MS FIRE PROTECTION ENGINEERING

Program Learning Objectives

1. Identify relevant fire safety codes, standards and regulations, comprehend the fire safety performance objectives and criteria associated with these documents, and apply these fire safety objectives and criteria to a broad range of applications.

2. Analyze the flammability characteristics of different materials, interpret the results of standard and non-standard fire test methods and evaluate the fire hazards associated with different materials in a range of anticipated settings.

3. Analyze the dynamics of fires in and around buildings and other structures through the application of fundamental principles and the use of state-of-the-art computer-based fire simulation models.

4. Understand how people interact with fire conditions in buildings and calculate evacuation times through the application of fundamental principles of people movement and the use of state-of-the-art computer-based evacuation models.

5. Design fire detection and alarm systems, fire suppression systems, smoke management systems, egress systems and structural fire protection to achieve specified performance objectives.

6. Perform comprehensive fire and life safety evaluations of buildings and other structures through application of the knowledge, skills and tools acquired in this program and effectively communicate the results and findings of such evaluations.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>FPE 501</td>
<td>Fundamental Thermal Sciences</td>
<td>4</td>
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<tr>
<td>FPE 502</td>
<td>Fire Dynamics</td>
<td>4</td>
</tr>
<tr>
<td>FPE 503</td>
<td>Flammability Assessment Methods</td>
<td>4</td>
</tr>
<tr>
<td>FPE 504</td>
<td>Fire Modeling</td>
<td>4</td>
</tr>
<tr>
<td>FPE 521</td>
<td>Egress Analysis and Design</td>
<td>4</td>
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<tr>
<td>FPE 522</td>
<td>Fire Detection, Alarm and Communication Systems</td>
<td>4</td>
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<tr>
<td>FPE 523</td>
<td>Water-based Fire Suppression</td>
<td>4</td>
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<tr>
<td>FPE 524</td>
<td>Structural Fire Protection</td>
<td>4</td>
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<tr>
<td>FPE 596</td>
<td>Culminating Experience in Fire Protection Engineering</td>
<td>5</td>
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Technical Electives

Select from the following: 8

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>FPE 551</td>
<td>Fire Safety Regulation and Management</td>
</tr>
<tr>
<td>FPE 552</td>
<td>Smoke Management and Special Hazards</td>
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<td>FPE 554</td>
<td>Forensic Fire Analysis</td>
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<td>FPE 556</td>
<td>Advanced Heat Transfer III</td>
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<tr>
<td>ME 541</td>
<td>Advanced Thermodynamics</td>
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<tr>
<td>ME 554</td>
<td>Computational Heat Transfer</td>
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Total units 45

1 FPE 599 Design Thesis can substitute for FPE 596 and one technical elective for a total of 9 units.