PRELIMINARY
M.S. & PhD Coursework Planning Matrix and Record of Study

Student's Name: ________________________  Option: ___________  Year entered Caltech: ___________

Instructions:
Use this form to plan out your coursework before registering for courses in your first academic year. List all graduate courses you plan to take as part of your Ph.D. program (including courses to be taken for your possible M.S. Degree). In the Term column, list the course number and units. You must register for a minimum of 36 units per term, including the summer quarter. See other side and the Catalog for details on Areas to be covered and restrictions. THE STUDENT IS RESPONSIBLE FOR OBTAINING INTERIM ADVISOR SIGNATURE AND RETURNING COMPLETED FORM TO THE OPTION SECRETARY (262 Gates-Thomas) BY OCTOBER 15. Any future changes require approval and signature of your Advisor and Opt. Rep.

Prior Degrees:
Bachelor: Institution: ________________________  Year: ___________
Master: Institution: ________________________  Year: ___________
Other: ________________________  Institution: ________________________  Year: ___________

See backside for coursework suggestions

<table>
<thead>
<tr>
<th>Masters Categories</th>
<th>PhD Categories</th>
<th>Year 1</th>
<th>Preliminary Year 2 and beyond</th>
<th>Total # of PhD Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Fall Term</td>
<td>Winter Term</td>
<td>Spring Term</td>
</tr>
<tr>
<td></td>
<td>Core Subjects</td>
<td>(Course # &amp; Units)</td>
<td>(Course # &amp; Units)</td>
<td>(Course # &amp; Units)</td>
</tr>
<tr>
<td>Graduate Level Courses 100 or above</td>
<td>Elective Courses</td>
<td>(See back of the form)</td>
<td>Graduate Level Courses 101 or above</td>
<td></td>
</tr>
<tr>
<td>Math / Intro. Math</td>
<td>Advanced Math</td>
<td>(27 units)</td>
<td>Advanced Math</td>
<td>(27 units)</td>
</tr>
<tr>
<td>Graduate Eng. Seminar</td>
<td>Graduate Eng. Seminar</td>
<td>(Min 3 units)</td>
<td>Graduate Eng. Seminar</td>
<td>(Min 6 units)</td>
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<tr>
<td>Research</td>
<td>Research</td>
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<td></td>
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<tr>
<td>MASTERS 138 units</td>
<td>PhD 195 units</td>
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</tbody>
</table>

(108)

(6)

(54)

APPROVED BY:

Interim Advisor's Signature ________________________  Date ___________

Option Rep.'s Signature ________________________  Date ___________

The signatories agree that the coursework listed meets the specific course requirements for the Ph.D. in Mechanical Engineering, Civil Engineering or Applied Mechanics, provided that the student takes and passes the courses with a grade of at least C.
Additional Course Possibilities:

that pertain to the student’s specialty and are approved by the thesis representative and approved before the student registers for the course. Automatic; such petitions are submitted rarely and many have been denied in the past. The petition must be submitted to the option representative and approved before the student registers for the course.

Examples of suitable courses are given in parentheses.

Area 1:
Fluid Mechanics (Ae/APh/CE/ME 101 abc)
Mechanics of Structures and Solids (Ae/AM/CE/ME 102abc)

Area 2:
Dynamics & Vibrations (AM/CE 151ab)

Area 3:
Structural & Earthquake Engineering (CE160ab)
Seismology (CE181ab, Ge162)

The student may petition the mechanical and civil engineering option representative to accept alternate subjects or areas. These changes should retain core civil engineering knowledge, should not be a sub-specialty of one of the listed areas, and should represent sufficient breadth. The approval is not automatic; such petitions are submitted rarely and many have been denied in the past. The petition must be submitted to the option representative and approved before the student registers for the course.

Elective Courses (63 UNITS): Additional engineering or science courses, with a course number 101 or above. Pass with a grade of at least C, courses that pertain to the student’s specialty and are approved by the thesis advisory committee.

Additional Course Possibilities:
- Ae/CE 165ab Mech of Composite Materials & Structures
- Ae 220 Theory of Structures
- Ae/CE 221 Space Structures
- ACM/ESE 118 Methods in Applied Statistics and Data Analysis
- CE/Ae/AM 108ab Computational Mechanics
- CE180 Experimental Methods in EQ Engineering
- Ae/AM/CE/ME 214abc Computational Solid Mechanics
- CDS 110 & 112 Control Theory
- CDS 212 Intro. to Modern Control
- EE111 Signals-Processing Systems and Transforms
- GE101 Intro. Geology & Geochemistry
- GE165 Geophysical Data Analysis
- ME/Ge/Ae 266ab Dynamic Fracture and Frictional Faulting

The requirement of a minimum grade of C will be waived for an advanced course which is offered only pass/fail.

MATHEMATICS (27 UNITS): Advanced mathematics or applied mathematics. Pass with a grade of at least C, chosen in consultation with the adviser from the following list: ACM 101 or higher, CDS 140, Ma 108 or higher, Ph 129. The requirement in mathematics is in addition to the requirements above.

GRAD. ENGINEERING SEMINARS (6 UNITS): Pass six terms of AM/CE/ME 150abc, within twelve terms, 3 years, in residence at Caltech.

RESEARCH (54 UNITS): Successfully complete at least 54 units of research and demonstrate satisfactory research progress.

CE/AM MASTERS REQUIREMENTS – 138 Units

CE/AM core subjects - 45 units
Math, engineering and research electives (max 27) – 63 units
Free electives Courses 100 or above (not research) – 27 units
Grad. engineering seminar – AM/CE/ME150 – 3 units

ME MASTERS REQUIREMENTS – 138 Units

ME core subjects - 54 units
Math, engineering and research electives (max 27) – 54 units
Free electives Courses 100 or above (not research) – 27 units
Grad. engineering seminar – ME150 – 3 units

Updated 9/2017