

# Introduction to Computer Science, Grade 11 ICS3U1

<p><b>Course Description:</b></p> <p>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. Students will also:</p> <ul style="list-style-type: none"> <li>-develop creative solutions for various types of problems as their understanding of the computing environment grows;</li> <li>-explore environmental and ergonomic issues, emerging research in computer science and global trends in computer-related fields.</li> </ul>	<p><b>Level:</b> University</p> <p><b>Credit Value:</b> 1.0</p> <p><b>Pre-requisite:</b> None</p> <p><b>Department:</b> Technology</p> <hr/> <p><b>Course Fees:</b> None</p>
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<p><b>Textbooks &amp; Resources:</b></p> <ul style="list-style-type: none"> <li>• Growing Success: Assessment, Evaluation and Reporting in Ontario Schools</li> <li>• The Ontario Curriculum, Grades 10 to 12 Computer Studies, 2008 (revised)</li> <li>• Resource Book: An Introduction to Programming Using Microsoft Visual Basic 2008, Lawrenceville Press, 2010</li> </ul>
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<p><b>Course Evaluation:</b> Student Evaluation consists of three components...</p>									
<p><b>1) Learning Skills &amp; Work Habits:</b></p> <p>Students are evaluated on 6 Learning Skills &amp; Work Habits. The 6 essential skills are:</p> <ul style="list-style-type: none"> <li>• Responsibility</li> <li>• Organization</li> <li>• Independent Work</li> <li>• Collaboration</li> <li>• Initiative</li> <li>• Self-Regulation</li> </ul>	<p>These six attributes are evaluated on a scale of Excellent (E), Good (G), Satisfactory (S) &amp; Needs Improvement (N) and reported on the report card. They are not included in the course mark, unless specified in the curriculum expectations</p>								
<p><b>2) Term Mark (Assessment of Learning):</b></p> <p>Student performance standards for knowledge and skills are described in the curriculum Achievement Chart. The curriculum is assessed in four categories:</p> <ul style="list-style-type: none"> <li>• Knowledge Understanding 14%</li> <li>• Thinking and Inquiry 14%</li> <li>• Communication 14%</li> <li>• Application 28%</li> </ul>	<p>Evaluation of these four categories generates the term mark. The term mark accounts for 70% of the final mark.</p> <p><b>It is the students responsibility for submitting evidence of Learning.</b></p>								
<p><b>3) Final Evaluation (Assessment of Learning):</b></p> <p>The final evaluation, administered at or towards the end of the course is based on the evidence shown to the right. The final evaluation accounts for 30% of the final mark.</p>	<p>The final evaluation consists of:</p> <table style="width: 100%; border: none;"> <tr> <td style="padding: 2px;">Final Project Code</td> <td style="text-align: right; padding: 2px;">12 %</td> </tr> <tr> <td style="padding: 2px;">Final Project Class Work</td> <td style="text-align: right; padding: 2px;">5 %</td> </tr> <tr> <td style="padding: 2px;">Final Project Presentation</td> <td style="text-align: right; padding: 2px;">3 %</td> </tr> <tr> <td style="padding: 2px;">Exam</td> <td style="text-align: right; padding: 2px;">10 %</td> </tr> </table>	Final Project Code	12 %	Final Project Class Work	5 %	Final Project Presentation	3 %	Exam	10 %
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<p><b>Final Mark = 70% Term Mark + 30% Final Evaluation</b></p>									
<p>For a detailed description on Course Evaluation, see “How Did I Get That Mark!” at <a href="http://www.satec.on.ca">www.satec.on.ca</a></p>									

<p><b>Course Conduct Policies:</b> See Student Agenda.</p>
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**Please retain this page in the front of your notebook for future reference.**



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# Introduction to Computer Science, Grade 11 ICS3U11

**Course Outline:**

Unit	Description	Approximate Length	Unit Evaluation
1 Programming Concepts and Skills	Demonstrate the ability to use different data types, including one-dimensional arrays in computer programs.	Week 1 Week 2 Week 3	Assignment 1 TEST 1
	- Using Arrays		
	- Searching an Array		
	- Dynamic Arrays		
	- Two-Dimensional Arrays		
	- Sorting an Array		
	- Array Methods		
	- Structures		
	- Structure Arrays		
	Demonstrate the ability to use subprograms within computer programs.		
	- VB Built-in Procedures and Functions		
	- Creating your own Procedures and Functions		
	- Passing ByVal and ByRef		
	- The Event Handler Procedure		
	- Passing Controls		Assignment 2 TEST 2
Apply the principle of modularity to design reusable code using classes			
- Designing a Class			
- The Class Module	Week 4	Assignment 3	
- Encapsulation	Week 5	TEST 3	
- Constructors, Methods	Week 6		
- Properties using Set and Get	Week 7		
- Overloading Methods			
- Polymorphism			
- Composition			
Design programs that use File Input and Output			
- The FileStream, StreamReader and StreamWriter Classes			
- Text Files and Binary Files			
- Sequential Access and Random Access	Week 8	Assignment 4	
- Writing to a Text File	Week 9	TEST 4	
- Reading from a Text File	Week 10		
- Writing to a Binary File			
- Reading from a Binary File			
- The FileInfo Class			
Implement Handling of Exceptions			
- What is an Exception?	Week 11		
- Using the try/catch/finally structure	Week 12		
- Types of exceptions			
- Exception classes			

## Introduction to Computer Science, Grade 11 ICS3U11

2 Software Development	Use a variety of problem-solving strategies to solve different types of problems independently and as part of a team.  - Represent the structure and components of a software project using Unified Modeling Language (UML), data flow diagrams, pseudocode and structure charts - Implement the Software Development Life Cycle for a software project - Communicate the status of the software project via a set of reports - Present the software project to the class	Week 13 Week 14 Week 15 Week 16	Final Project and Presentation
3 Computer Environments and Systems	Relate the specifications of computer components to user requirements. Use appropriate file maintenance practices to organize and safeguard data. Demonstrate an understanding of the software development process.	Week 1	Paper and Presentation
4 Topics in Computer Science	Describe policies on computer use that promote environmental stewardship and sustainability. Demonstrate an understanding of emerging areas of computer science research. Describe post secondary education and career prospects related to computer studies.	Week 2	Paper and Presentation in lieu of Paper and Presentation in Computer Environments and Systems
<b>Note: Order units are delivered may change due to student needs and resources available during the course.</b>			

### General Information:

Recommended Resources - In-class Book: An Introduction to Programming using Microsoft Visual Basic 2008, Lawrenceville Press  
Teacher provided Powerpoint Presentations

Download Microsoft Visual Basic 2008 Express Edition:  
<http://www.dreamspark.com>, Registration Key: SECND-4T4WU-6JINC-WHAQM-ORD4H

History of Programming Languages:  
[http://en.wikipedia.org/wiki/History\\_of\\_programming\\_languages](http://en.wikipedia.org/wiki/History_of_programming_languages)

Tutorials: <http://www.homeandlearn.co.uk/NET/vbNET.html>

How to Seek Extra Help - After school, twice a week, speak with teacher.

This course meets ICT SHSM program requirements.

