

The Ontario Curriculum Grades 10 and 11

Transfer Courses

Business Studies

Canadian and World Studies

**Classical Studies and
International Languages**

English

French As a Second Language

Mathematics

Native Studies

Science

Technological Education

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Une publication équivalente est disponible en français sous le titre suivant :
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This publication is available on the Ministry of Education's website at
<http://www.edu.gov.on.ca>.

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Introduction

The Ontario Curriculum, Grades 10 and 11: Transfer Courses, 2001 will be implemented in Ontario secondary schools starting in 2001 for students in Grade 10 and in 2002 for students in Grade 11.

This document is designed for use in conjunction with *Ontario Secondary Schools, Grades 9 to 12: Program and Diploma Requirements, 1999 (OSS)*, *The Ontario Curriculum, Grades 9 to 12: Program Planning and Assessment, 2000*, and the curriculum policy documents for the disciplines in which transfer courses are offered.

This document is also available on the ministry's website, at <http://www.edu.gov.on.ca>.

The Place of Transfer Courses in the Curriculum

The Ontario curriculum comprises different types of secondary school courses that provide students not only with the essential knowledge and skills they will need in their postsecondary endeavours, but also with the opportunity to specialize in areas that are related to their particular postsecondary goals. In Grades 9 and 10, three types of courses are offered: academic courses, applied courses, and open courses. In Grades 11 and 12, courses offered to prepare students for their postsecondary destinations include university preparation courses, university/college preparation courses, college preparation courses, workplace preparation courses, and open courses. Transfer courses are made available in Grades 10 and 11 to offer students a means of transferring from one type of course in a particular subject to another if their interests and postsecondary goals change during secondary school.

Prerequisites for Grade 11 and 12 courses are specified in the curriculum policy documents for the various disciplines. A student who has completed a course of one type in a particular subject and grade that does not meet a stated prerequisite for a course in the same subject in the next grade may take a transfer course – that is, a partial-credit course that bridges the gap between the course completed and the course of the type designated as a prerequisite. Transfer courses enable students to achieve the expectations not covered in one course type but required for entry into a course of a different type in the next grade. For example, the prerequisite for the Grade 11 university preparation course in English is the Grade 10 academic course in English. A student who has taken the applied English course in Grade 10 and who decides to enter the university preparation course in Grade 11 may do so by taking a transfer course.

This document outlines transfer courses in business studies, Canadian and world studies, classical studies and international languages, English, French as a second language, mathematics, Native studies, science, and technological education (broad-based technology).

Policy and Procedures for Transfer Courses

Overview

As stated in OSS (section 5.6), schools must provide students who wish to change course types with the opportunity to do so. School boards¹ will offer transfer courses based on the curriculum expectations set out in this document, and will assign the credit values indicated here for each course. School course calendars must inform students and parents/guardians of the availability of transfer courses, and must clearly describe the procedures involved in transferring from one course type to another (OSS, sections 5.3.1 and 5.6). Principals must ensure that an outline of the course of study is on file for every transfer course offered at the school (OSS, section 7.1.1). Transfer courses may not be developed locally; schools may offer only the transfer courses that are outlined in this document.

Where a transfer course is not provided in this document, students are required to complete the designated prerequisite for the course that they wish to take in the next grade. Transfer courses are not provided for every pairing of courses of different types in the same subject and grade that may exist across the curriculum. In some instances, the subject matter or scope of the two courses may differ too much for the gap between the courses to be bridged by a partial-credit transfer course (as, for example, in the case of the Grade 11 workplace and college preparation courses in transportation technology). In other instances, a transfer course may not be required because more than one course will serve as a prerequisite for the course in the next grade that the student wishes to take (for example, a student who has completed the Grade 11 workplace preparation course in history and wishes to enrol in the college preparation course in Grade 12 may do so by successfully completing *any* college, university/college, or university preparation course in Canadian and world studies, English, or social sciences and humanities).

Credits

Transfer courses provide partial credits (0.25 or 0.5 credit), since they require students to demonstrate achievement of new curriculum expectations. Transfer courses are not intended to provide remedial instruction to enable students to achieve the curriculum expectations of courses that they have failed to complete successfully; rather, they are designed to prepare students to meet the expectations of a different type of course in the next grade by achieving the expectations of the prerequisite for that course that were not included in the course of the type completed. The credits earned through the successful completion of a transfer course will count as optional credits towards the secondary school diploma requirements. (See OSS, section 4.3.5.)

1. The term *school board* is used in this document to refer to district school boards and to those school authorities that offer secondary school courses.

Course Codes

The course code for a transfer course is structured as follows: the first three characters identify the subject area, the fourth character identifies the grade, and the fifth character identifies the type of course from which the expectations of the transfer course are derived. The meaning of the fifth character of a transfer course code is indicated in the following chart:

Fifth character of transfer course code	Type of course from which expectations are derived
H	Academic
J	Applied
K	University Preparation
L	University/College Preparation
Q or R	College Preparation
S	Workplace Preparation

Transfer Courses Offered in Grades 10 and 11

The following chart provides a list of the transfer courses in each discipline, their course codes and credit values, the prerequisite for each course, and the course(s) for which the transfer course prepares the student. (The prerequisite for a transfer course is the course of the type that the student must successfully complete to qualify for entry into the transfer course. Policy pertaining to prerequisites is outlined in OSS, section 5.3.3.) The name of each transfer course outlined in this document indicates the subject, the grade, and the course types from which and to which the transfer course provides a bridge (e.g., English Transfer, Grade 10, Applied to Academic).

Name of Transfer Course	Course Code	Credit Value	Prerequisite for Transfer Course	Destination Course(s)
Business Studies				
Accounting Transfer, Grade 11, Workplace Preparation to University/College Preparation	BAF3L	0.5	Introduction to Accounting, Grade 11, Workplace Preparation	Principles of Financial Accounting, Grade 12, University/College Preparation <i>and</i> the Grade 12 international business and organizational studies courses
Entrepreneurial Studies Transfer, Grade 11, Open to College Preparation	BDI3Q	0.5	The Enterprising Person, Grade 11, Open	Entrepreneurial Studies: Venture Planning, Grade 12, College Preparation <i>and</i> the Grade 12 international business and organizational studies courses

Name of Transfer Course	Course Code	Credit Value	Prerequisite for Transfer Course	Destination Course(s)
Canadian and World Studies				
Law Transfer, Grade 11, Workplace Preparation to University/College Preparation	CLU3L	0.5	Understanding Canadian Law, Grade 11, Workplace Preparation	Canadian and International Law, Grade 12, University Preparation <i>and</i> any other Grade 12 course for which a prerequisite is a Grade 11 university/college preparation course in Canadian and world studies
Classical Studies and International Languages				
International Languages Transfer, Level 2, Open to Academic	LBABH-LYXBH*	0.25	International Languages, Level 2, Open	International Languages, Level 3, University Preparation
International Languages Transfer, Level 3, Open to University Preparation	LBACK-LYXCK*	0.5	International Languages, Level 3, Open	International Languages, Level 4, University Preparation
English†				
English Transfer, Grade 10, Applied to Academic	ENG2H	0.5	English, Grade 10, Applied	English, Grade 11, University Preparation
English Transfer, Grade 10, Academic to Applied	ENG2J	0.25	English, Grade 10, Academic	English, Grade 11, College Preparation <i>and</i> English, Grade 11, Workplace Preparation
English Transfer, Grade 11, College Preparation to University Preparation	ENG3K	0.5	English, Grade 11, College Preparation	English, Grade 12, University Preparation <i>and</i> any other Grade 12 course for which a prerequisite is a Grade 11 university preparation course in English
English Transfer, Grade 11, University Preparation to College Preparation	ENG3Q	0.25	English, Grade 11, University Preparation	English, Grade 12, College Preparation <i>and</i> any other Grade 12 course for which a prerequisite is a Grade 11 college preparation course in English
English Transfer, Grade 11, Workplace Preparation to College Preparation	ENG3R	0.5	English, Grade 11, Workplace Preparation	English, Grade 12, College Preparation <i>and</i> any other Grade 12 course for which a prerequisite is a Grade 11 college preparation course in English
English Transfer, Grade 11, College Preparation to Workplace Preparation	ENG3S	0.25	English, Grade 11, College Preparation	English, Grade 12, Workplace Preparation

* For a complete list of course codes for the various international language transfer courses, see the list of common course codes posted on the ministry's website, at www.edu.gov.on.ca.

† Students who have met the Grade 11 English compulsory credit requirement through successful completion of the Native studies course "English: Contemporary Aboriginal Voices" (University, College, or Workplace Preparation) and who wish to take a compulsory English course *of a different type* in Grade 12 must complete the appropriate Grade 11 English transfer course.

Name of Transfer Course	Course Code	Credit Value	Prerequisite for Transfer Course	Destination Course(s)
French As a Second Language				
Core French Transfer, Grade 10, Applied to Academic	FSF2H	0.5	Core French, Grade 10, Applied	Core French, Grade 11, University Preparation
Core French Transfer, Grade 11, Open to University Preparation	FSF3K	0.5	Core French, Grade 11, Open	Core French, Grade 12, University Preparation
Mathematics				
Mathematics Transfer, Grade 10, Applied to Academic	MPM2H	0.5	Foundations of Mathematics, Grade 10, Applied	Functions and Relations, Grade 11, University Preparation <i>and</i> Functions, Grade 11, University/College Preparation
Mathematics Transfer, Grade 10, Academic to Applied	MFM2J	0.25	Principles of Mathematics, Grade 10, Academic	Mathematics of Personal Finance, Grade 11, College Preparation
Mathematics Transfer, Grade 11, University/College Preparation to University Preparation	MCR3K	0.25	Functions, Grade 11, University/College Preparation	Geometry and Discrete Mathematics, Grade 12, University Preparation
Mathematics Transfer, Grade 11, College Preparation to Workplace Preparation	MEL3S	0.25	Mathematics of Personal Finance, Grade 11, College Preparation	Mathematics for Everyday Life, Grade 12, Workplace Preparation
Native Studies††				
Aboriginal Beliefs, Values, and Aspirations in Contemporary Society Transfer, Grade 11, Workplace Preparation to College Preparation	NBV3Q	0.5	Aboriginal Beliefs, Values, and Aspirations, Grade 11, Workplace Preparation	Either of the two Grade 12 university/college preparation courses in Native studies
English: Contemporary Aboriginal Voices Transfer, Grade 11, Workplace Preparation to College Preparation	NBE3Q	0.5	English: Contemporary Aboriginal Voices, Grade 11, Workplace Preparation	Either of the two Grade 12 university/college preparation courses in Native studies
Science				
Science Transfer, Grade 10, Applied to Academic	SNC2H	0.5	Science, Grade 10, Applied	Any Grade 11 university preparation science course <i>and</i> the Grade 12 university preparation earth and space science course
Biology Transfer, Grade 11, College Preparation to University Preparation	SBI3K	0.5	Biology, Grade 11, College Preparation	Biology, Grade 12, University Preparation <i>and</i> the Grade 12 university preparation course in health and physical education

†† See note † on page 6.

Name of Transfer Course	Course Code	Credit Value	Prerequisite for Transfer Course	Destination Course(s)
Science (cont.)				
Chemistry Transfer, College Preparation, Grade 12, to University Preparation, Grade 11 [§]	SCH3K	0.5	Chemistry, Grade 12, College Preparation	Chemistry, Grade 12, University Preparation <i>and</i> the Grade 12 university preparation course in health and physical education
Physics Transfer, College Preparation, Grade 12, to University Preparation, Grade 11 [§]	SPH3K	0.5	Physics, Grade 12, College Preparation	Physics, Grade 12, University Preparation <i>and</i> the Grade 12 university preparation course in health and physical education
Technological Education (Part A: Broad-Based Technology)				
Communications Technology Transfer, Grade 11, Workplace Preparation to University/College Preparation	TGJ3L	0.5	Communications Technology, Grade 11, Workplace Preparation	Communications Technology, Grade 12, University/College Preparation
Communications Technology Transfer, Grade 11, University/College Preparation to Workplace Preparation	TGJ3S	0.5	Communications Technology, Grade 11, University/College Preparation	Communications Technology, Grade 12, Workplace Preparation
Construction Technology Transfer, Grade 11, Workplace Preparation to College Preparation	TCJ3Q	0.5	Construction Technology, Grade 11, Workplace Preparation	Construction Technology, Grade 12, College Preparation
Construction Technology Transfer, Grade 11, College Preparation to Workplace Preparation	TCJ3S	0.5	Construction Technology, Grade 11, College Preparation	Construction Technology, Grade 12, Workplace Preparation
Hospitality and Tourism Transfer, Grade 11, College Preparation to Workplace Preparation	TFH3S	0.5	Hospitality, Grade 11, College Preparation	Hospitality and Tourism, Grade 12, Workplace Preparation
Manufacturing Technology Transfer, Grade 11, Workplace Preparation to College Preparation	TMJ3Q	0.5	Manufacturing Technology, Grade 11, Workplace Preparation	Manufacturing Engineering Technology, Grade 12, College Preparation
Manufacturing Technology Transfer, Grade 11, College Preparation to Workplace Preparation	TMJ3S	0.5	Manufacturing Engineering Technology, Grade 11, College Preparation	Manufacturing Technology, Grade 12, Workplace Preparation
Technological Design Transfer, Grade 11, Workplace Preparation to University/College Preparation	TDJ3L	0.5	Technological Design, Grade 11, Workplace Preparation	Technological Design, Grade 12, University/College Preparation
Technological Design Transfer, Grade 11, University/College Preparation to Workplace Preparation	TDJ3S	0.5	Technological Design, Grade 11, University/College Preparation	Technological Design, Grade 12, Workplace Preparation

§ Because the science curriculum does not include college preparation courses in chemistry or physics in Grade 11, students who have completed a Grade 12 college preparation course in one of these subjects and who wish to transfer to a Grade 12 university preparation course must complete the expectations from the Grade 11 university preparation course in the subject that are required for entry into the Grade 12 university preparation course.

Teaching Approaches

The teaching approaches appropriate to transfer courses in each of the various disciplines are the same as those described in the teaching approaches section of the curriculum policy document for the relevant discipline. The teaching approaches best suited to the type of course for which the transfer course prepares students (e.g., assigning activities that focus on practical applications in an academic-to-applied transfer course) should be emphasized.

Curriculum Expectations

The expectations identified for each transfer course describe the knowledge and skills that students are expected to develop and demonstrate in their class work, on tests, and in various other activities through which their achievement is assessed and evaluated.

Two sets of expectations are listed for each *strand*, or broad curriculum area, of each course. The *overall expectations* describe in general terms the knowledge and skills that students are expected to demonstrate by the end of each course. The *specific expectations* describe the expected knowledge and skills in greater detail. The specific expectations are organized under subheadings that reflect particular aspects of the required knowledge and skills and that may serve as a guide for teachers as they plan learning activities for their students. In most disciplines, the organization of expectations in strands and subgroupings is not meant to imply that the expectations in any one strand or group are achieved independently of the expectations in the other strands or groups.

Many of the expectations are accompanied by examples, given in parentheses. These examples are meant to illustrate the kind of skill, the specific area of learning, the depth of learning, and/or the level of complexity that the expectation entails. They are intended as a guide for teachers rather than as an exhaustive or mandatory list.

Some Considerations for Program Planning

Teachers who are planning transfer courses must take into account considerations in a number of important areas. Essential information that pertains to all disciplines is provided in *The Ontario Curriculum, Grades 9 to 12: Program Planning and Assessment, 2000*. The areas of concern to all teachers that are outlined there include the following:

- types of secondary school courses
- education for exceptional students
- the role of technology in the curriculum
- English as a second language (ESL) and English literacy development (ELD)
- career education
- cooperative education and other workplace experiences
- health and safety

When developing transfer courses in a particular discipline, teachers should also review the discipline-specific information related to the topics listed above in the appropriate secondary curriculum policy document. Strategies and resources that are appropriate for the full-credit course from which the expectations of a transfer course are derived are also appropriate for the transfer course.

Assessment and Evaluation

Assessment and evaluation of student achievement in a transfer course are governed by the same policy and involve the same principles and practices as those described in *The Ontario Curriculum, Grades 9 to 12: Program Planning and Assessment, 2000* and in the relevant discipline-specific secondary curriculum policy document. The achievement chart in the curriculum policy document for the discipline to which a transfer course belongs must be used as the basis for student assessment and evaluation in the transfer course. As in other courses, 70 per cent of the final grade in a transfer course is determined on the basis of course work and 30 per cent is determined on the basis of a final evaluation.

Business Studies

Accounting Transfer, Grade 11, Workplace Preparation (BAF3L) to University/College Preparation

This transfer course will provide students who have successfully completed Introduction to Accounting, Grade 11, Workplace Preparation with an opportunity to achieve the expectations not covered in that course but included in Introduction to Financial Accounting, Grade 11, University/College Preparation. On successful completion of this transfer course, students will be able to proceed to Principles of Financial Accounting, Grade 12, University/College Preparation.

This transfer course introduces students to the fundamental principles of accounting and extends their knowledge of accounting procedures used in different types of businesses. Students will develop an understanding of the ethical issues affecting the accounting profession and of the importance of financial planning and control in the management of a business.

Prerequisite: Introduction to Accounting, Grade 11, Workplace Preparation (BAI3E)

Credit value: 0.5

The Objectives of Accounting

Overall Expectations

By the end of this course, students will:

- describe the discipline of accounting and its importance for business;
- demonstrate an understanding of the regulatory and ethical framework of accounting;
- distinguish between the different types of business structures: sole proprietorship, partnership, and corporation;
- describe professional accounting designations and career opportunities.

Specific Expectations

Introduction to Accounting As a Discipline

By the end of this course, students will:

- demonstrate an understanding of the changing role of accounting;
- demonstrate an understanding of the recording and the decision-making aspects of accounting;
- explain basic concepts, procedures, and Generally Accepted Accounting Principles.

Issues in Accounting

By the end of this course, students will:

- describe the link between ethics in business and ethics in accounting;
- assess the effects of current issues and developments on the accounting profession (e.g., ethical issues, technological developments, economic conditions, the globalization of business transactions).

Business Structures

By the end of this course, students will:

- describe the accounting systems that are appropriate for different types of businesses;
- compare the responsibility of owners, shareholders, and partners in relation to the debt obligations of a business;
- summarize the nature of a partnership and each partner's responsibilities.

Career Opportunities

By the end of this course, students will:

- specify the principal specialization areas for professional accountants;
- describe the business opportunities available to a professional accountant.

Accounting Fundamentals

Overall Expectations

By the end of this course, students will:

- analyse the similarities and differences in the accounting procedures and principles for a merchandising business and a manufacturing business;
- apply the basic procedures and principles of the accounting cycle for a merchandising business.

Specific Expectations

Accounting Procedures and Principles

By the end of this course, students will:

- describe the principal accounting elements particular to a merchandising business (e.g., accounts, journals, special journal entries, and taxes);
- explain the need for special journals and subsidiary ledgers (e.g., sales and purchases journals, accounts receivable and accounts payable ledgers);
- distinguish the principal accounting elements that are particular to a manufacturing business;
- explain each partner's share of equity by preparing a statement of the partner's equity;
- demonstrate how profits or losses are shared between partners (e.g., through fixed ratios, pro-rata, salaries).
- compare the periodic and perpetual inventory systems;
- demonstrate the skills necessary to prepare an income statement with a detailed Cost of Goods Sold section;
- demonstrate the skills necessary to prepare trial balances and financial statements for a merchandising business;
- demonstrate an understanding of year-end procedures (e.g., adjusting and closing entries) and their relation to the financial statements of a merchandising business;
- describe the steps in the accounting cycle for a fiscal period of a merchandising business;
- demonstrate an ability to record a merchandising company's transactions and produce the financial statements using accounting software;

The Accounting Cycle for a Merchandising Business

By the end of this course, students will:

- assess the effects that transactions have on the accounts of a merchandising business;
- demonstrate how to use the debit/credit theory in recording transactions in the journals and ledgers of a merchandising business;
- describe the ways in which technology can affect the accounting function (e.g., the effect on the information itself, the accountant's work, and the security of information systems).

Financial Analysis and Control

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the importance of proper internal control systems to the financial management of a business;
- evaluate the financial situation of a business by analysing performance measures and financial statements.

Specific Expectations

Financial Control Systems and Procedures

By the end of this course, students will:

- explain the factors that influence budgetary forecasts;
- describe a budgeted income statement and a budgeted balance sheet;
- describe the role and work of an auditor;
- explain the role and function of the personnel involved in implementing a control system.

Financial Analysis

By the end of this course, students will:

- explain the importance of current assets when interpreting a balance sheet;
- explain the importance of current liabilities when interpreting a balance sheet;
- explain the changes that occur in equity when financial statements are prepared;
- analyse a company's liquidity, solvency, and return on investment by using comparative statements, trend analysis, and common size statements;
- evaluate a company's ability to meet its financial obligations (e.g., by analysing amounts and aging of receivables, liquid assets).

Entrepreneurial Studies Transfer, Grade 11, Open to College Preparation

(BDI3Q)

This transfer course will provide students who have successfully completed The Enterprising Person, Grade 11, Open with an opportunity to achieve the expectations not covered in that course but included in Introduction to Entrepreneurial Studies, Grade 11, College Preparation. On successful completion of this transfer course, students will be able to proceed to Entrepreneurial Studies: Venture Planning, Grade 12, College Preparation.

This transfer course focuses on the components of a venture plan and on the skills associated with successful entrepreneurial activity. Students will learn about organizing and implementing a venture plan and about the financial and human resources required to start a new venture.

Prerequisite: The Enterprising Person, Grade 11, Open (BDP3O)

Credit value: 0.5

Entrepreneurship: Contributions and Opportunities

Overall Expectations

By the end of this course, students will:

- evaluate the role of and contributions made by entrepreneurs;
- explain the importance of invention and innovation to venture creation;
- analyse various methods of generating ideas and opportunities for new ventures;
- generate realistic new ideas and identify possible opportunities for new ventures.

Specific Expectations

Entrepreneurs and the Contributions They Make

By the end of this course, students will:

- distinguish between an entrepreneur and an enterprising person;
- explain the advantages and the disadvantages of being an entrepreneur;
- describe how entrepreneurs can enhance consumer satisfaction (e.g., through problem solving, innovation, invention, competition);
- describe the impact that local entrepreneurs have had on their community.

Invention and Innovation

By the end of this course, students will:

- compare invention and innovation;
- identify significant Canadian inventions and innovations;
- describe the needs and wants that Canadian inventions and innovations have satisfied;
- summarize the impact that specific Canadian inventions and innovations have had on people's lives;
- explain the relationship between innovation and technology;
- describe how entrepreneurs have used innovations and/or inventions to start new ventures.

Sources of Ideas and Opportunities

By the end of this course, students will:

- distinguish between an idea and an opportunity;
- explain how new ventures have been developed in response to consumer needs or wants;
- describe new goods and services that have been developed by improving upon existing goods and services;
- describe how similar needs and wants have been satisfied in different ways;
- identify, from a variety of sources (e.g., books, magazines, personal observation, the Internet), possible ideas for new ventures.

Identifying Opportunities for New Ventures

By the end of this course, students will:

- identify unsatisfied consumer needs and wants by applying a problem-solving model;
- apply creative-thinking strategies (e.g., mind mapping, brainstorming) to determine possible solutions to an identified consumer problem;
- evaluate new-venture opportunities to determine their viability (e.g., financial, technological);
- evaluate new-venture opportunities in terms of the students' personal skills and interests;
- identify a specific opportunity that can become the basis for a venture plan.

Preparing for Venture Planning

Overall Expectations

By the end of this course, students will:

- analyse the resources that could be required to create a new venture;
- demonstrate an understanding of the elements of an effective production plan;
- demonstrate an understanding of the elements of an effective marketing plan;
- demonstrate an understanding of the elements of an effective financial plan.

Specific Expectations

Resource Analysis

By the end of this course, students will:

- determine the possible human resource needs (e.g., professional mentors, employees, partners, suppliers) for different types of ventures;
- specify the land, buildings, capital, and equipment required for various types of ventures;
- demonstrate the importance of inventory management for the entrepreneur;
- identify and describe all the legal, insurance, and government regulatory requirements that must be met in starting a new venture (e.g., permits, government registrations, various types of insurance);
- describe the services and infrastructure (e.g., light, heat, electricity, communication technology) usually required for a new venture.

The Production Plan

By the end of this course, students will:

- summarize the process involved in producing a new product or delivering a new service;
- determine the possible roles of employees in a specific new venture;
- summarize the goods that may be required by a new venture (e.g., raw materials, supplies, equipment);

- analyse the factors involved in acquiring the necessary goods for a new venture (e.g., finding sources of supply, financing start-up and leasing costs);
- determine ways in which a new business might reduce start-up costs and financial risk.

The Marketing Plan

By the end of this course, students will:

- explain how market research, in its various aspects (e.g., research on the need for the product or service, the target market, the competition, pricing, advertising), contributes to the development of an effective marketing plan;
- compare ways in which a specific good or service can be distributed to customers;
- compare ways of advertising and promoting a venture and its goods or services;
- determine methods used to price a new product or service appropriately;
- produce a marketing plan for a new product or service.

The Financial Plan

By the end of this course, students will:

- determine the acceptable levels of profit and income for various types of new ventures;

- demonstrate an understanding of the financial statements required by a new venture (e.g., income statement, balance sheet);
- describe situations that can lead to a cash-flow problem for a new venture;
- distinguish between a cash-flow projection and an income statement;
- explain how to calculate the amount of start-up capital a new venture would require;
- compare the advantages and disadvantages of different kinds of business financing;
- explain how businesses can establish contingency plans if capital needs exceed the initial investment.

The Venture Plan

Overall Expectations

By the end of this course, students will:

- assess the importance of having a venture plan;
- analyse the components of a venture plan;
- develop a venture plan;
- explain how to evaluate and revise a venture plan.

Specific Expectations

Importance of the Plan

By the end of this course, students will:

- describe the purpose of a venture plan;
- demonstrate an understanding of the importance of having a plan that is written, organized according to a formal and accepted structure, and attractively presented;
- determine the people or organizations that might be interested in the venture plan (e.g., venture capitalists, financial institutions, investors).

Components of the Plan

By the end of this course, students will:

- analyse the components of the venture plan (e.g., executive summary, financial plan, marketing plan, resource analysis, operating strategy);
- outline the key steps in preparing a venture plan;
- describe references and sources of information and advice that may facilitate the preparation of a venture plan.

Development of the Plan

By the end of this course, students will:

- compare computer software obtained from banks, government departments, and private companies that can assist entrepreneurs in preparing a venture plan;
- prepare a plan for a new venture.

Evaluation and Revision of the Plan

By the end of this course, students will:

- explain how people in the community may contribute to the evaluation and revision of a venture plan (e.g., entrepreneurs, bankers, friends, family);
- describe why it is important for a venture plan to be flexible and adaptable;
- forecast conditions that may require the revision of the venture plan;
- describe contingency plans that an entrepreneur should have for a new venture.

Canadian and World Studies

Law Transfer, Grade 11, Workplace Preparation to University/College Preparation

(CLU3L)

This transfer course will provide students who have successfully completed Understanding Canadian Law, Grade 11, Workplace Preparation with an opportunity to achieve the expectations not covered in that course but included in Understanding Canadian Law, Grade 11, University/College Preparation. On successful completion of this transfer course, students will be able to proceed to any Grade 12 course for which a prerequisite is a Grade 11 university/college preparation course in Canadian and world studies.

In this transfer course, students will be given opportunities to extend their knowledge of legal matters. Emphasis will be placed on development of skills in analysis and communication and on development of informed opinion on legal issues and the ability to defend those opinions.

Prerequisite: Understanding Canadian Law, Grade 11, Workplace Preparation (CLU3E)

Credit value: 0.5

Heritage

Overall Expectations

By the end of this course, students will:

- explain the categories and types of law;
- identify the historical roots of Canadian law;
- demonstrate an understanding of key aspects of Canadian law-making.

Specific Expectations

Law and Society

By the end of this course, students will:

- distinguish between the various categories of law (e.g., substantive/procedural, common/statute);
- explain the meaning and nature of the various types of law (e.g., criminal, constitutional, administrative, private).

The Historical Roots of Law

By the end of this course, students will:

- assess the contributions of early legal systems to contemporary Canadian law (e.g., the Code of Hammurabi, Mosaic law, Roman law);
- describe key developments in English common law and explain their influence on Canadian law (e.g., the adversarial system, Magna Carta, the importance of precedent, the rule of law, the concept of equity);
- explain how Roman law and codes of law such as Justinian's Code and the Napoleonic Code influenced the development of Quebec civil law.

Law-Making

By the end of this course, students will:

- identify the key components of the Constitution of Canada, including the division of powers between the two levels of government;
- describe the role of government, its agencies, and the courts in making, interpreting, or changing the law.

Rights and Freedoms

Overall Expectations

By the end of this course, students will:

- describe the sources of Canadian rights and freedoms and explain how rights and freedoms may differ and conflict;
- explain how rights and freedoms are interpreted and applied in Canada and in Ontario.

Specific Expectations

Human Rights

By the end of this course, students will:

- identify the influences on the development of human rights in Canada (e.g., Magna Carta, the American Bill of Rights, the French Declaration of the Rights of Man and of the Citizen, the Canadian Bill of Rights, the Universal Declaration of Human Rights);
- explain key concepts associated with human rights;
- analyse situations in which rights and freedoms may conflict (e.g., a situation in which the right to freedom of expression conflicts with legislation banning hate literature);
- describe historical and contemporary situations in which rights in Canada have been denied (e.g., rights of Japanese in the Second World War, Aboriginal rights to land, women's rights, rights of physically or mentally challenged persons).

Human Rights Legislation in Canada and in Ontario

By the end of this course, students will:

- explain how human rights legislation and the courts attempt to balance minority and majority rights;
- explain the role of the judiciary, especially the Supreme Court of Canada, in interpreting the Canadian Charter of Rights and Freedoms and the role of government in enforcing Charter rights;
- explain the protections provided under the Ontario Human Rights Code;
- distinguish between the protections offered under the federal Charter and those provided by the Ontario Human Rights Code;
- describe procedures for hearing complaints about human rights violations (e.g., the role of the Ontario Human Rights Commission, the Board of Inquiry [Human Rights Code], the Office of the Ombudsman).

Criminal Law and Procedures

Overall Expectation

By the end of this course, students will:

- demonstrate an understanding of selected procedures and other aspects of criminal trials.

Specific Expectations

Criminal Trials

By the end of this course, students will:

- describe the role of different individuals involved in a criminal trial (e.g., lawyer, judge, jury, duty counsel, Crown attorney);
- describe avenues of appeal in the criminal law system;
- analyse the role of victims and victim impact statements in sentencing;
- explain the role of the prison system.

Regulation and Dispute Resolution

Overall Expectation

By the end of this course, students will:

- demonstrate an understanding of some specific aspects of public and private law, including family law.

Specific Expectations

Public and Private Law

By the end of this course, students will:

- describe the differences between public law (e.g., constitutional law, criminal law) and private law (e.g., family law, contract law, tort law);
- distinguish between federal and provincial powers in the area of family law.

Methods of Legal Inquiry

Overall Expectations

By the end of this course, students will:

- use research methods appropriately to gather, organize, and synthesize information;
- evaluate the credibility of sources;
- demonstrate an understanding of the dynamic nature of law;
- explain, discuss, and interpret legal issues, orally and in writing, using a variety of formats.

Specific Expectations

Research

By the end of this course, students will:

- formulate meaningful questions that lead to a deeper understanding of a legal issue and of the different ways to approach an issue;
- effectively conduct legal research, using traditional and non-traditional sources of information (e.g., Internet websites, multi-media technology, law libraries, community legal services);
- classify and clarify information, using timelines, organizers, mind maps, concept webs, maps, graphs, charts, and diagrams;
- compile summary notes in a variety of forms and for a variety of purposes, including research and preparation for oral presentations, tests, and examinations.

Evaluation of Sources

By the end of this course, students will:

- distinguish among opinions, facts, and arguments in sources;
- identify the frame of reference and purpose of data;
- evaluate the credibility of sources and information by checking for logical errors, accuracy, and underlying assumptions, including prejudices and biases;
- evaluate the credibility of published and Internet sources by analysing the quantity and quality of evidence presented, as well as the methods used by authors to support their claims (e.g., the use of footnotes).

Understanding the Evolving Nature of Law

By the end of this course, students will:

- explain how changes in attitudes and societal values bring about changes in the law (e.g., censorship, gambling, and drinking and driving laws; laws relating to women and children; laws protecting the environment; laws regulating the workplace);
- speculate on possible future developments in law and the Canadian legal system based on changes in our society (e.g., technological changes, changing attitudes, cultural differences).

Communication

By the end of this course, students will:

- effectively present ideas, opinions, and arguments orally (e.g., in role plays, interviews, simulations, debates, group presentations, seminars);
- use legal terms accurately and appropriately for a variety of purposes and audiences;
- create graphs, charts, organizers, images, and illustrations to support oral and written presentations;
- write clear, coherent, and logically organized reports, papers, and essays, observing the rules for ethical use of research material and following an accepted format for documenting sources.

Classical Studies and International Languages

International Languages Transfer, Level 2, (LBABH – LYXBH) Open to Academic

This transfer course will provide students who have successfully completed International Languages, Level 2, Open with an opportunity to achieve the expectations not covered in that course but included in International Languages, Level 2, Academic. On successful completion of this transfer course, students will be able to proceed to International Languages, Level 3, University Preparation.

In this transfer course, students will continue to develop and apply their oral communication skills in various situations. They will also participate in activities that will broaden their reading comprehension and improve their ability to write creatively and accurately for a variety of purposes. In addition, they will continue to explore aspects of the culture of countries where the language under study is spoken by taking part in community-sponsored events and activities involving both print and technological resources.

It is important to note that some of the expectations given here do not represent new or additional knowledge or skills for students transferring from the open course but, rather, the application of acquired knowledge and skills at a higher level of difficulty. For these expectations, the higher level of difficulty is indicated in the examples.

Prerequisite: International Languages, Level 2, Open (LBABO – LYXBO)

Credit value: 0.25

Oral Communication: Listening

Overall Expectation

By the end of this course, students will:

- demonstrate an understanding of simple spoken language, used in various situations and for different purposes, applying language knowledge appropriate to the level.

Specific Expectations

By the end of this course, students will:

- respond to questions, statements, and commands, using simple vocabulary and language structures appropriate to the level;
- use visual and verbal cues to interpret a variety of oral messages (e.g., speeches, interviews on audiotape, videotape, and CD-ROMs);
- identify historical and traditional features of the culture of countries where the language is spoken (e.g., holidays, cultural events).

Oral Communication: Speaking

Overall Expectation

By the end of this course, students will:

- communicate orally in various situations and for different purposes, using simple language appropriate to the level.

Specific Expectations

By the end of this course, students will:

- use simple vocabulary and language structures appropriate to the level to convey and respond to messages (e.g., relate an incident);
- express opinions and preferences in various situations (e.g., contribute opinions to a survey concerning a television show);
- apply knowledge of the culture of countries where the language is spoken in various activities (e.g., discussions of traditions, presentations on achievements in art or literature).

Reading

Overall Expectation

By the end of this course, students will:

- read age- and language-appropriate passages from various sources for different purposes.

Specific Expectations

By the end of this course, students will:

- read a range of texts for comprehension, consolidation of oral skills, and expansion of vocabulary (e.g., readers, adapted short stories, and articles);*
- use verbal cues such as sentence structure and context to determine the meaning of texts in print and other media (e.g., magazines, newspaper articles, texts on CD-ROMs and the Internet);
- respond to what they read in a variety of ways (e.g., retell stories);
- identify historical and traditional features of the culture of countries where the language is spoken (e.g., festivals, historical sites).

* Students are expected to read an additional 20 pages of text in this transfer course to meet the requirements of the Level 2 academic course (i.e., a total of 50 pages of text).

Writing

Overall Expectation

By the end of this course, students will:

- write for different purposes and audiences, using simple language appropriate to the level.

Specific Expectations

By the end of this course, students will:

- write simple sentences and paragraphs on a specific theme and for a specific purpose, using vocabulary and language structures appropriate to the level (e.g., write a paragraph describing an ideal friend);
- write a variety of questions and answers;
- write in different forms to express ideas and opinions using a model (e.g., prepare a questionnaire);
- use dictionaries and other resources to improve the accuracy of their writing;
- apply knowledge of the culture of countries where the language under study is spoken in various activities, using both print and electronic resources (e.g., communicate with a pen or key pal in another country or in another class studying the same language).

International Languages Transfer, Level 3, (LBACK – LYXCK) Open to University Preparation

This transfer course will provide students who have successfully completed International Languages, Level 3, Open with an opportunity to achieve the expectations not covered in that course but included in International Languages, Level 3, University Preparation. On successful completion of this transfer course, students will be able to proceed to International Languages, Level 4, University Preparation.

In this transfer course, students will use increasingly sophisticated language to further develop their communication skills. They will also participate in a variety of activities that will enable them to speak and write with clarity and accuracy. Students will enhance their thinking skills through the critical study of literature, which will include the analysis of plot, character development, and setting in novels, short stories, and poems. In addition, students will use a variety of print and technological resources to explore aspects of the culture of countries where the language is spoken.

It is important to note that some of the expectations given here do not represent new or additional knowledge or skills for students transferring from the open course but, rather, the application of acquired knowledge and skills at a higher level of difficulty. For these expectations, the higher level of difficulty is indicated in the examples.

Prerequisite: International Languages, Level 3, Open (LBACO – LYXCO)

Credit value: 0.50

Oral Communication: Listening

Overall Expectation

By the end of this course, students will:

- demonstrate an understanding of brief oral messages, communicated in various situations and for a variety of purposes.

Specific Expectations

By the end of this course, students will:

- demonstrate an understanding of vocabulary and language structures appropriate to the level by responding appropriately to the speaker's comments and identifying key information in a presentation;
- demonstrate an understanding of information conveyed orally in presentations and dialogues, as well as in recorded materials (e.g., material on videotape, audiotape, and CD-ROMs);
- demonstrate knowledge of the culture of countries where the language is spoken by identifying information that is relevant to course themes (e.g., identify significant artists from a particular time period).

Oral Communication: Speaking

Overall Expectation

By the end of this course, students will:

- communicate orally in various situations and for a variety of purposes, using language appropriate to the level.

Specific Expectations

By the end of this course, students will:

- use standard pronunciation and intonation with accuracy in discussions;
- participate in discussions of various topics, using vocabulary and language structures appropriate to the level;
- express opinions and ideas in prepared and open-ended discussions of literary works;
- demonstrate an understanding of the culture of countries where the language is spoken in oral presentations that explore aspects of the culture and that draw on a variety of media (e.g., create a video commercial that illustrates cultural attitudes to the product advertised).

Reading

Overall Expectation

By the end of this course, students will:

- read age- and language-appropriate passages from different sources for a variety of purposes.

Specific Expectations

By the end of this course, students will:

- read, for comprehension of main ideas and expansion of vocabulary, selections from a variety of texts, * including a minimum of two genres (e.g., short stories, fables, poems, newspapers);
- analyse plot, character development, and setting in novels, short stories, and poems;
- respond to texts read in a variety of activities (e.g., describe setting, predict further developments);
- demonstrate knowledge of the culture of countries where the language is spoken in detailed, well-researched projects on cultural topics (e.g., prepare a presentation on a famous person of cultural significance).

* Students are expected to read an additional 40 pages of text (20 intensive, 20 extensive) in this transfer course to meet the requirements of the Level 3 university preparation course (i.e., a total of 100 pages of text – 50 intensive, 50 extensive).

Writing

Overall Expectation

By the end of this course, students will:

- write for a variety of purposes and audiences, using vocabulary and language structures appropriate to the level.

Specific Expectations

By the end of this course, students will:

- write sentences and paragraphs on various topics, using vocabulary and language structures appropriate to the level (e.g., a short report comparing their school life with that of peers living in a country where the language is spoken);
- express opinions and ideas in writing, using different forms and/or a model (e.g., write a short composition on a topic or issue, prepare a questionnaire for a survey);
- demonstrate knowledge of the culture by writing well-researched reports on various cultural topics (e.g., a biographical sketch of a famous person of cultural significance).

English

English Transfer, Grade 10, Applied to Academic

(ENG2H)

This transfer course will provide students who have successfully completed English, Grade 10, Applied with an opportunity to achieve the expectations not covered in that course but included in English, Grade 10, Academic. On successful completion of this transfer course, students will be able to proceed to English, Grade 11, University Preparation.

In this transfer course, students will study and interpret opinion pieces and a play from a historical period. They will write essays using a suitable voice and effective stylistic devices, use academic language in written and oral work, and analyse media works.

Prerequisite: English, Grade 10, Applied (ENG2P)

Credit value: 0.5

Literature Studies and Reading

Overall Expectations

By the end of this course, students will:

- read and demonstrate an understanding of literary and informational texts, with a focus on opinion pieces and on drama from a historical period;
- demonstrate an understanding of the elements of form and style in essays, opinion pieces, and plays.

Specific Expectations

Understanding the Meaning of Texts

By the end of this course, students will:

- describe information, ideas, opinions, and themes in texts from historical periods and different cultures, including opinion pieces and a play from a historical period;
- read texts for different purposes, with an emphasis on evaluating print and electronic reference materials as sources of information and comparing personal ideas and values with those in the text (e.g., compare the argument in two opinion pieces about the same topic; create an imaginary newspaper column about a key event or issue in a Shakespearean play);
- select and use a variety of reading strategies before, during, and after reading to understand opinion pieces and drama (e.g., use prior knowledge and personal experiences to interpret and assess ideas and information; list unanswered questions while reading; role-play alternative solutions to conflicts presented in texts);
- use relevant, significant, and explicit information and ideas from texts to support interpretations, opinions, and judgements (e.g., select quotations from a review of a play that best communicate the author's point of view; develop a "profile" of a character in a play and role-play an interview with the character);
- analyse and synthesize information, ideas, and elements in texts (e.g., compare the arguments in two opinion pieces about the same topic; create an imaginary newspaper column about a key event or issue in a play);
- explain how historical or cultural contexts shape the information and ideas in a text (e.g., explain how Elizabethan attitudes are reflected in a Shakespearean play).

Understanding the Elements of Form and Style

By the end of this course, students will:

- use knowledge of elements of drama, such as plot and subplots, characterization, conflict, theme, dramatic structure, dramatic irony, dialogue, and historical context, to understand and interpret a play from a historical period;
- use knowledge of elements of essays and opinion pieces, such as statement of a position or opinion, type of diction, tone, paragraphing, transition words and phrases, selective supporting details, allusions, and appeals to authority, to understand and interpret texts (e.g., relate the tone used to the position taken in an editorial);
- compare the use of diction and syntax in essays and opinion pieces by different authors and explain how these elements affect the message (e.g., compare the use of sentence variety in paragraphs by two different authors);

- explain how authors use stylistic devices, such as allusion, contrast, hyperbole, understatement, oxymoron, and irony, to achieve particular effects in their writing (e.g., explain the effects of the contradictory emotions or qualities expressed in an oxymoron; do research to understand a mythical allusion and explain how the allusion enhances the theme or message in the text).

Writing

Overall Expectations

By the end of this course, students will:

- use a variety of print and media sources to gather information and explore ideas for written work;
- write essays and opinion pieces using a suitable voice for the purpose and audience;
- organize ideas and information in written work with a focus on supporting ideas and opinions and using stylistic devices effectively;
- revise, edit, and proofread to produce final drafts, using correct grammar, spelling, and punctuation according to the conventions of standard Canadian English.

Specific Expectations

Generating Ideas and Gathering Information

By the end of this course, students will:

- locate and evaluate information and ideas for written work from the primary text and from other print and electronic sources (e.g., evaluate information to identify omissions that need to be addressed).

Writing to Suit the Purpose and Audience

By the end of this course, students will:

- write essays and opinion pieces for a variety of purposes, with a focus on interpreting and analysing information, ideas, themes, and issues and on supporting opinions with convincing evidence (e.g., compare and contrast ideas in two opinion pieces on a similar topic; explain how dramatic irony contributes to the theme of a play);
- select a voice and an appropriate level of language to suit the form, purpose, and audience for a piece of writing (e.g., use an objective voice and formal language in a short academic essay; use everyday vocabulary and colloquial phrasing to engage the interest of an audience of peers).

Organizing Ideas and Information in Written Work

By the end of this course, students will:

- structure the introductory paragraphs of short essays using a clear statement of the thesis and an overview of the main points to be covered;
- use comparison-and-contrast and cause-and-effect patterns to structure short essays;
- structure opinion pieces by using a device to engage the reader's interest and stating, developing, and supporting a point of view.

Revising, Editing, Proofreading, and Publishing

By the end of this course, students will:

- revise drafts to achieve coherence and to ensure that ideas are adequately supported by relevant details and facts (e.g., read a supported opinion piece aloud with a partner to check for coherence and correct supporting evidence);

- assess their use of the writing process, and identify goals for writing improvement and growth;
- edit and proofread written work, correcting errors according to the requirements for grammar, usage, spelling, and punctuation, with emphasis on:
 - using parts of speech correctly, particularly infinitives and gerunds;
 - using prepositional, infinitive, participial, and gerund phrases correctly to vary sentence structure;
 - spelling academic and historical terms correctly;
 - using commas, dashes, and parentheses correctly to set off non-restrictive elements in a sentence;
 - using punctuation correctly when quoting short passages from texts.

Language

Overall Expectations

By the end of this course, students will:

- use knowledge of vocabulary and language conventions to speak, write, and read competently and effectively for a variety of purposes and audiences, using a level of language appropriate to the context;
- use listening techniques and oral communication skills to participate in classroom discussions and formal activities.

Specific Expectations

Developing Vocabulary and Knowledge of Language Structures and Conventions

By the end of this course, students will:

- identify examples of the use of idioms, euphemisms, slang, dialect, acronyms, academic language, technical terms, and standard Canadian English in oral and written work, and explain why the usage is effective in its context;
- select words and figurative expressions with understanding and sensitivity to enhance the persuasive or expressive power of their speech and writing;
- recognize, describe, and use correctly, in oral and written language, the language structures of standard Canadian English and its conventions of grammar and usage as specified for English, Grade 10, Academic.

Developing Listening and Speaking Skills

By the end of this course, students will:

- communicate orally for different purposes, with a focus on identifying explicit and implicit ideas and comparing and contrasting key concepts and supporting details;
- communicate in group discussions by assigning tasks fairly and equitably; using verbal and non-verbal cues to signal a change in topic or speaker; contributing ideas, supporting interpretations and viewpoints; extending and questioning the ideas of others; summarizing the progress of the group's work; checking for understanding; and negotiating consensus when appropriate;
- plan and make an oral presentation, using rhetorical questions, gestures, and intonation to engage the audience's interest.

Media Studies

Overall Expectation

By the end of this course, students will:

- analyse media forms to identify their elements, audiences, and production practices and draw conclusions about how these factors shape media works.

Specific Expectations

Analysing Media and Media Works

By the end of this course, students will:

- analyse the elements of media works, in order to identify and describe the intended audience(s) for the works (e.g., analyse advertising in newspapers or magazines to identify the target audiences);
- analyse the relationship between media works and the production and marketing of related products (e.g., explain how the target audience for a film determines the range of products marketed with it, and how this marketing, in turn, helps shape the film).

English Transfer, Grade 10, Academic to Applied

(ENG2J)

This transfer course will provide students who have successfully completed English, Grade 10, Academic with an opportunity to achieve the expectations not covered in that course but included in English, Grade 10, Applied. On successful completion of this transfer course, students will be able to proceed to English, Grade 11, College Preparation or English, Grade 11, Workplace Preparation.

In this transfer course, students will study informational texts and will write formal letters and newspaper or magazine articles. The course will emphasize the correct use of language in written and oral work and the analysis of newspapers or magazines as media forms.

Prerequisite: English, Grade 10, Academic (ENG2D)

Credit value: 0.25

Literature Studies and Reading

Overall Expectations

By the end of this course, students will:

- read and demonstrate an understanding of informational texts;
- demonstrate an understanding of the elements of form and style in informational texts with a focus on magazines and newspapers.

Specific Expectations

Understanding the Meaning of Texts

By the end of this course, students will:

- describe information, ideas, and opinions in magazines and newspapers;
- read texts for different purposes, including collecting and assessing information and responding imaginatively (e.g., gather and evaluate information from several newspapers; imagine themselves as participants in an event described in a magazine article and suggest how they might have behaved differently from the actual participants);
- select a variety of reading strategies that are appropriate for reading magazines and newspapers and use them effectively before, during, and after reading to understand the material (e.g., refer to text elements such as tables of contents and indexes to locate information; reread confusing passages; summarize key points);
- suggest ways in which an author’s experience might influence information and ideas in a text (e.g., compare the coverage of the same news event by different reporters).

Understanding the Elements of Form and Style

By the end of this course, students will:

- use knowledge of elements of magazines and newspapers, such as editorials, regular columns, letters to the editor, advertisements, foldouts, cover art, tables of contents, layout, columns, headings, and subheadings, to understand and interpret texts (e.g., present a display illustrating the key features of a popular magazine; use understanding of magazine layout to read articles with columns and wraparound text);
- explain how authors adapt diction and phrasing and use specialized vocabulary to communicate ideas, emotions, and information and achieve intended effects (e.g., compare the technical language of a computer manual to the language in a magazine or newspaper article about the effect of computers on society);
- explain how authors use stylistic devices, such as varied sentence structures, onomatopoeia, and alliteration, to communicate ideas, emotions, and information and achieve intended effects (e.g., explain how the imagery in an article helps engage the reader’s interest).

Writing

Overall Expectations

By the end of this course, students will:

- use a variety of print and electronic sources to gather information and explore ideas for written work;
- write formal letters and newspaper or magazine articles for a particular purpose and audience;
- organize ideas and information in written work with a focus on stating and supporting opinions and presenting information logically and coherently;
- revise, edit, and proofread to produce final drafts, using correct grammar, spelling, and punctuation, according to the conventions of standard Canadian English.

Specific Expectations

Generating Ideas and Gathering Information

By the end of this course, students will:

- locate and summarize information and ideas from print and electronic sources, including newspapers and magazines, reports, dictionaries, encyclopedias, vertical files, and multiple electronic databases (e.g., summarize and paraphrase information and ideas in point-form notes or graphic organizers).

Writing to Suit the Purpose and Audience

By the end of this course, students will:

- write formal letters and newspaper or magazine articles appropriate for specific purposes and audiences (e.g., compose a formal letter to persuade a business to sponsor a school project; write an article for a community newspaper reporting on a local event).

Organizing Ideas and Information in Written Work

By the end of this course, students will:

- use a single, controlling idea and connecting words and phrases to structure a series of paragraphs;
- use an introduction, body, and conclusion to present information chronologically or sequentially in formal letters and newspaper or magazine articles (e.g., develop the

content of a formal letter by stating the ideas clearly and directly, providing supporting information, and indicating the action expected; organize the information in a newspaper report from the most important to the least important).

Revising, Editing, Proofreading, and Publishing

By the end of this course, students will:

- revise drafts of formal letters and magazine or newspaper articles to ensure that ideas are clearly and adequately developed, supported by relevant facts and details, and presented logically and coherently;
- edit and proofread written work, identifying and correcting errors according to the requirements for grammar, usage, spelling, and punctuation, with emphasis on:
 - using parts of speech correctly, including the participle;
 - identifying and correcting sentence errors, including comma splices and run-on sentences;
 - making collective nouns used as subjects agree with verbs.

Language

Overall Expectation

By the end of this course, students will:

- use knowledge of vocabulary and language conventions to speak, read, and write clearly, correctly, and competently for specific purposes and audiences.

Specific Expectations

Developing Vocabulary and Knowledge of Language Structures and Conventions

By the end of this course, students will:

- use appropriate concrete and figurative language to make their speech and writing vivid, precise, and interesting to the intended audience;
- modify vocabulary and phrasing in oral and written work to suit specific informal and formal situations (e.g., adapt the language used in a discussion with a friend to suit the requirements of a formal business letter);
- recognize, describe, and use correctly, in oral and written language, the language structures of standard Canadian English and its conventions of grammar and usage as specified for English, Grade 10, Applied.

English Transfer, Grade 11, College Preparation to University Preparation

(ENG3K)

This transfer course will provide students who have successfully completed English, Grade 11, College Preparation with an opportunity to achieve the expectations not covered in that course but included in English, Grade 11, University Preparation. On successful completion of this transfer course, students will be able to proceed to English, Grade 12, University Preparation and to any other Grade 12 course for which a prerequisite is a Grade 11 university preparation course in English.

In this transfer course, students will study literary texts from various periods with an emphasis on assessing themes and language. They will write and compose short narratives or poems, and compose literary essays, focusing on formulating and refining a thesis. This course will emphasize the use of academic language and literary terms in written and oral work.

Prerequisite: English, Grade 11, College Preparation (ENG3C)

Credit value: 0.5

Literature Studies and Reading

Overall Expectations

By the end of this course, students will:

- read and demonstrate an understanding of literary texts from various periods, with an emphasis on analysing and assessing themes and language;
- demonstrate an understanding of the elements of form and style in literary texts, with an emphasis on poetry.

Specific Expectations

Understanding the Meaning of Texts

By the end of this course, students will:

- analyse and interpret information, ideas, themes, and arguments in literary texts (e.g., write an essay analysing a theme in a literary work; explain explicit and implicit claims made in a persuasive essay);
- select and use specific and relevant evidence from a close reading of literary texts to support interpretations, analyses, and arguments (e.g., analyse and describe the organization of a sonnet; provide evidence from the text to identify the target and explain the criticism in a work of satire);
- select and use a range of reading strategies appropriate for reading literary texts (e.g., make, adjust, and defend predictions while reading; adjust reading pace as the complexity of a text changes; reread a text closely to relate repeated images to a theme);
- explain the influence of social and historical values and perspectives on literary texts and the interpretation of texts (e.g., relate the social values in a period such as the Industrial Revolution, the Second World War, or the 1960s to a literary work from that period; compare a historical and a contemporary critique of a literary work).

Understanding the Elements of Form and Style

By the end of this course, students will:

- analyse and explain how elements of poetic forms influence their meaning (e.g., analyse the relationship between a poem's form and its theme or message);
- analyse how key elements of literary works are used to enhance meaning (e.g., assess the effect of an author's choice of narrator in a short story; explain how the pattern chosen to organize an argument is related to the content and purpose of the work);
- analyse how language and syntax are used in literary texts to create a voice appropriate to the purpose and audience (e.g., describe how diction is used to establish voice in the opening chapter of a work of fiction; analyse how language and syntax reveal the character in a dramatic monologue);
- describe how authors use rhetorical and literary devices, such as pun, cliché, hyperbole, antithesis, paradox, wit, sarcasm, and invective, to enhance the meaning of texts (e.g., explain how paradox is used to deepen meaning in a poem; assess the effectiveness of rhetorical devices used to emphasize social criticism).

Writing

Overall Expectations

By the end of this course, students will:

- use print and electronic sources to gather information and generate ideas for written work;
- write for specific purposes and audiences with a focus on essays and on narratives or poems;
- use a variety of organizational structures and patterns to produce coherent and effective written work;
- revise, edit, and proofread to produce final drafts, using correctly the grammar, usage, spelling, and punctuation conventions of standard Canadian English.

Specific Expectations

Generating Ideas and Gathering Information

By the end of this course, students will:

- investigate potential topics by gathering information with a focus on primary sources (e.g., make a list of the words which suggest the mood of a poem);
- organize and analyse information, ideas, and sources and use them to formulate and refine a thesis (e.g., develop a thesis based on an analysis of a work of fiction);
- evaluate information and ideas to determine whether they are reliable, current, sufficient, and relevant to the purpose and audience.

Writing to Suit the Purpose and Audience

By the end of this course, students will:

- demonstrate an understanding of the uses and conventions of various forms by writing literary essays and short narratives or poems (e.g., write an academic essay analysing the themes or imagery of literature studied; write a sonnet expressing an emotion or mood);
- analyse the characteristics of literary essays and of poems or narratives as models of writing for specific purposes and audiences.

Organizing Ideas and Information in Written Work

By the end of this course, students will:

- apply knowledge of essay structure (introduction, body, and conclusion) to organize short literary essays;
- select and use appropriate organizational devices and patterns to structure narratives or poems (e.g., use extended metaphor in a poem; use a storyboard to plan a scene in a short story).

Revising, Editing, Proofreading, and Publishing

By the end of this course, students will:

- revise drafts to strengthen content and improve organization by refining the controlling idea; making connections among ideas; integrating details; and reordering information, ideas, and images (e.g., combine several ideas from an early draft to form a controlling idea for an essay; change the order of images in a poem to enhance the emotional impact);
- edit and proofread writing, identifying and correcting errors according to the conventions of standard Canadian English, with emphasis on:
 - using verb tenses appropriately and correctly;

- using pronouns correctly, particularly personal, relative, and reflexive pronouns;
- using parallel structure correctly and for rhetorical effect (e.g., expressing equal ideas in the same grammatical form, balancing single words with single words, phrases with phrases, and clauses with clauses; using parallel structure in the paragraphs of an essay for clarity and emphasis);
- correctly spelling specific historical, academic, and literary terms used in course materials;
- using punctuation correctly to clarify meaning, to show the grammatical relationships between words, and to add emphasis.

Language

Overall Expectations

By the end of this course, students will:

- apply knowledge of the development of the English language, vocabulary and language structures, and the conventions of standard Canadian English to read, write, and speak effectively;
- use academic language appropriately.

Specific Expectations

Developing Vocabulary and Knowledge of Language Structures and Conventions

By the end of this course, students will:

- identify and describe the major influences in the development of the English language (e.g., Angles, Saxons, and Jutes; Vikings; Romans; the Norman Conquest of England; the invention of the printing press; colonialism; mass literacy; computer technology; the influence of other languages; the global use of English);
- identify specialized and technical language appropriate to academic discussion and use it with precision in oral and written work;
- recognize, describe, and use correctly, in oral and written language, the language structures of standard Canadian English as specified for English, Grade 11, University Preparation.

Developing Listening and Speaking Skills

By the end of this course, students will:

- communicate orally in large and small groups for a variety of purposes, with a focus on using appropriate academic and theoretical language and evaluating implicit and explicit ideas using criteria such as relevance, accuracy, and bias.

Media Studies

Overall Expectation

By the end of this course, students will:

- demonstrate an understanding of a variety of media texts, audiences, and media industry practices by analysing representations, forms, and techniques in media works.

Specific Expectation

Analysing Media and Media Works

By the end of this course, students will:

- explain the relationship among media works, media industry practices including marketing and distribution methods, and media industry codes and government regulations (e.g., explain the use of media to launch a new product line).

English Transfer, Grade 11, University Preparation to College Preparation

(ENG3Q)

This transfer course will provide students who have successfully completed English, Grade 11, University Preparation with an opportunity to achieve the expectations not covered in that course but included in English, Grade 11, College Preparation. On successful completion of this transfer course, students will be able to proceed to English, Grade 12, College Preparation and to any other Grade 12 course for which a prerequisite is a Grade 11 college preparation course in English.

In this transfer course, students will study opinion pieces and write reports and correspondence. The course will emphasize using business and technical language with precision and clarity and developing and sustaining an appropriate voice.

Prerequisite: English, Grade 11, University Preparation (ENG3U)

Credit value: 0.25

Literature Studies and Reading

Overall Expectations

By the end of this course, students will:

- read and demonstrate an understanding of texts from Canada and other countries, with an emphasis on opinion pieces;
- demonstrate an understanding of the elements of form and style in texts, with a focus on how the elements contribute to clear and effective communication.

Specific Expectations

Understanding the Meaning of Texts

By the end of this course, students will:

- interpret and assess explicit and implicit ideas, issues, and information in opinion pieces and informational texts (e.g., summarize and assess the ideas in a film review);
- select and use a range of reading strategies appropriate for reading opinion pieces and informational texts (e.g., recall knowledge about a topic or theme from personal and other reading experiences to prepare for reading; adjust reading pace as the complexity of a text changes; reread challenging passages closely);
- explain the influence of the personal and social values and perspectives of authors and readers on texts and interpretations of texts (e.g., explain how word choice demonstrates the author's attitude towards the topic; describe their own and others' interpretations of a national or local news event and suggest reasons for the similarities and differences).

Understanding the Elements of Form and Style

By the end of this course, students will:

- explain how elements of opinion pieces influence the meaning (e.g., explain how opening paragraphs catch the reader's attention or reveal the attitude of the author);
- describe the language of a variety of texts and explain how the language is used to communicate information and express opinions and emotions (e.g., compare several business and technical reports to identify characteristics of a plain-language style; analyse editorials and explain the effects of the use of persuasive words).

Writing

Overall Expectations

By the end of this course, students will:

- gather and analyse information and develop ideas for writing reports and correspondence;
- produce coherent and effective reports and correspondence for various purposes and audiences;
- organize ideas and information using a variety of structures and patterns appropriate for reports and correspondence;
- revise, edit, and proofread to produce final drafts, using correctly the grammar, usage, spelling, and punctuation conventions of standard Canadian English.

Specific Expectations

Generating Ideas and Gathering Information

By the end of this course, students will:

- gather information and ideas and analyse and assess them to determine whether they are accurate and suitable to the form and purpose for writing.

Writing to Suit the Purpose and Audience

By the end of this course, students will:

- produce reports and correspondence for specific audiences and purposes (e.g., summarize a magazine article on a topic of personal interest for a report to the class; write a letter requesting information about a college program);
- use a level of language and a voice appropriate for business, technical, and personal communications (e.g., use an appropriate voice to convey information about a policy in a memo).

Organizing Ideas and Information in Written Work

By the end of this course, students will:

- apply knowledge of report structure to organize written reports, using:
 - an introduction that identifies the topic and explains its significance or poses an inquiry question;

- a body that presents information and data in connected and coherent paragraphs supported by graphics, illustrations, and charts;
- a conclusion that presents insights or recommendations;

- use organizational patterns such as cause and effect, classification, and definition to present information and ideas in reports and correspondence.

Revising, Editing, Proofreading, and Publishing

By the end of this course, students will:

- revise drafts to strengthen content and improve organization by adding details, deleting irrelevant information, and reordering ideas (e.g., delete irrelevant arguments to enhance the impact of a letter; revise a report to list a series of recommendations in order of priority);
- revise drafts to increase precision and clarity of expression by incorporating appropriate business and technical language and transition words (e.g., use a dictionary and thesaurus to find specialized vocabulary to replace vague or inaccurately used words);

- edit and proofread writing, identifying and correcting errors according to the conventions of standard Canadian English, with emphasis on:
 - using parts of speech correctly, including participles and gerunds;
 - making subjects agree with their predicates and pronouns with their antecedents, even when widely separated in a sentence or paragraph;
 - using and spelling correctly homophones and commonly confused words (e.g., *compliment/complement*, *site/sight/cite*, *eminent/imminent*, *emigrate/immigrate*, *climactic/climatic*);
 - spelling specific business, technical, and literary terms correctly;
 - using punctuation correctly for clarity and emphasis.

Language

Overall Expectations

By the end of this course, students will:

- apply knowledge of vocabulary and language conventions to read, write, and speak effectively, with a focus on identifying, developing, and sustaining an appropriate voice;
- use listening techniques and oral communication skills, with a focus on using business and technical language appropriately in oral reports and other presentations.

Specific Expectations

Developing Vocabulary and Knowledge of Language Structures and Conventions

By the end of this course, students will:

- identify specialized language appropriate to business and technical contexts and use it with precision in oral and written work;
- select and use vocabulary and figurative language to express themselves clearly in a variety of spoken and written communications, with a focus on developing a consistent voice;
- recognize, describe, and use correctly, in oral and written language, the language structures and conventions of standard Canadian English as specified for English, Grade 11, College Preparation.

Developing Listening and Speaking Skills

By the end of this course, students will:

- communicate orally for a variety of purposes, with a focus on summarizing the main ideas of the discussion and on understanding business and technical language and using it correctly.

English Transfer, Grade 11, Workplace Preparation to College Preparation

(ENG3R)

This transfer course will provide students who have successfully completed English, Grade 11, Workplace Preparation with an opportunity to achieve the expectations not covered in that course but included in English, Grade 11, College Preparation. On successful completion of this transfer course, students will be able to proceed to English, Grade 12, College Preparation and to any other Grade 12 course for which a prerequisite is a college preparation course in English.

In this transfer course, students will study opinion pieces and a novel and will write for various purposes, with a focus on correspondence and persuasive essays. This course will emphasize the correct and appropriate use of language in written and oral work and the analysis of media works.

Prerequisite: English, Grade 11, Workplace Preparation (ENG3E)

Credit value: 0.5

Literature Studies and Reading

Overall Expectations

By the end of this course, students will:

- read and demonstrate an understanding of informational and literary texts, with an emphasis on analysing information, ideas, and issues in opinion pieces and a novel;
- demonstrate an understanding of the elements of form and style in opinion pieces and a novel.

Specific Expectations

Understanding the Meaning of Texts

By the end of this course, students will:

- interpret and assess explicit and implicit ideas, issues, and information in informational and literary texts (e.g., summarize and assess the opinions in a magazine article; explain the major themes underlying the plot and characterization in a novel);
- select specific and relevant evidence from opinion pieces and a novel and use the evidence to support interpretations and arguments (e.g., use relevant facts from research to explore both sides of a social issue; refer to specific actions and choices to explain a character's motives in a novel);
- select and use a range of effective reading strategies (e.g., recall knowledge about a topic or theme from personal and other reading experiences to prepare for reading; adjust reading pace as the complexity of a text changes; reread challenging passages closely).

Understanding the Elements of Form and Style

By the end of this course, students will:

- explain how elements of opinion pieces and the novel influence the works' meaning (e.g., explain how the language of a letter to the editor reveals the attitude of the author; explain how the narrator selected for a novel influences the reader's understanding of plot and character);
- explain how rhetorical and literary devices enhance meaning in opinion pieces and a novel (e.g., explain how hyperbole and understatement are used for effect in a film review; identify recurring images in a novel and explain their effectiveness).

Writing

Overall Expectations

By the end of this course, students will:

- gather and analyse information and develop ideas for writing;
- write for various purposes and audiences, with a focus on correspondence and persuasive essays;
- use a variety of organizational structures and patterns to produce coherent and effective written work;
- revise their written work, with a focus on consistent use of voice, and edit and proofread to produce final drafts, using correctly the grammar, usage, spelling, and punctuation conventions of standard Canadian English.

Specific Expectations

Generating Ideas and Gathering Information

By the end of this course, students will:

- gather information and ideas and analyse and assess them to determine whether they are accurate, current, sufficient, and relevant to the form and purpose for writing various types of correspondence and persuasive essays.

Writing to Suit the Purpose and Audience

By the end of this course, students will:

- use appropriate forms to produce written work for specific audiences and purposes, with an emphasis on correspondence and persuasive essays (e.g., write a letter requesting information about a college program; write a short essay presenting a solution to a community problem);
- select and use a level of language and a voice appropriate to the specific purpose and intended audience for business, technical, and personal communications (e.g., use an appropriate voice to convey information about a policy in a memo).

Organizing Ideas and Information in Written Work

By the end of this course, students will:

- apply knowledge of essay structure to organize short essays, using:
 - an introduction that engages the reader's interest, introduces the thesis or controlling idea, and previews the organization or content of the essay;
 - a body that develops ideas logically and coherently and incorporates well-chosen, relevant evidence to support each idea;
 - a conclusion that follows logically from the thesis and ideas developed in the body, summarizes the key points and organization in the body, and makes a thoughtful generalization related to the controlling idea;
- use organizational patterns such as cause and effect, classification, and definition to present information and ideas in correspondence and short essays.

***Revising, Editing, Proofreading,
and Publishing***

By the end of this course, students will:

- revise drafts to increase precision and clarity of expression and to ensure consistent use of an appropriate voice and tone (e.g., use specific business and technical language to replace vague or inaccurately used words in correspondence; use transition words to present information in sequence; highlight pronouns to check for consistent use of person in a memo);
- cite researched information, ideas, and quotations in a consistent and ethical manner according to acceptable research methodology (e.g., cite sources using a recognized style such as that of the Modern Language Association [MLA] or the traditional footnote/endnote system known as the Chicago style);
- edit and proofread writing, identifying and correcting errors according to the conventions of standard Canadian English, with emphasis on:
 - using parts of speech correctly, including participles, gerunds, conjunctions, prepositional and gerund phrases, and noun, adjective, and adverb clauses;
 - making subjects agree with their predicates and pronouns with their antecedents, even when widely separated in a sentence or paragraph;
 - using active and passive verb voice appropriately (e.g., using the active voice for clarity of expression; recognizing the function of the passive voice as used in history and the sciences);
 - using correct parallel structure (e.g., using the same grammatical form to balance parallel ideas in a series; using parallel grammatical structure with correlative conjunctions such as *either . . . or, not only . . . but also*);
 - spelling correctly specific business, technical, and literary terms used in course materials;
 - using punctuation correctly, including the semicolon, apostrophe, parentheses, and brackets (e.g., using parentheses to enclose supplementary material, personal digressions, or afterthoughts; using brackets to enclose words or phrases inserted into a quotation).

Language

Overall Expectations

By the end of this course, students will:

- apply knowledge of vocabulary and language conventions to read, write, and speak effectively, with a focus on identifying, developing, and sustaining an appropriate voice;
- use listening techniques and oral communication skills, with a focus on using business and technical language appropriately in oral reports and other presentations.

Specific Expectations

Developing Vocabulary and Knowledge of Language Structures and Conventions

By the end of this course, students will:

- apply a variety of strategies to extend vocabulary through reading, with an emphasis on understanding concrete and abstract vocabulary and the denotation and connotation of words (e.g., assess the impact of denotative and connotative language in a music review);
- apply knowledge of prefixes, suffixes, and roots to expand vocabulary (e.g., use an etymological dictionary to identify the original and expanded meanings of words);
- select and use vocabulary and figurative language to express themselves clearly in a variety of spoken and written communications, with a focus on developing a consistent voice;
- recognize, describe, and use correctly, in oral and written language, the language structures and conventions of standard Canadian English as specified for English, Grade 11, College Preparation.

Developing Listening and Speaking Skills

By the end of this course, students will:

- use critical listening skills to analyse the content of oral communications (e.g., write accurate summaries of main ideas and supporting details; assess the relevance of evidence, the validity of arguments, and the truth of conclusions);
- plan and prepare an oral report by researching information and ideas, organizing material, rehearsing, and revising, and present the report.

Media Studies

Overall Expectation

By the end of this course, students will:

- use knowledge of the characteristics of media forms, representations, audiences, and industry practices to analyse a variety of media works.

Specific Expectations

Analysing Media and Media Works

By the end of this course, students will:

- demonstrate critical thinking skills by identifying bias and explaining the difference between explicit and implicit messages in media works (e.g., explain the intended appeal of images selected for specific advertisements);
- explain how the form, style, and language of a variety of media forms communicate messages with specific social implications (e.g., explain how the characteristics of a local newspaper, a national television newscast, or the Internet are reflected in the coverage of a major news story; compare the effectiveness of the language and style in different news-magazine programs).

English Transfer, Grade 11, College Preparation to Workplace Preparation

(ENG3S)

This transfer course will provide students who have successfully completed English, Grade 11, College Preparation with an opportunity to achieve the expectations not covered in that course but included in English, Grade 11, Workplace Preparation. On successful completion of this transfer course, students will be able to proceed to English, Grade 12, Workplace Preparation.

In this transfer course, students will study drama, poetry, and informational material and will produce personal, school-related, and workplace-related writing with a focus on clarity and accuracy.

Prerequisite: English, Grade 11, College Preparation (ENG3C)

Credit value: 0.25

Literature Studies and Reading

Overall Expectations

By the end of this course, students will:

- read and demonstrate an understanding of informational and literary texts;
- demonstrate an understanding of the elements of form and style in drama, poetry, and informational material.

Specific Expectations

Understanding the Meaning of Texts

By the end of this course, students will:

- use knowledge of the elements and organizational patterns of informational texts to understand information from print and electronic sources, including charts and graphs (e.g., relate information contained in charts and graphs to the body of the text; read trade publications to report to the class about the literacy and social skills required in various occupations);
- use knowledge of the elements of drama and poetry to understand and explore relevant social themes and issues in literary texts (e.g., examine how various characters respond to a social issue in a drama; read a poem and report on their reaction to its theme or idea);
- describe a variety of reading strategies and use them to understand specific texts, with an emphasis on previewing table of contents, headings, illustrations, photographs, captions, and charts; forming questions about difficult sections of text; and using graphic organizers to record information.

Understanding the Elements of Form and Style

By the end of this course, students will:

- describe how elements of specific forms influence meaning in informational texts (e.g., describe how images, copy, charts and graphs, and page layout contribute to the theme in a magazine article; explain the different functions of paragraphs in a report and a short article);
- describe the rhetorical and literary devices, such as parallel structure, hyperbole, imagery, and symbol, used in informational and literary texts and explain how the devices clarify and enhance the meaning and impact of the works (e.g., explain how foreshadowing creates suspense in a play; explain how one image effectively captures the theme of a poem; discuss the importance of parallel structure in a series of instructions).

Writing

Overall Expectations

By the end of this course, students will:

- develop ideas for personal, school-related, and workplace-related writing and gather appropriate information;
- produce coherent written work for various purposes and audiences;
- organize ideas and information in written work, using appropriate structures and patterns;
- revise, edit, and proofread to produce final drafts, using correctly the grammar, usage, spelling, and punctuation conventions of standard Canadian English.

Specific Expectations

Generating Ideas and Gathering Information

By the end of this course, students will:

- use information and ideas from prior knowledge, personal experience, and research to develop content for personal and workplace-related writing (e.g., use knowledge about a product or service to plan a letter of complaint; compare information from different sources about summer jobs to plan a résumé).

Writing to Suit the Purpose and Audience

By the end of this course, students will:

- use literary and informational texts as models of writing for specific purposes and audience.

Organizing Ideas and Information in Written Work

By the end of this course, students will:

- use organizational patterns such as cause and effect and problem-solution to present information and ideas in short reports (e.g., use a cause-and-effect pattern and labelled diagrams in a report explaining how to use a computer application).

Revising, Editing, Proofreading, and Publishing

By the end of this course, students will:

- revise drafts to improve freshness, accuracy, and clarity of expression (e.g., use a dictionary and thesaurus to substitute appropriate for incorrectly used words; examine writing for use of inclusive and anti-discriminatory language);
- edit and proofread writing, identifying and correcting errors according to the conventions of standard Canadian English, and ensure that the formatting and typesetting are appropriate for workplace-related writing.

Language

Overall Expectations

By the end of this course, students will:

- use knowledge of vocabulary and language structures and conventions to read, write, and speak clearly and competently, with a focus on identifying and selecting appropriate diction and syntax in personal and workplace-related communications;
- use listening techniques and oral communication skills to participate in classroom discussions and formal activities, with a focus on using specialized language appropriately in oral reports and role-playing activities.

Specific Expectations

Developing Vocabulary and Knowledge of Language Structures and Conventions

By the end of this course, students will:

- apply a variety of strategies to extend vocabulary through reading, with an emphasis on recognizing synonyms, antonyms, homophones, and homonyms (e.g., keep a personal list of significant new words and phrases encountered in texts; recognize how words encountered in a trade or professional publication are formed from prefixes, suffixes, and roots);
- explain the impact and consequences of using different types of words and expressions in a variety of personal and social contexts (e.g., role-play a scene that illustrates how language affects personal relationships; identify words or phrases likely to intensify a conflict and suggest alternative language to help resolve the situation).

Developing Listening and Speaking Skills

By the end of this course, students will:

- communicate orally for a variety of purposes, with a focus on following specific instructions, restating and paraphrasing information, making notes to record information, and using specialized language appropriately.

French As a Second Language

Core French Transfer, Grade 10, Applied to Academic (FSF2H)

This transfer course will provide students who have successfully completed Core French, Grade 10, Applied with an opportunity to achieve the expectations not covered in that course but included in Core French, Grade 10, Academic. On successful completion of this transfer course, students will be able to proceed to Core French, Grade 11, University Preparation.

This transfer course emphasizes the development of reading and writing skills while reinforcing oral communication skills. Students will read and discuss a variety of texts, including simple authentic materials, to develop their critical thinking skills and deepen their understanding and appreciation of francophone culture. They will infer meaning, analyse information, and give personal reactions in spoken and written French.

Prerequisite: Core French, Grade 10, Applied (FSF2P)

Credit value: 0.5

Oral Communication

Overall Expectations

By the end of this course, students will:

- listen and respond to a variety of spoken texts and media works;
- make oral presentations on a variety of topics;
- use appropriate language conventions during oral communication activities.

Specific Expectations

Listening

By the end of this course, students will:

- respond to authentic spoken texts by interpreting meaning, summarizing content, and adding information.

Speaking

By the end of this course, students will:

- explain an opinion, using facts from a text or media work to support their point of view;
- role-play a character from a text studied in class, summarizing actions justifying behaviour;
- debate the pros and cons of a topic under study.

Application of Language Conventions

By the end of this course, students will:

- recognize and use the language structures for Core French Transfer, Grade 10 (see p. 80).

Reading

Overall Expectations

By the end of this course, students will:

- apply critical thinking as they read (e.g., analyse information, infer meaning, determine cause and effect);
- read and demonstrate an understanding of simple authentic materials;
- read a variety of short stories and short novels;
- identify and understand appropriate language conventions in the reading materials.

Specific Expectations

Comprehension and Response to Text

By the end of this course, students will:

- summarize the main ideas of a short story or a short novel from the point of view of one of the characters;
- respond to their independent reading of short novels (a minimum of 60 pages) (e.g., by answering questions, summarizing the plot, discussing the main ideas);
- demonstrate critical thinking by identifying issues and values and analysing causes in reading selections.

Application of Language Conventions

By the end of this course, students will:

- recognize and use the language structures for Core French Transfer, Grade 10 (see p. 80);
- identify stylistic devices (e.g., similes, metaphors);
- determine the meaning of unfamiliar words and idiomatic expressions from context;
- understand the importance of tense differences in written texts (e.g., in indirect discourse, in flashback situations).

Writing

Overall Expectations

By the end of this course, students will:

- create a variety of short written texts in structured and open-ended situations;
- identify and use appropriate language conventions in their written work.

Specific Expectations

Communication of Ideas and Information

By the end of this course, students will:

- state opinions about a topic supported by facts;
- organize information into paragraphs for written assignments;
- prepare personal notes on information found in a variety of sources (e.g., on the Internet, in video programs, on audio CDs).

Application of Language Conventions

By the end of this course, students will:

- recognize and use the language structures for Core French Transfer, Grade 10 (see p. 80);
- revise, edit, and proofread their writing, focusing on grammar, spelling, punctuation, and conventions of style;
- incorporate newly acquired vocabulary into their written work.

Language Structures

Core French Transfer, Grade 10

Students should recognize and use the following language structures in all three strands:

- *passé composé* of reflexive and pronominal verbs (e.g., *Je me suis habillé. Nous nous sommes rencontrés au centre commercial.*)
- agreement of the past participle of verbs conjugated with *avoir* with the preceding direct object (e.g., *Il a vu l'annonce. Il l'a vue.*)
- sequence of tenses with *si* using the *imparfait* and the *conditionnel présent* (e.g., *Si j'étais malade, j'irais chez le médecin.*)
- use of the *subjonctif présent* of high-frequency verbs (e.g., *avoir, être, aller, faire, savoir*) with the impersonal expression *il faut* (e.g., *Il faut que je fasse mes devoirs ce soir.*)

Core French Transfer, Grade 11, Open to University Preparation

(FSF3K)

This transfer course will provide students who have successfully completed Core French, Grade 11, Open with an opportunity to achieve the expectations not covered in that course but included in Core French, Grade 11, University Preparation. On successful completion of this transfer course, students will be able to proceed to Core French, Grade 12, University Preparation.

This transfer course emphasizes the further development of reading and writing skills while reinforcing oral communication skills. Students will gain a greater understanding of francophone cultures through their reading of a variety of materials, including short stories and a short novel or a play. They will continue to develop critical thinking skills by producing various written assignments, including a formal essay.

Prerequisite: Core French, Grade 11, Open (FSF3O)

Credit value: 0.5

Oral Communication

Overall Expectations

By the end of this course, students will:

- demonstrate comprehension by responding to a range of media works and spoken texts in a variety of ways;
- use correct grammar and appropriate language conventions during oral communication activities.

Specific Expectations

Listening

By the end of this course, students will:

- mime or re-enact the actions described in a recorded story, dramatization, or poem;
- demonstrate an understanding of a variety of media works by identifying the main ideas and supporting details and by discussing their interpretations;
- give their own viewpoints on a variety of spoken texts (e.g., readings or recordings of short stories, poems, plays).

Speaking

By the end of this course, students will:

- interpret and dramatize a scene from a text read in class;
- participate in informal debates or panel discussions that are based on a literary theme (e.g., by questioning classmates, by expressing their points of view).

Application of Language Conventions

By the end of this course, students will:

- recognize and use the language structures for Core French Transfer, Grade 11 (see p. 85);
- interpret the meaning of unfamiliar words, using contextual clues;
- use stylistic devices (e.g., juxtaposition, similes, metaphors) to add interest to their spoken French.

Reading

Overall Expectations

By the end of this course, students will:

- read and demonstrate an understanding of literary and informational texts;
- apply critical thinking as they read (e.g., analyse information, question the point of view presented, go beyond the surface meaning);
- identify and understand language conventions used in their reading materials.

Specific Expectations

Comprehension and Response to Text

By the end of this course, students will:

- identify and describe the key elements of a story (e.g., plot, characters, setting, climax);
- analyse fictional characters and explain their motivations;
- read independently a short novel or play (100–150 pages) and respond by answering questions, summarizing the plot, and discussing the main ideas and supporting details;
- use specific research skills (e.g., identifying sources, gathering data, taking notes, outlining) as they read for information.

Application of Language Conventions

By the end of this course, students will:

- recognize and use the language structures for Core French Transfer, Grade 11 (see p. 85);
- identify formal and informal language used by authors in various literary genres;
- compare the form and style of various genres (e.g., short stories, poems, essays, plays);
- use reading strategies (e.g., skimming text for information, using clues from context, using knowledge of root words or word families) to determine the meaning of textual content or unfamiliar vocabulary.

Writing

Overall Expectations

By the end of this course, students will:

- create written texts expressing their ideas and opinions for a variety of audiences;
- write in a variety of forms, adjusting the language to suit the purpose and the audience;
- use correct grammar and appropriate language conventions in their written work.

Specific Expectations

Communication of Information and Ideas

By the end of this course, students will:

- write a review of a story, short novel, or play studied in class, summarizing the plot and explaining their reactions;
- write a dialogue illustrating the roles and reactions of characters found in a text studied in class;
- write a multi-paragraph text commenting on a situation or defending an opinion;
- write an essay (approximately 500 words) based on a personal experience.

Application of Language Conventions

By the end of this course, students will:

- recognize and use the language structures for Core French Transfer, Grade 11 (see p. 85);
- revise, edit, and proofread their writing, focusing on grammar, spelling, punctuation, and conventions of style.

Language Structures

Core French Transfer, Grade 11

Students should recognize and use the following language structures in all three strands:

- position of two object pronouns with imperatives (e.g., *Envoyez-les-moi. Ne m'en faites pas parvenir.*)
- formation of the *plus-que-parfait*, *futur antérieur*, and *conditionnel passé* of *-er*, *-ir*, and *-re* verbs and irregular verbs
- sequence of tenses with *si* using the *plus-que-parfait* and the *conditionnel passé* (e.g., *Si on me l'avait mieux expliquée, j'aurais compris la situation.*)
- sequence of present and past tenses used in indirect discourse (e.g., *On a dit que vous alliez parler de ce sujet. On nous a expliqué que cette explosion avait eu lieu ce matin.*)
- formation and use of the *participe présent* (e.g., *En me promenant, j'ai vu une mouffette dans le garage d'un voisin.*)

Mathematics

Mathematics Transfer, Grade 10, Applied to Academic (MPM2H)

This transfer course will provide students who have successfully completed Foundations of Mathematics, Grade 10, Applied with an opportunity to achieve the expectations not covered in that course but included in Principles of Mathematics, Grade 10, Academic. On successful completion of this transfer course, students will be able to proceed to either the university preparation course or the university/college preparation course in mathematics in Grade 11.

This transfer course focuses on developing algebraic skills used in the solving of quadratic functions and in analytic geometry, and on investigating the trigonometry of acute triangles.

Prerequisite: Foundations of Mathematics, Grade 10, Applied (MFM2P)

Credit value: 0.5

Quadratic Functions

Overall Expectations

By the end of this course, students will:

- solve quadratic equations;
- determine, through investigation, the relationships between the graphs and the equations of quadratic functions;
- determine, through investigation, the basic properties of quadratic functions.

Specific Expectations

Solving Quadratic Equations

By the end of this course, students will:

- expand and simplify second-degree polynomial expressions;
- factor polynomial expressions involving trinomials of the form $ax^2 + bx + c$;
- solve, by factoring, quadratic equations involving trinomials of the form $ax^2 + bx + c$;
- solve quadratic equations, using the quadratic formula;
- interpret real and non-real roots of quadratic equations geometrically as the x -intercepts of the graph of a quadratic function.

Investigating the Connection Between the Graphs and the Equations of Quadratic Functions

By the end of this course, students will:

- sketch, by hand, the graph of a quadratic function whose equation is given in the form $y = ax^2 + bx + c$, using a suitable method [e.g., locate the x -intercepts if the equation is factorable; express in the form $y = ax(x - s) + t$ to locate two points and deduce the vertex].

Investigating the Basic Properties of Quadratic Functions

By the end of this course, students will:

- collect data that may be represented by quadratic functions, from secondary sources (e.g., the Internet, Statistics Canada) or from experiments, using appropriate equipment and technology (e.g., scientific probes, graphing calculators);
- fit the equation of a quadratic function to a scatter plot, using an informal process (e.g., a process of trial and error on a graphing calculator), and compare the results with the equation of a curve of best fit produced by using graphing calculators or graphing software;
- describe the nature of change in a quadratic function, using finite differences in tables of values, and compare the nature of change in a quadratic function with the nature of change in a linear function;
- report the findings of an experiment in a clear and concise manner, using appropriate mathematical forms (e.g., written explanations, tables, graphs, formulas, calculations), and justify the conclusions reached.

Analytic Geometry

Overall Expectations

By the end of this course, students will:

- solve problems involving the analytic geometry concepts of line segments;
- verify geometric properties of triangles and quadrilaterals, using analytic geometry.

Specific Expectations

Solving Problems Involving the Properties of Line Segments

By the end of this course, students will:

- determine formulas for the midpoint and the length of a line segment and use these formulas to solve problems;
- determine the equation for a circle having centre $(0, 0)$ and radius r , by applying the formula for the length of a line segment; identify the radius of a circle of centre $(0, 0)$, given its equation; and write the equation, given the radius;
- solve multi-step problems, using the concepts of the slope, the length, and the midpoint of line segments (e.g., determine the equation of the right bisector of a line segment, the coordinates of whose end points are given; determine the distance from a given point to a line whose equation is given; show that the centre of a given circle lies on the right bisector of a given chord);
- communicate the solutions to multi-step problems in good mathematical form, giving clear reasons for the steps taken to reach the solutions.

Using Analytic Geometry to Verify Geometric Properties

By the end of this course, students will:

- determine characteristics of a triangle whose vertex coordinates are given (e.g., the perimeter; the classification by side length; the equations of medians, altitudes, and right bisectors; the location of the circumcentre and the centroid);
- determine characteristics of a quadrilateral whose vertex coordinates are given (e.g., the perimeter; the classification by side length; the properties of the diagonals; the classification of a quadrilateral as a square, a rectangle, or a parallelogram);
- verify geometric properties of a triangle or quadrilateral whose vertex coordinates are given (e.g., the line joining the midpoints of two sides of a triangle is parallel to the third side; the diagonals of a rectangle bisect each other).

Trigonometry

Overall Expectation

By the end of this course, students will:

- solve trigonometric problems involving acute triangles.

Specific Expectations

Solving Problems Involving the Trigonometry of Acute Triangles

By the end of this course, students will:

- determine, through investigation, the relationships between the angles and sides in acute triangles (e.g., the largest angle is opposite the longest side; the ratio of side lengths is equal to the ratio of the sines of the opposite angles), using dynamic geometry software;
- calculate the measures of sides and angles in acute triangles, using the sine law and cosine law;
- describe the conditions under which the sine law or the cosine law should be used in a problem;
- solve problems involving the measures of sides and angles in acute triangles.

Mathematics Transfer, Grade 10, Academic to Applied (MFM2J)

This transfer course will provide students who have successfully completed Principles of Mathematics, Grade 10, Academic with an opportunity to achieve the expectations not covered in that course but included in Foundations of Mathematics, Grade 10, Applied. On successful completion of this transfer course, students will be able to proceed to Mathematics of Personal Finance, Grade 11, College Preparation.

This transfer course focuses on the application of proportional reasoning and piecewise linear functions.

Prerequisite: Principles of Mathematics, Grade 10, Academic (MPM2D)

Credit value: 0.25

Proportional Reasoning

Overall Expectation

By the end of this course, students will:

- solve problems derived from a variety of applications, using proportional reasoning.

Specific Expectations

Using Proportional Reasoning to Solve Problems

By the end of this course, students will:

- solve problems involving percent, ratio, rate, and proportion (e.g., in topics such as interest calculation, currency conversion, similar triangles, trigonometry, direct and partial variation related to linear functions) by a variety of methods and models (e.g., diagrams, concrete materials, fractions, tables, patterns, graphs, equations);
- draw and interpret scale diagrams related to applications (e.g., technical drawings);
- distinguish between consistent and inconsistent representations of proportionality in a variety of contexts (e.g., explain the distortion of figures resulting from irregular scales; identify misleading features in graphs; identify misleading conclusions based on invalid proportional reasoning).

Linear Functions

Overall Expectations

By the end of this course, students will:

- apply the properties of piecewise linear functions as they occur in realistic situations;
- manipulate algebraic expressions as they relate to linear functions.

Specific Expectations

Applying Piecewise Linear Functions

By the end of this course, students will:

- explain the characteristics of situations involving piecewise linear functions (e.g., pay scale variations, gas consumption costs, water consumption costs, differentiated pricing, motion);
- construct tables of values and sketch graphs to represent given descriptions of realistic situations involving piecewise linear functions, with and without the use of graphing calculators;
- answer questions about piecewise linear functions by interpolation and extrapolation, and by considering variations on given conditions.

Manipulating Algebraic Expressions

By the end of this course, students will:

- write linear equations by generalizing from tables of values and by translating written descriptions;
- rearrange equations from the form $y = mx + b$ to the form $Ax + By + C = 0$, and vice versa;
- solve first-degree equations in one variable, including those with fractional coefficients, using an algebraic method;
- isolate a variable in formulas involving first-degree terms.

Mathematics Transfer, Grade 11, University/College Preparation to University Preparation (MCR3K)

This transfer course will provide students who have successfully completed Functions, Grade 11, University/College Preparation with an opportunity to achieve the expectations not covered in that course but included in Functions and Relations, Grade 11, University Preparation. On successful completion of this transfer course, students will be able to proceed to Geometry and Discrete Mathematics, Grade 12, University Preparation.

This transfer course focuses on the investigation of loci and conics, and on the combining of complex numbers.

Prerequisite: Functions, Grade 11, University/College Preparation (MCF3M)

Credit value: 0.25

Financial Applications of Sequences and Series

Overall Expectation

By the end of this course, students will:

- solve problems involving arithmetic and geometric sequences and series.

Specific Expectation

Solving Problems Involving Arithmetic and Geometric Sequences and Series

By the end of this course, students will:

- write terms of a sequence, given a recursion formula.

Tools for Operating and Communicating With Functions

Overall Expectation

By the end of this course, students will:

- demonstrate facility in manipulating polynomials, rational expressions, and exponential expressions.

Specific Expectation

Manipulating Polynomials, Rational Expressions, and Exponential Expressions

By the end of this course, students will:

- add, subtract, multiply, and divide complex numbers in rectangular form.

Investigations of Loci and Conics

Overall Expectations

By the end of this course, students will:

- represent loci, using various models (e.g., a verbal description, a diagram, a dynamic model, an equation);
- determine the equation and the key features of a conic;
- solve problems involving applications of the conics.

Specific Expectations

Representing Loci

By the end of this course, students will:

- construct a geometric model (e.g., a diagram created by hand, a diagram created by using dynamic geometry software) to represent a described locus of points; determine the properties of the geometric model; and use the properties to interpret the locus (e.g., the locus of points equidistant from two fixed points is the right bisector of the line segment joining the two fixed points);
- explain the process used in constructing a geometric model of a described locus;
- determine an equation to represent a described locus [e.g., determine the equation of the locus of points equidistant from $(-2, 7)$ and $(5, 4)$];
- construct geometric models to represent the locus definitions of the conics;
- determine equations for conics from their locus definitions, by hand for simple particular cases [e.g., determine the equation of the locus of points the sum of whose distance from $(-3, 0)$ and $(3, 0)$ is 10].

Determining the Equation and the Key Features of a Conic

By the end of this course, students will:

- identify the standard forms for the equations of parabolas, circles, ellipses, and hyperbolas having centres at $(0, 0)$ and at (h, k) ;
- identify the type of conic, given its equation in the form $ax^2 + by^2 + 2gx + 2fy + c = 0$;
- determine the key features (e.g., the centre or the vertex, the focus or foci, the asymptotes, the lengths of the axes) of a conic whose equation is given in the form $ax^2 + by^2 + 2gx + 2fy + c = 0$, by hand in simple cases (e.g., $x^2 + 9y^2 - 6x + 36y - 36 = 0$);
- sketch the graph of a conic whose equation is given in the form $ax^2 + by^2 + 2gx + 2fy + c = 0$;
- illustrate the conics as intersections of planes with cones, using concrete materials or technology.

***Solving Problems Involving Applications
of the Conics***

By the end of this course, students will:

- describe the importance, within applications, of the focus of a parabola, an ellipse, or a hyperbola (e.g., all incoming rays parallel to the axis of a parabolic antenna are reflected through the focus; the planets move in elliptical orbits with the sun at one of the foci);
- pose and solve problems drawn from a variety of applications involving conics, and communicate the solutions with clarity and justification (*Sample problem:* A parabolic antenna is 320 m wide at a distance of 50 m above its vertex. Determine the distance above the vertex of the focus of the antenna);
- solve problems involving the intersections of lines and conics.

Mathematics Transfer, Grade 11, (MEL3S) College Preparation to Workplace Preparation

This transfer course will provide students who have successfully completed Mathematics of Personal Finance, Grade 11, College Preparation with an opportunity to achieve the expectations not covered in that course but included in Mathematics for Everyday Life, Grade 11, Workplace Preparation. On successful completion of this transfer course, students will be able to proceed to Mathematics for Everyday Life, Grade 12, Workplace Preparation.

This transfer course focuses on earning, paying taxes, and purchasing, and on the costs of transportation and travel.

Prerequisite: Mathematics of Personal Finance, Grade 11, College Preparation (MBF3C)

Credit value: 0.25

Earning, Paying Taxes, and Purchasing

Overall Expectations

By the end of this course, students will:

- solve problems involving different types of remuneration;
- describe various forms of taxation;
- solve problems involving the purchasing of items.

Specific Expectations

Earning Money

By the end of this course, students will:

- solve problems involving various ways that an employee can be paid (e.g., salary, hourly rate, overtime, commission), using calculators or appropriate software;
- explain the differences between gross pay and net pay, and describe possible payroll deductions (e.g., for a pension plan, a savings plan, employment insurance, union dues);
- calculate gross pay and net pay for given situations;
- describe the effects on personal spending habits of the frequency of pay period (e.g., weekly, biweekly, monthly);
- determine the remuneration for chosen occupations, including salary and benefits, and evaluate it in terms of purchasing power and living standards.

Describing Forms of Taxation

By the end of this course, students will:

- solve problems involving the estimation and calculation of provincial and federal sales taxes;
- identify the information and documents required for filing a personal income tax return, and explain why they are required;

- identify agencies in the community that will complete or help to complete a personal income tax return;
- identify other forms of taxation (e.g., taxes included in the prices of gasoline and tobacco).

Purchasing Items

By the end of this course, students will:

- provide the correct change for an amount offered (e.g., provide the correct change for a charge of \$13.87 when the amount offered is \$20.00; provide the correct change for a charge of \$13.87 when the amount offered is \$15.12);
- select compatible amounts to offer for a given charge to reduce the number of coins received in the change (e.g., what payments might a person offer for a charge of \$46.36 in order to reduce the number of coins received in the change?);
- estimate and calculate the unit prices of comparable items to determine the best buy;
- estimate and calculate discounts, sale prices, and after-tax costs.

Transportation and Travel

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the costs involved in owning and operating an automobile;
- demonstrate an understanding of the costs involved in travelling by automobile;
- compare the costs of making a trip by automobile, by train, by bus, or by airplane.

Specific Expectations

Understanding the Costs of Owning and Operating a Vehicle

By the end of this course, students will:

- describe the procedures and costs involved in obtaining a driver's licence;
- identify the costs of failing to operate a vehicle responsibly (e.g., fines, legal costs);
- compare the costs of owning or leasing and maintaining a vehicle with the costs of using public transportation.

Understanding the Costs of Travelling by Automobile

By the end of this course, students will:

- plan a travel route, by considering a variety of factors (e.g., the estimated distances involved, the purpose of the trip, the time of year, probable road conditions, personal interest);
- estimate the costs involved in a trip by automobile (e.g., gasoline, accommodation, food, entertainment), using real data acquired from authentic sources (e.g., automobile association travel books, travel guides, the Internet);
- explain the cost estimate for a trip by automobile in a clear, detailed presentation.

Comparing Travel Costs

By the end of this course, students will:

- identify sources of information for routes, schedules, and fares for travel by airplane, train, or bus;
- interpret airline, train, or bus schedules;
- compare the costs of travelling to a given destination by airplane, train, or bus;
- describe the advantages and disadvantages of travelling to a given destination by airplane, train, and bus.

Native Studies

Aboriginal Beliefs, Values, and Aspirations in Contemporary Society Transfer, Grade 11, Workplace Preparation to College Preparation

(NBV3Q)

This transfer course will provide students who have successfully completed Aboriginal Beliefs, Values, and Aspirations in Contemporary Society, Grade 11, Workplace Preparation with an opportunity to achieve the expectations not covered in that course but included in Aboriginal Beliefs, Values, and Aspirations in Contemporary Society, Grade 11, College Preparation. On successful completion of this transfer course, students will be able to proceed to either of the two Grade 12 university/college preparation courses in Native studies.

This transfer course focuses on world views of Aboriginal peoples and on the political, economic, cultural, and social challenges facing Aboriginal individuals and their communities.

Prerequisite: Aboriginal Beliefs, Values, and Aspirations in Contemporary Society, Grade 11, Workplace Preparation (NBV3E)

Credit value: 0.5

Identity

Overall Expectations

By the end of this course, students will:

- describe selected traditional and contemporary beliefs and values of Aboriginal cultures that influence present-day activities and behaviours;
- compare Aboriginal and non-Aboriginal perspectives on the contemporary cultural identities of Aboriginal peoples;
- describe the efforts and actions of Aboriginal communities and individuals to maintain their cultures and languages within traditional land bases, on reserves, and in urban settings.

Specific Expectations

Aboriginal World View

By the end of this course, students will:

- demonstrate an understanding of how Aboriginal peoples' identity as custodians and protectors of the land entrusted to them by the Creator (e.g., as expressed in the thanksgiving address) inspires their historical and contemporary commitment to remaining on their lands (e.g., as reflected in their negotiation of treaties such as the Maritimes Treaty of 1752 and Treaty No. 11);
- describe how Aboriginal practices, behaviours, beliefs, and symbols (e.g., hunting and fishing traditions; ceremonies and feasts; the use of drums, music, and dance) strengthen Aboriginal cultural identities.

Aboriginal and Canadian Relations

By the end of this course, students will:

- explain how Aboriginal values might conflict with economic forces (e.g., in the settlement of fishing disputes or land claims);
- describe how Aboriginal cultural activities and symbols (e.g., eagle feathers) increase public awareness and contribute to public understanding of Aboriginal cultural contributions (e.g., Inuit carvings);

- describe how the interaction of Aboriginal communities and Canadian society in the twentieth century has affected Aboriginal beliefs and values (e.g., the effect of the wage economy, the focus on the individual as opposed to the collectivity).

Renewal and Reconciliation

By the end of this course, students will:

- describe how Aboriginal communities and individuals maintain links with traditional spiritual beliefs and practices in urban, rural, and institutional settings (e.g., grandmothers' roles, healing circles);
- compare the role of beliefs and values in sustaining two different Aboriginal communities today;
- explain ways in which artists, healers, elders, women, and politicians define and promote Aboriginal peoples' aspirations (e.g., in the briefs and submissions as recorded in the Final Report of the Royal Commission on Aboriginal Peoples, 1996).

Relationships

Overall Expectations

By the end of this course, students will:

- explain how Aboriginal peoples' links to the land and to a sustainable environment are part of their cultural identity;
- demonstrate an understanding of the varying perspectives on Aboriginal peoples' right to self-determination.

Specific Expectations

Aboriginal World View

By the end of this course, students will:

- identify examples of art, architecture, and artefacts that depict a spiritual and emotional link between Aboriginal peoples and their traditional lands (e.g., totem pole carvings; masks; designs of cultural centres; art work of Daphne Odjig, Maxine Noel, and Joane Cardinal Schubert);
- describe how the spiritual relationship that Aboriginal peoples have with the land is integrated with their beliefs and values (e.g., the Aboriginal belief that many parts of nature have spirits).

Aboriginal and Canadian Relations

By the end of this course, students will:

- describe how Aboriginal peoples can express their distinctive identity in multicultural Canada;
- demonstrate an understanding of the injustices of the past that affect Aboriginal and Canadian relationships (e.g., how such injustices resulted in the Statement of Reconciliation by the Canadian government in 1998);
- describe how the 1985 revisions to the Indian Act gave First Nation communities the opportunity to exercise their right of self-determination (e.g., the revision outlined a process that resulted in each First Nation community having its own rules on membership or “membership code”);

- explain the principles that Métis nations follow in exercising their right to self-determination;
- demonstrate an understanding of how the Inuit have exercised their right to self-determination (i.e., through the creation of Nunavut).

Renewal and Reconciliation

By the end of this course, students will:

- identify specific challenges facing Aboriginal peoples within various communities across Canada in their relationship with the Canadian government (e.g., the social problems of the Innu at Davis Inlet, the Lubicon Cree land issue);
- describe the primary values in relationships (e.g., inclusiveness, fairness, respect) that Aboriginal women want to achieve through the implementation of Bill C-31 in First Nation communities;
- identify efforts of Aboriginal peoples towards cultural revitalization (e.g., reinstating ceremonial practices, providing Native language classes for adults).

Sovereignty

Overall Expectation

By the end of this course, students will:

- demonstrate an understanding of how traditional teachings and contemporary beliefs are the foundation of Aboriginal self-determination.

Specific Expectations

Aboriginal World View

By the end of this course, students will:

- demonstrate an understanding of Aboriginal values in the negotiations of modern treaties (e.g., the Cree position on the Great Whale River Dam proposals by Hydro-Québec, the Nisga'a Treaty negotiations).

Aboriginal and Canadian Relations

By the end of this course, students will:

- describe how the dialogue between Aboriginal peoples and Canadian society on the definitions of *sovereignty*, *self-determination*, and *self-government* (e.g., the 1983, 1984, 1987, 1990, and 1992 constitutional discussions; court cases on the hunting and fishing rights of Aboriginal peoples) demonstrates that these terms have distinct, though overlapping, meanings;
- explain how Aboriginal communities have maintained their autonomy at the same time as cross-cultural interactions with Canadian society have changed the traditional roles, responsibilities, and occupations of Aboriginal men and women (e.g., the evolution of jobs and responsibilities within Aboriginal communities);

- identify the conflicting values and priorities (e.g., Anishnawbe treaty-making protocol) that affect the negotiation of treaties and agreements involving Aboriginal communities and different levels of government;
- demonstrate an understanding of various viewpoints on the issue of Aboriginal self-determination (e.g., by analysing the writings of Richard Wagamese).

Renewal and Reconciliation

By the end of this course, students will:

- demonstrate an understanding of how Aboriginal peoples incorporate traditional beliefs and values (e.g., the use of healing circles, sentencing circles, and birthing centres) into their lives in an attempt to revitalize their societies.

Challenges

Overall Expectations

By the end of this course, students will:

- identify challenges facing Aboriginal peoples in protecting and maintaining their cultures and languages, including the challenges presented by the ways in which the media deal with Aboriginal issues;
- demonstrate an understanding of differences in the challenges faced by various Aboriginal peoples, including status Indians, Métis, and Inuit.

Specific Expectations

Aboriginal World View

By the end of this course, students will:

- identify how Aboriginal peoples living in an urban setting can maintain their cultural identity (e.g., by using the services of Native Friendship Centres or enrolling their children in Native language classes in the schools they attend);
- describe the challenges facing Aboriginal communities in sustaining their languages, ceremonies, and beliefs;
- describe life experiences that may influence the formation of values, attitudes, and beliefs (e.g., as related in autobiographical writings by Maria Campbell, Drew Hayden Taylor, Ruby Slipperjack, and Lee Maracle).

Aboriginal and Canadian Relations

By the end of this course, students will:

- describe the impact of technology on the relationship of Aboriginal communities with Canadian society (e.g., advances in technology lead to acculturation);
- research and describe how an Aboriginal community is using traditional values and beliefs to support economic and political growth (e.g., Inuit art cooperatives, establishing cultural centres, eco-tourism ventures).

Renewal and Reconciliation

By the end of this course, students will:

- demonstrate an understanding of the challenges various Aboriginal peoples face in preserving their distinct cultures;
- demonstrate an understanding of the challenges involved in sensitizing mainstream health and social service providers to the needs and aspirations of various Aboriginal peoples (e.g., through affirmative action, cross-cultural awareness, Aboriginal input);
- demonstrate an understanding of how Aboriginal peoples have adapted to challenges caused by technological and environmental changes (e.g., using air travel, snowmobiles, and computer technology; the impact of dam construction in Quebec).

English: Contemporary Aboriginal Voices Transfer, (NBE3Q) Grade 11, Workplace Preparation to College Preparation

This transfer course will provide students who have successfully completed English: Contemporary Aboriginal Voices, Grade 11, Workplace Preparation with an opportunity to achieve the expectations not covered in that course but included in English: Contemporary Aboriginal Voices, Grade 11, College Preparation. On successful completion of this transfer course, students will be able to proceed to either of the two Grade 12 university/college preparation courses in Native studies.

This transfer course focuses on developing skills in the analysis of informational and literary texts and media works by Aboriginal writers, on writing reports and persuasive essays, on establishing appropriate voice in written work, and on using business and technical language with precision and clarity.

Prerequisite: English: Contemporary Aboriginal Voices, Grade 11, Workplace Preparation (NBE3E)

Credit value: 0.5

Note: Students who successfully complete English: Contemporary Aboriginal Voices, Grade 11 (Workplace, College, or University Preparation) and who wish to take a compulsory Grade 12 English course *of a different type* must take the appropriate English transfer course (see the section of this document devoted to English transfer courses, starting on page 41).

Identity

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the cultural diversity of Aboriginal peoples through a study of Aboriginal literary works;
- analyse information, ideas, issues, and language as they pertain to Aboriginal identity in a selection of various informational writings and Aboriginal literary works;
- analyse images in media works related to Aboriginal identity.

Specific Expectations

Aboriginal Voices in Literature

By the end of this course, students will:

- identify and compare perspectives on Aboriginal identity expressed by Aboriginal writers (e.g., Chief Dan George, Maria Campbell, Rita Joe);
- interpret and assess explicit and implicit ideas, issues, and information in informational texts from Aboriginal sources (e.g., Aboriginal magazines, newspapers, and community newsletters) as they relate to identity.

Language

By the end of this course, students will:

- analyse how Aboriginal writers reveal identity through their use of language;
- analyse information and ideas relating to Aboriginal identity found in a variety of publications (e.g., Aboriginal newspapers and magazines, Indian and Northern Affairs Canada publications).

Aboriginal Voices in Media Works

By the end of this course, students will:

- assess aspects of Aboriginal identity that reflect Aboriginal views, as found in the media works (e.g., the National Film Board video on the conflict at Oka, Quebec, in 1990 directed by Alanis Obomsawin) of Aboriginal creators (e.g., Susan Aglukark, Robbie Robertson, Gary Farmer, Alanis Obomsawin);
- compare the images of Aboriginal identity portrayed in media works by both Aboriginal and non-Aboriginal creators;
- analyse the changing quality of life in Aboriginal communities (e.g., Alkali Lake, Davis Inlet) as depicted in media works.

Relationships

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the relationships depicted in fiction (with an emphasis on the novel) and non-fiction by Aboriginal writers;
- demonstrate an understanding of form, purpose, audience, and production techniques by designing or creating media works, independently and collaboratively, based on ideas, themes, and issues related to relationships examined in this course.

Specific Expectations

Aboriginal Voices in Literature

By the end of this course, students will:

- analyse changes that take place in Aboriginal relationships through interaction with Canadian society, as portrayed in the works of Aboriginal writers (e.g., Ruby Slipperjack, Beatrice Culleton-Moisner, Daniel David Moses);
- compare their own ideas and perspectives with those expressed or implied in a text by an Aboriginal writer (e.g., by analysing the thoughts and responses of a fictional character in a crisis and comparing these with their own probable reactions; by debating two different interpretations of a literary work, using specific references to the text to support their arguments).

Language

By the end of this course, students will:

- identify specialized language appropriate to business and technical contexts in either First Nation communities or Canadian society and use it with precision in oral and written work;

- communicate effectively in group discussions on the relationships between Aboriginal and Canadian societies portrayed in works by Aboriginal creators, displaying such skills as contributing additional and relevant information, asking questions for clarification, completing assigned tasks for the group, summarizing the main ideas of the discussion, working towards consensus, and accepting group decisions when appropriate.

Aboriginal Voices in Media Works

By the end of this course, students will:

- analyse media works by Aboriginal creators that critique Aboriginal relationships with Canadian society (e.g., National Film Board productions);
- compare the ways in which different Aboriginal communities work to restore relationships and values, as depicted in media works by Aboriginal creators (e.g., *Hunters and Bombers in the Circle Unbroken* video series).

Sovereignty

Overall Expectations

By the end of this course, students will:

- describe the issues of identity and culture as they relate to sovereignty, as expressed in works by Aboriginal writers;
- apply their knowledge of vocabulary and language conventions to read, write, and speak effectively while identifying, developing, or describing Aboriginal sovereignty;
- analyse themes related to sovereignty, as portrayed in media works by Aboriginal creators.

Specific Expectations

Aboriginal Voices in Literature

By the end of this course, students will:

- identify different definitions of sovereignty (e.g., personal sovereignty, spiritual sovereignty, collective sovereignty, political sovereignty), as expressed in the works of Aboriginal writers;
- assess the impact of Aboriginal sovereignty on Canadian society, as portrayed in the works of Aboriginal writers (e.g., Connie Fife, Taiaiake Alfred);
- describe the responses of Aboriginal writers (e.g., Maria Campbell, Drew Hayden Taylor, Lee Maracle) to barriers to Aboriginal sovereignty erected by Canadian society.

Language

By the end of this course, students will:

- express themselves clearly in a variety of spoken and written communications (e.g., oral debates, short position papers) on the topic of Aboriginal sovereignty, using appropriate vocabulary and figurative language;
- develop an understanding of the language used to affirm Aboriginal sovereignty (e.g., in statements such as “Aboriginal people will never again be the objects of public policies of assimilation and extinguishment”).

Aboriginal Voices in Media Works

By the end of this course, students will:

- demonstrate an understanding of an Aboriginal community’s efforts to achieve sovereignty, as expressed in media works by Aboriginal creators (e.g., any National Film Board production by Alanis Obomsawin).

Challenges

Overall Expectations

By the end of this course, students will:

- assess the challenge of maintaining cultural identity facing Aboriginal peoples, as represented in Aboriginal literature;
- analyse and assess Aboriginal writers' descriptions of the challenges faced by Aboriginal peoples.

Specific Expectations

Aboriginal Voices in Literature

By the end of this course, students will:

- analyse Aboriginal writers' depictions of challenges faced by Aboriginal peoples that have resulted directly from societal influences (e.g., racism, ethnocentricity, marginalization);
- assess how Aboriginal writers (e.g., Thomas King, Tomson Highway, Basil Johnston, Jeannette Armstrong) have adapted traditional story forms to modern prose in describing challenges faced by Aboriginal peoples.

Language

By the end of this course, students will:

- demonstrate an understanding of how Aboriginal writers use literary devices (e.g., foreshadowing, humour) to show how Aboriginal peoples are adapting to challenges;
- recognize, describe, and use correctly in oral and written language the language structures of standard Canadian English and its conventions of grammar, usage, spelling, and punctuation, as prescribed for this course, when describing challenges identified in this course.

Aboriginal Voices in Media Works

By the end of this course, students will:

- demonstrate an understanding of the positive nature of media works (e.g., by assessing how form, style, and language are used in newspapers, magazine articles, and video productions) in depicting challenges faced by Aboriginal communities.

Writing

Overall Expectations

By the end of this course, students will:

- select and use appropriate writing forms for various purposes and audiences, focusing on reports and persuasive essays;
- use a variety of organizational structures and patterns to produce coherent and effective written work;
- revise their written work, independently and collaboratively, focusing on accuracy of information, clear expression, and consistent use of voice;
- edit and proofread to produce final drafts, using correctly the grammar, usage, spelling, and punctuation conventions of standard Canadian English, as presented for this course, with the support of print and electronic resources when appropriate.

Specific Expectations

Generating Ideas and Gathering Information

By the end of this course, students will:

- classify and organize information and ideas to suit specific forms and purposes for writing (e.g., sort information from different sources for a report on effective business practices; organize information to support the arguments for an opinion piece);
- use information and ideas from prior knowledge and from research to develop content for writing (e.g., interview an employee for an essay about teamwork and cooperation in business; apply knowledge of characterization techniques to write a short essay about the major character in a novel by an Aboriginal writer).

Choosing the Form to Suit the Purpose and Audience

By the end of this course, students will:

- select and use appropriate informational or literary forms to produce written work for specific audiences and purposes, with an emphasis on reports and persuasive essays (e.g., summarize a magazine article on a topic of personal interest for a report to the class; write a letter requesting information about a college program; write a short essay presenting a solution to a community problem).

Organizing Ideas and Information in Written Work

By the end of this course, students will:

- apply knowledge of essay structure to organize short essays, using (a) an introduction that engages the reader's interest, introduces the thesis or controlling idea, and previews the organization or content of the essay; (b) a body that develops ideas logically and coherently and incorporates well-chosen, relevant evidence to support each idea; and (c) a conclusion that follows logically from the thesis and ideas developed in the body, summarizes the key points and organization in the body, and makes a thoughtful generalization related to the controlling idea.

Revising Drafts

By the end of this course, students will:

- revise drafts to increase precision and clarity of expression by incorporating appropriate business and technical language and transition words (e.g., use a dictionary and thesaurus to find specialized vocabulary to replace vague or inaccurately used words);
- revise drafts to ensure consistent use of an appropriate voice and tone (e.g., highlight pronouns to check for consistent use of person in a report or memo; use feedback

from a peer conference to assess the appropriateness of voice used in a set of instructions or tone in a character's direct speech).

Editing, Proofreading, and Publishing

By the end of this course, students will:

- cite researched information, ideas, and quotations in a consistent manner according to acceptable research methodology (e.g., cite sources using a recognized style such as that of the Modern Language Association [MLA] or the American Psychological Association [APA]);
- compare their current writing skills with those required in a variety of college programs and occupations and make action plans to address identified needs;
- edit and proofread their own and others' writing, identifying and correcting errors according to the requirements for grammar, usage, spelling, and punctuation listed below:

Grammar and Usage

- use parts of speech correctly, including participles and gerunds;
- construct various types of sentences correctly, including compound-complex sentences, using conjunctions; prepositional and gerund phrases; and noun, adjective, and adverb clauses;

- make pronouns agree with their antecedents, and subjects with their predicates, even when widely separated in a sentence or paragraph;
- use active and passive voice to suit purpose and audience;
- use correct parallel structure;
- identify deliberate uses of ungrammatical structures in advertisements, poetry, and oral language;

Spelling

- spell correctly specific business, technical, and literary terms used in course materials;

Punctuation

- use the full range of punctuation correctly and for rhetorical effect.

Science

Science Transfer, Grade 10, Applied to Academic

(SNC2H)

This transfer course will provide students who have successfully completed Science, Grade 10, Applied, with an opportunity to achieve the expectations not covered in that course but included in Science, Grade 10, Academic. On successful completion of this transfer course, students will be able to proceed to any Grade 11 university preparation science course and to the Grade 12 university preparation earth and space science course.

This transfer course will enable students to develop further their knowledge and understanding of biology, chemistry, earth and space science, and physics. Students will conduct investigations to broaden their skills in scientific inquiry, and understand scientific theories related to: ecology; chemical reactions, with particular emphasis on acid-base reactions; factors affecting weather systems; and motion.

Prerequisite: Science, Grade 10, Applied (SNC2P)

Credit value: 0.5

Biology: The Sustainability of Ecosystems

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the dynamic nature of ecosystems, including the relationship between ecological balance and the sustainability of life;
- investigate factors that affect ecological systems and the consequences of changes in these factors;
- analyse issues related to environmental sustainability and the impact of technology on ecosystems.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- assess the potential impact of bioaccumulation on the viability and diversity of consumers at all trophic levels;
- examine the factors (natural and external) that affect the survival and equilibrium of populations in an ecosystem (e.g., resource limits of an ecosystem, competing populations, bioaccumulation, selective decline);
- compare a natural and a disturbed ecosystem and suggest ways of assuring their sustainability (e.g., compare a meadow and a lawn).

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- through investigations and applications of basic concepts:
 - formulate scientific questions about observed ecological relationships, ideas, problems, and issues (e.g., What impact will supplying an excess of food for a particular organism have on an ecosystem?);
 - demonstrate the skills required to plan and conduct an inquiry into ecological relationships, using instruments, apparatus, and materials safely and accurately, and controlling major variables and adapting or extending procedures where required;

- select and integrate information from various sources, including electronic and print resources, community resources, and personally collected data, to answer the questions chosen;
- analyse data and information and evaluate evidence and sources of information, identifying flaws such as errors and bias;
- select and use appropriate vocabulary and numeric, symbolic, graphic, and linguistic modes of representation to communicate scientific ideas, plans, results, and conclusions (e.g., use terms such as *biotic*, *abiotic*, *biomass*, *biome*, *ecosystem*, *chemical concentration*, and *biodiversity* when making presentations);

- design and conduct an investigation to examine the effects of one factor on soil composition and fertility and on water quality in an ecosystem (e.g., design and conduct an experiment to examine the effects of altering soil pH on the fertility of plants and on the concentration of dissolved oxygen in water, and graph the results);
- analyse a population case study (e.g., of deer, wolves, or humans) by producing population growth curves for each of the populations in the study, and use the graphs to explain how different factors affect population size and to predict the effect of varying factors (e.g., the availability of food) on the population.

***Relating Science to Technology, Society,
and the Environment***

By the end of this course, students will:

- assess the impact of natural change on an ecosystem (e.g., the effect on an ecosystem of forest fire, flood, the natural infection of one species, or the movement of a species in or out of the area);
- identify and research a local issue involving an ecosystem; propose a course of action, taking into account human and environmental needs; and defend their position in oral or written form (e.g., organize and participate in a debate on converting a grass lot into a parking lot);
- describe the physical and chemical processes involved in the methods used to clean up a contaminated site (e.g., how absorbent chemicals such as charcoal work in cleaning up oil spills);
- explain changes in popular views about the sustainability of ecosystems and humans' responsibility in preserving them (e.g., the shift from a belief that all resources are inexhaustible to the belief that recycling, reusing, and reducing are important).

Chemistry: Chemical Processes

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of chemical reactions as outlined below under “Understanding Basic Concepts”;
- design and conduct investigations of chemical reactions, using standard scientific procedures, and communicate the results;
- determine why knowledge of chemical reactions is important in developing consumer products and industrial processes and in addressing environmental concerns.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- explain, using the law of conservation of mass and atomic theory, the rationale for balancing equations;
- explain the interrelationships among metals and non-metals, acidic and basic oxides, and acids, bases, and salts.

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- through investigations and applications of basic concepts:
 - select and use appropriate apparatus, and apply WHMIS safety procedures for the handling, storage, disposal, and recycling of laboratory materials (e.g., wear safety goggles and aprons; use proper techniques for the handling, disposal, and recycling of acids, bases, and heavy metal ions; describe procedures to be followed in an emergency);
 - formulate scientific questions about practical problems and issues involving chemical processes (e.g., Does dissolving oxides in water affect its pH?);
 - demonstrate the skills required to plan and conduct an inquiry into chemical processes using a broad range of tools and techniques safely and accurately, and

controlling major variables and adapting or extending procedures where required (e.g., generate metal and non-metal oxides, then dissolve them in water and measure any change in pH);

- select and integrate information from various sources, including electronic and print resources, community resources, and personally collected data, to answer the questions chosen;
- analyse data and information and evaluate evidence and sources of information, identifying flaws such as errors and bias;
- describe experimental procedures in the form of a laboratory report (e.g., clearly identify the variable under investigation as well as the variables controlled; clearly describe the procedures followed and the data obtained; write an analysis of what was learned from the data);
- select and use appropriate vocabulary, SI units, and numeric, symbolic, graphic, and linguistic modes of representation to communicate scientific ideas, plans, results, and conclusions (e.g., descriptions of experimental procedures using the scientific method; data presented in tables);

- compare theoretical and empirical values and account for discrepancies when investigating conservation of mass (e.g., measure the mass of a chemical reaction system – such as the reaction of iron (III) nitrate and dilute sodium hydroxide – before and after a change, and account for any discrepancies);
- conduct experiments on the combustion of metals and non-metals and react the oxides formed with water to produce acidic or basic solutions;
- conduct appropriate chemical tests to identify common gases (e.g., oxygen, hydrogen, carbon dioxide).

Relating Science to Technology, Society, and the Environment

By the end of this course, students will:

- explain how environmental challenges can be addressed through an understanding of chemical substances (e.g., challenges such as the renewal of the Great Lakes, the neutralization of acid spills, the scrubbing of waste gases in smokestacks);
- describe how an understanding of chemical reactions has led to the development of new consumer products and technological processes (e.g., antacids, fire-retardant materials);
- identify everyday examples where the rates of chemical reactions are modified (e.g., the use of kindling to increase surface area in order to start a fire; the refrigeration of food to slow down spoilage).

Earth and Space Science: Weather Dynamics

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the factors affecting the fundamental processes of weather systems;
- investigate and analyse trends in local and global weather conditions to forecast global weather patterns;
- evaluate how technology has contributed to our understanding of the physical factors that affect the weather.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- explain different types of transformations of water vapour in the atmosphere and their effects (e.g., clouds, hail, freezing rain, ice pellets, fog, frost, rain, snow);
- describe the factors contributing to earth temperature gradients and to wind speed and direction;
- describe cyclones, hurricanes, tornadoes, and monsoons in terms of the meeting of air masses, atmospheric humidity, and the jet stream.

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- through investigations and applications of basic concepts:
 - formulate scientific questions about weather-related phenomena, problems, and issues (e.g., How do temperature gradients, wind speed, wind direction, and humidity affect the development and movement of hurricanes?);
 - demonstrate the skills required to plan and conduct a weather-related inquiry, using a broad range of tools and techniques safely and accurately, and adapting or extending procedures where required (e.g., determine the atmospheric conditions required to produce clouds);

- select and integrate information from various sources, including electronic and print resources, to answer the questions chosen;
- analyse data and information and evaluate evidence and sources of information, identifying flaws such as errors and bias (e.g., explain possible sources of error when interpreting weather data for predicting the formation of hurricanes or cyclones);
- select and use appropriate vocabulary and numeric, symbolic, graphic, and linguistic modes of representation to communicate scientific ideas, plans, results, and conclusions (e.g., graph historical weather data to identify patterns that may assist in forecasting severe weather).

Relating Science to Technology, Society, and the Environment

By the end of this course, students will:

- explain the role of weather dynamics in environmental phenomena and consider the consequences to humans of changes in weather (e.g., the role of weather in air pollution, acid rain, global warming, and smog; the fact that smog aggravates asthma);
- explain how people have utilized their understanding of weather patterns for various purposes (e.g., to harness wind as a power source; to participate in ocean sailing races);

- compare various cultural (e.g., First Nations) and historical views on the origins and interpretation of weather;
- explain how a scientific understanding of weather patterns can be used to modify environmental conditions (e.g., by seeding clouds to alleviate drought; by modelling the dynamics of fire-fighting strategies to fight forest fires).

Physics: Motion

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of different kinds of motion and of the quantitative relationships among displacement, velocity, and acceleration, and solve simple problems involving displacement, velocity, and acceleration;
- design and conduct investigations on the displacement, velocity, and acceleration of an object;
- analyse everyday phenomena and technologies in terms of the motions involved.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- add collinear displacement vectors algebraically and graphically and non-collinear displacement vectors graphically;
- draw velocity-time graphs for constant velocity and for constant acceleration, and calculate the constant acceleration and displacement from velocity-time graphs;
- use a velocity-time graph for constant acceleration to derive the equation for average velocity

$$(\vec{v}_{\text{av}} = \frac{\vec{v}_1 + \vec{v}_2}{2})$$

and the equations for displacement

$$[\Delta \vec{d} = (\frac{\vec{v}_1 + \vec{v}_2}{2}) \Delta t \text{ and}$$

$$\Delta \vec{d} = \vec{v}_1 \Delta t + \frac{1}{2} \vec{a} (\Delta t)^2]$$

and solve simple problems in one dimension using these equations.

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- through investigations and applications of basic concepts:
 - formulate scientific questions about observed relationships, ideas, problems, and issues related to motion (e.g., What are the different acceleration characteristics of different transportation vehicles?);
 - demonstrate the skills required to plan and conduct an inquiry into motion, controlling major variables and adapting or extending procedures where required (e.g., determine the time or distance intervals at which measurements should be taken to calculate the average velocity of a bicycle rider);
 - use a broad range of tools and techniques safely, accurately, and effectively to compile, record, and analyse data and information, and apply mathematical and conceptual models to develop and assess possible explanations (e.g., stopwatches, photogates, length-measurement devices, and motion sensors to obtain data; electronic spreadsheets and graphs to record and analyse the data);

- select and integrate information from various sources, including electronic and print resources, to answer the questions chosen;
- analyse data and information and evaluate evidence and sources of information, identifying flaws such as errors and bias (e.g., determine the mathematical relationship among displacement, velocity, and time, and identify any sources of error in data collection);
- identify, explain, and express sources of error and uncertainty in experimental measurements;
- select and use appropriate vocabulary, SI units, and numeric, symbolic, graphic, and linguistic modes of representation to communicate scientific ideas, plans, results, and conclusions (e.g., present a graph showing an object's velocity, ensuring that the variables are on the appropriate axis);
- design, conduct, and evaluate experiments to measure the displacement, velocity, and acceleration of a moving object in one dimension, for both uniform motion and constant acceleration;
- design, conduct, and evaluate an experiment to measure acceleration due to gravity;
- use simple graphs and vector diagrams to describe predicted and observed motion in one dimension.

Relating Science to Technology, Society, and the Environment

By the end of this course, students will:

- describe the development of those features of a piece of sports equipment that relate to improving performance (e.g., a baseball, skates, a skateboard, in-line skates, a snowboard, a bicycle);
- analyse how technology is used for tracking the motion of objects and outline the kinds of scientific knowledge gained through the use of such technologies (e.g., the tracking of animal migrations, airplane flights, traffic, ocean currents).

Biology Transfer, Grade 11, College Preparation to University Preparation

(SBI3K)

This transfer course will provide those students who have successfully completed Biology, Grade 11, College Preparation with an opportunity to achieve the expectations not covered in that course but included in Biology, Grade 11, University Preparation. On successful completion of this transfer course, students will be able to proceed to Biology, Grade 12, University Preparation and to the Grade 12 university preparation course in health and physical education.

This transfer course furthers students' understanding of the processes involved in biological systems. Students will study cellular functions, genetic continuity, internal systems and regulation, the diversity of living things, and the anatomy, growth, and functions of plants. The course focuses on the theoretical aspects of the topics under study, and helps students further refine skills related to scientific investigation.

Prerequisite: Biology, Grade 11, College Preparation (SBI3C)

Credit value: 0.5

Throughout this course, students will:

- demonstrate an understanding of safety practices consistent with Workplace Hazardous Materials Information System (WHMIS) legislation by selecting and applying appropriate techniques for handling, storing, and disposing of laboratory materials (e.g., use proper techniques in preparing, using, and disposing of bacterial cultures);
- select appropriate instruments and use them effectively and accurately in collecting observations and data (e.g., microscope, laboratory glassware, stethoscope, dissection instruments);
- demonstrate the skills required to plan and carry out investigations, using laboratory equipment safely, effectively, and accurately (e.g., conduct an experiment to determine the effects of quantity and quality of light on photosynthesis);
- select and use appropriate numeric, symbolic, graphical, and linguistic modes of representation to communicate scientific ideas, plans, and experimental results (e.g., use characteristics of organisms and the principles and nomenclature of taxonomy to classify organisms; use proper terminology related to organs and tissues);
- locate, select, analyse, and integrate information on topics under study, working independently and as part of a team, and using appropriate library and electronic research tools, including Internet sites;
- compile, organize, and interpret data, using appropriate formats and treatments, including tables, flow charts, graphs, and diagrams;
- communicate the procedures and results of investigations and research for specific purposes using data tables and laboratory reports (e.g., report on an experimental investigation of the movement of materials across a cell membrane);
- express the result of any calculation involving experimental data to the appropriate number of decimal places or significant figures;

- select and use appropriate SI units (units of measurement of the *Système international d'unités*, or International System of Units);
- identify and describe science- and technology-based careers related to the subject area under study (e.g., biochemist, forester, geneticist, physiotherapist, oncologist, horticulturist).

Cellular Functions

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of cell structure and function and the processes of metabolism and membrane transport;
- investigate the fundamental molecular principles and mechanisms that govern energy-transforming activities in all living matter, whether it be animal, plant, or microbial;
- demonstrate an understanding of the relationship between cell functions and their technological and environmental applications.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- describe the fluid mosaic structure of cell membranes, and explain the dynamics of passive transport (facilitated diffusion) and the processes of endocytosis and exocytosis of large particles;
- illustrate and explain important cellular processes (e.g., protein synthesis, respiration, lysosomal digestion), including their function in the cell, the ways in which they are interrelated, and the fact that they occur in all living cells.

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- design and carry out an investigation on cellular function, controlling the major variables (e.g., examine the movement of substances across a membrane; measure a metabolic process such as fermentation);
- view and manipulate computer-generated, three-dimensional molecular models of important biochemical compounds, including carbohydrates, proteins, lipids, and nucleic acids;
- identify new questions and problems stemming from the study of metabolism in plant and animal cells (e.g., What is the relationship between chloroplasts and mitochondria in plant cells?).

Relating Science to Technology, Society, and the Environment

By the end of this course, students will:

- present informed opinions on advances in cellular biology and possible applications through related technology (e.g., new treatments for cancer; the possibility of producing ethanol as a fuel; the uses of radioactive labelling, fluorescence of genetic material, or simulations of three-dimensional molecular structure).

Genetic Continuity

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the necessity of meiosis and describe the importance of genes in transmitting hereditary characteristics according to Mendel's model of inheritance;
- perform laboratory studies of meiosis and analyse the results of genetic research related to the laws of heredity;
- outline the scientific findings and some of the technological advances that led to the modern concept of the gene and to genetic technology, and demonstrate an awareness of some of the social and political issues raised by genetic research and reproductive technology.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- demonstrate an understanding of the process and importance of mitosis (e.g., cell division and the phases of mitosis);
- explain how the concepts of DNA, genes, chromosomes, and meiosis account for the transmission of hereditary characteristics from generation to generation (e.g., explain how the sex of an individual can be determined genetically; demonstrate an understanding that the expression of a genetic disorder linked to the sex chromosomes is more common in males than in females);
- describe and explain the process of discovery (e.g., the sequence of studies and the knowledge gained) that led Mendel to formulate his laws of heredity;
- explain the process of meiosis in terms of the replication and movement of chromosomes;
- describe genetic disorders (e.g., Down's syndrome, cystic fibrosis, muscular dystrophy, fragile X syndrome) in terms of the chromosomes affected, physical effects, and treatment;

- explain, using Mendelian genetics, the concepts of dominance, co-dominance, incomplete dominance, recessiveness, and sex-linkage;
- predict the outcome of various genetic crosses.

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- explain the process of meiosis, with reference to a computer simulation or to their own investigations with a microscope (e.g., using slides of grasshopper testis, explain what happens in the first and second stages of prophase and metaphase and anaphase 2 in meiosis);
- solve basic genetic problems involving monohybrid crosses, incomplete dominance, co-dominance, dihybrid crosses, and sex-linked genes using the Punnett method;
- organize data (e.g., in a table) that illustrate the number of chromosomes in haploid cells and diploid cells, and the number of pairs of chromosomes in diploid cells, that occur in various organisms before, during, and as a result of meiosis;

- compile qualitative and quantitative data from a laboratory investigation on monohybrid and dihybrid crosses, and present the results, either by hand or computer (e.g., record observations using a “Virtual Fly” laboratory software package).

Relating Science to Technology, Society, and the Environment

By the end of this course, students will:

- summarize the main scientific discoveries of the nineteenth and twentieth centuries that led to the modern concept of the gene (e.g., the discoveries of Hugo de Vries, W.S. Sutton, Thomas Morgan, J. Muller, Barbara McClintock, Rosalind Franklin, James Watson, and Francis Crick);
- identify and describe examples of Canadian contributions to knowledge about genetic processes (e.g., research into cystic fibrosis) and to technologies and techniques related to genetic processes (e.g., the invention of nuclear magnetic resonance [NMR]).

Internal Systems and Regulation

Overall Expectations

By the end of this course, students will:

- describe and explain the major processes, mechanisms, and systems, including the respiratory, circulatory, and digestive systems, by which plants and animals maintain their internal environment;
- illustrate and explain, through laboratory investigations, the contribution of various types of systems and processes to internal regulation in plant and animal systems;
- evaluate the impact of personal lifestyle decisions on the health of humans, and analyse how societal concern for maintaining human health has advanced the development of technologies related to the regulation of internal systems.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- describe the process of ventilation and gas exchange from the environment to the cell (e.g., describe the pathway of oxygen from the atmosphere to the cell, and the roles of ventilation, haemoglobin, and diffusion in this process);
- explain the role of transport or circulatory systems in the transport of substances in an organism (e.g., explain how nutrients, respiratory gases, end products of metabolism, and hormones or regulatory chemicals are transported from one area in an organism to another);
- describe the importance of nutrients and digestion in providing substances needed for energy and growth (e.g., relate the need for carbohydrates in the diet to their role in cellular respiration; describe the many uses of proteins; describe how plants use nutrients);
- demonstrate an understanding of how fitness level is related to the efficiency of metabolism and of the cardiovascular and respiratory systems;

- describe how the use of prescription and non-prescription drugs can disrupt or help maintain homeostasis (e.g., describe the effects of acetylsalicylic acid, or ASA, on human systems).

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- compare the anatomy of different organisms – vertebrate and/or invertebrate (e.g., carry out a dissection, or use a computer-simulated dissection, of a mammal or a fish to examine the heart, the pulmonary circulation system, the aorta, and other main arteries and veins, and compare the functions of the arteries and veins to those of xylem and phloem in plants).

Relating Science to Technology, Society, and the Environment

By the end of this course, students will:

- present informed opinions about how scientific knowledge of internal systems influences personal choices concerning nutrition and lifestyle (e.g., explain the advantages and disadvantages of taking steroids or amino acid supplements; explain the scientific reasons for committing personal time to exercise).

Diversity of Living Things

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the diversity of living organisms through applying the concepts of phylogeny and taxonomy to the kingdoms of life (including Eubacteria and Archeabacteria) and viruses;
- use techniques of sampling and classification to illustrate the fundamental principles of taxonomy;
- relate the role of common characteristics and diversity within the kingdoms of life (including Eubacteria and Archeabacteria) to the importance of maintaining biodiversity within natural ecosystems, and explain the use of micro-organisms in biotechnology.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- define the fundamental principles of phylogeny (e.g., provide definitions of concepts such as genus, species, and taxon, and explain how species are categorized and named according to evolutionary history);
- compare and contrast the structure and function of different types of prokaryotic and eukaryotic cells (e.g., compare prokaryotic and eukaryotic cells in terms of genetic material, metabolism, and organelles/cell parts);
- describe selected anatomical and physiological characteristics of representative organisms from each life kingdom and a representative virus (e.g., describe gas exchange mechanisms and structures, or reproductive processes and components);
- compare and contrast the life cycles of representative organisms from each life kingdom and a representative virus (e.g., draw and label the life cycles of representative organisms, and make a chart comparing the features of the life cycles).

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- classify representative organisms from each of the kingdoms (e.g., classify organisms according to their nutritional pattern, type of reproduction, habitat, and general structures).

Relating Science to Technology, Society, and the Environment

By the end of this course, students will:

- demonstrate an understanding of the connection between biodiversity and species survival (e.g., state the advantages to a population of having genetic variations between individuals – such as the resistance to infection by “new” micro-organisms, the resistance of insects to pesticides, or the resistance of bacteria to antibiotics; explain why some species and not others survive an environmental stress).

Plants: Anatomy, Growth, and Functions

Overall Expectations

By the end of this course, students will:

- describe the major processes and mechanisms by which plants grow, develop, and supply various products, including energy and nutrition, needed by other organisms;
- demonstrate an understanding, based in part on their own investigations, of the connections among the factors that affect the growth of plants, the uses of plants, and the ways in which plants adapt to their environment;
- evaluate how the energy and nutritional needs of a population influence the development and use of plant science and technology.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- illustrate the process of succession and the role of plants in the maintenance of diversity and the survival of organisms;
- explain how non-vascular plants (e.g., multicellular algae, bryophytes) function without a specialized vascular system;
- describe the effects of growth regulators (e.g., auxins, gibberellins, cytokinins);
- describe and explain some of the food and industrial processes that depend on plants.

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- design and carry out an experiment to determine the factors that affect the growth of a population of plants, identifying and controlling major variables (e.g., examine the effect on plant growth of the quantity of nutrients, or the quantity and quality of light, or temperature, or salinity);
- describe the nutrients required for the development of plants (e.g., describe the uses of nitrogen, phosphorus, and potassium in the plant, and relate them to fertilizer content; consider different stages in the growth of plants, from germination

through growth, flowering, and fruit production, and indicate the appropriate fertilizer to be used at each stage);

- identify, using a microscope and models, the plant tissues in roots, stems, and leaves (e.g., use a microscope to identify tissues such as xylem and phloem throughout the plant).

Relating Science to Technology, Society, and the Environment

By the end of this course, students will:

- describe and explain ways in which society supports and influences plant science and technology (e.g., analyse the influence on food production technologies of the constant demand for fresh fruit at affordable prices);
- express opinions supported by their own research about the case for funding certain projects in plant science or technology rather than others (e.g., evaluate the relative merits, for funding purposes, of research projects on genetic manipulation of plants over projects related to the development of organic products).

Chemistry Transfer, College Preparation, Grade 12, (SCH3K) to University Preparation, Grade 11

This transfer course will provide those students who have successfully completed Chemistry, Grade 12, College Preparation with an opportunity to achieve the expectations not covered in that course but included in Chemistry, Grade 11, University Preparation. On successful completion of this transfer course, students will be able to proceed to Chemistry, Grade 12, University Preparation and to the Grade 12 university preparation course in health and physical education.

In this transfer course, students will study concepts and theories of modern chemistry in more depth. They will examine the behaviours of solids, liquids, gases, and solutions; changes and relationships in chemical systems; and ways in which chemistry is used in developing new products and processes that affect our lives and our environment. Emphasis will also be placed on the importance of chemistry in other branches of science.

Prerequisite: Chemistry, Grade 12, College Preparation (SCH4C)

Credit value: 0.5

Throughout this course, students will:

- demonstrate an understanding of safe laboratory practices by selecting and applying appropriate techniques for handling, storing, and disposing of laboratory materials (e.g., safely disposing of hazardous solutions; correctly interpreting Workplace Hazardous Materials Information System [WHMIS] symbols), and using appropriate personal protection (e.g., wearing goggles);
- select appropriate instruments and use them effectively and accurately in collecting observations and data (e.g., use a balance to accurately measure the mass of a precipitate);
- demonstrate the skills required to plan and carry out investigations using laboratory equipment safely, effectively, and accurately (e.g., plan and carry out an investigation to determine the percentage composition of a compound);
- demonstrate a knowledge of emergency laboratory procedures;
- select and use appropriate numeric, symbolic, graphical, and linguistic modes of representation to communicate scientific ideas, plans, and experimental results (e.g., present a detailed experimental report according to specified standards);
- compile and interpret data or other information gathered from print, laboratory, and electronic sources, including Internet sites, to research a topic, solve a problem, or support an opinion (e.g., research the uses of the most common products of the refining of petroleum);
- communicate the procedures and results of investigations for specific purposes by displaying evidence and information, either in writing or by using a computer, in various forms, including flow charts, tables, graphs, and laboratory reports (e.g., draw a graph of the relationship between the volume and pressure of a fixed amount of gas at constant temperature);

- express the result of any calculation involving experimental data to the appropriate number of decimal places or significant figures;
- select and use appropriate SI units (units of measurement of the *Système international d'unités*, or International System of Units);
- identify and describe science- and technology-based careers related to the subject area under study (e.g., describe careers in the area of hydrocarbons and energy, such as chemical engineering, or careers in transportation related to the research and development of new fuels).

Matter and Chemical Bonding

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the relationship between periodic tendencies, types of chemical bonding, and the properties of ionic and molecular compounds;
- carry out laboratory studies of chemical reactions, analyse chemical reactions in terms of the type of reaction and the reactivity of starting materials, and use appropriate symbols and formulae to represent the structure and bonding of chemical substances;
- describe how an understanding of matter and its properties can lead to the production of useful substances and new technologies.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- define isotopes and radio isotopes;
- demonstrate an understanding of the periodic law, and describe how electron arrangement and forces in atoms can explain periodic trends such as atomic radius, ionization energy, electron affinity, and electronegativity;
- explain the properties of the products of ionic and covalent bonds;
- explain how different elements combine to form covalent and ionic bonds using the octet rule;
- demonstrate an understanding of the relationship between the type of chemical reaction (e.g., synthesis, decomposition, single and double displacement) and the nature of the reactants;
- relate the reactivity of a series of elements to their position in the periodic table (e.g., compare the reactivity of metals in a group and metals in the same period; compare the reactivity of non-metals in a group).

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- use appropriate scientific vocabulary to communicate ideas related to chemical reactions (e.g., *electronegativity, chemical bond, periodic trend, ionization energy, electron affinity*);
- analyse data involving periodic properties such as ionization energy and atomic radius in order to recognize general trends in the periodic table;
- predict the ionic character or polarity of a given bond using electronegativity values, and represent the formation of ionic and covalent bonds using diagrams;
- draw Lewis structures, construct molecular models, and give the structural formulae for compounds containing single and multiple bonds;
- write, using IUPAC or traditional systems, the formulae of binary and tertiary compounds, including those containing elements with multiple valences, and recognize the formulae in various contexts;
- predict the products of, and write chemical equations to represent, synthesis, decomposition, substitution, and double displacement reactions, and test the predictions through experimentation;

- investigate through experimentation the reactions of elements (e.g., metals) to produce an activity series.

Relating Science to Technology, Society, and the Environment

By the end of this course, students will:

- relate common names of substances to their systematic names (e.g., *muriatic acid* and *hydrochloric acid*; *baking soda* and *sodium bicarbonate*);
- evaluate and compare the reactivity of metals and alloys (e.g., gold in jewellery, iron and stainless steel), and explain why most metals are found in nature as compounds.

Quantities in Chemical Reactions

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the mole concept and its significance in the analysis of chemical systems;
- carry out experiments and complete calculations based on quantitative relationships in balanced chemical reactions;
- demonstrate an awareness of the importance of quantitative chemical relationships in the home or in industry.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- explain the relationship between isotopic abundance and relative atomic mass;
- distinguish between the empirical formula and the molecular formula of a compound;
- explain the law of definite proportions.

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- use appropriate scientific vocabulary to communicate ideas related to chemical calculations (e.g., *limiting reagent*);
- determine percentage composition of a compound through experimentation, as well as through analysis of the formula and a table of relative atomic masses (e.g., composition of a hydrate);
- determine empirical formulae and molecular formulae, given molar masses and percentage composition or mass data;
- balance chemical equations by inspection;
- balance simple nuclear equations;
- calculate, for any given reactant or product in a chemical equation, the corresponding mass or quantity in moles or molecules of any other reactant or product;
- solve problems involving limiting reagents.

Relating Science to Technology, Society, and the Environment

By the end of this course, students will:

- explain how different stoichiometric combinations of elements in compounds can produce substances with different properties (e.g., water and hydrogen peroxide, carbon monoxide and carbon dioxide);
- identify everyday situations and work-related contexts in which analysis of unknown substances is important (e.g., quality control of composition of products; drug analysis in forensics).

Solutions and Solubility

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the properties of solutions, the concept of concentration, and the importance of water as a solvent;
- carry out experiments and other laboratory procedures involving solutions, and solve quantitative problems involving solutions;
- relate a scientific knowledge of solutions and solubility to everyday applications, and explain how environmental water quality depends on the concentrations of a variety of dissolved substances.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- demonstrate an understanding of the importance of water as a universal solvent and describe the properties of this liquid (e.g., polarity, hydrogen bonding);
- explain solution formation that involves the dissolving of ionic or non-ionic substances in water (e.g., oxygen in water, salt in water) and the dissolving of non-polar solutes in non-polar solvents (e.g., grease in gasoline);
- describe the dependence on temperature of solubility in water for solids, liquids, and gases;
- demonstrate an understanding of the Bronsted-Lowry theory of acids and bases;
- demonstrate an understanding of the operational definition of pH (i.e., $\text{pH} = -\log_{10}[\text{H}^+]$).

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- use appropriate scientific vocabulary to communicate ideas related to aqueous solutions (e.g., *concentration, solubility, conjugate acid, precipitate*);
- solve problems involving concentration of solutions and express the results in various units (e.g., moles per litre, grams per

100 mL, parts per million [and billion], mass or volume per cent);

- determine, through experiments, qualitative and quantitative properties of solutions (e.g., perform a qualitative analysis of ions in a solution; plot solubility curves for some common solutes in water), and solve problems based on such experiments;
- determine through experimentation the effect of dilution on the pH of an acid or a base.

Relating Science to Technology, Society, and the Environment

By the end of this course, students will:

- supply examples from everyday life of solutions involving all three states (e.g., carbonated water, seawater, alloys, air);
- explain the origins of pollutants in natural waters (e.g., landfill leachates, agricultural run-off), and identify the allowable concentrations of metallic and organic pollutants in drinking water;
- describe the technology and the major steps involved in the purification of drinking water and the treatment of waste water;
- explain hardness of water, its consequences (e.g., pipe scaling), and water-softening methods (e.g., ion exchange resins).

Gases and Atmospheric Chemistry

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the laws that govern the behaviour of gases;
- investigate through experimentation the relationships among the pressure, volume, and temperature of a gas, and solve problems involving quantity of substance in moles, molar masses and volumes, and the gas laws;
- describe how knowledge of gases has helped to advance technology, and how such technological advances have led to a better understanding of environmental phenomena and issues.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- explain different states of matter in terms of the forces between atoms, molecules, and ions;
- describe the gaseous state, using kinetic molecular theory, in terms of degree of disorder and types of motion of atoms and molecules;
- describe the quantitative relationships that exist among the following variables for an ideal gas: pressure, volume, temperature, and amount of substance;
- explain Dalton's law of partial pressures;
- state Avogadro's hypothesis and describe his contribution to our understanding of reactions of gases;
- identify the major and minor components of the atmosphere.

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- use appropriate scientific vocabulary to communicate ideas related to gases (e.g., *standard temperature, standard pressure, molar volume, ideal gas*);
- use and interconvert appropriate units to express pressure (e.g., pascals, atmospheres, mm Hg) and temperature (e.g., Celsius and Kelvin scales);

- determine through experimentation the quantitative and graphical relationships among the pressure, volume, and temperature of an ideal gas;
- solve quantitative problems involving the following gas laws: Charles's law, Boyle's law, the combined gas law, Gay-Lussac's law, Dalton's law of partial pressures, the ideal gas law;
- perform stoichiometric calculations involving the quantitative relationships among the quantity of substances in moles, the number of atoms, the number of molecules, the mass, and the volume of the substances in a balanced chemical equation;
- determine the molar volume of a gas through experimentation (e.g., calculate the molar volume of hydrogen gas from the reaction of magnesium with hydrochloric acid).

Relating Science to Technology, Society, and the Environment

By the end of this course, students will:

- describe natural phenomena (e.g., geysers, volcanic eruptions) and technological products (e.g., rocket engine, carbonated drinks, air bags) associated with gases;
- explain Canadian initiatives to improve air quality (e.g., the recycling of chlorofluorocarbons, the Montreal Protocol);

- identify technological products and safety concerns associated with compressed gases (e.g., propane tanks, medical oxygen tanks, welders' acetylene tanks);
- describe how knowledge of gases is applied in other areas of study (e.g., meteorology, medical anaesthetics, undersea exploration).

Hydrocarbons and Energy

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the structure and properties of hydrocarbons, especially with respect to the energy changes that occur in their combustion;
- describe and investigate the properties of hydrocarbons, and apply calorimetric techniques to the calculation of energy changes;
- evaluate the impact of hydrocarbons on our quality of life and the environment through an examination of some of their uses.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- identify the origins and major sources of organic compounds;
- demonstrate an understanding of the particular characteristics of the carbon atom, especially with respect to bonding in both aliphatic and cyclic alkanes, including structural isomers;
- describe some of the physical and chemical properties of hydrocarbons (e.g., solubility in water, density, melting point, boiling point, and combustibility of the alkanes);
- compare the energy changes observed when chemical bonds are formed and when they are broken, and relate these changes to endothermic and exothermic reactions;
- explain how mass, heat capacity, and change in temperature of an object determine the amount of heat it gains or loses;
- identify ways in which reactants, products, and a heat term are combined to form thermochemical equations representing endothermic and exothermic chemical changes.

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- use appropriate scientific vocabulary to communicate ideas related to hydrocarbons and the energy changes involved in their combustion (e.g., *organic compound, saturated hydrocarbons, unsaturated hydrocarbons, isomer, heat capacity*);
- name, using the IUPAC nomenclature system, and draw structural representations for, aliphatic and cyclic hydrocarbons containing no more than ten carbon atoms in the main chain, with or without sidechains;
- use molecular models to demonstrate the arrangement of atoms in isomers of hydrocarbons (e.g., structural and cis-trans isomers);
- determine through experimentation some of the characteristic properties of saturated and unsaturated hydrocarbons (e.g., compare the products obtained when bromine is added to cyclohexane and cyclohexene separately);
- write balanced chemical equations for the complete and incomplete combustion of hydrocarbons;

- gather and interpret experimental data and solve problems involving calorimetry and the equation $Q = mc\Delta T$ (e.g., calculate the energy liberated in the combustion of paraffin in J/g).

Relating Science to Technology, Society, and the Environment

By the end of this course, students will:

- describe the steps involved in refining petroleum to obtain gasoline and other useful fractions (e.g., butane, furnace oil, industrial chemicals and solvents).

Physics Transfer, College Preparation, Grade 12, (SPH3K) to University Preparation, Grade 11

This transfer course will provide those students who have successfully completed Physics, Grade 12, College Preparation with an opportunity to achieve the expectations not covered in that course but included in Physics, Grade 11, University Preparation. On successful completion of this transfer course, students will be able to proceed to Physics, Grade 12, University Preparation and to the Grade 12 university preparation course in health and physical education.

This transfer course develops further students' understanding of the basic concepts of physics. Students will study the laws of dynamics and explore different kinds of forces, the quantification and forms of energy (mechanical, sound, light, thermal, and electrical), and the way energy is transformed and transmitted. They will develop further their scientific-inquiry skills as they verify accepted laws and solve both assigned problems and those emerging from their investigations. Students will also analyse the interrelationships between physics and technology, and consider the impact of technological applications of physics on society and the environment.

Prerequisite: Physics, Grade 12, College Preparation (SPH4C)

Credit value: 0.5

Throughout this course, students will:

- demonstrate an understanding of safety practices by selecting, operating, and storing equipment appropriately, and by acting in accordance with the Workplace Hazardous Materials Information System (WHMIS) legislation in selecting and applying techniques for handling, storing, and disposing of laboratory materials (e.g., check all electrical equipment for damage prior to conducting an experiment);
- select appropriate instruments and use them effectively and accurately in collecting observations and data (e.g., collect data accurately using stopwatches, photogates, or data loggers);
- demonstrate the skills required to design and carry out experiments related to the topics under study, controlling major variables and adapting or extending procedures where required (e.g., investigate the relationships among force, mass, and acceleration);
- locate, select, analyse, and integrate information on topics under study, working independently and as part of a team, and using appropriate library and electronic research tools, including Internet sites;
- compile, organize, and interpret data, using appropriate formats and treatments, including tables, flow charts, graphs, and diagrams (e.g., interpret data, using graphs and graphical analysis techniques; explain, using a ray diagram, the operation of an optical instrument);
- use appropriate scientific models (theories, laws, explanatory devices) to explain and predict the behaviour of natural phenomena (e.g., use the kinetic molecular theory of matter to explain thermal energy and its transfer [heat]); use ray diagrams to predict the location and nature of images created by lenses);

- analyse and synthesize information for the purpose of identifying problems for inquiry, and solve the problems using a variety of problem-solving skills;
- select and use appropriate SI units (units of measurement of the *Système international d'unités*, or International System of Units), and apply unit analysis techniques when solving problems;
- select and use appropriate numeric, symbolic, graphical, and linguistic modes of representation (e.g., algebraic equations, vector diagrams, ray diagrams, graphs, graphing programs, spreadsheets) to communicate scientific ideas, plans, and experimental results;
- communicate the procedures and results of investigations and research for specific purposes using data tables, laboratory reports, and research papers, and account for discrepancies between theoretical and experimental values with reference to experimental uncertainty;
- express the result of any calculation involving experimental data to the appropriate number of decimal places or significant figures;
- identify and describe science- and technology-based careers related to the subject area under study (e.g., electrical engineer, computer technologist).

Forces and Motion

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the relationship between forces and the acceleration of an object in linear motion;
- investigate, through experimentation, the effect of a net force on the linear motion of an object, and analyse the effect in quantitative terms, using graphs, free-body diagrams, and vector diagrams;
- describe the contributions of Galileo and Newton to the understanding of dynamics and identify the effects of societal influences on transportation and safety issues.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- define and describe concepts and units related to force and motion (e.g., vectors, scalars, displacement, uniform motion, instantaneous and average velocity, uniform acceleration, instantaneous and average acceleration, applied force, net force, static friction, kinetic friction, coefficients of friction);
- describe and explain different kinds of motion, and apply quantitatively the relationships among displacement, velocity, and acceleration in specific contexts;
- analyse uniform motion in the horizontal plane in a variety of situations, using vector diagrams;
- analyse and describe the gravitational force acting on an object near, and at a distance from, the surface of the Earth;
- analyse and describe the forces acting on an object, using free-body diagrams, and determine the acceleration of the object;
- analyse in quantitative terms, using Newton's laws, the relationships among the net force acting on an object, its mass, and its acceleration.

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- design and carry out an experiment to identify specific variables that affect motion (e.g., conduct an experiment to determine the factors that affect the motion of an object sliding along a surface);
- carry out experiments to verify Newton's second law of motion;
- interpret patterns and trends in data by means of graphs drawn by hand or by computer, and infer or calculate linear and non-linear relationships among variables (e.g., analyse and explain the motion of objects, using displacement-time graphs, velocity-time graphs, and acceleration-time graphs);
- analyse the motion of objects, using vector diagrams, free-body diagrams, uniform acceleration equations, and Newton's laws of motion.

***Relating Science to Technology, Society,
and the Environment***

By the end of this course, students will:

- explain how the contributions of Galileo and Newton revolutionized the scientific thinking of their time and provided the foundation for understanding the relationship between motion and force;
- analyse and explain the relationship between an understanding of forces and motion and an understanding of political, economic, environmental, and safety issues in the development and use of transportation technologies (including terrestrial and space vehicles) and recreation and sports equipment.

Energy, Work, and Power

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding, in qualitative and quantitative terms, of the concepts of work, energy (kinetic energy, gravitational potential energy, and thermal energy and its transfer [heat]), energy transformations, efficiency, and power;
- design and carry out experiments and solve problems involving energy transformations and the law of conservation of energy;
- explain how the application of scientific principles related to mechanical energy has led to the enhancement of sports and recreational activities.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- define and describe the concepts and units related to energy, work, and power (e.g., energy, work, power, gravitational potential energy, kinetic energy, thermal energy and its transfer [heat], efficiency);
- identify conditions required for work to be done, and apply quantitatively the relationships among work, force, and displacement along the line of the force;
- analyse, in qualitative and quantitative terms, simple situations involving work, gravitational potential energy, kinetic energy, and thermal energy and its transfer (heat), using the law of conservation of energy;
- apply quantitatively the relationships among power, energy, and time in a variety of contexts.

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- design and carry out experiments related to energy transformations, identifying and controlling major variables (e.g., design and carry out an experiment to identify the energy transformations of a swinging pendulum, and to verify the law of conservation of energy; design and carry out an experiment to determine the power produced by a student);

- analyse and interpret experimental data or computer simulations involving work, gravitational potential energy, kinetic energy, thermal energy and its transfer (heat), and the efficiency of the energy transformation (e.g., experimental data on the motion of a swinging pendulum or a falling or sliding mass in terms of the energy transformations that occur);
- communicate the procedures, data, and conclusions of investigations involving work, mechanical energy, power, thermal energy and its transfer (heat), and the law of conservation of energy, using appropriate means (e.g., oral and written descriptions, numerical and/or graphical analyses, tables, diagrams).

Relating Science to Technology, Society, and the Environment

By the end of this course, students will:

- analyse and explain improvements in sports performance, using principles and concepts related to work, kinetic and potential energy, and the law of conservation of energy (e.g., explain the importance of the initial kinetic energy of a pole vaulter or high jumper).

Waves and Sound

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the properties of mechanical waves and sound and the principles underlying the production, transmission, interaction, and reception of mechanical waves and sound;
- investigate the properties of mechanical waves and sound through experiments or simulations, and compare predicted results with actual results;
- describe and explain ways in which mechanical waves and sound are produced in nature.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- define and describe the concepts and units related to mechanical waves (e.g., longitudinal wave, transverse wave, cycle, period, frequency, amplitude, phase, wavelength, velocity, superposition, constructive and destructive interference, standing waves, resonance);
- explain and graphically illustrate the principle of superposition, and identify examples of constructive and destructive interference;
- explain the Doppler effect, and predict in qualitative terms the frequency change that will occur in a variety of conditions.

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- draw, measure, analyse, and interpret the properties of waves (e.g., reflection, diffraction, and interference, including interference that results in standing waves) during their transmission in a medium and from one medium to another, and during their interaction with matter;
- design and conduct an experiment to determine the speed of waves in a medium, compare theoretical and empirical values, and account for discrepancies.

Relating Science to Technology, Society, and the Environment

By the end of this course, students will:

- describe how knowledge of the properties of waves is applied in the design of buildings (e.g., with respect to acoustics) and of various technological devices (e.g., musical instruments, audio-visual and home entertainment equipment), as well as in explanations of how sounds are produced and transmitted in nature, and how they interact with matter in nature (e.g., how organisms produce or receive infrasonic, audible, and ultrasonic sounds).

Light and Geometric Optics

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the properties of light and the principles underlying the transmission of light through a medium and from one medium to another;
- investigate the properties of light through experimentation, and illustrate and predict the behaviour of light through the use of ray diagrams;
- evaluate the contributions to such areas as entertainment, communications, and health made by the development of optical devices and other technologies designed to make use of light.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- define and describe concepts and units related to light (e.g., reflection, refraction, partial reflection and refraction, index of refraction, total internal reflection, critical angle, focal point, image);
- describe the scientific model for light and use it to explain optical effects that occur as natural phenomena (e.g., apparent depth, shimmering, mirage, rainbow).

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- demonstrate and illustrate, using light-ray diagrams, the refraction, partial refraction and reflection, critical angle, and total internal reflection of light at the interface of a variety of media.

Relating Science to Technology, Society, and the Environment

By the end of this course, students will:

- evaluate, using given criteria, the effectiveness of a technological device or procedure related to human perception of light (e.g., eyeglasses, contact lenses, virtual reality “glasses”, infra-red or low-light vision sensors, laser surgery).

Electricity and Magnetism

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the properties, physical quantities, principles, and laws related to electricity, magnetic fields, and electromagnetic induction;
- carry out experiments or simulations to demonstrate characteristic properties of magnetic fields and electromagnetic induction;
- identify and describe examples of domestic and industrial technologies that were developed on the basis of the scientific understanding of magnetic fields.

Specific Expectations

Understanding Basic Concepts

By the end of this course, students will:

- define and describe the concepts and units related to electricity and magnetism (e.g., electric charge, electric current, electric potential, electron flow, magnetic field, electromagnetic induction, energy, power, kilowatt-hour);
- describe the two conventions used to denote the direction of movement of electric charge in an electric circuit (i.e., electric current [movement of positive charge] and electron flow [movement of negative charge]), recognizing that electric current is the preferred convention;
- describe the properties, including the three-dimensional nature, of magnetic fields;
- describe and illustrate the magnetic field produced by an electric current in a long straight conductor and in a solenoid;
- analyse and predict, by applying the right-hand rule, the direction of the magnetic field produced when electric current flows through a long straight conductor and through a solenoid;
- state the motor principle, explain the factors that affect the force on a current-carrying conductor in a magnetic field, and, using the right-hand rule, illustrate the resulting motion of the conductor;

- analyse and describe electromagnetic induction in qualitative terms, and apply Lenz's law to explain, predict, and illustrate the direction of the electric current induced by a changing magnetic field, using the right-hand rule.

Developing Skills of Inquiry and Communication

By the end of this course, students will:

- conduct an experiment to identify the properties of magnetic fields (e.g., use magnetic compasses and iron filings to identify the properties of magnetic fields), and describe the properties that they find;
- interpret and illustrate, on the basis of experimental data, the magnetic field produced by a current flowing in a long straight conductor and in a coil;
- conduct an experiment to identify the factors that affect the magnitude and direction of the electric current induced by a changing magnetic field.

Relating Science to Technology, Society, and the Environment

By the end of this course, students will:

- describe the historical development of technologies related to magnetic fields (e.g., electric motors and generators, cathode ray [TV] tubes, medical equipment, loudspeakers, magnetic information storage).

Technological Education

(Part A: Broad-Based Technology)

Transfer courses in technological education must comply with the policy outlined on page 7 of *The Ontario Curriculum, Grades 11 and 12: Technological Education, 2000* regarding the subject areas and applications covered in a course. Specifically:

In any broad-based technology subject, courses may be developed to emphasize a particular area (e.g., land transportation in transportation technology), but not to the exclusion of other areas within the subject. *Regardless of the area emphasized in a course, students must be given the opportunity to achieve all of the expectations of the course outlined in this document.*

The policy regarding multiple-credit courses in technological education outlined on page 6 of the curriculum policy document does not apply to transfer courses. Transfer courses in technological education may not exceed the credit values specified in this document. The addition of instructional time for the practice and refinement of skills for purposes of meeting certification or apprenticeship requirements is not authorized in the context of a transfer course.

Note: Each of the transfer courses in this discipline includes expectations relating to the design process, which is integral to learning in most subjects taught in the discipline. Although students will have achieved these expectations in the context of projects completed in the prerequisite course, they must also demonstrate their achievement in the context of projects appropriate in nature and scope to the course type to which the transfer course provides a bridge.

Communications Technology Transfer, Grade 11, (TGJ3L) Workplace Preparation to University/College Preparation

This transfer course will provide students who have successfully completed Communications Technology, Grade 11, Workplace Preparation with an opportunity to achieve the expectations not covered in that course but included in Communications Technology, Grade 11, University/College Preparation. On successful completion of this transfer course, students will be able to proceed to Communications Technology, Grade 12, University/College Preparation.

In designing and operating systems for electronic, live, recorded, and graphic communications, students taking this transfer course will plan, organize, direct, and control communications activities; investigate the careers of technician, technologist, and engineer; and examine the roles of unions, guilds, and associations.

Prerequisite: Communications Technology, Grade 11, Workplace Preparation (TGJ3E)

Credit value: 0.5

Theory and Foundation

Overall Expectations

By the end of this course, students will:

- apply the design process to develop solutions, products, processes, or services in response to challenges or problems in electronic, live, recorded, or graphic communications;
- identify and describe the components and processes that make up each of the following: electronic, live, recorded, and graphic communications;
- describe industry standards, regulations, and formats that apply to communications technology.

Specific Expectations

The Design Process

By the end of this course, students will:

- explain how a human need or want can be met through a new or improved product;
- apply the following steps of the design process to solve a variety of communications technology challenges or problems:
 - identify what has to be accomplished (the problem);
 - gather and record information, and establish a plan of procedures;
 - brainstorm a list of as many solutions as possible;
 - identify the resources required for each suggested solution, and compare each solution to the design criteria, refining and modifying it as required;
 - evaluate the solutions (e.g., by testing, modelling, and documenting results) and choose the best one;
 - produce a drawing, model, or prototype of the best solution;
 - evaluate the prototype and what is required to produce it;
 - communicate the solution, using one or more of the following: final drawings, technical reports, electronic presentations, flow charts, storyboards, mock-ups, prototypes;
 - obtain feedback on the final solution and repeat the design process if necessary to refine or improve the solution.

Components, Systems, and Processes

By the end of this course, students will:

- explain the basic electronic communications system (how energy is converted into an electrical signal, amplified, transmitted by physical or atmospheric channels, decoded, and converted to sound);
- describe the processes of analog-digital and digital-analog signal conversion;
- demonstrate a working knowledge of amplification and signal processing;
- identify the advantages of various formats for specific applications;
- summarize the configurations for a variety of electronic, live, recorded, and graphic systems, and develop a plan to set up and manage the systems;
- evaluate component properties and select the most appropriate components for a particular process.

Standards

By the end of this course, students will:

- outline guidelines, conventions, and rules used in the composition and design of a communications process;
- research appropriate production techniques and recommend processes that adhere to industry standards;
- select the appropriate formats for electronic, live, recorded, and graphic productions.

Skills and Processes

Overall Expectations

By the end of this course, students will:

- use current technology and production skills to develop a process or a product in response to a communications challenge or problem;
- set up, operate, and maintain a communications system and analyse its efficiency;
- use mathematical and language skills effectively and apply scientific principles in the design of electronic, live, recorded, and graphic communications systems.

Specific Expectations

Production Skills

By the end of this course, students will:

- set up and correctly operate the equipment and accessories required to create and modify environments for communications productions (e.g., video and audio editing suites, desktop publishing configurations, live and recorded productions, electronic communication systems, websites);
- select and use tools and equipment to solve a communications problem;
- operate control devices and components to manipulate or create communications technology projects;
- set up and operate communications equipment (e.g., transmitters and receivers, frequency and phase modulation equipment, antennas, two-way communications equipment);
- design and set up a communications system (e.g., a computer network, audio and video editing systems, lighting grids) to perform production and post-production processes.

Interdisciplinary Applications

By the end of this course, students will:

- apply mathematics accurately in spreadsheets and when calculating electrical current, resistance, and energy consumption;
- use appropriate language in flow charts, storyboards, operation charts, scripts, and presentations;
- use terminology that is recognized by the communications industry.

Impact and Consequences

Overall Expectations

By the end of this course, students will:

- describe social and economic impacts of communications technology;
- demonstrate an understanding of the health and safety rules and regulations applicable to a communications technology program;
- identify career opportunities in the communications technology sector and the skills, education, and training required for each.

Specific Expectations

Impacts

By the end of this course, students will:

- explain how communications technology has contributed to globalization and has influenced economic and social issues;
- describe how communications technology plays a vital role in the production, promotion, and maintenance of different products.

Safety and Legislation

By the end of this course, students will:

- apply safe work practices when performing communications processes;
- identify potential hazards in their workplace by conducting safety audits and inspections;
- describe specific components of the Occupational Health and Safety Act that relate to their workplace and the actions required on their part to adhere to them.

Education, Training, and Career Opportunities

By the end of this course, students will:

- explore communications programs offered by postsecondary institutions;
- distinguish among the careers of technician, technologist, and engineer and identify the education required for each;
- describe the roles of unions, guilds, and associations in the communications sector.

Communications Technology Transfer, Grade 11, (TGJ3S) University/College Preparation to Workplace Preparation

This transfer course will provide students who have successfully completed Communications Technology, Grade 11, University/College Preparation with an opportunity to achieve the expectations not covered in that course but included in Communications Technology, Grade 11, Workplace Preparation. On successful completion of this transfer course, students will be able to proceed to Communications Technology, Grade 12, Workplace Preparation.

In this transfer course, students will apply the design process to solve a variety of practical communications technology challenges or problems; develop and apply practical skills to assemble, repair, operate, maintain, and test various systems; and identify the importance of employability skills for success in the workplace.

Prerequisite: Communications Technology, Grade 11, University/College Preparation (TGJ3M)

Credit value: 0.5

Theory and Foundation

Overall Expectations

By the end of this course, students will:

- apply the design process to develop solutions, products, processes, or services in response to practical challenges or problems in electronic, live, recorded, or graphic communications;
- identify the mechanical and electronic characteristics of the components and processes required to produce a product or a service in communications technology;
- demonstrate an understanding of electronic, live, recorded, and graphic communications systems;
- describe industry standards applicable to communications technology.

Specific Expectations

The Design Process

By the end of this course, students will:

- explain how a human need or want can be met through a new or improved product;
- apply the following steps of the design process to solve a variety of practical communications technology challenges or problems:
 - identify what has to be accomplished (the problem);
 - gather and record information, and establish a plan of procedures;
 - brainstorm a list of as many solutions as possible;
 - identify the resources required for each suggested solution, and compare each solution to the design criteria, refining and modifying it as required;
 - evaluate the solutions (e.g., by testing, modelling, and documenting results) and choose the best one;
 - produce a drawing, model, or prototype of the best solution;
 - evaluate the prototype and what is required to produce it;
 - communicate the solution, using one or more of the following: final drawings, technical reports, electronic presentations, flow charts, storyboards, mock-ups, prototypes;

- obtain feedback on the final solution and repeat the design process if necessary to refine or improve the solution.

Components, Systems, and Processes

By the end of this course, students will:

- explain the processes and components (e.g., photography, desktop publishing, printing, web-page creation) used in current communications technology;
- explain different methods of storing and retrieving information and the advantages of each;
- explain how digitization is used for print, audio, video, recording, and photographic media and in the transfer of data;
- explain how microchip advancements have affected the development of computers and other electronic devices;
- explain how signals are transmitted via wire, cable, fibre optic filaments, electromagnetic waves, and satellites;
- explain fundamental digital concepts and the functions of basic equipment, including analog and digital signals, logic gates and circuits, counters and readout devices, and peripheral communications devices that interface with computers;
- explain the relationship among current, voltage, and resistance;

- define the following terms: *watt, kilowatt, amp, volt, direct current, alternating current, parallel circuit, series circuit*;
- explain how different materials and components are converted or assembled to make finished products;
- analyse and describe the electronic components of an industry-standard communications system;
- explain how the concepts of encoding, storing, decoding, transmitting, and receiving apply to electronic, live, recorded, and graphic projects in communications technology;
- describe the effects of frequency and phase modulation in a communications system;
- explain the purpose of transmitters, receivers, and antennas in a communications technology system.

Standards

By the end of this course, students will:

- define the terminology used in the areas of electronic, live, recorded, and graphic communications (e.g., *frequency, modulation*);
- recognize symbols used for identification in current electronic, live, recorded, and graphic communications systems.

Skills and Processes

Overall Expectation

By the end of this course, students will:

- produce, assemble, connect, and operate current equipment and components to perform specific functions related to communications technology.

Specific Expectations

Production Skills

By the end of this course, students will:

- produce, repair, use, and maintain components and systems;
- follow assembly and prescribed maintenance procedures for components or systems in communications technology.

Impact and Consequences

Overall Expectations

By the end of this course, students will:

- identify pertinent legislation and practices related to safety in a communications technology facility and in the workplace;
- describe the career opportunities available in the communications technology sector immediately on graduation from high school;
- identify the employability skills required to be successful in the workplace.

Specific Expectations

Safety and Legislation

By the end of this course, students will:

- describe health and safety precautions for students and workers in a communications technology environment, and apply where appropriate;
- explain how to handle hazardous materials in accordance with the Workplace Hazardous Materials Information System (WHMIS) guidelines.

Education, Training, and Career Opportunities

By the end of this course, students will:

- identify career opportunities in the communications sector;
- identify the employability skills that employers seek in potential employees.

Construction Technology Transfer, Grade 11, Workplace Preparation to College Preparation

(TCJ3Q)

This transfer course will provide students who have successfully completed Construction Technology, Grade 11, Workplace Preparation with an opportunity to achieve the expectations not covered in that course but included in Construction Technology, Grade 11, College Preparation. On successful completion of this transfer course, students will be able to proceed to Construction Technology, Grade 12, College Preparation.

In this transfer course, students will learn about structural analysis and design, how to prepare presentation and working drawings, energy conservation, and how to estimate materials and labour costs.

Prerequisite: Construction Technology, Grade 11, Workplace Preparation (TCJ3E)

Credit value: 0.5

Theory and Foundation

Overall Expectations

By the end of this course, students will:

- apply the design process to develop solutions, products, processes, or services in response to challenges or problems in construction technology;
- describe the properties of a range of natural and manufactured building materials, processes, and finishes;
- describe appropriate building construction techniques; construction systems (electrical, mechanical, structural); and the building materials, tools, and equipment used in the construction industry.

Specific Expectations

The Design Process

By the end of this course, students will:

- explain how a human need or want can be met through a new or improved product;
- apply the following steps of the design process to solve a variety of construction technology challenges or problems:
 - identify what has to be accomplished (the problem);
 - gather and record information, and establish a plan of procedures;
 - brainstorm a list of as many solutions as possible;
 - identify the resources required for each suggested solution, and compare each solution to the design criteria, refining and modifying it as required;
 - evaluate the solutions (e.g., by testing, modelling, and documenting results) and choose the best one;
 - produce a drawing, model, or prototype of the best solution;
 - evaluate the prototype and what is required to produce it;
 - communicate the solution, using one or more of the following: final drawings, technical reports, electronic presentations, flow charts, storyboards, mock-ups, prototypes;
 -

obtain feedback on the final solution and repeat the design process if necessary to refine or improve the solution.

Building Materials and Methods

By the end of this course, students will:

- describe the various finishes and preservatives applied to wood products used in construction projects;
- identify a variety of building materials, construction techniques, architectural styles and details, and engineering features used in different construction projects.

Electrical, Mechanical, and Structural Systems

By the end of this course, students will:

- describe the types of loads and structural support members for footings, foundations, floors, walls, roofs, framing systems, bearing walls, columns, beams, lintels, and other parts of the systems used in wood-frame construction projects.

Skills and Processes

Overall Expectations

By the end of this course, students will:

- demonstrate a general understanding of residential and light construction systems;
- describe various documents, bidding procedures, and preliminary estimating methods used in the construction industry;
- explain the importance of such aspects of construction projects as architectural styles and features, quality design and workmanship, and efficient and functional planning.

Specific Expectations

Design, Planning, and Communication Skills

By the end of this course, students will:

- describe and use the basic elements of space planning for different areas of a building or structure;
- describe different architectural styles and features of a construction project;
- describe the characteristics of a quality product in terms of good design, choice and finish of materials, and workmanship;
- produce appropriate presentation drawings (including isometric and oblique drawings, scale models, and two- and three-dimensional computer-generated drawings) using a variety of techniques (e.g., pencil, ink, computer software);
- design the structural elements of a construction project and develop drawings describing them and the required materials;
- design the mechanical systems of a building project (including electrical, plumbing, heating, ventilation, and air-conditioning systems) in accordance with building codes, regulations, and standards.

Building and Materials Application Skills

By the end of this course, students will:

- evaluate a property with respect to important design considerations (e.g., orientation, site restrictions, public services, zoning restrictions, and building codes, regulations, and standards);
- describe the tools, equipment, and procedures required to properly locate and stake out a building on a property;
- identify the major features of a site plan;
- identify the major considerations (e.g., soil type, building type and use, weight of the building material) for the footings of a construction project;
- identify the major features included in a foundation plan;
- identify the components of a floor system and determine proper joist and subfloor sizes;
- identify structural members and explain methods of frame wall construction;
- describe types of basic roof designs used in construction projects;
- describe the components of a roof system and determine the correct sizes for ceiling joists, rafters, and sheathing;
- explain the advantages of trusses for use in construction projects;
- explain the importance of allowing for proper ventilation and moisture protection, as well as using flashing correctly, in construction projects;
- describe the advantages and disadvantages of different types of windows and doors used in construction projects.

Estimates, Specifications, and Contracts

By the end of this course, students will:

- explain what is involved in developing an estimate of building costs;
- prepare a materials list for a construction project;
- explain the purpose and organization of material and work specifications;
- identify specification guides for building materials and work related to construction projects;
- describe various types of contracts and bidding processes used in the construction industry.

Impact and Consequences

Overall Expectations

By the end of this course, students will:

- explain the impact of the construction industry on the economy, on society, and on the environment;
- describe, and apply where appropriate, health and safety legislation; general shop and site safety rules; and rules specific to the safe use of materials, tools, and equipment;
- identify and describe postsecondary education opportunities related to the construction industry.

Specific Expectations

Economic, Social, and Environmental Impacts

By the end of this course, students will:

- explain how to reduce negative environmental and social impacts through the choice of particular energy sources, materials, or processes for construction projects;
- explain the use of natural and manufactured construction materials and the short- and long-term impact of their use on the environment;
- evaluate different types of construction projects in terms of efficiency, community building needs, environmental impact, and local building codes, regulations, and standards.

Health and Safety

By the end of this course, students will:

- explain the need for health and safety laws and regulations.

Education, Training, and Career Opportunities

By the end of this course, students will:

- identify postsecondary programs in the construction industry and describe their admission requirements.

Construction Technology Transfer, Grade 11, College Preparation to Workplace Preparation

(TCJ3S)

This transfer course will provide students who have successfully completed Construction Technology, Grade 11, College Preparation with an opportunity to achieve the expectations not covered in that course but included in Construction Technology, Grade 11, Workplace Preparation. On successful completion of this transfer course, students will be able to proceed to Construction Technology, Grade 12, Workplace Preparation.

This transfer course focuses on the development of generic employment skills and preparation for apprenticeship and training programs.

Prerequisite: Construction Technology, Grade 11, College Preparation (TCJ3C)

Credit value: 0.5

Theory and Foundation

Overall Expectations

By the end of this course, students will:

- apply the design process to develop solutions, products, processes, or services in response to challenges or problems in construction technology;
- describe the properties and application of building materials, and of construction techniques and processes.

Specific Expectations

The Design Process

By the end of this course, students will:

- explain how a human need or want can be met through a new or improved product;
- apply the following steps of the design process to solve a variety of construction technology challenges or problems:
 - identify what has to be accomplished (the problem);
 - gather and record information, and establish a plan of procedures;
 - brainstorm a list of as many solutions as possible;
 - identify the resources required for each suggested solution, and compare each solution to the design criteria, refining and modifying it as required;
 - evaluate the solutions (e.g., by testing, modelling, and documenting results) and choose the best one;
 - produce a drawing, model, or prototype of the best solution;
 - evaluate the prototype and what is required to produce it;
 - communicate the solution, using one or more of the following: final drawings, technical reports, electronic presentations, flow charts, storyboards, mock-ups, prototypes;
 - obtain feedback on the final solution and repeat the design process if necessary to refine or improve the solution.

Building Materials and Methods

By the end of this course, students will:

- describe the methods of applying different building materials in the construction industry;
- describe the strength of a variety of species of wood products used in construction.

Electrical, Mechanical, and Structural Systems

By the end of this course, students will:

- identify the requirements for the various systems used in different construction projects, using technical resources such as charts, tables, and building codes, regulations, and standards;
- identify the structural elements (including materials, spans, loads, forces, and methods of assembly) of a construction project;
- identify materials with different structural properties used for different parts of construction projects (e.g., for footings, bearing walls, columns, beams and lintels, floor systems, ceiling and roof systems).

Skills and Processes

Overall Expectations

By the end of this course, students will:

- demonstrate an ability to use resources such as technical data, reports, charts, tables, and building codes, regulations, and standards;
- demonstrate appropriate technical skills involving the use of construction tools, materials, and equipment;
- apply mathematical and estimation skills in a variety of construction projects.

Specific Expectations

Design, Planning, and Communication Skills

By the end of this course, students will:

- evaluate and document construction projects in relation to predetermined criteria, specifications, needs, and building codes, regulations, and standards.

Building and Materials Application Skills

By the end of this course, students will:

- use various tools and equipment to calculate the dimensions of and to lay out appropriate structural members for footings, floors, walls, roofs, openings, and other parts of a construction project;
- demonstrate the measurement and layout skills required to build, assemble, erect, and install a variety of components related to construction technology.

Skills Relating to Electrical, Mechanical, and Structural Systems

By the end of this course, students will:

- design and prepare drawings indicating the structural elements of a variety of construction projects;
- determine the size of structural members required for a construction project using charts, tables, technical data, and building codes, regulations, and standards;

- prepare and interpret electrical and mechanical drawings, and identify the components of the electrical and mechanical systems used in a variety of construction projects;
- calculate the size of the mechanical systems used in a construction project using charts, tables, and technical data;
- design and install, where appropriate, the mechanical systems of a building project (including electrical, plumbing, heating, ventilation, and air-conditioning systems) in accordance with building codes, regulations, and standards.

Estimating Costs

By the end of this course, students will:

- describe the units of measurement applicable to a variety of building products and ways in which these units are used in estimating quantities for a construction project;
- calculate the quantities of materials and costs of labour for a project, using the area and volume estimating method, and technical data in charts and tables.

Impact and Consequences

Overall Expectations

By the end of this course, students will:

- explain the impact of legislation related to social and environmental issues on the construction industry;
- identify and describe the employability skills required in the construction industry.

Specific Expectations

Economic, Social, and Environmental Impacts

By the end of this course, students will:

- explain the impact of urban-planning policies, land-use by-laws, and building codes, regulations, and standards on the construction industry (e.g., changes in construction practices).

Education, Training, and Career Opportunities

By the end of this course, students will:

- identify and describe the various skilled trades involved in the construction industry;
- describe the education and training required for employment in construction-related careers.

Hospitality and Tourism Transfer, Grade 11, (TFH3S) College Preparation to Workplace Preparation

This transfer course will provide students who have successfully completed Hospitality, Grade 11, College Preparation with an opportunity to achieve the expectations not covered in that course but included in Hospitality and Tourism, Grade 11, Workplace Preparation. On successful completion of this transfer course, students will be able to proceed to Hospitality and Tourism, Grade 12, Workplace Preparation.

This transfer course focuses on practical skill development and fundamental theory related to foundational skills in tourism. Students will also study the occupational health and safety standards and laws regulating the hospitality and tourism industry, explore the industry's social and environmental impacts, and identify possible career paths.

Prerequisite: Hospitality, Grade 11, College Preparation (TFT3C)

Credit value: 0.5

Theory and Foundation

Overall Expectations

By the end this course, students will:

- identify the eight sectors of the hospitality and tourism industry: accommodation, adventure tourism/recreation, food and beverage, transportation, travel trade, events and conferences, attractions, and tourism services;
- describe food product handling, storage, and preparation techniques;
- demonstrate familiarity with the equipment and facilities used in the tourism industry.

Specific Expectations

Industry Services and Sectors

By the end of this course, students will:

- describe the eight sectors of the hospitality and tourism industry;
- describe the services offered by each of the sectors of the hospitality and tourism industry;
- describe interdependent hospitality and tourism services;
- explain the goals of ecotourism and adventure tourism;
- identify the sectors of the tourism industry that are prominent in the province, the region, and the local community;
- identify businesses and industries that benefit from the tourism industry or that owe their existence to it;
- identify local tourism facilities and describe how they attract people.

Handling of Foods

By the end of this course, students will:

- explain the effect of temperature changes on food;
- apply National Sanitation Code cleanliness standards during the handling, storage, and preparation of products;
- identify the causes and describe the effects of food poisoning;
- describe the purpose of the Public Health Act and the Food and Drugs Act.

Equipment and Facilities

By the end of this course, students will:

- demonstrate a familiarity with a variety of equipment related to tourism;
- identify a variety of accommodation facilities.

Skills and Processes

Overall Expectations

By the end of this course, students will:

- manage activities, equipment, and personnel effectively to provide service to customers;
- prepare effective publicity campaigns.

Specific Expectations

Customer Service

By the end of this course, students will:

- identify and describe the safe use, set-up, and maintenance of equipment used in a variety of activities;
- relate equipment to client needs and interests;
- control product reception, handling, storage, and rotation effectively;
- explain the importance of teamwork in providing customer service;
- apply correctly standards of personal hygiene and grooming;
- explain the importance of uniforms in the hospitality and tourism industry;
- meet the needs of customers;
- explain the importance of providing respect for people with a variety of needs.

Marketing and Publicity

By the end of this course, students will:

- assess a marketing campaign for a local tourism attraction in terms of its effectiveness in attracting customers;
- apply the principles of marketing to design a tourism campaign for a local event.

Impact and Consequences

Overall Expectations

By the end of this course, students will:

- describe social, economic, and environmental impacts of the hospitality industry;
- describe and, where appropriate, apply industry standards of health and safety for the use of materials, tools, and equipment in the hospitality and tourism industry;
- identify career possibilities in the hospitality and tourism industry;
- identify the individual personality traits and skills that lend themselves to a career in tourism.

Specific Expectations

Social, Economic, and Environmental Impacts

By the end of this course, students will:

- describe the social and economic impact of new products and modern technologies on the industry;
- explain how the eight sectors of the tourism industry affect the national, provincial, and local economies.

Health and Safety

By the end of this course, students will:

- identify the safety factors that must be considered in the workplace;
- use a first-aid kit correctly;
- describe types of emergency situations that can occur in the hospitality and tourism industry and the kind of assistance required in each case to ensure safety;
- identify and, where appropriate, apply health and safety acts and regulations that pertain to the hospitality and tourism industry.

Education, Training, and Career Opportunities

By the end of this course, students will:

- identify a range of occupations in the tourism industry;
- identify trades and professions in hospitality and tourism and the training and education related to each;
- determine whether their interests, skills, and attitudes suit a career in a tourism occupation;
- identify the factors that affect salary structures in the different sectors of the tourism industry.

Manufacturing Technology Transfer, Grade 11, Workplace Preparation to College Preparation

(TMJ3Q)

This transfer course will provide students who have successfully completed Manufacturing Technology, Grade 11, Workplace Preparation with an opportunity to achieve the expectations not covered in that course but included in Manufacturing Engineering Technology, Grade 11, College Preparation. On successful completion of this transfer course, students will be able to proceed to Manufacturing Engineering Technology, Grade 12, College Preparation.

This transfer course focuses on design principles; electronic, pneumatic, and hydraulic control systems; and traditional and advanced manufacturing processes. Students will solve problems and make the critical decisions necessary to develop efficient production systems. They will also study the broad range of career opportunities available in the manufacturing sector and their educational requirements, and will research the scope of the manufacturing industry and the impact of its products on individuals, society, and the environment.

Prerequisite: Manufacturing Technology, Grade 11, Workplace Preparation (TMJ3E)

Credit value: 0.5

Theory and Foundation

Overall Expectations

By the end of this course, students will:

- apply the design process to develop solutions, products, processes, or services in response to challenges or problems in manufacturing technology;
- describe the production process required to develop a product;
- evaluate the types of control systems used in production processes and products.

Specific Expectations

The Design Process

By the end of this course, students will:

- apply the following steps of the design process to solve a variety of manufacturing technology challenges or problems:
 - identify what has to be accomplished (the problem);
 - gather and record information, and establish a plan of procedures;
 - brainstorm a list of as many solutions as possible;
 - identify the resources required for each suggested solution, and compare each solution to the design criteria, refining and modifying it as required;
 - evaluate the solutions (e.g., by testing, modelling, and documenting results) and choose the best one;
 - produce a drawing, model, or prototype of the best solution;
 - evaluate the prototype and what is required to produce it;
 - communicate the solution, using one or more of the following: final drawings, technical reports, electronic presentations, flow charts, storyboards, mock-ups, prototypes;
 - obtain feedback on the final solution and repeat the design process if necessary to refine or improve the solution.

Materials and Production Processes

By the end of this course, students will:

- identify destructive and non-destructive tests to evaluate material choice;
- evaluate material properties using computers and report the results;
- investigate and evaluate the following materials before choosing the most appropriate materials for a product: metals (ferrous and non-ferrous), polymers (e.g., natural – wood, cellulose; synthetic – plastics), ceramics (e.g., clay, glass, oxides, cement, carbides), composites (e.g., filler, particle, laminate, flake, fibre), and natural materials;
- describe the conditioning processes that change a material's physical and mechanical characteristics and properties;
- explain the three methods of conditioning materials: thermal conditioning, chemical conditioning, and mechanical conditioning;
- identify semiconductor devices, numeric controls, digital electronic devices, pneumatic and hydraulic devices and controls, and electrochemical devices, and describe how they are used in the production process.

Skills and Processes

Overall Expectations

By the end of this course, students will:

- effectively plan, organize, direct, and control various manufacturing activities;
- operate a manufacturing system and analyse the efficiency of the system.

Specific Expectations

Organizational Skills

By the end of this course, students will:

- develop systems for production, marketing, personnel, and financial control;
- use computers to help develop, operate, and control systems;
- apply the concepts of work flow, products per period of time, and defect rate when analysing and testing the efficiency of a production line;
- select and use appropriate software in the development of marketing strategies.

Technology and Production Skills

By the end of this course, students will:

- choose the most appropriate production method by conducting a test run in the manufacture of a product or process;
- analyse and explain the results of producing products in a particular manufacturing process;
- modify particular operations and tooling to improve the manufacturing process.

Interdisciplinary Applications

By the end of this course, students will:

- explain the technological systems approach and how it relates to manufacturing: inputs (materials, labour, capital), processes (material processing), and outputs (for industry or the consumer market);
- apply mathematical skills in spreadsheet analysis to measure to close tolerances machining speeds and production rates per unit of time and to control inventory, costs, quality, and sampling.

Impact and Consequences

Overall Expectations

By the end of this course, students will:

- demonstrate an ability to make informed decisions concerning the social, economic, and environmental consequences and impact of the manufacturing sector;
- demonstrate the exemplary practices that are essential to safe work environments and practices;
- describe the career opportunities in manufacturing engineering.

Specific Expectations

Impacts

By the end of this course, students will:

- describe the social and economic consequences of manufacturing activity for individuals and for society;
- describe the impact of manufacturing activity on the environment and identify a variety of materials, processes, and waste management methods to minimize negative impact.

Safety and Legislation

By the end of this course, students will:

- identify potential hazards in their workplace by conducting safety audits and inspections.

Education, Training, and Career Opportunities

By the end of this course, students will:

- describe the scope of career opportunities within the manufacturing sector;
- identify the specific educational and training requirements necessary for careers in the manufacturing sector;
- distinguish among the careers of technician, technologist, and engineer and identify the education required for each.

Manufacturing Technology Transfer, Grade 11, College Preparation to Workplace Preparation

(TMJ3S)

This transfer course will provide students who have successfully completed Manufacturing Engineering Technology, Grade 11, College Preparation with an opportunity to achieve the expectations not covered in that course but included in Manufacturing Technology, Grade 11, Workplace Preparation. On successful completion of this transfer course, students will be able to proceed to Manufacturing Technology, Grade 12, Workplace Preparation.

In this transfer course, students will acquire design and fabrication skills using a variety of materials, tools, equipment, and processes, and will construct products that adhere to design specifications and meet quality control standards. They will also understand the importance of employability skills for success in the workplace.

Prerequisite: Manufacturing Engineering Technology, Grade 11, College Preparation (TMJ3C)

Credit value: 0.5

Theory and Foundation

Overall Expectations

By the end of this course, students will:

- apply the design process to develop solutions, products, processes, or services in response to challenges or problems in manufacturing technology;
- identify the physical and mechanical characteristics of the materials and processes required to produce a product or process;
- explain the four material conversions: separation of materials (e.g., cutting), addition of materials (e.g., welding), contour changes of materials (e.g., forming), and internal changes of materials (e.g., heat treatment to harden, anneal, normalize).

Specific Expectations

The Design Process

By the end of this course, students will:

- apply the following steps of the design process to solve a variety of manufacturing technology challenges or problems:
 - identify what has to be accomplished (the problem);
 - gather and record information, and establish a plan of procedures;
 - brainstorm a list of as many solutions as possible;
 - identify the resources required for each suggested solution, and compare each solution to the design criteria, refining and modifying it as required;
 - evaluate the solutions (e.g., by testing, modelling, and documenting results) and choose the best one;
 - produce a drawing, model, or prototype of the best solution;
 - evaluate the prototype and what is required to produce it;
 - communicate the solution, using one or more of the following: final drawings, technical reports, electronic presentations, flow charts, storyboards, mock-ups, prototypes;
 - obtain feedback on the final solution and repeat the design process if necessary to refine or improve the solution.

Materials and Production Processes

By the end of this course, students will:

- identify the physical, mechanical, thermal, chemical, electrical, magnetic, optical, and acoustical properties of materials;
- describe the following physical properties of materials: appearance, density, moisture, content, porosity, size, surface texture, weight;
- describe the following mechanical properties of materials: brittleness, compression, ductility, elasticity, fatigue, hardness, impact, plasticity, shear, torsion, tensility;
- explain the following material conversions: the separation process (converting a material's size and shape by removing excess material), the addition process (combining materials to achieve enhanced qualities such as in alloys), the process of making changes to contours (assembling materials by such means as gluing, mixing, fastening, bonding, and welding), the process of making internal changes (thermal, chemical, or mechanical conditioning);
- identify the factors that affect material selection;

- describe the different forms and characteristics of wood and wood composites, metals and alloys, plastics, earth materials, and composites;
- describe the advantages of using a variety of materials, such as different species of woods, metals and alloys, plastics, earth materials, and composite materials.

Skills and Processes

Overall Expectations

By the end of this course, students will:

- function effectively as individuals and as members of a cooperative team to produce a product;
- use current technology and production skills in the development of a product;
- identify and choose the most appropriate power and control systems to develop a product.

Specific Expectations

Organizational Skills

By the end of this course, students will:

- use effective brainstorming techniques to develop the best solution to a manufacturing challenge;
- develop an operational plan for drawing procedures and production methods.

Technology and Production Skills

By the end of this course, students will:

- determine and convert drawing dimensions from metric units to imperial units, from imperial units to metric units, and from fractions to decimals so that the information corresponds to the demands of the particular manufacturing product or process;
- solve problems involving geometric calculations and algebraic equations; calculate perimeters, volumes, and area; and consult charts, tables, and reference books to determine the best manufacturing process;
- use the most appropriate material for a particular product by considering the intended use, customer specifications, quality control processes, and the environment that the product will be subjected to;
- explain the principles of dimensional metrology (precision measurement methods) and apply them to manufacturing processes;

- identify and use appropriate bench work techniques to lay out, fit, and assemble work pieces;
- read and interpret engineering drawings, visualize three-dimensional objects, sectionalize the drawings, and convert drawing dimensions;
- maintain in good working order the machines and hand tools used in the production process;
- identify appropriate storage requirements for machine and hand tools used in the production process;
- use effectively a variety of power and control systems (e.g., pneumatic, hydraulic, and mechanical);
- program and use numerical control (NC) and computer numerical control (CNC) equipment.

Impact and Consequences

Overall Expectations

By the end of this course, students will:

- effectively implement safe work practices in the workplace;
- identify apprenticeship and training opportunities in the manufacturing sector, as well as the employability skills required to be successful in the workplace.

Specific Expectations

Safety and Legislation

By the end of this course, students will:

- implement safe work practices (e.g., correct machine set-up, operational safety procedures) when performing tasks in the manufacturing process;
- use all required protective clothing and gear (e.g., for eye, ear, hand, head, foot, and respiratory-system protection).

Education, Training, and Career Opportunities

By the end of this course, students will:

- identify apprenticeship and training opportunities available in the manufacturing sector prior to or immediately following graduation, as well as their admission and training requirements;
- explain the important role that employability skills play in achieving success in the workplace.

Technological Design Transfer, Grade 11, (TDJ3L) Workplace Preparation to University/College Preparation

This transfer course will provide students who have successfully completed Technological Design, Grade 11, Workplace Preparation with an opportunity to achieve the expectations not covered in that course but included in Technological Design, Grade 11, University/College Preparation. On successful completion of this transfer course, students will be able to proceed to Technological Design, Grade 12, University/College Preparation.

In this transfer course, students will identify user needs, estimate labour and material costs, analyse material characteristics, and illustrate design solutions, using traditional and computer-based methods. They will also acquire the basic design skills required for postsecondary studies in engineering, manufacturing, architecture, and construction.

Prerequisite: Technological Design, Grade 11, Workplace Preparation (TDJ3E)

Credit value: 0.5

Theory and Foundation

Overall Expectations

By the end of this course, students will:

- use the design process to create products or services based on an analysis of consumer needs and market requirements;
- describe manufacturing and construction processes used in industry;
- describe the significance of the components contained in a technical report;
- determine project criteria and evaluate solutions to decide how well the criteria have been met.

Specific Expectations

Planning

By the end of this course, students will:

- evaluate consumer needs and expectations in relation to a specific product;
- evaluate the suitability of materials to meet the project criteria based on the materials' properties and costs, and on the manufacturing methods being used;
- describe manufacturing processes used in engineering;
- describe construction processes used in architectural technology.

Preparing Designs

By the end of this course, students will:

- apply the design process to develop solutions for a particular product or service.

Evaluating and Documenting Designs

By the end of this course, students will:

- identify, in technical reports, factors (e.g., materials, fabrication methods, trends, costs, ergonomics, alternative solutions) that influence design decisions for a particular product.

Skills and Processes

Overall Expectations

By the end of this course, students will:

- analyse the physical characteristics of common building and manufacturing materials proposed for a design solution;
- produce technical reports and design briefs that follow a prescribed format;
- estimate the materials, fabrication, and labour costs associated with a project;
- build effective models and prototypes.

Specific Expectations

Planning

By the end of this course, students will:

- create effective design briefs that outline consumer needs and any other requirements or limitations that will affect the design solution;
- produce technical reports that follow a prescribed format;
- identify materials for particular projects based on desired physical properties using technical reference material such as *Machinery's Handbook*, *Sweet's Catalogue*, or *Architectural Graphics Standards*;
- determine whether proposed materials are suitable for a specific product;
- write effective technical reports that include sections such as the following: Design Brief, Criteria and Constraints, Idea Development, Planning, Design Analysis, Evaluation, Design Solution, Product Description.

Preparing Designs

By the end of this course, students will:

- estimate the costs of materials and fabrication methods for particular projects by performing quantity take-offs;
- fabricate models and prototypes following standard safety procedures.

Impact and Consequences

Overall Expectations

By the end of this course, students will:

- identify concerns related to technical design, such as product safety, durability, costs, choice of materials, and ergonomics;
- describe liability issues that necessitate the inclusion of safety features in a product's design;
- identify a variety of careers in engineering, architecture, or industrial design and the educational requirements for each.

Specific Expectations

Design Impacts

By the end of this course, students will:

- identify existing products that could be improved and explain problems in these products that resulted from inadequate design.

Environmental and Safety Issues

By the end of this course, students will:

- describe safety issues, constraints, or legislation that would affect the design of a particular project and explain how these restrictions would affect design documentation and drawings.

Education, Training, and Career Opportunities

By the end of this course, students will:

- identify a variety of careers available in engineering, architecture, or industrial design.

Technological Design Transfer, Grade 11, (TDJ3S) University/College Preparation to Workplace Preparation

This transfer course will provide students who have successfully completed Technological Design, Grade 11, University/College Preparation with an opportunity to achieve the expectations not covered in that course but included in Technological Design, Grade 11, Workplace Preparation. On successful completion of this transfer course, students will be able to proceed to Technological Design, Grade 12, Workplace Preparation.

In this transfer course, students will develop problem-solving and design skills by preparing technical drawings and illustrations, building models, testing, and marketing. They will also become aware of consumer, business, and environmental issues in the creation and marketing of products or services, and the educational requirements of design-related careers.

Prerequisite: Technological Design, Grade 11, University/College Preparation (TDJ3M)

Credit value: 0.5

Theory and Foundation

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of how the design process is used to create products or services for the marketplace;
- determine appropriate solutions to design problems;
- write effective technical reports that follow a conventional format.

Specific Expectations

Planning

By the end of this course, students will:

- describe user requirements, design criteria, and ways of developing and testing solutions;
- justify design decisions that involve alternative approaches;
- describe the historical development of a variety of designed products and services.

Evaluating and Documenting Designs

By the end of this course, students will:

- write reports summarizing how the criteria and constraints influenced a particular design decision.

Skills and Processes

Overall Expectations

By the end of this course, students will:

- illustrate their design solutions effectively using a variety of technical drawing methods that conform to industry drafting conventions;
- fabricate projects or displays using hand and power tools safely;
- write effective design briefs;
- evaluate solutions against design criteria.

Specific Expectations

Preparing Designs

By the end of this course, students will:

- draw appropriate technical illustrations using industry-standard practices, including lettering techniques, scales, and symbols;
- produce correct orthographic or pictorial technical drawings (e.g., floor plans, perspectives and elevation views, section and assembly drawings) using traditional or computer-based methods;
- fabricate models and prototypes for analysis and testing using standard safety procedures;
- create displays of the finished products using computer graphics, posters, or multimedia productions.

Evaluating and Documenting Designs

By the end of this course, students will:

- produce appropriate design briefs based on their analysis of user needs and on consumer product research.

Impact and Consequences

Overall Expectations

By the end of this course, students will:

- identify factors that must be considered when designing for the consumer marketplace (e.g., costs, materials, safety, durability);
- identify environmental concerns related to the development, use, and disposal of manufactured goods;
- describe design-related careers and their educational requirements.

Specific Expectations

Design Impacts

By the end of this course, students will:

- assess project solutions in terms of safety, ergonomics, and efficiency;
- identify design issues, such as production costs, instructional materials for assembly and use, special design needs related to controls and instrumentation, safety issues in handling products, and product durability.

Environmental and Safety Issues

By the end of this course, students will:

- identify alternative environmentally friendly materials that could be used to produce specific products.

Education, Training, and Career Opportunities

By the end of this course, students will:

- identify a variety of design-related careers.



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