

**COURSE NUMBER:** PR2690

**COURSE TITLE:** Capstone Project I (Seminar)

**COURSE DESCRIPTION:**

The capstone project enables the learner completing a Diploma in the Telecommunications Engineering Technology (Co-op) program to demonstrate the application of skills and knowledge developed throughout the program. Learners taking this course will work with minimal supervision on a project, under the guidance of a faculty member. The learner can work independently or in teams of two to carry out an in-depth study of a problem, design or technical application, and fully document and present their findings. At the end of this course, the learner will have completed a proposal of their capstone project that will be completed in the following academic semester of their program.

Learners can commence planning for the course prior to the beginning of the final year of studies. Since the project and report are to be prepared through independent study, the assigned hours represent only part of the time that learners are expected to allocate to the course. Regular meetings with a faculty supervisor will be scheduled within the assigned hours and it is **mandatory** that learners attend these meetings.

This course will be delivered to the learners by a technical instructor in collaboration with a communications instructor.

**PREREQUISITES:** All courses in previous academic semesters and a minimum cumulative GPA of 2.0

**CO-REQUISITES:** None

**CREDIT VALUE:** Zero (0) (Credit value deferred to PR2691)

**COURSE HOURS PER WEEK:** One (1)

**LAB HOURS PER WEEK:** Zero (0)

**SUGGESTED TEXT:** To be determined by instructor

**LEARNING RESOURCES:**

Lannon, J.M., & Klepp, D. (2009). *Technical communication with MyCanadianTechCommLab* (5th Canadian ed.). Pearson Education Canada. ISBN-13: 9780321735225

## **MAJOR TOPICS:**

- 1.0 Problem Solving
- 2.0 Collaborative Work
- 3.0 Project Selection
- 4.0 Project Supervision
- 5.0 Goals and Objectives
- 6.0 Technological and Environmental Awareness
- 7.0 Project Research
- 8.0 Proposal Development

## **LEARNING OBJECTIVES:**

Upon completing this course, a proficient learner should be able to:

### **1.0 Problem Solving**

- 1.1 Develop techniques for thinking about and generating solutions to problems
- 1.2 Apply time management skills and project management procedures
- 1.3 Develop strategies to produce structured solutions to problems
- 1.4 Use appropriate computer software or other available technical aids in developing solutions to problems

### **2.0 Collaborative Work**

- 2.1 Explain the guidelines for collaborative work
- 2.2 Describe effective roles in group work
- 2.3 Explain gender and cultural differences in collaborative groups
- 2.4 Explain guidelines for active listening
- 2.5 Explain guidelines for peer reviewing and editing
- 2.6 Explain guidelines for managing group conflict

### **3.0 Project Selection**

- 3.1 In consultation with the capstone project instructor, identify a research problem, design or technical application suitable for a technical report in a field of specialization appropriate to the program of study undertaken
- 3.2 Conduct a comprehensive analysis of a topic that extends the learner's knowledge beyond the normal range of program material to do one or more of the following:
  - 3.2.1 Complete experimental work to test a hypothesis
  - 3.2.2 Design a piece of equipment
  - 3.2.3 Test a process or piece of equipment
  - 3.2.4 Develop a process
  - 3.2.5 Conduct a thorough review of literature related to a technical problem or technical application in the learner's area of study to produce a state of the art report

#### **4.0 Project Supervision**

- 4.1 Analyze the goals and scope of the project to identify a faculty advisor to provide guidance and advice in completing the project
- 4.2 Establish guidelines and schedules to work with the faculty advisor that meet the goals of the learner, faculty, and program in completing a capstone project

#### **5.0 Goals and Objectives**

- 5.1 Establish criteria for the evaluation of alternative solutions to the problem selected
- 5.2 Establish criteria for the evaluation of alternative approaches to the problem
- 5.3 Determine the restraints or specifications affecting the problem and the implementation of any recommendations or solutions
- 5.4 Prepare a GANNT Chart for completion of the project

#### **6.0 Technological and Environmental Awareness**

- 6.1 Demonstrate knowledge of the professional code of ethics of the professional association
- 6.2 Demonstrate knowledge and understanding of the legal and professional accountabilities of the project
- 6.3 Demonstrate knowledge of environmental sustainability issues with respect to the project
- 6.4 Identify the effects of the project on the physical, socio-economic, historic, cultural, and aesthetic environments

#### **7.0 Project Research**

- 7.1 Research the selected problem by collecting and organizing data using primary and secondary sources of information
- 7.2 Create and maintain a record of all activities associated with researching the problem
- 7.3 Create and maintain a list of sources of information
- 7.4 Demonstrate an understanding and application of the basic mathematical and scientific knowledge, and technology fundamentals learned in the program
- 7.5 Demonstrate the capacity to apply the knowledge, technical appreciation and mathematical skills acquired during the program

#### **8.0 Proposal Development**

- 8.1 Describe various proposal formats and utilize the following headings in developing a proposal:
  - 8.1.1 Introduction
  - 8.1.2 Background
  - 8.1.3 Project design

- 8.1.4 Materials and resources
- 8.1.5 Budget
- 8.1.6 Authorization
  
- 8.2 Prepare the appropriate project management charts to include with the proposal
- 8.3 Submit the charts to the appropriate faculty supervisor to determine project progress and gaps in the information for the report
- 8.4 Determine the impact and feasibility of the project in industry
- 8.5 Determine any environmental impacts associated with the project
- 8.6 Draft a proposal for the Capstone Project Report
- 8.7 Prepare and present the proposal to faculty and peers

## **EVALUATION:**

Pass / Fail (20% will be attached to Capstone Project II based on consultation with project supervisor, progress reports, initial project proposal and oral presentation)

**Note: Learners must obtain a grade of a Pass on the Project Proposal Report to successfully complete this course. No marks will be released to learners upon the successful completion of PR2690 - Capstone Project I (Seminar). The final mark will be released upon successful completion of PR2691 - Capstone Project II.**

**DATE DEVELOPED:** March 2012

**DATE REVIEWED:**

**REVISION NUMBER:**

**DATE REVISED:**

*Note to instructor: Check PIRS to ensure this outline is the most current version.*