Course Name : Diploma in Electronics Engineering
Course Code : DElnE
Semester : Third
Subject Title : Mathematics III
Subject Code : 133MA31

Teaching Scheme			Paper Hours	Examination Scheme											Total Marks
L	T	P		Theory		Test	Total		P		O		TW		
				Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
3	1	-	3	80	32	20	100	40	-	-	-	-	25	10	125

Rationale:
The study of mathematics is necessary to develop the skills essential for solving engineering problems. Integral calculus is routinely needed by engineers in calculations like mean value, r.m.s. value. Laplace Transform is needed to find solution of differential equations.

Objective:
1. To make students well versed in various methods of integration for solving problems.
2. To impart knowledge of Laplace Transform.
3. To expose students to techniques of solving differential equations.

No.	Contents	L	M
	Section I		
1	**Integration** 1.1 Definition of integration. Integration of standard functions. 1.2 Theorems of integration. 1.3 Methods of Integration 1.3.1 Integration by substitution 1.3.2 Integration by trigonometric transformation. 1.3.3 Integration of rational functions. 1.3.4 Integration by partial fractions. 1.3.5 Integration by parts. 1.4 Definite Integration 1.4.1 Definition of definite integral. 1.4.2 Properties of definite integral with simple problems. 1.4.3 Reduction formulae.	22	33
	1.5 **Applications of definite integrals.** 1.5.1 Introduction to standard curves. 1.5.2 Area under curve. 1.5.3 Mean and RMS value	07	07

	Section II		
2	**Laplace Transform** 2.1 Definition of Laplace Transform, Laplace Transform of Standard functions. 2.2 Properties of Laplace Transform - Linearity, first Shifting property, multiplication by t^n, division by t. 2.3 Inverse Laplace Transform by definition 2.3.1 Properties of Inverse Laplace Transform 2.3.2 Method of partial fractions. 2.4 Laplace Transform of derivatives. 2.5 Solution of differential equation using Laplace Transform	11	20
3	**Differential Equations:** 3.1 Order and degree of the differential equation. 3.2 Solution of differential equation of first order, first degree 3.2.1 Variable separable method. 3.2.2 Homogeneous differential equation. 3.2.3 Exact differential equation. 3.2.4 Linear differential equation.	08	20
	Total	**48**	**80**

REFERENCE BOOKS :

1**)** Applied Mathematics III- B.M.Patel, J.M.Rawal and others - Nirali Prakashan (July-2010)

2) Mathematics for Polytechnic students- S. P. Deshpande- Pune Vidyarthi Griha Prakashan (first edition-Aug.2005)

3) Applied Mathematics II (Electrical, Instrumentation and Boimedical) – G.V. Kumbhojkar - C. Jamnadas & Co.(Revised third edition 2010-11)

Course Name : **Diploma in Electronics Engineering**
Course Code : **DElnE**
Semester : **Third**
Subject Title : **Electrical Networks - I**
Subject Code : **132EX32**

Teaching and Examination Scheme:-

Teaching Scheme			Paper Hours	Examination Scheme										Total Marks
				Theory		Test	Total		P		OR		TW		
L	T	P		Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
3	1	2	3	80	32	20	100	40	50	20	--	--	25	10	175

Rationale:-

Network analysis is the process of finding the voltages across, and the currents through, every component in the network. There are many different techniques for calculating these values.

This subject is course on the basics of Network Analysis, introduction to network elements and explained all the possible method for finding voltage and current across any network Component.

It aims at making the student conversant with different techniques of solving the problems in the field of Electric circuits and analysis.

Objectives:-

The students should be able to:

1) Explain and analyze different Circuit Elements and Energy Sources.
2) Analysis of Network by Kirchhoff's Laws, Node and Mesh Analysis
3) Analyze single phase circuits using resistor, inductor & capacitor elements.
4) Explain and analyze series and parallel resonant behavior of a circuit.
5) Analyze different theorems for dc and ac circuits using dependent sources.
6) Study network topology.

Syllabus

Sr. No	Contents	L	M
	Section I		
1	**Network Parameters and Energy Sources** Active and passive, Linear and non-linear, Unilateral and bilateral, Lumped and distributed, Time varying and time invariant parameters, Voltage and current sources (ideal and practical), Dependent and Independent sources, Source Transformation,	05	10
2	**Analysis of Network by Kirchhoff's Laws, Node and Mesh Analysis with Dependent sources** Kirchhoff's Voltage Law (KVL), Kirchhoff's Current Law(KCL), Mesh Analysis,	10	15

	Nodal Analysis, Current division in parallel Circuits, Voltage division in series Circuit.		
3	**A.C Fundamentals:** Alternating Current and Voltage, Sinusoidal, Triangular, Square. (Periodic waveforms), Frequency, Time Period & Phase Angle of A.C waveforms, R.M.S, value, Average value and Phasor representation of alternating quantities. Inductors & capacitors phase relationships & concept of impedance. Introduction to rectangular and polar forms of A.C quantities. Power Measurements in Polyphase Circuits	09	15
	Section II		
4	**Resonance:** Resonance in series RLC circuit, waveforms for voltage, current, Power Factor and Impedance, Quality factor, expression for quality factor, Resonance in parallel RLC circuit.	07	13
5	**Network Theorems (For D.C circuits with Independent & Dependent sources):** Thevenin's Theorem, Norton's Theorem, Superposition Theorem, Maximum power Transfer Theorem. Reciprocity theorem, Tellegen's theorem	10	15
6	**Graph theory and network topology** Introduction, graph of network, tree, co-tree, loop incidence matrix, cut set matrix, tie set matrix and loop current, number of Possible tree of a graph, duality.	07	12
	Total	**48**	**80**

Part II: - Practical's

List of Laboratory Experiments:-.

1. Determine the loop currents in any DC network
2. Determine the node voltages in any DC network
3. Verification of principle of superposition with DC sources.
4. Verification of Thevenin, theorems in DC circuits
5. Verification of Norton theorems in DC circuits
6. Verification of Maximum power transfer theorems in DC circuits
8. Study of RLC series resonance
9. Study of RLC Parallel resonance

Books Recommended:

Text Books:

1. W H Hayt, S M Durbin, J E Kemmerly, 'Engineering Circuit Analysis', 7th Edition Tata McGraw-Hill Education.
2. M. E. Van Valkenburg, 'Network Analysis', 3rd Edition, PHI Learning.
3. D. Roy Choudhury, 'Networks and Systems', 2nd Edition, New Age International.

Reference Books:

1. F. F. Kuo,' Network Analysis and synthesis', John Wiley and sons.
2. N Balabanian and T.A. Bickart, 'Linear Network Theory: Analysis, Properties, Design and Synthesis', Matrix Publishers, Inc.
3. C. L.Wadhwa, 'Network Analysis and synthesis', New Age international.
4. B. Somanathan Nair, "Network Analysis and Synthesis", Elsevier Publications

Course Name : **Diploma in Electronics Engineering**
Course Code : **DElnE**
Semester : **Third**
Subject Title : **Electronics - I**
Subject Code : **133EX33**

Teaching and Examination Scheme:-

Teaching Scheme			Paper Hours	Examination Scheme											Total Marks
				Theory		Test	Total		P		OR		TW		
L	T	P		Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
3	-	2	3	80	32	20	100	40	50	20	-	-	25	10	175

Rationale:-

Today majority of the equipments use electronic circuits. It is therefore necessary for an engineer to study the semiconductor components used in these circuits, particularly their construction, working, characteristics & applications.

Objectives:-

The students should be able to:

1) Identify different diodes on their construction, characteristics and application basis.
2) Prepare different types of rectifier and filter circuits.
3) Analyze different configurations of Bipolar Junction Transistor circuits.
4) Build small signal amplifier and switch applications of Transistor.
5) Identify different types of optoelectronic devices on basis of their construction, characteristics and applications.

Syllabus

Part I:- Theory

Sr. No.	Contents	L	M
	Section I		
1	**Semiconductor Physics :** Germanium & Silicon Intrinsic semiconductor, Extrinsic P type & N type semiconductor, effect of temperature on semiconductor.	03	06
2	**PN Junction Diode:** **a)** Germanium Diode, Silicon Diode, their construction, working under no bias Forward bias & reverse bias condition. Forward & Reverse Characteristics**.** Important specifications (ratings) of a PN junction diode. **b) Diode Applications**: Diode as a switch. **i) Rectifiers & Filters**: Half Wave Rectifier (HWR),Full Wave Rectifier	16	26

	(FWR) - centre tap transformer and bridge type. Their comparision on the basis of		

	circuit operation, waveforms, average(dc) value of rectifier output, ripple factor, ripple frequency, transformer utilization factor, rectification efficiency, advantages and disadvantages Filter types – C, L, LC, CLC (π). Comparision, merits & demerits. **ii) Clipping & Clamping circuits :** Types and applications. **iii) Voltage Multiplier circuits** : Types and applications. **c) Zener diode :** Construction, Characteristics, Various Specifications(Ratings). Application in a simple voltage regulator circuit.		
3	**Optoelectronic Devices :** Construction, working, characteristics and applications of photoconductive cell, photovoltaic cell, Light Emitting Diode, Infra Red Light Emitting Diode, Liquid Crystal Display & Optocouplers.	05	08
	Section II		
4	**Bipolar Junction Transistor (BJT) :** Construction, working principle of PNP and NPN transistors, characteristics of CB, CE and CC configurations. DC and AC current gains α, β, γ. Requirement of biasing, different types of biasing circuits fixed, bias circuit with emitter resistor, collector to base biasing circuit, voltage divider biasing circuit and emitter bias circuit. Thermal stability factor. Comparision of each on the basis of thermal stability. Transistor Specifications. Transistor Testing	12	20
5	**Applications of BJT:** **a) Small Signal Amplifier**: Approximate hybrid model for Common Emitter Amplifier . Analysis of CE single stage Small Signal Amplifier **(with un-bypassed & bypassed emitter resistor),** using approximate hybrid equivalent circuit (amplifier input, output impedance, current & voltage gain). **b) Application of BJT CE inverter switch.**	08	13
6	**Unijunction Transistor (UJT)** : Construction, principle of operation, characteristic and use of UJT in Relaxation Oscillator circuit.	04	07
	Total	**48**	**80**

Part II:- Practicals

List of Laboratory Experiments:-

1) Characteristics of Germanium and Silicon Diode.
2) Characteristics of Zener Diode
3) Characteristics of Light Emitting Diode (Red, Green, Yellow and Blue color).
4) Input and Output characteristics of Common Emitter BJT configuration.

5) Diode rectifier circuits (HWR and FWR), without and with C – type filter.
6) Diode Clipping and Clamping circuits.
7) Single stage CE Small Signal Amplifier. (With un- bypassed & bypassed R_E)
8) BJT CE switch application.
9) UJT characteristics and UJT Relaxation Oscillator circuit.
10) Zener Diode voltage regulator.

NOTE: Students must perform at least one experiment of above topics on MULTISIM Electronic Workbench Software.

Learning Resources:-

Text Book:-

Electronic Devices and Circuit Theory, 9th Edition by Robert Boylestad & Louis Nashelsky, Prentice Hall India Private Limited.

Reference Books:-

1) Electronic Principles,7th Edition by Albert Paul Malvino, (Tata McGraw - Hill Publishing Company Ltd).
2) Electronic Devices and Circuits, 5th Edition by David Bell, Oxford University Press.
3) Basic Electronics and Linear Circuits, 4th Edition by Bhargava, Kulshrestha and Gupta (Tata McGraw - Hill Publishing Company Limited).

Course Name : **Diploma in Electronics Engineering**
Course Code : **DElnE**
Semester : **Third**
Subject Title : **Measuring Instruments**
Subject Code : **133EX34**

Teaching and Examination Scheme:-

Teaching Scheme			Paper Hours	Examination Scheme										Total Marks
				Theory		Test	Total		P		OR		TW		
L	T	P		Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
3	-	2	3	80	32	20	100	40	-	-	25	10	25	10	175

Rationale:-

This subject is meant to familiarize the students with various electrical and electronic instruments. The subject is to be illustrated with block diagrams and circuit diagrams.

Objectives:
The students should be able to:

1) Know the construction of the instruments.
2) Understand the principles and operation of different measuring instruments.
3) Select the appropriate instrument for measurement.
4) Observe reading and interpret the values from different meters.
5) Give the applications of the instruments.

Syllabus

Part I:- Theory

Sr. No.	Contents	L	M
	Section I		
1	Error classification, dimensions of electrical quantities, Standard of resistance and voltage.	04	06
2	CRO block diagram, functions of the various blocks, time-base generators. Synchronization of the sweep, triggered sweep, delay line in triggered sweep. Dual trace and dual beam CRO, measurement of phase and frequency using CRO, Lissajous patterns, Storage oscilloscope	07	12
3	Ammeter and voltmeter(DC), multi-range ammeters, multi-range voltmeters. Loading effect of voltmeter and solid state voltmeter, extension of range of voltmeter and ammeter and problems based on the same.	07	12

4	Indicators and Display Devices. Energy meters.	06	10
	Section II		
5	Principal of Wheatstone bridge, limitations of Wheatstone bridge measurement of medium resistance by ammeter, voltmeter method. Kelvin's double bridge for measurement of low resistance, meggar and analog multimeter. D.C. potentiometer and principal of A.C. potentiometer, application of potentiometer.A.C. bridges, Maxwell Inductance bridge, Schering bridge and Wien Bridge.	07	12
6	**Digital Instruments:** Digital Multimeters, Digital Frequency Meter (basic circuit) Digital Measurement of Time (periodic measurement), Universal Counter.	07	12
7	Recorders: Strip chart recorder, XY recorder.	05	08
8	Phase and frequency meter (digital): Requirement of signal generator and theory of signal generator, Function generator	05	08
	Total	**48**	**80**

Part II:- Practicals

List of Laboratory Experiments:-

Errors in measurements: Resistance, Series and parallel connected resistances.

1. Measurement of medium resistance using V-I method.
2. Measurement of Inductance using A.C. Bridge
3. Measurement of capacitance using A.C. Bridge
4. Extension of range of voltmeter and ammeters.
5. Extension of range of an ammeter.
6. Measurement of high resistance using Meggar
7. Measurement of Frequency, Peak-to-peak voltage of different signals using CRO
8. Measurement of Phase shift using Lissajous patterns.
9. Measurement of Frequency using Intensity modulation.

Learning Resources:-

Text Book:-

Electronic Instrumentation, 2nd Edition by H. S. Kalsi, (Tata McGraw - Hill Publishing Company Limited).

Reference Books:-

1) A Course in Electrical and Electronics Measurements, 18th Edition by A K Sawhney, Dhanpat Rai & Company Private Limited.

2) Modern Electronic Instrumentation and measurement techniques 3rd Edition By Albert D Helfrick and William D Cooper, Prentice Hall India Private Limited.

Course Name : **Diploma in Electronics Engineering**
Course Code : **DElnE**
Semester : **Third**
Subject Title : **Digital Integrated Circuits**
Subject Code : **133EX35**

Teaching and Examination Scheme:-

Teaching Scheme			Paper Hours	Examination Scheme										Total Marks
				Theory		Test	Total		P		OR		TW		
L	T	P		Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
3	-	2	3	80	32	20	100	40	25	10	-	-	25	10	150

Rationale:-

This subject will give the students knowledge of digital technology applications in various fields like computers, consumer electronics, communication system, radar, marine, military systems, medical instrumentation, industrial process control.

Objectives:-

The students should be able to:

1) Do conversion of number systems.
2) Describe operation of basic logic gates.
3) Simplify a logical expression and get simplified circuit using different techniques.
4) Analyze working and give applications of various combinational and sequential logic circuits.
5) Compare logic families.
6) Identify different types of memories and their applications.

Syllabus

Part I:- Theory

Sr. No.	Contents	L	M
	Section I		
1	**Introduction, Number Systems, Codes:** Introduction to digital system, Conversion between decimal, binary, octal & hexadecimal numbers. Binary arithmetic.1's& 2's complements of binary numbers. Signed numbers, arithmetic operations with signed numbers. BCD 8421 code, 9's & 10's complement, BCD arithmetic, Excess – 3, Gray, Alphanumeric, ASCII & EBCDIC codes. Parity method for error detection.	06	10

2	**Logic Gates and Combinational Logic Circuits :** AND, OR, NOT, NAND, NOR, EX –OR, EX-NOR Gates. Boolean Algebra: Operations, Expressions, Laws & Rules. DeMorgan's Theorems. NAND & NOR used as universal gates. Simplification of Logic Expression by using Boolean Algebra. Sum -Of-Products (SOP) & Product-Of-Sums (POS) forms of logic expression, their conversion to standard forms. Karnaugh map reduction technique for 2 to 4 input variables function. Don't Care Condition. Troubleshooting of logic circuits.	12	20
3	**Logic Families :** Study of TTL & CMOS family, their characteristics & parameters comparision (propagation delay time, power dissipation, fan-out, input/output logic levels, dc supply voltage, speed-power product).	06	10
	Section II		
4	**Applications of Combinational Logic Circuits :** Half & Full Adders, Subtractors, Comparators, Encoders, Decoders, Multiplexers, Demultiplexers, Parity Generators/Checkers. Troubleshooting.	06	10
5	**Sequential Logic Circuits :** **Flip Flops :** S-R, D latches, Clocked (Level & Edge Triggered), S-R, D, J-K & T flip flops. Flip flops with Preset & Clear inputs. **Counters :** Asynchronous and Synchronous, Mod- N, Up-Down, Presettable**,** Ring, Twisted Ring, Decade and BCD counters. **Registers :** Shift Operation (Left, Right, Bi-Directional) SISO, SIPO, PISO**,** PIPO and universal shift registers. Troubleshooting of sequential logic circuits.	12	20
6	**Memories & Programmable Logic Devices (PLD's) :** Types: RAM, PROM, EPROM, FLASH & other special type memories. (principle of operation, characteristics and applications) , introduction to CPLDs and FPGAs.	06	10
	Total	**48**	**80**

Part II:- Practicals

List of Laboratory Experiments : (Using TTL and/or CMOS IC's) :

1) To verify the truth table of TTL logic gate IC's 7408, 7432, 7400, 7402, 7486.
2) To built S-R latch using TTL 7400 NAND & 7402 NOR gate IC's.
3) To store a 2 bit and a 4 bit word using D transparent latches IC 7475.
4) Toggle & frequency divider application of J K flip flop IC 7476A.

5) Study of binary counter IC 7493. Obtaining mod-2 to mod-15 circuits from it.
6) Use of CD 4017B Decade Counter IC in LED Sequencer (chaser) application. Getting mod-2 till mod-10 conditions from it.
7) Study of IC CD 4033B Decade counter with 7 segment LED Decoder Driver. To prepare a two digit UP counter (00 to 99 count) by using two CD4033B IC's.
8) Study of 4 bit Bi-directional universal shift register IC (74194/ CD 40194).
9) Study of Encoder & Decoder IC's (74147, 74148, 7442, 74154).
10) Preparing multiplexer & de-multiplexer circuits using IC's (74150,74151, 74154).
11) Study of Arithmetic Logic Units / Function Generator IC 74181.
12) Study of 4 bit magnitude comparator IC 7485.

NOTE : The students must also perform above/or other related experiments on MULTISIM Electronic Work Bench software.

Learning Resources:-

Text Book:-

Modern Digital Electronics, 4th Edition by R.P. Jain,
(Tata McGraw - Hill Publishing Company Limited).

Reference Books:-

1) Digital Fundamentals by Thomas L. Floyd, 8th Edition, Pearson Education Inc.
2) Digital Principles & Applications by Malvino, 5th Edition,
(Tata McGraw – Hill Publishing Company Limited).
3) Digital Systems:Principles & Applications, 8th Edition,by R.J. Tocci, Prentice Hall India.

Course Name : **Diploma in Electronics Engineering**
Course Code : **DElnE**
Semester : **Third**
Subject Title : **Electronic Workshop**
Subject Code : **133EX36**

Teaching & Examination Scheme:-

Teaching Scheme			Paper Hours	Examination Scheme											Total Marks
L	T	P		Theory		Test	Total		P		OR		TW		
				Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
1	-	2	-	-	-	-	-	-	-	-	50	20	50	20	100

Rationale:

The subject will help the students in getting practical skill of arranging components on the Printed Circuit Board, soldering of components, testing, locating faults in circuit(troubleshooting).

Objectives:-

Students should be able to :
1) Explain the use of lamp monitor & logic circuit tester in digital system.
2) Explain the use of clock signal in digital circuits.
3) Explain counter application used in digital system

Syllabus

Part I:- Theory

Ser No.	Contents	L
1	Common Emitter BJT switch circuit with LED indicator as load, for testing the output logic levels of digital circuits.	1
2	Square Wave Generator (Clock Signal) circuit (Astable Multivibrator) using CD 4093B CMOS Integrated Circuit.	2
3	Three digit up counter circuit using CD 4033B IC. Concept of Leading & Trailing Zeros suppression, Ripple Blanking Input & Ripple Blanking Output function. Use of object/event counter.	3
4	Decade counter LED chaser circuit using CD4017B IC.	1
5	Study of IC 555 Astable Multivibrator circuit. Use in LED flasher application & Modulated Tone Generator.	3
6	Study of monostable timer IC 74121	1
7	Study of four bit binary ripple counter IC 7493.	1
8	**CABLES/WIRES:** Types: flexible, hook-up, coaxial and fiber optic. Multi-core Power and Control cables. Their construction and applications.	2

9	**RELAYS :** Construction, rating & working principle of general purpose relay, Reed relay.	2
		16

Part II:- Practicals

List of Laboratory Experiments:-

1) To construct a Lamp Monitor circuit using CE BJT switch for testing of logic circuit voltage levels.
2) To construct a clock signal (Square Waveform Generator) using IC 555.
3) To construct a two digit object counter using CD 4033B IC's and seven segment displays.
4) To prepare 10 LED's chaser (Sequencer) circuit using decade counter IC CD4017B.
5) To construct LED Flasher circuit using IC 555 Astable Multivibrator.
6) To construct a Frequency Modulated Tone Generator circuit using IC 555 & speaker.
7) To construct monostable timer circuit using IC 74121.
8) To prepare one mini project (Group of 6 students), give seminar on it and submit a report of the project in the journal

Learning Resources:

Reference Books:

1) Electronic Project, Volume 1 to Volume 27, Edition onwards, by Electronics For You Group, BPB Publications.

2) Electronic Circuits Handbook, 3rd Edition by Michael H Tooley ,BPB Publications.

3) Practical Digital Electronics Handbook, 1st Edition by Michael H. Tooley, BPB Publications.

4) The Art of Electronics by Paul Horowitz and Winfield Hill, 2nd Edition, Cambridge University Press.

Course Name : **Diploma in Electronics Engineering**
Course Code : **DElnE**
Semester : **Third**
Subject Title : **Product Study & Analysis**
Subject Code : **133EX37**

Teaching and Examination Scheme:-

Teaching Scheme			Paper Hours	Examination Scheme											Total Marks
				Theory		Test	Total		P		OR		TW		
L	T	P		Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
-	-	2	-	-	-	-	-	-	-	-	-	-	25	10	25

Rationale:-

Many times we purchase the product/s without having proper knowledge about its Technical Specifications, Quality, Cost and other important related issues. This subject will help the students in proper selection of product/s purchase from market. Seminars will help the student to gain confidence in presentation skills required in a group talk, interviews and other places.

Objectives:-

Student will be able to:

1) Acquire information from different sources
2) Prepare notes for given topic
3) Present given topic in a seminar

List of Activities:-

1) Market Survey :

The complete classroom strength will be divided into groups of six students each. Each group will select **ONE** electronic product (for eg. DC Power Supply, Signal Generator, CRO, Television Receiver, Radio Receiver, Personal Computer, LapTop, Home Theatre System, Uninterrupted Power Supply (UPS) systems, Public Address Systems, Spike Guard Suppressors for Computers, Light/Fan Dimmers, **etc.**)

The group will collect information from market of various brand names manufacturing that product, general and technical specifications of the product, cost of the product, after sales service facility, warranty and other details.

2) Product Report:

A report is to be prepared by each group based on the market survey done in Market Survey, and submitted as term-work.

3) Seminar:

Individual student from each group has to give seminar in the classroom on their surveyed product and submit the seminar report as term-work.

Course Name : Diploma in Electronics Engineering
Course Code : DElnE
Semester : Third
Subject Title : Student Centered Activity/Test

Teaching Scheme			Paper Hours	Examination Scheme											Total Marks
L	T	P		Theory		Test	Total		P		O		TW		
				Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-

Rationale:–

Most of the diploma holders join industries. Due to globalization and competition in the industrial and service sectors the selection for the job is based on campus interviews or competitive tests.

While selecting candidates a normal practice adopted is to see general confidence, ability to communicate and attitude, in addition to basic technological concepts.

The purpose of introducing professional practices is to provide opportunity to students to undergo activities which will enable them to develop confidence. Expert lectures, E-learning sources, E-library, Internet, seminars on technical topics and group discussion are planned in a semester so that there will be increased participation of students in learning process.

Objectives:

The Student will be able to:

1. Acquire information from different sources
2. Prepare notes for given topic
3. Present given topic in a seminar
4. Interact with peers to share thoughts
5. Take the advantages of E-learning sources