St. Marcellinus Secondary School - DPCDSB

COURSE OUTLINE

Course Code: ICS4U
Course Name: Grade 12, Computer Science – University Preparation
Teacher: Mrs. C. Manoil
Textbook: none, course notes provided by the teacher

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 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.

A. PROGRAMMING CONCEPTS AND SKILLS - OVERALL EXPECTATIONS

By the end of this course, students will:

- demonstrate the ability to use different data types and expressions when creating computer programs;
- describe and use modular programming concepts and principles in the creation of computer programs;
- design and write algorithms and subprograms to solve a variety of problems;
- use proper code maintenance techniques when creating computer programs.

B. SOFTWARE DEVELOPMENT - OVERALL EXPECTATIONS

By the end of this course, students will:

- demonstrate the ability to manage the software development process effectively, through all of its stages – planning, development, production, and closing;
- apply standard project management techniques in the context of a student-managed team project.

C. DESIGNING MODULAR PROGRAMS - OVERALL EXPECTATIONS

By the end of this course, students will:

- demonstrate the ability to apply modular design concepts in computer programs;
- analyze algorithms for their effectiveness in solving a problem.

D. TOPICS IN COMPUTER SCIENCE - OVERALL EXPECTATIONS

By the end of this course, students will:

- 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.

Prerequisite: Introduction to Computer Science, Grade 11, University Preparation

My signature below indicates that I have read the Course Handout, and I am in agreement with its contents.

Parent's/Guardian's Signature: _____ **Date:** _____

Units of Study:

Unit 1: Prog. Concepts – Review (3 per)
Unit 2: Methods, Param., Overloading(3 per)
Unit 3: Arrays, 2DArrays, ArrayList (10 per)
Unit 4: OOP Programming-Java, Proc.(17 per)
Unit 5: OOP, Designing Classes (15 per)
Unit 6: Inheritance, Polymorphism (10 per)
Unit 7: Searching,Sorting,Recursion (10 per)
Unit 8: File Input/Output (5 per)
Unit 9: Topics in Computer Science (5 per)

Final Evaluation (10 per)

Student Expectations:

- The computer/ media equipment shall be used for the express purpose of education.
- Students must like solving problems
- Students must be willing to work in groups and on their own as per situation
- Plagiarism of any kind will result in a mark of 0 in all categories
- If a student cannot explain their code, or pseudo-code, the assignment will be considered plagiarized.
- All assignments must be submitted in the form of source code. Complied binaries will not be accepted.
- All assignments will follow appropriate course naming and documentation conventions.
- Be positive, timely, inquisitive, and willing to be challenged. Respect yourself, others and the lab.
- Students will be given ample time in which they can plan and execute their solutions in class. The use of a home computer is not necessary for successful completion of this course.

Course Grade Weighting:

1. **Student marks** will be determined by evaluating process & product according to 4 categories:

Term Work: 70%		**Final Evaluation: 30%**	
Category	***Weight***	***Task***	***Weight***
Knowledge and Understanding	25%	Culminating Assessment	15%
Thinking	25%	Final Exam	15%
Communication	20%		
Application	30%		

2. Feedback will also be provided for student **learning skills**. Working independently, teamwork, organization, work habits/homework, and initiative are assessed apart from student achievement in the four categories outlined above and will conform to the coding:

E – Excellent **G – Good** **S – Satisfactory** **N - Needs Improvement**

3. Each unit will conclude with a **Unit Test or Summative Task**. *Any examination or test missed due to truancy will not be rescheduled, and will be assigned a mark of zero."* Students missing an evaluation for a legitimate reason must provide a note from a parent/guardian that acknowledges that the parent is aware that a scheduled assessment has been missed.

4. **Assignments** will be assigned each class. If you have difficulty with any course work, it is **YOUR** responsibility to seek extra help as needed. Please do not hesitate to ask for help so that you do not get too far behind!

5. If you **miss a class** for any reason, you are responsible for the work and any assignment done during that class. Any handouts distributed will be kept in the classroom for you to pick up.

6. Extra help will be available upon appointment with the classroom teacher.

May God bless your efforts. Welcome to the Class!