Class Schedule - Spring 2019

Mechanical Engineering

ME 498  **Special Topics**  credit: 0 TO 4 hours.

Subject offerings of new and developing areas of knowledge in mechanical engineering intended to augment the existing curriculum. See Class Schedule or departmental course information for topics and prerequisites. 0 to 4 undergraduate hours. 0 to 4 graduate hours. May be repeated in the same or separate terms if topics vary to a maximum of 9 hours.

<table>
<thead>
<tr>
<th>CRN</th>
<th>Type</th>
<th>Section</th>
<th>Time</th>
<th>Days</th>
<th>Location</th>
<th>Instructor</th>
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<tbody>
<tr>
<td>69499</td>
<td>Laboratory</td>
<td>ABA</td>
<td>03:00 PM - 04:50 PM</td>
<td>M</td>
<td>3073 - Electrical &amp; Computer Eng Bldg</td>
<td>Pei, Y</td>
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<td>69507</td>
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### Signal Processing

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<th>Course Code</th>
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<tr>
<td>69508</td>
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<td>ABJ</td>
<td>08:00 AM - 09:50 AM</td>
<td>F</td>
<td>3073 - Electrical &amp; Computer Eng Bldg</td>
<td>Wan, W</td>
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</table>

Credit Hours: 4 hours  
Signal Processing  
Restricted to Engineering. Restricted to Graduate - Urbana-Champaign.  
This course is for graduate students interested in reinforcing their modeling, signal analysis, instrumentation, and control techniques through solving a challenging industrial problem. Namely, an electrohydraulic-actuator/flexible-beam assembly exhibiting resonance will be introduced, and the sequence of course topics will be integrated into a tool set capable of suppressing this resonance. A high fidelity MATLAB model of an assembly will be used as a virtual lab to carry out the project tasks and help develop problem solution, the likes of which are currently employed in industry. This course is taught jointly with ME360 Honor's section, but graduate students will have additional graduate level tasks added to their projects and will be required to go through additional material in the course textbook.

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<td>69489</td>
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<td>AL3</td>
<td>02:00 PM - 02:50 PM</td>
<td>MWF</td>
<td>1131 - Siebel Center for Comp Sci</td>
<td>Bentsman, J</td>
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### Bio-Inspired Design

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<td>MWF</td>
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<td>Alleyne, M Bolmin, O Wissa, A</td>
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</tbody>
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Credit Hours: 3 hours  
Bio-Inspired Design  
Restricted to Engineering. Restricted to Undergrad - Urbana-Champaign.  
ME 498 meets with IB496. These courses offer a unique interdisciplinary advanced design experience in the field of bioinspiration. During the course we will cover four focus areas: locomotion, sensing, materials, and complex systems. For each topic, we will discuss the state of the art on engineering side and the solutions in nature that can augment the current engineering systems. By the end of the course you should be able to work in interdisciplinary teams, use analogical design concepts, and produce a prototype based on a biological function to solve an engineering challenge in one of the four focus areas.

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<th>Instructor</th>
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<td>MWF</td>
<td>3117 - Everitt Laboratory</td>
<td>Alleyne, M Bolmin, O Wissa, A</td>
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</tbody>
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Credit Hours: 4 hours  
Bio-Inspired Design  
Restricted to Graduate - Urbana-Champaign.  
ME 498 meets with IB496. These courses offer a unique interdisciplinary advanced design experience in the field of bioinspiration. During the course we will cover four focus areas: locomotion, sensing, materials, and complex systems. For each topic, we will discuss the state of the art on engineering side and the solutions in nature that can augment the current engineering systems. By the end of the course you should be able to work in interdisciplinary teams, use analogical design concepts, and produce a prototype based on a biological function to solve an engineering challenge in one of the four focus areas.

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<tr>
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<td>TR</td>
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<td>Gazzola, M</td>
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Credit Hours: 4 hours  
Comp modeling & optimization  
Computational Optimization for Biological and Engineering Systems. This course provides a hands-on introduction to modern computational modeling and simulations techniques applied to the understanding of biophysical and engineering problems. From moving bodies in fluids and bio-hybrid robots, to unconventional ‘birds-nest’ materials and propulsion on sandy dunes, you will
learn to model biophysical phenomena and implement software able to capture their essential behavior. Moreover, you will learn to employ evolutionary optimization algorithms in combination with the developed models, to inverse design more performant solutions. This course requires some basic Matlab or Python or C/C++ coding skills.

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<tr>
<td>52400</td>
<td>TEX</td>
<td>ARRANGED -</td>
<td>Saif, M Smith, K</td>
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</table>

Credit Hours: 4 hours
Departmental Approval Required
Corporate Internship - required for Tsinghua 3+2 program. Registration is restricted to students in the Tsinghua 3+2 program. Students are required to obtain a registration override from the MechSE Undergraduate Office, Rm 154 Mechanical Engineering Bldg.

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<tr>
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Credit Hours: 4 hours
Departmental Approval Required
Corporate Internship - required for Tsinghua 3+2 program. Registration is restricted to students in the Tsinghua 3+2 program. Students are required to obtain a registration override from the MechSE Undergraduate Office, Rm 154 Mechanical Engineering Bldg.