

**AMC ENGINEERING COLLEGE**  
**Department of Mechatronics Engineering**

**COURSE OUTCOMES**

<b>DEPARTMENT</b>	<b>MT</b>	<b>SEMESTER</b>	<b>3</b>	<b>COURSE CODE</b>	<b>18MT32</b>		
<b>COURSE TITLE</b>	<b>Material Science and Technology</b>						
<b>COURSE OUTCOMENO</b>	<b>COURSE OUTCOME STATEMENTS</b>						
<b>CO-1</b>	Describe the mechanism of various Metallurgical processes and manufacturing processes of composite materials and working of smart sensors.						
<b>CO-2</b>	Apply the mechanism of various Metallurgical process & Manufacturing process of composite materials & working of smart sensors,.						
<b>CO-3</b>	application of metallurgical process, production process of composite & working principle of smart sensor for various engineering solutions.						
<b>DEPARTMENT</b>	<b>MT</b>	<b>SEMESTER</b>	<b>3</b>	<b>COURSE CODE</b>	<b>18MT33</b>		
<b>COURSE TITLE</b>	<b>Mechanics of Materials</b>						
<b>COURSE OUTCOMENO</b>	<b>COURSE OUTCOME STATEMENTS</b>						
<b>CO-1</b>	Describe the concepts of stress, strain, Deformation and assumption in beams, columns and shafts.						
<b>CO-2</b>	Apply concepts to calculate the stresses, strains and strain energy in Bars, Beams, Shafts and Columns.						
<b>CO-3</b>	Calculate the stresses and strains for plane stress condition analytically and graphically for structural members.						
<b>CO-4</b>	Analyse shear forces, Bending moments, bending and shear stress in beams.						
<b>DEPARTMENT</b>	<b>MT</b>	<b>SEMESTER</b>	<b>3</b>	<b>COURSE CODE</b>	<b>18MT34</b>		
<b>COURSE TITLE</b>	<b>CONTROL SYSTEM</b>						
<b>COURSE OUTCOMENO</b>	<b>COURSE OUTCOME STATEMENTS</b>						
<b>CO-1</b>	Demonstrate the concepts of Control systems and its Specifications for mathematical modeling, feedback control and stability analysis in Time and Frequency domains						
<b>CO-2</b>	Express and solve system equations in state-variable form (state variable models), Identify open and closed loop control system to Solve Signal Flow graph and reduction of Block diagram						
<b>CO-3</b>	Apply root-locus and Routh–Hurwitz stability criterion technique to analyze and design control systems						
<b>CO-4</b>	Determine the time and frequency-domain responses of first and second-order systems to step and sinusoidal (and to some extent, ramp) inputs.						
<b>CO-5</b>	Formulate mathematical modeling of physical systems (Mechanical and Electrical System)						

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<b>DEPARTMENT</b>	<b>MT</b>	<b>SEMESTER</b>	<b>3</b>	<b>COURSE CODE</b>	<b>17MT35</b>		
<b>COURSE TITLE</b>	<b>Analog and Digital Electronics</b>						
<b>COURSE OUTCOME NO</b>	<b>COURSE OUTCOME STATEMENTS</b>						
<b>CO-1</b>	1.Have knowledge of Analog & Digital Electronic Circuits.						
<b>CO-2</b>	2.Understand the characteristics & operation of Electronic Circuits.						
<b>CO-3</b>	3.Formulate the relations for Voltage Gain ,Frequency of Various Electronics Circuits.						
<b>CO-4</b>	4.Design the Electronics Systems for Required Specifications.						

<b>DEPARTMENT</b>		<b>SEMESTER</b>	<b>3</b>	<b>COURSE CODE</b>	<b>17MT36</b>		
<b>COURSE TITLE</b>	<b>COMPUTER ORGANISATION</b>						
<b>COURSE OUTCOME NO</b>	<b>COURSE OUTCOME STATEMENTS</b>						
<b>CO-1</b>	to describe of architectural concepts of computer and machine instructions. different addressing						
<b>CO-2</b>	analyze the memory subsystems , various I/O devices and interfacing circuits.						

<b>DEPARTMENT</b>		<b>SEMESTER</b>	<b>3</b>	<b>COURSE CODE</b>	<b>17MTL37</b>		
<b>COURSE TITLE</b>	<b>MECHANICAL LAB-01</b>						
<b>COURSE OUTCOME NO</b>	<b>COURSE OUTCOME STATEMENTS</b>						
<b>CO-1</b>	Demonstrate how to conduct/operate material testing experiments. Demonstrate milling and shaper operation.						
<b>CO-2</b>	Perform machining operations on lathe to produce the model. Taper turning calculation and gear setting for thread cutting.						
<b>CO-3</b>	Determine the mechanical properties of given materials such as Young's modulus, rigidity modulus, Bulks modulus, ultimate strength by conducting tensile, compression, torsion, and bending experiments.						
<b>CO-4</b>	Determine hardness, and toughness of given material by conducting hardness and impact test						

<b>DEPARTMENT</b>		<b>SEMESTER</b>	<b>3</b>	<b>COURSE CODE</b>	<b>17MTL38</b>		
<b>COURSE TITLE</b>	<b>Analog And Digital Electronics Lab</b>						
<b>COURSE OUTCOME NO</b>	<b>COURSE OUTCOME STATEMENTS</b>						
<b>CO-1</b>	Demonstrate the operation of wave shaping networks, amplifiers & clampers.						

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<b>CO-2</b>	Analyze the performance of 555 timers as monostable & astable multivibrators.
<b>CO-3</b>	Design the oscillator & multivibrators for desired frequency.
<b>CO-4</b>	construct the combinational & sequential circuits for real time applications

**COURSE OUTCOMES**

<b>DEPARTMENT</b>	<b>MT</b>	<b>SEMESTER</b>	<b>4</b>	<b>COURSE CODE</b>	<b>17MT42</b>		
<b>COURSE TITLE</b>	<b>Fluid Mechanics and Machines</b>						
<b>COURSE OUTCOME NO</b>	<b>COURSE OUTCOME STATEMENTS</b>						
<b>CO-1</b>	Describe concept of turbomachines, fluid at statics and motion.						
<b>CO-2</b>	Measurement of fluid flow through pipe and open channel.						
<b>CO-3</b>	Determine the properties of fluid and their effect. Determine the performance of hydraulic turbines & steam turbines.						
<b>CO-4</b>	Analyze kinematics and dynamics of fluid flow.						
<b>CO-5</b>	Classification of fluid types, fluid flow, and turbomachines. Dimensional analysis of turbomachines.						
<b>DEPARTMENT</b>	<b>MT</b>	<b>SEMESTER</b>	<b>4</b>	<b>COURSE CODE</b>	<b>18MT43</b>		
<b>COURSE TITLE</b>	<b>Microcontroller</b>						
<b>COURSE OUTCOME NO</b>	<b>COURSE OUTCOME STATEMENTS</b>						
<b>CO-1</b>	Describe the architecture of 8051 Microcontroller, microprocessor and internal memory organization, types of memory architecture , Concept of Addressing modes and Assembly and C instruction set .als.						
<b>CO-2</b>	Apply various instruction set of assembly and C language for different software and hardware applications .						
<b>CO-3</b>	Calculate time delays ,baud rates and analyze Timer . Counter operation and Transmission of data serially for different modes of operation						
<b>CO-4</b>	Design the hardware interface between microcontroller, memories of different sizes and external peripherals.						
<b>DEPARTMENT</b>	<b>MT</b>	<b>SEMESTER</b>	<b>4</b>	<b>COURSE CODE</b>	<b>17MT44</b>		
<b>COURSE TITLE</b>	<b>Manufacturing Technology</b>						
<b>COURSE OUTCOME NO</b>	<b>COURSE OUTCOME STATEMENTS</b>						
<b>CO-1</b>	Understand the principles and techniques of casting, forging, rolling & drawing.						
<b>CO-2</b>	Apply the knowledge of metal working process						
<b>CO-3</b>	To express the different techniques of joining processes for metal & non metals.						
<b>CO-4</b>	Understanding and applying knowledge to execute CNC machining programs.						

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<b>DEPARTMENT</b>	<b>MT</b>	<b>SEMESTER</b>	<b>4</b>	<b>COURSE CODE</b>	<b>18MT45</b>		
<b>COURSE TITLE</b>	<b>Theory of Machines</b>						
<b>COURSE OUTCOME NO</b>	<b>COURSE OUTCOME STATEMENTS</b>						
<b>CO-1</b>	Describe the concepts of Link, Kinematic pairs, Degrees of freedom, Mobility of Mechanisms, Inversion, Machine, Gear terminology, law of gearing, Types of cams, Types of followers, Displacement, Velocity and, Acceleration time curve for cam profiles, Effect of Gyroscopic Couple on Ship, Plane Disc, Aircraft, Stability of Two Wheelers, Types of governors.						
<b>CO-2</b>	Determine mobility, power loss due to friction in various machine elements, balancing mass and its position, stability of a governor						
<b>CO-3</b>	Calculate stability of a governor and effect of gyroscopic couple on plane disk, Aircraft, stability of two wheelers and ship.						
<b>CO-4</b>	Construct of different types of cam profiles for a given data						

<b>DEPARTMENT</b>	<b>MT</b>	<b>SEMESTER</b>	<b>4</b>	<b>COURSE CODE</b>	<b>18MT46</b>		
<b>COURSE TITLE</b>	<b>Instrumentation and Measurements</b>						
<b>COURSE OUTCOME NO</b>	<b>COURSE OUTCOME STATEMENTS</b>						
<b>CO-1</b>	apply knowledge of Instrumentation to measure Strain, Pressure, Force, Displacement, and Level.						
<b>CO-2</b>	Use their skill set to measure resistance, Capacitance and Inductance using various bridge control circuits.						
<b>CO-3</b>	Choose various transducers to measure different physical quantities.						
<b>CO-4</b>	Analyze the Static and Dynamic Characteristics and Various Measurement instruments.						

<b>DEPARTMENT</b>	<b>MT</b>	<b>SEMESTER</b>	<b>4</b>	<b>COURSE CODE</b>	<b>18MTL47</b>		
<b>COURSE TITLE</b>	<b>Mechanical Lab – II</b>						
<b>COURSE OUTCOME NO</b>	<b>COURSE OUTCOME STATEMENTS</b>						
<b>CO-1</b>	Select the type of turbine required with reference to available head of water and discharge.						
<b>CO-2</b>	Determine the coefficient of discharge of flow measuring devices and performance of turbi						
<b>CO-3</b>	Design pneumatic circuit for various industrial applications.						
<b>CO-4</b>	Apply principles of fluid mechanics, machines, and pneumatics.						
<b>CO-5</b>							

<b>DEPARTMENT</b>	<b>MT</b>	<b>SEMESTER</b>	<b>4</b>	<b>COURSE CODE</b>	<b>18MTL48</b>		
<b>COURSE TITLE</b>	<b>Microcontroller Lab</b>						
<b>COURSE OUTCOME NO</b>	<b>COURSE OUTCOME STATEMENTS</b>						
<b>CO-1</b>	develop an interface between 8051 and external peripherals for various applications using C Assembly Programming						
<b>CO-2</b>	Design microcontroller based circuits for real time applications						
<b>CO-3</b>	Develop a microcontroller program for industrial applications						

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