



Illinois Fire Service Institute ANNUAL REPORT FY2011

Providing practical training in realistic environments for 87 years

ON OUR WATCH

July 1, 2010 – June 30, 2011

 ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN







In FY2011, IFSI delivered training to 49,134 students.

- ◆ 1,052 different courses
- ◆ 15,812 class hours
- ◆ 482,934 student hours
- ◆ 1,013 Illinois fire departments
- ◆ 136 other response organizations
- ◆ 1,777 students in officer training courses

Classes were offered in 319 locations and attended by first responders from 97 Illinois counties.

From the Director

I am pleased to present the 2011 Annual Report of the Illinois Fire Service Institute, Illinois' statutory State Fire Academy at the University of Illinois.

It was another successful and productive year for IFSI staff. The highlight was the completion of the new Learning Resource and Research Center, a state-of-the-art facility that offers a major expansion of our training, research and communications resources. The new building was officially dedicated in January.

Our outreach efforts continued to grow in 2011. We oversaw a 30-percent increase in courses offered through our Cornerstone program, with funding now assured by the legislature. Fire departments throughout the state can take advantage of this no-cost training by contacting IFSI Regional Representatives.

IFSI training is also reaching more firefighters through our distance learning program, which delivered more than 14,000 training hours in 2011. We strengthened our online curriculum with new blended-learning courses, a streamlined interface and the incorporation of more multimedia elements. Nearly every Awareness-level course is now available through the IFSI web site.

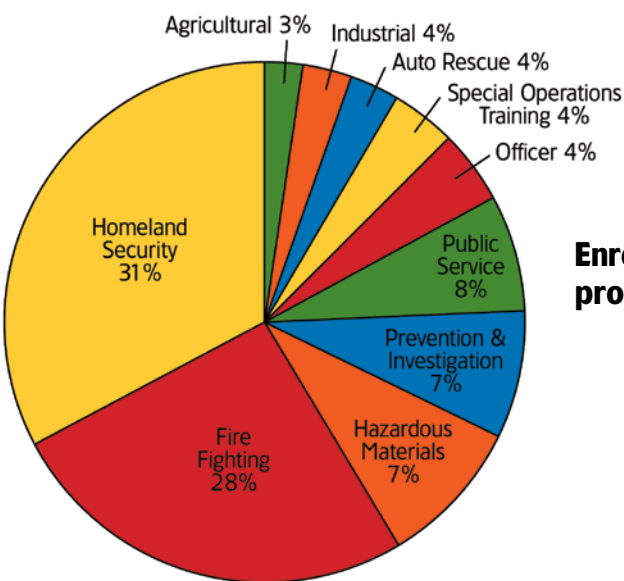
Our past and future successes are made possible by the strong backing we receive from the University of Illinois, Illinois firefighters, our partner organizations and the public. All of us at IFSI extend our thanks and pledge to continue earning your support.

Richard L. Jaehne, Director

Some Highlights of the Past Year

- ◆ Completed and dedicated the new Learning Resource and Research Center.
- ◆ Expanded the number of classes that are accredited by the ProBoard.
- ◆ Began research on the relationship between aspirin interventions on heart function before and after fire fighting activities.
- ◆ Hosted the 2011 International Fire Libraries (inFIRE) annual conference.
- ◆ Published a new instructor orientation manual to enhance the quality and consistency of all Institute training activities.
- ◆ Reached firefighters in 97 Illinois counties with IFSI training, education, information and research programs.
- ◆ Engaged with 1,013 fire departments throughout Illinois – a five-percent increase over last year.

Other significant highlights are included throughout the annual report.

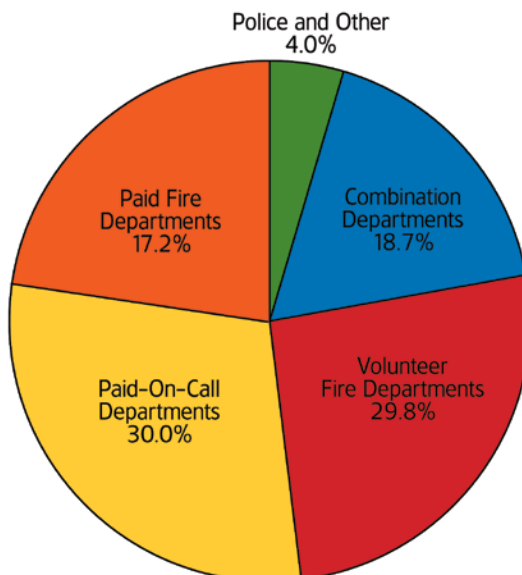


Training Programs

Enrollment by program area

Enrollment by career type

Enrollments increased in paid-on-call and volunteer departments in 2011.



Training provided by active firefighters

More than 500 of the top professionals in the nation are members of the IFSI faculty and field staff. Many are active-duty firefighters and officers, and their practical experience and expertise have brought national recognition to IFSI's programs.

“Keep up the good work. Another case demonstrating how your instructors are impacting the next generation. Actually, any expression of appreciation is shadowed by what your impact is doing for firefighters and the people they serve.”

– Riverton firefighter



Featured Events

IFSI's flagship event – the **87th Annual Fire College** – brought almost 800 firefighters to Champaign, Ill. in June for America's oldest continuous fire school. The four-day event featured hands-on experience with the newest technologies and props. This year, IFSI also hosted a training event for State Type III incident management teams-in-training.

The **16th Annual Winter Fire School** offered a full weekend of training in January in Champaign, Ill. A total of 388 firefighters – an increase of nearly 16 percent – enrolled in short courses focused on the training needs of small and volunteer fire departments. This was the first year the Winter Fire School was held entirely on the IFSI campus.

The **8th annual Explorer-Cadet Hands-On Training Fire School** in June hosted more than 300 students, ages 14 to 21, and their advisors for a four-day program of hands-on training and leadership experiences. Participants traveled from as far as California and Michigan to attend this popular event.

The completion of the Learning Resource and Research Center allowed all three events to occur entirely on IFSI's campus, reducing overall event costs.

IFSI hosted a special school for **NICOR Gas Inc.** in May. The two-week event, held at their Troy Grove, Ill. facility, trained NICOR employees on eight different gas props. The firefighters also learned how to use liquid propane hand-line techniques and on-site fire extinguishers.



New Training Resources in FY2011

New Training Props

- ◆ A new agricultural rescue training prop was donated by Brock Equipment. The "mini-bin" travels around the state to deliver local training for grain-bin emergencies.
- ◆ Four reconfigured props were added for the live propane burn exercises. The props include directional flange devices, stacked tanks and a low-ground prop that simulates broken gas pipes encountered in industrial settings.
- ◆ The Streetscape prop was upgraded to include an alarm system, interior stairways, additional windows and furnished third-floor apartments.



"I was one of the advisors for the Ashland, Mass. group in the 2011 Explorer Cadet "HOT" Fire School... I have been a full time firefighter for 24 years and the training that these Explorers got is more than most of the firefighters get before they are placed on a truck... A TIP OF THE HELMET to all involved at IFSI for the Explorer Cadet "Hot" Fire School. See you next year."

-Framingham (Massachusetts) Firefighter

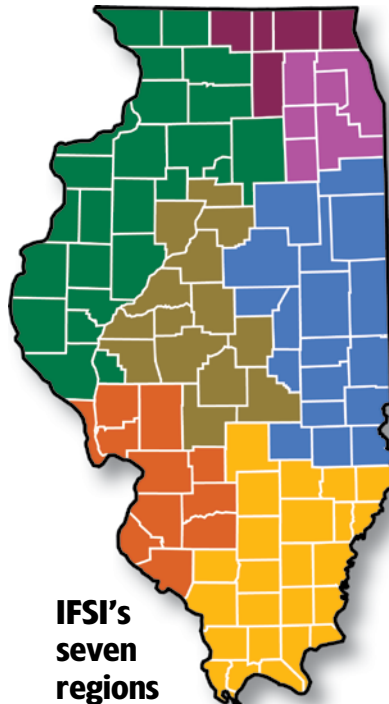
Field Training

IFSI's **Cornerstone Program** is an outreach effort that provides hands-on training in fundamental skills, delivered at no cost to firefighters or their departments.

Cornerstone courses are presented throughout the state in fire departments' local facilities and at IFSI Regional Training Centers and fire schools. Aided by a solid funding commitment from the Illinois legislature, IFSI delivered 30 percent more Cornerstone classes in 21 percent more departments in FY2011 over the previous year.

IFSI's seven regional representatives work with departments in their areas to ensure that all Illinois firefighters have access to Cornerstone training opportunities in their

localities. They also help departments evaluate their needs and apply for federal grants to support training programs and equipment acquisitions.



Cornerstone Delivery

453 classes
846 departments
11,255 students

Illinois Propane Education and Research Council (IPERC) Training

68 classes
333 departments
2,049 students

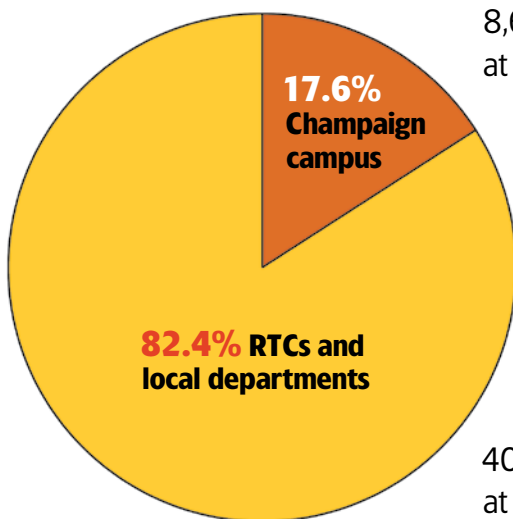
Illinois Petroleum Resources Board Oil Well Fire Training

1 class
15 departments
28 students

Illinois Department of Natural Resources Wildland Training

19 classes
80 departments
361 students

Student Registrations



8,664 student registrations at IFSI's Champaign campus

40,470 student registrations at Regional Training Centers and local departments

More than 80 percent of IFSI training is delivered at local fire departments and Regional Training Centers throughout the state.



Wildland Fire Fighting Training Diversifies

During 2011, the Wildland fire fighting program expanded to include training partnerships with non-governmental conservation organizations in western Illinois and provided training opportunities in all six quadrants of the state. IFSI established a relationship with Illinois' Incident Management Train-the-Trainer to consolidate inter-agency training and exercises. Hands-on field day training was expanded to complement the National Wildland Coordinating Group's online training programs.

IFSI wildland instructors also serve as state- and national-level resources for managing prescribed fires and controlling wildfires.

"The instructors were very knowledgeable and were very experienced in the subject. Their knowledge on wildland fires helped them to show us a new insight on effective methods of putting out wildland fires. They also helped by explaining and breaking down each situation."

–Firefighter at a Basic Wildland class

"This class was helpful for me to be exposed to this as I hope to be out on a wildland fire incident and as an ICS instructor. It's clear to me that Illinois firefighters need wildland fire training to be effective."

–35-year veteran firefighter at a Wildland class



Training Firefighters Where They Live and Work

Our regional training partnerships connect with all the state's firefighters and make it possible for them to receive quality training close to their home departments. The partnerships support a wide range of programs, facilities and equipment, including burn structures and rescue and HazMat training props that are funded by the Illinois Terrorism Task Force.

- ◆ In Williamson County, IFSI conducted the third series of Fire Officer I and the second series of Fire Officer II classes. These courses are part of a continuing effort to make more advanced training opportunities available to local departments.
- ◆ More than 100 students from 16 departments participated in the first Madison County fire school.
- ◆ IFSI reached across the Wisconsin border to engage that state's southernmost fire departments.
- ◆ Regional Cornerstone reps traveled more than 50,000 miles across the state to meet with local fire departments.
- ◆ Off-campus Light and Fight training hosted by local fire departments was expanded to include three additional sites in Robinson, Charleston and Heyworth, Ill.

"The class was a great class and I definitely learned a lot about fire investigation and arson... I can admit that I did not think I would enjoy the course material as well as I did, but I'll admit that it was one of the better training classes that I have been to in my 14 years."

**– Detective with Peoria
Police Department**

Learning at a Distance

FY2011 Highlights

- ◆ Streamlined the delivery of online classes by upgrading to a new course-management system.
- ◆ Expanded the blended-learning curriculum that allows students to complete most coursework online and finish with practical training at IFSI's Champaign campus or a regional training site. This format provides access to more firefighters and saves on-site training dollars for local departments.
- ◆ Made use of new course-delivery technologies and media to incorporate more audio and visual components into online training.
- ◆ Included staff-development materials online.
- ◆ Converted the Firefighter II Program to Firefighter Basic Operations to meet Office of State Fire Marshal state certification requirements.



Taking Advantage of Social Media

IFSI expanded its use of FaceBook and Twitter as marketing and communications tools. IFSI's FaceBook page (www.facebook.com/fsi.illinois.edu) is constantly updated with class information, photos and recognition of donors. The page also includes comments from students.

In FY2011,
47 online courses
were delivered to
1,246 students
from more than
230 fire departments
in more than
ten states and countries
representing
14,390 training hours.



Course Development and Updates

With the addition of full-time staff dedicated to course development and testing, IFSI is concentrating on updating materials for officer training, investigation and prevention, and fire fighting courses. The curriculum now offers new testing protocols and automated scoring procedures.



Learning Resource and Research Center

Research, training and educational resources for fire and emergency services

The Learning Resource and Research Center offers an extraordinary new set of capabilities to support IFSI's work in training, education and research. The new building was officially dedicated on January 28, 2011, with university and state dignitaries participating in the ribbon-cutting ceremony. The 21,000-square-foot facility includes the IFSI Library, Research Center, Emergency Operations Training Center, Firefighter Memorial Hall and Memorial Plaza.



The 109-seat conference center is used for classroom lectures, panel discussions and two-way interactive broadcast.



The Paratech Conference Room was named after its supporter, Paratech, Inc.

Library and Information Services

The **IFSI Library** is the only library in the state dedicated to fire and emergency services. Its growing collection is available to Institute staff, firefighters and other emergency responders, and University of Illinois students.

FY2011 Highlights

- ◆ Hosted the 2011 Annual inFIRE Conference at the new Learning Resource and Research Center with participants from the U.S., Canada, China and Sweden. inFIRE is the international network for Fire Information and Reference Exchange.
- ◆ Physically moved the library into its new home in the Learning Resource and Research Center.
- ◆ The IFSI Library reference team completed more than 3,900 reference transactions and circulated more than 2,153 items to library patrons. Staff conducted 58 user-training workshops and the number of library users increased by 235.
- ◆ Established a new “Illinois Fire and Emergency Digital Resources” bulletin to provide users with a fast, convenient way to keep up on valuable Internet resources.
- ◆ Expanded the “IFLODD: The Illinois Firefighter Line of Duty Deaths Digital Image Collection Database.”

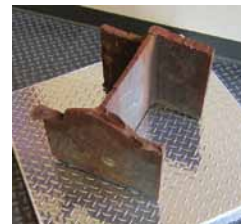
The IFLODD database now includes:

859 firefighter records

681 incident summaries

359 images

12 oral history interviews



Firefighter Memorial Hall honors fallen firefighters with the addition of a steel beam fragment from the Twin Towers, donated by the Port Authority of New York and New Jersey. The Memorial Hall is open to the public.



Memorial Plaza is the brick walkway surrounding the main entrances to the LRRC and Memorial Hall. Individuals, businesses and organizations contributed paving bricks in the Plaza. Bricks are personalized with engraved messages to memorialize firefighters, honor friends or family members or communicate support for the Institute’s work.

The Emergency Operations

Training Center is helping IFSI meet the growing demand for National Incident Management System (NIMS) training. The Center incorporates the most advanced technologies for simulating actual emergencies and Emergency Operations Command (EOC). Illinois communities can use the Center to train their staffs and test their emergency plans and response capabilities. Plus, the space is ideally equipped to serve as a Campus Incident Command Post should the university need it.

Research

A Commitment to Research

IFSI is a national leader in research efforts to protect firefighters and advance the technologies available to them. The Institute focuses its efforts on action-oriented studies in health and wellness, incident management and equipment technologies. Research is carried out at the new Learning Resource and Research Center and at IFSI partner facilities on and off campus.



Institute researchers also collaborate with dozens of University of Illinois departments on interdisciplinary studies. Investigation areas include:

- ◆ Heat stress/strain and cardiovascular effect of fire fighting
- ◆ Biomechanics
- ◆ Cardiovascular research
- ◆ Combustion science and diagnostics
- ◆ Immunology
- ◆ Psychological and cognitive function effects of heat stress
- ◆ Pathology, sickness behavior
- ◆ Communication between responders during an emergency



FY2011 Highlights

- ◆ Began the first year of a study on the influence of aspirin in reducing the number of heart attacks suffered by firefighters. The study is being funded by a grant of \$999,801 from the Department of Homeland Security (DHS).
- ◆ Received IFSI's fifth DHS Fire Prevention & Safety Research and Development grant to study the combined influence of design and size of self-contained breathing apparatus on firefighters' metabolic stress and safety of movement. The grant totals \$996,505.
- ◆ Began investigating a proposal to create a graduate study concentration in Fire Protection Engineering.
- ◆ Partnered with NIOSH Division of Surveillance, Hazard Evaluations and Field Studies to collect exposure data and document hazards during structural fire fighting and overhaul operations.
- ◆ Hosted the Firefighter Cardiovascular Health & Safety Research Summit.





IFSI's **newest research project**, funded by a DHS Fire Prevention & Safety Research and Development grant, will provide important information for firefighters, officers and department purchasing agents on the effects of alternate breathing apparatus designs. Decision makers will be able to better assess SCBA design features that can impact firefighter safety. The study's results will also be valuable for those involved in risk management.

The research is led by Dr. Gavin Horn, director of research for IFSI, who will work with scientists from the University of Illinois' Departments of Kinesiology and Community Health and Mechanical Science and Engineering. A team from Northwestern University's Department of Psychology will collaborate on the project.



IFSI research results are featured in peer-reviewed publications. In 2011, six manuscripts were published or are in press in the following publications:

European Journal of Applied Physiology

Vascular Medicine

Safety Science

Prehospital Emergency Care

Our research has been presented at national and international scientific conferences, including:

inFIRE Conference 2011

Champaign, Ill.

May 2011

Family Focus Day

Chicago Fire Department and Chicago Fire Fighters' Union, Local 2

May 2011

40th Annual Illinois Fire Chiefs Association Symposium

Peoria, Ill.

May 2011

TRADE Conference

National Fire Academy

February 2011

5th Conference on Fire and Fire Protection Engineering

Guangzhou, China (keynote)

December 2010

International Conference on Disaster Mitigation through Fire Safety and Earthquake Engineering

Gujurat, India

March 2010

Safety First

In 2011, IFSI established a rigorous data-collection regimen for its live-burn facilities and acquired structures. Data includes temperature monitoring to follow up on the measured effects of heat on structures and first responders. This information helps IFSI maintain training environments that are as safe as possible while still simulating the realistic scenarios that responders are likely to encounter in their jobs.





International Outreach

FY2011 Highlights

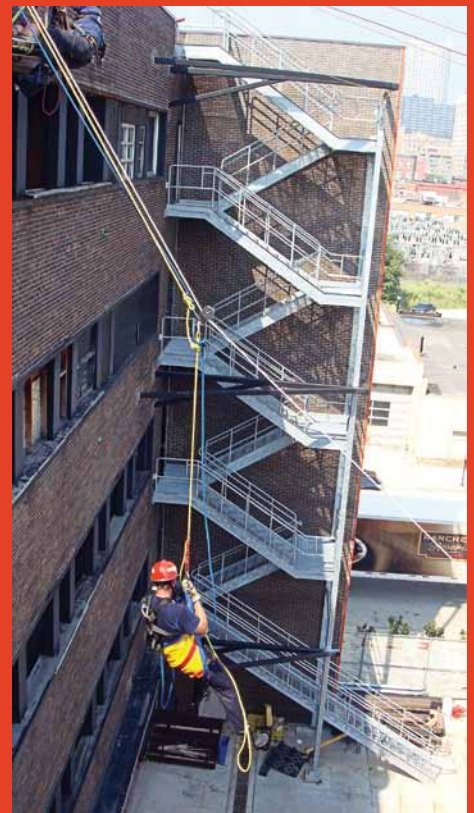
- ◆ Expanded international partnerships with Hong Kong, China and India.
- ◆ Made presentations at China's Jinan University and at a Fire Conference at Sun Yat-sen University in Guangzhou, China.
- ◆ Hosted 27 participants in the seventh annual Chinese Librarians Summer Program in June 2011.
- ◆ Hosted officials from the Hong Kong Bureau of Fire for two three-week HazMat training sessions in September and March.
- ◆ Facilitated Department of Business Administration training for executives from small companies in Beijing and Changxing, China.
- ◆ Signed a Memorandum of Understanding with the Dongbei University of Finance and Economy.
- ◆ Participated in the Mumbai (India) Response Summit, sharing information on practical lessons learned from Emergency Operations Centers in the U.S.

Forging our Partnership with the Chicago Fire Department

One of IFSI's most successful collaborations has been with the Chicago Fire Department (CFD). The Institute has sponsored an increasing number of training events and other projects in the city and on the Champaign campus to help increase Chicago firefighters' participation in Institute classes. In FY2011, our instructors delivered 450 courses to 8,224 registrants representing 94 percent of all fire departments in the Chicago metro area.

Programs that were developed and delivered by IFSI staff to Chicago firefighters include:

- ◆ A Chicago-specific Incident Safety Officer program for newly promoted Battalion Chiefs.
- ◆ Special Weapons of Mass Destruction (SWMD) classes in rope rescue, confined space rescue, structural collapse rescue and trench rescue at both the operations and technician levels.
- ◆ SWMD classes in rope rescue and confined space rescue for 522 CFD members – nearly double the attendance from last year.
- ◆ Trench rescue classes at Chicago O'Hare Field.
- ◆ HazMat Technician A training for on-duty personnel.
- ◆ Delivery of Instructor I, Management I, and Tactics and Strategy I to fulfill the requirements for officers seeking promotion to Lieutenant and Captain.
- ◆ Live-fire burn training at IFSI's Champaign Campus.
- ◆ A Truck Company Operations class that included two days of specialized training on acquired structures.
- ◆ High-rise Incident Command training for CFD Command personnel.
- ◆ Development of wellness-assessment programs for the CFD Safety Division and Illinois Association of Firefighters Local #2.





Taking the Training to Real-World Response

IFSI staff members maintain a full calendar of scheduled courses, but they're always ready to respond to emergency training needs. Their work has made an impact at the state, national and international levels.

Several IFSI-trained Incident Management Teams and IFSI personnel were deployed to area command centers and the State Emergency Operations Center (SEOC) during the 2011 flooding in southern Illinois. They provided Type III Incident Management Team support and served as SEOC liaisons at Area Command in Marion and Forward Command at Metropolis and Cairo. IFSI staff served as:

- ◆ Incident Commander & Operations Section Chief
- ◆ Situation Unit Leader & Planning Section Chief
- ◆ Logistics Section Chief
- ◆ Planning Section Chief
- ◆ Resource Unit Leader
- ◆ Night Planning Section Chief
- ◆ Deputy Planning Chief

Illinois Terrorism Task Force (ITTF)

IFSI continued its work as co-chair of the ITTF Training Committee. In that role, we provide leadership in the development and delivery of interdisciplinary training for responders in Illinois and throughout the nation. Students from Wisconsin and Arizona attended technical rescue classes held at IFSI's Champaign campus.

FY2011 Highlights

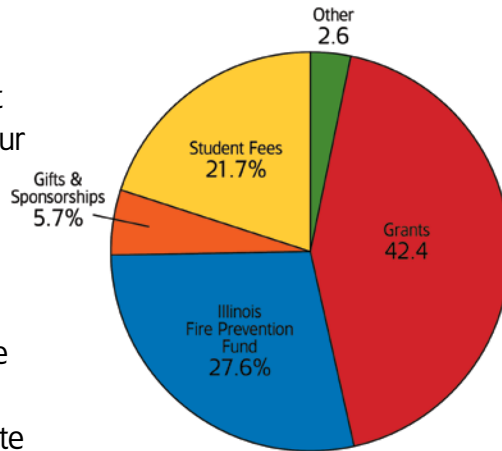
- ◆ Established the Special Operations Training Program (SOTP) to more efficiently share resources across class disciplines.
- ◆ Hosted a hazardous materials validation exercise in October 2010.
- ◆ Expanded the NIMS-compliant Incident Management Team approach in all daily activities.
- ◆ Provided expanded operations support for teams in completing their NIMS Training Task Books. This opportunity was offered during the Institute's annual Fire College in June in Champaign.
- ◆ Hosted four members of the Hong Kong Fire Department for HazMat Technician A, Technician B and Incident Management Systems training.



**In 2011,
IFSI delivered
Homeland Security
courses to 15,272
first responders.**

Corporate Relations

Hands-on training is the signature of IFSI, and it's a commitment that requires extensive resources. As our services and course enrollments increase, the need for additional funding becomes more critical. Our ability to respond to new fire fighting challenges depends on the continuing support of Illinois fire departments, state agencies, private donors and grants.



Generous support from business partners

Companies throughout Illinois have supported IFSI with cash and in-kind donations. Our thanks go to:

- **Ajax Tools, Inc.** – equipment for auto-extrication programs
- **Akron Brass** – nozzles and tools
- **Alexis Fire Equipment Company** – equipment for auto-extrication program
- **AMC and Holmatro** – auto-extrication rescue tools
- **AMKUS, Inc.** – auto extrication rescue tools
- **Brock Grain Systems** – grain bin and ongoing support
- **Bryant Industries** – equipment support for collapse training program
- **Caterpillar, Inc.** – wood pallets for burning
- **Draeger** – Self-Contained Breathing Apparatus (SCBA) and gas detection meters
- **EMC and Genesis Rescue Systems** – auto-extrication rescue tools
- **FE Moran Alarms** – equipment for Streetscape prop
- **FE Moran Fire Protection** – use of facilities for firefighter training
- **Flex N Gate** – pallets
- **Globe Fire Suits** – Personal Protection Equipment for research program
- **GROWMARK** – ongoing support of programs
- **Honeywell Analytics** – gas detection monitors
- **Honeywell Life Safety Equipment** – equipment for Streetscape prop
- **Hurst** – auto-extrication tools
- **Illinois Farm Bureau** – ongoing support of programs
- **Illinois Fertilizer and Chemical Association** – Material Safety Data Sheet books

- **Illinois Propane Education and Research Council** – propane gas for training
- **Liberty Rescue Systems** – grain-bin rescue tube
- **LKQ-U Pull It** – autos for vehicle training programs
- **Motorola Foundation** – support of training programs
- **MSA** – gas detection meters
- **Paratech, Inc.** – ongoing support of programs
- **Pekin Insurance** – ongoing support of programs
- **Rescue Vac Systems** – vacuum system for trench rescue training
- **Scott Safety** – self-contained breathing apparatus
- **Bill Smith Auto Parts** – autos for extrication training program
- **Streamlight** – flashlights
- **Tatman Towing** – autos for extrication training program
- **University of Illinois Employees Credit Union** – ongoing support of programs
- **U.S. Safety Products** – support of Explorer-Cadet program
- **Wal-Mart** – ongoing support of programs
- **WS Darley** – ongoing support of programs



Public Engagement

IFSI continues to identify and take advantage of opportunities for public outreach. The Institute sponsored a live-fire burn cell demonstration with a group of engineering students during the University of Illinois Engineering Open House. More than 1,000 students of all ages witnessed the demonstrations, which won First Prize at the Open House.



IFSI worked with farm organizations to deliver and promote on-the-farm safety training. Institute representatives of the agricultural rescue program were interviewed on the “RFD Today” radio program to discuss grain-bin and other farm safety issues.

“The Winthrop Harbor Fire Department participated in the “Light and Fight” program. Our group of 12 received top notch instruction from highly qualified motivated instructors. The hands on knowledge and excellent teaching skills will long be remembered by each and every one of us. Three in our group have attended previous Fire College classes over the years. The level of instruction for this class was kept at that high standard. Keep up the good work and be safe.”

–Assistant Chief



Partnerships

IFSI’s many strategic partnerships allow us to share knowledge and resources with leading educators, researchers, corporations, professional associations and other organizations. Current partners and their contributions include:

- ◆ **Illinois Firefighter’s Association** – funding and delivery of CD training software for use by local fire departments.
- ◆ **Illinois Association of Fire Protection Districts** – participation in trustee programs to promote training opportunities and availability, plus financial support for classes.
- ◆ **Illinois Propane Education and Research Council (IPERC)** – delivery of no-cost training in fighting propane fires.
- ◆ **Illinois Petroleum Resources Board** – funding for training to extinguish oil well fires in southern Illinois.
- ◆ **Illinois Department of Natural Resources** – training for firefighters and others to respond to extensive and specialized fires in a wildland or urban environment and to qualify for red card certification.
- ◆ **Office of the State Fire Marshal - Fire Advisory Commission** – funding for the Cornerstone program and certification of firefighters.
- ◆ **University of Illinois at Urbana-Champaign** – cross-campus initiatives to fund interdisciplinary research and academic programs.
- ◆ **State of Illinois Fire Caucus** – cooperative work on strategic public policy issues.
- ◆ **Underwriters Laboratories** – joint sponsorship of fire-related research and product field trials.
- ◆ **Chicago Fire Department (CFD)** – projects in four key areas: training, education, research and translating “science to the street.” CFD is also a partner with IFSI in research projects with Underwriters Laboratories. The studies involve work by IFSI personnel who gather particulate matter from smoke in actual fires.





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Illinois Fire Service Institute's mission:

**To help firefighters do their work
through training, education, information
and research.**