University of Illinois Fire Service Institute

Course Syllabus

Course Title: Airport Fire Fighter

Course Duration: 40 hours

Program: Driver/Operator

Course Prerequisites:
Advanced Technician Firefighter (NFPA Firefighter II) Certification; and
Hazardous Materials Operations Certification; and
NIMS IS-100; and
NIMS IS-700

Course Description: This 40-hour class is designed for firefighters with 1-3 years of experience who are assigned to, or may be assigned to, aircraft rescue and firefighting duties at or near an airport. In this course, the student will learn basic aircraft rescue and firefighter skills and hone these skills during realistic live fire exercises. Students will participate in drills that will simulate response, fire extinguishment and rescue duties. This course is designed to develop a firefighter's understanding of airfield layout, aircraft construction, safety considerations, communications, rescue, ARFF apparatus, extinguishing agents, aircraft emergencies, and airport planning. Upon successful completion of this class, the student will walk away with basic airport firefighter competencies.

Course Requirements and/or Recommendations:

Pre-Course Work – None
Course Work – None
Post-Course Work – None

Required Textbook:
IFSTA, Aircraft Rescue and Fire Fighting, 6th Edition

The textbook will be provided to the student on the first day of class.

Course Policies:

Attendance Policy: IFSI requires students to attend (100%) or make up all course content that leads to certification. Students are expected to attend on time and to remain in class for the duration of the course. Students MUST COMPLETE all portions of a certification course, both classroom and practical, to be eligible to receive their certification.

If a student misses any portion of class with an accumulated absence of 20% or less of scheduled class time, it will be the student's responsibility to arrange the make-up of the missed course content with the instructor(s) or program manager. The student must make up the specific course content that s/he missed, not just the hours. Make-ups are limited to 20% of scheduled class time. Make-ups must be documented on the class roster. If a student's absence is greater than 20% refer to "True Emergencies" section of the IFSI Examination Policy.

Safety Policy: Students shall understand and follow all instructions pertaining to operational safety, as stated by instructors or as written in course materials. Instructors and students shall be mindful of safety at all times. Conduct judged to be unsafe shall be grounds for dismissal from the course.

Academic Integrity Policy: IFSI has the responsibility for maintaining academic integrity so as to protect the quality of the education provided through its courses, and to protect those who depend upon our integrity. It is the responsibility of the student to refrain from infractions of academic integrity, from conduct that may lead to suspicion of such infractions, and from conduct that aids others in such infractions. Any violation of the code of conduct is grounds for immediate dismissal from the course.

Grading Policy: Decisions regarding certificates of course completion shall be made solely by the lead instructor of the course. All grading of exams shall be conducted by the Curriculum/Testing Office. All grading of practical exercises shall be based upon the standards set by the regulatory agency referenced in the course material and IFSI.

> Retesting: If a student fails to pass an exam, retesting takes place on set dates at regional sites across the state. More information is provided in the course completion e-mail and on the IFSI website.

American Disabilities Act: As guaranteed in the Vocational Rehabilitation Act and in the American Disabilities Act, if any student needs special accommodations they are to notify their instructor and provide documentation as soon as possible so arrangements can be made to provide for the student's needs. If arrangements cannot be made at the class site, the student will test at an alternative time and place where the special accommodations can be made.

Evaluation Strategy: Students will be evaluated with an end of course exam and performance evaluation checklists.

Course Content:

Module: 1
Title: Introduction
Terminal Learning Objective:
At the conclusion of this module, the student will discuss their responsibilities as airport fire fighters.

Module: 2
Title: Airport Familiarization
Terminal Learning Objective:
At the conclusion of this module, the student will identify various airport features.

Module: 3
Title: Aircraft Familiarization
Terminal Learning Objective:
At the conclusion of this module, the student will demonstrate the use of various aircraft features.

Module: 4
Title: Safety
Terminal Learning Objective:
At the conclusion of this module, the student will identify various safety considerations for ARFF operations.

Module: 5
Title: Communications
Terminal Learning Objective:
At the conclusion of this module, the student will demonstrate effective communication for aviation incidents.

Module: 6
Title: Apparatus
Terminal Learning Objective:
At the conclusion of this module, the student will demonstrate the operation of an ARFF apparatus turret.

Module: 7
Title: Extinguishing Agents
Terminal Learning Objective:
At the conclusion of this module, the student will discuss the extinguishing agents used in ARFF operations.

Module: 8
Title: Aircraft Emergencies
Terminal Learning Objective:
At the conclusion of this module, the student will demonstrate the ARFF operations used to mitigate common aircraft emergencies.

Module: 9
Title: Rescue
Terminal Learning Objective:
At the conclusion of this module, the student will demonstrate conducting ARFF rescue operations.

Module: 10
Title: Airport Emergency Planning
Terminal Learning Objective:
At the conclusion of this module, the student will demonstrate the use of an airport emergency plan when responding to airport emergencies.

Reference List:

IFSTA, Aircraft Rescue and Fire Fighting, 6th Edition, 2016

IFSTA, Essentials of Firefighting, 7th Edition, 2018

NFPA 1003, Standard for Airport Fire Fighter Professional Qualifications, 2019 Edition

NFPA 1001, Standard for Fire Fighter Professional Qualifications, 2019 Edition

NFPA 402, Guide for Aircraft Rescue and Fire-Fighting Operations, 2019 Edition

NFPA 403, Standard for Aircraft Rescue & Fire-Fighting Services at Airports, 2018 Edition

NFPA 405, Standard for Recurring Proficiency of Airport Fire Fighters, 2020 Edition

NFPA 1500, Standard on Fire Department Occupational Safety, Health, and Wellness Program, 2018 Edition

Federal Aviation Administration, 14 CFR Part 139, Certification of Airports, 2013

Federal Aviation Administration, Advisory Circular 150/5210-17C, Programs for Training of Aircraft Rescue and Firefighting Personnel, 2015

Federal Aviation Administration, Advisory Circular 150/5200-12C, First Responders' Responsibility for Protecting Evidence at the Scene of an Aircraft Accident/Incident, 2009

Federal Aviation Administration, Advisory Circular 150/5200-31C Change 2, Airport Emergency Plan, 2010

Federal Aviation Administration, Advisory Circular 150/5210-6D, Aircraft Fire Extinguishing Agents, 2004

Federal Aviation Administration, Advisory Circular 150/5210-7D, Aircraft Rescue and Fire Fighting Communications, 2008

Federal Aviation Administration, Advisory Circular 150/5210-14B, Aircraft Rescue Fire Fighting Equipment, Tools and Clothing, 2008

Federal Aviation Administration, Advisory Circular 150/5210-23, ARFF Vehicle and High Reach Extendable Turret (HRET) Operation, Training and Qualifications, 2010

Federal Aviation Administration, Advisory Circular 150/5220-10E, Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles, 2011

Federal Aviation Administration, Advisory Circular 150/5210-20A, Ground Vehicle Operations to include Taxiing or Towing an Aircraft on Airports, 2015

Federal Aviation Administration, Advisory Circular 91-42D, Hazards of Rotating Propeller and Helicopter Rotor Blades, 1983

Federal Aviation Administration, Advisory Circular 25.857-1, Class B and F Cargo Compartments, 2016

Federal Aviation Administration, Advisory Circular 137-1B, Certification Process for Agricultural Aircraft Operators, 2017

Federal Aviation Administration, Technical Report AR-13/30, Full-Scale Evaluation of ARFF Tactics for Cargo Fires on Freighter Aircraft, 2013

Federal Aviation Administration, Runway incursion Avoidance, Appendix 1, 2012

Federal Aviation Administration, Shipping Hazardous Materials by Air, 2016

Boeing, Aircraft Composite Cutting, A Guide for Fire Fighters, 2016

Boeing, 787 Aircraft Rescue & Firefighting Composite Structure, 2013

Boeing, 787 Lithium-ion Battery Events, A Guide for Fire Fighters, 2013

Federal Express, FedEx's Fire Suppression System, 2010

US Department of Defense, DOD 3150.08, Nuclear Weapon Accident Response Procedures Manual, 2013

Missouri Association of Air Medical Services, First Responders' Guide to Helicopter Emergency Shutdown Procedures, 2016

International Civil Aviation Organization, Doc 9137 – AN/898, Airport Services Manual, Part 1, Rescue and Fire Fighting, 2014

Chicago Fire Department, ARFF 40HR, ARFF Introduction for Structural Firefighters, 2019

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Course Schedule

DAY ONE

Event	Duration
Module 1 - Introduction	30 minutes
Drill 1.1 – PPE	1 hour
Module 2 – Airport Familiarization	1 ½ hours
Drill 2.1 – Airport Tour	1 hour
Lunch	
Module 3 – Aircraft Familiarization	3 hours
Drill 3.1 – Aircraft Tour	1 hour

DAY TWO

Event	Duration
Module 4 - Safety	1 ½ hours
Drill 4.1 - Hazardous Conditions	1 hour
Module 5 - Communications	30 minutes
Drill 5.1 - Communicate Incident Info	30 minutes
Drill 5.2 - ATC Communication	30 minutes
Lunch	
Module 6 – Apparatus	30 minutes
Module 7 – Extinguishing Agents	30 minutes
Drill 6.1 – ARFF Apparatus Resupply	30 minutes
Drill 6.2 – ARFF Apparatus Turret Operation	30 minutes
Module 8 – Aircraft Emergencies	2 hours

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DAY THREE

Event	Duration
Module 9 - Rescue	1 hour
Drill 9.1 – Rescue	1 hour
Drill 9.2 – Triage	30 minutes
Module 10 – Airport Emergency Planning	30 minutes
Drill 10.1 – Airport Incident Response	1 hour
Lunch	
Drill 8.1 – Wheel Assembly Fire Attack	1 hour
Drill 8.2 – Engine/APU/EPU Fire Attack	1 ½ hours
Drill 8.3 - Fuel Spill Extinguishment - Handline	1 ½ hours

DAY FOUR

Event	Duration
Drill 8.4 - Interior Aircraft Fire Attack	2 hours
Drill 8.5 - Aircraft Ventilation	1 hour
Drill 8.6 - Overhaul	1 hour
Lunch	
Drill 8.7 - Three-dimensional Fire Extinguishment	2 hours
Drill 8.8 - Fuel Spill Extinguishment - Turret	2 hours

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DAY FIVE

Event	Duration
Final Exam	2 hours
Practical Evaluations	2 hours
Lunch	
Practical Evaluations	4 hours