**Mathematics and Science Requirement (Delete courses and units not taken)**

<table>
<thead>
<tr>
<th>Dept</th>
<th>Course</th>
<th>Title</th>
<th>Transfer/AP Approval by SoE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td>✔ if Transfer</td>
</tr>
<tr>
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<td>SoE Initials</td>
</tr>
</tbody>
</table>

**Mathematics (26 units minimum)**

- MATH Calculus (see note 1)
- CS 103 Mathematical Foundations of Computing
- CS 109 Introduction to Probability for Computer Scientists
- Plus two electives (see note 2)

**Science (11 units minimum)**

- PHYS 41 Mechanics (or PHYS 21 or 61)
- PHYS 43 Electricity and Magnetism (or PHYS 23 or 63)
- Elective (see note 3)

**Technology in Society Requirement**

(1 course req'd; course must be on Approved list in UGHB Fig. 4-3 the year taken; see note 7)

**Engineering Fundamentals (13 units minimum)**

- CS 106 Programming Abstractions (B or X)
- ENGR 40M or 40A Introductory Electronics (ENGR 40 also allowed; see note 4)
- Elective: May be an ENGR Fundamentals or an additional CS Depth course (see note 5)

**NOTES**

- All courses listed on this form must be taken for a letter grade (if offered); and can be included under only one category.
- This printed form must be signed by the departmental representative. Changes must be petitioned (see UGHB pg 27-29) and initialed in ink.
- Minimum Grade Point Average (GPA) for all courses in ENGR Fundamentals and CS Core, Depth, and Senior Project (combined) is 2.0.
- Transfer and AP credits in Math, Science, Fundamentals, & TIS must be approved by the SoE Dean's Office. Transfer credits in Computer Science Core, Depth and Senior Project must be approved by the Computer Science undergraduate program office.
- Courses must be taken for the number of units on the Program Sheet. CS103, 106B/X, 107, 109, 110, and 161 must be taken for 5 units.
- Math electives: Math 51, 104, 108, 109, 110, 113; CS 157, 205A; PHIL 151; CME 100, 102, 104. Completion of Math 52 & 53 will (together) count as one Math elective. Restrictions: CS 157+ Phil 151 may not be used in combination to satisfy the Math electives requirement. Students who have taken both Math 51 and 52 may not count CME 100 as an elective.
- Any course of 3 or more units from the SoE Science List (Fig. 3-2 in the UGHB), PSYCH 30, or AP Chemistry may be used.
- Students who take ENGR 40A or 40M for fewer than 5 units are required to take 1-2 additional units of ENGR Fundamentals (13 units minimum), or 1-2 additional units of Depth (26-27 units minimum for track and elective courses).
- See Fig. 3-4 in the UGHB for approved ENGR Fundamentals list. May not be any CS 106.
CS Individually Designed Track Program Sheet (continued)

CS Individually Designed Track Core, Depth, and Senior Project (43 units minimum)

Be advised: no course may be listed twice on the sheet; no double-counting.

<table>
<thead>
<tr>
<th>Dept</th>
<th>Course Title</th>
<th>Transfer/Deviation Approval by Dept</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>✓ if Transfer Dept Initials Date</td>
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</tbody>
</table>

Core (15 units minimum)

<table>
<thead>
<tr>
<th>Dept</th>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>CS</td>
<td>107 or 107E</td>
<td>Computer Organization and Systems</td>
</tr>
<tr>
<td>CS</td>
<td>110</td>
<td>Principles of Computer Systems</td>
</tr>
<tr>
<td>CS</td>
<td>161</td>
<td>Design and Analysis of Algorithms</td>
</tr>
</tbody>
</table>

Depth; Track and Electives (25 units and seven courses minimum) see note 6

<table>
<thead>
<tr>
<th>Dept</th>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
</table>

Senior Project (1 course required)

<table>
<thead>
<tr>
<th>Dept</th>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td>At least 3 units of 191, 191W, 194, 194H, 194W, 210B, 294 or 294W (see note 7)</td>
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</tr>
</tbody>
</table>

Computer Science Core, Depth and Senior Project Total (43 units minimum)

Program Approvals

**Undergraduate Advisor**

Printed Name: ___________________________ Date: ___________________________

Signature: ___________________________

**Department**

Printed Name: ___________________________ Date: ___________________________

Signature: ___________________________

**School of Engineering (No action required-office use only)**

Printed Name: ___________________________ Date: ___________________________

Signature: ___________________________

NOTES (continued from page 1)

( 6 ) Students may propose an Individually Designed Track. Proposals should include a minimum of seven courses, at least four of which must be CS courses numbered 100 or above. Proposals must be submitted & approved at least two quarters before graduation. To create an individually designed program, students should complete an Individually Designed Track program sheet and seek approval from their undergrad advisor and from the Associate Chair for Education, Prof. Mehran Sahami. Proposals will be evaluated for coherence and rigor. Approved program sheets should be given to the staff in the CS undergraduate program office. Any subsequent changes must go through the same proposal and approval process.

( 7 ) The WIM requirement may be met by taking CS 181W as a Technology in Society course or through the Senior Project course (191W, 194W, 210B, or 294W only).