



Computer Science Introductory- 2023-24

Teacher Contact Info:

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Course Description:

Students in Computer Science can expect to learn programming concepts including:

- Algorithms
- Design, debugging, and testing software
- Control flow statements
- Object-oriented programming
- Processing input and output
- Data structures

Course Objectives and Assessment:

As this is a Career and Technology Studies (CTS) course, all curricular outcomes will be drawn from the [Alberta CTS Program\(s\) of Studies](#)

Competencies – 20%

In CTS at Nelson Mandela the following competencies will be assessed:

Competency	Descriptor
Information Management	Students demonstrate this competency when they identify and clarify clear criteria for problems, explore a variety of problem solving techniques, and then select and defend the most viable option.
Personal Management	Students demonstrate this competency when they take personal responsibility for their habits and wellbeing. This includes career skills like punctuality and professionalism as well as striving for personal excellence.
Communication and Collaboration	Students demonstrate this competency when they communicate clearly and effectively with a wide variety of audiences and peers. It also includes the effective use of communication technologies and the application of strategies to be an effective collaborator in a group.

Innovation and Creativity	Students demonstrate this competency when they take risks when exploring a variety of creative processes. They also adapt and persevere when exploring ways to create value and achieve excellence.
Complex Problem Solving	Students demonstrate this competency when they draw on multiple perspectives, disciplines and resources to select the most viable solution. They also approach all problems with optimism and hope.
Career Connections	Students demonstrate this when they effectively research and understand the post secondary and career options that are available to them.

Outcomes –

20% Knowledge and Understanding and

60% Plan, Create, Evaluate

Some credits have no Knowledge and Understanding outcomes in which _____ case there is a 80%/20% Competency/Outcome split

These are the credits that may be offered in the course and they may change due to duplicate CTS credits in other courses and/or missing pre-requisites.

A student's remaining class grade will be determined based off of the outcomes in these specific credits that are not covered by the Competency grade.

Introductory Credits

Credit	Outcome
CSE1010: Computer Science 1	Students explore hardware, software and processes. This includes an introduction to the algorithm as a problem-solving tool, to programming languages in general, and to the role of programming as a tool for implementing algorithms.
CSE1110: Structured Programming 1	Students are introduced to a general programming environment in which they write simple structured algorithms and programs that input, process and output data, use some of the more basic operators and data types, and follow a sequential flow of control.
CSE1120: Structured Programming 2	Students work with structured programming constructs by adding the selection and iteration program control flow mechanisms to their programming repertoire. They write structured algorithms and programs that use blocks to introduce an element of modularity into their programming practice. Prerequisite: CSE1110: Structured Programming 1

CSE2110: Procedural Programming 1	Students develop their understanding of the procedural programming paradigm. They move from a structured programming approach in which modules were handled through the use of program blocks to a more formal modular programming approach in which they are handled through subprograms. In the process, students also learn to use a number of new design approaches made possible by the new paradigms. As part of this process, they also learn what types of problems are amenable to modular algorithms and programs.
	Prerequisite: CSE1110: Structured Programming 1
CSE1910: CSE Project A	Students develop project design and management skills to extend and enhance competencies and skills in other CTS courses through contexts that are personally relevant.

Course Materials and Resources:

Students are expected to provide their own storage devices or use Google Drive to take electronic work home when needed.

During the course students may be required to use online tools to aid and further their learning such as code.org or replit.com. They will be required to sign up for an account using their school email and may need to share personal information including their name. For more information about the use of this information, please contact your teacher.

Style Guide

All assignments are to be formatted using the provided style guide on D2L. Assignments which are not following the style guide will be return and students will be require to resubmit their work after ensuring their work is formatted correctly.

Python

Students will be using Python to code in most modules. Python can be downloaded/used for free at home (<https://replit.com/>) or students can use tutorial time to complete unfinished work.

