Department of Mechanical Engineering

Course Outcomes of all courses of B Tech 3rd semester MECHATRONICS

On successful completion of this course, students should be able to

Course	COURSE OUTCOMES	
C201-Applied Mathematics-III	**C 201.1**	**Define** Fourier series including half range series; **analyze** Harmonic analysis and variety of its applications. (**Level**. 1,4)
	C 201.2	**Describe** Unit step, Unit impulse, Laplace transforms, its properties, Inverse and applications to **illustrate** ordinary differential equations.(**Level** 1,2)
	C 201.3	**Formulate** and solve by direct integration method Linear equation of first order including Homogeneous and Non-homogeneous Linear equations and also method of separation of variables. (**Level** 5)
	C 201.4	**Solve** difficult problems using theorems of complex **analysis** and **apply** Residue theorem to evaluate real integrals. (**Level** 3,6)
	C 201.5	Hands on these Mathematical topics will make them equipped to **prepare** for higher studies through competitive examinations. (**Level** 3)

On successful completion of this course, students should be able to

Course	COURSE OUTCOMES	
C202- Mechanics of Materials	**C202.1**	Understand and evaluate the various elastic constants. **Level (5)**
	C202.2	Understand and apply the concept of stress and strain. **Level (3)**
	C202.3	Understand pure bending phenomenon on various cross-sections of a beam. **Level (2)**
	C202.4	Learn about statically indeterminate beams and be able to draw shear force, bending moment, and calculate slope and deflection. **Level (3)**
	C202.5	Understand the failure of a shaft due to torsion. **Level (2)**

On successful completion of this course, students should be able to

Course	COURSE OUTCOMES	
203-Electronic Device	**C203.1**	***describe*** structure & operation of semiconductor material. (**Level 3,5)**
	C203.2	***express*** operation of pn junction diode, zener diode and various rectifier circuits with their merits & demerits. **(Level 2, 5)**
	C203.3	***distinguish*** the working of a transistor and its operation under various configurations. **(Level 3,5)**
	C203.4	***compare*** the working operations of FET and MOSFET and their performance characteristics. **(Level 4,5)**
	C203.5	***analyze*** about different biasing and stabilization circuits for transistor & their respective significances. **(Level 2,3,5)**

On successful completion of this course, students should be able to

Course	COURSE OUTCOMES	
C204- Metrology and Instrumentation	**C204.1**	**Describe** the functional elements of measurement system and its performance characteristics. **(Level 1,2,4)**
	C204.2	**Describe & Distinguish** measurement of pressure, strain and temperature. **(Level 2,5)**
	C204.3	**Analyze** the type of fluid flow interpret its nature .**Describe** the data acquisition system.**(Level 3,4)**
	C204.4	**Describe** linear and angular measurement devices, measurement of geometrical forms, optical projectors, tool maker microscope and
	C204.5	**Distinguish And Describe** the interferometers ,comparators , screw threads and gear measurement.**(Level 6)**

On successful completion of this course, students should be able to

Course	COURSE OUTCOMES	
C205 Engineering Materials	**C205.1**	***Describe*** mechanism of solidification and various mechanical properties measurement systems. **(Level 1,2)**
	C205.2	***Describe*** **and** ***distinguish*** various metal deformation process and its thoeries. **(Level 1,2,)**
	C205.3	***Describe*** *phase formation rules and various types of phase equilibrium diagram*.**(Level 1,2)**
	C205.4	***Understand*** TTT curve and various heat treatment process of metal. **(Level 1,2)**
	C205.5	***Distinguish and describe*** the properties of ferrous , Non ferrous ,and smart metal. **(Level 1,2)**

On successful completion of this course, students should be able to

Course	COURSE OUTCOMES	
C206- Material Testing Lab.	**C206.1**	**Analyze** mechanical properties of various engineering materials under specific types of load in universal testing machine. **(Level 3)**
	C206.2	**Analyze** mechanical properties of engineering materials under impact loading. **(Level 3)**
	C206.3	**Analyze** mechanical properties of specimen under torsion (Torsion Testing Machine, Spring Testing Machine) **(Level 3)**
	C206.4	**Determine** hardness of given material. **(Level 3)**
	C206.5	**Analyze** mechanical properties of specimen under fatigue, deep drawing and buckling load. **(Level 3)**

On successful completion of this course, students should be able to

Course	COURSE OUTCOMES	
C207- Electronic Devices and Digital Circuits Lab.	**C207.1**	Study basic electronic components, observe characteristics of electronic devices: Analyze the characteristics of different electronic devices such as diodes, transistors, etc.: **Level (2, 4)**
	C207.2	Measure voltage, frequency, and phase of any waveform using CRO: **Level (3)**
	C207.3	Generate sine, square, and triangular waveforms with required frequency and amplitude using function generator: **Level (3)**
	C207.4	Understand the frequency response of feedback amplifiers using BJT and FET: **Level (2)**
	C207.5	Understand the operation of oscillators and waveform generators: **Level (2)**

On successful completion of this course, students should be able to

Course	COURSE OUTCOMES	
C208- Metrology and Instrumentation Lab.	**C208.1**	knowledge of basic measurement tools and methods(**Level** 1, 2)
	C208.2	comparison of different tools and methods (**Level** 2,4)
	C208.3	knowledge about the calibration of tools (**Level** 1,2)
	C208.4	applying the methods of measurement (**Level** 2,3)
	C208.5	able to know process and quality control (**Level** 1,2, 3)

On successful completion of this course, students should be able to

Course	COURSE OUTCOMES	
C209-Software Lab (Programming in C++)	**C209.1**	Write a Program to check whether the number is prime or not. **LEVEL (2)**
	C209.2	Write a Program to read number and to display the largest value between: (a) Two numbers, (b) Three Numbers, (c) Four numbers by using switch-case statements. **LEVEL (3)**
	C209.3	Write a Program to find the sum of first natural numbers: sum= 1+2+3+4+...100 by using (a) for loop, (b) while loop, (c) do-while
	C209.4	Write a Program to find the sum of the following series using function declaration: Sum= $x - (x^3)/3! + (x^5)/5! - ... (x^n)/n!$ **LEVEL**
	C209.5	Write a Program to read the element of the given two matrices & to perform matrix multiplication. **LEVEL (4)**