

**Course Name :** Diploma in Electrical Engineering  
**Course Code :** DEE  
**Semester :** Fourth  
**Subject Title :** Electrical Machines - I  
**Subject Code :** 132EE41

**Teaching and Examination Scheme:-**

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

**Rationale:-**

This subject is classified under core technology group which intends to teach facts, concepts, principles & procedure for operation & testing of electrical machines, such as DC generators, DC motors, single & three phase transformers. Student will be able to analyze the characteristics of DC motors, Transformers & Qualitative parameters of these machines.

These machines are used in transmission, distribution & utilization systems. Knowledge gained by students will be helpful in study of technological subjects such as utilization of electrical energy, switch gear & protection, manufacturing processes & testing & maintenance of electrical machines. The knowledge & the skills obtained will be helpful in discharging duties like Supervisor, Controller & R & D technician.

**Objectives:-**

Student will be able to:

- 1) Know the constructional details & working principles of dc machines & transformers.
- 2) Test motors & transformers.
- 3) Evaluate the performance of dc motors & transformers by conducting various tests.
- 4) Decide the suitability of dc generator motor & transformer for particular purpose.
- 5) Write the specifications of dc machines & transformers as per requirement.
- 6) Operate any machine properly.

**Syllabus**

**Part I:- Theory**

Sr. No	Section-I	L	M
1	<b>DC MACHINES</b> <b>Construction &amp; working principle of DC machines</b> <b>GENERATORS :</b> Methods of excitation. Characteristics of generators. Emf equation. Armature reaction. Commutation.	12	20

	Basic performance equations for dc machine.		
2	<b>DC MOTORS :</b> Working principle, back emf, torque equation. Characteristics of series, shunt & compound motors Speed control of dc motor. Starting of dc motor – 3 point starter and 4 point starter Losses ,efficiency and testing of dc machine Applications of above motors	12	20
	<b>Section – II</b>		
3	<b>SINGLE PHASE TRANSFORMER</b> Introduction. Construction. Principle of operation. Ideal transformer and actual transformer. Emf equation, transformation ratio, kVA rating. Equivalent circuit and phasor diagrams. Test on transformer- Open circuit test, Short circuit test, Polarity test and load test (Sumpner’s test). Efficiency and regulation. Power & distribution transformer,all day efficiency, energy efficiency. Single phase auto transformer: principle ,advantages & disadvantages Comparison with 2 winding transformer & potential transformer	18	30
4	<b>THREE PHASE TRANSFORMER</b> Construction and operation connections vector groups <b>SPECIAL PURPOSE TRANSFORMER</b> Current transformer Potential transformer Isolation transformer	06	10
	<b>TOTAL</b>	<b>48</b>	<b>80</b>

## Part II:- Practicals:-

### List of Laboratory Experiments:-

- 1) a) To identify the constructional parts of D. C. machine.  
b) To plot the O.C.C. of a given d. c. machine and to find critical resistance.
- 2) To find the performance of d. c shunt motor by conducting load test
- 3) a) To control the speed of d. c. shunt motor above and below normal speed.  
b) To reverse the direction of rotation of d. c. motor.
- 4) a) To identify the constructional details of 1-phase and 3-phase transformer.
- 5) To measure the performance of single phase transformer by direct loading and to find transformation ratio.
- 6) To measure performance of single phase transformer by O.C. and S.C. test.

- 7) To identify terminal polarity of corresponding phases of 3-phase transformer & to calculate transformation ratio.
- 8) To observe the phase difference between primary & secondary voltage of 3-phase transformer for various vector groups.

**Learning Resources:-**

**Text Book:-**

Electrical Machines, 3<sup>rd</sup> Edition by S K Bhattacharya,  
Tata McGraw- Hill Publishing Company Limited.

**Reference Books:-**

- 1) Electrical Machinery, 5<sup>th</sup> Edition by P.S. Bhimbra, Khanna Publishers.
- 2) Electrical Technology, 7<sup>th</sup> Edition by H. Cotton, CBS Publishers and Distributors.
- 3) Electrical Technology -Vol. II, 23<sup>rd</sup> Revised Edition by B.L Theraja , and A K Theraja, S Chand & Company Ltd.
- 4) Electrical Machines, 1st Edition by Samarjit Ghosh, Pearson Education

**Course Name :** Diploma in Electrical Engineering  
**Course Code :** DEE  
**Semester :** Fourth  
**Subject Title :** Electrical Networks - II  
**Subject Code :** 132EE42

**Teaching and Examination Scheme:-**

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

**Rationale:-**

This is the second course which extends the network theory to frequency domain approach and the analysis concepts therein. Both the first and second course together will strengthen the fundamentals of the students as well as make the subject interesting to the teachers to teach. Synthesis gives the idea about concept of synthesis and stability of the given circuits and network functions.

**Objectives:-**

The students should be able to:

- 1) Analyze first and second order system response with dc inputs.
- 2) Apply Laplace Transform concept for first and second system in time response  
Analysis of various R, L and C component series/parallel circuits.
- 3) Understand the concept of natural and forced response of systems.
- 4) Analyse one and two port network circuits and study their various parameters.
- 5) Do analysis and synthesis of one port network.

**Syllabus**

Sr. No	Contents	L	M
<b>Section I</b>			
<b>1</b>	<b>Initial &amp; Final Conditions in Networks</b> Initial condition of networks, General and partial solutions, time constant, integrating factor, more complicated network, final (steady-state) conditions.	04	05
<b>2</b>	<b>D.C Transient Response:</b> Introduction, Transient Response of Series R-L Circuit, R-C Circuit & RLC Circuit with D.C. Excitation, , Natural and Forced response of the First and Second order systems. (Solving Differential Equations in Time Domain) Different Types of Second order Responses: Under-damped, Critically, over-damped and undamped.	10	15
<b>3</b>	<b>The Laplace Transformation &amp; its application in Circuit Analysis</b> Definition of Laplace transform, Laplace transforms of standard time signals: Unit-step, Unit Ramp, and Unit Impulse functions, The initial value and final value	10	20

	theorems, Transfer functions of R-L-C Series and parallel circuits.. Pole-zero plots, Natural and Forced response of the First and Second order systems.(Solving Differential Equations in complex Domain using Laplace transforms) Step & impulse Response of R-L & R-C Circuit.		
<b>Section II</b>			
<b>4</b>	<b>Network Functions</b> One port networks-Driving point impedance and admittance. Two port networks- Transfer functions.	06	08
<b>5</b>	<b>Two port Network Analysis:</b> Admittance(Y) parameters, Impedance (Z) parameters, Hybrid (h) parameters, Transmission parameters and Equivalent circuits Diagram. Reciprocity and symmetry conditions, Interconnection of two port Network, Relationship between parameter Sets.	12	20
<b>6</b>	<b>Network Synthesis:</b> Synthesis of one-port networks, Hurwitz polynomial, Properties of Hurwitz Polynomial, positive real functions, Properties of PR Function. Foster and Cauer forms.	06	12
<b>Total</b>		<b>48</b>	<b>80</b>

**Tutorials: At least 6 Problems on each subtopic.**

**Learning Resources:-**

**Text Book:-**

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 Electrical Engineering  
**Course Code :** DEE  
**Semester :** Fourth  
**Subject Title :** Integrated Circuits  
**Subject Code :** 132EE43

**Teaching and Examination Scheme:-**

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

**Rationale:-**

The discrete electronic circuits have almost being replaced by integrated circuits. This subject covers the commonly used analog and digital integrated circuits applications in industries and other practical areas.

**Objectives:-**

Student should be able to :

- 1) Identify various Analog and Digital Integrated Circuits Chips.
- 2) Select the proper Integrated Circuit Chip and use in the required circuit application.
- 3) Identify the difference between operational amplifier/comparator and classify their Linear and Non-linear applications.

**Syllabus**

**Part I:- Theory:**

Sr. No	Contents	L	M
	<b>Section I</b>		
1	Review of number system conversions between binary, decimal, octal, hexadecimal, BCD, Binary addition, subtraction, division and multiplication. Use of 1's and 2's complement in binary, BCD addition & subtraction	05	08
2	<b>Combinational and Sequential logic circuits:</b> <b>Logic Gates:</b> AND, OR, NOT, EX-OR, Universal Gates (NAND and NOR). Boolean Algebra, Laws, De Morgan's Theorems, simplifications of logic expressions by using Boolean Algebra and Karnaugh maps up to 4 input variables. <b>Flip Flops:</b> S-R, D, J-K, T- type. <b>Counters:</b> Asynchronous, Synchronous, Up-Down, mod-n, decade and BCD counters..	12	19

	<b>Registers:</b> Shift (left, right, bi -directional) registers.		
3	<b>Logic family:</b> Bipolar(TTL), Unipolar (CMOS). Their characteristics & comparison.	03	06
4	<b>Encoders, Decoders, Multiplexers and Demultiplexers:</b> Their necessity, operations & applications	04	07
<b>Section II</b>			
5	<b>Operational Amplifiers:</b> Block diagram, operating principle, electrical specifications of IC 741C, necessity of negative feedback. <b>Applications:</b> Inverting, Non -inverting, voltage follower, summing, difference amplifier, Voltage comparator, Schmitt trigger, Integrator, Differentiator, precision (Half and full wave) rectifier, low pass, high pass, band pass and band reject filters. RC Phase Shift and Wien Bridge Oscillator.	11	18
6	<b>Comparator IC:</b> LM 339C comparator IC applications: Voltage Level Detector, Window Detector, Schmitt Trigger, Astable Multivibrator and Pulse Width Modulation.	04	07
7	<b>IC 555 and its Applications:</b> Block diagram of IC 555. <b>Applications:</b> Astable Multivibrator, Monostable (timer) Multivibrator, Bistable Multivibrator, Schmitt trigger, Dual timer IC 556 used in sequential timer applications.	05	08
8	<b>Linear Regulator IC's:</b> Fixed Voltage Regulator IC 78XX and 79XX series. Adjustable Voltage Regulator IC LM 317 and LM 337.	04	07
<b>Total</b>		<b>48</b>	<b>80</b>

## **Part II: Practicals:**

### **List of Laboratory Experiments:**

- 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 and 7402 IC's.
- 3) To store a 2 bit and a 4 bit word using D 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) Inverting, Non-Inverting, Voltage Follower, Inverting Adder, Differentiator, Integrator applications using IC 741C OP-AMP.
- 8) Square Wave Generator using IC 741C.
- 9) Quad Comparator IC LM 339 applications, Dark and Light Activated Switch, Window Detector, Bar Graph Meter, Astable Multivibrator, Schmitt trigger.
- 10) Timer IC 555 applications: square waveform generator, Monostable Multivibrator, Bistable Multivibrator, Sequential timer, Schmitt trigger.
- 11) Wien Bridge Oscillator using IC 741C.

**Note: Student must also perform few of the above experiments on Multisim Electronic Work Bench software.**

**Learning Resources:-**

**Text Books :-**

- 1) OP-AMPS and Linear Integrated Circuits, 4<sup>th</sup> Edition by Ramakant A Gayakwad, Prentice Hall of India Private Limited.
- 2) Digital Principles & Applications by Malvino, 5<sup>th</sup> Edition, (Tata McGraw – Hill Publishing Company Limited).

**Reference Books:-**

- 1) Modern Digital Electronics, 4<sup>th</sup> Edition by R.P. Jain, Tata McGraw - Hill Publishing Company Limited.
- 2) Operational Amplifiers and Linear Integrated Circuits, 6<sup>th</sup> Edition, by Robert F Coughlin & Fredrick F Driscoll, Pearson Education Asia.



**Course Name :** Diploma in Electrical Engineering  
**Course Code :** DEE  
**Semester :** Fourth  
**Subject Title :** Power System – I  
**Subject Code :** 132EE44

**Teaching and Examination Scheme:-**

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

**Rationale:-**

In power system flow of power is from generator to load. This power travels through transmission and distribution system which in their own capacity are complex networks. This subject gives the knowledge about transmission and distribution parameters, components and their role in power system.

**Objectives:-**

The students should be able to:

- 1) Study flow of power
- 2) Study architecture of Transmission and Distribution system
- 3) Draw single line diagram of power system.

**Syllabus**

**Part I:- Theory**

Sr. No	Contents	L	M
<b>Section I</b>			
<b>1</b>	<b>Introduction to Power system:-</b> <ul style="list-style-type: none"> <li>• Structure of power system:</li> <li>• Need of Transmission and Distribution system.</li> <li>• Various Transmission and Distribution systems (A.C and D.C, their comparison in terms of efficiency, size of the conductor required).</li> <li>• Single line diagram</li> <li>• Various voltage level at transmission and distribution level.</li> <li>• Problems related to above topic.</li> </ul>	6	10
<b>2</b>	<b>Transmission line parameters</b> <ul style="list-style-type: none"> <li>• Resistance, Inductance and Capacitance for 1-phase and 3-phase (Derivations of Self GMD and Mutual GMD)(only 2 wire and 3 phase system)</li> <li>• Transposition of conductors</li> <li>• Overhead line conductor- bundled and strain</li> <li>• Skin effect and Proximity effect.</li> </ul>	10	18

	<ul style="list-style-type: none"> <li>• Problems related to above topic.</li> </ul>		
<b>3</b>	<b>Cables</b> <ul style="list-style-type: none"> <li>• General construction of Cable</li> <li>• Insulating materials for cables</li> <li>• Types of cables and their voltage ratings</li> <li>• Grading of cables i.e. capacitance and intersheath grading</li> <li>• Types of cable faults.</li> <li>• (Problems based on Grading)</li> </ul>	8	12
<b>Section II</b>			
<b>4</b>	<b>Study of Mechanical design of transmission lines</b> <ul style="list-style-type: none"> <li>• Main components of overhead lines</li> <li>• Line supports, Conductor material</li> <li>• Types of line insulators ( string efficiency )</li> <li>• Spacing between conductors of overhead lines</li> <li>• Sag and tension calculation for overhead lines including effects of ice and wind for equal and unequal supports.</li> <li>• Problems related to above topic.</li> </ul>	10	16
<b>5</b>	<b>Substations components and its role</b> <ul style="list-style-type: none"> <li>• Bus-bar, Feeder and Distributor</li> <li>• Their role and connections in power system</li> <li>• Ring system and Radial system.</li> <li>• Calculation of DC distributors.</li> <li>• Role of Substation (Transmission and Distribution)</li> <li>• Their types (Outdoor and Indoor), Choice of their location, installation and size</li> <li>• Gas Insulated Sub-stations (In-Brief)</li> </ul>	10	16
<b>6</b>	<b>Smart grid</b> Introduction to smart grid Comparison of transmission line with smartgrid	04	08
	<b>Total</b>	<b>48</b>	<b>80</b>

### **Part II:- Tutorials**

- 5 assignments based on the syllabus.
- Study of any practical transmission and distribution system (report to be made).

### **Learning Resources:-**

#### **Text Book:-**

A Course in Electrical Power, 12<sup>th</sup> Edition by J B Gupta, S. K. Kataria and Sons.

**Reference Books:-**

- 1) Electrical Power, 13<sup>th</sup> Edition by S L Uppal, Khanna Publishers.
- 2) A Course in Electrical Power, 3<sup>rd</sup> Edition by Soni, Gupta and Bhatnagar, Dhanpat Rai and Sons.
- 3) Power System Analysis and Design, 3<sup>rd</sup> Edition by B R Gupta, S Chand and Company.
- 4) Generation of Electrical Energy, 2009 Edition by B.R. Gupta, S Chand and Company Ltd.

**Websites:-**

- [www.mahatransco.in](http://www.mahatransco.in)
- [www.mahadiscom.in](http://www.mahadiscom.in)
- [www.powergridindia.com](http://www.powergridindia.com)
- [www.bestundertaking.com](http://www.bestundertaking.com)
- [www.tatapower.com](http://www.tatapower.com)

**Course Name :** Diploma in Electrical Engineering  
**Course Code :** DEE  
**Semester :** Fourth  
**Subject Title :** Instrumentation  
**Subject Code :** 132EE45

**Teaching and Examination Scheme:-**

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

**Rationale:**

The main objective of introducing this subject in the diploma course of Electronics is to expose the student with fundamental knowledge on Modern Engineering practices that require adequately precise and fast measurement. It will impart knowledge related to the applications of the different types of sensors and transducers while teaching the various topics of this course.

After studying the course the students will be able to identify different types of sensors and transducers and their applications in the field of instrumentation and measurements. The students will be able to select appropriate transducers relating to a process and will also get the relevant technical know how about the conditioning of a signal from a transducer for the purpose of measurement.

**Objectives:**

Student will be able to:

1. Understand the Basic Principle of Measurement.
2. Understand the basic principles of sensors and transducers
3. Exploit each sensors & transducers for measurement of large number of variables.
4. Select the most suitable transducer based on its performance characteristics, for specific measuring tasks.
5. Select the appropriate transducers/sensor for various applications of Measurement of non-electrical quantity in Industrial process
6. Understand the process of Data acquisition.
7. Compare different types of transducer on their performance characteristics and applications

**Syllabus**

**Part I:- Theory**

Sr. No.	Contents	L	M
<b>Section I</b>			
01	<b>Basic concepts and Classification :-</b> Introduction, System Configuration, Problem Analysis, Basic Characteristics of Measuring Devices, Error, Calibration Transducers- Classification and requirements, Selection Criteria, Types.	03	6

02	<b>Displacement and Strain:</b> LVDT, RVDT, Capacitive, Resistive, Principle of Working, Advantages, Disadvantages and Applications. Strain Gauge- Types of strain gauge, theory of operation of resistance strain gauge, types of electrical strain gauge, Load cell, Strain Gauge Circuits.	08	12
03	<b>Pressure Measurement:</b> Pressure -Absolute, Gauge, Atmospheric, Vacuum. definition, Concept and Units, Manometers, Elastic Pressure Transducers – Bourdon Tube, Bellows, Diaphragm, Capsule, Variable Reluctance type, Variable capacitance type, Thin film pressure transducer, Digital pressure transducer Calibration of Pressure Instruments – Dead Weight Tester	08	12
04	<b>Flow measurement</b> Head type flow meters, Turbine Meters, Electromagnetic flow meters, Anemometer, Rotameter, Ultrasonic flow meters.	05	10
<b>Section II</b>			
05	<b>Temperature Measurement</b> Temperature Scales and their Conversion. Principle of Working, Construction, Advantages & Disadvantages and Applications of- Filled Systems – Liquid and Gas Filled thermometers, Bimetallic Thermometers, RTDs, Thermocouples – Seeback & Peltier Effect, Law of Intermediate Metals and Temperatures, Pyrometers – Radiation and Infrared	06	12
06	<b>Photoelectric transducer</b> Photo Multiplier tube, Photo conductive cell, Photo voltaic cell, Semiconductor Photo Diode, Photo transducer, LASER, Photo Modules for PCM Remote control systems using IC TSOP1736/ TSOP1738 Electronic Transducers- Speed, Tachogenerators – A.C. & D.C., Non-Contact Type – Photoelectric, Magnetic Pick Up Type	09	14
07	<b>A-D and D-A Converters</b> A-D and D-A converter specifications and performance characteristics, A-D Converters, D-A Converters <b>Data Acquisition</b> Generalized Data Acquisition System, Multi-channel DAS, Data logger, PC based Data Acquisition System.	09	14
<b>Total</b>		<b>48</b>	<b>80</b>

## **Part II:- Practicals**

### **List of Laboratory Experiments:**

1. To study Instrumentation Amplifier using 3 op-Amps.
2. To plot the Characteristics of Thermocouple.
3. To plot the Characteristics of Thermister.
4. Speed Measurement by using photoelectric pick- up.
5. Speed Measurement by using Magnetic pick- up.
6. Displacement or Position Measurement by Ultrasonic distance meter.

7. Displacement Measurement using LVDT.
8. Angular Displacement Measurement using RVDT
9. To study characteristics of resistance wire strain gauge.

**Learning Resources:**

**Text Books:-**

1. Instrumentation Devices and Systems, 2<sup>nd</sup> Edition, by Rangan Mani Sharma, Tata McGraw – Hill.
2. Transducers and Instrumentation 1<sup>st</sup> Edition, by D.V.S. Murthy, Prentice-Hall of India Pvt. Ltd.
3. Industrial Instrumentation and Control, 3<sup>rd</sup> Edition by S.K.Singh, Tata McGraw –Hill.
4. Principles of Industrial Instrumentation, 2<sup>nd</sup> Edition by D.Patranabis, Tata McGraw- Hill.
5. Instrumentation Measurement and Analysis, 2<sup>nd</sup> Edition, by B.C.Nakra, & K.K.Chawdhry, Tata McGraw- Hill.

**Reference Books:-**

1. A Course In Electrical & Electronics Measurements & Instrumentation by A.K.Sawhney, Dhanpat Rai & Co.
2. Process Measurement - Instrument Engineers Handbook, 3<sup>rd</sup> Edition by Bela Liptak Kriszta Venczel, Chilton Book Company.
3. Process Measurement and Analysis, 'Instrument Engineers Handbook' Volume I, 4th Edition, by B.G. Liptak, CRC Press

**Course Name :** Diploma in Electrical Engineering  
**Course Code :** DEE  
**Semester :** Fourth  
**Subject Title :** 'C' Programming  
**Subject Code :** 132EE46

### Teaching and Examination Scheme

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

#### Rationale:-

The C programming language is a procedural programming language. Contrary to popular opinion it is not a dead language. It is still used quite often with low level programming (i.e. embedded systems, operating systems, drivers). The name is due to the fact that it was built using many of the features of the previous B programming language. Contrary to one of the answers you don't write your entire program in one file unless you are a really bad programmer.

#### Objectives:-

The students should be able to:

- 1) Explain the concepts of constants, variables, data types and operators.
- 2) Develop programs using input and output operations.
- 3) Write programs using different looping and branching statements.
- 4) Write programs based on arrays and strings handling functions.
- 5) Write programs using user-defined functions, structures and union.
- 6) Write programs using C pointers.

#### Learning Structure:-

#### Syllabus

#### Part I:- Theory

Sr. No	Contents	L
1	<b>Introduction to C</b> Constants, variables, character set, data types, operators ( Arithmetic, Logical, Conditional, Relational, increment & decrement, bit wise, special operator precedence), Expressions.	04
2	<b>Decision Making &amp; Looping</b> If statement (if, if – else, else-if ladder, nested if-else, switch case Statement, break statement). while, do, do-while statements. For loop, continue statement.	06

<b>3</b>	<b>Arrays &amp; Strings</b> Declaration, initialization of one dimensional, two dimensional And character arrays, assessment of array elements. Declaration, Initialization of string variables, string handling Functions from standard library.	06
<b>4</b>	<b>Functions</b> Need of function, Scope & lifetime of variable, defining function, Function call (call by value, call by reference) return values, Storage classes. Function category (No argument no return value, no argument With return value, argument with return value type), Recursion.	06
<b>5</b>	<b>Structures</b> Defining, declaring and accessing structures members. Structure initialization, structure arrays. <b>Pointers</b> Introduction, declaring & accessing pointers, pointers arithmetic, Pointers & array	06
<b>6</b>	<b>Introduction to the object oriented programming(oops)</b> The foundation of oops: Objects and its characteristic (State, Behavior, Unique identity), Classes. Characteristic of oop (Realistic Modeling, Reusability, Flexibility to change, Existences as Different form), phases of oop (Analysis, Design, Implementation)	04
	<b>Total</b>	<b>32</b>

## **Part II:- Practicals**

### **List of Laboratory Experiments:-**

Write a program in C language

- 1) To print any character like ‘ @ ‘ or our college name.
- 2) To find the greatest/smallest of the given three numbers.
- 3) To check whether given number is odd or even.
- 4) To display MENU 1 ADDITION, 2 SUBTRACTION, 3 MULTIPLICATION & 4 DIVISION using switch case statement
- 5) To display all even no. from 1-100.
- 6) To arrange the given array in ascending and descending order.
- 7) To demonstrate output of standard library function using string length, strcpy, strcmp.
- 8) To calculate area of circle & rectangle using functions.
- 9) To find factorial of given number by recursion method.
- 10) To demonstrate call by reference and call by value.
- 11) To maintain and manipulate student data using structure.



**Text Book:-**

- 1) Programming in C, 4th Edition, by Balaguruswamy, (Tata McGraw - Hill Publishing Company Limited).

**Reference books:**

- 1) Let us ' C ', 9th Edition, by Yashwant P Kanetkar (BPB Publications).
- 2) The complete reference C, 4th Edition by Herbert Schildt, McGraw-Hill, Osborne Media.

**Course Name :** Diploma in Electrical Engineering  
**Course Code :** DEE/DEInE  
**Semester :** IV  
**Subject Title :** Development of Life Skills  
**Subject Code :** 132EE47

**Teaching and 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
-	-	2	-	-	-	-	-	-	-	-	-	25	10	25

**Rationale:**

In today's competitive world, the nature of organizations is changing at very rapid speed. In this situation the responsibility of diploma holder is not unique. He will be a part of a team in the organization. As such the individual skills are not sufficient to work at his best. This subject will develop the student as an effective member of the team. It will develop the abilities and skills to perform at highest degree of quality as an individual as well as a member of core group or team. Such skills will enhance his capabilities in the field of searching, assimilating information, managing the given task, handling people effectively, and solving challenging problems.

**Objectives:**

The students will be able to:

1. Developing working in teams
2. Apply problem solving skills for a given situation
3. Use effective presentation techniques
4. Apply techniques of effective time management
5. Apply task management techniques for given projects
6. Enhance leadership traits
7. Resolve conflict by appropriate method
8. Survive self in today's competitive world
9. Face interview without fear
10. Follow moral and ethics
11. Convince people to avoid frustration

**Syllabus**

**Part I:- Theory**

Sr. No	Contents	L
	<b>Section I</b>	
1	<b>Social Development</b> 1.1 Oral Skills 1.1.1 Social Awareness 1.1.2 Basic Journalism (Description and Narration) 1.1.3 Debate	08

	1.1.4 Speech 1.2 Writing Skills 1.2.1 Formats 1.2.2 Legal documentation Basics 1.2.3 Technical Paper Presentation 1.2.4 Reports	
2	<b>Managerial Development</b> 2.1 Management 2.1.1 Time Management 2.1.2 Stress Management 2.1.3 Conflict Management 2.1.4 Resource management 2.2 Etiquettes 2.2.1 Verbal 2.2.2 Corporate 2.2.3 Mail and Telephone 2.2.4 Body language	08
	<b>Section II</b>	<b>L</b>
3	<b>Life Skill Development</b> 3.1 Emotional Quotient 3.2 Nurturing Social Relationships 3.3 Event Organization 3.4 Surveying 3.5 Role Play	08
4	<b>Academic Development</b> 4.1 Verbal and Vocabulary Development 4.2 Notes preparation and Summarization 4.3 PowerPoint Presentations 4.4 Technical Interview Sessions 4.5 Viva And Written Exam Techniques	08
	<b>Total</b>	<b>48</b>

**Term Work-** Students should submit term work file based on above topics.

**Learning Resources:-**

**Text Book:**

1. Business Communication- Raman Meenakshi, Oxford, India, First edition, 2008

**Reference Books:-**

1. Contemporary Management, Gupta C. B., APH, New Delhi, First edition, 1992
2. Organisational Behaviour, Sekaran Uma, Tata Mcgraw Hill, New Delhi, Second edition, 2008
3. Technical Communication, Raman Meenakshi, Sharma Sangeeta, OUP, India, Second impression, 2004.

**Course Name : Diploma in Electrical Engineering**

**Course Code : DEE**

**Semester : Fourth**

**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