Engineering

ENG 491  **Interdisciplinary Design Proj**  credit: 1 TO 4 hours.
Disciplined, multi-department, team-structured project design experience with an overall (or major phase) end-of-term completion date. Projects involve design specification through a proposal, analyses of cost and other tradeoffs among alternative designs, design review, fabrication and assembly, functional and environmental testing, and demonstrations (as applicable). Reports and presentations at the end of each term. Individual engineering activities as well as team responsibilities. 1 to 4 undergraduate hours. No graduate credit. Senior standing required. May be repeated. Credit toward the degree is determined by the student's major department. Prerequisite: Consent of instructor.

<table>
<thead>
<tr>
<th>CRN</th>
<th>Type</th>
<th>Section</th>
<th>Time</th>
<th>Days</th>
<th>Location</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>41432</td>
<td>Laboratory</td>
<td>CU2</td>
<td>12:00 PM - 12:50 PM</td>
<td>MW</td>
<td>1111 - Siebel Center for Comp Sci</td>
<td>Coverstone, V Ghosh, A</td>
</tr>
</tbody>
</table>

Nanosatellite Design Build 2
Not intended for students with Freshman, Sophomore, or Junior class standing.
Nanosatellite Design And Build 2 is an advanced level course in satellite design and systems engineering. This is a project and lab course, and has no lecture or test component. Students will learn to interface with other engineering disciplines, write professional requirements, prepare for engineering reviews, and address risk, all in the context of a spacecraft science mission. Additional specialization within a sub-field of satellite design (electronics, thermal management, systems engineering, attitude control, etc.) will happen throughout the context of a student project. These projects will vary in scope and application, from designing new satellite components, to constructing new ground testing facilities, to developing and operating satellite qualification tests. Emphasis will be placed upon using good engineering judgement, best engineering practices, following through on requirements, and finalizing all projects with appropriate, professional-level documentation. This course offers a truly unique opportunity to work with a hands-on, open-ended, real engineering project in an environment as close to an industry experience as possible, while still providing the supervisory assistance of professors and teaching assistants. Only Graduate students or Undergraduate students with senior status may enroll.

<table>
<thead>
<tr>
<th>CRN</th>
<th>Type</th>
<th>Section</th>
<th>Time</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>47381</td>
<td>Lecture</td>
<td>SD</td>
<td>ARRANGED -</td>
<td>Wang, X</td>
</tr>
</tbody>
</table>

Credit Hours: 1 hours
Instructor Approval Required
Students will work as an interdisciplinary team to design a net-zero solar smart-home for the DoE Race to Zero design competition, including an innovative architectural design; efficient HVAC system; photovoltaic power generation; high-efficiency water systems; smart lighting, appliances and home automation; and construction and financial planning. Students will work directly with industry partners and participate in DoE green building training.