Master of Science in Mechanical Engineering
Program of Study
(Revised 04/19/2024)

Student Name: _____ Student Number: _____
(Last) (M. Initial) (First)

First Matriculating Semester _____, 20_____
(fall, spring, summer) (year)

1. **Option**:
   ____Thesis ____Non-thesis

2. **Concentration (***select one***)**

   ____Design/Mechanics ____Dynamics/Control ____Mechatronics/Robotics ____Thermal/Fluid

3. **Remedial courses (not for graduate credit):** The following is a list of recommended undergraduate courses for new graduate students to strengthen their mechanical engineering background and better prepare for graduate-level courses. *These courses do not earn graduate credit, and they are optional*. Students may register for audit or credit in any of these courses.

   _____ CE 242 – Mechanics of Solids
   _____ Math 305 – Differential Equations I
   _____ ME 312 – Thermodynamics II
   _____ ME 350 – Mechanisms
   _____ ME 380 – Design of Machine Elements
   _____ ME 262 – Dynamics
   _____ ME 310 – Thermodynamics I
   _____ ME 315 – Fluid Mechanics
   _____ ME 356 – Dynamic Systems Modeling
   _____ ME 410 – Heat Transfer

4. **Courses to be taken:** (Note: 1. ME530 is required for Design/Mechanics, Dynamics/Control, Mechatronics/Robotics concentrations, and ME575 is required for Thermal/Fluid concentration; 2. Some courses may not be offered before your time of graduation; 3.Graduate courses are those that are listed in the graduate catalog.)

Hours	**Course**
	I. 500-Level ME Courses
_____	ME 530 – Advanced Dynamics (**Required**)
_____	ME 532 – Advanced Mechanisms and Synthesis
_____	ME 540 – Continuum Mechanics
_____	ME 544 – Theory of Elasticity
_____	ME 546 – Plates and Shells
_____	ME 547 – Elastic Stability
_____	ME 548 – Finite Elements
_____	ME 550 – Modern Control
_____	ME 560 – Advanced Vibration with Applications
_____	ME 562 – Discontinuous Dynamical Systems
_____	ME 563 – Optimal Control
_____	ME 573 – Advanced Thermodynamics
_____	ME 575 – Advanced Fluid Mechanics (**Required**)
_____	ME 576 – Turbulent Flow
_____	ME 580 – Computational Fluid Dynamics
_____	ME 582 – Microfluidics and Nanofluidics
_____	ME 585 – Convective Heat Transfer
_____	ME 587 – Thermal-Fluid Measurements
_____	ME 588 – Equilibrium Dynamics
_____	ME 589 – Radiation Heat Transfer
_____	ME 598 – Research Project (**Required for research project option, 3 hours**)
_____	ME 599 – Thesis (**Required for thesis option, 6 hours**)
_____	**Subtotal of I**

II. 400-Level ME Courses

_____ ME 414 – Gas Dynamics
_____ ME 417 – Heating, Ventilating, and Air-Conditioning (HVAC)
_____ ME 418 – Internal Combustion Engines
_____ ME 419 – Gas Turbines
_____ ME 432 – Vehicle Dynamics and Technology
_____ ME 433 – Fuzzy Logic and Applications
_____ ME 442 – Microelectromechanical Systems
_____ ME 450 – Automatic Control
_____ ME 452 – Vibrations
_____ ME 454 – Robotics-Dynamics and Control
_____ ME 458 – Mechatronics
_____ ME 460 – Nondestructive Evaluation Methods
_____ ME 462 – Robotic Vision
_____ ME 466 – Digital Control
_____ ME 470 – Stress Analysis and Design
_____ **Subtotal of II**

III. Mathematics (Recommended courses)

_____ Math 462 – Applied Numerical Analysis
_____ Math 464 – Partial Differential Equations
_____ Math 502 – Advanced Calculus for Engineers
_____ Math 490G – Topics in Mathematics (Numerical Linear Algebra)
_____ **Subtotal of III**

ME 540 can also satisfy the Math requirement. Math 563 and ME 540 may be used to satisfy either Math requirement or the ME requirement, but not both.)

IV. Other Graduate Courses

_____
_____
_____ **Subtotal of IV**

4**.** **Course Summary**

Item		**Planned Hrs.**	**Required Hrs**
ME 500 Level Courses (I)		_____	minimum 15
ME 400 Level Courses (II)		_____	
ME Courses	(I+II)	_____	minimum 21
Math	(III)	_____	minimum 6
Other Courses	(IV)	_____	No minimum hour exists
TOTAL (**I+II+III+IV**)		_____	**minimum 30**

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5. **Thesis/Project**

Proposed Topics: _____

Student Signature: _____ **Date:** _____

Advisor Signature: _____ **Date:** _____

Graduate Director Signature: _____ **Date:** _____