



**MUMFORD INSTITUTE OF  
TECHNOLOGY**

## **Mechanical Engineering Department**

### **General Information**

Mumford Institute of Technology offers Undergraduate degree in Mechatronics Engineering: Degree: Bachelor of Engineering.

B.Eng. (Mechatronics. E)

### **Programs and Objectives**

Mechatronics Engineering is a combination of Electrical and Electronics, Mechanical and Computer Engineering. It is a synergistic integration of mechanics, electronics, robotics and spectrum of knowledge from allied engineering fields.

### **Vision**

The vision of department of Mechatronics is to become the best Mechatronics Department in the sub-region through the establishment of the state-of-the-art Research center and education environment that will impact and produce excellent productive graduates.

### **Mission**

The mission of the department of Mechatronics is to conduct leading edge research and prepare graduates who can apply the state-of-the-art technologies to develop intelligent machines, and actively engage themselves in industrial research and development to uplift the image of their countries.



**Chemistry 90 Introduction to Chemistry ( 0 cr.)**

The fundamental principles of chemistry and their applications to social issues. Problem solving in chemistry. Prereq. Math 80, Coreq. Math 90

**Math 70 Elementary Algebra(0 cr)**

Review of arithmetic, algebraic expressions, Linear equations, monomial fractions, graphing lines, polynomials, verbal problems.

**Math 80 Fundamentals of Algebra and Geometry (0 cr.)**

Linear equations and graphs, functions, the point-slope equation, linear inequalities, polynomial functions, rational expressions, radicals, quadratic equations, sequences, series, and the binomial theorem. Prereq. Math70

**Math 90 Intermediate Algebra and Trigonometry (0 cr.)**

Rational expressions, rational exponents and radicals, conic sections and systems of equations, binomial theorem, introduction to trigonometry. Prereq. Math 80.

**Math 100 Pre-calculus ( 3 cr.)**

Intervals, inequalities, introduction to functions, polynomial and rational functions, exponential and logarithmic functions, trigonometric functions and formulas. Prereq. Math 90

**First- Year (Freshman year)**

**First-Term**

Math 101-01	Analytic Geometry and Calculus I	(3 cr.)
Chem 103-01	General Chemistry for Engineers	(3 cr.)
Engl 101-01	Freshman Composition	(3 cr.)
Phys 107-01	General Physics 1	(4 cr.)

Engr 101-01	Engineering Graphics (Design)	(1 cr.)
Engr 102-01	Engineering Orientation	(3 cr.)
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		<b>17 cr.</b>

## **Second –Term**

Math 102-01	Analytic Geometry and Calculus II	(3 cr.)
Chem 104-01	General chemistry for Engineers II	(3 cr.)
Phys 108-01	General Physics II	(3 cr.)
Engr 103-01	Introduction to Computers for Engineers	(3 cr.)
Econ 101-01	Engineering Economics	(3 cr.)
Engl 102-01	Freshman Composition II	(3 cr.)
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		<b>18 cr.</b>

## **Second-Year Program (Sophomore Year)**

### **First-Term**

Math 203-02	Analytic Geometry and Calculus III	(3 cr.)
Engr 204-02	Engineering Circuit Analysis 1	(3 cr.)
EE 205-02	Circuit analysis Lab.	(1 cr.)
EE 206-02	Digital Logic Design	(3 cr.)
EE 207-02	Digital Logic Design Lab	(1 cr.)
Engr 210-02	Thermodynamics I	(3 cr.)

ME 246-02	Engineering Mechanics I	(3 cr.)
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		<b>17 cr.</b>

### **Second-Term**

Math 291-02	Methods in Differential Equations	(3 cr.)
M E 247-02	Engineering Mechanics II	(3 cr.)
M E 231-02	Thermodynamics II	(3 cr.)
ME 230-02	Mechanics of Materials	(3cr.)
EE241-02	Electronics I	(3 cr.)
ENGR276-02	Engineering Economics	(3 cr.)
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		<b>18 cr.</b>

### **Third-Year (Junior year)**

#### **First-Term**

Math 392-03	Linear Algebra and Vector Analysis	(3 cr.)
ME 361-03	Engineering Materials	(3 cr.)
ME311-03	Mechatronics	(3 cr.)
EE 342-03	Electronics II	(3 cr.)
ME 356-03	Fluid Mechanics	(3 cr.)
Phyl 101-03	Philosophy 1	(3 cr.)
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		<b>18 cr.</b>

**Second-Term**

ME 371-03	Computer-Aided Design	(3 cr.)
ME 322-03	Numerical Methods and Fundamental Computer Applications in Mechanical Engineering	(3 cr.)
EE 366-03	Electronics Circuits and Devices	(3 cr.)
ME 472-03	Mechanical Systems Design	(3 cr.)
ME 421-03	Systems Modeling, Analysis and Control	(3 cr.)
ME 433-03	Heat Transfer	(3 cr.)
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		<b>(18 cr.)</b>

**Fourth- Year (Senior year)****First-Term**

EE 417-04	Stochastic Processes and Systems	(3 cr.)
ME 462-04	Manufacturing Processes and Materials	(3 cr.)
ME 471-04	Energy Systems Design	(3 cr.)
ME 473-04	Senior Design Project I	(3 cr.)
ME 436-04	Aero-Thermal Fluids	(3 cr.)
Philo 309-04	Social and Political Philosophy	(3 cr.)
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		<b>18 cr.</b>

**Second-Term**

ME 474-04	Senior Design Project II	(3 cr.)
ME 472-04	Mechanical Systems Design	(3 cr.)
ME 431-04	Mechanical Properties of Materials	(3 cr.)
ME 441-04	Advanced Stress Analysis	(3 cr.)
•	Elective From Social Sciences	(3 cr.)
•	Elective From Philosophy	(3 cr.)

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**18 cr.**

**Total Credits**

**140Cr.**