesthetic consequences of control measures.
- e. Monitor pests, natural enemies, and plant health regularly.
- f. Implement appropriate pest management options.
- g. Be aware of the legal and licensing requirements to carry out all components of an **Integrated Pest Management** program.

[See Glossary](#)

9. The graduate has reliably demonstrated the ability to: contribute to the effective planning, implementation, and conclusion of horticultural projects and crop production.

Elements of the performance

- a. Identify the individual components of a project.
- b. Organize the components in a logical sequence for implementation.
- c. Assist in developing and adhering to a project schedule.
- d. Read and interpret drawings, specifications, and contract documents.
- e. Assist in developing materials, estimate and equipment list.
- f. Assist in preparing cost estimates and monitoring project costs and progress.
- g. Use calendar and computer software reminder systems to manage tasks and projects.
- h. Assist in monitoring project quality.
- i. Assist in identifying problems at various stages of a project and in suggesting appropriate remedies.
- j. Identify and maintain effective communications with project participants and stakeholder (for example, clients, co-workers, supervisors, special interest groups).

[See Glossary](#)

10. The graduate has reliably demonstrated the ability to: adhere to Occupational Health and Safety Act and the regulations that apply to this work.

Elements of the performance

- a. Contribute to establishing safe work site conditions for self and others (e.g., the public, clients, co-workers).
- b. Recognize workplace hazards and take appropriate action to provide a safe working environment (e.g., observe "call-before-you-dig" procedures, and other risk mitigation strategies).
- c. Comply with workplace safety legislation (e.g., Occupational Health and Safety Act) as required by the work and the site.
- d. Understand and comply with legislated safety procedures (e.g., Workplace Hazardous Materials Information System, Pesticide Act and Regulations) when using hazardous products in the workplace.
- e. Follow safe working practices when using tools, machinery, and related equipment/performing all work.
- f. Know and comply with the pertinent regulations related to safe use of equipment.
- g. Identify and report safety-related defects, damage, or wear on tools and equipment.
- h. Wear all appropriate personal safety equipment in accordance with the pertinent regulations and manufacturers' instructions.

[See Glossary](#)

11. The graduate has reliably demonstrated the ability to: manage inventory to ensure products and services are available to meet operational needs.

Elements of the performance

- a. Be familiar with fundamental business procedures and supply chain management practices (e.g., inventory management, marketing, sales, finance, human resources, etc.)
- b. Promote and sell products and services effectively.
- c. Recognize the delivery and benefits of excellent customer service.
- d. Effectively use computer applications relevant to small business operations (e.g., excel spreadsheets, inventory management and invoicing software, etc.)
- e. Anticipate and coordinate non-procedural based responsibilities such as staffing needs, to achieve operational effectiveness.

[See Glossary](#)

12. The graduate has reliably demonstrated the ability to: act in a professional manner, maintain professional relationships, and communicate effectively with clients, co-workers, supervisors, and others.

Elements of the performance

- a. Accept and carry out job responsibilities with minimal supervision.
- b. Complete work to a high standard of performance.
- c. Assume responsibility and accountability for own performance.
- d. Promote workplace compatibility through cooperative teamwork.
- e. Apply knowledge of horticulture and customer service to respond effectively to client needs, while exercising sound public relations, using language the client may understand.
- f. Recognize the value of reputation and client satisfaction in the horticulture industry.
- g. Communicate effectively using written, verbal, and electronic communication.

[See Glossary](#)

13. The graduate has reliably demonstrated the ability to: develop strategies for ongoing personal and professional development to enhance work performance and career opportunities, and to keep pace with industry changes.

Elements of the performance

- a. Solicit and accept constructive feedback related to one's own performance, strengths, and opportunities for improvement.
- b. Understand the career opportunities within the profession and apply knowledge to develop a feasible career plan.
- c. Identify opportunities for ongoing professional development (e.g., professional associations, continuing education courses, trade shows, etc.)
- d. Identify and continue to pursue opportunities for licensing and professional certification and accreditation.
- e. Stay aware of trends, new techniques, and developments in the industry through reading professional publications, attending seminars, and other activities.
- f. Remain open to learning opportunities in interactions with colleagues and supervisors.
- g. Identify opportunities for niche markets or careers by studying market and industry trends.

[See Glossary](#)

14. The graduate has reliably demonstrated the ability to: act with respect for and reflect on Indigenous ways of knowing, being, and doing as they relate to horticulture.

Elements of the performance

- a. Demonstrate knowledge of people-plant-horticultural relationships, in considering the relationships of people and plants on the land, and how these shape the land and histories of the people.
- b. Look at plant and landscape through the names of places and the narratives that support them.
- c. Respect plants as living beings and as an integral component of a healthy ecosystem (i.e., not simply resources).
- d. Utilize a relational systems-thinking approach, recognizing that treaties exist with nature, as well.
- e. Incorporate Indigenous perspectives on plant use for food, medicine, utility, and spiritual or ceremonial importance.
- f. Identify how western science and Indigenous science connect to support biodiversity and address the need for conservation.

[See Glossary](#)

Glossary

Greenhouse: A structure which allows the ability to regulate climatic conditions, such as temperature and humidity for the purpose of growing plants.

Integrated Pest Management: A management practice that involves preventing, monitoring, identifying, analyzing, decision-making and biological and chemical treating to control unwanted pests such as insects, fungi, bacteria, virus, nematodes, weeds, and vertebrates that can affect horticultural crops.

Nursery: In horticulture, a place where plants are reproduced and then grown until such time as they are sold or placed in permanent quarters.

Propagation: The process of increasing the number of plants by sexual or asexual means.

Essential employability skills

All graduates of the Horticulture Technician program of instruction must have reliably demonstrated the essential employability skills learning outcomes listed below, in addition to achieving the [vocational learning outcomes](#) and meeting the [general education requirement](#).

Context

Essential Employability Skills (EES) are skills that, regardless of a student's program or discipline, are critical for success in the workplace, in day-to-day living and for lifelong learning.

The teaching and attainment of these EES for students in, and graduates from, Ontario's Colleges of Applied Arts and Technology are anchored in a set of three fundamental assumptions:

- these skills are important for every adult to function successfully in society today
- our colleges are well equipped and well positioned to prepare graduates with these skills
- these skills are equally valuable for all graduates, regardless of the level of their credential, whether they pursue a career path, or they pursue further education

Skill categories

To capture these skills, the following six categories define the essential areas where graduates must demonstrate skills and knowledge.

- Communication
- Numeracy
- Critical Thinking & Problem Solving
- Information Management
- Interpersonal
- Personal

Application and implementation

In each of the six skill categories, there are a number of defining skills, or sub skills, identified to further articulate the requisite skills identified in the main skill categories. The following chart illustrates the relationship between the skill categories, the defining skills within the categories and learning outcomes to be achieved by graduates from all postsecondary programs of instruction that lead to an Ontario College credential.

EES may be embedded in General Education or vocational courses or developed through discrete courses. However, these skills are developed, all graduates with Ontario College credentials must be able to reliably demonstrate the essential skills required in each of the six categories.

Skill category: communication

Defining skills

Skill areas to be demonstrated by graduates:

- reading
- writing
- speaking
- listening
- presenting
- visual literacy

Learning outcomes

The graduate has reliably demonstrated the ability to:

1. communicate clearly, concisely and correctly in the written, spoken and visual form that fulfills the purpose and meets the needs of the audience.
2. respond to written, spoken or visual messages in a manner that ensures effective communication.

Skill category: numeracy

Defining skills

Skill areas to be demonstrated by graduates:

- understanding and applying mathematical concepts and reasoning
- analyzing and using numerical data
- conceptualizing

Learning outcomes

The graduate has reliably demonstrated the ability to:

1. execute mathematical operations accurately

Skill category: critical thinking and problem solving

Defining skills

Skill areas to be demonstrated by graduates:

- analyzing
- synthesizing
- evaluating
- decision making
- creative and innovative thinking

Learning outcomes

The graduate has reliably demonstrated the ability to:

1. apply a systematic approach to solve problems.
2. use a variety of thinking skills to anticipate and solve problems.

Skill category: information management

Defining skills

Skill areas to be demonstrated by graduates:

- Gathering and managing information
- Selecting and using appropriate tools and technology for a task or a project
- Computer literacy
- Internet skills

Learning outcomes

The graduate has reliably demonstrated the ability to:

1. locate, select, organize and document information using appropriate technology and information systems.
2. analyze, evaluate and apply relevant information from a variety of sources.

Skill category: interpersonal

Defining skills

Skill areas to be demonstrated by graduates:

- Teamwork
- Relationship management
- Conflict resolution
- Leadership
- Networking

Learning outcomes

The graduate has reliably demonstrated the ability to:

1. show respect for the diverse opinions, values, belief systems and contributions of others.
2. interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals.

Skill category: personal

Defining skills

Skill areas to be demonstrated by graduates:

- Managing self
- Managing change and being flexible and adaptable
- Engaging in reflective practices
- Demonstrating personal responsibility

Learning outcomes

The graduate has reliably demonstrated the ability to:

1. manage the use of time and other resources to complete projects.
2. take responsibility for one's own actions, decisions and their consequences.

General education requirement

All graduates of the Horticulture Technician program must have met the general education requirement described below, in addition to achieving the [vocational](#) and [essential employability skills](#) learning outcomes.

Requirement

The [General Education Requirement](#) for programs of instruction is stipulated in the [Credentials Framework](#) in the Minister's Binding Policy Directive Framework for Programs of Instruction.

In programs of instruction leading to either an Ontario College Diploma or an Ontario College Advanced Diploma, it is required that graduates have been engaged in learning that exposes them to at least one discipline outside their main field of study and increases their awareness of the society and culture in which they live and work. This will typically be accomplished by students taking 3 to 5 courses (or the equivalent) designed discretely and separately from vocational learning opportunities.

This general education learning would normally be delivered using a combination of required and elective processes.

Purpose

The purpose of General Education in the Ontario college system is to contribute to the development of citizens who are conscious of the diversity, complexity and richness of the human experience; who are able to establish meaning through this consciousness; and who, as a result, are able to contribute thoughtfully, creatively and positively to the society in which they live and work.

General Education strengthens students' essential employability skills, such as critical analysis, problem solving and communication, in the context of an exploration of topics with broad-based personal and/or societal importance.

Themes

The themes listed below will be used to provide direction to Ontario Colleges in the development and identification of courses that are designed to fulfil the General Education Requirement for programs of instructions.

Each theme provides a statement of Rationale and offers suggestions related to more specific topic areas that could be explored within each area. These suggestions are neither prescriptive nor exhaustive. They are included to provide guidance regarding the nature and scope of content that would be judged as meeting the intent and overall

goals of General Education.

Arts in society:

Rationale:

The capacity of a person to recognize and evaluate artistic and creative achievements is useful in many aspects of his/her life. Since artistic expression is a fundamentally human activity, which both reflects and anticipates developments in the larger culture, its study will enhance the student's cultural and self-awareness.

Content:

Courses in this area should provide students with an understanding of the importance of visual and creative arts in human affairs, of the artist's and writer's perceptions of the world and the means by which those perceptions are translated into the language of literature and artistic expression. They will also provide an appreciation of the aesthetic values used in examining works of art and possibly, a direct experience in expressing perceptions in an artistic medium.

Civic Life:

Rationale:

In order for individuals to live responsibly and to reach their potential as individuals and as citizens of society, they need to understand the patterns of human relationships that underlie the orderly interactions of a society's various structural units. Informed people will have knowledge of the meaning of civic life in relation to diverse communities at the local, national and global level and an awareness of international issues and the effects of these on Canada, as well as Canada's place in the international community.

Content:

Courses in this area should provide students with an understanding of the meaning of freedoms, rights and participation in community and public life, in addition to a working knowledge of the structure and function of various levels of government (municipal, provincial, national) in a Canadian and/or in an international context. They may also provide an historical understanding of major political issues affecting relations between the various levels of government in Canada and their constituents.

Social and cultural understanding:

Rationale:

Knowledge of the patterns and precedents of the past provide the means for a person to gain an awareness of his or her place in contemporary culture and society. In

addition to this awareness, students will acquire a sense of the main currents of their culture and that of other cultures over an extended period of time in order to link personal history to the broader study of culture.

Content:

Courses in this area are those that deal broadly with major social and cultural themes. These courses may also stress the nature and validity of historical evidence and the variety of historical interpretation of events. Courses will provide the students with a view and understanding of the impact of cultural, social, ethnic or linguistic characteristics.

Personal understanding:

Rationale:

Educated people are equipped for life-long understanding and development of themselves as integrated physiological and psychological entities. They are aware of the ideal need to be fully functioning persons: mentally, physically, emotionally, socially, spiritually and vocationally.

Content:

Courses in this area will focus on understanding the individual: his or her evolution; situation; relationship with others; place in the environment and universe; achievements and problems; and his or her meaning and purpose. They will also allow students the opportunity to study institutionalized human social behaviour in a systematic way. Courses fulfilling this requirement may be oriented to the study of the individual within a variety of contexts.

Science and technology:

Rationale:

Matter and energy are universal concepts in science, forming a basis for understanding the interactions that occur in living and non-living systems in our universe. Study in this area provides an understanding of the behaviour of matter that provides a foundation for further scientific study and the creation of broader understanding about natural phenomena.

Similarly, the various applications and developments in the area of technology have an increasing impact on all aspects of human endeavour and have numerous social, economic and philosophical implications. For example, the operation of computers to process data at high speed has invoked an interaction between machines and the

human mind that is unique in human history. This and other technological developments have a powerful impact on how we deal with many of the complex questions in our society.

Content:

Courses in this area should stress scientific inquiry and deal with basic or fundamental questions of science rather than applied ones. They may be formulated from traditional basic courses in such areas of study as biology, chemistry, physics, astronomy, geology or agriculture. As well, courses related to understanding the role and functions of computers (e.g., data management and information processing) and assorted computer-related technologies should be offered in a non-applied manner to provide students with an opportunity to explore the impact of these concepts and practices on their lives.

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