



# Course of Study

## ICS4U –Computer Science

### Grade 12, University Preparation

*V. Rao, Sept 2023*

#### A. 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 **Java** 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.

**PREREQUISITE:** ICS3U (Introduction to Computer Science, Grade 11) required

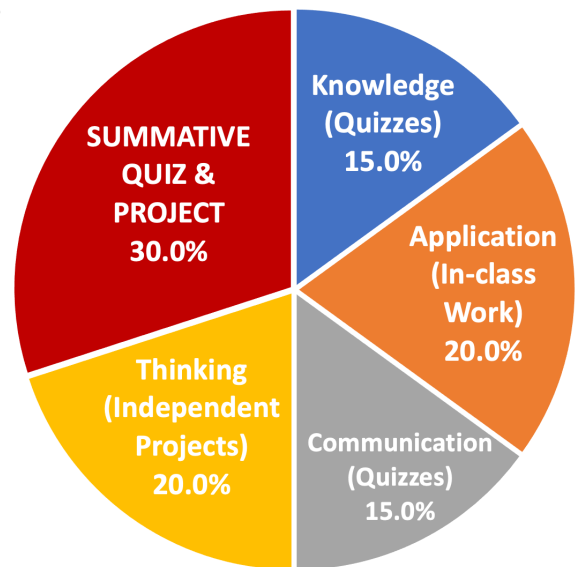
#### B. OVERALL EXPECTATIONS

Strand	Expectations
<b>Programming Concepts and Skills</b>	<ul style="list-style-type: none"><li>• demonstrate the ability to use different data types and expressions when creating computer programs;</li><li>• describe and use modular programming concepts and principles in the creation of computer programs;</li><li>• design and write algorithms and subprograms to solve a variety of problems;</li><li>• use proper code maintenance techniques when creating computer programs.</li></ul>
<b>Software Development</b>	<ul style="list-style-type: none"><li>• demonstrate the ability to manage the software development process effectively, through all of its stages – planning, development, production, and closing;</li><li>• apply standard project management techniques in the context of a student-managed team project.</li></ul>
<b>Designing Modular Programs</b>	<ul style="list-style-type: none"><li>• demonstrate the ability to apply modular design concepts in computer programs;</li><li>• analyse algorithms for their effectiveness in solving a problem.</li></ul>
<b>Topics In Computer Science</b>	<ul style="list-style-type: none"><li>• analyse ethical issues and propose strategies to encourage ethical practices related to the use of computers;</li><li>• analyse the impact of emerging computer technologies on society and the economy;</li><li>• research and report on different areas of research in computer science, and careers related to computer science.</li></ul>

### C. ACHIEVEMENT CATEGORY WEIGHTINGS

A student's final grade in this course will consist of:

- 70% Cumulative Term Work
- 30% Summative Quiz & Project



### D. UNITS OF STUDY

#	Unit Name	Evaluations	[K]	[A]	[C]	[T]
1	Java Fundamentals	Daily Work / Learning Journal		✓		
		Quizzes	✓		✓	
		Assignment				✓
2	Object-Oriented Programming	Daily Work / Learning Journal		✓		
		Quizzes	✓		✓	
		Assignment				✓
3	Data Structures and Algorithms	Daily Work / Learning Journal		✓		
		Quizzes	✓		✓	
		Assignment				✓
4	Swing GUIs	Daily Work / Learning Journal		✓		
5	Putting It All Together	Summative Quiz & GUI Project	✓	✓	✓	✓

### E. LEARNING SKILLS

Learning skills, such as responsibility, organization, independent work, collaboration, initiative, and self-regulation will be assessed (and self-assessed) throughout the year, and will be included on the student's report card.

## F. STUDENT EXPECTATIONS

### Students Are Expected To..

- **Treat others as you wish to be treated.** This means showing respect for yourself, your classmates, and your teacher.
- Demonstrate keen attendance, punctuality, attentive listening, and participation in class activities (whole class, independent, and team work).
- Complete all homework and assignments on time, and effectively use class time.
- Strictly follow the **TDSB acceptable computer use policy** (see Student Agenda). All students and their parents are required to sign an agreement stating that they have read and understood the policy.
- **NOT** bring any food or (uncovered) drinks into the lab and take care with our classroom computers.
- **NOT** use electronic devices (phones, tablets, laptops) without the consent of your teacher, and for curriculum-related purposes only.

### Illness and Other Absences

Students should notify their teacher in advance of any planned absences due to school activities. For absence due to illness, students must provide a slip from the office or a parental note on the first day they return. The note must contain the following: student name, date(s) of absence, reason for the absence, and a parent/guardian signature.

### Missed Tests/Assignments

Students who are sick on an assignment or test due date must bring a note on the first day they return and make arrangements with the teacher so that the tests/assignments can be completed. **Failure on the student's part to make such arrangements or failure to show up for a test retake will result in a mark of zero being assigned for any missed evaluations.**

### Late Assignments

According to school policy, **late assignments will be penalized by 5% per day** (to a max of 10%). A grade of **zero** will be assigned if the teacher has returned the marked assignment to the rest of the class (i.e., the "ultimate deadline").

### Plagiarism

Copying the work of others will not be tolerated and a **zero** grade will be assigned for intentional infractions. Any student found **giving** their work to be copied will **also** be assigned a **zero** grade. In cases of repetitive plagiarism, parents and the office will be notified.