A POLYTECHNIC INSTITUTION

Course Outline

School of Manufacturing, Electronics and Industrial Processes
Program: Mechanical Engineering Technologies
Option: Mechanical Systems

MSYS 4488
Fire Protection Systems

Start Date: January, 2006 **End Date:** May, 2006

Total Hours: 40 **Total Weeks:** 10 **Term/Level:** 4A **Course Credits:** 3.0

Hours/Week: 4 **Lecture:** 2 **Lab:** 2 **Shop:** **Seminar:** **Other:**

Prerequisites

Course No.	Course Name
MECH 3325	Fluid Mechanics

MSYS 4488 is a Prerequisite for:

Course No.	Course Name
None	

■ Course Description

Includes fire protection systems regulations and codes of practice; fire hazard classification; detection, alarm and communication systems, standpipe and sprinkler systems for buildings with an overview of HVAC systems fire and smoke control. Applications will be applied to design assignments.

■ Detailed Course Description

The goals of the course are to examine design principles and practices relating to fire protection services systems and materials, and interpret code provisions with the BC Building Code and NFPA Codes.

■ Evaluation

(Course marks weighting is subject to adjustment.)

Final Examination	40%
Midterm Examination	35%
Assignment No. 1	10%
Assignment No. 2	15%
TOTAL	100%

Comments: Students must demonstrate overall competency in the Course Learning Outcomes/Competencies section of this outline for credit to be earned for this course. To pass this course a mark of 50% must be achieved.

v Course Learning Outcomes/Competencies

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

1. identify various classes of fire.
2. select appropriate extinguishing agents.
3. use portable fire extinguishers.
4. design fire protection systems, selecting sensors, alarms and communication systems.
5. assess fire protection requirements based on the BC Building Code and the NFPA Codes.
6. explain fire department use of standpipe systems.
7. design standpipe and hose systems.
8. determine water storage requirements for sprinkler systems.
9. design a sprinkler system.
10. describe requirements for openings through building fire separations.

v Verification

I verify that the content of this course outline is current.

Earl LaBounty — Authoring Instructor

Dec 22nd/05 — Date

I verify that this course outline has been reviewed.

EKB — Program Head/Chief Instructor

Dec 22nd/05 — Date

I verify that this course outline complies with BCIT policy.

Dean/Associate Dean

2005/12/22 — Date

Note: Should changes be required to the content of this course outline, students will be given reasonable notice.

v Instructor(s)

E.H. LaBounty | Office Location: SW9–201L | Office Hrs.: As posted | Office Phone: 604-451-6827 | E-mail Address: earl labounty@bcit.ca

v Learning Resources

Required:

Available at BCIT Bookstore:

- Engineering Pad
- 3-ring Binder
- *Fire Protection Systems* manual by E.H. LaBounty
- 2 – Clear Cover Duo-Tang Folders

Recommended:

- *Automatic Sprinkler and Standpipe Systems*
  Author — John L. Bryan
  Publisher — National Fire Protection Association

v Information for Students

See Policy Information for Mechanical Technology Students and the current issue of the British Columbia Institute of Technology Full-Time Calendar — General Information.

v Assignment Details

See Policy Information for Mechanical Technology Students.

Schedule

Week	Lecture or Lab	Material Covered	Date
1	LECTURE 1	A. COURSE OUTLINE B. GENERAL REMARKS FROM YOUR INSTRUCTOR	
	LAB LECTURE 2	A. INTRODUCTION B. INTRODUCTION TO ASSIGNMENT	
2	LECTURE 3	A. FIRE PROTECTION SYMBOLS B. FIRE SAFETY DESIGN	
	LAB LECTURE 4	A. FIRE DETECTION AND SIGNALLING DEVICES B. ASSISTANCE WITH ASSIGNMENT	
3	LECTURE 5	A. FIRE ALARM SYSTEMS	
	LAB LECTURE 6	A. FIRE SUPPRESSION AGENTS AND PORTABLE FIRE EXTINGUISHERS B. ASSISTANCE WITH ASSIGNMENT	
4	LECTURE	A. DEMO ON FIRE EXTINGUISHERS	
	LAB LECTURE 7	A. WATER SUPPLIES FOR FIRE FIGHTING B. ASSISTANCE WITH ASSIGNMENT	
5	LECTURE 8	A. STANDPIPE AND FIRE HOSE SYSTEMS	
	LAB	A. TOUR OF BCIT FIRE PROTECTION B. REVIEW FOR MIDTERM EXAM C. ASSIGNMENT NO. 1 DUE	
6	LECTURE	A. **MIDTERM EXAM**	
	LAB LECTURE 9	A. INTRODUCTION TO AUTOMATIC SPRINKLER SYSTEMS B. INTRODUCTION TO ASSIGNMENT NO. 2	
7	LECTURE 10	A. AUTOMATIC SPRINKLERS LAYOUT	
	LAB LECTURES 11 & 12	A. AUTOMATIC SPRINKLERS B. SPRINKLER PIPING DESIGN LAYOUT C. ASSISTANCE WITH ASSIGNMENT	
8	LECTURES 13 & 14	A. AUTOMATIC SPRINKLER SYSTEMS COMPONENTS AND OPERATION B. SPRINKLER SYSTEMS SCHEDULE METHOD FOR PIPE SIZING	
	LAB	A. ASSISTANCE WITH ASSIGNMENT	

Week	Lecture or Lab	Material Covered	Date
9	LECTURES 15 & 16	A. SPRINKLER SYSTEMS HYDRAULIC METHOD FOR PIPE SIZING B. HVAC SYSTEMS SMOKE AND FIRE CONTROL	
	LAB	A. TOUR OF BCIT FIRE PROTECTION FACILITIES B. REVIEW FOR FINAL EXAM C. ASSISTANCE WITH ASSIGNMENT	
10	LECTURE	A. **FINAL EXAM**	
	LAB	A. ASSIGNMENT NO. 2 DUE	