

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



COURSE OUTLINE

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| <u>COURSE TITLE:</u> | INTRODUCTION TO FIRE SCIENCE | | |
| <u>CODE NO. :</u> | CJS428 | <u>SEMESTER:</u> | 4 |
| <u>PROGRAM:</u> | Protection Security and Investigations | | |
| <u>AUTHOR:</u> | Dan Fraser | | |
| <u>DATE:</u> | SEPT/15 | <u>PREVIOUS OUTLINE DATED:</u> | SEPT/14 |
| <u>APPROVED:</u> | <i>"Angelique Lemay"</i> | | <i>Nov. 2014</i> |
| | <hr/> | | <hr/> |
| | DEAN | | DATE |
| TOTAL CREDITS: | 3 | | |
| PREREQUISITE(S): | None | | |
| LENGTH OF COURSE: | 3 Hrs/Week | | |

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I. COURSE DESCRIPTION:

No fire authority and no amount of legislation, policies or procedures can prevent all fires. Even with all our advances in technology and workplace practices, fires still occur. Fires are not limited to specific industries, areas of work or places of leisure. Fires can develop whether you are actively carrying out your duties at work or while you are asleep at home.

This course will teach students that fire awareness can lead to fire prevention, which can minimize fire risks and prevent unplanned fires from occurring. Should you, however, be unfortunate enough to be involved in a fire this awareness may save your life or help save the life of someone else.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. Public Fire ProtectionPotential Elements of the Performance

- a) Identify the origins of modern fire protection
- b) Describe the evolution of fire protection
- c) List the cause for the change from volunteer to public fire departments
- d) List and describe the responsibilities of a public fire department
- e) Describe the evolution of equipment and protective clothing
- f) Discuss the current fire problems in existence
- g) Describe the different ranks and responsibilities and organization of the fire department in Sault Ste. Marie
- h) Describe the process and requirements of becoming a firefighter in Ontario
- i) List and discuss the principles of life safety
- j) Describe the code of ethics and firefighter's creed
- k) List and describe the myths about fire

2. Fire Safety Legislation in Ontario (www.gov.on.ca/OFM/)Potential Elements of the Performance

- a) List and describe pertinent building code sections for fire
- b) List and describe pertinent Occupation Health and Safety Act sections for fire
- c) List and describe Ontario Fire Code sections
- d) List and describe Fire Protection and Prevention Act sections

3. Chemistry and Physics of FirePotential Elements of the Performance

- a) Define and describe the fire triangle and fire tetrahedron
- b) Describe what constitutes an oxidizer
- c) Describe what constitutes a fuel
- d) Describe the three states of matter
- e) Describe the properties or characteristics that affect solids, liquids and gas
- f) Describe the differences between heat and temperature
- g) Describe the four methods of heat transfer
- h) Describe the four classifications of fire
- i) Describe the three phases of fire
- j) Describe the fire extinguishment theory as it applies to each class of fire
- k) Define and explain fire terminology

4. Fire Protection Systems and EquipmentPotential Elements of the Performance

- a) Describe the components of a water supply system
- b) Describe fire detection equipment and their use
- c) Describe various types of fire extinguishments systems and components
- d) Describe the types of extinguishments agents and their uses
- e) Explain how various types of extinguishment agents work to extinguish fire
- f) List and describe fire protection equipment used for personal protection of a firefighter
- g) List and describe the comprehensive fire safety effectiveness model and its sub-components
- h) List and discuss the 10 rules of engagement for structural fires
- i) Define and describe types of fire apparatus and equipment

5. Fire PreventionPotential Elements of the Performance

- a) Describe the importance of prevention
- b) Describe typical fire prevention activities
- c) List and describe methods of public education as they relate to prevention
- d) List and describe the uses of fire-related statistics
- e) Describe leading causes of fire in industrial and domicile locations
- f) List and describe arson characteristics to determine fire cause

6. Fire Prevention SurveysPotential Elements of the Performance

- a) Define the term "fire risk analysis"
- b) List and describe the components of a fire prevention/inspection survey
- c) c. Complete a fire prevention survey

III. TOPICS:

1. Public Fire Protection
2. Fire Safety Legislation
3. Chemistry and Physics of fire
4. Fire Protection Systems and Equipment
5. Fire Prevention
6. Fire Prevention Survey

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Handouts/notes will be provided by the course instructor.

V. EVALUATION PROCESS/GRADING SYSTEM:

Students will be evaluated through assignments and tests. The overall grade for the course will be calculated on a total of 300 points. These points will be achieved by the following evaluation method:

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| 1. Assignment | 10 marks |
| 2. Test | 20 marks |
| 3. Mid-Term Exam | 30 marks |
| 4. Final Exam | 40 marks |
| Total | 100 marks |

The following semester grades will be assigned to students in postsecondary courses: A pass in this program is 60 percent (C)

| <u>Grade</u> | <u>Definition</u> | <u>Grade Point Equivalent</u> |
|--------------|---|-------------------------------|
| A+ | 90 - 100% | 4.00 |
| A | 80 - 89% | 3.75 |
| B | 70 - 79% | 3.00 |
| C | 60 - 69% | 2.00 |
| F | 59% or below | 0.00 |
| CR (Credit) | Credit for diploma requirements has been awarded. | |
| S | Satisfactory achievement in field placement or non-graded subject areas. | |
| U | Unsatisfactory achievement in field placement or non-graded subject areas. | |
| X | A temporary grade. This is used in limited situations with extenuating circumstances giving a student additional time to complete the requirements for a course (see <i>Policies & Procedures Manual – Deferred Grades and Make-up</i>). | |
| NR | Grade not reported to Registrar's office. This is used to facilitate transcript preparation when, for extenuating circumstances, it has not been possible for the faculty member to report grades. | |

VI. SPECIAL NOTES:Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline.