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**Course Overview**

**Course Code:** SD-230

**Program:** Software Developer

**Credits:** Full Credit

**Course Hours:** 55 hours

**Prerequisites:** none

**Academic Year:** 2018-2019

**Class Times & Information**

**Location:** 200 Henlow

**Days:** Monday to Friday

**Times:** 8:45am – 3:15pm

**Format:** Classroom

**Start Date:** March 5th, 2019

**End Date:** April 2nd, 2019

**Instructor Overview**

**Instructor:** Guilherme Guizado

**Email:** guilherme.guizado@mitt.ca

Problem Solving and Programmatic Logic

Course Outline

**Course Description**

This introductory course is designed to help students to learn the logical aspects of computer programming including Boolean logic and conditional expressions, control structures and algorithmic problem-solving, problem-solving frameworks for computer programming, and object-oriented concepts and their relationship to procedure development.

**Methods**

* Discussion
* Question/answer
* Lecture
* In-Class Exercises
* Assignments
* Project

**Materials**

* Laptop Computer (to be supplied by MITT)
* Electronic documents

**General Learning Outcomes**

Upon successful completion of this course, students will be able to:

1. Develop and evaluate increasingly complex logical expressions.
2. Use truth tables to illustrate the logical connectives: AND, OR, XOR, and NOT and evaluate logical expressions.
3. Apply various Boolean algebra laws, including de Morgan’s Law, to simplify complex logical expressions.
4. Express logical expressions using pseudocode.
5. Design algorithms to solve unstructured English problems.
6. Study various sorting algorithms, for functionality and efficiency.
7. Develop algorithms using the three programming structures: sequence, selection, and iteration.
8. Apply generalized problem-solving techniques relevant to computer programming.
9. Conceptualize and organize computer programs as a system of collaborating objects.

**MITT Accessibility Statement**

MITT is committed to creating a learning environment that meets the needs of its diverse student body. If you anticipate or experience any barriers to learning in this course, please feel welcome to discuss your concerns with me.

If you have a disability, or think you may have a disability, it is strongly recommended for you to meet with Kayla Hoskins, Student Advisor - Accessibility, to begin this conversation or request an official accommodation. You can find more information about the Accessibility Services, including contact information, here: [www.mitt.ca/student-success/accessibility-services](http://www.mitt.ca/student-success/accessibility-services). If you have already arranged accommodations through Kayla Hoskins, please feel free to meet with me if you have any questions or concerns regarding the implementation of your accommodations. If you do not have a documented disability, remember that other support services, including the Learning Specialist, peer tutors and clinical services are available to all students through MITT Student Services.

**Course Schedule**

Please note that instructors reserve the right to adjust the course schedule without prior notification to meet the changing needs of the class as a whole. It is the responsibility of the student to follow up in cases of missed classes.

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| --- | --- | --- |
| **Week/Class** | **Topic(s) with chapters (material) covered** | **Activities/Assessment** |
| Class 1  Mar 5th | **Problem solving and Boolean logic**   * An overview of problem solving * Introduction to Boolean logic | * Discussion * In Class Exercise # 1 |
| Class 2  Mar 6th | **Boolean Algebra**   * Truth tables * Boolean expression simplifications - using Boolean algebra laws * Use of sequence as a basic programming structure | * Discussion * In Class Exercise # 2 * Assignment # 1 |
| Class 3  Mar 7-8th | **Selection**   * Use of different selection structures - single sided, * Double sided, nested, and case. * Use of decision tables to simplify a complex selection problem * Design of Pseudocode for various selection algorithms | * In Class Exercise # 3 * Assignment # 1 due (Mar 8th) |
| Class 4  Mar 11-12th | **Iteration**   * Use of different iteration structures - top checking, bottom checking * Use of while loop, for loop and do while loops * Design of Pseudocode for various iteration algorithms | * Discussion * In Class Exercise # 4 * Assignment # 2 (Mar 11th) |
| Class 5  Mar 13-14th | **Arrays**   * Introduction to arrays - one dimensional | * In Class Exercise # 5 * Assignment # 2 due (Mar 13th) |
| Class 6  Mar 18-19th | **Arrays Continued**   * Introduction to two   dimensional, and parallel arrays   * Use of 2D arrays in sorting algorithms | * Assignment # 3 (Mar 19th) |
| Class 7  Mar 20-21th | **Exploration of OOP**   * Discussion of OOP terminologies and concepts | * In Class Exercise # 6 * Assignment # 3 due (Mar 21st) |
| Class 8  Mar 22th | **Application of programming structures**   * Use of sequence, selection and iteration in several problems * Object oriented thinking | * Discussion * In Class Exercise # 7 * Project |
| Class 9  Apr 1st | **Object Oriented - Advanced topics**   * Introduction to Inheritance * Use of Inheritance in C# | * Discussion * In Class Exercise # 8 |
| Class 10  Apr 2nd | **Review** | * Project due |

**Student Evaluation**

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| --- | --- | --- |
| **Type of Evaluation** | **Percentage of Grade** | **Date Due/Assessed** |
| **Assignment # 1** | **20%** | Mar 8th |
| **Assignment # 2** | **20%** | Mar 13th |
| **Assignment # 3** | **20%** | Mar 21st |
| **Project** | **40%** | Apr 2nd |

**Evaluation Details**

**Programming Tasks**

Project and assignments will encompass a combination of theory and practical work, allowing students to apply and demonstrate their newly-acquired knowledge and skills. Unless specified, programming tasks will be individual efforts.

Students will be provided class time for each assignment, however anything not completed during class time must be completed for homework. Assignment solutions will be reviewed at the Instructor’s discretion. Any assignments/projects not implemented at the time of project review will not be accepted.

**Assignments**

All assignments are individual efforts. No group work is allowed. Refer to the Academic Honesty policy for more information on individual expectations.

**Grading**

|  |  |  |
| --- | --- | --- |
| **Letter Grade** | **Grade Point Value** | **Accumulated Evaluation Percentage** |
| **A+** | 4.5 | 90 – 100% |
| **A** | 4.0 | 80 – 89% |
| **B+** | 3.5 | 75 – 79% |
| **B** | 3.0 | 70 – 74% |
| **C+** | 2.5 | 65 – 69% |
| **C** | 2.0 | 60 – 64% |
| **D** | 1.0 | 50 – 59% |
| **F** | 0.0 | 0 – 49% |

*Note: A passing grade in this course is 50%*

**Course Specific Policies**

1. Respect for the individual. All students are expected to respect other students and as such, treat every student with respect. Respect for the time, ideas and views of others is extremely important and any behaviour that is in violation of this will be frowned at and dealt with accordingly.
2. Be open-minded. Ask questions and challenge ideas and concepts.
3. Plagiarism in any form will not be tolerated. For further information, please refer to the [MITT Academic Integrity Policy](http://mitt.ca/Content/Images/uploaded/Academic%20Integrity%20Policy.pdf) and [MITT Student Discipline Policy](http://mitt.ca/Content/Images/uploaded/Student%20Discipline%20-%20220416.pdf)
4. Assignments (or any other course deliverables including final examination) will not be accepted after the expiration of submission deadlines. Submission will be open from the day the assignments are discussed in class 1 until one hour before the class sessions in which they are due. Missed submissions will result in a grade of zero (0) for the assignment/ deliverable.

**MITT Academic Policy and Regulation**

Students are responsible for reviewing and observing all [MITT Student Policies](http://mitt.ca/about-mitt/academic-regulations-procedures) while engaged in any form of academic activity with the Institute and should refer to the MITT website for all policy information.

Key policies to refer to in relation to this course include:

* [Student Discipline](http://mitt.ca/Content/Images/uploaded/Student%20Discipline%20-%20220416.pdf)
* [Student Behaviour](http://mitt.ca/Content/Images/uploaded/Student%20Behaviour%20Policy%20220416.pdf)
* [Student and MITT Expectations](http://mitt.ca/Content/Images/uploaded/Student%20and%20MITT%20Expectations%20-%202016.pdf)
* [Attendance Policy](http://mitt.ca/Content/Images/uploaded/Attendance%20Policy.pdf)
* [Documentation Requirements](http://mitt.ca/Content/Images/uploaded/Documentation%20Requirements%20Absences.pdf)
* Dress Code Policy

**Academic Integrity**

As per the [MITT Academic Integrity Policy](http://mitt.ca/Content/Images/uploaded/Academic%20Integrity%20Policy.pdf), academic dishonesty in any form is unacceptable. This policy applies to all courses at MITT and defines all activities and behaviours that might constitute grounds for an academic violation.

MITT expects all students to attend an academic orientation session within their program and to adhere to the principles of academic integrity.

Students found to be in violation of the Academic Integrity Policy will be subject to disciplinary action as defined by [the MITT Student Discipline Policy](http://mitt.ca/Content/Images/uploaded/Student%20Discipline%20-%20220416.pdf). Refer to both of these policies for further details.

**Retention of Course Outline**

Students are advised to retain course outlines for future use in support of applications for employment or transfer of credits.

*Information contained in this Course Outline is correct at the time of publication. Continuous improvement is important to MITT and our program delivery. Program and course content may be revised on an ongoing basis to ensure relevance to changing educational and/or labour market needs. As such, this program may be subject to change and the information outlined within should not be viewed as a representation or guarantee of offering.*