



Advanced Internet Programming and Web Applications – CIST 207

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:

In this course students will learn about advanced web technologies which provide the possibility of building fully dynamic web-centric applications. This is an intensive, hands-on, project-based, team-oriented course in which students in a team of 2-4 become familiar with "full stack" web development. This course introduces new database models such as NoSQL or MongoDB in the context of developing an end-to-end web application development using MVC architecture.

The technologies used focus on a current modern stack, such as MEAN (MongoDB, Express.js, AngularJS), LAMP (Linux, Apache, MySQL, Python), and others. This course requires students to learn to program in Javascript in various environments. By the end of this course, students will be able to participate in the development of secure data-driven business web applications in various domains.

Program Information: This course is required for the second 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:

Department Head
Joy Brown
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Dean of Trades and Technology
Dr. Jack Moes
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Department Head Signature

Dean Signature

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Valid from: September 2024 – March 2029

Education Council Approval Date

COURSE PREREQUISITES AND TRANSFER CREDIT:

Prerequisites: CIST 107 and CIST 202

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

- setup a development environment and tool-chain as required by the chosen development stack;
 - develop secure data-driven business and completely dynamic web applications;
 - use advanced HTML, CSS, and JavaScript techniques to develop client-side web software;
 - develop client-side Single Page Applications using a technology like Angular, React, or Ember;
 - deploy web applications to the cloud (e.g. AWS, Azure);
 - expose data through Web API so that it can be consumed from Single Page Applications;
 - implement token and/or session based authentication;
 - configure and manage a web server (such as Apache) that are compatible with the stack being used in the course;
 - manage the code base / distribution using modern version control systems; and
 - use new database models such as NoSQL or MongoDB in the context of web application development.
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COURSE TOPICS:

- Javascript
- Full stack development
- NoSQL databases
- Cloud services
- Session-based authentication
- Web server management
- Data-driven web applications
- Secure data communication with server

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 |
|---------------|------------------|
| Project | 60% |
| Participation | 10% |
| Quizzes/Tests | 10% |
| Final Exam | <u>20%</u> |
| 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 scheduled 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.