

## Mechanical & Aerospace Engineering Plan B Checklist for Master of Science Degree

Name \_\_\_\_\_

Student No. \_\_\_\_\_

This checklist must be completely filled out and signed before the thesis is presented to the Graduate Committee for final signatures. A copy of the checklist must be attached to the report when final signatures are requested.

|  |   |    |     |    |        |    |     |    |        |  |     |    |
|--|---|----|-----|----|--------|----|-----|----|--------|--|-----|----|
| <input type="checkbox"/>   | Twelve credits of 6000-level (or above) MAE coursework exclusive of MAE 6930, 6950, 6970, and 6990.   |    |     |    |        |    |     |    |        |  |     |    |
| <input type="checkbox"/>   | A minimum of three credits of advanced mathematics selected from: Math 5270, 5410, 5420, 5460, 5760, 6270, 6410, 6420, 6440, 6450, 6470, 6610, 6620, 6640, ECE 6030. (Math 5610,5620,5640,5710 through Spring 07 only)  |    |     |    |        |    |     |    |        |  |     |    |
| <input type="checkbox"/>   | Graduate Seminar: 1 credit required, 2 semesters at 0.5 credits   |    |     |    |        |    |     |    |        |  |     |    |
| <input type="checkbox"/>   | Twelve credits selected from one of the following areas:<br><b>Solid Mechanics:</b> MAE 5020,5060,5300,5930,6010,6040,6070,6080,6090,6130,6180, 6550,6800,7040,7050,7080,7380.<br><b>Dynamics &amp; Control:</b> MAE 5310,5510,5520,5650,6180,6320,6340,6350,6540,7330,7350, 7380,7750, ECE 5320, ECE 5340.<br><b>Thermal/Fluid Science:</b> MAE 5410,5420,5440,5470,5500,5540,5610,5660,6080,6410,6420, 6430,6440,6450,6460,6480,6490,6500,6530,7580.<br><b>Aerospace:</b> 5420,5440,5500,5510,5520,5530,5540,5560,5580,6340,6440,6490,6500,6510,6530, 6540,6550,6560,6930, ECE 5230,6240,6650.<br><b>Manufacturing:</b> 5600, 5610, 5620, 5630, 5640, 5650, 5660, 5680, 5930, 5930, 6620. |    |     |    |        |    |     |    |        |  |     |    |
| A minimum of 30 credits beyond the BS, including three credit of report (MAE 6950) . |   |    |     |    |        |    |     |    |        |  |     |    |
| <input type="checkbox"/>   | Course  | Cr | Sem | Gr | Course | Cr | Sem | Gr | Course | Cr   | Sem | Gr |
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| <input type="checkbox"/>   | Submission of Program of Study. Date: _____   |    |     |    |        |    |     |    |        | <i>At least 20 credits must be taken after approval.</i> |     |    |
|  | Submission of Letter of Completion by Department. Date: _____   |    |     |    |        |    |     |    |        |  |     |    |

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Semester Graduating: \_\_\_\_\_ Applicant: \_\_\_\_\_

Dept. Official: \_\_\_\_\_ Major Professor: \_\_\_\_\_

Approved 3/26/07

**MAE EMPHASIS REQUIREMENTS:**

**SOLIDS:**

MAE 5020: Finite Element Methods in Solid Mechanics I  
MAE 5060: Mechanics of Composite Materials I  
MAE 5300: Vibrations  
MAE 5930: Fracture Mechanics Solids  
MAE 5930: Kinematic/IC Engr  
MAE 6010: Finite Element Methods in Solid Mechanics II  
MAE 6040: Continuum Mechanics and Elasticity  
MAE 6070: Mechanics of Composite Materials II  
MAE 6080: Boundary Element Method  
MAE 6090: Theory of Plates and Shells  
MAE 6130: Structural Dynamics and Seismic Design  
MAE 6180: Dynamics and Vibration  
MAE 6550: Advanced Structural Analysis  
MAE 6800: Advanced Machine Design  
MAE 6930: Fundamentals in Elasticity  
MAE 7040: Elasticity  
MAE 7050: Plasticity  
MAE 7080: Advanced Plate and Shell Theory  
MAE 7380: Advanced Dynamics and Vibrations

**DYNAMICS & CONTROL**

MAE 5310: Dynamic Systems and Controls  
MAE 5510: Dynamics of Atmospheric Flight  
MAE 5520: Elements of Space Flight  
MAE 5650: Dynamics of Space Flight  
MAE 6180: Dynamics and Vibration  
MAE 6320: Linear Multivariable Control  
MAE 6340: Spacecraft Attitude Control  
MAE 6350: Robotics  
MAE 6540: Astrodynamics  
MAE 7330: Nonlinear and Adaptive Control  
MAE 7350: Intelligent Control Systems  
MAE 7380: Advanced Dynamics and Vibrations  
MAE 7750: Distributed Control Systems  
ECE 5320: Mechatronics  
ECE 5340: Mobile Robotics

**THERMAL/FLUID SCIENCE**

MAE 5410: Design and Optimization of Thermal Systems  
MAE 5420: Compressible Fluid Flow  
MAE 5440: Computational Fluid Dynamics  
MAE 5470: Internal Combustion Engines  
MAE 5500: Aerodynamics  
MAE 5540: Propulsion Systems  
MAE 5610: Hydraulics and Pneumatics  
MAE 5660: Transport Phenomena in Manufacturing Processes  
MAE 6080: Boundary Element Method  
MAE 6410: Fluid Dynamics  
MAE 6420: Mechanical Engineering Experiments  
MAE 6430: Boundary Layer Theory and Convection Heat  
MAE 6440: Advanced Computational Fluid Dynamics  
MAE 6450: Thermodynamics  
MAE 6460: Conduction Heat Transfer  
MAE 6480: Radiation Heat Transfer  
MAE 6490: Turbulence  
MAE 6500: Potential Flow  
MAE 6530: Propulsion Systems  
MAE 7580: Advanced Finite Element Anal. in Fluid Mechanics

**AEROSPACE**

MAE 5420: Compressible Fluid Flow  
MAE 5440: Computational Fluid Dynamics  
MAE 5500: Aerodynamics  
MAE 5510: Dynamics of Atmospheric Flight  
MAE 5520: Elements of Space Flight  
MAE 5530: Space System Design  
MAE 5540: Propulsion System  
MAE 5560: Dynamics of Space Flight  
MAE 5580: Aircraft Design  
MAE 6340: Spacecraft Attitude Control  
MAE 6440: Advanced Computational Fluid Dynamics  
MAE 6490: Turbulence  
MAE 6500: Potential Flow  
MAE 6510: Aircraft Dynamics and Flight Simulation  
MAE 6530: Propulsion Systems  
MAE 6540: Astrodynamics  
MAE 6550: Advanced Structural Analysis  
MAE 6560: Space Navigation  
MAE 6930: Optimal Space Guidance  
ECE 5230: Spacecraft Systems Engineering  
ECE 6240: Space Environment and Engineering  
ECE 6650: Optics I

**MANUFACTURING**

MAE 5600: Manufacturing Process Planning and Statistical Quality Control  
MAE 5610: Hydraulics and Pneumatics  
MAE 5620: Manufacturing Automation  
MAE 5630: Machining Theory and Applications  
MAE 5640: Design for Manufacturability  
MAE 5650: Nontraditional and Additive Manufacturing Processes  
MAE 5660: Transport Phenomena in Manufacturing Processes  
MAE 5680: Manufacturing Planning and Simulation  
MAE 5930: Nano Fabrication  
MAE 5930: Fracture Mechanics Solids  
MAE 6620: Advanced Topics in Metal Cutting