Texas A&M Engineering Experiment Station

Mary Kay O'Connor Process Safety Center

MAKING SAFETY SECOND NATURE

About the Center

The Center was established in 1995 in memory of Mary Kay O'Connor, an operations superintendent killed in an explosion in 1989. The Mary Kay O'Connor Process Safety Center's mission is to promote the importance of "Making Safety Second Nature" by leading the integration of process safety through research, service, training and education. For nearly 35 years, the Center has strived to develop, enhance and disseminate knowledge regarding the application of engineering principles for prevention, mitigation and response strategies against incidents in the chemical process, oil and gas, and pharmaceutical industries.

Research and Service

Satellite Centers

The Mary Kay O'Connor Process Safety Center has established satellite centers worldwide in order to promote the mission of preventing and minimizing losses in process industries, and to become a reference point for process safety.

Areas of Expertise

Center researchers have in-depth knowledge and experience in these areas:

- Risk Assessment
- Hazard Identification
- Consequence Analysis

The Center can provide expertise to assist in reducing the undesired effects to an acceptable level by suggesting changes in the process design, operating specification and maintenance procedures.

Services include, but are not limited to:

- Independent incident investigation and analysis
- Advice and consulting
- Risk assessment/management

The Center has provided counsel to federal, state and local governmental agencies, as well as corporate boards and industrial industries.

Lab Experiment Capabilities

Areas of expertise in experimental safety

Aerosols, Mists and Dust Explosions

Flammability, Fire and Explosion

Reactive Chemicals

Corrosion and Materials Safety

Large Scale LNG Experiments

The Center houses six laboratories with state-of-the- art equipment, which enables Center researchers to conduct research and to set up tailored experiments and develop safer processes, equipment, techniques, tools, procedures and management strategies to minimize losses.

State-of-the-art lab equipment includes:

- Reaction Calorimetry & In-situ FTIR Analysis (RC1e)
- Automatic Pressure Tracking Adiabatic Calorimeter (APTAC)
- 36-L vessel for dust explosion testing

Contact the Center for more information.

Consortium Membership

The Mary Kay O'Connor Process Safety Center (MKOPSC) membership is open to operating firms, engineering firms, small businesses and individual members.

The funds raised from membership dues are dedicated to supporting the Center's graduate students and research facilities.

As part of the membership, companies also have access to a pool of high-quality graduate students trained in process safety and risk management for internship and employment opportunities.

Membership Levels and Benefits

PARTNER

Operating Firms (25+ employees)

- $20,000 annual membership dues
- Membership on the Steering Committee of the Center
- Nominate technical specialists to the Technical Advisory Committee
- Voting rights regarding the direction of Center programs through representation on the MKOPSC Steering Committee
- Facilitated access to pool of skilled graduate students and faculty experts in areas related to process safety and risk management technology
- One complimentary symposium registration for steering committee member
- 40% discount for symposium registrations, exhibits booths and continuing education courses for all member company employees
- MKOPSC library access

SPONSOR

Engineering Firms (25+ employees)

- $10,000 annual membership dues
- Membership on the Steering Committee of the Center
- Appoint technical specialists to the Technical Advisory Committee
- Voting rights regarding the direction of Center programs through representation on the MKOPSC Steering Committee
- Facilitated access to pool of skilled graduate students and faculty experts in areas related to process safety and risk management technology
- 20% discount for symposium registrations, exhibits booths and continuing education courses for all member company employees
- MKOPSC library access

ASSOCIATE

Entities (Less than 25 employees)

- $5,000 annual membership dues
- Serve on Steering Committee as non-voting member
- Eligible to serve on the Technical Advisory Committee
- 10% discount for symposium registrations, exhibits booths and continuing education courses for all member company employees
- MKOPSC library access

INDIVIDUAL

- $1,000 annual membership dues
- Serve on Steering Committee as non-voting member
- Eligible to serve on the Technical Advisory Committee
- MKOPSC library access

For information on how to become a consortium member, contact **mkopsc@tamu.edu**

Current Member Companies

Continuing Education and Certificates

Continuing Education

The Center offers continuing education courses year-round both online and in Houston. The continuing education classes are taught by experienced engineers with years of industrial, chemical, research, and process safety knowledge. The Center strives to deliver the courses and topics that are important and vital to the ever-changing environment and industrial audiences.

These courses can be taken for continuing education credit and can be applied toward the Safety Practice Certificate.

Process Safety Practice Certificate for Industry

The Process Safety Practice Certificate is a program that allows engineers in industry to gain greater knowledge in process safety.

The certificate requires 125 Professional Development Hours (PDHs) for completion within a three-year timeframe.

Cost of Certificate

The approximate cost to complete the certificate is **$5,400-$6,470**.

Semester-long Safety Engineering (SENG) courses: **$1,800** *(42 PDHs)*

On-Site Training

(On-site for industry professionals, over 50 courses available)

The Mary Kay O'Connor Process Safety Center can provide structured training programs aimed at specific objectives. On-stie courses are available for any course in our Comprehensive Course Catalog and have proven to be very successful. The instructor travels to the facility, thus eliminating travel time and costs for the facility employees. In addition, the short course can be tailored to from 8-25 people.

For more information visit our website or email **mkopsc@tamu.edu**

Process Safety Practice Certificate Course Requirements

Certificate can be obtained online by completing three Safety Engineering courses

Required Courses	PDHs
Distance learning/online ONLY	
SENG 655: Process Safety Engineer	42
SENG 660: Quantitative Risk Analysis	42

Electives	
Distance learning/online ONLY	
SENG 680: Industrial Hygiene Engineering	42
SENG 674: System Safety Engineering	42
SENG 670: Industrial Safety Engineering	42
SENG 677: Fire Protection Engineering	42
International Symposium — *located in College Station*	15
Engineering Ethics — *onsite at symposium only*	1

Elective Short Courses	
Distance learning/online ONLY	
Management of Change	7
Process Safety Management — Fundamentals	14
Layers of Protection Analysis	14
Process Hazard Analysis Leadership Training	14
Safety Instrumented Systems Implementation	21
Safety Integrity Level Verification	14
Pressure Relief Systems—Best Practices	14
Reactive Chemical Hazards Assessment	7
Engineering Decision Making	7
Gas Explosion Hazards on Offshore Facilities	14
Gas Explosion Hazards for LNG Facilities	14
Dust Explosion Hazards	14

Annual Symposia

The Center hosts two symposia each year in College Station, Texas. These symposia bring together members of industry, government and academia in one place to share the latest research, developments and technology. The symposia program includes keynote lectures, technical paper sessions, workshops, expert panels, poster presentations, networking events and an exhibition of industry companies.

The Process Safety International Symposium

In Association with (IChemE)

This symposium is held every October and serves as the crossroads for process safety, where experts from around the world gather as part of this two-and-a-half-day event, to share the latest information on the hottest topics aimed at making the process industry a safer place.

Visit **mkosymposium.edu** for more information.

The Instrumentation and Automation Symposium

Representatives and other stakeholders from around the Gulf Coast oil and gas industries gather to share the latest innovations and developments for the process industries. Topics include but are not limited to: Cybersecurity, Process Automation, Instrument Reliability, Safety Instrumented Systems, Technology, Fire and Gas.

Visit **tx.ag/instrumentationsymposium** for more information.

Academic Degrees

Students pursuing doctoral degrees and Master of Science in Safety Engineering degrees under the auspices of the Mary Kay O'Connor Process Safety Center come from various fields of study, including chemical engineering, mechanical engineering, petroleum engineering, and materials science and engineering.

Master of Science in Safety Engineering

Students interested in obtaining a Master's degree in Safety Engineering should:

- First apply through the Texas A&M Graduate Application System in their desired engineering field.
- Once accepted, they may contact the Director of the Mary Kay O'Connor Process Safety Center to discuss their field of study and advisor selection options.
- Students may apply to obtain the Master's in Safety Engineering via the Distance Learning option available through the application system.

Doctoral Degree

Students interested in pursuing a Ph.D. focusing on Process Safety and/or Risk Management should:

- First apply through the Texas A&M Graduate Application System in their desired engineering field.
- Students from all engineering disciplines can work on process safety and related research areas.
- Once accepted they may contact the Director of the Mary Kay O'Connor Process Safety Center to discuss their field of study and funding opportunities offered by the Center.

**All Center graduate students are encouraged to participate in internship opportunities with industry. **

CONTACT INFORMATION

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