

# Department of Mechanical Engineering

## Doctoral Program Curriculum

### 554010 - Mechanical Engineering (PhD)

Requirements	Credits	Details																														
General Engineering & Advanced Mathematics	6	<p>EML 5930 – Analysis in Mechanical Engineering II (3) and one additional course from the list below. Courses not on this list maybe taken only with the approval of your major professor AND the Graduate Coordinator. The request must be made prior to enrolling in the course.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">EEL 5173 - Signal and System Analysis</td> <td style="width: 33%;">MAD 5420 - Numerical Optimization</td> <td style="width: 33%;">MAP 5441 - Perturbation Theory</td> </tr> <tr> <td>EEL 6502 - Digital Signal Processing I</td> <td>MAD 5708 - Numerical Analysis II</td> <td>MAP 5513 - Wave Propagation Theory</td> </tr> <tr> <td>EGN 5456 - Computational Mechanics</td> <td>MAD 5738 - Numerical Solution of PDE's I</td> <td>MAS 4106 - Applied Linear Algebra II</td> </tr> <tr> <td>EML 5361 - Multivariable Control</td> <td>MAD 5739 - Numerical Solution of PDE's II</td> <td>PHY 5515 - Thermal &amp; Statistical Physics</td> </tr> <tr> <td>EML 5930 - Adaptive Controls</td> <td>MAD 5745 - Spectral Methods for PDE's</td> <td>PHY 4523 - Statistical Physics</td> </tr> <tr> <td>EGM 5444 - Advanced Dynamics</td> <td>MAP 5207 - Optimization</td> <td>STA 4202 - Design of Experiments I</td> </tr> <tr> <td>EML 5317 - Advanced Controls</td> <td>MAP 5217 - Calculus of Variations</td> <td>STA 5206 - Analysis of Variance &amp; Design</td> </tr> <tr> <td>ESI 5408 - Applied Optimization</td> <td>MAP 5336 - Qualitative Theory of ODE's</td> <td>STA 5207 - Applied Regression Methods</td> </tr> <tr> <td>ISC 5935 – Multiscale Modeling</td> <td>MAP 5346 - Elementary PDE's II</td> <td></td> </tr> <tr> <td>MAA 4402 - Complex Variables</td> <td>MAP 5423 - Complex Vars, Asymp. Exps</td> <td></td> </tr> </table>	EEL 5173 - Signal and System Analysis	MAD 5420 - Numerical Optimization	MAP 5441 - Perturbation Theory	EEL 6502 - Digital Signal Processing I	MAD 5708 - Numerical Analysis II	MAP 5513 - Wave Propagation Theory	EGN 5456 - Computational Mechanics	MAD 5738 - Numerical Solution of PDE's I	MAS 4106 - Applied Linear Algebra II	EML 5361 - Multivariable Control	MAD 5739 - Numerical Solution of PDE's II	PHY 5515 - Thermal & Statistical Physics	EML 5930 - Adaptive Controls	MAD 5745 - Spectral Methods for PDE's	PHY 4523 - Statistical Physics	EGM 5444 - Advanced Dynamics	MAP 5207 - Optimization	STA 4202 - Design of Experiments I	EML 5317 - Advanced Controls	MAP 5217 - Calculus of Variations	STA 5206 - Analysis of Variance & Design	ESI 5408 - Applied Optimization	MAP 5336 - Qualitative Theory of ODE's	STA 5207 - Applied Regression Methods	ISC 5935 – Multiscale Modeling	MAP 5346 - Elementary PDE's II		MAA 4402 - Complex Variables	MAP 5423 - Complex Vars, Asymp. Exps	
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Dissertation & Dissertation Defense	24	You must complete twenty-four credit hours of EML 6980 – Dissertation (1-12). In your final term you must register for EML 8985 - Dissertation Defense (0).																														
Total	45	You must complete forty-five credit hours of graduate-level coursework to satisfy the requirements for a Doctoral degree in Mechanical Engineering.																														

## 554010 - Mechanical Engineering (BS-PhD)

For students admitted Fall 2008 or later

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Core Courses	9	EML 5930 – Analysis in Mechanical Engineering I (3) and two core courses in your depth area  <table style="width:100%; border:none;"> <tr> <td style="border:none;"><u>Dynamics &amp; Controls</u></td> <td style="border:none;"><u>Fluid Mechanics &amp; Heat Transfer</u></td> <td style="border:none;"><u>Mechanics &amp; Materials</u></td> </tr> <tr> <td style="border:none;">EGM 5444 - Advanced Dynamics</td> <td style="border:none;">EGM 5152 - Heat Transfer</td> <td style="border:none;">EGM 5611 - Continuum Mechanics</td> </tr> <tr> <td style="border:none;">EML 5317 - Advanced Controls</td> <td style="border:none;">EML 5709 - Fluid Mechanics</td> <td style="border:none;">EGM 5653 - Theory of Elasticity</td> </tr> <tr> <td style="border:none;">EML 5361 - Multivariable Control</td> <td style="border:none;">EML 5155 - Convective Heat Transfer</td> <td style="border:none;">EML 5930 - Advanced Materials</td> </tr> <tr> <td style="border:none;">EML 5930 - Adaptive Controls</td> <td style="border:none;">EML 5930 - Advanced Thermodynamics</td> <td></td> </tr> </table>	<u>Dynamics &amp; Controls</u>	<u>Fluid Mechanics &amp; Heat Transfer</u>	<u>Mechanics &amp; Materials</u>	EGM 5444 - Advanced Dynamics	EGM 5152 - Heat Transfer	EGM 5611 - Continuum Mechanics	EML 5317 - Advanced Controls	EML 5709 - Fluid Mechanics	EGM 5653 - Theory of Elasticity	EML 5361 - Multivariable Control	EML 5155 - Convective Heat Transfer	EML 5930 - Advanced Materials	EML 5930 - Adaptive Controls	EML 5930 - Advanced Thermodynamics																
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