

## Department of Mechanical Engineering

### BS-PhD Graduation Requirements

Requirements	Credits	Details																																				
General Engineering & Mathematics Courses	06	<p>EML 5060 – Analysis in Mechanical Engineering I and one additional course from the list below. Courses not on this list maybe taken only with the approval of your faculty advisor <b>AND</b> 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 5060 – Analysis in ME II</td> <td>MAD 5739 – Numerical Solution of PDE's II</td> <td>PHY 5515 – Thermal &amp; Statistical Physics</td> </tr> <tr> <td>EML 5361 – Multivariable Control</td> <td>MAD 5745 – Spectral Methods for PDE's</td> <td>PHY 4523 – Statistical Physics</td> </tr> <tr> <td>EML 5930 – Adaptive Controls</td> <td>MAP 5207 – Optimization</td> <td>STA 4202 – Design of Experiments I</td> </tr> <tr> <td>EGM 5444 – Advance Dynamics</td> <td>MAP 5217 – Calculus of Variations</td> <td>STA 5206 – Analysis of Variance &amp; Design</td> </tr> <tr> <td>EML 5317 – Advance Controls</td> <td>MAP 5336 – Qualitative Theory of ODE's</td> <td>STA 5207 – Applied Regression Methods</td> </tr> <tr> <td>ESI 5408 – Applied Optimization</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 5060 – Analysis in ME II	MAD 5739 – Numerical Solution of PDE's II	PHY 5515 – Thermal & Statistical Physics	EML 5361 – Multivariable Control	MAD 5745 – Spectral Methods for PDE's	PHY 4523 – Statistical Physics	EML 5930 – Adaptive Controls	MAP 5207 – Optimization	STA 4202 – Design of Experiments I	EGM 5444 – Advance Dynamics	MAP 5217 – Calculus of Variations	STA 5206 – Analysis of Variance & Design	EML 5317 – Advance Controls	MAP 5336 – Qualitative Theory of ODE's	STA 5207 – Applied Regression Methods	ESI 5408 – Applied Optimization	MAP 5346 – Elementary PDE's II		MAA 4402 – Complex Variables	MAP 5423 – Complex Vars, Asymp. Exps							
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Core Courses	12	<p>Select two (2) core courses in your Depth Area and one (1) course from each remaining area.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;"><u>Dynamics &amp; Controls</u></td> <td style="width: 33%;"><u>Fluid Mechanics &amp; Heat Transfer</u></td> <td style="width: 33%;"><u>Mechanics &amp; Materials</u></td> </tr> <tr> <td>EGM 5444 – Advance Dynamics</td> <td>EGM 5152 – Heat Transfer</td> <td>EGM 5611 – Continuum Mechanics</td> </tr> <tr> <td>EML 5317 – Advance Controls</td> <td>EML 5709 – Fluid Mechanics</td> <td>EGM 5653 – Theory of Elasticity</td> </tr> <tr> <td>EML 5361 – Multivariable Control</td> <td>EML 5155 – Convective Heat Transfer</td> <td>EML 5930 – Advance Materials</td> </tr> <tr> <td>EML 5930 – Adaptive Controls</td> <td></td> <td></td> </tr> </table>	<u>Dynamics &amp; Controls</u>	<u>Fluid Mechanics &amp; Heat Transfer</u>	<u>Mechanics &amp; Materials</u>	EGM 5444 – Advance Dynamics	EGM 5152 – Heat Transfer	EGM 5611 – Continuum Mechanics	EML 5317 – Advance Controls	EML 5709 – Fluid Mechanics	EGM 5653 – Theory of Elasticity	EML 5361 – Multivariable Control	EML 5155 – Convective Heat Transfer	EML 5930 – Advance Materials	EML 5930 – Adaptive Controls																							
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Technical Electives	12	Select four (4) graduate-level, letter-graded courses in engineering, mathematics, and/or any science discipline (e.g. computer science, physics, etc.). All technical electives must be approved by your faculty advisor or the Coordinator of Graduate Studies. You may take also take one (1) DIS/SR as an elective.																																				
Dissertation & Dissertation Defense	24	You must register for twenty-four (24) credit hours of EML 6980 - Dissertation. Additionally, in your final term you must register for EML 8985 - Dissertation Defense.																																				
Total	60	You must complete sixty (60) credit hours of graduate-level coursework (of which at least twenty-four (24) credit hours must be dissertation courses) to satisfy the requirements for a PhD in Mechanical Engineering.																																				

You must maintain at least a 3.0 cumulative GPA each semester you are enrolled. If your GPA drops below a 3.0 you will be placed on academic probation. Additionally, you may not earn more than two C's. If you do, you will be required to repeat a course in which you earned a 'C' grade.