DIPLOMA WING

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA,BHOPAL

SCHEME OF STUDIES & EXAMINATIONS (IMPLEMENTED FROM SESSION : JULY 2023)

SCHEME	NAME OF BRANCH AND BRANCH CODE	SEMESTER
OCBC JULY 2022/2023	ELECTRONICS AND TELECOMMUNICATION - E03 ELECTRONICS ENGINEERING - E06	THIRD (III)

S.N.	PAPER CODE	SUBJECT CODE	SUBJECT NAME	THEORY COMPONENT							PRACTICAL COMPONENT					TOTAL CREDITS	TOTAL MARKS
				HRS PER WEEK	CREDITS	TERM WORK			THEORY PAPER		HRS PER WEEK	CREDITS	LAB WORK	PRACTICAL EXAM/VIVA			
						QUIZ/ASSIGNMENT	MID TERM TEST*		TOTAL	MARKS	DURATION					MARKS	DURATION		
							I	II											
1	7456	301	ELECTRONICS DEVICES AND CIRCUITS	3	3	10	10	10	30	70	03 Hrs.	4	2	20	30	03 Hrs.	5	150
2	7457	302	DIGITAL SYSTEMS	3	3	10	10	10	30	70	03 Hrs.	4	2	20	30	03 Hrs.	5	150
3	7458	303	ELECTRONIC MEASUREMENTS AND INSTRUMENTATION	3	3	10	10	10	30	70	03 Hrs.	2	1	20	30	03 Hrs.	4	150
4	7459	304	ELECTRIC CIRCUITS AND NETWORK	4	4	10	10	10	30	70	03 Hrs.	0	0	0	0	0	4	100
5	7460	305	PRINCIPLES OF ELECTRONIC COMMUNICATION	3	3	10	10	10	30	70	03 Hrs.	4	2	20	30	03 Hrs.	5	150
6			**SUMMER INTERNSHIP- I	0	0	0	0	0	0	0	0	0	2	20	30	03 Hrs.	2	50
7			PROFESSIONAL DEVELOPMENT	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
8			***RECOVERY CLASSES/LIBERARY etc.	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0
TOTAL				16	16				150	350		20	9	100	150		25	750

NOTE - (1)* Two Best, out of Three Mid Term Tests (Progressive Tests) Marks should be entered here.

(2)** 3-4 Weeks Summer Internship after II Semester.

(3)***To recover courses if session delays due to summer internship.

GRAND TOTAL OF CREDITS	GRAND TOTAL OF MARKS
25	750

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DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING (E03) /
DIPLOMA IN ELECTRONICS ENGINEERING (E06)

SEMESTER III

COURSE TITLE	:	ELECTRONICS DIVICES AND CIRCUITS
PAPER CODE	:	7456
SUBJECT CODE	:	301
TREORY CREDITS	:	03
PRACTICAL CREDITS	:	02

Course Content:

Unit 1 – Semiconductor and Diodes

Definition, Extrinsic/Intrinsic, N-type & p-type

PN Junction Diode – Forward and Reverse Bias Characteristics

Zener Diode – Principle, characteristics, construction, working

Diode Rectifiers – Half Wave and Full Wave

Filters – C, LC and PI Filters

Unit 2 – Bipolar Junction Transistor (BJT)

NPN and PNP Transistor – Operation and characteristics

Common Base Configuration – characteristics and working

Common Emitter Configuration – characteristics and working

Common Base Configuration – characteristics and working

High frequency model of BJT

Classification of amplifiers, negative feedback

Unit 3 – Field Effect Transistors

FET – Working Principle, Classification

MOSFET Small Signal model

N-Channel/ P-Channel MOSFETs – characteristics, enhancement and depletion mode, MOS-FET as a Switch

Common Source Amplifiers

Uni-Junction Transistor – equivalent circuit and operation

Unit 4 – SCR DIAC & TRIAC

SCR – Construction, operation, working, characteristics

DIAC - Construction, operation, working, characteristics

TRIAC - Construction, operation, working, characteristics

SCR and MOSFET as a Switch, DIAC as bidirectional switch

Comparison of SCR, DIAC, TRIAC, MOSFET

Unit 5 – Amplifiers and Oscillators

Feedback Amplifiers – Properties of negative Feedback, impact of feedback on different parameters

Basic Feedback Amplifier Topologies: Voltage Series, Voltage Shunt Current Series, Current Shunt

Oscillator – Basic Principles, Crystal Oscillator, Non-linear/ Pulse Oscillator

SUGGESTED LEARNING RESOURCES:

S. No.	Title of Book	Author	Publication
1.	Analog Circuits	A.K. Maini	Khanna Publishing House Ed. 2018 (ISBN: 978-93-86173-584)
2.	Electronic Devices and Circuits	S. Salivahanan and N. Suresh Kumar	McGraw Hill Education; Fourth edition (1 July 2017) ISBN: 978-9339219505
3.	Electronics Devices and circuit theory	Boyestad & Nashelsky	Pearson Education India; 11 edition (2015) ISBN: 978-9332542600
4.	Electronic Principles	Albert Malvino & David Bates	Tata McGraw Hill Publication 2010 ISBN: 978-0070634244
5.	Electronics Devices & Circuits	Jacob Millman	McGraw Hill Education; 4 edition (2015) ISBN: 978-9339219543

SUGGESTED SOFTWARE/LEARNING WEBSITES:

a. https://www.electronics-tutorials.ws/
b. https://www.youtube.com/watch?v=Rx43l-QpeWQ
c. https://electronicsforu.com/resources/electronic-devices-and-circuit-theory

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ELCTRONICS DEVICES AND CIRCUITS LAB

Course Content:

SUGGESTED PRACTICALS/ EXERCISES

The practical in this section are PrOs (i.e. sub-components of the COs) to be developed and assessed in the student for the attainment of the competency.

S. No.	Practical Outcomes (PrOs)	Unit No.
1.	Construct the circuit and plot the VI characteristics of the PN Junction Diode , find the cut in voltage	1
2.	Construct the circuit and plot the characteristics of a Zener Diode. Find the breakdown voltage	1
3.	Construct a Half Wave Rectifier and obtain regulation characteristics – Without Filters and with Filters Compare the results	1
4.	Construct a Full Wave Rectifier and obtain regulation characteristics – Without Filters and with Filters Compare the results	1
5.	Construct a Bridge Rectifier and obtain regulation characteristics – Without Filters and with Filters	1
6.	Obtain the characteristics of DIAC and TRIAC	3
7.	Simulate half wave, full wave and bridge rectifier using simulation tool like PSpice/ Orcad/ Multisim.	3
8.	Develop a simulation model for Voltage Series and Voltage Shunt Feedback Amplifiers	5
9.	Develop circuits for Voltage Series and Voltage Shunt Feedback Amplifiers and obtain output plots. Compare the results with the simulation model.	5
10.	Develop a simulation model for Current Series and Current Shunt Feedback Amplifiers	5
11.	Develop circuits for Current Series and Current Shunt Feedback Amplifiers and obtain output plots. Compare the results with the simulation model.	
12.	**Total**	

Reference Books:

S. No.	Title of Book	Author	Publication
1.	Analog Circuits	A.K. Maini	Khanna Publishing House Ed. 2018 (ISBN: 978-93-86173-584)
2.	Electronic Devices and Circuits	S. Salivahanan and N. Suresh Kumar	McGraw Hill Education; Fourth edition (1 July 2017) ISBN: 978-9339219505
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DIPLOMA WING

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DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING (E03) /
DIPLOMA IN ELECTRONICS ENGINEERING (E06)

SEMESTER III

COURSE TITLE	:	DIGITAL SYSTEMS
PAPER CODE	:	7457
SUBJECT CODE	:	302
TREORY CREDITS	:	03
PRACTICAL CREDITS	:	02

Course Content:

Unit 1 – Number Systems & Boolean Algebra

Introduction to different number systems – Binary, Octal, Decimal, Hexadecimal

Conversion from one number system to another.

Boolean variables – Rules and laws of Boolean Algebra

De-Morgan's Theorem

Karnaugh Maps and their use for simplification of Boolean expressions

Unit 2 – Logic Gates

Logic Gates – AND, OR, NOT, NAND, NOR , XOR, XNOR: Symbolic representation and truth table

Implementation of Boolean expressions and Logic Functions using gates

Simplification of expressions

Unit 3 – Combinational Logic Circuits

Arithmetic Circuits – Addition, Subtraction, 1's 2's Complement, Half Adder, Full Adder, Half Subtractor, Full Subtractor, Parallel and Series Adders

Encoder, Decoder

Multiplexer – 2 to 1 MUX, 4 to 1 MUX, 8 to 1 MUX. Applications

Demultiplexer – 1 to 2 DEMUX, 1- 4 DEMUX, 1- 8 DEMUX

Unit 4 – Sequential Logic Circuits

Flip Flops – SR,JK, T, D, FF, JK-MS, Triggering

Counters – 4 bit Up – Down Counters, Asynchronous/ Ripple Counter, Decade Counter- Mod 3, Mod 7 Counter, Johnson Counter, Ring Counter

Registers – 4bit Shift Register: Serial In Serial Out, Serial in Parallel Out, Parallel In Serial Out, Parallel In Parallel Out

Unit 5 – Memory Devices

Classification of Memories – RAM Organization, Address Lines and Memory Sixe,

Static RAM, Bipolar RAM, cell Dynamic RAM, D RAM, DDR RAM

Read Only memory – ROM organization, Expanding memory, PROM, EPROM, EEPROM, Flash memory

Data Converters – Digital to Analog converters, Analog to Digital Converters

SUGGESTED LEARNING RESOURCES:

S.No.	Title of Book	Author	Publication
1.	Digital principles & Applications	Albert Paul Malvino & Donald P. Leach	McGraw Hill Education; Eighth edition ISBN: 978-9339203405
2.	Digital Electronics	Roger L. Tokheim Macmillian	McGraw-Hill Education (ISE Editions); International 2 Revised ed edition ISBN: 978-0071167963
3.	Digital Electronics – an introduction to theory and practice	William H. Gothmann	Prentice Hall India Learning Private Limited; 2 edition ISBN: 978-8120303485
4.	Fundamentals of Logic Design	Charles H. Roth Jr.	Jaico Publishing House; First edition ISBN: 978-8172247744
5.	Digital Electronics	R. Anand	Khanna Publications, New Delhi (Edition 2018) ISBN: 978-93-82609445

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DIGITAL SYSTEMS LAB

Course Content:

SUGGESTED PRACTICALS/ EXERCISES

The practical in this section are PrOs (i.e. sub-components of the COs) to be developed and assessed in the student for the attainment of the competency.

S. No.	Practical Outcomes (PrOs)	Unit No.	Approx. Hrs. Required
1.	To verify the truth tables for all logic fates – NOT OR AND NAND NOR XOR XNOR using CMOS Logic gates and TTL Logic Gates	1	02
2.	Implement and realize Boolean Expressions with Logic Gates	2	02
3.	Implement Half Adder, Full Adder, Half Subtractor, Full subtractor using ICs	3	02
4.	Implement parallel and serial full-adder using ICs	3	02
5.	Design and development of Multiplexer and De-multiplexer using multiplexer ICs	3	02
6.	Verification of the function of SR,D, JK and T Flip Flops	4	02
7.	Design controlled shift registers	4	02
8.	Construct a Single digit Decade Counter (0-9) with 7 segment display	4	03
9.	To design a programmable Up-Down Counter with a 7 segment display.	4	03
10.	Study of different memory ICs	5	02

S. No.	Practical Outcomes (PrOs)	Unit No.	Approx. Hrs. Required
11.	Study Digital- to – Analog and Analog to Digital Converters	5	02
12.	Simulate in Software (such as PSpice) an Analog to Digital Converter	5	03
13.	Simulate in Software (such as PSpice) an Analog to Digital Converter	5	03
	Total		**30**

Reference Books:

S.No.	Title of Book	Author	Publication
1.	Digital principles & Applications	Albert Paul Malvino & Donald P. Leach	McGraw Hill Education; Eighth edition ISBN: 978-9339203405
2.	Digital Electronics	Roger L. Tokheim Macmillian	McGraw-Hill Education (ISE Editions); International 2 Revised ed edition ISBN: 978-0071167963
3.	Digital Electronics – an introduction to theory and practice	William H. Gothmann	Prentice Hall India Learning Private Limited; 2 edition ISBN: 978-8120303485
4.	Fundamentals of Logic Design	Charles H. Roth Jr.	Jaico Publishing House; First edition ISBN: 978-8172247744
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DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING (E03) /
DIPLOMA IN ELECTRONICS ENGINEERING (E06)

SEMESTER III

COURSE TITLE	:	ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
PAPER CODE	:	7458
SUBJECT CODE	:	303
TREORY CREDITS	:	03
PRACTICAL CREDITS	:	01

Course Content:

Unit – I Basics of Measurements and Bridges

Accuracy & precision, Resolution
Types of Errors
DC Bridges – Wheatstone and Kelvin Double Bridge
AC Bridges - Maxwell's Bridge, Hay's Bridge, Anderson Bridge, De-Sauty's Bridge

Unit- II Potentiometer

Basic DC slide wire Potentiometer
Crompton's DC Potentiometer
Applications of DC Potentiometer
AC Potentiometers
Applications of AC Potentiometers

Unit– III Measuring Instruments

Permanent Magnet Moving Coil Instruments (PMMC)
Moving Iron type Instruments (MI)
Electro Dynamo Type Instruments
Single Phase Energy Meter

Unit– IV Electronic Instruments

Electronic Voltmeter and Digital Voltmeter
Electronic Multimeters
Q – Meter
Vector Impedance Meter

Unit– V Oscilloscopes

Cathode ray tube: construction, operation, screens, graticules
Vertical deflection system, Horizontal deflection system, Delay line,
Measurement of frequency, time delay, phase angle and modulation index (trapezoidal method)
Oscilloscope probe: Structure of 1:1 and 10:1 probe
Multiple Trace CRO

Unit- VI Transducers

Classification, Selection Criteria, Characteristics, Construction, Working Principles and Application of following Transducers:

RTD, Thermocouple, Thermistor

LVDT, Strain Gauge

Load Cell

Piezoelectric Transducers

SUGGESTED LEARNING RESOURCES:

S. No.	Title of Book	Author	Publication
1.	Electrical & Electronic Measurement & Instruments	A.K. Sawhney	Dhanpat Rai & Sons, India
2.	Electronic Instrument and Measurement Technique	W.D. Cooper	Prentice Hall International, India.
3.	Electronic Measurement & Instrumentation	J.G. Joshi	Khanna Publishing House, Delhi
4.	Measurement systems application and design	E.O. Doebelin and D. N. Manik	The Mcgraw-Hill
5.	Electronic Measurements and Instrumentation	Oliver and Cage	The Mcgraw-Hill
6.	Basic Electrical Measurement	M.B. Stout	Prentice hall of India, India
7.	Electronic Instrumentation	H. S. Kalsi	The Mcgraw-Hill
8.	Electrical and Electronics Measurement and Instrumentation	Prithwiraj Pukrait, Budhaditya Biswas, Santanu Das, Chiranjib Koley	The Mcgraw-Hill

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ELECTRONIC MEASUREMENTS AND INSTRUMENTATION LAB

SUGGESTED PRACTICALS/ EXERCISES

The practical in this section are PrOs (i.e. sub-components of the COs) to be developed and assessed in the student for the attainment of the competency.

S. No.	Practical Outcomes (PrOs)	Unit No.	Approx Hrs. Required
1.	Measure unknown inductance using following bridges (a) Anderson Bridge (b) Maxwell Bridge	I	4
2.	Measure Low resistance by Kelvin's Double Bridge	I	2
3.	Calibrate an ammeter using DC slide wire potentiometer	II	2
4.	Calibrate a voltmeter using Crompton potentiometer	II	2
5.	Measure low resistance by Crompton potentiometer	II	2
6.	Calibrate a single-phase energy meter by phantom loading	III	2
7.	Study the working of Q-meter and measure Q of coils	IV	2
8.	Study working and applications of (i) C.R.O. (ii) Digital Storage C.R.O. & (ii) C.R.O. Probes	V	2
9.	Measurement of displacement with the help of LVDT	VI	2
10.	Draw the characteristics of the following temperature transducers (a) RTD (Pt-100) (b) Thermistor	VI	2
11.	Measurement of strain/force with the help of strain gauge load cell	VI	2

Reference Books:

S. No.	Title of Book	Author	Publication
1.	Electrical & Electronic Measurement & Instruments	A.K. Sawhney	Dhanpat Rai & Sons, India
2.	Electronic Instrument and Measurement Technique	W.D. Cooper	Prentice Hall International, India.
3.	Electronic Measurement & Instrumentation	J.G. Joshi	Khanna Publishing House, Delhi
4.	Measurement systems application and design	E.O. Doebelin and D. N. Manik	The Mcgraw-Hill
5.	Electronic Measurements and Instrumentation	Oliver and Cage	The Mcgraw-Hill
6.	Basic Electrical Measurement	M.B. Stout	Prentice hall of India, India
7.	Electronic Instrumentation	H. S. Kalsi	The Mcgraw-Hill
8.	Electrical and Electronics Measurement and Instrumentation	Prithwiraj Pukrait, Budhaditya Biswas, Santanu Das, Chiranjib Koley	The Mcgraw-Hill

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DIPLOMA IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING (E03) /
DIPLOMA IN ELECTRONICS ENGINEERING (E06)

SEMESTER III

COURSE TITLE	:	ELECTRIC CIRCUITS AND NETWORK
PAPER CODE	:	7459
SUBJECT CODE	:	304
TREORY CREDITS	:	04
PRACTICAL CREDITS	:	00

Course Content:

Unit – 1 Basics of Network and Network Theorem

Node and Mesh Analysis

Superposition Theorem

Thevenin Theorem

Norton Theorem

Maximum Power transfer theorem

Reciprocity Theorem

Unit– 2 Graph Theory

Graph of network, tree, incidence matrix

F- Tie Set Analysis

F-Cut Set Analysis

Analysis of resistive network using cut-set and tie-set

Duality

Unit– 3 Time Domain and Frequency Domain Analysis

Solution of first and second order differential equations for Series and parallel R-L, R-C, R-L-C circuits

Initial and Final conditions in network elements

Forced and Free response, time constants

Steady State and Transient State Response

Analysis of electrical circuits using Laplace Transform for standard inputs (unit, Ramp, Step)

Unit– 4 Trigonometric and exponential Fourier series

Discrete spectra and symmetry of waveform

Steady state response of a network to non-sinusoidal periodic inputs, power factor, effective values

Fourier transform and continuous spectra

Unit- 5 Two Port Network

Two Port Network
Open Circuit Impedance Parameters
Short Circuit Admittance Parameters
Transmission Parameters
Hybrid Parameters
Interrelationship of Two Port Network
Inter Connection of Two Port Network

SUGGESTED LEARNING RESOURCES:

SUGGESTED SOFTWARE/LEARNING WEBSITES

S. No.	Title of Book	Author	Publication
1	Networks and Systems	Ashfaq Husain	Khanna Publishing House
2	Network Analysis	M. E. Van Valkenburg	Prentice Hall of India
3	Engineering Circuit Analysis	W. H. Hayt, J. E. Kemmerly and S. M. Durbin	McGraw Hill
4	Electrical Circuits	Joseph Edminister	Schaum's Outline, Tata McGraw Hill
5	Basic Circuit Theory	Lawrence P. Huelsma	Prentice Hall of India
6	Network & Systems	D. Roy Choudhury	Wiley Eastern Ltd
7	Linear Circuit Analysis	De Carlo and Lin	Oxford Press

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SEMESTER III

COURSE TITLE	:	PRINCIPLES OF ELECTRONIC COMMUNICATION
PAPER CODE	:	7460
SUBJECT CODE	:	305
TREORY CREDITS	:	03
PRACTICAL CREDITS	:	02

Course Content:

ANALOG MODULATION: Concept of frequency translation. Amplitude Modulation: Description of full AM, DSBSC, SSB and VSB in time and frequency domains, methods of generation & demodulation, descriptions of FM signal in time and frequency domains

PULSE ANALOG MODULATION: Ideal sampling, Sampling theorem, aliasing, interpolation, natural and flat top sampling in time and frequency domains

PCM & DELTA MODULATION SYSTEMS: Uniform and Non-uniform quantization. PCM and delta modulation, Signal to quantization noise ratio in PCM and delta modulation.

DIGITAL MODULATION: Baseband transmission: Line coding (RZ, NRZ), inter symbol interference (ISI), pulse shaping, Nyquist criterion for distortion free base band transmission, raised cosine spectrum. Pass band transmission: Geometric interpretation of signals, orthogonalization.

SPREAD-SPECTRUM MODULATION: Introduction, Pseudo-Noise sequences, direct sequence spread spectrum (DSSS) with coherent BPSK, processing gain, probability of error, frequency-hop spread spectrum (FHSS). Application of spread spectrum: CDMA.

Books:

1. Principles of communication systems By Taub Schilling, T.M.H.
2. Fundamentals of communication systems By Proakis & Salehi, Pearson education
3. Communication Systems by Simon Haykin, John Wiley
4. Communication Systems (Analog and Digital) By R.P. Singh, S.D. Sapre, T.M.H.
5. Modern Digital & Analog Communication By B.P. Lathi, Oxford Publications
6. Digital & Analog Communication Systems By K.S. Shanmugam, John Wiley

Course Outcomes:

1. Use of different modulation and demodulation techniques used in analog communication.
2. Identify and solve basic communication problems.
3. Analyse transmitter and receiver circuits.
4. Compare and contrast design issues, advantages, disadvantages and limitations of analog communication systems.

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PRINCIPLES OF ELECTRONIC COMMUNICATION LAB

Course Content:

1. Harmonic analysis of a square wave of modulated waveform: measures modulation index.
2. To modulate a high frequency carrier with sinusoidal signal to obtain FM signal.
3. To study and observe the operation of a super heterodyne receiver
4. To modulate a pulse carrier with sinusoidal signal to obtain PWM signal and demodulate it.
5. To modulate a pulse carrier with sinusoidal signal to obtain PPM signal and demodulate it.
6. To observe pulse amplitude modulated waveform and its demodulation.
7. To observe the operation of a PCM encoder and decoder. To consider reason for using digital signal x-missions of analog signals.
8. To study & observe the amplitude response of automatic gain controller (AGC).

Practical Outcomes (PrOs)

2. Understanding the different techniques of signal modulation and demodulation.
3. Understanding the variation in amplitude of controllers.

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SEMESTER - III

COURSE TITLE	:	SUMMER INTERNSHIP - I
PAPER CODE	:	--
SUBJECT CODE	:	--
TREORY CREDITS	:	00
PRACTICAL CREDITS	:	02

SUMMER INTERNSHIP –

3-4 weeks summer internship after IInd Semester.

It should be undertaken in an industry/Govt. or Pvt. Certified Agencies which are in social sector/Govt. Skill Centers/Schemes.

Evaluation is based on work done, quality of report, performance in viva-voce, presentation etc.

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SEMESTER - III

COURSE TITLE	:	PROFESSIONAL DEVELOPMENT
PAPER CODE	:	--
COURSE CODE	:	--
TREORY CREDITS	:	00
PRACTICAL CREDITS	:	00

Course Objectives:

Following are the objectives of this course:-

(1) To learn the principles of Professional and Social ethics.
(2) To know the concept of Lifelong learning and Self-directed learning.
(3) To present self for employment.
(4) To introduce the need of industrial visits.
(5) To understand CV, Resume, Bio-data and Interview and their significance.
(6) To develop the skills of Group Discussion.

Course Content:

Unit – I Professional and Social Ethics

Professional ethics, its need and importance, general code of ethics for engineers, ethical issues for engineers.

Need and importance of social skills, social skills for better group performance, important social skills such as social perceptiveness, coordination, negotiation, persuasion etc.

Unit – II Lifelong learning and Self-directed Learning

Lifelong learning, its examples, self-directed learning, its examples, important steps in lifelong learning.

Need for planning self-directed learning, planning self-directed learning plan, examples.

Unit – III Career Planning

Importance of career planning, major career opportunities in concerned branch of engineering , study of the important career opportunities regarding qualification, knowledge, skills, experience required for them, role of personal factors like personal life style, interest areas, desires, personal preferences in career planning.

Identification and detailing of important career opportunities in relation to branch of diploma, identification and detailing of important self-personal factors and self-personal preferences, development of self-career plan.

Unit – IV Industrial Visits

Necessity of exposure to environment and practices, lectures by industry experts.

Importance of Students' industrial visits, learning through observing real life industrial systems, planning and organizing the industrial visits.

Unit – V CV, Resume, Bio-data and Interview

Need of presenting self for employment, salient features and formats of bio-data, CV, resume, comparison of the three for their merits, limitations and specific uses, study of cases and examples of bio-data, CV, resume and covering letter by all students for self of for the given cases.

Importance of employment related interviews, purpose of interview, dress code, body language and posture of interviewee, do's and don'ts for interviews, interview checklist, practice of facing employment related interviews for all students.

Unit – VI Group Discussion

Need and importance of group discussion in professional work, ideal group discussion and skills needed to effectively participate in group discussion, practice of group discussion skills.

Course Outcomes:

After completing this course, the student will be able to:-

(1) Demonstrate his/her understanding of Professional and Social ethics.
(2) Plan self-learning and self-directed learning for completing the task.
(3) Suggest an action plan for his career planning.
(4) Demonstrate his/her learning from visits to industry.
(5) Prepare CV, Resume and Bio-data along with a covering letter for a job.
(6) Effectively face an interview.
(7) Participate in Group discussion.

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