

RICHVIEW COLLEGIATE INSTITUTE

PROGRAM AREA: COMPUTER STUDIES	COURSE NAME: Computer Science
COURSE CODE: ICS4U1	GRADE/LEVEL: 12 (University Preparation)
PREREQUISITE: ICS3U1	CREDIT VALUE: 1
NEXT STEPS: Computer Science, Engineering, Bioinformatics, Game Programming, Info. Technology, etc!	
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Cost of Textbook/equipment replacement: N/A **Additional Course Costs:** \$10 (computer lab consumables)

COURSE DESCRIPTION

This course enables students to further develop knowledge and skills in computer science. Students will use modular design principles to create complex and fully documented programs, according to industry standards. Student teams will manage a large software development project, from planning through to project review. Students will also analyse algorithms for effectiveness. They will investigate ethical issues in computing and further explore environmental issues, emerging technologies, areas of research in computer science, and careers in the field.

CURRICILUM STRANDS AND OVERALL EXPECTATIONS

A. PROGRAMMING CONCEPTS AND SKILLS

By the end of this course, students will:

- **A1.** demonstrate the ability to use **different data types and expressions** when creating computer programs
- **A2.** describe and use **modular programming** concepts and principles in the creation of computer programs
- **A3.** **design and write algorithms** and subprograms to solve a variety of problems
- **A4.** use proper **code maintenance** techniques when creating computer programs

B. SOFTWARE DEVELOPMENT

By the end of this course, students will:

- **B1.** demonstrate the ability to **manage the software development process** effectively, through all of its stages – planning, development, production, and closing
- **B2.** apply standard **project management techniques** in the context of a student-managed team project

C. DESIGNING MODULAR PROGRAMS

By the end of this course, students will:

- **C1.** demonstrate the ability to apply **modular design** concepts in computer programs
- **C2.** **analyse algorithms** for their effectiveness in solving a problem

D. TOPICS IN COMPUTER SCIENCE

By the end of this course, students will:

- **D1.** assess strategies and initiatives that promote **environmental stewardship** with respect to the use of computers and related technologies
- **D2.** analyse ethical issues and propose strategies to encourage **ethical practices** related to the use of computers
- **D3.** analyse the impact of **emerging computer technologies** on society and the economy
- **D4.** research and report on different areas of **research in computer science**, and careers related to computer science

Assessment and Evaluation

Assessment and Evaluation are based on the expectations and levels of achievement outlined in the provincial curriculum document for each subject. A wide range of assessment and evaluation opportunities allows students to demonstrate their learning in a variety of ways. This information provides the basis for reporting student grades on the Provincial Report Card. A final mark will be calculated using the following categories.

70% Course Evaluation (based on the following % breakdown of categories):

All four achievement categories/strands do not need to be evaluated in each evaluation task.

Communication (20%)	Knowledge/Understanding (15%)	Thinking and Inquiry (30%)	Application/Making Connections (35%)
<i>-Style conventions and documentation in programming tasks</i> <i>-Report writing</i> <i>-Research tasks</i> <i>-Tests & quizzes</i>	<i>-Tests & quizzes</i> <i>-Basic programming task elements</i>	<i>-Research tasks</i> <i>-Planning documents</i> <i>-Problem solving on programming tasks</i> <i>-Tests</i>	<i>-Programming tasks</i> <i>-Tests & quizzes</i>

30% Final Evaluation (based on the above % breakdown of categories):

Components of final evaluation: **1.** Programming Project
 2. Research Report

**** A detailed explanation of the culminating activity/activities will be distributed to students in the class.**

Students should refer to the *Richview Evaluation Policy* document regarding late and missed evaluations, and academic misconduct. All school-wide policies apply, including:

- *Assignments must be submitted on or before the stated due date as set by the teacher.*
- *If a deadline cannot be met, this must be communicated with the teacher in advance.*
- *Students who fail to communicate regarding late work will receive a 10% deduction per day (including weekends) up to the full value of the assignment.*
- *Missed assignments will receive a 0. Assignments are considered missed once they have been returned to the class. Note that this takes precedence over the 10% per day.*
- *Unexplained absences from in-class evaluations will result in a mark of 0.*
- *Students missing an evaluation for a school-based activity must give advance notice in order to make alternative arrangements.*
- *All work submitted must be your own. Consequences may include a grade of 0, failure in the course, and/or suspension from school.*

Learning Skills:

The report card provides a record of the learning skills, demonstrated by the student in every course in the following six categories: *Responsibility, Organization, Independent Work, Collaboration, Initiative, and Self Regulation*. The learning skills are evaluated using a four-point scale (E-Excellent, G-Good, S-Satisfactory, N-Needs Improvement).

Please refer to the Student Agenda Planner for details regarding the Achievement Chart and Learning Skills.