Executive Certificates in Chemical Engineering

Process design and chemical companies are seeking advanced/professional training for their employees to sustain the knowledge necessary to compete with the increasing demands of complex engineering and management.

The ongoing development of technology and critical demand of products and services can create challenges for the safety and efficient operation of any chemical company.

The graduate executive certificates in chemical engineering offer practicing engineers the opportunity to review current industry best practices, discuss challenges and solutions relating to safe and effective plant design and operation, and to study management techniques that are optimized for the chemical industry.

This University of Houston certificate program was created out of necessity for industry and has widespread applications for engineers through the chemical engineering field.

At this time the only certificate offer beginning Spring 2013 is Certificate in Process Engineering and Modeling.

The Chemical Engineering Certificate Program has been Temporarily Halted. The program is under construction; we are sorry for any inconvenience. Please check back.

Certificate in Process Engineering and Modeling

Process Design and Modeling

- Defining and converting concepts to engineering design
- Design practices industry
- Process simulation and design
- Issues with real equipment
- Value engineering and optimization of new plants
- Design reviews

**Process Economics and Project Management**

- Basic economics of chemical processes and products
- Development of decision-making methods using oil/chemical industry examples
- Project management concepts and practices for chemical engineers

**Advanced Unit Operations**

- Examine the theoretical and practical aspects of designing and operating advanced unit operations frequently encountered in chemical industry.
- Discuss methods for prediction of properties of multicomponent fluids and the separation of multicomponent fluids including fractionation.
- Heat exchanger design, absorption, stripping and extraction will be examined from a unified viewpoint.
- Practical aspects of handling advanced unit operations and multicomponent fluids will be examined with several real world examples encountered in chemical process industry.

**Certificate in Advanced Process Analysis (Pending Approval)**

**Process Analysis in the Real World**

- Case studies of applications of design methods and process analysis for new designs, retrofits and operations of refineries and chemical plants
- Design reviews

**Advanced Process Control**

- Application of high-speed computers in the control of chemical processes, reactors and units

**Electives (choose one)**

- Advanced Linear Optimization
- Advanced Heat and Mass Transfer

**Certificate in Chemical Engineering Safety, Operations and Management (Pending Approval)**
Plant Construction, Start-Up and Operations

- Turning engineering designs into a real plant
- Plant commissioning and start-up considerations
- Safe start-up and start-up sequences
- Environmental considerations and permits
- Analyzing operating plant performance

Safety and Reliability

- Overview of risks, safeguards and hazards associated with chemical process engineering
- Layers of protection, hazard identification, sources term models, toxic release and dispersion models, fires and explosions, probablistics analysis, fault tree analysis, designs to prevent accidents, safety-instrumented systems and safety-related standards and regulations

Electives (choose two)

- Managerial Process Economics
- Management Challenges for Chemical Engineers: Innovation, Energy and Environment
- Petrochemical Processes and Product Lifecycle Management
- Design Project

Program Highlights

Program Format

Includes flexible weekend classroom hours and online instruction.

- Five Saturday classes
- Class materials available for asynchronous delivery over the Internet
- Weekly Q&A sessions with instructor
- Exams administered via distance education (electronically)

Entrance and Certification Requirements

- Appropriate engineering background and prior academic performance
- Two years of industrial experience
- Cumulative GPA of 3.0 or higher for each certificate

Who Should Apply?

Practicing engineers and recent Bachelor of Science in engineering graduates are qualified to apply. The courses are part of a graduate engineering program and are taught at the graduate level.
Student Qualifications

- A Bachelors degree in engineering is required.
- Cumulative GPA of 3.0 or higher
- Two Years of industrial experience
- Non-engineering degreed applicants must get permission from the director.

Entrance Requirements

Official transcripts must be mailed to Graduate School Admission at:

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<thead>
<tr>
<th>Regular Mail Address</th>
<th>Express Mail Address</th>
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<tbody>
<tr>
<td>University of Houston</td>
<td>University of Houston</td>
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<tr>
<td>Graduate Admissions</td>
<td>Graduate Admissions</td>
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<tr>
<td>P.O. Box 3947</td>
<td>4302 University Dr., RM. 102</td>
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<tr>
<td>Houston, Texas 77253-3947</td>
<td>Houston, Texas 77204-2012</td>
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- Complete an online application. Please click on the link, [http://www.uh.edu/graduate-school/prospective-students/how-to-apply/](http://www.uh.edu/graduate-school/prospective-students/how-to-apply/)
- TOEFL exam for students whose BS degree was received outside the states
- This program is not intended for F-1 Visa Holders and not offered as an Online Course

Application Due Dates

- Fall Semester ? June 1
- Spring Semester ? November 1

Cost

$3,000 plus University & Student fees per student, per course