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|  |  | **Course Outline and Evaluation Summary**  **Course Code: ICS4U1** | |  |
|  | Title of Course: Computer Science 12 | 416-395-3210 | |
|  | Department: Computer Studies/Engineering |  | |

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| **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 analyze 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: Introduction to Computer Science, Grade 11, University Preparation** |

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| **Course Evaluation**  Course evaluations incorporate one or more of the achievement categories (KICA). A brief description of each category can be found [here](https://www.dcp.edu.gov.on.ca/en/assessment-evaluation/categories-of-knowledge-and-skills). The final grade is calculated using the weighted percentages below. | | | | | |
| **Term Work:** | **A variety of tasks where you show your learning and have marks assigned using the Achievement Categories/Strands** | | **Summative**  **Evaluation:** | **Marked summative tasks which assess your learning on the entire course** | |
| 70% | 14% | Knowledge & Understanding | 30% | % | Culminating Task |
| 14% | Thinking & Inquiry |
| 28% | Application | % | Final Exam |
| 14% | Communication |

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| **Learning Skills** |
| Learning skills provide Information to help students understand what skills, habits & behaviors are needed to work on to be successful. These are not connected with any numerical mark. A brief description of each skill can be found [here](http://www.edu.gov.on.ca/eng/policyfunding/growsuccess.pdf#page=17).  **Responsibility, Organization, Independent Work, Collaboration, Initiative and Self-Regulation**  E – Excellent G – Good S – Satisfactory N – Needs Improvement |

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| **Required Materials:** Any educational resource required for this course will be provided by the school. It is the student’s responsibility to come to class with these materials. |

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| **School/Departmental/Classroom Expectations** |
| **Attendance:** The student is expected to attend class on time. Parents/guardians will be contacted if lates/attendance becomes an issue/hindrance. If the student knows about an absence in advance, they should contact the teacher.  **Plagiarism/Cheating:** A mark of 0 will be assigned for any work submitted that does not belong to the student. A mark of 0 will be assigned to a student who was found to have cheated. Parents/guardians will be informed.  **Missed Work:** If a student is absent from class, (e.g. illness, sports team) it is **their** responsibility to find out what they have missed and to catch up. The student is responsible for completing all of the work that was missed due to an absence. If a student misses an assignment or test without a legitimate explanation and documentation, marks up to and including the full value of the evaluation may be deducted. Make-up tests must be arranged to be written.  **Late Work:** Late work may result in a deduction of marks up to and including the full value of the evaluation. |

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| **Course Assessment Tasks** | | | |
| ***Unit/Topic/Strand*** | ***Big Ideas*** | ***Major Assignments / Evaluations*** | ***Estimated Duration*** |
| Unit 1:  Review of Grade 11  Concepts and Introduction | This unit is designed to review concepts taught in grade 11. It can also be used as a transition from the programming language taught in grade 11 to a new language in grade 12. | Labs and Assignments | 15 |
| Unit 2:  Topics in Computer Science | Students assess strategies and initiatives that promote environmental stewardship with respect to the use of computers and related technologies;  analyze ethical issues and propose strategies to encourage ethical practices related to the use of computers;  analyze the impact of emerging computer technologies on society and the economy;  research and report on different areas of research in computer science, and careers related to computer science. | Labs and Assignments | 10 |
| Unit 3:  Data Types | Students learn the basics of dictionaries, stacks, and queues. | Labs and Assignments | 20 |
| Unit 4:  Object Oriented Programming | Introduction of object-oriented concepts and an object-oriented programming language in this unit.  Concepts in Unit 1 should now be enhanced as components within a modular programming framework. | Labs and Assignments | 30 |
| Unit 5:  Algorithms | Students will design and develop algorithms for searching and sorting | Labs and Assignments | 15 |
| Culminating Task(s) |  | Test and Final Project | 15 |

**Note: The order of the units of study may change due to student needs and resources available during the course.**