

Justice Institute of British Columbia
COURSE OUTLINE

Course Code:	FSS483
Course Title:	Fire Protection Design and Evaluation
Prerequisite Courses:	FSS282 Building Construction: Issues in Fire Safety; FIP200 Fire Inspector II
School:	School of Public Safety & Security
Division/Academy/Centre:	Fire & Safety Division
Previous Course Code & Title:	N/A
Course First Offered:	

# of Credits:	3.0
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Course Description:

With the adoption of objective-based building and fire codes, ensuring an adequate level of fire and life safety in buildings, and the activities that take place in and around them, is no longer a matter of merely identifying the appropriate code references and enforcing them. Instead, it is necessary to assess situations using scientific and engineering approaches to identify the hazards and analyze the potential impact of a fire or explosion involving those hazards. It is also necessary to analyze the effectiveness of measures implemented to mitigate the impact of the hazards. The intent of this course is to introduce learners to the scientific and engineering tools that are currently available to evaluate fire safety. This will be done through the analysis of case studies to identify some of the hazards that may exist. Learners will identify the acceptable solutions in Division B of the objective-based codes and the objectives and functional statements associated with those solutions, and then perform calculations to assess the performance of those solutions. Where appropriate, alternative (to the acceptable) solutions will be identified and analyzed to determine how their performance compares with that of the acceptable solutions.

Course Goal(s): Familiarize the learners with a rational approach to assessing the level of fire safety using a rational approach

- Introduce the learners to some of the scientific and engineering tools available and how to use them effectively
- Identify sources of information that are useful in the assessment of fire safety

Learning Outcomes:

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

- Identify the prescriptive requirements of the national building and fire codes that apply to a situation (building, occupancy, or process)
- Determine the code objectives, functional statements, intents and intended applicability of those requirements
- Identify credible fire scenarios for the situation
- Use models to analyze fire impact on the situation and assess the effectiveness of the prescriptive code requirements

- Recommend alternative designs to those requirements

Course Topics/Content:

- Organization of National Building Code and National Fire Code of Canada and how to find information in them; introduction of first case study, probably a multi-family residential occupancy
- Apply Division B of the Codes to the case study, that is, identify the acceptable solutions and their associated objectives, functional statements, intents, and application statements
 - First assignment: Do a Division B analysis to a simple building
- Introduction of the International Fire Safety Engineering Guidelines (IFSEG)
 - Begin analysis of case study by characterizing the building, its environment and occupants
 - Identification of hazard scenarios including credible ignition sequences, expected fire growth and possible outcomes using relationships given in IFSEG
- Spread of smoke and toxic gases within and beyond the enclosure of origin
- Spread of fire beyond enclosure of origin
- Detection of fire and activation of fire protection systems
- Fire Service intervention
- Evacuation
- Introduction of second case study, an industrial occupancy
 - Begin discussion of topics regarding industrial fire protection engineering
 - Warehouse storage
- Special commodities
- Flammable liquids
- Bulk commodities, spontaneous heating, and aerosol products

Text and Resource Materials:

Required:

- Diamantes, D. (2005). *Principles of fire protection*. Clifton Park, NY: Thomson Delmar.
- Brannigan, F. L. (1992). *Building construction for the fire service* (3rd ed.). Quincy, MA: National Fire Protection Association.
- International Code Council. (2003). *International fire code*. Whittier, CA.
- International Code Council. (2003). *International building code*. Whittier, CA.
- International Fire Safety Engineering Guidelines.
- National Building and Fire Codes of Canada, CD-rom versions.
- Local (Provincial) editions of the building and fire codes applicable in that jurisdiction.

Recommended:

Course Level:

	First Year		Second Year		Third Year	X	Fourth Year
	Graduate		Other (describe):				

Equivalent Course(s) within the JIBC:

Class Delivery Methods:

Delivery Methods	Class Option A (Hours)	Class Option B (Hours)	Class Option C (Hours)	Class Option D (Hours)
Classroom/Lecture/Discussion				
Simulation/Lab				
Practicum/Fieldwork				
Online	42			
Correspondence				
Total Class Hours	42			

Comments on Delivery Methods:

Course Grading System:

Letter Grades	X	Percentage	Pass/Fail
Complete/Incomplete		Attendance Only	

Passing Grade:	50%
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Evaluation Activities and Weighting:

Final Exam	%	Assignments	35%	Project	55%	Capstone Project	%
Midterm Exam	%	Portfolio	%	Participation	10%	Other	%
Quizzes/Test	%	Simulations	%	Practicum	%	TOTAL	100%

Comments on Evaluation Activities and Weighting:

Other Course Guidelines, Procedures and Comments:

View official versions of related JIBC academic regulations and student policies in the *JIBC Calendar* on the following pages of the JIBC website:

Academic Regulations:

<http://www.jibc.ca/programs-courses/jibc-calendar/academic-regulations>

Student Policies:

<http://www.jibc.ca/programs-courses/jibc-calendar/student-policies>

Student Academic Integrity Policy
Academic Progression Policy
Admissions Policy
Academic Appeals Policy
Evaluation Policy
Grading Policy

Access Policy
Harassment Policy – Students
Student Records Policy
Student Code of Conduct Policy

JIBC Core Competencies

The JIBC promotes the development of core and specialized competencies in its programs. Graduates of our programs will demonstrate high levels of competence in the following areas:

Critical thinking

Identify and examine issues and ideas; analyze and evaluate options in a variety of fields with differing assumptions, contents and methods.

Communication, oral and written

Demonstrate effective communication skills by selecting the appropriate style, language and form of communication suitable for different audiences and mediums.

Leadership

Inspire individuals and teams to reach their potential by embracing innovation through strategic thinking and shared responsibility.

Independent learning

Show initiative by acting independently in choosing effective, efficient and appropriate applied learning, research and problem solving strategies.

Problem solving

State problems clearly; effectively and efficiently evaluate alternative solutions; choose solutions that maximize positive and minimize negative outcomes.

Interpersonal relations

Know and manage oneself; recognize and acknowledge the needs and emotions of others including those with diverse backgrounds and capabilities.

Inter-professional teamwork

Understand and work productively within and between groups, respect others' perspectives and provide constructive feedback with special attention to inter-professional relationships.

Information literacy

Recognize and analyze the extent and nature of an information need; efficiently locate and retrieve information; evaluate it and its sources critically, and use information effectively and ethically.