GOVERNMENT POLYTECHNIC KOREA, BAIKUNTHPUR (C.G.)

Course Completion Unit Plan

Teacher's Name:-	Hemant kumar	Session Start Date:-	
Department- Electrical Engineering	Semester- 5TH	Subject- ICRPC	
Hours/Week- 04	Session- July-Dec 2024	Lab/Week- 02	

S.No.	Topic to taught	No. of lect. Req.	Date of Delivery	Actual Date of Delivery	Topic Covered	Remark
1	Need of Instrumentation	1	2-9-24	11-9-24	Need of instrumentation	
2	Block diagram of Gen. Inst. System	1	3	—11—	—11— Block diagram.	
3	chr of inst. System – static chr.	1	4	12-9-24	As planned	
4	– dynamic chr.					
5						
6	Transducer's - characteristics	1	5	13-9-24	As planned	
7	Sensor & transducers	1	9	—11—	As planned	
8	classification of transducers	2	10	18-9-24	classification of	
9	– Energy			—11—	transducer	
10	– Technology			—11—	—11—	
11	– stages			—11—	—11—	
12	– Passive, temp., displacement			—11—	—11—	
13	Burdon tube	1	11	—11—	As planned	
14	LVDT	1	12	19-9-24	As planned	
15	Strain gauge	1	16	20-9-24	As planned	
16	thermo-couple	1	17	23-9-24	temperature measurement	
17	RTD	1	18	—11—	As planned	
18	Thermistor	1	19	—11—	As planned	
19	Piezoelectric	1	23	24.9.24	piezoelectric	
20	Resistive transducer	1	24	25-924	As planned	
21	Inductive —11—	1	25	—11—	Inductive transducer	
22	Capacitive —11—	1	26	2-10-24	As planned	
23	Proximity	1	1-10-24	3-10-24	proximity & ultrasonic	
24	Ultrasonic	1	2	—11—		
25		1	3			

26	Signal conditioning Purpose	1	7-10-24	4-10-24	As planned
27	OPAM & its types	3	8/9	9-10-24	OPAM & its types
28	Instrumentation Ampr	1	10-10-24	—11—	
29	applications	1	14	14-10-24	Instrumentation Ampr & Appli.
30	Sample & Hold Signal, Shannon Criteria	1	15	16-10-24	As planned
31	Quantization, Quant. error	1	16	—11—	Quantization, Quantization error
32	Data Trans	1	17	17-10-24	As planned
33	TDM & FDM (multiplexing)	1	21	22-10-24	As planned
34	Demultiplexing	1	22	—11—	Demultiplexing.
35					
36	measurement of temp-	1	23	29-10-24	As planned
37	- Pyrometer	1	24	—11—	As planned
38	meas. of pressure - Pirani gauge	1	28	31-10-24	As planned
39	LVDT	1	29	1-11-24	LVDT
40	Strain gauge	1	30	4-11-24	As planned
41	Capacitive transducer	1	31	5-11-24	Capacitive transducer
42	meas. of Speed - Tachometer	1	4-11-24	6-11-24	Speed measurement
43	- stroboscope	1	5	—11—	—11—
44	meas. of flow - turbine flowmeter	1	6	8-11-24	As planned
45	- electromagnetic Pick up	1	7	—11—	—11—
46	meas. of liquid level - Capacitive tr.	1	11	13-11-24	As planned
47	meas. of PH, Humidity	1	12	16-11-24	meas. of PH, Humidity
48	types of Hygrometer	1	13	—11—	As planned
49	meas of position - Proximity	1	14	18-11-24	Proximity
50	measurement of distance	1	18	—11—	
51	using - Ultrasonic transducer	1	19	—11—	Ultrasonic transducer
52			20		
53	Basic control System	1	21	19-11-24	Basic control system
54	Introduction, Role, Types	1	25	—11—	—11—
55	Concept of stability	1	26	20-11-24	As planned.
56	numericals		27	—11—	
57	Unit step response of a system	1	28	21-11-24	Unit step response
58	open loop C.S	1	2-12-24	22-11-24	As planned
59	close loop C.S	1	3	—11—	As planned.

60	Diff – OLCS & CLCS	1	4-12-24	25-11-24	diff b/w OLCS & CLCS	
61	feedback c s terminology			–11–	As planned	
62	Basic control actions – P,	2	5	26-11-24	~~Basic~~ Control Action	
63	I, D, PID			27-11-24	PID	
64	uses of sensors & transducers	1	9-12-24	30-11-24	As planned.	
65	in feedback system					
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Planned.

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GOVERNMENT POLYTECHNIC KOREA, BAIKUNTHPUR (C.G.)

Course Completion Unit Plan

Teacher's Name:-	Hemant kumar	Session Start Date:-
Department- Electrical Engineering	Semester-6TH	Subject- Energy Conservation & energy audit
Hours/Week- 04	Session- Jan - Jun 2025	Lab/Week- 02

S.No.	Topic to taught	No. of lect. Req.	Date of Delivery	Actual Date of Delivery	Topic Covered	Remark
1	Current Energy scenario in India	1	6-1-25	10-1-25	Introduction to Syllabus	
2	Various Sources of energy	1	7	21-1-25	Current energy scenario	
3	Energy management & its objective	1	8		—11—	
4	Difference bet EM, EC, EA	1	9	22-1-25	Various Source of energy	
5	Role of BEE, NPC, MNRE, MEDA	1	13-1-25		—11—	
6	Function's of energy ratings	1	14	23-1-25	As planned	
7	energy conservation act 2001	1	15		—11—	
8	energy units & conservation	1	16	24-1-25	—11—	
9	Pay back Period, IRR, Depreciation	1	20-1-25	25-1-25	As planned	
10	Role of ESCO	1	21	28-1-25	As planned	
11	Diff bet ESCO & EPC	1	22		Diff. b/w ESCO & EPC	
12						
13	Energy conservation in generation	1	23	29-1-25	As planned	
14	Power factor causes & effect low P.f	1	27-1-25		P.f. causes & effect	
15	P.f improvement methods	3	28-	30-1-25 (4hrs)	—11—	
16	importance of P.f.	1	29		As planned	
17	numerical's on P.f	1	30		—11—	
18	Section & location of P.f.	1	3-2-25		As planned.	
19	T&D Losses in Power System	1	4	4-2-25	T & D losses	
20	DSM objective's	1	5		DSM	
21	MD Controller's	1	6	6-2-25	MD controllers	
22	KVAR Controller's	1	10-2-25		KVAR —11—	
23	Tariff, characteristic's	1	11	17-2-25	Tariffs	
24	types of tariff's	2	12	18-2-25	—11—	
25	CSPDCL tariffs	1	13		As planned.	

26	Numericals on tariffs	1	17-2-25		Numericals on tariffs
27					
28	Basic Parameters of Lighting System	1	18		
29	Recommended luminus level	1	19	19-2-25	As planned
30	Procedure of assesing Lighting System	1	20	20-2-25	〃
31	Energy conservation techniques	1	24-2-25	1-3-25	〃
32	— By lamp replacing sources				As planned by lamp replacing sours
33	- Using energy efficient luminaries	1	25	5-3-25	〃
34	Using light controlled gear's	1	26		As plannd.
35	- by using advanced technology	1	27	6-3-25	〃
36	- Separate xmer & servo stabilizer	1	3-3-25		〃
37	- Survey & maintenance Progg.	1	4	7-3-25	As planned
38	Lighting maintenance	1	5		Lighting maintenance,
39	Centralized control equipment	1	6	10-3-25	~~Centralized control equipm~~
40	Occupancy sensor's	1	10-3-25	12-3-25	~~As planned~~
41	Control gear's - stabilizer's	1	11	13-3-25	〃
42	- Dimers & types	1	12		Dimmers ~~& types~~
43	- Regulators	1	13		Regulators
44					
45	energy conservation in m/c	1	17-3-25	17-3-25	E.C in m/c
46	energy effiient motor's	1	18	18-3-25	As planned.
47	Diff→ E.e. motor's & C. motor's	1	19		〃
48	Energy Conservation techniques	1	20	25-3-25	〃
49	in IM - improving P quality		24-3-25		〃
50	- By motor Survey	1	25	~~27-3-25~~	By Motor Survey
51	- By motor matching	1	26		As planned
52	- By rewinding of motor's	1	27		As planned
53	- By operating in Y-mode	1	1-4-25	1-4-25	〃
54	- By improving mech. Power	1	2	3-4-25	〃
55	Soft starter	1	3	4-4-25	As plannd
56	Power factor controller	1	7-4-25	8-4-25	〃
57	Static capacitor				〃
58	Automatic Y-A starter	1	8	9-4-25	As pl~~n~~
59	Variable frequency derives	1	9	10-4-25	V.F.D

60	Energy efficient xmers	2	10	15-4-25	Energy efficient xmers
61	electricity Act 2003	1	14-4-25	16-4-25	Elect. Act 2003
62	IE rules & regulations → Energy Audit	2	15		—11—
63	energy flow diagram	1	16	21-4-25	As planned
64	energy audit instruments	1	17		—11—
65	Questionnaires for energy audit	1	21-4-25	23-4-25	—11—
66	ABC analysis	1	22.		—11—
67	internal EA checklist	2	23	24-4-25	As planned
68	Procedure for EA	1	24	28-4-25	Procedure fo EA
69	Simple pay back period and return	1	28-4-25		—11—
70	Examples of small energy cons.	1	29	5-5-25	As planned
71	instruments for Audit - multimeter	1	30		As per
72	Lux meter, thermal emager etc	1	1-5-25	6/5-25	Lux meter, thermal emager

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GOVERNMENT POLYTECHNIC KOREA, BAIKUNTHPUR (C.G.)

Course Completion Unit Plan

Teacher's Name:-	Hemant Kumar	Session Start Date:-
Department- Electrical Engineering	Semester- 3rd	Subject- Electrical ckt
Hours/Week 03	Session- July-Dec 2024	Lab/Week- 02

No.	Topic to taught	No. of lect. Req.	Date of Delivery	Actual Date of Delivery	Topic Covered	Remar
1	classification of elect. elements	1	2.9.24	18.9.24	As Planned	
2	S.S behavior of Passive elements	1	3	19	—11—	
3	Simple series & Ilel ckt	1	4	20	—11—	
4	ohm laws, KVL, KCL	1	5	21	—11—	
5	Application of above laws	2	6	23	—11—	
6	Source transformation	1	9.9.24	25	Source transformation & Mesh Anly.	
7	mesh analysis	2	10	26	—11—	
8	nodal analysis	2	11	30	—11—	
9					—11—	
10	Star delta transformation	1	12	8.10.24	Star Delta transformation	
11	SRT	2	13	4	—As planned—	
12	thevenin's theorem	2	14	5	—11—	
13	Norton's theorem	1	16	7	—11—	
14	MPTT	2	17	8	—11—	
15	Application's of above theorem	2	18	9	—11—	
16						
17						
18	Generation of an AC EMF	1	19	17	As Planned	
19	A.C ckt quantities	1	20	18	—11—	
20	J-operator's	2	21	19	—11—	
21	Numericals on J operators	2	23	23	—11—	
22	AC series & Ilel ckt	2	24	26	—11—	
23	Power & Power factor	2	25	4/11.24	—11—	
24	Vector representation of	2	26	6	—11—	
25	an AC quantity					
26						
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28	resonance in elect ckt	2	30-9-24	12.11.24	As planned
29	series resonance	1	1-10-24	18	—11—
30	numericals	1	2	19	Series resonance + Numericals
31	Some Definitions - BW, Q etc	1	3	20	—11—
32	effect on Current & P.F in	2	4	21	—11—
33	series resonance ckt.	2	5	22	—11—
34				26	
35					
36	Generation of 3ϕ voltage	1	7-10-24	27	—As planned—
37	Phase sequence & Phasor diagram	2	8	29	—11—
38	Connection of 3-ϕ winding —	1	9	2.12.24	—11—
39	in star / delta		10		—11—
40	Line & phase electrical quantity	2	12	3	—11—
41	relationship in star / delta	2	14	4	—11—
42				5	Simple Numericals
43	3-ϕ load — Balanced —	2	15	7	As Planned
44	unbalanced			9	—11—
45				11	measurement of 3-ϕ Power
46	Measurement of 3-ϕ Power.	3	18-10-24	12.12.24	Leading, lagging, Resistive Load
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Course Completion Unit Plan

Teacher's Name:-	Hemant kumar	Session Start Date:-
Department- Electrical Engineering	Semester- 3rd	Subject- Elect. measurement & Electronic measurement
Hours/Week- 03	Session- July-Dec 2024	Lab/Week- 02

S.No	Topic to taught	No. of lect. Req	Date of Delivery	Actual Date of Delivery	Topic Covered	Remark
1	Block diagram of measuring System	1	2-9-2024	18-9-24	Block diagram of meas. system	
2	diff types of torques in msmt	1	5	19	types torques in msmt.	
3	chr of instruments	1	6	20	chr of Instruments	
4	types of instruments	1	12	21	—n—	
5	PMMC meter	1	13	23	PMMC meter	
6	MI meter	1	19	25	MI meter	
7	Dynamometer type instr.	1	20	26	Dynamometer	
8						
9	Principle of V, I, T measurement	1	3-10-24	30	As planned	
10	Galvanometer, voltmeter, ammeter	2	4	3-10-24	As planned	
11	Range extension of meter	1	10	4	Range extension of meter	
12			11	5		
13	Principle of Power & Energy	1	17	7	As planned	
14	measurement, effect of pf	1	18	8	—n—	
15	measmt. of 1-ϕ & 3-ϕ Power	2	24	9	1-ϕ, 3-ϕ Power measurement	
16	using wattmeter					
17	Calibration of meters	1	25	17	Calibration of meters	
18	Digital energy meters	1	31	18	Digital energy meters	
19				19		
20	classification of Resistance	1	1-11-24	23	As planned	
21	bridge balancing concept	1	7	26	bridge balancing concept	
22	Kelvin double bridge	1	8	4-11-24	—n—	
23	Wheatstone bridge	1	14	6	Wheatstone bridge	
24	megger	1	15	11	megger	
25	earth tester	1	21	12	Earth tester	
26	maxwell bridge	1	22	18	maxwell bridge	
27	Schering bridge	1	28	19	Schering bridge	

28	Electronic instruments	1	29-11-24	20-11-24	Electronic instruments
29	True RMS reading voltmeter	1	5-12-24	21	True Rms voltmeter
30	DVM	2	6	22	Dig. multimeter
31	Digital multi meter's	1	12	26	Dig. LCR meter
32	Digital LCR meter	1	13	27	D.V.M
33	Analog / Digital recorders	2	19	28	Recorder, strip chart, x-y
34					
35					
36	CRO basic blk diagram	1	20	29	CRO basic block dia
37	CRT	1	26	2-12-24	CRT
38	Electrostatic & magnetic deflection	1	27	3	—u—
39	x, y Amplifiers	1	2-1-25	4	As planned
40	control on CRO & their functions	1	3	5	—u—
41	Lissajous pattern	1	9	7	Lissajous pattern
42					
43	Digital storage oscilloscope-	2	10-1-25	9-12-24	Digital storg oscilloscope
44	Basic block diagram &				
45	working.				
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DEPARTMENT: ELECTRICAL ENGINEERING
SEMESTER: 04TH
LECTURER NAME: HEMANT KUMAR

SUBJECT: DIGITAL ELECTRONICS
2025471 (024)
(THEORY)

S NO.	TOPIC TO TAUGHT	NO. OF LECTURE REQUIRED	EXPECTED DATE OF DELIVERY	ACTUAL DATE OF DELIVERY	TOPIC COVERED	REMARK
Chapter 01 : Number System and Codes						
I	Comparison of digital and analog systems	1	20-1-2025	27-1-25	As Planned	
II	Number Systems: Binary Decimal, Octal and Hexadecimal and their conversions	4	21-1-2025 to 24-1-2025	28-1-25 to 29-1-25	As planned	
III	Binary Addition Subtraction Multiplication and Division	2	27-1-25	30-1-25	Binary (+, -, ÷ ×)	
IV	1's and 2'scomplement of a number, Basic arithmetic operation using complement method	2	28-1-25 31-1-25	31-1-25 to 4-2-25	As planned	
V	Different types of codes: 8421 BCD, Excess-3, Gray codes, ASCII	2	3-2-25 4-2-25	5-2-25	—11—	
Chapter 02 : Logic Gates and Boolean Algebra						
I	Boolean algebra: Laws of Boolean algebra and De-Morgan's theorem	1	7-2-25	6-2-25	As planned	
II	Types of logic gates: AND, OR and NOT. Universal Gates: NAND, NOR, EX-OR and EX-NOR. Truth table, symbol, implementation of basic gate using Universal gate	3	10, 11, 14-2-25	8, 10-2-25	As planned	
III	Max - term, Min - term, Sum of product (SOP) and Product of Sum(POS) expressions,	2	17, 18-2-25	11-2-25	SOP, POS	
IV	Simplification of Boolean functions using laws and	1	21-2-25	13-2-25	As planned	

	functions using K- map method (up to 4 variables)	2	24-2-25	15-2-25	As planned	
Chapter 03 : Combinational Circuits						
I	Half Adder, Full Adder, Half subtractor, Full subtractor, parallel adder and subtractor, BCD adder'	3	25, 28-2-25	17-2-25 to 18-2-25	As planned	
II	Magnitude comparator (2 and 3 bit). IC 7485 (Pin diagram and truth table)	1	3-3-25	19-2-25	As planned	
III	Encoders: 4- Input and 2- Output encoder, Octal to Binary and Binary to BCD Encoder , BCD to binary encoder. Multiplexer: 2 □ 1, 4 1 and 8 1	3	4, 7-3-25	21, 11, 12-3-25	— 11 —	
IV	Decoders: 3-Line to 8-Line Decoder, 8-4-2-1 BCD to Decimal Decoder. De-multiplexer: 1 2, 1 4 and 1 8 demultiplexer.	2	10-3-25	18-3-25 to 19-3-25	As planned.	
Chapter 04 : Sequential Circuits						
I	Flip Flop - basic flip flop and latch, RS F/F, JK F/F, D F/F, T F/F,motor truth table, characteristic table and excitation table	3	11, 14-3-25	29, 1, 2-4-25	As planned	
II	Race around, Master-Slave JK flip flop.	2	17-3-25	3, 5-4-25	— 11 —	
III	UP-DOWN counter (2 to 3 bit), IC7490 (Pin diagram and truth table)	1	18-3-25	21-4-25	As planned	
IV	Universal Shift Registers, IC 74194 (Pin diagram and truth table)	2	21-3-25	23, 24-4-23	— 11 —	
Chapter 05 : Convertors and memories						
I	Digital to analog converters: weighted resistor,R-2R Ladder network	4	24, 25, 28-3-25	28, 29, 30-4-25	As planned	
II	Analog to digital converters: Successive approximation,	1	31-3-25	2-5-25	— 11 —	

	converters	1	1-4-25	4-5-25		
III	Different types of semiconductor memories: RAM ROM, EEPROM,UVEPROM,Static RAM, Dynamic RAM, Flash ROM and non-volatile RAM	3	4, 7, 8-4-25	6-5-25 to 15-5-25	As planned.	

REFERENCE BOOKS

S NO.	TITLE	AUTHOR / PUBLISHERS
1.	Fundamentals of Digital Circuits	Kumar, A. Anand/ Tata McGraw Hill
2.	Digital Logic and Computer Design	Mano M. Morris/ Prentice Hall Publication
3.	Digital Electronics: Principles and Integrated Circuits	Maini, A.K./ Wiley India Publications
4.	Modern Digital Electronics	Jain ,R.P./ McGraw Hill India ,

MR. HEMANT KUMAR

I/C H.O.D
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