

**NOTES:**

1: Several modules are suitable for more than one engineering course. Please coordinate with other faculty. Example: Block A can be assigned to any of the first 3 core courses, or distributed within them.

2: Some courses (e.g. Organic Chem or Materials) may be outside of typical ChE departments but usually part of core requirements for Chemical Engineers. The assignments below should be shared across department boundaries.

3: Some courses go together as a group as indicated below and are related to each other  
4: it is highly recommended that all engineering graduates complete Block A at the beginning of their ChE education and Block F before graduation

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| <b>NOTES:</b><br>1: Several modules are suitable for more than one engineering course. Please coordinate with other faculty. Example: Block A can be assigned to any of the first 3 core courses, or distributed within them.<br>2: Some courses (e.g. Organic Chem or Materials) may be outside of typical ChE departments but usually part of core requirements for Chemical Engineers. The assignments below should be shared across department boundaries.<br>3: Some courses go together as a group as indicated below and are related to each other<br>4: it is highly recommended that all engineering graduates complete Block A at the beginning of their ChE education and Block F before graduation |   |   | <b>Grouping</b> | <b>Introduction to Chemical Engineering OR Intro to Engineering</b> | <b>Material &amp; Energy Balances</b> | <b>Thermodynamics</b> | <b>Material Science / Corrosion Engineering</b> | <b>Organic / Inorganic Chemistry</b> | <b>Rate Operations / Kinetics / Reaction Eng</b> | <b>Fluid Flow / Fluid Mechanics</b> | <b>Heat &amp; Mass Transfer</b> | <b>Unit ups &amp; Separation Processes (e.g. Distillation)</b> | <b>Process Control</b> | <b>Unit Ops Lab</b> | <b>Process / Engineering Design</b> | <b>Advanced Reaction engineering</b> | <b>Advanced Transport Phenomina</b> | <b>ChE process Modeling / Simulation</b> | <b>Chemical Engineering Practice / Leadership for Chemical Engineers</b> | <b>Special Topics in Process Safety</b> | <b>Graduate program (MS, PhD)</b> | <b>Process Safety (standalone course)</b> |
| <b>No.</b>   | <b>Course Title</b>   |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 950  | <a href="#">Introduction to Process Safety</a>  | A |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 951  | <a href="#">Hazard Recognition</a>  |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 952  | <a href="#">Identifying &amp; Minimizing Process Safety Hazards</a>                       |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 953  | <a href="#">An Introduction to Managing Process Safety Hazards</a>                        |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 954  | <a href="#">Introduction to Lab Safety</a>  |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 961  | <a href="#">Toxicological Hazards</a>   | B |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 962  | <a href="#">Chemical Reactivity Hazards</a>   |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 963  | <a href="#">Fire Hazards</a>  |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 964  | <a href="#">Explosion Hazards</a>   |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 965  | <a href="#">Source Models</a>   | C |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 967  | <a href="#">Atmospheric Dispersion</a>  |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 969  | <a href="#">Understanding Hazards &amp; Risk</a>  | D |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 970  | <a href="#">Hazards and Risk: What Can Go Wrong?</a>                                      |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 971  | <a href="#">Hazards and Risk: Introduction to Pressure Protection</a>                     |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 973  | <a href="#">Hazards and Risk: Safeguards Other Than Relief Systems</a>                    |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 974  | <a href="#">Hazards and Risk: Introduction to Hazard Identification and Risk Analysis</a> |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 975  | <a href="#">Process Safety Ethics – A Brief Introduction</a>                              | A |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 980  | <a href="#">Risk Review Using Layer of Protection Analysis (LOPA)</a>                     |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 981  | Human Factors in Process Safety   |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 984  | <a href="#">Inherently Safer Designs</a>  |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 985  | Practical Process Safety 1  | E |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 987  | Practical Process Safety 2  |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 988  | Damage Mechanisms: Asset Integrity and Reliability  |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 989  | Runaway Reactor and Overpressure Protection   |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 990  | <a href="#">Facility Siting</a>   |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 991  | <a href="#">Role of Inert Gases in Process Safety</a>                                     |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 992  | <a href="#">Dust Explosions</a>   |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 993  | <a href="#">Common Chemicals and Their Major Hazards</a>                                  |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 994  | Biological Hazards  | B |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 995  | <a href="#">Risk Based Process Safety - Commit to Process Safety</a>                      | F |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 996  | <a href="#">Risk Based Process Safety - Manage Risk: Training and Procedures</a>          |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 997  | <a href="#">Risk Based Process Safety - Manage Risk: Operations</a>                       |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 998  | Risk Based Process Safety - Manage Risk: Asset Integrity                                  |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |
| ELA 999  | Risk Based Process Safety - Learn from Experience   |   |                 |   |                                       |                       |   |                                      |  |                                     |                                 |  |                        |                     |                                     |                                      |                                     |  |  |   |                                   |   |