

2ND SEM TECHING SCHEME

Subject code	Subject	Teaching Scheme				Examination Scheme				
		L	T	P	CREDITS (L+T+P)	GTU Exam Theory (E)	Cont. Eval. Process (M)	GTU Exam Pract. (E)	Pract. (I)	Total
1990001	CONTRIBUTOR PERSONALITY DEVELOPMENT	4	0	0	4	70	30	20	30	150
3320002	ADVANCED MATHEMATICS (GROUP-1)	2	2	0	4	70	30	0	0	100
3320004	BASIC OF CIVIL ENGINEERING	0	1	2	3	0	0	20	30	50
3300005	BASIC PHYSICS (GROUP-2)	3	0	2	5	70	30	20	30	150
3300007	BASIC ENGINEERING DRAWING	2	0	4	6	70	30	40	60	200
3320903	D.C.CIRCUITS	2	2	2	6	70	30	20	30	150
3320902	ELECTRICAL ENGINEERING WORKSHOP PRACTICE	0	0	4	4	0	0	40	60	100
TOTAL					32	350	150	160	240	900

DETAIL SYLLABUS D.C.CIRCUITS (3320903)

Teaching Scheme			Total Credits (L+T+P)	Examination Scheme				Total Marks 150
(In Hours)				Theory Marks		Practical Marks		
L	T	P	C	ESE	PA	ESE	PA	
2	2	2	6	70	30	20	30	

Unit –I Basics of Electrical Engineering: - 1a. Define The Various Electrical Parameters 1b. Identify The Commonly Used Materials And Components Used In Electrical Engineering 1c. Define The Terms Work, Power And Energy 1d. Convert Mechanical Energy To Electrical Energy And Vice-Versa. 1e. State Joules Law and Its Applications.

Unit –II Electrical circuits: - 2a. Calculate voltage and current in the given resistive circuits using KCL and KVL. 2b. Calculate voltage and current of resistive circuits using Mesh and nodal analysis method. 2c. explain the principle of duality

Unit –III Network Theorems:- 3a. Classify types of electrical circuits 3b. Use Superposition Theorem to calculate the current in any branch of the circuit. 3c. Use Thevenin's Theorem to calculate V_{th} , R_{th} and load current in the given circuit. 3d. Calculate the load current in the given circuit using Norton's Theorem. 3e. Determine the maximum current in the load of the circuit using the Maximum Power Transfer Theorem 3f. State Reciprocity Theorem 3g. Convert star to delta and delta to Star transformations.

Unit –IV Electrostatics & Capacitors: - 4a. Define the terms related to Electrostatics 4b. Explain the working of capacitor 4c. Identify the different types of capacitors and their applications 4d. Calculate the capacitance in electrical circuits 4e. Calculate the energy stored in capacitors.

Unit –V Electromagnetic Induction & Inductors: - 5a. Define phenomenon of electromagnetic induction 5b. State and apply Faraday's law, Lenz's law, Fleming's right hand rule, Fleming's left hand rule 5c. Differentiate statically and dynamically induced EMF, self and mutual inductance 5d. Identify the different types of inductor and explain their applications 5e. Calculate the energy stored in magnetic field

TEXT Books: DC CIRCUITS

SYLLABUS OF BASIC PHYSICS (GROUP-2) (3300005)

Teaching Scheme			Total Credits	Examination Scheme				Total
				Theory Marks		Practical Marks		
L	T	P	C	ESE	PA	ESE	PA	150
3	0	2	5	70	30	20	30	

Unit – I UNITS AND MEASUREMENT: Explain Physical Quantities and their units. *Measure given dimensions by using appropriate instruments Accurately .*Calculate error in the Measurement *Solve numerical based on above outcomes

Unit– II STAIC AND CURRENT ELECTRICITY: *State Coulomb's law, Ohm's law and Kirchoff's law *Explain Electric field, potential and potential difference *Define intensity, electric current, resistance *Apply laws of series and parallel combination to electrical circuits *Explain heating & chemical effect of current *Solve numerical based on above outcomes.

Unit– III ELECTROMAGNETISM AND AC CURRENT: Define magnetic intensity and flux and state their units *Distinguish between dia, para and ferro-magnetic materials *Explain electromagnetic induction and its uses* State lenz's * law State applications of AC

Unit– IV SEMI CONDUCTORS AND NANOTECHNOLOGY: Define types of materials based on energy bands *Distinguish between intrinsic and extrinsic semiconductors *Explain p-n junction diode and its characteristics *State applications of diodes *state advantages of bridge rectifier over others * Explain types of transistors *Explain characteristics of transistors *Explain transistor operation in CE mode *State relation of current gain* Define nanotechnology and explain applications.

Unit– V: Explain wave and wave motion with example. *Distinguish between longitudinal and transverse waves *Explain propagation of sound in air. * State properties of light. *Define reflection, refraction polarization and diffraction *Explain physical significance of refractive index* Explain dispersion of light.*State Properties of laser *Explain spontaneous and stimulated emission, opulation inversion and optical pumping *Explain construction and working of He-Ne laser *State applications of lasers. * Explain principle & working of optical fiber

SYLLABUS OF ADVANCE MATHEMATICS (GROUP-1) (SUBJECT CODE: 3320002)

Teaching Scheme (In Hours)			Total Credits (L+T+P)	Examination Scheme				Total Marks
L	T	P		Theory Marks		Practical Marks		
2	2	0	4	ESE	PA	ESE	PA	100
				70	30	0	0	

Unit – I Complex Number: 1a.Simplify Complex expressions 1b.Find Modulus and Amplitude of given expressions 1c.Use De Moivre's Theorem to simplify mathematical expressions and to find roots

Unit– II Function & Limit: 2a .Solve the problems using Functions 2b .Solve the problem of function using the concept of Limit.

Unit– III Differentiation & its Applications: 3a.Differentiate the various function 3b.Apply the differentiation to Velocity, Acceleration and Maxima & Minima

Unit– IV Integration & its application: 4a .Integrate the various function 4b .Apply the Integration for finding Area and Volume.

Unit-V: Differential Equations (First Order First-degree): **1a.** Find the Order and Degree of a Differential Equation. **1b.** Form a Differential Equation for simple Engineering problems. **1c.** Solve Differential Equations using Variable Separable, Homogeneous and Integrating Factor methods

DETAIL SYLLABUS OF BASIC ENGINEERING DRAWING (3300007)

Teaching Scheme (In Hours)			Total Credits (L+T+P)	Examination Scheme				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE	PA	ESE	PA	200
2	0	4	6	70	30	40	60	

Unit – 1 ENGINEERINGDRAWING AIDS: 1 Use drawing equipments, instruments and materials effectively.

Unit– 2 PLANNING, LAYOUT ANDSCALLING OFDRAWING: 2.1Follow and apply standard practice as per bureau of I.S. for planning and layout 2.2 Choose appropriate scale factor for the drawing as per given situation.

Unit– 3LINES, LETTERING ANDDIMENSIONING: 3.1 Write annotations on a drawing where ever necessary. 3.2Choose appropriate line and Dimensioning style for a give Geometrical entity.

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Unit– 4GEOMETRICCONSTRUCTION: 4.1 develop the ability to draw polygons, circles and lines with different geometric conditions.

Unit–5ENGINEERINGCURVES: 5.1 Able to draw engineering curves with proficiency and Speed as per given dimensions.

Unit– 6PROJECTION OF POINTS, LINES AND PLANES: 6.1 Draw the projection of points, lines and planes with different conditions.6.2 Find out true shape and size of a inclined line or plane.

Unit– 7ORTHOGRAPHICPROJECTIONS: 7. 1 Draw the orthographic views of object containing lines, circles and arc geometry. 7.2 Interpret given orthographic views and to imagine the actual shape of the component.

Unit– 8 ISOMETRIC PROJECTIONS: 8.1 draw the isometric view from Orthographic views of object/s Containing lines, circles and arcs.

DETAIL SYLLABUS OF BASIC OF CIVIL ENGINEERING (33200004)

Teaching Scheme (In Hours)			Total Credits (L+T+P)	Examination Scheme				Total Marks
L	T	P		Theory Marks		Practical Marks		
2	2	2	6	ESE	PA	ESE	PA	150
				70	30	20	30	

Unit –1 CIVIL ENGG. SURVEYING: 1a. Use surveying tools and equipments for field survey, leveling and measurements 1b. Calculate different levels and angles 1c. Understand given contour map

Unit – 2CIVIL ENGG DRAWING: 2a. Read and interpret the building drawing 2b. Plan lay out of a simple building

UNIT –3CONSTRUCTION MATERIALS: 3a. Select different types of construction materials as per Requirements 3b. Test given construction materials for quality control 3c. Prepare approximate cost Estimates.

Unit –4 MACHINE FOUNDATIONS: 4a. Assess the typical requirements of foundations for Medium sized electrical and Mechanical Machines

DETAIL SYLLABUS OF ELECTRICAL ENGINEERING WORKSHOP PRACTICE (3320902)

Teaching Scheme (In Hours)			Total Credits (L+T+P)	Examination Scheme				Total Marks
L	T	P		Theory Marks		Practical Marks		
0	0	4	0	ESE	PA	ESE	PA	100
				0	0	40	60	

Unit– I Electrical Tools: 1a. Use various electrical tools and measuring instruments.

Unit– II Cables and Switches: 2a. Select different types of wires, cables, light sources and switches

Unit– III Resistors: 3a. Select/identify different types of resistors

Unit– IV Capacitors: 4a. Select /identify different types of capacitors.

Unit–V Earthing and Electrical Safety: 5a. Undertaking pipe earthing.