Mechanical Engineering Course List

Required Math Course

535.441 Mathematical Methods for Engineers

Mechanics

Solid Mechanics

515.414 - Alloy Selection for Engineering Design

515.706 - Introduction to Composites

535.406 - Advanced Strength of Materials (Students choosing the solid mechanics concentration are required to take this course.)

535.411 - Friction and Wear

535.412 - Intermediate Dynamics

535.413 - Structural Engineering Applications

535.423 - Intermediate Vibrations (Students choosing the solid mechanics concentration are required

to take this course.)

535.427 - Computer-Aided Design

535.431 - Introduction to Finite Element Methods

- 535.454 Theory and Applications of Structural Analysis
- 535.476 Nondestructive Evaluation
- 535.620 Orthopedic Biomechanics
- 535.625 Advanced CAD Modeling, Analysis, and Manufacturing
- 535.720 Analysis and Design of Composite Structures
- 535.730 Finite Element Methods
- 535.731 Engineering Materials Selection and Testing
- 585.609 Cell Mechanics
- 585.618 Biological Fluid/Solid Mechanics

Thermo-Fluid Mechanics

535.421 - Intermediate Fluid Dynamics (Students choosing the thermo-fluid mechanics concentration are required to take this course.)

535.424 - Energy Engineering

535.433 - Intermediate Heat Transfer (Students choosing the thermo-fluid mechanics concentration

- are required to take this course.)
- 535.434 Applied Heat Transfer
- 535.443 Computational Heat Transfer
- 535.450 Combustion
- 535.452 Thermal Systems Design and Analysis
- 535.453 Fundamentals of Applied Thermal System
- 535.461 Energy & the Environment
- 535.609 Cell Mechanics
- 535.618 Biological Fluid/Solid Mechanics
- 535.636 Applied Computational Fluid Mechanics
- 535.712 Applied Fluid Dynamics

Manufacturing

- 515.414 Alloy Selection for Engineering Design
- 515.706 Introduction to Composites
- 535.423 Intermediate Vibrations

- 535.426 Kinematics and Dynamics of Robots
- 535.427 Computer-Aided Design
- 535.428 Computer-Integrated Design and Manufacturing (Students choosing the manufacturing concentration are required to take this course.)
- 535.433 Intermediate Heat Transfer
- 535.442 Control Systems for Mechanical Engineering Applications
- 535.458 Design for Manufacturability
- 535.459 Manufacturing Systems Analysis (Students choosing the manufacturing concentration are
- required to take this course.)
- 535.472 Advanced Manufacturing Systems
- 535.474 Quality Assurance Engineering
- 535.476 Nondestructive Evaluations
- 535.625 Advanced CAD Modeling, Analysis, and Manufacturing
- 595.460 Introduction to Project Management
- 595.760 Total Quality Management

Robotics and Controls

- 525.409 Continuous Control Systems
- 525.763 Applied Nonlinear Systems
- 535.412 Intermediate Dynamics
- 535.422 Robot Motion Planning
- 535.423 Intermediate Vibrations
- 535.425 Computer Vision
- 535.426 Kinematics and Dynamics of Robots (Students choosing the robotics and controls
- concentration are required to take this course.)
- 535.427 Computer-Aided Design
- 535.428 Computer-Integrated Design and Manufacturing
- 535.429 Robotic Control
- 535.435 Integrated Computer Vision and Robot Motion Planning
- 535.442 Control Systems for Mechanical Engineering Applications (Students choosing the robotics
- and controls concentration are required to take this course.)
- 535.445 Digital Control and Systems Applications
- 535.454 Theory and Applications of Structural Analysis
- 535.459 Manufacturing Systems Analysis
- 535.625 Advanced CAD Modeling, Analysis, and Manufacturing
- 535.726 Robot Control