COLLEGE OF THE ROCKIES

Programming in C++ – CIST 106
Computer Information Systems Technology Program

Course Outline

COURSE IMPLEMENTATION DATE: **September 2024**
OUTLINE EFFECTIVE DATE: **September 2024**
COURSE OUTLINE REVIEW DATE: **March 2029**

GENERAL COURSE DESCRIPTION:

This is an intense hands-on course on the most popular system and app development language: C++. Students (equipped with the basics of programming from CSTP 1105) go on to cover the basics of C++ and its powerful features. Topics include classes, object life cycle, memory management and smart pointers, program execution life-cycle, an introduction to the Standard Template Library (STL), the basics of exception handling, and finally the basics of threads and processes in C++.

The main goal of this course is for students to become fully familiar with the landscape of programming with C++ and to be comfortable using its common and modern features as well as to have the confidence to debug, optimize, and restructure existing code in a general application development context.

Program Information: This course is required for the first year of the Computer Information Systems Technology program.

Delivery: This program is delivered hybrid (includes both face-to-face and online components).

COTR Credits: 3

Hours for this course: 60 hours

Typical Structure of Instructional Hours:

Instructional Activity	Duration
Lecture Hours	30
Seminars / Tutorials	
Laboratory / Studio Hours	30
Practicum / Field Experience	
Other Contact Hours	
Total	60

Practicum Hours (if applicable):

Type of Practicum	Duration
On-the-Job Experience	
Formal Work Experience	
Other	
Total	N/A

Course Outline Author or Contact:
Joy Brown, Department Head

Signature

APPROVAL SIGNATURES:

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Dean Signature

EDCO

Valid from: September 2024 – March 2029

Education Council Approval Date

COURSE PREREQUISITES AND TRANSFER CREDIT:

Prerequisites: CIST 102

Corequisites: None

Flexible Assessment (FA):

Credit can be awarded for this course through FA ☑ Yes ☐ No

Learners may request formal recognition for flexible assessment at the College of the Rockies through one or more of the following processes: External Evaluation, Worksite Assessment, Demonstration, Standardized Test, Self-assessment, Interview, Products/Portfolio, Challenge Exam. Contact an Education Advisor for more information.

Transfer Credit: For transfer information within British Columbia, Alberta and other institutions, please visit http://www.cotr.bc.ca/Transfer.

Student should also contact an academic advisor at the institution where they want transfer credit.

Prior Course Number: N/A

Textbooks and Required Resources:

Textbook selection varies by instructor and may change from year to year. At the Course Outline Effective Date the following textbooks were in use:

TBD

Please see the instructor's syllabus or check COTR's online text calculator https://textbook.cotr.bc.ca/ for a complete list of the currently required textbooks.

LEARNING OUTCOMES:

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

- design reusable classes through inheritance and interfaces;
- design extensible classes through polymorphism;
- troubleshoot a defective program and debug it;
- develop programs using test driven development techniques;
- perform basic I/O(Input-Output) from/to a buffer or a file;
- design robust C++ programs using appropriate exception handling;
- use common algorithms and containers in C++ Standard Template Library;
- create programs that use multi-threading efficiently; and
- use template data types.

COURSE TOPICS:

- Inheritance and interfaces
- Polymorphism
- Memory Management
- Defective program troubleshooting
- Test driven development techniques
- Exception Handling
- Standard Template Library
- Data storage and retrieval from files
- Multithreading programs
- Smart Pointers

See instructor's syllabus for the detailed outline of weekly readings, activities and assignments.

EVALUATION AND ASSESSMENT (Face-to-Face Delivery):

Assignments	% of Total Grade
Assignments (1 assignment per week, except 2 weeks of exams)	50%
Participation	5%
Midterm Exam	20%
Final Exam	25%
Total	100%

Please see the instructor's syllabus for specific classroom policies related to this course, such as details of evaluation, penalties for late assignments and use of electronic aids.

EXAM POLICY:

Students must attend all required scheduled exams that make up a final grade at the appointed time and place.

Individual instructors may accommodate for illness or personal crisis. Additional accommodation will not be made unless a written request is sent to and approved by the appropriate Department Head prior to the schedules exam.

Any student who misses a scheduled exam without approval will be given a grade of "0" for the exam.

COURSE GRADE:

Course grades are assigned as follows:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
Mark (Percent)	≥ 90	89-85	84-80	79-76	75-72	71-68	67-64	63-60	59-55	54-50	< 50

A grade of "D" grants credit, but may not be sufficient as a prerequisite for sequential courses.

ACADEMIC POLICIES:

See www.cotr.bc.ca/policies for general college policies related to course activities, including grade appeals, cheating and plagiarism.

COURSE CHANGES:

Information contained in course outlines is correct at the time of publication. Content of the courses is revised on an ongoing basis to ensure relevance to changing educational, employment and marketing needs. The instructor endeavours to provide notice of changes to students as soon as possible. The instructor reserves the right to add or delete material from courses.