GPK-F-17

PLANNED SYLLABUS COVERAGE(Theory)

G P Kangra	Department: Electrical Engg. Subject IEGS	
	Course Diploma (3rd Sem.) Duration 03 years	
SYLLABUS COVERAGE	Total Periods 56 Theory 56	

Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1.	(10) 1-10	Thermal Power Plants; Coal/Gas/Diesel & Nuclear based	Layout & working of TPP Properties of conventional fuels used in these TPP: Coal, Gas/diesel, nuclear fuels - fission & fusion action. Safe practices & working of: coal based, gas based, diesel based & nuclear based. Functions of major auxiliaries Coal fired, fire tube & water tube boilers, combustion engines & type of nuclear reactors.	Power Plant Engineering - P.K. Nag, Mc Graw Hill, New Delhi	A course in Electrical Power - J.B. Gupta, S.K. Kataria & sons, New Delhi	
2.	10 (11-20)	Large & Micro Hydro Power Plants	Energy conversion, classification, construction & working of various hydro power plants. Safe practices; types of Micro Hydro plants, turbines & potential locations of micro hydro power plants in Himachal.	-do-	-do-	
3.	12 (21-32)	Solar & Biomass based power plants	Solar map of India; Solar power technology :- CSP plants, construction & working (along with types) Solar Photovoltaic plants layout, construction & working, Layout of Biogas power plant, Layout of thermo chemical based power plant; Layout of Agro chemical based power plant.	-do-	-do-	

To be approved from concerned HOD within seven days from beginning of semester & will be kept with the concerned teacher in his file.

Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
4.	12 (33-44)	Wind Power Plants	Wind Map of India, Wind Power density, Layout of HAWPP, Geared & Direct drive WPP, Salient features of generators, SCIG, WRIG, DFIG, WRSG, PMSG.	-do-	-do-	
5.	12 (45-56)	Economics of Power Generation & Interconnected Power System	Terms - connected load, firm power, cold & hot reserve, spinning reserve. Base & Peak load, load curve, load duration curve, integrated duration curve, cost of Gen., Avg. Demand, Max. Demand, Demand factor, capacity factor, plant use factor, choice & size of generator units. Causes, impact and reasons of Grid system fault, Simple blackouts at national & international level.			

Extra Topics to be covered beyond the scope of the syllabus (as required by industry/ as recommended by Teacher which he/ she finds necessary)

Sr. No.	Period No.	Topic Covered	Instruction Reference	Additional Study recommended	Remarks

Approved / Not approved	
Date 01-08-2025	HOD Sign
Date 01-08-2025	Principal Sign

Use additional sheets (if required).

GPK-F-17

PLANNED SYLLABUS COVERAGE(Theory)

G P Kangra	Department: Electrical Engg. Subject Electrical Circuits				
	Course Diploma Duration 03 year				
SYLLABUS COVERAGE	Total Periods 70 Theory 70				
Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1.	1 - 13	Single phase AC series circuits	Generation of alternating voltage, Phasor representation of sinusoidal quantities R, L, C circuit element, its voltage & current response, RL, RC, RLC combination of A.C. series circuit, impedance, X_c, reactance, impedance triangle, Power (quality) factor, active power, reactive power, apparent power, power triangle & vector diagram, resonance, bandwidth, quality factor, & voltage magnification in series RL, RC & RLC circuit.	Networks & Systems by Ashfaq Husain, B.L. Theraja, Matthew N.O. Sadiku, & Charles K. Alexander	MATLAB Simulations	
2.	14 - 27	Single phase A.C. parallel circuits	RL, RC & RLC parallel combination of A.C circuits, Impedance, reactance, phasor diagram, impedance triangle, RL, RC, RLC parallel AC circuits power factor, active power, apparent power, reactive power, power triangle, Resonance in parallel RL, RC, RLC circuit, bandwidth, quality factor & voltage magnification.			

To be approved from concerned HOD within seven days from beginning of semester & will be kept with the concerned teacher in his file.

Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
3.	28 – 44	Three phase circuits System	Phasor & complex representation of 3-ϕ supply, phase sequence & polarity, types of 3-ϕ connections, phase & line quantities in 3 ϕ star & delta system, balanced & unbalanced load, neutral shift in unbalanced load, 3ϕ power, active, reactive & apparent in star delta system.			
4.	45–56	Network reduction & principles of circuits analysis	Source transformation, star/delta & delta/star transformation. Mesh analysis, node analysis			
5.	57–70	Network Theorems	Superposition theorem, Thevenin's theorem, Norton's theorem, Maximum power transfer theorem, reciprocity theorem, Duality in electric circuits.			

Extra Topics to be covered beyond the scope of the syllabus (as required by industry/ as recommended by Teacher which he/ she finds necessary)

Sr. No.	Period No.	Topic Covered	Instruction Reference	Additional Study recommended	Remarks

Approved / Not approved	
Date 01/08/2025	HOD Sign
Date 01/08/2025	Principal Sign

Use additional sheets (if required).

PLANNED SYLLABUS COVERAGE(Theory)

GPK-F-17

G P Kangra

SYLLABUS COVERAGE

Department: ELECTRICAL Engg. Subject ELECTRICAL & Electronics Measurements.

Course Diploma Duration 3 Years.

Total Periods Theory 56

Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1.	10 (1-10)	Fundamentals of Measurements.	Measurement: Significance, unit, fundamental quantities & standards classification of Instrument systems. Null & deflection type instruments Absolute & secondary instruments Analog & digital instruments. Static & Dynamic characteristics, Types of errors. Calibration need and procedure. Classification of measuring instruments Indicating, recording & integrating instruments Essential requirements of an indicating instruments.	Theraja B.L. Theraja A.K. Text Book of Electrical Technology vol-I (Basic Electrical Engg). S. chand & Co. New Delli.	Sawhney A.K. ✓ Electrical & Electronics Measurements & Instrumentation. Dhanpat Rai and. Sons. New Delli	
2.	10 (11-20)	Measurement of voltage & current	DC ammeter, Basic multi arrange, universal shunt DC voltmeter basic, Multi-range, Concept of loading effect & sensitivity AC voltmeter Rectifier	—do—		

To be approved from concerned HOD within seven days from beginning of semester & will be kept with the concerned teacher in his file

PLANNED SYLLABUS COVERAGE(Theory)

GPK-F-17

G P Kangra

Department: Electrical Engg. Subject: Electrical & Electronics measurements

Course: Diploma. Duration: 3 years.

SYLLABUS COVERAGE

Total Periods: Theory: 56

Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
3.	12 (21-32)	Measurement of electric Power.	Half wave & full wave CT & PT: Construction working & applications. clamp on meters Analog meter, Permanent magnet Moving coil & Permanent Magnet moving iron ther construction, working, salient features, merits & demerits Dynamometer type wattmeter, construction & working Arrange. Multiplying factor & extension of range using CT & PT Errors & compensations Active & reactive Power measurement: One, two & the three wattmeter method. Effect of Power fctr On wattmeter reading in two wattmeter method maximum	Edward Hughes Electrical Technology Pearson Education New Delhi. — do —		

To be approved from concerned HOD within seven days from beginning of semester & will be kept with the concerned teacher in his file.

Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
4.	8 (33-40)	Measurement of Electric Energy.	Demand indicator. Single & three phase Electronic energy meter. Constructional features & working principle, Error & their compensation calibration of single phase electronic energy meter using direct loading.	Rajput R.K., Electrical & Electronic Measurement & Instrumentation S. Chand & Co New Delhi		
5.	16 (41-56)	Circuit Parameter Measurement CRO & other meters	Measurement of resistance: low resistance, kelvin double bridge,			

Extra Topics to be covered beyond the scope of the syllabus (as required by industry/ as recommended by Teacher which he/ she finds necessary)

Sr. No.	Period No.	Topic Covered	Instruction Reference	Additional Study recommended	Remarks

Approved / Not approved	
Date	HOD Sign
Date	Principal Sign

Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
			Medium resistance: Voltmeter ammeter method. High resistance. Meggard ir mete, Series & shunt measurement inductance using Anderson bridge phasor diag. Measurement of capacitance using Sahering bridge. Single beam/singletrace CRO. Digital storage Oscilloscope. Basic diag, working CRO electrostatic deflection vertical amplifier Time base gen. Horizontal amplifie. Measurement of voltage, Amplitude, Time period. frequency phase angle			

Extra Topics to be covered beyond the scope of the syllabus (as required by industry/ as recommended by Teacher which he/ she finds necessary)

Sr. No.	Period No.	Topic Covered	Instruction Reference	Additional Study recommended	Remarks

Approved / Not approved	
Date	HOD Sign
Date	Principal Sign

* Use additional sheets (if required).

Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
			delay line Specification Other meter. Earth tester. digital multi meter. L-C-R meter. frequency meter. Phase equence Indicator Power factor meter. Synchroscope. Tri-vector meter. Signal generator need & working & basic block diag Functional genera tor need working & basic diagram, functions & symmetry.			

Extra Topics to be covered beyond the scope of the syllabus (as required by industry/ as recommended by Teacher which he/ she finds necessary)

Sr. No.	Period No.	Topic Covered	Instruction Reference	Additional Study recommended	Remarks

Approved / Not approved	
Date 01/08/2025	HOD Sign
Date 01/08/2025	Principal Sign

* (as additional sheets if required).

PLANNED SYLLABUS COVERAGE(Theory)

GPK-F-17

GP Kangra

Department: Electrical Engg. Subject: Electrical Motors & Transformer

Course: Diploma Duration: 3 Years

SYLLABUS COVERAGE

Total Periods: Theory: 65

Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1.	10 (1–10)	DC Generators	DC generator: Construction, parts, materials and their functions. Principle of operation of DC generator. Flemings right hand rule. Schematic diagrams. e.m.f eqn. of generator armature reaction. Commutation and applications of DC generators.	G.C. Garg & P.S Bimbhra Electrical M/C Vol-I, II Khanna	Bhattacharya S.K Electrical Machines, MC Graw Hill Education New Delhi	
2	12 (11–22)	DC Motors.	DC motor. Types of DC motors. Flemings Left hand rule. Principle of operation. Back emf & its significance Voltage eqn of DC motor. Torque & speed. Armature torque. Shaft Torque. BHP. Brake test, losses. efficiency. DC motor starters. Necessity, two point & three point starters. Speed control of DC shunt & series	Theraja B.L Electrical Technology Vol-II (AC & DC M/C S. Chand —do—	—do—	

To be approved from concerned HOD within seven days from beginning of semester & will be kept with the concerned teacher in his file.

\

PLANNED SYLLABUS COVERAGE(Theory)

GPK-F-17

G P Kangra	Department: Electrical Engg.	Subject: EM & T		
SYLLABUS COVERAGE	Course: Diploma	Duration: 3 Years		
	Total Periods:	Theory: 65		

Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
			motor. Flux & Armature Control. Brushless DC motor. Construction & working			
3.	12 (23-34)	Single phase Tranformers	Types of transformers. Shell type & core type: Construction, Parts & functions, materials used for different parts. CRGO, CRNGO, HRGO, amorphous cores. Transformer. Principle of operation EMF eqn of transformer, Derivation, Voltage transformation ratio, Significance of transformer ratings Transformer No-load & on-load phasor diagram, Leakage reactance, Equivalent circuit of transformer Equivalent resistance & reactance.	-do-	-do-	

To be approved from concerned HOD within seven days from beginning of semester & will be kept with the concerned teacher in his file.

PLANNED SYLLABUS COVERAGE(Theory)

GPK-F-17

G P Kangra	Department: Electrical Engg	Subject EM4T	
SYLLABUS COVERAGE	Course Diploma	Duration 3 years	
	Total Periods	Theory 65	

Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
4.	20 (35-54)	Three Phase Transformer.	voltage regulation & Efficiency, Direct loading, OC/SC method. All day efficiency. Bank of three single phase T/F, single unit of three phase T/F Distribution & power T/F, construction, cooling, Three phase T/F connection as per IS. 2026. (part-IV)-1977, three phase to two phase conversion (Scott connection. Selection of T/F as per IS 10028 (part-I)-1985. Criteria for selection of distribution T/F & power T/F. Amorphous core type Distribution T/F. Specifications of three phase.	-do-	-do-	

To be approved from concerned HOD within seven days from beginning of semester & will be kept with the concerned teacher in his file.

PLANNED SYLLABUS COVERAGE(Theory)

GPK-F-17

G P Kangra

Department: Electrical Engg. Subject EM & T

Course Diploma Duration 3 years

SYLLABUS COVERAGE

Total Periods _____ Theory 65

Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
			distribution T/F as per IS : 1180 (part I) 1989. Need of parallel operation of three phase; Condition for parallel operation polarity test on mutually Inductive coils & single phase T/F. Polarity test. Phasing out test on three			
5	11 (55-65)	Special Purpose Transformers	phase T/F. Single phase & three phase auto T/F; construction, working & applications. Instrument T/F, Construction working & applications of CT & PT. Isolation Transformer. Constructional features & applications. Single phase welding T/F,	-do-	-do-	

To be approved from concerned HOD within seven days from beginning of semester & will be kept with the concerned teacher in his file.

Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
			Constructional features and applications. Pulse T/F. Constructional features & applications. K factor of transformer. Overheating due to non-linear loads & Harmonics.	-do-	-do-	

Extra Topics to be covered beyond the scope of the syllabus (as required by industry/ as recommended by Teacher which he/ she finds necessary)

Sr. No.	Period No.	Topic Covered	Instruction Reference	Additional Study recommended	Remarks

Approved / Not approved	
Date 01/08/2025	HOD Sign
Date 01/08/2025	Principal Sign

* (Use additional sheets if required).

GPK-F-17

PLANNED SYLLABUS COVERAGE(Theory)

G P Kangra	Department: EE	Subject ED&C			
	Course Diploma	Duration 3years			
SYLLABUS COVERAGE	Total Periods 56	Theory 56			

Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1.	1-11	Chapter 1: Semi Conductor And Diodes	Definition, Extrinsic/Intrinsic N-type & P type. PN Junction Diode - f.B & R.B characteristic Zener diode - Principle, characteristic, construction & working. Diode Rectifiers - Half & full wave. filters - C, L, LC & PI filters.	Electronic Devices & Circuits By S.K. Sahdev	We By Internet	
2.	12-24	Chapter-2 Bipolar Junction Transistor	NPN & PNP Transistor - operation & characteristic. Common Base, Common Emitter, Common Collector Configuration - characteristics & working High frequency model of BJT. Classification of Amplifiers, Negative feedback	Analog circuits By A.K. Maini		
3.	25-36	Chapter-3 Field Effect Transistor	FET working, Principle, Classification. MOSFET Small signal Mode. N-channel & P-channel Mosfet - characteristic Enhancement & Depletion mode MOSFET as switch. Common Source Amplifier, UJT equivalent ckt & operation	Khanna Publishers,		

To be approved from concerned HOD within seven days from beginning of semester & will be kept with the concerned teacher in his file.

Sr. No.	Period Nos.	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
4.	37-48	Chapter-4 SCR, DIAC, TRIAC	Construction, Working, operation, Characteristic of DIAC, TRIAC, SCR. SCR & MOSFET as a switch, DIAC as a Bidirectional switch Comparison of SCR, DIAC, TRIAC, MOSFET.			
5.	49-56	Chapter-5 Amplifiers And Oscillators	Feedback Amplifiers - Properties of negative feedback, Impact of feedback Basic Feedback Amp.r topdogies Voltage series, & shunt, Current series & shunt. Oscillator - Crystal, Non-linear / Pulse Oscillator			

Extra Topics to be covered beyond the scope of the syllabus (as required by industry/ as recommended by Teacher which he/ she finds necessary)

Sr. No.	Period No.	Topic Covered	Instruction Reference	Additional Study recommended	Remarks

Approved / Not approved	
Date 01/08/2025	HOD Sign
Date	Principal Sign

Use additional sheets (if required)