



Department of Mechanical Engineering

Graduate School Learning Goals and Program Learning Outcomes

GSLG #1: Understand, interpret, shape, and augment the knowledge base.

PLO #1: Graduate Students will demonstrate expertise with methods and techniques of advanced mechanical engineering analyses and utilize these methodologies to solve complex mechanical engineering problems.

The courses offered (Table 1) and associated research* activities in the mechanical engineering (MEE) graduate programs for MS and PhD are of sufficient number and scope to convey the necessary knowledge to satisfy the PLO. The attainment of the PLO can be assessed using student work such as exams, experimental data and results, class projects, theses or dissertations.

GSLG #2: Share disciplinary expertise openly, effectively, and accurately.

PLO #2: Graduate Students will demonstrate the ability to generate and produce engineering reports of high professional-quality, advanced engineering design projects, and presentations with significant technical content and data that describe complex mechanical engineering systems.

The Graduate Courses with an engineering design or experimental project (Table 1) are of sufficient number and scope to convey the necessary knowledge to satisfy the PLO. The PLO's attainment can be assessed using student reports, seminar presentation, and final presentation, thesis*, or dissertation.

GSLG #3: Demonstrate responsible and ethical practice.

PLO #3: Graduate Students will demonstrate an understanding of and the ability to correctly apply engineering standards and codes to design engineering facilities and systems that serve the public safely and sustainably.

The Graduate Classes with significant design content that incorporate codes (Table 1) are of sufficient number and scope to convey the necessary knowledge to satisfy the PLO. The attainment of the PLO can be assessed using student work such as exams, experimental data, and results, class projects, theses*, or dissertations.

* Graduate students pursuing MS (non-thesis option) are not required to conduct research or write a thesis.

Table 1: Mapping of PLOs to Mechanical Engineering Graduate Courses

PLO	MEE 501	MEE 536	MEE 541	MEE 546	MEE 549	MEE 550	MEE 551	MEE 552	MEE 554	MEE 555	MEE 557	MEE 558	MEE 559
1	x	x	x	x	x	x	x	x	x	x	x	x	x
2	x	x		x			x	x		x	x	x	x
3				x			x			x			x
	MEE 560	MEE 562	MEE 564	MEE 565	MEE 573	MEE 590	MEE 639	MEE 644	MEE 646	MEE 658	MEE 697	INT 601	
1	x	x	x	x	x	x	x	x	x	x	x		
2	x	x	x	x	x	x		x					
3		x	x				x	x				x	

- MEE 501 — Macroscopic Thermodynamics
- MEE 536 — Advanced Heat Transfer I
- MEE 541 — Manufacturing and Testing of Composites
- MEE 546 — Finite Elements in Solid Mechanics
- MEE 549 — Numerical Methods in Engineering
- MEE 550 — Mechanics of Laminated Composite Structures
- MEE 551 — Robot Dynamics and Control
- MEE 552 — Aircraft and Automobile Structures
- MEE 554 — Theory of Elasticity
- MEE 555 — Smart Materials
- MEE 557 — Introduction to Continuum Mechanics
- MEE 558 — Mechanical Behavior of Materials
- MEE 559 — Engineering Optimization
- MEE 560 — Computational Methods in Fluid Dynamics
- MEE 562 — Advanced Fluid Mechanics
- MEE 564 — Fluid-Structure Interaction
- MEE 565 — Offshore Floating System Design
- MEE 573 — Advanced Vibrations I
- MEE 590 — Modern Control Theory and Applications
- MEE 639 — Advanced Radiative Heat Transfer
- MEE 644 — Mechanical Engineering Analysis I
- MEE 646 — Advanced Finite Elements in Solid Mechanics
- MEE 658 — Theory of Plates and Shells
- MEE 697 — Mechanical Engineering Projects
- INT 601 — Responsible Conduct of Research