School of Civil & Env. Engineering  M.Eng Proposal Form – *Structural Mechanics and Materials*
(a new form must be submitted when changes are made)

NAME: _______________________________  ADVISOR: _______________________________  DATE: ________

SUPPORTING AREA: _______________________________

This proposal form should be signed by your advisor and submitted to the Graduate Field Coordinator (219 Hollister Hall) before the end of the 3rd week of classes. Students must submit a new form for approval anytime program changes are proposed.

### MAJOR AREA ELECTIVES (Minimum of 15 credits)\(^1\)

<table>
<thead>
<tr>
<th>Cr.</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAE 4700</td>
<td>Finite Element Analysis for Mechanical and Aero.</td>
<td>3</td>
<td>X</td>
</tr>
<tr>
<td>CEE 3720</td>
<td>Intermediate Solid Mechanics</td>
<td>4</td>
<td>X</td>
</tr>
<tr>
<td>CEE 5071</td>
<td>Professional Experience in Structural Mechanics</td>
<td>3</td>
<td>X</td>
</tr>
</tbody>
</table>

### SUPPORT ELECTIVES (Maximum of 6 credits)\(^2\)

<table>
<thead>
<tr>
<th>Cr.</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL OTHER COURSES</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cr.</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
</tr>
</thead>
</table>

Total Credits for all Fall & Spring Courses\(^3\) ______ ______

**You must be register for at least 12 credits for each semester**

**TOTAL M.Eng. PROGRAM CREDIT HOURS:** _____ (must equal or exceed 30)

**APPROVALS:**

<table>
<thead>
<tr>
<th>Advisor</th>
<th>Date</th>
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<tbody>
<tr>
<td>MEng Chair</td>
<td>Date</td>
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</tbody>
</table>

\(^1\) Each course must be completed with a grade of at least C.

\(^2\) The maximum number of support electives is 6 credits.

\(^3\) The total credits should include the major area electives, support electives, and all other courses.
NOTES:

1 CEE 3720 and MAE 4700 are required courses, to be taken in fall term. Project course CEE5071 is required during winter term: no exceptions.

Typical additional major courses for the M.Eng. in *Structural Mechanics and Materials* are drawn from the following list (actual availability depends on staffing in each given semester):

- MAE 6110: Foundations of Solid Mechanics (Fall)
- CEE 4770: Composite Materials (Fall)
- BEE 4810: LRFD – Based Engineering of Wood Structures (Spring)
- CS 3220: Introduction to Scientific Computation (Spring)
- CS 4210: Numerical Analysis and Differential Equations (Fall)
- CEE6000: Numerical Methods for Engineers (Fall)
- CEE 6730: Design of Concrete Structures (Fall)
- CEE 6750: Concrete Materials and Construction (Spring)
- CEE 6780: Structural Dynamics and Earthquake Engineering (Spring)
- CEE 7750: Nonlinear Finite Element Analysis: Solids (Spring)
- CEE 7790: Nonlinear Finite Element Analysis: Structures (Fall)
- CEE 7710: Stochastic Problems Engineering and Science (Fall)
- CEE 7740: Advanced Structural Concrete (Fall)
- MAE 6810: Methods of Applied Mathematics I (Fall, Spring)
- MSE 6020: Elasticity, Plasticity, and Fracture (Spring)
- CEE 6760/TAM550/MAE-MSE/6550: Advanced Composite Materials (Spring)
- TAM 6680: Elastic Waves in Solids with Applications
- MAE 5010: Future Energy Systems (Fall)
- MAE 6640: Mechanics of Bone (Spring)
- BME 5810: Soft Tissue Biomechanics (Spring)

2 Support areas may include any engineering or non-engineering subject area that can be reasonably justified as supporting the major area, a well-defined career objective, or plans for a PhD. Typical supporting areas include theoretical and applied mechanics, applied mathematics, computer science, fluid mechanics, material science, and engineering management.

3 All courses should be listed whether or not they count in the MEng program. No more than 20 credits per semester (MEng and non-MEng) may be taken except by petition to the College Master of Engineering Committee.
Masters of Engineering in *Structural Mechanics and Materials*

The Master of Engineering Program in Structural Mechanics and Materials at Cornell University is a forward looking educational curriculum that affords its students with an opportunity to gain a firm foundation in solid mechanics, applied mathematics, computational mechanics, uncertainty quantification, and scientific computing. The program is aimed at educating highly qualified and well prepared engineers, with a firm grasp of the state-of-the-art and emerging techniques in structural engineering and structural mechanics, to support advanced practice within leading firms, national laboratories, and government agencies.

A comprehensive professional experience, involving: a real-world problem, an industry adviser, integrating technical course work, and resulting in a final written report is a program requirement during Winter Session. Representative themes for the practice experience include: forensic engineering studies and failure investigations; design of signature buildings or bridges; structural condition assessment and prognosis studies; etc. An additional professional component comprises professional seminars, given throughout the academic year by leading practitioners in the field. The seminar series is run by the students; thus affording them an opportunity to interact directly with industry leaders.

In the Structural Mechanics and Materials Masters of Engineering Program, the coursework focuses on the fundamentals of technical themes, in order to position the graduate well for a career at the frontiers of an evolving practice. At the same time, the comprehensive team-based professional experience immerses the students in current best practices, and serves to inspire and motivate the student during their technical course work. The combination of depth in the technical fundamentals, and an exposure to the professional challenges accompanying practice at the highest levels, makes this program unique.