INSTITUTE OF CANADIAN EDUCATION

Course Title: Introduction to Computer Studies (ICD2O)

Course Name: Introduction to Computer Studies

Course Code: ICD2O

Grade: 10

Course Type: Academic

Credit Value: 1.0

Prerequisite: None

Curriculum Policy Document: *The Ontario Curriculum: English, Grades 9 & 10 (Revised); Growing Success: Assessment, Evaluation, and Reporting in Ontario Schools (2010)*

Course Developer: Institute of Canadian Education

Department: Computer Science

Development Date: 2025

Most Recent Revision Date: 2025

Course Description

This course introduces students to **computer programming and digital technologies**. Students will:

- plan and write simple computer programs using fundamental programming concepts
- create clear and maintainable internal documentation
- learn how computers work (hardware, software, operating systems, networking)
- study safe and effective computing practices
- investigate the **social, environmental, and ethical impact** of computers and related technologies

Overall Curriculum Expectations

A. Understanding Computers

By the end of the course, students will be able to:

1. Describe the functions of different types of hardware components and assess the hardware needs of users
2. Describe key types of software products and assess software needs
3. Use the basic functions of an operating system correctly
4. Demonstrate an understanding of home computer networking concepts
5. Explain the importance of software updates and system maintenance for performance and security.

B. Introduction to Programming

By the end of the course, students will

1. Describe fundamental programming concepts and constructs
2. Plan and write simple programs applying these programming principles
3. Use basic code maintenance techniques when writing programs (e.g., commenting, organization).

C. Computers and Society

By the end of the course, students will:

1. Describe the social impact of computers and related technologies
2. Describe policies that promote environmental stewardship and sustainability in computing
3. Explain legal and ethical issues related to computing devices
4. Describe post-secondary education and career prospects in computer studies and related fields

UNIT ORDER

Unit	Unit Title	Key Focus (Ministry Expectations)	Hours
Unit 1	Digital Systems & Computer Fundamentals	Computer hardware and software, input/output devices, operating systems, basic networking concepts, safe and responsible computer use	**15**
Unit 2	Problem Solving & Introduction to Programming	Computational thinking, algorithms, flowcharts, basic programming concepts (variables, input/output, decisions, loops), debugging	**45**
Unit 3	Software Tools & Digital Media	Use of productivity software, multimedia tools, file management, collaborative tools, applying software to solve real-world problems	**20**
Unit 4	Computers and Society	Social, ethical, legal, and environmental impacts of technology, digital citizenship, privacy, security, accessibility	**15**
Unit 5	Coding Applications & Innovation Project	Design and development of a simple application or game, project planning, testing, documentation, reflection	**10**
Final Assessment	Culminating Activity & Exam	Summative project (coding or digital product) and/or final evaluation aligned with overall expectations	**5**
TOTAL			**110 Hours**

Curriculum & Overall Expectations

A. Understanding Computers A1. Hardware Components

A2. Software Products

A3. Operating Systems

A4. Home Computer Networking

A5. Maintenance and Security

B. Introduction to Programming B1. Programming Concepts

B2. Writing Programs

B3. Code Maintenance

C. Computers and Society C1. Social Impact

C2. Environmental Stewardship and Sustainability

C3. Ethical Issues

Understanding Computers

1. describe the functions of different types of hardware components, and assess the hardware needs of users

2. describe the different types of software products, and assess the software needs of users

3. use the basic functions of an operating system correctly

4. demonstrate an understanding of home computer networking concepts

5. explain the importance of software updates and system maintenance to manage the performance and increase the security of a computer

Introduction to Programming

1. describe fundamental programming concepts and constructs

2. plan and write simple programs using fundamental programming concepts

3. apply basic code maintenance techniques when writing programs

Computers & Society

1. describe key aspects of the impact of computers and related technologies on society

2. describe computer use policies that promote environmental stewardship and sustainability

3. describe legal and ethical issues related to the use of computing devices

4. describe post-secondary education and career prospects related to computer studies

Course Materials

Required Textbooks and Resources

None

Digital Resources and Software

- Google Drive – assignment submission and collaboration
- Internet access for research, media analysis, and digital texts
- Microsoft Office Suite (Word, PowerPoint) or equivalent

Teacher Considerations

- Assistive technology (text-to-speech, speech-to-text) may be used
- Flexible submission formats (written, oral, visual, or digital)

Assessment Strategies

A number of assessments are used throughout the unit, typically one per lesson. Students are urged to complete each assessment fully to truly test their knowledge and understanding of concepts. This provides the teacher with an opportunity to provide feedback that can improve a student's learning (AFL/AOL) and evaluate it (AOL). Students are encouraged to ask the teacher if they have questions relating to an assessment, especially an AOL to ensure that the student receives the best mark possible. Assessment practices can nurture a student's sense of progress and provide a motivation for continued learning. A variety of assessment designs are incorporated in each unit, to ensure that students are learning and assessing their learning in a variety of ways. Rubrics and marking schemes are outlined where appropriate, and students are encouraged to self-evaluate their work using these tools.

Assessment FOR Learning	**Assessment AS Learning**	**Assessment OF Learning**
Quizzes and tests	Self- and peer-assessment	Unit tests
Assignments and worksheets	Reflections and learning journals	Research projects
Ongoing teacher feedback	Learning checklists and goal setting	Case studies
Simulations and practical activities	Peer feedback	Presentations
Teacher questioning and discussions	Self-reflection	Midterm examination
	Student learning reflections	Final examination

Evaluation

Final Grade

The final grade will be determined as follows (in accordance with Ministry of Education standards):

Term Work Based on evaluations conducted throughout the course.	65%
Final Evaluation A final evaluation in the form of a written exam.	20%
Attendance and Participation	15%

Final evaluation breakdown:

- 20% written exam

The Report Card

Achievement Report / Comments Examples

Knowledge & Understanding (K/U):

- "Demonstrates strong understanding of programming concepts and computer hardware."
- "Shows developing understanding of algorithms and flowcharts.

Thinking / Inquiry (T/I):

- "Effectively applies problem-solving and debugging strategies."
- "Needs more practice designing algorithms independently."

Communication (C):

- "Clearly explains code and project decisions."
- "Participates actively in class discussions and collaborative tasks."

Application (A):

- "Successfully applies coding skills to create functional projects."
- "Could improve the practical application of software tools to solve problems.

Final Assessment:

- "Culminating project demonstrates excellent integration of programming and problem-solving skills."
- "Exam performance shows solid understanding but could improve on code debugging under timed conditions.

CONSIDERATION FOR PROGRAM PLANNING

Students with Special Education Needs: Instruction and assessment will provide appropriate accommodations, differentiation, scaffolding, and multiple ways for students to demonstrate learning, in accordance with individual needs and IEPs where applicable.

English Language Learners: Visual supports, scientific vocabulary, glossaries, graphic organizers, multimedia, and opportunities for oral and written communication will support students in developing scientific language and understanding.

Environmental Education: Students will examine sustainability, climate change, biodiversity, natural resources, pollution, and the environmental impacts of science and technology.

Equity and Inclusive Education: Learning activities will respect diverse identities, perspectives, cultures, abilities, and lived experiences and will promote a safe, respectful, and inclusive learning environment.

First Nations, Métis, and Inuit Education: Where appropriate, students will explore Indigenous perspectives, knowledge, relationships with the environment, and contributions to science and technology.

Information and Communications Technology (ICT): Digital tools, simulations, online research, spreadsheets, presentations, and other technologies will be used to support investigation, data analysis, collaboration, and communication.

Career Education: Students will explore careers related to science, technology, engineering, health, environmental science, and other STEM fields, including relevant skills and pathways.

Health and Safety: Students will develop safe practices when conducting scientific investigations, using equipment, handling materials, working with electricity, and participating in online learning and research.

Financial Literacy: Where appropriate, students will consider the economic costs, benefits, and impacts of scientific technologies, energy use, environmental decisions, and resource management.

Required Software, Equipment, Textbooks

Required Textbooks and Resources:

- Supplementary reading materials: articles, videos, and online resources for current scientific topics
- Teacher-provided worksheets and practice exercises

Digital Resources and Software:

- **Google Drive** – For storing, sharing, and submitting assignments, worksheets, and projects
- Internet access for research, interactive simulations, and digital learning tools
- IDLE for Python
- Microsoft Office Suite (Word, Excel, PowerPoint) or equivalent for assignments and presentations

Teacher Considerations:

- Students may use assistive technology such as text-to-speech or speech-to-text tools.
- Teachers should allow flexibility in submission formats (Google Docs, PDFs, or other standard formats).

Tips for Success

- **Check Announcements, "What's New," and your mailbox every day** for updates and important information.
- **Check the calendar for due dates!** It is your responsibility to meet deadlines. If you have any difficulty, contact your teacher promptly.
- **Review assignment and evaluation criteria regularly.** Create a checklist to ensure your assignments and activities include all required elements and are submitted correctly by the due date.

Ask for help when needed! Don't hesitate to reach out for guidance or clarification.

For technical issues, contact the **Help Desk**.

For course-related questions or problems, email your teacher. Expect a response within 24 hours. If urgent, include "**URGENT**" in the email subject line.

Key Elements to Success:

- **Time Commitment** – Plan for 1–2 hours of focused study each day to complete modules, research, and assignments.
- **Communication** – Maintain regular contact with your teacher for guidance, feedback, and clarification on tasks.
- **Engagement** – Stay curious and proactive! Online learning may have challenges, but with effort and persistence, you will succeed.

Remember, this course is designed to help you understand scientific concepts and their workplace applications. Approach each activity with curiosity, critical thinking, and a problem-solving mindset!