



FIRE-501: INTRODUCTION TO FIRE TECHNOLOGY (FORMERLY FIRE-101)

Effective Term

Fall 2025

BOT Approval Date

04/11/2024

Discipline

FIRE - Fire Technology

Course Number

501

Course Title

Introduction to Fire Technology (formerly FIRE-101)

Short Title

Introduction to Fire Tech

Credit Status (CB 04)

D - Credit - Degree applicable

Units

Lecture Units

3.00

Total Units

3.00

Hours

Lecture Contact Hours

48-54

Out of Class Hours Lecture

96-108

Total Contact Hours

48 - 54

Total Out of Class Hours

96 - 108

Total Student Learning Hours

144 - 162

Distance Education

Yes

Distance Education

Distance Education Type

Both Fully Online and Hybrid Online

Fully Online Delivery Requirements:

a. Students must be notified via the college schedule of classes and the syllabus for the class if proctored tests are required for this course



b. Any planned face-to-face meetings, such as an orientation or study session, must be optional

c. The MSJC curriculum committee requires the use of accessible, asynchronous discussion as a component of every fully online course

Are you using publisher content?

No

Regular Substantive Interaction

Instructor-to-student, student-to-student, and student-to-content contact shall be distributed in a manner that will ensure regular substantive interaction (RSI) is maintained not only weekly but also for the duration of the course. Instructor interactions should be equivalent in time, quality and consistency to the engagement students would receive in a face-to-face course—for example, through announcements, discussion participation, personalized feedback, video messages, or other instructional communications. Instructors are expected to be responsive to student inquiries within a 24-72 hour time frame excluding holidays. RSI will be maintained through a variety of methods:

- Orientation - Students must be oriented to the online and face-to-face portions at the start of the course.
- Announcements - Announcements using the course management system must be posted at least weekly to keep students current on course events, due dates, materials, etc.
- Discussion Forums - Content-related discussion forums within the designated CMS will include appropriate instructor participation and will be initiated and maintained, with timely feedback provided. Instructors are required to monitor the discussions and related activities to provide guidance and direction. Open-ended discussion boards may be used to further learning and interaction.
- MSJC Communication – Instructor will use MSJC-administered communication tools (such as email or the designated CMS communication tools) to regularly communicate with and provide ease of access to students.
- Timely Feedback - Timely feedback on student work will be provided by the instructor, which may include comments and/or rubrics, within the Grades area of the designated CMS.
- Scheduled Meetings – Hybrid and synchronous courses will meet at regularly scheduled times. ADA Compliance - All course interactions and content must be designed with accessibility in mind and meet ADA requirements.

Catalog Description

This course provides an introduction to fire protection; career opportunities; philosophy and history of fire protection; fire loss analysis; organization and function of public and private fire protection services; fire departments as part of local government; laws and regulations affecting the fire service; specific fire protection functions; basic fire chemistry and physics; introduction to fire protection systems; fire strategy and tactics. (formerly FIRE-101)

Codes

TOP Code (CB 03)

2133.00* - *Fire Technology

CIP Code

43.0203 - Fire Science/Fire-fighting.

Repeatability Code

No

Grading Option

Letter grade OR P/NP

Learning Objectives

Learning Objectives

Learning Objective

1. Illustrate and examine the history and culture of the fire service
2. Analyze the basic components of fire as a chemical chain reaction, the major phases of fire, and examine the main factors that influence fire spread and fire behavior
3. Differentiate between fire service training and education and explain the value of higher education to the professionalization of the fire service
4. Classify and describe the major organizations that provide emergency response service and illustrate how they interrelate
5. Identify and compare fire protection and emergency-service careers in both the public and private sector.
6. Investigate the role of national, state, and local support organizations in fire and emergency services.
7. Analyze and describe the scope, purpose, and organizational structure of fire and emergency services.
8. Examine the common types of fire and emergency service facilities, equipment, and apparatus.

9. Compare and contrast effective management concepts for various emergency situations.
10. Identify and document the components of fire prevention including code enforcement, public information, and public and private fire protection systems.
11. Detect the components of career preparation and goal setting.
12. Measure the importance of wellness and fitness as it relates to emergency services.
13. Identify best practices within the fire service for maintaining a strong workforce that includes DEI.

Learning Outcome Information

Course Learning Outcomes

Learning Outcome
1. The student will describe the education and experience needed to obtain a job in the fire service
2. The student will identify inherently dangerous situation while performing firefighting functions
3. The student will illustrate how a fire department is structured and functions as an organization
4. The student will analyze the current fire service practices for DEI and evaluate the success or failure of the current trends.

Program Learning Outcomes

Learning Outcome
1. Students will Analyze Fire Service theories and techniques as well as conduct research on specific topics related to the Fire Service.
2. Students will Exhibit a working knowledge of the various aspects of the Fire Service to include but not limited to Fire Department structure, operations, educational and experiential requirements for firefighting jobs.
3. Students will Use technology to process information to identify and address problems.
4. Students will Develop good oral and written communication skills.
5. Students will Demonstrate the ability to address problems while working as part of the team.

Institutional Learning Outcomes

Aesthetic Awareness: The student will identify and evaluate how aesthetic expression leads to an appreciation of social and cultural context as well as the values of art and nature.

Communication: The student will effectively express and exchange ideas through listening, speaking, reading, writing, visual works, and other modes of interpersonal expression.

Critical Thinking: The student will analyze problems, gather and synthesize relevant information, evaluate ideas, information, and evaluate alternative points of view to create, innovate and implement effective solutions.

Cultural Awareness and Humility: The student will demonstrate knowledge of and sensitivity toward individuals of diverse ethnicity, age, gender, sexual orientation, and religious affiliations, as well as toward those individuals with diverse abilities and socio-economic classes to respectfully interact with individuals of diverse perspectives, beliefs and values while being mindful of the limitation of their own cultural frameworks.

Information and Technology Literacy: The student will access, interpret, evaluate, and apply relevant information sources and digital media effectively, and in an ethical and legal manner.

Scientific Awareness: The student will apply the scientific method of inquiry to assess potential solutions for real-life challenges by employing science-based knowledge and methodologies in daily life.

Social Awareness: The student will recognize and analyze the interconnectedness of global, national, and local concerns, analyzing cultural, political, social, and environmental issues from multiple perspectives and appreciate similarities and differences among cultures.

Civic
Personal
and Professional Responsibility

Content

Course Lecture Content

1. Careers in the Fire Protection/Emergency Services
 - a. Private
 - b. Governmental

- i. Local
 - ii. municipal
 - iii. state
- c. Federal
- 2. History of the Fire Service
 - a. Global
 - b. United States
 - i. U.S. fire problems
 - ii. current
 - iii. past
- 3. Fire Prevention
 - a. Property conservation
 - b. Life safety
 - c. Public education
 - d. Arson Investigation
 - e. Code Enforcement
- 4. Fire Behavior
 - a. Classifications of Fire
 - b. Components of Fire
 - c. Fire / Heat transfer
 - d. Flammability
 - e. Classifications of matter
- 5. Principals of Command
- 6. ICS
 - a. Functions
 - b. Capabilities
 - c. Positions
- 7. Emergency calls
 - a. Structural fires
 - i. safety
 - ii. tactics
 - iii. PPE
 - b. Wildland fires
 - i. safety
 - ii. tactics
 - iii. PPE
- 8. Building Construction
 - a. Types
 - b. Strengths and Weaknesses

Methods of Instruction

Method

Activity

Integration

Hands-on activities such as in-class group discussions and research assignments to analyze fire department public and private support organizations and the development of a fire department organizational chart for a given fire department.

DE Adaptations for MOI

Students will work in small groups in breakout rooms within Zoom to research, collaborate, brainstorm, work on a project, or discuss future activities

Method

Discussion



Integration

In-class and/or online discussion will be used to enhance and clarify student understanding of concepts such as a career planning guide and employment application and the fire departments purpose and scope of services to the public.

DE Adaptations for MOI

Students will participate in online lectures and discussions with interaction between students and the instructor

Method

Homework

Integration

Out of class reading assignments and summaries of that reading to enhance student comprehension of basic material such as fire department structure and operation, educational and experience requirements for fire department jobs, and safety concerns associated with fire fighting.

DE Adaptations for MOI

Homework assignments are assigned through CMS and will allow students to submit all coursework electronically and receive feedback from the instructor. Homework and instructions for each assignment will have a recorded lesson that students may look at whenever they need review.

Method

Lecture

Integration

Lecture presentation using PowerPoint and other media presentations describing how fire departments are structured and operate, educational and experience requirements for firefighting jobs, safety practices and other aspects of the fire service. Lecture will help present the basic concepts, such as fire department organizational charts that illustrate fire department structure and operations. The lectures will also cover current trends in the fire services, including hiring practices and DEI impact on the fire service and the community.

DE Adaptations for MOI

Online lessons will be presented by the instructor and supplemented by videos and demonstrations. All lectures will be recorded for online viewing if the student is not able to attend the scheduled lecture. All online presentations will be recorded and be accessible with closed captions.

The lectures will also cover current trends in the fire services, including hiring practices and DEI impact on the fire service and the community.

Method

Observation and Demonstration

Integration

PowerPoint slides and other forms of media may be used to demonstrate and illustrate fire department structure and operation and the inherent dangers and unsafe conditions associated with fire fighting. Video clips of actual incidents along with incident reviews may be used to demonstrate fire ground operations and recognition of unsafe conditions

DE Adaptations for MOI

Online lessons will include videos, live recorded events from real-life fire scenarios or training, and links for the students to participate in online training. All online presentations will be recorded and be accessible with closed captions.

Method

Projects



Integration

Visit a local fire station and interview a career firefighter with pre-determined questions to better understand the career of a full-time firefighter, the requirements to get hired, and current DEI practices within the fire service.

DE Adaptations for MOI

With guidance from the instructor, students will develop ten interview questions that will be asked of a full-time career firefighter. The questions may be asked in person at a fire station or via phone. The students will submit the questions for approval via CMS prior to interviewing a firefighter. The students will conduct the interview and submit a completed project, per syllabus guidelines in CMS. The instructor will grade and give feedback per the rubric. These questions will help the student to better understand the career of a full-time firefighter, the requirements to get hired, and current DEI practices within the fire service.

Methods of Evaluation

Method

Class Participation

Integration

Students will be encouraged to participate in class discussions and activities and will be evaluated on their involvement and performance in the discussions and class activities. Class discussions may include educational and experience requirements for fire fighting jobs and emergency response operations on fires. Students will be asked open-ended and overhead questions by the instructor that will ensure the message and lesson is being received and understood by the students

DE Adaptations for MOE

Students will work within online subgroups during Zoom classes to discuss current assignments and present group ideas, discussions, and projects. Students will receive credit for attending and for participating in the discussions.

Method

Exams/Tests

Integration

Quizzes, a midterm, and a final examination will be given to test for content understanding of terminology, knowledge of subject matter, and ability to contrast and evaluate types of fire service functions.

DE Adaptations for MOE

Quizzes, mid-term, and a Final exam will be administered via CMS. All multiple choice exams will be graded instantly by the CMS after the students submits the exam and allows the student to view the correct answer. Exams that have written answers, will be submitted by the student via CMS and the instructor will grade and give student feedback within 72 hours.

Method

Group Projects

Integration

In class group projects such as research and presentation of information on topics such as what influences public and private support organizations have on the fire services will be evaluated on the accuracy and completeness of the information presented. Students will be evaluated on contribution to the group and participation

DE Adaptations for MOE

Students will work collaboratively with other students to discuss ideas within the fire service and current affairs that relate to the fire service and then present their findings to the class in an online Zoom meeting. Participation is recorded and students will be given credit that will be entered as part of their overall grade in the class for the participation.

Method

Homework



Integration

students will be evaluated on a variety of written assignments may include and are not limited to: the development of oral interview questions to be used to interview an on-duty fire fighter at his/her workplace followed up with a written report with the interview results and a research paper on current trends and/or changes in the Fire Service in the last 5 to 10 years. Writing skills along with assignment content, accuracy and research sources will be evaluated

DE Adaptations for MOE

All assignments will be submitted via CMS and graded per the course syllabus and rubric for each assignment. The instructor will have all student assignments graded within one week of submission.

Method

Papers

Integration

Students will be evaluated on written reports and research paper assignments. Writing skills as well as assignment content, accuracy, and research sources will be evaluated. Types of written papers may include a term paper requiring outside research on fire department operations and information gathered through an interview process.

DE Adaptations for MOE

Students will submit all coursework, including research papers and resumes, via CMS to be graded by the professor. Each assignment has its own rubric and will be graded accordingly. Feedback will be given to the students within the CMS.

Assignments

Assignment Type

Other

In-class and/or outside of class

In-class

Formative or Summative

Formative

Assignment

Prepare, with a group, a written and oral analysis of a fire technology related subject chosen and researched by the group. Demonstrate an ability to operate within a team environment to research and present information. The paper will be evaluated on the accuracy and completeness of the analysis of the topic and the research resources used. Explain, both in writing and verbally, the various career options available in fire protection for two or more hypothetical individuals, given specific descriptions of those individuals. The paper will be graded on the completeness of the career options listed and that at least two hypothetical descriptions were given. Conduct an oral interview with a firefighter at his/her workplace using student-developed questions and report results in a written format. The assignment will be evaluated on written skills as well as content and completeness of the assignment. Given the positions and functions within a fire department, develop an organization chart of a medium-sized fire department. The organizational chart will be evaluated on its completeness of the chart and accuracy of the chart. Describe in writing current activities or changes in operations in fire service agencies from research and analyze their effects on the fire service. Writing skills, assignment content, accuracy, and research resources will be evaluated.

How assignment will be adapted in online format

While in a Zoom setting, students will be placed into break-out groups to work with other students to present their findings and discuss fire-related topics. The assignment will be given to the students during the online class. These assignments will be graded for participation, rather than graded via rubric.

Assignment Type

Writing



In-class and/or outside of class

Outside of class

Formative or Summative

Summative

Assignment

Submit a term paper of no less than three pages. The term paper will be due during the last week of class and will be used to evaluate the student's learning and grasp of concepts that are discussed throughout the course. The students are provided five topic questions from current events in the fire service, and they choose one of those topics to be the subject of their term paper.

How assignment will be adapted in online format

The term paper will be submitted via CMS. The term paper is explained to students via CMS during the first two weeks of the class and submitted via CMS two weeks from the end of the semester. The term paper will be graded via the rubric and will be evaluated for content, grammar, and completeness. The students will be able to choose from multiple topics to write the term paper on. This is to be used to evaluate the student's thorough grasp of a core concept within the class. The students are provided five topic questions from current events in the fire service, and they choose one of those topics to be the subject of their term paper.

Assignment Type

Writing

In-class and/or outside of class

Outside of class

Formative or Summative

Formative

Assignment

Read chapters 1-14 within the book and complete assignments that correlate to the appropriate chapter. Each chapter will have at least one assignment that will be submitted to demonstrate understanding of the subject.

How assignment will be adapted in online format

Read chapters 1-14 within the book and complete assignments that correlate to the appropriate chapter. Each chapter will have at least one assignment that will be submitted to demonstrate understanding of the subject. The assignments will be submitted every week via CMS. These can include discussion boards, multiple-choice quizzes, and short answer questions. The instructor will give feedback and grades to the students, within 48 hours of CMS submissions.

Assignment Type

Reading

In-class and/or outside of class

In-class

Formative or Summative

Formative

Assignment

Read assignments or posts during class and discuss them as a group. Each chapter will have a reading assignment that will be performed in class and then discussed as a group.

How assignment will be adapted in online format

Read assignments or posts during class and discuss them as a group. Each chapter will have a reading assignment that will be performed in class and then discussed as a group. Students will read and evaluate posts in groups via Canvas Zoom break-out rooms and then come together to discuss the solution in the larger group.



Assignment Type

Writing

In-class and/or outside of class

Outside of class

Formative or Summative

Formative

Assignment

Conduct an interview with a full-time firefighter

How assignment will be adapted in online format

Students will conduct the interview with a full-time firefighter and submit the assignment via CMS. Students will also have time to discuss the interview results online with their peers via discussion boards in CMS. This assignment will have a specifically recorded lecture or live lecture online, to ensure students understand the assignment and all questions are answered. The students will submit a completed assignment via CMS and will be graded per the rubric within 48 hours of submission.

Assignment Type

Writing

In-class and/or outside of class

In-class

Outside of class

Formative or Summative

Formative

Assignment

Analyze the recent trends in the fire service and the hiring practices that encourage DEI and show that a diverse and inclusive workforce is more successful than a workforce that does not address DEI

How assignment will be adapted in online format

Out-of-class research will be done by the students on local fire departments to analyze their DEI practices and then the information will be discussed in an online Zoom format. This will be graded as a participation grade. Students will be able to discuss their findings with other students in online break-out rooms.

Course Materials**Textbooks**

Klinoff, R. (2019). Fire Production and Emergency Services Jones & Barlett Learning. ISBN: 978-1284180152

IFSTA (2019). Essentials of Fire Fighting Brady. ISBN: 9780134985664

Class Size Information**Class Size**

40

Class Size Category

A - Lecture/discussion 40

Diversity and Inclusion

Explain how diversity and inclusion(e.g., gender, culture/race, sexuality, etc.) is infused into the course.

The class involves students of all genders and races and encourages class participation from all students. The students will interview full-time firefighters to understand the current trends and DEI practices among local fire departments and apply their knowledge and

background to complete a report project. The students will see how diverse and inclusive groups will offer a more complete and well-rounded experience.

Describe how assignments, instruction, evaluation, course content, and interactions are contextualized for diverse learners promoting an equitable course.

Students have equal opportunities to access all learning resources and 1-on-1 capabilities with the professor via Zoom. Video and other forms of media are utilized to ensure success in DEI. Students will be placed into groups while working within ZOOM, consisting of differences in genders, ages, races, and sexes. All students will be asked to contribute to the discussion within these diverse groups. This will allow students to see how DEI can benefit any group or organization. Students will visit a local fire department or phone a fire department to inquire about their DEI considerations for hiring and then come together in a ZOOM class to discuss their findings. This will be part of an interview project to enhance the student's understanding of DEI practices in the fire service.

Interactions

Explain how the course will incorporate student-to-student interaction.

Zoom meetings and other projects will require student-to-student interaction. Students will interact with other students in work groups via Zoom and also via discussion board on CMS. Within a classroom setting, students will discuss current events and give feedback to other students on in-class projects and assignments.

Explain how the course will incorporate instructor-to-student interaction.

Instructor-lead ZOOM meetings, as well as one-on-one meetings will incorporate instructor-to-student interaction. Instructor will interact with students on a one-on-one basis, as well as in a group setting. While in a classroom setting, the instructor will ask open-ended questions to students to ensure the students are understanding and receiving the current material.

Explain how the course will incorporate student-to-content interaction.

The student will analyze concepts learned within the class, conduct real-life interviews, and write a term paper that will demonstrate mastery of the topic. There are video interactions that are embedded into the course that each student will participate with and answer questions that directly relate to the content of the course. Instructor provides many real-life videos and pictures from actual incidents that will allow for discussion with students, both online via discussion board in CMS, and within a classroom setting.

Explain how the course will incorporate student-to-self interaction (metacognitive).

Students will be able to self analyze their study habits, learning abilities and career assessment throughout the class by completing the assignments. Student will be taught study habits, confidence through interactions, giving feedback to peers, and assignments of self-reflection and the ability to grade one of their own assignments with justification about their efforts. There are assignments within the class that will give the students the opportunity to self-grade the assignment and allow them to evaluate their own effort within the class.

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