Fall 2016

Bachelor of Science in Engineering Technology
Structural Analysis/Design Option in Engineering Technology* (120 hours)


Arish Rahmatian, PhD, Coordinator
N709, 713-221-8440

The main focus of the Structural Analysis/Design Option in Engineering Technology program is the application of computer technology, modern materials and construction techniques to the overall design of structures, including project planning, costs estimates and management of the project. As such, the program will prepare graduates who have:

- A sound background in the analysis, design, testing and construction of civil structures;
- Are proficient in applying their knowledge (in mathematics, science and engineering) and standard tools, specially finite element and graphical software, to technical problem solving.
- Are all-around individuals with strong social skill, able to work in team environments, competent in communication and information presentation, and with strong sense of professionalism and ethics.
- Are productive from the first day in the work place and are committed to continuous improvement and lifelong learning.

Structural analysis specialists are among the most sought-after personnel in the Houston area due to the growing demand from construction industries, power companies, transportation systems and energy industries. Structural analysis and design technology 191 has its basis in computer technology, construction systems, and materials science. The broad technical background of structural analysis graduates opens up bright employment prospects, from construction industries to telecommunications and transportation systems.

Program Outcomes
Graduates of the BEST Structural Analysis/Design Option in Engineering Technology program will be able to:

- Perform standard analysis and design of structural systems following codes and modern practices.
- Determine deformations and stresses in structural systems under the action forces: gravity, wind, fire, earth pressure and flood.
- Apply basic technical concepts to identify, analyze and solve technical problems involving structural, geotechnical, and material behavior under forces and fire.
- Select appropriate engineering materials and practices.
- Employ productivity software to solve technical problems.
- Utilize modern surveying methods for land measurement and/or construction layout.
- Utilize graphic techniques to produce engineering documents.
• Conduct standardized field and laboratory testing on civil engineering materials.
• Estimate material quantities for technical projects.
• Plan and prepare design and construction documents, such as specifications, contracts, change orders, engineering drawings, and construction schedules.
• Perform economic analyses and cost estimates related to design, construction, operations and maintenance of systems in the civil technical specialties.
• Work effectively on teams.
• Communicate effectively.
• Engage in lifelong learning.
• Understand professional, ethical and social responsibilities.
• Respect diversity and possess a knowledge of contemporary professional, societal and global issues; and
• Will be committed to quality, timeliness, and continuous improvement.

Degree Requirements

General Requirements for Graduation in Structural Analysis /Design Option in Engineering Technology (SAD)

In addition to UHD general requirements for graduation, the SAD program requires that all candidates pursuing a degree in SAD can have no more than two grades of “D” in Math, Physics, and Chemistry. All engineering technology (ENGR, ET, and EET) courses must be completed with a grade of “C” or better.

Common Core Requirements (42 hours)
See the Common Core Requirements section of the catalog for Undergraduate Academic Programs. Observe that MATH 2401 satisfies both the mathematics requirement of the Common Core and a mathematics requirement for the SAD degree. PHYS 1307 and CHEM 1307 satisfy both the science requirement of the Common Core and a natural science requirement for the SAD degree.

Major Requirements

Lower Division (28 hours)
MATH 2401 Calculus I (3 hrs will count in core)
CHEM 1307/1107 General Chemistry with Lab (3 hrs will count in core)
PHYS 1307/1107 General Physics I with Lab (3 hrs will count in core)
ENGR 1302 Engineering and Technology Fundamentals
ENGR 1400 PC Applications in Engineering 192
ENGR 2304 Computer-Aided Drafting & Design
ENGR 2407 Surveying with GIS-GPS
ENGR 2308 Statics
ENGR 2409 Mechanics of Materials with Lab
ENGR 2411 Modern Methods of Engineering Analysis
### Upper Division (47 hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 3302</td>
<td>Business and Technical Report Writing</td>
</tr>
<tr>
<td>ENGR 3302</td>
<td>Engineering Economics</td>
</tr>
<tr>
<td>ENGR 3308</td>
<td>Fluid Mechanics</td>
</tr>
<tr>
<td>ENGR 3311</td>
<td>Structural Analysis I</td>
</tr>
<tr>
<td>ENGR 3312</td>
<td>Reinforced Concrete Design</td>
</tr>
<tr>
<td>ENGR 3321</td>
<td>Soil Mechanics with Lab</td>
</tr>
<tr>
<td>ENGR 3322</td>
<td>Structural Analysis II</td>
</tr>
<tr>
<td>ENGR 3329</td>
<td>Concrete Technology w/ Lab</td>
</tr>
<tr>
<td>ENGR 4321</td>
<td>Structural Steel Design</td>
</tr>
<tr>
<td>ENGR 4322</td>
<td>Foundation Design</td>
</tr>
<tr>
<td>ENGR 4323</td>
<td>Technology Seminar</td>
</tr>
<tr>
<td>ENGR 4326</td>
<td>Dynamics of Structures</td>
</tr>
<tr>
<td>ENGR 4428</td>
<td>Construction Management</td>
</tr>
<tr>
<td>ENGR 4435</td>
<td>Senior Capstone Project</td>
</tr>
<tr>
<td>ENGR 4320</td>
<td>Pre-stressed Concrete</td>
</tr>
</tbody>
</table>

and 1 approved upper level course