

MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE

COURSE OUTLINE

DEPT. CSCI

COURSE NUMBER: 2245

NUMBER OF CREDITS: 4

Lecture: 4 Lab: 0 OJT 0

Course Title:

Fundamentals of Programming II

Catalog Description:

Fundamentals of Programming II discusses topics including object-oriented programming techniques, essential data structures such as stacks, queues, trees, sorting and searching algorithms using a high-level programming language.

Prerequisites or Necessary Entry Skills/Knowledge:

CSCI 2240

FULFILLS MN TRANSFER CURRICULUM AREA(S) (*Leave blank if not applicable*)

- Goal 1: Communication: By meeting the following competencies:
- Goal 2: Critical Thinking: By meeting the following competencies:
- Goal 3: Natural Sciences: By meeting the following competencies:
- Goal 4: Mathematics/Logical Reasoning: By meeting the following competencies:
- Goal 5: History and the Social and Behavioral Sciences: By meeting the following competencies:
- Goal 6: The Humanities and Fine Arts: By meeting the following competencies:
- Goal 7: Human Diversity: By meeting the following competencies:
- Goal 8: Global Perspective: By meeting the following competencies:
- Goal 9: Ethical and Civic Responsibility: By meeting the following competencies:
- Goal 10: People and the Environment: By meeting the following competencies:

Topics to be Covered

Pointers

Operator overloading

Inheritance

Polymorphism

Stream input/output

Exception handling

File processing

Searching and sorting

Linked lists

Stacks, queues, trees

Student Learning Outcome

Develop and implement correct and efficient programs using the C++ language.

Define, compare and contrast the fundamental concepts of object-oriented programming: data abstraction, encapsulation, inheritance and polymorphism.

Design algorithms according to object-oriented concepts.

Design and develop classes which implement the concepts of data abstraction, encapsulation, inheritance and polymorphism.

Design and develop programs implementing data structures utilizing the Standard Template Library.

Implement exception handling.

Examine searching and sorting algorithms.

Define the finer points of pointers, dynamic allocation, linked list, stacks, queues, trees.

Is this course part of a transfer pathway: Yes No

*If yes, please list the competencies below

Revised Date: 1/18/2022