

2. Course Overview

Course Description

Students will work in teams to tackle projects that require bench and pilot plant equipment, and computer packages that simulate commercial processes. The projects will be more extensive and integrated than in previous laboratories and will require a thorough and comprehensive analysis of processes and operations. A strong emphasis is placed on project planning and management, as well as professional communication with supervisors. The design component of this course is found in the application of process analysis skills to solve problems. The projects require the students to apply critical and problem-solving skills in the operation or simulation of laboratory and process equipment with the goal of solving a problem for a fictitious industrial client. The projects may involve analysis or troubleshooting of existing equipment, or an investigation of the applicability of a concept to a new area. (0/0/16/16/16)

PREREQUISITES: CHEE 311, CHEE 321, CHEE 330, CHEE 315, CHEE 319, or permission of the department

Objectives of the Course

Students will be given problems modeled on industry and are required to achieve a good understanding of the laboratory equipment in order to solve the problem. Some role playing is involved, since the groups are expected to conduct themselves as independent, self-managed teams working for an industrial client.

Our goals:

1. **Self-directed learning:** students identify what they need to know to solve the problem and decide how they will learn it.
2. **Design skills:** students use their fundamental knowledge of process analysis to create designs to solve the problem safely and efficiently.
3. **Professional interaction with supervisors:** students use technical memos and reports to communicate their intentions and findings, and have formal meetings with the supervisor.
4. **Formal report writing and presentation:** As this is a fourth-year course, innovative thinking and creative problem solving are encouraged. Students will be required to draw upon knowledge gained in previous courses. Since only two projects are done, the expectations of the final reports will be high. Each supervisor may have unique requirements for format and style. You are expected to clarify these expectations for both projects.

An emphasis is placed upon **minimal supervision** in the laboratory and the importance of safety and successful teamwork. All students are required to read the department [Safety Manual](#).

Seeking help from within one's group and from fellow classmates is encouraged. Some projects may tie together and therefore, it may be required to contact other groups concerning their work. Please consult your supervisors first.

Structure of the Course

A course orientation & safety presentation is provided on the course onQ website. A mandatory quiz on the contents of the presentation must be completed during the first week of term (see CHEE 420 Announcements for deadline).

In teams of three (or sometimes two), students complete two major lab projects, including a project plan/proposal to the supervisor as well as a final report and oral presentations. See the “*Deliverables & Milestones*” section of the course manual on the CHEE 420 onQ website for more details.

Coursework for CHEE 420 will be achieved in two distinct work periods, Project Round #1 and Project Round #2. Each project round is 6 weeks in duration.

In the first week of term, lab teams are formed, and projects assigned. Students are asked to provide a preference of team members to the Course Instructor before completion of the Course Orientation quiz. A project preference survey is submitted by each team later in the week via the course onQ website. All attempts will be made to meet the preferences of the students; however, a final decision will be made by the Laboratory Coordinator.

Students are expected to meet with their Project Supervisor by the end of project week 1 or early in week 2.

Teams will follow a project work schedule for each project round. The work schedules can be viewed by following the appropriate link on the CHEE 420 onQ website. Teams are expected to achieve the milestones and provide the deliverables as specified in the work schedules and the deliverables and milestones sections of the course manual.

Accommodation for Disabilities

Queen's University is committed to achieving full accessibility for people with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability and think you may need accommodations, you are strongly encouraged to contact the Queen's Student Accessibility Services (QSAS) and register as early as possible. For more information, including important deadlines, please visit the QSAS website at: <http://www.queensu.ca/studentwellness/accessibility-services/>

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