MECHANICAL ENGINEERING (MEE)

MEE 500 Selected Topics (1-6 Credits)
Engineering & Comp Sci
Exploration of a topic (to be determined) not covered by the standard curriculum but of interest to faculty and students in a particular semester.
Repeatable

MEE 524 Microprocessors in Mechanical and Manufacturing Engineering (3 Credits)
Engineering & Comp Sci
Introduction to the microprocessor and its various configurations used in controlling machine operations, data acquisition, etc. Project-oriented work involving program development in machine, assembly, and basic languages. Micro-computers used for off-line program development. Not open to electrical and computer engineering students.

MEE 535 Matrls & Procs in Manuf (0 Credits)
Engineering & Comp Sci

MEE 571 Computer Aided Design (3 Credits)
Engineering & Comp Sci
Use CAD software and hardware in the solution of mechanical engineering problems. Computer graphics, computer aided geometry (space curves, splines, patches) design, solid modeling, optimization and an introduction to finite element method.
Prereq: MAE 284 and MAT 485

MEE 584 Noise from Industrial Flow Systems (3 Credits)
Engineering & Comp Sci
Basic fluid mechanics and acoustics. Noise generation by fluid flows and their interaction with solid bodies. Types of noise sources. Analysis and control of such flow noise sources in manufacturing, transportation, propulsion, power generation, and industrial control systems.
Prereq: MAE 341

MEE 585 Fuel & Energy Utilization (3 Credits)
Engineering & Comp Sci

MEE 600 Selected Topics (1-6 Credits)
Engineering & Comp Sci
Exploration of a topic (to be determined) not covered by the standard curriculum but of interest to faculty and students in a particular semester.
Repeatable

MEE 631 Strengths&Mech Behvr/Mats (3 Credits)
Engineering & Comp Sci

MEE 636 Matrls & Procs in Manuf (3 Credits)
Engineering & Comp Sci

MEE 637 Mechanics of Heterogeneous Solids (3 Credits)
Engineering & Comp Sci
Effective elastic moduli of composite materials. Bounds on effective moduli. Classical analysis of laminated plates. Higher order laminated plate theory. Wave propagation. Inelastic and nonlinear effects.

MEE 641 Fundamentals/Turbulence (0 Credits)
Engineering & Comp Sci

MEE 670 Experience Credit (1-6 Credits)
Engineering & Comp Sci
Participation in a discipline or subject related experience. Student must be evaluated by written or oral reports or an examination. Permission in advance with the consent of the department chairperson, instructor, and dean. Limited to those in good academic standing.
Repeatable

MEE 676 Comp Cntrl Machns&Procs (3 Credits)
Engineering & Comp Sci

MEE 690 Independent Study (1-6 Credits)
Engineering & Comp Sci
Exploration of a problem, or problems, in depth. Individual independent study upon a plan submitted by the student. Admission by consent of supervising instructor(s) and the department.
Repeatable

MEE 700 Selected Topics (1-6 Credits)
Engineering & Comp Sci
Exploration of a topic (to be determined) not covered by the standard curriculum but of interest to faculty and students in a particular semester.
Repeatable

MEE 715 Robot Manipulators I (3 Credits)
Engineering & Comp Sci
Cross-listed with ELE 715
Robot manipulators and their defining equations. Transformations, kinematics, dynamics, and motion trajectories. Control considerations, compliance and organization of programming. Includes a hardware and software laboratory.

MEE 725 Advanced Engineering Dynamics (3 Credits)
Engineering & Comp Sci
Newton's laws of motion. Motion of a particle; a rigid body. Work and energy. Theorem of virtual displacements. D'Alembert's principle. Generalized coordinates. Lagrange's equations. Hamilton's principle. Small vibrations. Ballistics. Balancing. Gyroscopes.

MEE 727 Vibration (3 Credits)
Engineering & Comp Sci

MEE 775 Dynamics of Controls (3 Credits)
Engineering & Comp Sci
Continuation of MEE 725. Analysis of mechanical and hydraulic control systems of linear and nonlinear characteristics. Stability criteria in systems subject to self-induced vibrations. Operational calculus and Laplace transforms for linear systems of one and two degrees of freedom. Multiple controller servomechanisms.
Advisory recommendation Prereq: MEE 725

MEE 790 Independent Study (1-6 Credits)
Engineering & Comp Sci
Exploration of a problem, or problems, in depth. Individual independent study upon a plan submitted by the student. Admission by consent of supervising instructor(s) and the department.
Repeatable

MEE 800 Selected Topics (1-6 Credits)
Engineering & Comp Sci
Exploration of a topic (to be determined) not covered by the standard curriculum but of interest to faculty and students in a particular semester.
Repeatable

MEE 825 Theory of Plasticity (3 Credits)
Engineering & Comp Sci
Basic behavior of materials and formulation of laws governing plastic flows. Different inelastic behaviors of metals. Yielding and the yielding loci. Strain hardening laws. Complete stress-strain relations. Total strain theory and incremental strain theory. Plastic potential. Boundary value problems. Variational principles. Plastic anistropy.
Advisory recommendation Prereq: MAE 721

MEE 827 Theory/Ideally Plas Mat (3 Credits)
Engineering & Comp Sci

MEE 829 Advanced Topics in Dynamics (3 Credits)
Engineering & Comp Sci
Selected topics dealing with dynamics of rigid bodies, vibration and stability of linear systems.
Advisory recommendation Prereq: MEE 727

MEE 831 Bending Plates & Shells I (3 Credits)
Engineering & Comp Sci

MEE 835 Buckling Problems (3 Credits)
Engineering & Comp Sci

MEE 856 Advanced Topics in Heat Transfer (3 Credits)
Engineering & Comp Sci
Selected topics in heat transfer. Boiling, condensation, melting, ablation, rarified gas flow, liquid metals, cooling of electronic components.
Advisory recommendation Prereq: MAE 655

MEE 859 Advanced Topics in Thermodynamics (3 Credits)
Engineering & Comp Sci
Selected topics in classical and statistical thermodynamics of interest to mechanical and aeronautical engineers.
Repeatable 2 times for 6 credits maximum
Advisory recommendation Prereq: MAE 651

MEE 885 Advanced Topics in Thermal Engineering (3 Credits)
Engineering & Comp Sci
Selected topics in theory and design of equipment and plants for power generation, air conditioning, refrigeration, water purification, and other thermal engineering application.
Repeatable 2 times for 6 credits maximum
Advisory recommendation Prereq: MAE 655

MEE 895 Advanced Topics in Mechanics of Deformable Bodies (3 Credits)
Engineering & Comp Sci
Selected topics in theories of elasticity, plasticity, and rheology, such as finite strain theory, elastic and plastic waves, anisotropic bodies, special mathematical techniques.
Repeatable 2 times for 6 credits maximum
Advisory recommendation Prereq: MAE 721

MEE 990 Independent Study (1-6 Credits)
Engineering & Comp Sci
Exploration of a problem, or problems, in depth. Individual independent study upon a plan submitted by the student. Admission by consent of supervising instructor(s) and the department.
Repeatable

MEE 996 Special Projects (1-6 Credits)
Engineering & Comp Sci
Repeatable