**LYCEUM-NORTHWESTERN UNIVERSITY**
Dagupan City

**COLLEGE OF INFORMATION AND COMPUTING STUDIES**

# COURSE GUIDE

**Course Title/Code** : IT-PROG1 | Computer Programming I
**Name of Faculty** : BRYAN O. MISLANG
**Instructor's Email** : mislang.bryan.o@lyceum.edu.ph
**Course Credit** : Lecture: 3 units
**Prerequisite** : None
**Google Class Code** :

**Academic Year** : 2022 – 2023
**Semester** : First
**Class Schedule** :
**Contact Number** : 0948-472-8457
**Online Consultation Hours** : F 3:00 – 4:00 PM

**Course Description:**

At the end of this course, students are expected to learn the procedural programming concepts and techniques using the C++ programming language. Students will learn to write, test, and debug introductory level programs using C++. In addition, the student will be introduced to the OOP concepts, which are important workforce activities.

**Program Outcomes:**

1. Apply knowledge of computing, science and mathematics appropriate to the discipline.
2. Understand best practices and standards and their applications.
3. Analyze complex problems, and identify and define the computing requirements appropriate to its solution.
4. Identify and analyze user needs and take them into account in the selection, creation, evaluation, and administration of computer-based systems.
5. Design, implement, and evaluate computer-based systems, processes, components, or programs to meet desired needs and requirements under various constraints.
6. Integrate IT-based solutions into the user environment.
7. Apply knowledge through the use of current techniques, skills, tools and practices necessary for the IT profession.
8. Function effectively as a member or leader of a development team recognizing the different roles within a team to accomplish a common goal.
9. Assist in the creation of an effective IT project plan.
10. Communicate effectively with the computing community and with society at large about complex computing activities through logical writing, presentations, and clear instructions.
11. Analyze the local and global impact of computing information technology on individuals, organization, and society.
12. Understand professional, ethical, legal, security and social issues and responsibilities in the utilization of information technology.
13. Recognize the need for and engage in planning self-learning and improving performance as a foundation for continuing professional development.

**Course Outcomes:**

1. Design, implement, test and debug a program, based on a given specifications that uses each of the various fundamental programming components.
2. Analyze and simulate results of algorithms that may be implemented as a solution to a given problem.

**Introduction:**

This course guide for Computer Programming 1 is intended to assist you in learning the techniques and methods of C++ programming. This will serve as a guide in practicing your skills in programming that are essential in the IT profession.

**General Guidelines (House Rules):**

This section provides you the general guidelines for completing this course guide. For specific guidelines and information, kindly review your student manual or your module guide (if applicable).

1. The class code for the Google Classroom specific for this course will be provided during the class orientation by your instructor.
2. Create your own timetable to manage your time in reading the posted assignments, watching the videos and completing your required activities.
3. Be consistent in accomplishing tasks periodically. Make sure that you do things one at a time.
4. Practice the routine of reading the materials and watching the videos several times until you understand the topic.
5. You are expected to do class activities in your own but you are not prohibited to discuss parts of this course guide with others. You may seek opinions and perceptions from your classmates but using the task of others is strictly not allowed.
6. You will be required to submit class activities and exams on the date indicated in this course guide. Late submissions will be evaluated based on the classroom policies.
7. You will be evaluated through formative and summative assessment methods. Please refer to the course requirements section at the end of this course guide.
8. Your scores in the class activities and exams will be directed to you periodically thru email or will automatically show after accomplishing the task.
9. Your submissions will be checked against the work of your classmates and resources used. Replication of submitted tasks will be dealt based on the classroom policies including copying other's work and no proper referencing.
10. Establish a constant communication with your instructor. Use the contact information provided in this course guide. Concerns and issues should be addressed directly by your instructors.
11. If it is not possible to participate in an online discussion due to internet problems, just save your answers in a digitized format using a USB flash drive then send it thru courier at Lyceum-Northwestern University, College of Information and Computing Studies, Florencia Building, Tapuac District, Dagupan City, Pangasinan or drop it thru the designated drop-boxes at the university.

**Summary of Course Outline:**

| Week | Topic |
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| Week 1: August 15, 2022 | Class Orientation |
| *Unit 1 - Introduction to Programming* | |
| Week 1: August 15 – 19, 2022 | Programming History |
| Week 2: August 22 – 26, 2022 | Programming Operators |
| Week 3: August 29 – September 2, 2022 | Flowcharting and Algorithm – Part 1 |
| Week 4: September 5 – 9, 2022 | Flowcharting and Algorithm – Part 2 |
| Week 5: September 12 – 16, 2022 | Data Types and Variables |
| Prelim Exam: Week 6: September 19 – 23, 2022 | Prelim Exam |
| *Unit 2 – Fundamentals of C++ Programming* | |
| Week 7: September 26 – 30, 2022 | Structure of a Program – Part 1 |
| Week 8: October 3 – 7, 2022 | Structure of a Program – Part 1 |

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| *Unit 3 – IO Functions and Control Flow Structures* | |
| Week 9: October 10 – 14, 2022 | Input and Output Functions |
| Midterm Exam: Week 10: October 17 – 21, 2022 | Midterm Exam |
| Week 11: October 24 – 28, 2022 | Selection Structures |
| Week 12: October 31 – November 4, 2022 | Iterations (For, While and Do-While Loop) – Part 1 |
| *Unit 3 – Configuring Windows Server 2019* | |
| Week 13: November 7 – 11, 2022 | Iterations (For, While and Do-While Loop) – Part 2 |
| Week 14: November 14 – 18, 2022 | Semi-Final Exam |
| *Unit 4 – Nested Looping and Array* | |
| Week 15: November 21 – 25, 2022 | Nested Looping |
| Week 16: November 28 – December 2, 2022 | 1D and 2D Array – Part 1 |
| Week 17: December 5 – 9, 2022 | 1D and 2D Array – Part 2 |
| Week 18: December 12 – 16, 2022 | Assessment |
| Final Exam: December 19 - 22, 2022 | Final Exam |

**Study Schedule (ASSURE Model)**

| Week | Topic Learning Outcomes | Activities |
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| August 15, 2022 | Class Orientation | Join the online session using Google Meet |
| ***Unit 1* – Introduction to Programming** | | |
| *Week 1: August 15 – 19, 2022* | **Topic 1: Programming History** | |
| | 1. Understand how computer works.<br>2. Learn the basic terminologies, history and techniques in computer programming. | *A – Analyze the Learners*<br>1. Google classroom activity: Partake in the online discussion on your background and expectations about Programming History, Terminologies, and Programming languages. Due date: August 23, 2022, 5:00 PM.<br>*S – State Standards or Objectives*<br>Please see topic learning outcomes<br>*S – Select Strategies*<br>The following teaching strategies will be used in this topic:<br>1. Asynchronous online learning – participation in online discussion, answering guide questions and viewing suggested videos in YouTube<br>2. Synchronous online learning – joining the online class thru Google Meet<br>3. Offline learning – reading and self-study of printed resources<br>4. Peer learning – group activity<br>*U – Utilize Technology, Media and Materials*<br>1. Read your book (*Course Hero. Introduction to Computers and Programming)* from pages 13-20. |

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| | | 2. After reading your book you should be able to answer the following guide questions:<br>a. What is a Programming Language?<br>b. What are the levels of programming language?<br>c. What is a machine language?<br>d. What are the high-level programming languages?<br>e. Define compiler and interpreter.<br>3. Watch the YouTube Video:<br>https://www.youtube.com/watch?v=tzUbxALPcyw&t=168s<br>https://www.youtube.com/watch?v=aYjGXzktatA<br>https://www.youtube.com/watch?v=quW5dAGpXiU<br>4. After watching the video, answer the assignment for this topic that will be posted in the Google classroom.<br>5. Attend the online class lecture on this topic on August 23, 2022 at 5:00 PM using Google Meet.<br><br>*R – Require Learner Participation*<br>1. Individual activity<br>a. Study the use of programming language in developing application.<br>b. List down at least 10 programming languages used in creating mobile applications such as Android, Windows, and IOS. Identify the mobile applications developed by this particular programming language.<br>*c.* Activities will be submitted and presented on August 27, 2022, 2:00 PM using Google Meet.<br><br>*E – Evaluate*<br>1. Answer a quiz on this topic which will be posted in Google classroom on August 27, 2022 at 3:00 PM<br>*Optional Task:*<br>1. Make a brief essay on how interpreter and compiler work. |
| *Week 2: August 22 – 26, 2022* | **Topic 2: Programming Operators**<br>1. Evaluate rational expressions.<br>2. Explain how operators are used in programming.<br>3. Describe the different types of operators used in programming. | *A – Analyze the Learners*<br>1. Google classroom activity: Partake in the online discussion on your background and expectations about Operators. Due date: August 30, 2022, 5:00 PM.<br><br>*S – State Standards or Objectives*<br>Please see topic learning outcomes<br><br>S – Select Strategies<br>The following teaching strategies will be used in this topic: |

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| | | 1. Asynchronous online learning – participation in online discussion, answering guide questions and viewing suggested videos in YouTube<br>2. Synchronous online learning – joining the online class thru Google Meet<br>3. Offline learning – reading and self-study of printed resources<br>4. Peer learning – group activity<br><br>*U – Utilize Technology, Media and Materials*<br>1. Read your main reference book (*Tutorials Point (2014). C++ Programming)* from pages 35-45.<br>2. After reading your book you should be able to answer the following guide questions:<br>a. What are arithmetic operators?<br>b. What are relational operators?<br>c. What are logical operators?<br>3. Watch the YouTube Video:<br>https://www.youtube.com/watch?v=PaHpU7-BNaU<br>https://www.youtube.com/watch?v=1oKRTjw0yuY<br>https://www.youtube.com/watch?v=WGQRInmOBM8<br>4. After watching the video, answer the assignment for this topic that will be posted in the Google classroom.<br>5. Attend the online class lecture on this topic on August 30, 2022 at 2:00 PM using Google Meet.<br><br>*R – Require Learner Participation*<br>a. Group activity<br>b. Group with 3 of your classmates.<br>c. Study the operators used in programming.<br>d. Briefly discuss on how bitwise and assignment operators works<br>e. Submission of activity will be on September 2, 2022, 2:00 PM in Google Classroom.<br><br>*E – Evaluate*<br>1. Answer a quiz on this topic which will be posted in Google classroom on September 3, 2022 at 3:00 PM.<br>*Optional Task:*<br>1. Write a simple algorithm that includes relational operators. |
| *Week 3: August 29 – September 2, 2022* | **Topic 3: Flowcharting and Algorithm – Part 1** | |
| | 1. Apply the steps of algorithm and pseudocode. | *A – Analyze the Learners*<br>1. Google classroom activity: Partake in the online discussion on your background and expectations about Flowcharting. Due date: September 6, 2022, 5:00 PM. |

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| | 2. Create a flowchart to illustrate algorithm.<br>3. Produce algorithms in pseudocode and flow diagrams to solve problems. | *S – State Standards or Objectives*<br>Please see topic learning outcomes<br><br>*S – Select Strategies*<br>The following teaching strategies will be used in this topic:<br>1. Asynchronous online learning – participation in online discussion, answering guide questions and viewing suggested videos in YouTube<br>2. Synchronous online learning – joining the online class thru Google Meet<br>3. Offline learning – reading and self-study of printed resources<br>4. Peer learning – group activity<br><br>*U – Utilize Technology, Media and Materials*<br>1. Read your reference book (*Lakhani, J. Flowchart and Pseudocode).*<br>2. After reading your book you should be able to answer the following guide questions:<br>a. What is a flowchart?<br>b. What is the purpose of flowchart?<br>3. Watch the YouTube Videos:<br>https://www.youtube.com/watch?v=vOEN65nm4YU&t=6s<br>https://www.youtube.com/watch?v=fE41ZSreKVk<br>https://www.youtube.com/watch?v=SWRDqTx8d4k<br>https://www.youtube.com/watch?v=SWRDqTx8d4k<br>4. After watching the video, answer the assignment for this topic that will be posted in the Google classroom.<br>5. Attend the online class lecture on this topic on September 6, 2022 at 2:00 PM using Google Meet.<br><br>*R – Require Learner Participation*<br>1. Group activity<br>a. Group with 3 of your classmates.<br>b. Study the proper steps in creating algorithm and pseudocode.<br>c. Each group will translate the created algorithm to graphical illustration.<br>d. Group presentation will be held on September 16, 2022, 2:00 PM using Google Meet.<br><br>*E – Evaluate*<br>1. Answer a quiz on this topic which will be posted in Google classroom September 10, 2022 at 3:00 PM.<br>*Optional Task:*<br>1. Create an algorithm on cash withdrawal from ATM.<br>2. Translate the algorithm you created into pseudocode.<br>3. Translate the pseudocode you created into flowchart. |

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| Week 4: September 5 – 9, 2022 | **Topic 3: Flowcharting and Algorithm – Part 2** | |
| | 1. Apply the steps of algorithm and pseudocode.<br>2. Create a flowchart to illustrate algorithm.<br>3. Produce algorithms in pseudocode and flow diagrams to solve problems. | *A – Analyze the Learners*<br>1. Google classroom activity: Partake in the online discussion on your background and expectations about Flowcharting. Due date: September 6, 2022, 5:00 PM.<br><br>*S – State Standards or Objectives*<br>Please see topic learning outcomes<br><br>*S – Select Strategies*<br>The following teaching strategies will be used in this topic:<br>1. Asynchronous online learning – participation in online discussion, answering guide questions and viewing suggested videos in YouTube<br>2. Synchronous online learning – joining the online class thru Google Meet<br>3. Offline learning – reading and self-study of printed resources<br>4. Peer learning – group activity<br><br>*U – Utilize Technology, Media and Materials*<br>1. Read your reference book (*Lakhani, J. Flowchart and Pseudocode).*<br>2. After reading your book you should be able to answer the following guide questions:<br>a. What is a pseudocode and algorithm?<br>b. What are the basic flowchart symbols used in solving a problem?<br>3. Watch the YouTube Videos:<br>https://www.youtube.com/watch?v=vOEN65nm4YU&t=6s<br>https://www.youtube.com/watch?v=fE41ZSreKVk<br>https://www.youtube.com/watch?v=SWRDqTx8d4k<br>https://www.youtube.com/watch?v=SWRDqTx8d4k<br>4. After watching the video, answer the assignment for this topic that will be posted in the Google classroom.<br>5. Attend the online class lecture on this topic on September 13, 2022 at 2:00 PM using Google Meet.<br><br>*R – Require Learner Participation*<br>1. Group activity<br>a. Group with 3 of your classmates.<br>b. Study the proper steps in creating algorithm and pseudocode.<br>c. Each group will translate the created algorithm to graphical illustration.<br>d. Group presentation will be held on September 16, 2022, 2:00 PM using Google Meet. |

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| | | *E – Evaluate*<br>1. Answer a quiz on this topic which will be posted in Google classroom September 17, 2022 at 3:00 PM.<br>*Optional Task:*<br>1. Create an algorithm on cash withdrawal from ATM.<br>2. Translate the algorithm you created into pseudocode.<br>3. Translate the pseudocode you created into flowchart. |
| ***Unit 2: Fundamentals of C++ Programming*** | | |
| Week 5: September 12 – 16, 2022 | **Topic 1: Data Types and Variables**<br>1. Understand datatypes and variables and apply rules in naming variables.<br>2. Identify and know how to apply different data types.<br>3. Explain and apply constants and variables. | *A – Analyze the Learners*<br>1. Google classroom activity: Partake in the online discussion on your background and expectations about data types and variables. Due date: September 27, 2022, 5:00 PM.<br><br>*S – State Standards or Objectives*<br>Please see topic learning outcomes<br><br>*S – Select Strategies*<br>The following teaching strategies will be used in this topic:<br>1. Asynchronous online learning – participation in online discussion, answering guide questions and viewing suggested videos in YouTube<br>2. Synchronous online learning – joining the online class thru Google Meet<br>3. Offline learning – reading and self-study of printed resources<br>4. Peer learning – group activity<br><br>*U – Utilize Technology, Media and Materials*<br>1. Read your main reference book (*Tutorials Point (2014). C++ Programming)* from pages 12-30.<br>2. After reading your book you should be able to answer the following guide questions:<br>a. What is a data type?<br>b. What are the different types of datatypes in C++?<br>c. What is a variable?<br>d. How to declare variable in C++?<br>e. What are the rules in naming a variable?<br>3. Watch the YouTube Videos: https://www.youtube.com/watch?v=9QIFXyBYJQY<br>4. After watching the video, answer the assignment for this topic that will be posted in the Google classroom.<br>5. Attend the online class lecture on this topic on September 14, 2020 and September 27, 2022 at 2:00 PM using Google Meet. |

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| | | *R – Require Learner Participation*<br>1. Group activity<br>a. Group 5 with your classmates.<br>b. Study the use of data types, variables, and constants/literals.<br>c. Write a simple program on how to declare and initialize variable using any programming language you choose.<br>d. Each group will present their simple program on September 28, 2022, 2:00 PM using Google Meet.<br>*E – Evaluate*<br>1. Answer a quiz on this topic which will be posted in Google classroom on October 1, 2022 at 3:00 PM.<br>*Optional Task:*<br>1. Create a program that displays all the datatypes you declared on your main function. |
| *Week 4: September 16 – 17 , 2022* | ***Preliminary Exam*** | Answer the 100-item exam that will be posted in the Google Classroom<br><br>Start Time: 2:00 PM \| Due Time: 3:00 PM |
| Week 7: September 26 – 30, 2022 and Week 8: October 3 – 7, 2022 | **Topic 2: Structure of a Program**<br>1. Understand the basic concepts of C++ programming.<br>2. Create a simple C++ program using basic arithmetic, logical, and relational operators.<br>3. Analyze and correct the compilation errors on a C++ IDE. | *A – Analyze the Learners*<br>1. Google classroom activity: Partake in the online discussion on your background and expectations about the structure of a program. Due date: October 4, 2022 5:00 PM.<br>*S – State Standards or Objectives*<br>Please see topic learning outcomes<br><br>*S – Select Strategies*<br>The following teaching strategies will be used in this topic:<br>1. Asynchronous online learning – participation in online discussion, answering guide questions and viewing suggested videos in YouTube<br>2. Synchronous online learning – joining the online class thru Google Meet<br>3. Offline learning – reading and self-study of printed resources<br>4. Peer learning – group activity<br><br>*U – Utilize Technology, Media and Materials*<br>1. Read your main reference book (*Tutorials Point (2014). C++ Programming)* pages 5-12.<br>2. After reading your book you should be able to answer the following guide questions: |

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| | | a. What is a source code?<br>b. What is the basic structure of a C++ program?<br>c. Differentiate void() and int() method.<br>d. Describe the parts of a C++ program.<br>3. Watch the Videos:<br>https://www.youtube.com/watch?v=_bQV61w_RY8<br>https://www.youtube.com/watch?v=XBFGsKQX21s<br>4. After watching the video, answer the assignment for this topic that will be posted in the Google classroom.<br>5. Attend the online class lecture on this topic on October 4, 2022 and October 11, 2022 at 2:00 PM using Google Meet.<br><br>*R – Require Learner Participation*<br>1. Group activity<br>a. Group 3 with your classmates.<br>b. Study the basic structure of a C++ program.<br>c. Study the proper syntax in coding a C++ program.<br>d. Each group will have a competition on debugging for the right code of a specific program.<br>e. It will be presented on October 14, 2022, 2:00 PM using Google Meet<br><br>*E – Evaluate*<br>1. Answer a quiz on this topic which will be posted in Google classroom on October 15, 2022 at 3:00 PM.<br>*Optional Task:*<br>1. Write a program that converts Fahrenheit to Celsius or vice versa. |
| ***Unit 3:* IO Functions and Selection Structures** | | |
| Week 9: October 10 – 14, 2022 | **Topic 1: Input and Output Functions**<br>1. Apply character-based input and output.<br>2. Identify on which header files must be included in programs for formatted output.<br>3. Create a complete C++ program. | *A – Analyze the Learners*<br>1. Google classroom activity: Partake in the online discussion on your background and expectations about methods. Due date: October 25, 2022, 5:00 PM.<br><br>*S – State Standards or Objectives*<br>Please see topic learning outcomes |

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| | | *S – Select Strategies*<br>The following teaching strategies will be used in this topic:<br>1. Asynchronous online learning – participation in online discussion, answering guide questions and viewing suggested videos in YouTube<br>2. Synchronous online learning – joining the online class thru Google Meet<br>3. Offline learning – reading and self-study of printed resources<br>4. Peer learning – group activity<br>*U – Utilize Technology, Media and Materials*<br>1. Read your main reference book (*Tutorials Point (2014). C++ Programming)* from pages 145-148.<br>2. After reading your book you should be able to answer the following guide questions:<br>a. What is an input function in C++?<br>b. What is an output function in C++?<br>c. What is istream and ostream in C++?<br>d. What is the purpose of header files in C++?<br>3. Watch the YouTube Videos: https://www.youtube.com/watch?v=K6qgajOzybc<br>4. After watching the video, answer the assignment for this topic that will be posted in the Google classroom.<br>5. Attend the online class lecture on this topic on October 25, 2022 at 2:00 PM using Google Meet.<br>*R – Require Learner Participation*<br>1. Individual activity<br>a. Study the I/O function.<br>b. Individually create an efficient program given by your instructor.<br>c. Submission of the activity will be on October 28, 2022 using Google Classroom.<br>*E – Evaluate*<br>1. Answer a quiz on this topic which will be posted in Google classroom on October 29, 2022 at 3:00 PM.<br>*Optional Task:*<br>1. Write a program that calculates student grades and display their remarks. |
| Midterm Exam: Week 10: October 17 – 21, 2022 | ***Midterm Exam*** | Answer the 100-item exam that will be posted in the Google Classroom<br><br>Start Time: 2:00 PM \| Due Time: 3:00 PM |
| Week 11: October 24 – 28, 2022 | **Topic 2: Selection Structure** | |
| | | *A – Analyze the Learners* |

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| | 1. Describe the decision-making statement.<br>2. Computer and pen-paper program simulation. | 1. Google classroom activity: Partake in the online discussion on your background and expectations about selection structures. Due date: November 1, 2022, 5:00 PM.<br>*S – State Standards or Objectives*<br>Please see topic learning outcomes<br>*S – Select Strategies*<br>The following teaching strategies will be used in this topic:<br>1. Asynchronous online learning – participation in online discussion, answering guide questions and viewing suggested videos in YouTube<br>2. Synchronous online learning – joining the online class thru Google Meet<br>3. Offline learning – reading and self-study of printed resources<br>4. Peer learning – group activity<br>*U – Utilize Technology, Media and Materials*<br>1. Read your main reference book (*Tutorials Point (2014). C++ Programming)* from pages 69-81.<br>2. After reading your book you should be able to answer the following guide questions:<br>a. What is a selection structure?<br>b. How to use selection structures in C++ programming?<br>c. Compare switch and if-else structure.<br>d. How to write nested switch and if-else statement?<br>3. Watch the YouTube Video:<br>https://www.youtube.com/watch?v=eSYeHlwDCNA<br>https://www.youtube.com/watch?v=FqPVA_HcZv8<br>4. After watching the video, answer the assignment for this topic that will be posted in the Google classroom.<br>5. Attend the online class lecture on this topic on November 1, 2022 at 2:00 PM using Google Meet.<br>*R – Require Learner Participation*<br>1. Group activity<br>a. Group 5 with your classmates.<br>b. Study the selection structure of C++.<br>c. Create a C++ program that applies nested switch or if-else.<br>d. Each group will present their report on November 4, 2022 2:00 PM using Google Meet.<br>*E – Evaluate*<br>1. Answer a quiz on this topic which will be posted in Google classroom on November 5, 2022 at 3:00 PM.<br>*Optional Task:* |

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| | | 1. Write a C++ program to find the largest value from three numbers given by the user. |
| Week 12: October 31 – November 4, 2022 | **Topic 3: Iterations (For, While, Do-While Loop) – Part 1** | |
| | 1. Construct a simple program with looping statement and understand on how this looping works.<br>2. Utilize the different types of looping in C++.<br>3. C++ program simulation. | *A – Analyze the Learners*<br>1. Google classroom activity: Partake in the online discussion on your background and expectations about making decision. Due date: November 8, 2022, 5:00 PM.<br><br>*S – State Standards or Objectives*<br>Please see topic learning outcomes<br><br>*S – Select Strategies*<br>The following teaching strategies will be used in this topic:<br>1. Asynchronous online learning – participation in online discussion, answering guide questions and viewing suggested videos in YouTube<br>2. Synchronous online learning – joining the online class thru Google Meet<br>3. Offline learning – reading and self-study of printed resources<br>4. Peer learning – group activity<br><br>*U – Utilize Technology, Media and Materials*<br>1. Read your main reference book (*Tutorials Point (2014). C++ Programming)* from pages 51-58.<br>2. After reading your book you should be able to answer the following guide questions:<br>a. What is looping in programming?<br>b. How to create loops in C++ program?<br>3. Watch the YouTube Videos:<br>https://www.youtube.com/watch?v=lr7FO3rr8jg<br>https://www.youtube.com/watch?v=qUPXsPtWGoY<br>4. After watching the video, answer the assignment for this topic that will be posted in the Google classroom.<br>5. Attend the online class lecture on this topic on November 8, 2022 at 2:00 PM using Google Meet.<br><br>*R – Require Learner Participation*<br>1. Individual activity<br>a. Study the looping structure in C++.<br>b. Create a simple C++ program that applies looping function.<br>c. The program will be presented on November 12, 2022 by the use of Google Meet. |

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| | | *E – Evaluate*<br>1. Answer a quiz on this topic which will be posted in Google classroom on November 12, 2022 at 3:00 PM.<br>*Optional Task:*<br>1. Write a program that will calculate the sum of n natural numbers. The user should enter the length of the loop. |
| *Week 13: November 17 – 19 , 2022* | ***Semi-Final Exam*** | Answer the 100-item exam that will be posted in the Google Classroom<br>Start Time: 2:00 PM \| Due Time: 3:00 PM |
| *Week 15: November 21 – 25, 2022* | **Topic 3: Iterations (For, While, Do-While Loop) – Part 2** | |
| | 1. Construct a simple program with looping statement and understand on how this looping works.<br>2. Utilize the different types of looping in C++.<br>3. C++ program simulation. | *A – Analyze the Learners*<br>1. Google classroom activity: Partake in the online discussion on your background and expectations about making decision. Due date: November 8, 2022, 5:00 PM.<br><br>*S – State Standards or Objectives*<br>Please see topic learning outcomes<br><br>*S – Select Strategies*<br>The following teaching strategies will be used in this topic:<br>1. Asynchronous online learning – participation in online discussion, answering guide questions and viewing suggested videos in YouTube<br>2. Synchronous online learning – joining the online class thru Google Meet<br>3. Offline learning – reading and self-study of printed resources<br>4. Peer learning – group activity<br><br>*U – Utilize Technology, Media and Materials*<br>1. Read your main reference book (*Tutorials Point (2014). C++ Programming)* from pages 51-58.<br>2. After reading your book you should be able to answer the following guide questions:<br>a. How infinite loops occurred in program?<br>b. What is the use of break and continue statement in loop?<br>3. Watch the YouTube Videos:<br>https://www.youtube.com/watch?v=lr7FO3rr8jg<br>https://www.youtube.com/watch?v=qUPXsPtWGoY<br>4. After watching the video, answer the assignment for this topic that will be posted in the Google classroom.<br>5. Attend the online class lecture on this topic on November 24, 2022 at 2:00 PM using Google Meet. |

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| | | *R – Require Learner Participation*<br>1. Individual activity<br>a. Study the looping structure in C++.<br>b. Create a simple C++ program that applies looping function.<br>c. The program will be presented on November 26, 2022 by the use of Google Meet.<br>*E – Evaluate*<br>1. Answer a quiz on this topic which will be posted in Google classroom on November 26, 2022 at 3:00 PM.<br>*Optional Task:*<br>1. Write a program that will calculate the sum of rational numbers. The user should enter the length of the loop. |
| ***Unit 4:* Nested Looping and Array** | | |
| Week 16: November 28 – December 2, 2022 | **Topic 1: Nested Looping**<br>1. Analyze a program that has loop inside a loop.<br>2. Create a program and apply the nested looping function. | *A – Analyze the Learners*<br>1. Google classroom activity: Partake in the online discussion on your background and expectations about looping. Due date: November 29, 2022, 5:00 PM.<br>*S – State Standards or Objectives*<br>Please see topic learning outcomes<br>*S – Select Strategies*<br>The following teaching strategies will be used in this topic:<br>1. Asynchronous online learning – participation in online discussion, answering guide questions and viewing suggested videos in YouTube<br>2. Synchronous online learning – joining the online class thru Google Meet<br>3. Offline learning – reading and self-study of printed resources<br>4. Peer learning – group activity<br>*U – Utilize Technology, Media and Materials*<br>1. Read your main reference book (*Tutorials Point (2014). C++ Programming)* from pages 58-68.<br>2. After reading your book you should be able to answer the following guide questions:<br>a. What is an inner loop?<br>b. What is an outer loop?<br>3. Watch the YouTube Videos:<br>https://www.youtube.com/watch?v=H7frvcAHXps<br>https://www.youtube.com/watch?v=iN2DAYlQHQE<br>4. After watching the video, answer the assignment for this topic that will be posted in the Google classroom. |

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| | | 5. Attend the online class lecture on this topic on December 1, 2022 at 2:00 PM using Google Meet.<br><br>*R – Require Learner Participation*<br>1. Group activity<br><br>a. Group with 5 of your classmates.<br>b. Study the discussion on nested looping.<br>c. Each group should create a 2 C++ program that uses nested loops.<br>d. The program will be presented on December 3, 2022 via Google Meet.<br><br>*E – Evaluate.*<br>1. Answer a quiz on this topic which will be posted in Google classroom on December 3, 2022 at 3:00 PM.<br>*Optional Task:*<br>1. Write a program that create full pyramid pattern using nested loop. |
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| Week 17: December 5 – 9, 2022 and Week 18: December 12 – 16, 2022 | **Topic 2: 1D and 2D Array**<br>1. Apply and understand the use of arrays in programming.<br>2. Recognize when it would be appropriate to use one-dimensional arrays in a program.<br>3. Understand how to specify array sections and subarrays of multidimensional arrays. | *A – Analyze the Learners*<br>1. Google classroom activity: Partake in the online discussion on your background and expectations about one-dimensional Array. Due date: December 6, 2022, 5:00 PM.<br><br>*S – State Standards or Objectives*<br>Please see topic learning outcomes<br><br>*S – Select Strategies*<br>The following teaching strategies will be used in this topic:<br>1. Asynchronous online learning – participation in online discussion, answering guide questions and viewing suggested videos in YouTube<br>2. Synchronous online learning – joining the online class thru Google Meet<br>3. Offline learning – reading and self-study of printed resources<br>4. Peer learning – group activity<br><br>*U – Utilize Technology, Media and Materials*<br>1. Read your main reference book (*Tutorials Point (2014). C++ Programming)* from pages 98-110.<br>2. After reading your book you should be able to answer the following guide questions:<br>a. What is an array?<br>b. How to declare one-dimensional array in programming?<br>c. Describe one-dimensional and multi-dimensional array. |

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| | | d. How to declare multi-dimensional arrays in C++?<br>e. Define elements and index of an array.<br>3. Watch the YouTube Videos:<br>https://www.youtube.com/watch?v=NptnmWvkbTw<br>https://www.youtube.com/watch?v=ibeGtDEQGz0<br>4. After watching the video, answer the assignment for this topic that will be posted in the Google classroom.<br>5. Attend the online class lecture on this topic on December 8 and 15, 2022 at 2:00 PM using Google Meet.<br><br>*R – Require Learner Participation*<br>1. Individual activity<br>a. Individually participate in recitation.<br>b. Study how to apply one-dimensional array in C++ programming.<br>c. Recitation will be on December 10 and 17, 2022 using Google Meet.<br><br>*E – Evaluate*<br>1. Answer a quiz on this topic which will be posted in Google classroom on December 10 and 17, 2022 at 3:00 PM.<br>*Optional Task:*<br>1. Create a magic square. |
| Final Exam: December 19 - 22, 2022 | ***Final Exam*** | Answer the 100-item exam that will be posted in the Google Classroom<br>Start Time: 2:00 PM \| Due Time: 3:00 PM |

**COURSE REQUIREMENTS:**

1. Periodic Examinations (to be given online): Preliminary, Midterm, Semi-Final, Final Examination
2. Quizzes, Assignments, Recitation, Online Synchronous and Asynchronous Activities

Note: Rubrics for each class work will be given by your instructor during the briefing before the activity.

**GRADING SYSTEM:**

Semestral Grade = (Prelim Grade*25%) + (Midterm Grade*25%) + (Semi-Final Grade*25%) + (Final Grade*25%)

*For every grading period:*
*Periodic Exam – 40%*
*Student Course Work – 60%* (Quizzes, Recitation, Group/Individual Activities, Assignments)

In order to earn a passing grade, the student should get a transmuted grade of 75%

**BIBLIOGRAPHY:**

Main References:

TutorialsPoint (2014). C++ Programming

Additional Resources:

Lakhani, J. Flowchart and Pseudocode
Course Hero. Introduction to Computers and Programming

Prepared by:

**BRYAN O. MISLANG**
Instructor

Recommended by:

**ENGR. BABY HIDELIZA F. CASTILLO, MIT**
Dean, CICS

Approved by:

**DR. MARINA O. ABELLA**
Vice-President, Academic Affairs