

National Fire Academy Criteria for Contract Instructor Selection

Course: Electrical Aspects of Fire Investigation (R0255)

Curriculum: Fire/Arson and Explosion Investigation

This six-day advanced course addresses the critical skills essential to the effective investigation and evaluation of fires involving potential electrical fire causes. This course uses state of the art techniques, practices, protocols and standards to assist investigators to properly and effectively evaluate electrical systems and associated components to ascertain their role in a fire. Students will be provided with a basic knowledge of electricity, electrical circuits and distribution systems, proper evaluation and recognition of common electrical faults and failures of electrical components and circuits, as well as a working knowledge of the National Electrical Code and how it applies to fire investigations.

The use of “arc mapping” will also be discussed and how it can be effectively used to assist in fire origin determination. Participants will also be able to demonstrate a general knowledge of electricity, electrical circuits, systems and arc mapping principles through a series of instructor-led “hands-on” practical exercise.

Criteria for Contract Instructor Selection

All new contract instructors shall be evaluated in three consecutive course deliveries in accordance with the National Fire Academy’s (NFA’s) Contract Instructor Evaluation program. Existing contract instructors are subject to evaluation in accordance with this program.

Investigator/Electrician

1. Academic Requirement

- a. The candidate must possess a minimum of an associate degree from an institution that is accredited in fire science, electrical engineering technology, electrical construction, or course content in a related area.

NOTE: An equivalent combination of college-level coursework and documented experience may be considered for meeting these requirements.

- b. Documentation of successful completion of ICS-100 and ICS-200.
- c. Documentation of successful completion of the following Certified Fire Investigator (CFI) Trainer modules (TESTED):
 - Electrical Safety; and
 - Arc Mapping Basics.

NOTE: Documentation must be in the form of a transcript indicating successful completion of these **TESTED** modules.

- d. Course attendance and attendance as a contract instructor trainee (CIT) upon preliminary approval of the application.

2. Instructional Experience

- a. Documented successful completion of a recognized adult educational methodology/ fire service instructor course at the college/university, state, or International Fire Service Accreditation Congress, or National Board on Fire Service Professional Qualifications level (e.g., National Fire Protection Association (NFPA) 1041). International Fire Service Accreditation Congress or National Board on Fire Service Professional Qualifications Fire Service Instructor II certification is recommended.

NOTE: Current instructor certification by the International Association of Arson Investigators (IAAI) or the National Association of Fire Investigators (NAFI) in accordance with their program criteria is sufficient to satisfy this requirement.

- b. Documented ability to instruct courses or materials similar to the course content, at the community college, state or regional level, demonstrated by documentation of experience to include at least three student or supervisor evaluations of instructional ability from courses taught with similar content. Copies of the course description, objectives and syllabus must also be provided.

3. Documented Knowledge and Experience in the Subject Area

- a. Current knowledge and significant experience in the investigation of electrical fires and failure analysis demonstrated by documentation of experience or equivalent training or a combination of both experience and training. Experience must be supported by documentation and should indicate sustained and significant job experience in a formal fire service, state or local fire marshal's organization, arson task force, district attorney's/state's attorney, prosecutor's office, law enforcement agency, or private organizational setting.
- b. Documentation of completion of an electrical apprenticeship program or equivalent.
- c. Documentation of having (or had) a journeyman or master electrician license.
- d. Current knowledge in single and three-phase industrial, commercial and residential electrical systems, equipment and circuits.
- e. Documented ability to safely work with 120v/240v electrical services, equipment and testing equipment (e.g., meters).

- f. Current knowledge and documented ability to explain current and emerging standards and practices related to electrical fire causation and failure analysis, including those set forth in NFPA 1033, *Standard for Professional Qualifications for Fire Investigator* and NFPA 921, *Guide for Fire and Explosion Investigations*.
- g. Documentation of experience and certification as a CFI or Certified Fire and Explosion Investigator (CFEI) by the IAAI, NAFI, or a state-sponsored fire/arson investigator certification program recognized by the National Board on Fire Service Professional Qualifications (ProBoard).
- h. Successful completion, supported by documentation, of the U.S. Fire Administration's (USFA's) NFA course "Electrical Aspects of Fire Investigation."
- i. Demonstrated current knowledge of the use of Microsoft Office, computer technology and related software for documentation, projects and classroom presentations.

4. Additional Submittals

- a. For one subject or course related to the course content, provide a 10- to 15-minute video or digital video disk demonstrating your instructional style. This video will be used to evaluate your teaching style in a student-centric adult learning environment, **or** attend the "Electrical Aspects of Fire Investigation" course and successfully teach a component(s) of the course that is designated and evaluated by the Training Specialist and/or Instructional Systems Specialist.
- b. Submission of a written essay not to exceed 500 words explaining current issues, trends and research that directly relates to the course content.
- c. Curriculum vitae indicating level and extent of knowledge, training, education and experience in the course subject matter.
- d. Provide three references from individuals in organizations where you have delivered training. Do not include the NFA staff as one of these organizational representatives.

5. Continuing Practice or Education

Ability to maintain currency in the field and the specific course by:

- a. teaching a similar course at the college or university level;
- b. teaching the course at the NFA or in the field;
- c. possession of a journeyman or master electrician license;
- d. registration as a professional engineer; or

- e. current certification as a fire investigator or IAAI certified instructor or NAFI CFI instructor or other associated professional certifications requiring currency.

Failure to provide approved documentation of ongoing training or instruction may result in revocation of the contract instructor status.

Electrical Engineer

1. Academic Requirement

- a. The candidate must possess a minimum of a Bachelor of Science degree in electrical engineering from an Accreditation Board for Engineering and Technology program; or a Bachelor of Science degree in electrical engineering technology, physics with a concentration in electrical engineering; or course content in a related area. All must be from an institution that is nationally or regionally accredited.

NOTE: An equivalent combination of college-level coursework and documented experience may be considered for meeting these requirements.

- b. Documentation of successful completion of ICS-100 and ICS-200.
- c. Documentation of successful completion of the following CFI Trainer modules (TESTED):
 - Electrical Safety; and
 - Arc Mapping Basics.

NOTE: Documentation must be in the form of a transcript indicating successful completion of these **TESTED** modules.

- d. Course attendance and attendance as a CIT upon preliminary approval of the application.

2. Instructional Experience

- a. Documented successful completion of a recognized adult educational methodology/ fire service instructor course at the college/university, state, or International Fire Service Accreditation Congress, or National Board on Fire Service Professional Qualifications level (e.g., NFPA 1041). International Fire Service Accreditation Congress or National Board on Fire Service Professional Qualifications Fire Service Instructor II certification is recommended.

NOTE: Current instructor certification by the IAAI or the NAFI in accordance with their program criteria is sufficient to satisfy this requirement.

- b. Documented ability to instruct courses or materials similar to the course content at the community college, state or regional level, demonstrated by documentation of experience to include at least three student or supervisor evaluations of instructional ability from courses taught with similar content. Copies of the course description, objectives and syllabus must also be provided.

3. Documented Knowledge and Experience in the Subject Area

- a. Current knowledge and significant experience in the investigation of electrical fires and failure analysis demonstrated by documentation of experience or equivalent training or a combination of both experience and training. Experience must be supported by documentation and should indicate sustained and significant job experience in a formal fire service, state or local fire marshal's organization, arson task force, district attorney's/state's attorney, prosecutor's office, law enforcement agency, or private organizational setting.
- b. Documentation of forensic laboratory engineering experience (preferably with a professional engineering license in good standing).
- c. Current knowledge in single and three-phase industrial, commercial and residential electrical systems, equipment and circuits.
- d. Current knowledge and documented ability to explain current and emerging standards and practices related to electrical fire causation and failure analysis, including those set forth in NFPA 1033 and NFPA 921.
- e. Documentation of experience and certification as a CFI or CFEI by the IAAI, NAFI or a state-sponsored fire/arson investigator certification program recognized by the National Board on Fire Service Professional Qualifications (ProBoard).
- f. Successful completion, supported by documentation, of the USFA's NFA course "Electrical Aspects of Fire Investigation."
- g. Documented experience serving as an expert witness in electrical engineering, failure analysis, or fire origin and cause determination, including depositions, grand jury proceedings, or criminal/civil litigation.
- h. Demonstrated current knowledge of the use of Microsoft Office, computer technology and related software for documentation, projects and classroom presentations.

4. Additional Submittals

- a. For one subject or course related to the course content, provide a 10- to 15-minute video or digital video disk demonstrating your instructional style. This video will be used to evaluate your teaching style in a student-centric adult learning environment, **or** attend the “Electrical Aspects of Fire Investigation” course and successfully teach a component(s) of the course that is designated and evaluated by the Training Specialist and/or Instructional Systems Specialist.
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- d. registration as a professional engineer; or
- e. current certification as a fire investigator or IAAI certified instructor or NAFI CFI instructor or other associated professional certifications requiring currency.

Failure to provide approved documentation of ongoing training or instruction may result in revocation of the contract instructor status.

Submit cover letter and documentation to:

National Fire Academy
Deputy Superintendent for Curriculum and Instruction
16825 South Seton Ave.
Emmitsburg, Maryland 21727
fema-nfainstructorapp@fema.dhs.gov