

Master of Science in Mechanical Engineering
Program of Study
(Revised August 2023)

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 ____ ME 262 – Dynamics
____ Math 305 – Differential Equations I ____ ME 310 – Thermodynamics I
____ ME 312 – Thermodynamics II ____ ME 315 – Fluid Mechanics
____ ME 350 – Mechanisms ____ ME 356 – Dynamic Systems Modeling
____ ME 380 – Design of Machine Elements ____ 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 501 – Differential Equations and Fourier Analysis
- _____ Math 502 – Advanced Calculus for Engineers
- _____ Math 462 – Engineering Numerical Analysis
- _____ **Subtotal of III**

(Math 420, 421, 423, 430, 437, 450, 451, one among (462, 465, 466), (464, 490g or 501), 502, 520, 545, 550, 551, 552, 555, 563, 565, 567 and 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

5. Thesis/Project

Proposed Topics: _____

Student Signature: _____

Date: _____

Advisor Signature: _____

Date: _____

Graduate Director Signature: _____

Date: _____