

# Course Categories for Major

## Mechanical Engineering Courses

### Energy and Thermal-Fluids

- ME 636 Internal Combustion Engines
- 637 Steam Power Plants
- 656 Thermal System Design
- 710 Advanced Fluid Dynamics
- 711 Bearings and Bearing Lubrication
- 712 Advanced Engineering Thermodynamics
- 728 Gas Turbines
- 731 Convective Heat and Momentum Transfer
- 732 Computational Fluid Mechanical and Heat Transfer
- 733 Gas Dynamics
- 750 Biomechanics of Human Motion
- 751 Experimental Methods of Biomechanics
- 770 Conductive Heat Transfer
- 774 Radiative Heat Transfer
- 810 Advanced Topics In Fluid Mechanics
- 830 Computational Fluid Mechanics and Heat Transfer
- 837 Combustion
- 850 Measurement Methods for Fluid Mechanics
- 963 Finite Element Method in Fluid Dynamics
- 964 Advanced Topics in the Finite Element Method for Fluid Dynamics

### Biomechanics and Mechanical Design

- ME 607 Computer-Aided Manufacturing
- 627 Automotive Design
- 633 Basic tissue Mechanics and Biodynamics
- 701 Finite Element Method for Stress Analysis
- 720 Adv. Dynamics of Machinery
- 740 Mechanical Vibrations
- 742 Machine Stress Analysis
- 750 Biomechanics of Human Motion
- 751 Experimental Methods of Biomechanics
- 752 Bone Biomechanics
- 763 Intro. To Composite Materials
- 780 Kinematic Synthesis of Mechanisms
- 796 System Design and Analysis
- 863 Mechanics of Composite Materials
- 961 Finite Element Method for Nonlinear Problems in Solid Mechanics

**Useable in either of the first two categories**

- ME 706 Industrial Robotics
- 708 Microcomputer Applications in Mechanical Engineering
- 761 Theory of the Finite Element Method
- 808 Advanced Microprocessor Applications
- 862 Finite Element Method for Transient Analysis
- 962 Advanced Treatment of p-Approximation, Error Estimation and Other  
Advanced Topics in the Finite Element Method

**Mathematics Courses**

The following courses may be used to satisfy mathematics requirements for a Mechanical Engineering graduate degree:

- ME 702 Mechanical Engineering Analysis
- PHSX 718 Mathematical Physics
- MATH 590 Linear Algebra
- MATH 591 Linear Algebra II
- MATH 611 Fourier Analysis of Time Series
- MATH 624 Discrete Probability
- MATH 627 Probability
- MATH 628 Mathematical Theory of Statistics
- MATH 631 Operations Research
- MATH 646 Complex Variable and Applications
- MATH 647 Applied Partial Differential Equations.
- MATH 648 Calculus of Variations and Integral Equations.
- MATH 715 Sampling Techniques
- MATH 717 Nonparametric Statistics
- MATH 727 Probability Theory
- MATH 728 Statistical Theory
- MATH 735 Intro. To Optimal control Theory
- MATH 750 Stochastic Adaptive Control
- MATH 765 Intro. to Theory of Functions I
- MATH 766 Intro. to Theory of Functions II
- MATH 783 Applied. Numerical Analysis for Partial Differential Equations
- MATH 790 Linear Algebra II
- MATH 791 Modern Algebra I
- MATH 792 Modern Algebra II
- MATH 865 Intro. to Stochastic Processes

## **Approved courses in Design, Management and Mathematics for Doctor of Engineering Degree**

### **Engineering Design**

ME	636	Internal Combustion Engines
ME	637	Steam Power Plants
ME	708	Microcomputer Applications in Mechanical Engineering
ME	742	Machine Stress Analysis
ME	780	Kinematic Synthesis of Mechanisms
ME	796	System Design and Analysis
ME	808	Advanced Microprocessor Applications

### **Engineering Management**

EMGT	802	Statistical Analysis and Prediction of Engineering Systems
EMGT	803	Technological Forecasting and Assessment
EMGT	804	Business Development and Marketing of Professional Services
EMGT	805	Management of Innovation
EMGT	806	Finance for Engineers
EMGT	808	Quality Management
EMGT	809	Personal Development for the Engineering Manager
EMGT	810	Application of Quantitative Analysis in Decision Making
EMGT	811	Engineering Systems Simulation
EMGT	812	Law and the Design Professional
EMGT	813	Design Project Management of Professional Practice
EMGT	814	Financial and Manager Accounting for the Engineer
EMGT	821	Economic, Financial and Strategic Analysis of Engineering Projects
EMGT	823	Management of Internal Engineering Projects
EMGT	824	Product Market for Engineering Managers
EMGT	830	Case Studies in Management of Engineering Systems
EMGT	840	Systems Approach in Engineering
EMGT	844	Managing Software Development Projects
EMGT	850	Environmental Issues for Engineering Managers
EMGT	854	Management of Business Intelligence and Security for Strategic Planning
EMGT	862	Manufacturing Systems Integration
EMGT	867	Advanced Operations Management

### **Mathematics**

See above list