

**ICS3U – Introduction to Computer Science
University (ICS3U)**

A. COURSE DESCRIPTION

This course introduces students to computer science. Students will design software independently and as part of a team, using industry-standard programming tools and applying the software development life-cycle model. They will also write and use subprograms within computer programs. Students will develop creative solutions for various types of problems as their understanding of the computing environment grows. They will also explore environmental and ergonomic issues, emerging research in computer science, and global career trends in computer-related fields.

Pre-requisite: None

Recommended: Grade 10 - ICS 20/TEJ20 (formerly, TIK20/TEE20)

Students will be graded based on the following categories:

Tests/Quizzes – Knowledge / Thinking	40%
Assignments – Application/ Communication	30%
Final Assignment	10%
Final Exam	20%

The following **UNITS** of study will be covered in this course:

Unit	Unit Title
1	Working in the Computing Environment
2	Beginning to Program – Basic Output and the C# Environment
3	Introduction to Variables and Data Types
4	Selections/Conditional Statements
5	Repetition/Loops & String Manipulation
6	Arrays
7	Sorting
8	File Input/Output
9	Functions / Methods
10	Windows Form Design
11	Putting it All Together

B. UNIT OUTLINES

UNIT 1: Working in the Computing Environment

- What's in the lab?
- Comfortable Computing and Rules
- Computer Survival Skills
- History of Programming/Computing

UNIT 2: Beginning to Program – Basic Output and the C# Environment

- Data Output in Simple Programs
- Understanding the C# Environment

UNIT 3: Introduction to Variables and Data Types

- Variables
- Type conversions / Output
- Input Data Types

UNIT 4: Selections/Conditional Statements

- If Statements
- Case

UNIT 5: Repetition/Loops & String Manipulation

- Repetition
- Iteration
- Strings

UNIT 6: Arrays

- Creating and Declaring Arrays of different types
- Accessing elements
- Manipulating Sizes

UNIT 7: Sorting

- Bubble Sort Algorithm

UNIT 8: File Input/Output

- String comparison
- File creation
- Exception Handling

UNIT 9: Functions / Methods

- Creating functions
- Method Overloading
- Flowcharts

UNIT 10: Windows Form Design

- Adding Controls & Animation
- Creating Windows Application
- Drawing
- Key Press Events
- Timer

UNIT 11: Putting it All Together

- Culminating Assignment
- SDLC
- Project Management
- Documentation

C. Tests and Quizzes

Tests will fall under the knowledge/understanding and thinking/inquiry achievement categories. Tests can be either theoretical or practical (performed on the computer) or a combination of both. Students will be informed well in advance of any test.

If a test is missed due to illness a doctor's note must be presented. **Students who are going to miss a test because of a school trip or team activity must notify their teacher two days prior to the test date, so that an earlier test date may be assigned for those students.** These are the only valid reasons for a rewrite. **Failure to write a test will result in a NOT COMPLETE.** Any other missed test will result in a **NOT COMPLETE.**

D. Assignments

Assignments will be given to students on a regular basis. They will fall under the categories of achievement. Due dates will always be given to students when it is handed out. Most assignments will deal with programming and problem solving in C#. For this reason there will be time allotted in class most periods so that students may work on assignments.

All assignments must be handed in on time otherwise a NOT COMPLETE will be given.

E. Major Project

There will be at least one major project assigned. The project will be based on any of the units outlined in this course. Students are responsible for any material covered in the units. Thus, tests may cover some of the material from the project.

All projects must be handed in on time otherwise a NOT COMPLETE will be given.

Remember: You always have CLINIC TIME to work on any computer assignments if you fall behind.