w.e.f Academic Year 2011-12

STATE BOARD OF TECHNICAL EDUCATION, JHARKHAND

TEACHING AND EXAMINATION SCHEME FOR POST S.S.C. DIPLOMA COURSES

COURSE NAME : COMPUTER ENGINEERING GROUP

DURATION OF COURSE : 6 SEMESTERS **WITH EFFECT FROM 2011-12**

SEMESTER : SECOND **DURATION : 16 WEEKS**

FULL TIME / PART TIME : FULL TIME

SR. NO.	SUBJECT TITLE	Abbreviation	SUB CODE	TEACHING SCHEME			EXAMINATION SCHEME								SW (16002)
							PAPER HRS.	TH (1)		PR (4)		OR (8)		TW (9)		
				TH	TU	PR		Max	Min	Max	Min	Max	Min	Max	Min	
1	Communication Skills	CMS	12012	02	--	02	03	100	40	--	--	25#	10	25@	10	50
2	Engineering Mathematics	EMS	12013	03	01	--	03	100	40	--	--	--	--	--	--	
3	Electronics	ETX	12025	03	--	02	03	100	40	50@	20	--	--	--	--	
4	Electrical Technology	ETG	12026	04	--	02	03	100	40	--	--	--	--	25@	10	
5	Programming in 'C'	PIC	12027	04	--	02	03	100	40	50#	20	--	--	25@	10	
6	Web Page Designing	WPD	12028	--	--	04	--	--	--	50@	20	--	--	--	--	
7	Development of Life Skills-I	DLS	12018	01	--	02	--	--	--	--	--	25#	10	25@	10	
8	Professional Practices-II	PPS	12029	--	--	02	--	--	--	--	--	--	--	50@	20	
			Total	**17**	**01**	**16**	**--**	**500**	**--**	**150**	**--**	**50**	**--**	**150**	**--**	**50**

Student Contact Hours Per Week: **34 Hrs.**

THEORY AND PRACTICAL PERIODS OF 60 MINUTES EACH.

Total Marks **: 900**

@ Internal Assessment, # External Assessment, No Theory Examination.

Abbreviations: TH-Theory, TU- Tutorial, PR-Practical, ,OR-Oral, TW- Termwork, SW- Sessional Work

- Conduct two class tests each of 25 marks for each theory subject. Sum of the total test marks of all subjects is to be converted out of 50 marks as sessional work (SW).
- Progressive evaluation is to be done by subject teacher as per the prevailing curriculum implementation and assessment norms.
- Code number for TH, PR, OR and TW are to be given as suffix 1, 4, 8, 9 respectively to the subject code.

w.e.f Academic Year 2011-12

Course Name : All Branches of Diploma in Engineering & Technology

Semester : Second

Subject Title : Communication Skills

Subject Code : 12012

Teaching and examination scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
02	--	02	03	100	--	25#	25@	150

NOTE:

- **Two tests each of 25 marks to be conducted as per the schedule given by SBTE.**
- **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

Rationale:

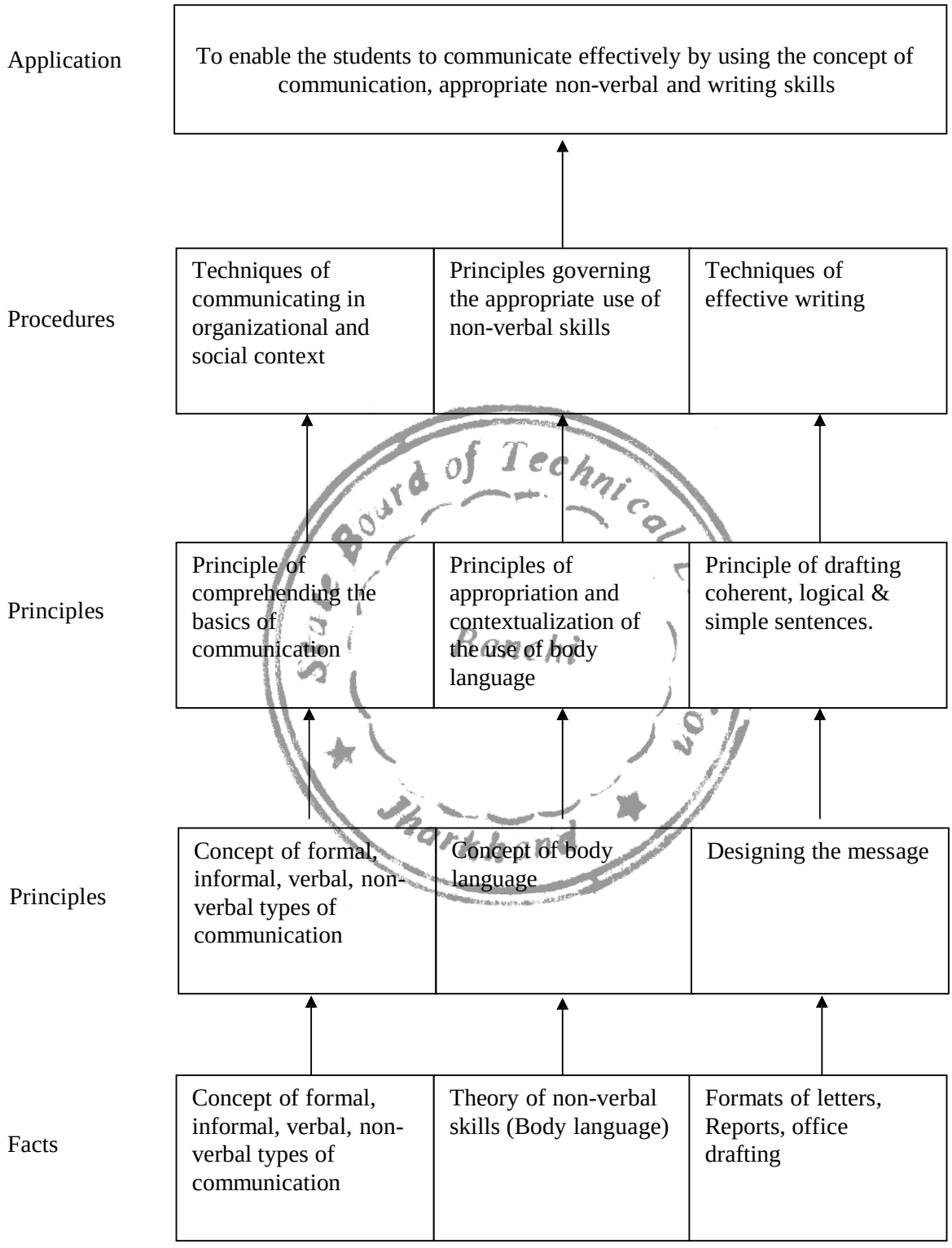
The Students have been already been exposed to the Language Skills pertaining to English, leading to a better understanding of English & use of grammar, developing a base for the language. Now with a view to achieve some mastery over the language & to develop Communication Skills, which is the main objective of this subject, the basic concepts of communication, Non-verbal and written skills have been Introduced.

Objectives:

The Students will be able to:

1) Understand and use the basic concepts of communication and principles of effective communication in an organized set up and social context.
2) Give a positive feedback in various situations, to use appropriate body language & to avoid barriers for effective communication.
3) Write the various types of letters, reports and office drafting with the appropriate format.

Learning Structure:



Contents: Theory

Chapter	Name of the Topic	Hours	Marks
01	**Introduction to communication:** 1.1 Definition, communication cycle., 1.2 The elements of Communication: sender- message – channel- Receiver –Feedback. 1.3 Concept of Communication Process. 1.4 Stages in the process: defining the context, knowing the audience, designing the message, encoding, selecting proper channels, transmitting, receiving, decoding and giving feedback. (Case lets.)	**04**	**14**
02	**Types of communication** 2.1 Formal Communication. 2.2 Formal: Types – a) Vertical Communication. b) Horizontal Communication. 2.3 Informal: Types – a) Diagonal Communication. 2.4 Verbal Vs Non-Verbal Communication. 2.5 Verbal: Types-a) Oral Communication. b) Written Communication. 2.6 Non-Verbal: Types- a) Body Language. b) Graphic Language.	**04**	**08**
03	**Principles of Effective Communication :** 3.1 Principles of Effective Communication. (One example each.) 3.2 Communication barriers & how to overcome them. 3.3 Developing effective messages: Thinking about purpose, knowing the audience, structuring the message, selecting proper channels, minimizing barriers & facilitating feedback. (Examples: Writing articles for newspapers, magazines.)	**04**	**16**
04	**Non verbal- graphic communication**: 4.1 Non- verbal codes: A- Kinesecs , B- Proxemics , C – Haptics D-Vocalics , E- Physical appearance. F -Chronemics , G –Artifacts. (One example each.) **Marks: 08** 4.2 Aspects of Body Language. Types of Body Language. (One example each.) **Marks: 06** 4.3 Interpreting visuals & illustrating with visuals like tables, charts & graphs. **Marks: 08**	**08**	**22**
05	**Formal written skills :** 5.1 Office Drafting: Circular, Notice, and Memo. **Marks: 06** 5.2 Job Application with resume. **Marks: 08** 5.3 Business correspondence: Enquiry, Order letter, Complaint letter, and Adjustment letter. **Marks: 06** 5.4 Report writing: Accident report, Fall in production, Progress Report,, Investigation Report. **Marks: 08** 5.5 Defining, Describing Objects &Giving Instructions. **Marks: 04** 5.5.1 Defining Objects- Appearance, It's Use. 5.5.2 Describing Objects- Purpose, Components, Functions, Applications. 5.5.3 Giving Instructions- Precise, Directive, Imagistic Statements of a futuristic stance.	**12**	**40**
	Total	**32**	**100**

Assignments:

1. Communication Cycle (With the Help of Diagram) + Any two communication situations to be represented with the help of Communication Cycle. (Use Pictures)
2. Communication Situations (List of 5 Communication situations stating the type of communication viz; Vertical, Horizontal, Diagonal.
3. Barriers That Hinder a Particular Communication Situation. (State the type of barrier, and how to overcome them). (04 Caselets)
4. Writing articles (two) in keeping with the parameters of developing effective messages. (Collect samples from newspapers, articles, Internet and pate them in the assignment.)
5. Business Letters: a) Job Application with Resume.
   b) Enquiry Letter.
   c) Order Letter.
   d) Complaint Letter.
6. Non-Verbal Communication:
   a) Body Language: Five Illustrations of appropriate use of Body Language used on the part of student in formal and Informal setups. (Example- formal setup- classroom
   b) Graphic Language: Five Illustrations of the use of Signs, Symbols, Colours, Maps, Graphs, Charts in day to day life.
7. Presentation Skills: Select topic (current issues) and ask students to give a class presentation as per the principles of effective communication and paste these topics as an assignment in the file.
8. Non-Verbal Codes: Kinesics, Physical Appearance, Haptics. (Collect five pictures per group of five students on the above mentioned non-verbal codes, analyse and discuss them in the class. Ask the students to paste these pictures along with explanation in their individual files.

GUIDELINES: Teachers can make use of group discussions, class presentations, role plays, simulations, caselets, listen and repeat drills with the help of cassettes etc to give a hand on experience for students.

Students should maintain the Institute Files to write all the eight assignments with aprper Index and get it duly certified.

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Learning Resources:

Books:

Sr. No.	Author	Title	Publisher
01	SBTE, Mumbai.	Text book of Communication Skills.	SBTE, Mumbai.
02	M.Ashraf Rizvi	Effective Technical Communication	Tata McGraw Hill Companies.
03	Krushna Mohan, Meera Banerji	Developing Communication Skills	Macmillan
04	Joyeeta Bhattacharya	Communication Skills.	Reliable Series
05	Jayakaran	Every ones guide to effective writing.	Apple Publishing.
06	Website: www.mindtools.com/page8.html-99k		
07	Website: www.khake.com/page66htm/-72k		
08	Website: www.BM Consultant India.Com		
09	Website: www.letstak.co.in		
10	Website: www.inc.com/guides/growth/23032.html-45k		

State Board of Technical Education Ranchi Jharkhand

Course Name : All Branches of Diploma in Engineering and Technology.
Semester : Second

Subject Title : Engineering Mathematics

Subject Code: 12013

Teaching and examination Scheme

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
03	01	--	03	100	--	--	--	100

NOTE:

- **Two tests each of 25 marks to be conducted as per the schedule given by SBTE.**
- **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

Rationale:

In 21st century man has developed new disciplines like Information Technology Genetic Engineering, Biotechnology etc. on the basis of Mathematics. Thus the study of mathematics is necessary to develop in the student the skills essential for these new disciplines. The subject is extension of basic mathematics of First Semester and stepping into the prerequisites to learn applied mathematics. Engineering Mathematics lay down the foundation to understand and express principles and laws involved in other technological subjects.

Objective: The student will be able to

Acquire knowledge of Mathematical terms, concepts, principles and different methods. Develop the ability to apply mathematical methods to solve technical problems, to execute management, plans with precision. Acquire sufficient mathematical techniques necessary for daily and practical problems.

Learning Structure:

Application:	Relationship between two quantities that vary, continuity of curves	Use of derivatives in applications. Slope of a curve	Analysis of experimental data for drawing valid conclusions and decision-making process.	To understand various physical quantities. Understanding signal processing, laws of impedance fluid flow, electricity.
Procedure:	To explain value of function & types of fun. Methods to evaluate limits of different functions.	To explain methods for finding derivative of different function. Second order derivative.	To explain measures of central tendency and dispersion addition and multiplication	Explain geometric meaning of deri., max,& mini, rates, radius of curvature. algebra of complex numbers Euler's forms, hyperbolic function.
Concept:	Dependent and independent variables. Standard formulae for Limits. Theorems on Limit	Derivatives of Standard functions. Rules of Differentiation	Classification of data, frequency, mean, mode and median. Sample space, event occurrence of event & types.	Slope of the curve, increasing decreasing functions. Real and imaginary parts of complex no. Euler's exponential forms.
Facts:	Concept of interval, neighborhood of a point, Definition of function and limit. Meaning of XÆ a	Definition of derivative and notation, order of derivative	Concept of data, frequency distribution, attribute and variant.	First order and second order derivatives. Number system. Imaginary unit.

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Contents: Theory

Note:

1. Chapters 1 to 5 are common for all branches.
2. Chapter 6-For Civil, Electrical, Mechanical and Electronics groups
3. Chapter 7 & 8-For Computer Engineering Group.

Chapter	Name of the Topic	Hours	Marks
01	**Function and Limit** **1.1 Function** 1.1.1 Definitions of variable, constant, intervals such as open, closed, semi-open etc. 1.1.2 Definition of Function, value of a function and types of functions, Simple Examples..	**04**	**08**
02	**Limits** 2.1 Definition of neighborhood, concept and definition limit. 2.2 Limits of algebraic, trigonometric, exponential and logarithmic functions with simple examples	**08**	**16**
03	**Derivatives** 3.1 Definition of Derivatives, notations. 3.2 Derivatives of Standard Functions 3.3 Rules of Differentiation. (Without proof). Such as Derivatives of Sum or difference, scalar multiplication, Product and quotient. 3.4 Derivatives of composite function (Chain rule) 3.5 Derivatives of inverse and inverse trigonometric functions. 3.6 Derivatives of Implicit Function 3.7 Logarithmic differentiation 3.8 Derivatives of parametric Functions. 3.9 Derivatives of one function w.r.t another function 3.10 Second order Differentiation.	**14**	**24**
4	**Applications Of Derivative** 4.1.1 Geometrical meaning of Derivative, 4.1.2 Maxima and minima 4.1.3 Radius of Curvature	**06**	**12**
05	**Statistics** 5.1 Measures of Central tendency (mean, median, mode) for ungrouped and grouped frequency distribution. **Marks 08** 5.2 Graphical representation (Histogram and Ogive Curves) to find mode and median **Marks 06** 5.3 Measures of Dispersion such as range, mean deviation, Standard Deviation, Variance and coefficient of variation. Comparison of two sets of observations. **Marks 10**	**10**	**24**
NOTE: Chapter 6 is for Civil, Electrical, Electronics and Mechanical Groups			
06	**Complex number** 6.1 Definition of Complex number. Cartesian, polar, Exponential forms of Complex number. 6.2 Algebra of Complex number(Equality, addition, Subtraction, Multiplication and Division) 6.3 De-Moivre's theorem (without proof) Examples based on it,	**06**	**16**

	roots of complex numbers, roots of unity 6.4 Euler's form of Circular functions, hyperbolic functions and relations between circular &hyperbolic functions		
Note: Chapter 7 and 8 is for Computer Engineering Group Only			
07	**Numerical Solution of Algebraic Equations** Bisection method, Regula-Falsi method and Newton-Raphson method	**03**	**08**
08	**Numerical Solution of Simultaneous Equations** Gauss elimination method Iterative methods-Gauss Seidal and Jacobi's method	**03**	**08**
	Total	**48**	**100**

Tutorial

Note: Tutorials are to be used to get enough practice for solving problems. It is suggested that in each tutorial at least five problems to be solved.

Tutorial No.	Topic on which tutorial is to be conducted
1	Function
2	Limits
3	Derivative
4	Derivative
5	Derivative
6	Statistics
7	Statistics
8	Statistics
9	Application of derivative/numerical Solution of algebraic equations
10	Application of derivative/numerical Solution of algebraic equations
11	Complex Numbers/Numerical Solution of Simultaneous Equations
12	Complex Numbers/Numerical Solution of Simultaneous Equations

Learning Resources:

Books:

Sr. No	Title	Authors	Publications
1	Mathematics for Polytechnic	S.P. Deshpande	Pune Vidyarthi Griha Prakashan, Pune.
2	Calculus :Single Variable	Robert T Smith	Tata McGraw Hill
3	Advanced Engineering Mathematics	Dass H. K.	S. Chand Publication, New Delhi
4	Fundamentals of Mathematical Statistics	S.C Gupta and Kapoor	S. Chand Publications New Delhi.
5	Higher Engineering Mathematics	B.S Grewal	Khanna Publication, New Delhi
6	Applied mathematics	P. N. Wartikar	Pune Vidyarthi Griha Prakashan, Pune.

State Board of Technical Education Ranchi Jharkhand

Course Name : Computer Engineering Group

Semester : Second

Subject Title : Electronics

Subject Code : 12025

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
03	--	02	03	100	50@	--	--	150

NOTE:

- **Two tests each of 25 marks to be conducted as per the schedule given by SBTE.**
- **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

RATIONALE:

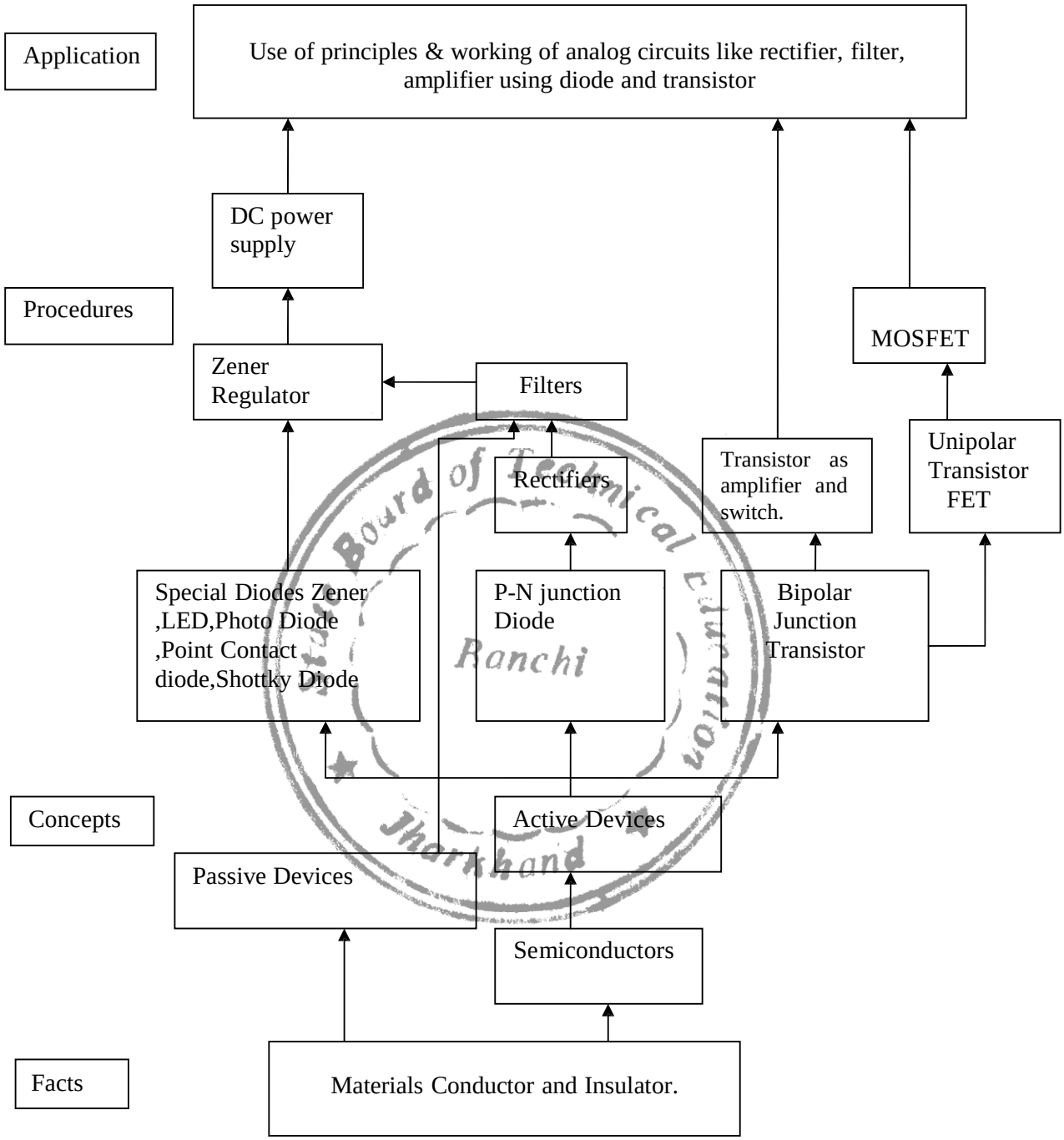
Electronics is a major part of our day to day life. In each and every field electronics systems are used. Basic electronics is one of the subject which is the base of all advance electronics. It starts with PN junction which makes the student to follow the functioning of all semiconductor based electronics. This is a core group subject and it develops cognitive and psychomotor skills.

OBJECTIVES:

Student will be able to

1) Describe the formation of PN junction.
2) Draw the characteristics of basic components like diode, transistor etc.
3) Draw and describe the basic circuits of rectifier, filter, regulator and amplifiers.
4) Compare voltage and power amplifiers.
5) Test diode and transistors.
6) Read the data sheets of diode and transistors.

Learning Structure:



CONTENTS: Theory

Chapter	Name of the Topic	Hours	Marks
1	**INTRODUCTION TO ELECTRONICS** Definition of Electronics Application of Electronics i)Communication and Entertainment ii) Defense iii) Industrial Application iv)Medical Sciences v) Instrumentation 1) PASSIVE COMPONENTS Resistor: definition, symbol, unit. Types of resistors : fixed, variable, LDR, Thermistor (symbol and list of application only) Resistor colour code, wattage (w.r to size) 2) Capacitor : definition, symbol, unit Types of capacitor(to be shown in practical, no theory) Fixed : mica, paper, ceramic, electrolytic Variable : Gang capacitor 3) Inductor : definition, symbol, unit Types of Inductors : fixed ,variable Transformer :symbol, types (step up and step down), application	**04**	**04**
2	**SEMICONDUCTOR THEORY** * Structure of an atom * Energy level diagram * Energy Band diagram * Conductor, Insulator, Semiconductor (based on Band theory) * Intrinsic semiconductor : Si, Ge * Doping * Extrinsic semiconductor: P type. N type	**04**	**10**
3	**SEMICONDUCTOR DIODE** Diode (symbol) P-N junction P-N junction with no external bias (barrier potential, depletion region) P-N junction with external bias (forward and reverse bias) circuit for V-I characteristics of diode : knee voltage, static resistance, dynamic resistance, reverse breakdown voltage Types of diode : Zener diode (symbol, V-I characteristics, operating principle, Zener voltage, Zener breakdown, avalanche breakdown), Symbol, operating principle, application related to computers of LED, Photo diode, point contact diode, varactor diode. shottky diode Testing of diode using analog multimeter (practical only)	**08**	**20**

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4	**RECTIFIERS FILTERS AND REGULATORS** Need of DC power supply * Basic block diagram of Regulated Power Supply * Rectifier : definition, need of Rectification, Types of rectifiers :Half Wave Rectifier Full Wave Rectifier : Centre Tap and Bridge Circuit diagram ,operation, i/p - o/p waveforms, Vav (Vdc), Vrms, Iav(Idc) Irms Ripple factor, efficiency, PIV(No derivation expected) For all types Rectifiers, Comparison of Rectifiers * Filter : Need of filters , Types of filters : L,C,LC,CLC ( ) Circuit diagram, working principle, I/P O/P waveform, Formula of Ripple factor for each type, Comparison of filters * Regulator : Need of Regulators Zener diode as Regulator Regulation factor :Load and line Regulation	**08**	**20**
5	**BIPOLAR JUNCTION TRANSISTOR** • Introduction – Transistor (Definition) • Types :NPN, PNP junction transistors Symbol, operating principle (NPN Transistor only) Transistor Configuration :Common Emitter (CE) , Common Base (CB) , Common Collector (CC) - characteristics in CE configuration - circuit diagram, I/P – O/P characteristics, different points of characteristics(cut off, active, saturation),Input resistance, output resistance, current gain α & β, and relation between α and β Introduction to Transistor Biasing, need of biasing, DC-load line, operating point Types of biasing • Transistor as an amplifier (CE configuration only) Graphical representation Current gain Voltage gain Power gain (No derivation) Single stage CE amplifier - Circuit diagram, function of each component, frequency response and bandwidth Need of cascade amplifier Types of coupling :R-C couple, Transformer couple, Direct couple (circuit diagram and function of each component) Application of each amplifier Transistor as a switch – Circuit diagram, operation, application	**12**	**30**

6	**FIELD EFFECT TRANSISTOR (UNIPOLAR TRANSISTOR)** Introduction Types, symbols, working principles Characteristics of FET Circuit diagram for drain characteristics Operating regions of characteristics Drain resistance, mutual conductance, amplification factor and their relation Pinch off voltage of FET Comparison of BJT and FET MOSFET Types, symbol, working principle Application of FET and MOSFET	**08**	**10**
7	**INTREGATED CIRCUITS** Introduction , classification of integrated circuits, Advantages and limitations of integrated circuits Difference between linear and non linear ICs	**04**	**06**
	Total	**48**	**100**

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Practical:

Skills to be developed:

Intellectual Skills:

1] To identify active and passive components.
2] Understand working principle of basic components.
3] Understand the basic circuits in electronics.

Motor Skills:

1] Ability to draw of front panel of electronics equipments.
2] Ability of measurement of electrical quantities.
3] Ability to draw circuits & discriminate among them.
4] Ability to construct the basic circuits on Breadboard.

List of Practical:

1. Know your Electronics Laboratory.
2. study front panel of electronic equipments
3. Identify various components used in different electronic circuits.
4. To draw diode characteristics (forward and reverse)
5. To draw Zener Diode characteristics. (forward and reverse)
6. To determine D.C. output of Rectifier circuits (HWR And Bridge)

7. Study of reduction in ripple component of rectifier using Filter circuits
8. Operation of Zener diode as regulator.
9. To determine Transistor characteristics (CE mode)
10. Use of Transistor as switch.
11. Frequency response of CE amplifier.

Learning Resources:

Books:

Sr. No.	Author	Title	Publisher & Address
1	Allen Motorshed	Electronic Devices & Circuits	Prentice Hall of India
2	N. N. Bhargava, D.C. Kulashreshtha, S.C. Gupta	Basic Electronics & Linear Circuits	Tata McGraw Hill
3	Malvino	Electronic Principles	Tata McGraw Hill
4	NIIT	Basics of Electronic Devices	Prentice Hall of India

State Board of Technical Education Ranchi Jharkhand

Course Name : Computer Engineering Group

Semester : Second

Subject Title : Electrical Technology

Subject Code : 12026

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
04	--	02	03	100	--	--	25@	125

NOTE:

- **Two tests each of 25 marks to be conducted as per the schedule given by SBTE.**
- **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

Rationale:

This subject is restricted to second year diploma in electronics & telecommunication, computer engineering and information technology. Technicians / supervisors from all branches of engineering are expected to have some basic knowledge of electrical engineering. Also the technicians working in different engineering fields have to deal with various types of electrical drives and equipment. Hence, it is necessary to study electric circuits, different types of electrical drives, their principles and working characteristics.

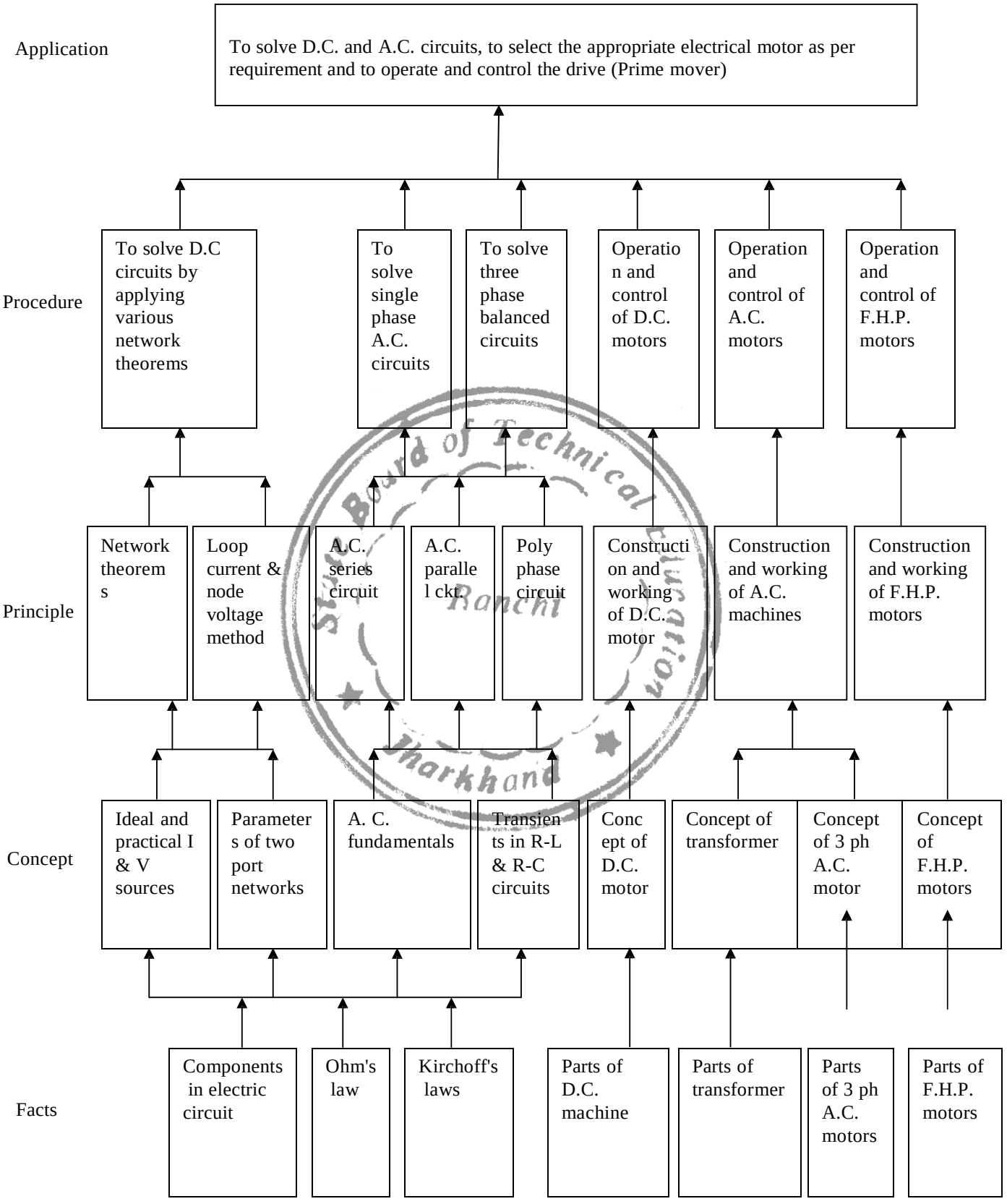
This subject covers analysis of ac and dc networks, working principles of commonly used ac and dc motors and their characteristics. The basic concepts studied in this subject will be very useful for understanding of other higher level subjects in further study.

Objectives:

The student will be able to:

- Solve dc circuits by using different techniques and network theorems
- State mathematical equations for transients in R-L and R-C circuit
- Solve series and parallel ac circuits with R, L and C
- Know importance, working and construction of single phase transformer
- Explain construction, working, performance and applications of various types of ac and dc machines

Learning Structure:



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Chapter	Name of the Topic	Hours	Marks
1.	**D. C. Circuits** 1.1 Review of introduction to electricity - current, resistance, emf and potential difference, Ohm's law, D.C. sources, series and parallel circuit. 1.2 Concept of open and short circuit 1.3 Kirchoff's current and voltage law 1.4 Maxwell's loop current method 1.5 Node analysis 1.6 Concept of ideal and practical current and voltage sources, Source conversion. 1.7 Star / Delta and Delta / star conversion (no derivation) (Numerical on above) 1.8 Network terminology – active, passive, linear, non-linear, bilateral, unilateral networks.	**14**	**20**
2.	**A.C. Fundamentals** 2.1 Difference between A.C. and D.C. quantity 2.2 Advantages of A.C. over D.C. 2.3 waveform of sinusoidal A.C. cycle 2.4 Generation of single phase A.C. by elementary alternator 2.5 Definitions: instantaneous value, cycle, amplitude, time period, frequency, angular frequency, R.M.S. value, Average value for sinusoidal waveform, Form factor, Peak factor (no derivation but simple numerical on it) 2.6 Vector representation of sinusoidal A.C. quantity, review of phasor algebra, representation of A.C. quantity in rectangular and polar form. 2.7 Phase angle, phase difference, concept of lagging and leading – by waveforms, mathematical equations and phasors. 2.8 Pure resistance in A.C. circuit – waveforms, equations and vector diagram (no derivation) 2.9 Pure inductance in A.C. circuit – waveforms, equations and vector diagram (no derivation) 2.10 Pure capacitance in A.C. circuit – waveforms, equations and vector diagram (no derivation) 2.11 Concept of impedance and impedance triangle. 2.12 Power – active, reactive and apparent, power triangle. 2.13 Power factor and its significance. 2.14 R-L series circuit – vector diagram, voltage and current equations. 2.15 R-C series circuit – vector diagram, voltage and current equations. 2.16 R-L-C series circuit – vector diagram, voltage and current equations. 2.17 Simple numerical on R-L, R-C and R-L-C series circuit.	**16**	**24**
3	**Poly phase Circuits** 3.1 Advantages of 3 phase system over 1 phase system 3.2 Principle of 3-phase e. m. f. generation and its wave form 3.3 Concept of phase sequence and balanced and unbalanced load	**10**	**16**

	3.4 Relation between phase and line current, phase and line voltage in Star connected and Delta connected balanced system. (no derivation) 3.5 Calculation of current, power, power factor in a 3 phase balanced system (simple numerical)		
4	**Transformer** 4.1 Working principle of transformer, classification, brief description of each part its function and material used. 4.2 Emf equation (no derivation) 4.3 Voltage ratio, current ratio and transformation ratio. 4.4 kVA rating of a transformer 4.5 Simple numerical based on 4.2 to 4.4 4.6 Auto transformer – comparison with two winding transformer, applications. 4.7 Isolation transformer	**10**	**16**
5.	**Rotating Machines** 5.1 Review of force on current carrying conductor, Flemings left hand rule 5.2 D.C. motor Construction – (Sectional view with labels to major parts) 5.3 Principle of operation 5.4 Types of D.C. motors with their connection diagrams. 5.5 Introduction to single phase induction motors 5.6. Simple connection diagrams to indicate single phase induction motors. 5.7 Stepper motor – types, principle of working and applications 5.8 Servo motor – types, principle of working and applications	**10**	**16**
6.	**Installation, Earthing and Troubleshooting** 6.1 Types of S. P. Switches, Sockets and different wiring accessories for simple circuits. 6.2 Fuses, their need, uses and ratings. 6.3 Needs of earthing for equipments. 6.4 Types of earthing (Pipe and Plate earthing) 6.5 Troubleshooting in supply boards, supply cords and small UPS specially used in computers (up to 1 kVA)	**04**	**08**
	Total	**64**	**100**

Practical:

Skills to be developed:

Intellectual skills:

1. Identify and select suitable electrical instruments for measurement
2. Identify and give specifications of electrical motors and transformers
3. Interpret wiring diagrams for various applications.

4. Identify safety equipments required.
5. Decide the procedure for setting experiments.

Motor skills:

1. Draw wiring diagram
2. Make wiring connections to connect electrical equipments and instruments.
3. Measure electrical power and other electrical quantities.
4. Use of safety devices while working.

List of Practical:

1. Verification of Kirchhoff's laws.
2. Draw single line diagram of simple S.P.switch with three pin socket connection.
3. To determine the resistance, impedance and inductance of a choke coil. (Use of D.C. source for measurement of resistance and A.C. source for measurement of inductance is expected)
4. To draw vector diagram and to determine power factor of R-L-C series circuit.
5. To determine the relationship between line and phase values in three phase balanced star and delta connected load.
6. To determine transformation ratio of single phase transformer.
7. To draw a neat sketch of plate earthing.
8. To fabricate a switch board with three s.p. switches, one three pin socket for three points with single phase supply along with earthing.
9. Study of any one stepper motor in your laboratory. Write a report based on the following points.
   Rating (Specification)

Note: All the above 09 experiments are compulsory.

Learning Resources:

Books:

Sr. No.	Authors	Title	Publisher
01	Mittle and Mittal	Basic Electrical Engineering	Tata McGraw Hill
02	B. L. Theraja	Electrical Technology Vol – I and II	S. Chand & company
03	E.Hudges	Electrical Engineering	Pearson Education New Delhi.
04	V.K.Mehata	Electrical Technology	S. Chand & company

Course Name : Computer Engineering Group

Semester : Second

Subject Title : Programming in 'C'

Subject Code : 12027

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
04	--	02	03	100	50#	--	25@	175

NOTE:

- **Two tests each of 25 marks to be conducted as per the schedule given by SBTE.**
- **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

Rationale:

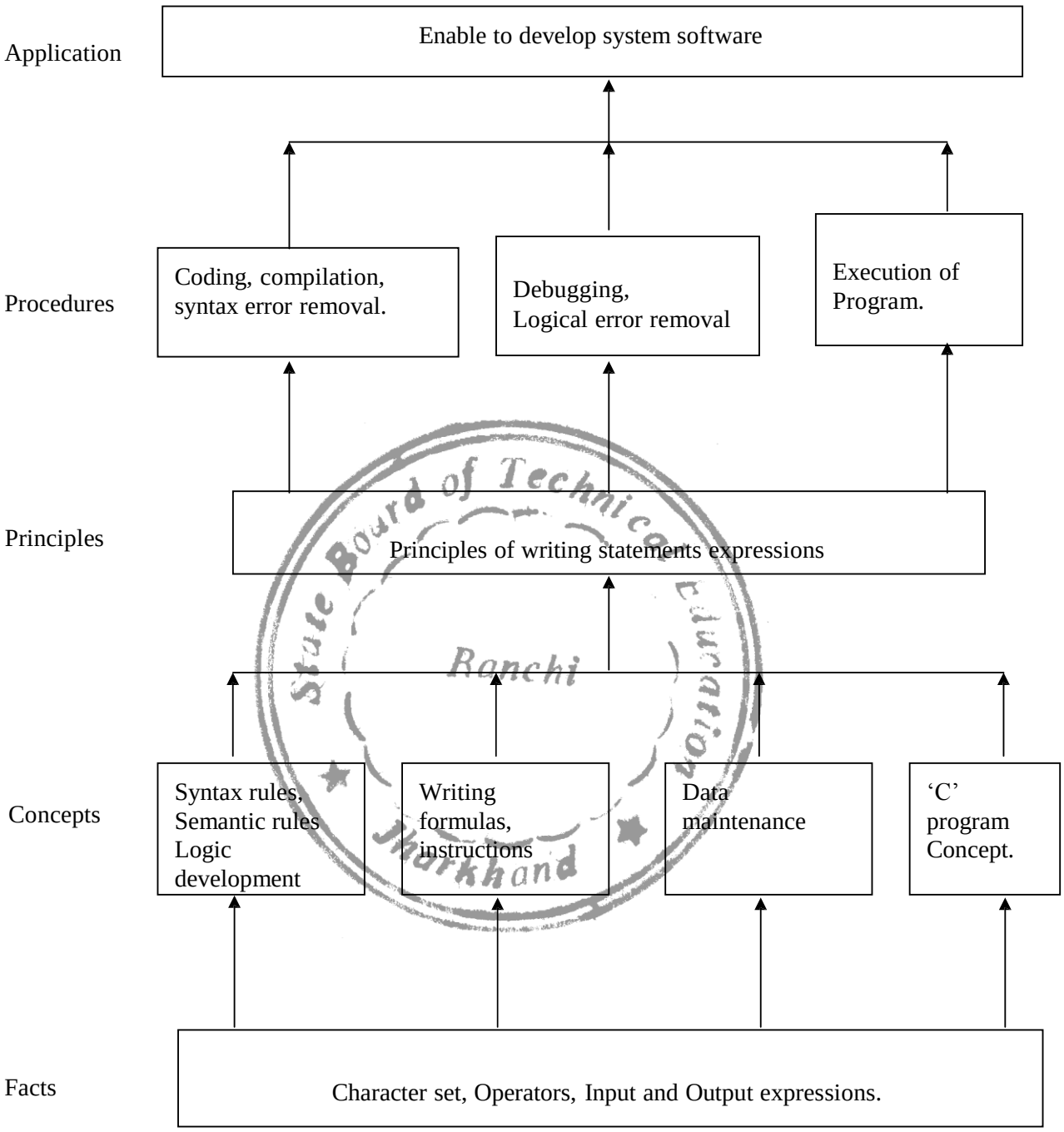
'C' is the most widely used computer language, which is being taught as a core subject. C is general-purpose structural language that is powerful, efficient and compact, which combines features of high-level language and low-level language. It is closer to Man and Machine both. Due to this inherent flexibility and tolerance it is suitable for different development environments .Due to these powerful features C has not lost its importance and popularity in recently developed and advanced software industry C can also be used for system level programming, C is still considered as first priority programming language.

This subject covers from the basic concept of C to pointers in C. This subject will act as "programming concept developer" for students. It will also act as "Backbone" for subjects like OOPS, VB, Windows Programming, JAVA, OOMD, etc.

Objectives: The students will be able to

- Describe the concepts of constants, variables, data types and operators.
- Develop programs using input and output operations.
- Write programs using different looping and branching statements.
- Write programs based on arrays and strings handling functions.
- Write programs using user-defined functions, structures and union.
- Write programs using C pointers.

Learning Structure:



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Contents: Theory

Chapter	Contents	Hours	Marks
01	**Basics of C** 1.1 History of C, where C stands 1.2 C character set, tokens, constants, variables, keywords 1.3 C operators (arithmetic, Logical, assignment, relational, increment and decrement, conditional, bit wise, special, operator precedence), C expressions data types 1.4 Formatted input, formatted output.	**10**	**18**
02	**Decision making** 2.1 Decision making and branching if statement (if, if-else, else-if ladder, nested if-else) Switch case statement, break statement. **(14M)** 2.2 Decision making and looping while, do, do-while statements for loop, continue statement **(14M)**	**12**	**28**
03	**Arrays and Strings** 3.1 Arrays Declaration and initialization of one dimensional, two dimensional and character arrays, accessing array elements. **(10M)** 3.2 Declaration and initialization of string variables, string handling functions from standard library (strlen(), strcpy(), strcat(), strcmp()). **(08M)**	**14**	**18**
04	**Functions, Structures** 4.1 Functions Need of functions, scope and lifetime of variables, defining functions, function call (call by value, call by reference), return values, storage classes. category of function(No argument No return value, No argument with return value, argument with return value), recursion **(12M)** 4.2 Structures Defining structure, declaring and accessing structure members, initialization of structure, arrays of structure. **(08M)**	**14**	**20**
05	**Pointers** 5 Understanding pointers, declaring pointer variable, initialization of pointer variable, accessing address of a variable, pointer expressions, Pointers arithmetic, pointers and arrays, array of pointers	**14**	**16**
	Total	**64**	**100**

Practical:

Skills to be developed**:**

Intellectual skills:

- Use of programming language constructs in program implementation.
- apply different logics to solve given problem.
- write program using different implementations for the same problem
- Identify different types of errors as syntax semantic, fatal, linker & logical

- Debugging of programs
- Understanding different steps to develop program such as

Motor skills:

- Proper handling of Computer System**.**

List of Practical:

Sr. NO.	Title of Experiment
01	To understand concept of algorithm and flowchart in 'C' with sample example.
02	To understand formatted input and output statements in 'C' with sample example.
03	To understand various operators in 'C' with sample example.
04	To understand decision control statements (if, if-else, nested if-else with sample example for each type
05	To understand decision control statement switch control statement in 'C'.
06	To understand Loop control statements in 'C'.
07	To understand single dimensional integer arrays in 'C'.
08	To understand multiple dimensional integer arrays in 'C'.
09	To understand string functions in 'C', by developing algorithm, flowchart & writing program for string comparison, copying and concatenation.
10	To understand functions in 'C' by developing algorithm, flowchart & writing program for finding factorial of a given no.
11	To understand concept of structure in 'C'.
12	To understand pointers in 'C', by developing algorithm, flowchart & writing program to print values of variables and their addresses and call by reference.
13	To understand array of pointers in 'C'.
14	To understand command line arguments in 'C'.

Learning Recourses:

1. Books

Sr. No.	Name of Book	Author	Edition	Publication
1	Programming in 'C'	Balgurusamy	3rd	Tata Mc-Graw Hill
2	Let us 'C'	Kanitkar	3rd	BPB
3	Complete reference 'C'	Herbert Shildt	4th	Tata Mc-Graw Hill

2. Websites:

- **http://cplus.about.com/od/beginnerctutoriali/a/blctut.htm**
- **http://computer.howstuffworks.com/c.htm**
- **Objective questions:**

  http://www.indiastudycenter.com/studyguides/sc/objtest/default.asp

Demo lectures with power point presentations using LCD projector should be arranged to develop programming concepts of students.

Course Name : Computer Engineering Group

Semester : Second

Subject Title : Web Page Designing

Subject Code : 12028

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
--	--	04	--	--	50@	--	--	50

Rationale:

It is estimated that across the Internet, over 100 million domain names are in use. With fast and cheap broadband Internet connections available to the masses, online users now exceeding 500 millions. Tens of millions of users are now creating personal Web sites. It is a practical oriented subject which will enable student to develop Web sites.

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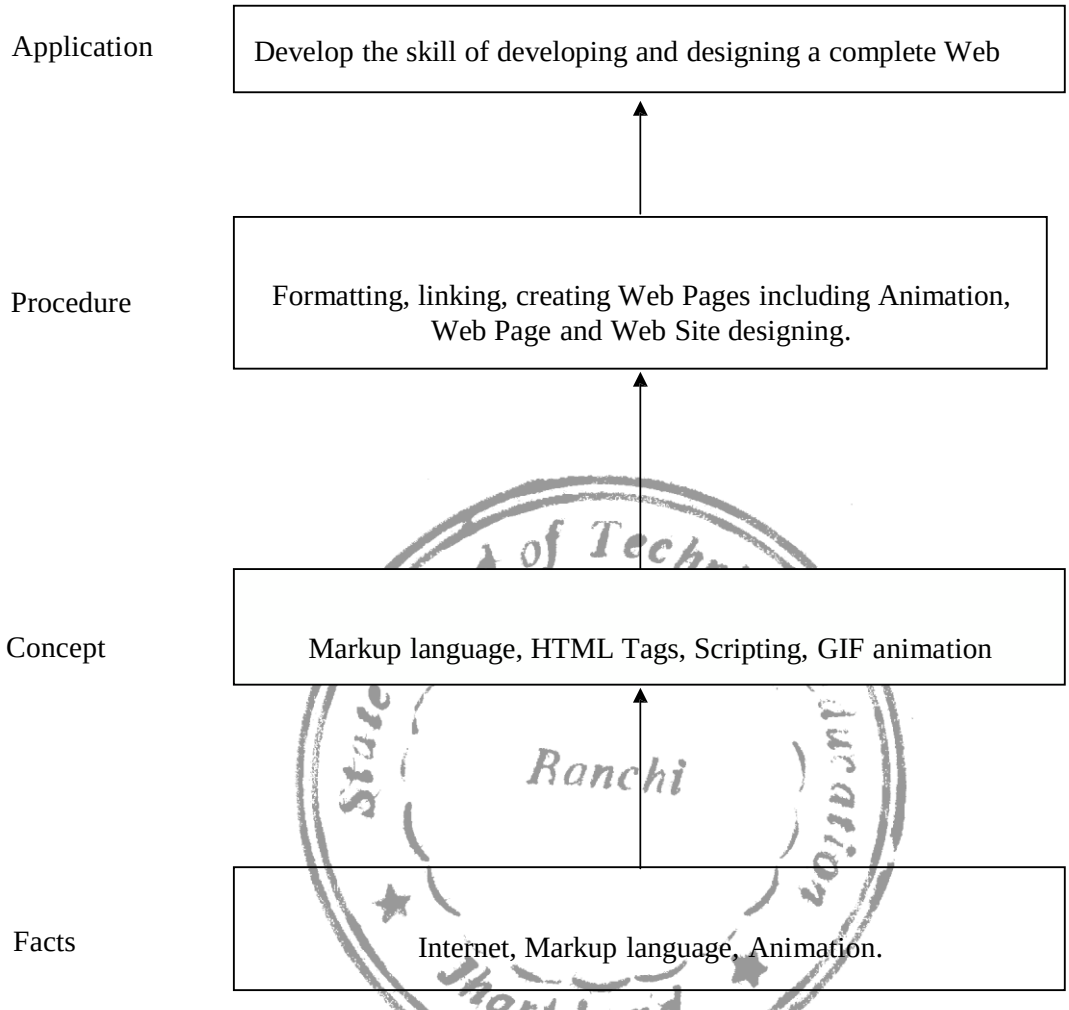
Objectives:

The student will be able to

1. Design simple Web pages - using HTML
2. Organize information using Tables, collect information from users using forms & present information using Frames.
3. Use style sheets to gain full control of formatting within Web page.
4. Include JavaScript within Web pages.
5. Embed multimedia to Web pages.
6. Integrate all above to develop Web sites.

Learning structure:



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Contents: Theory (To be covered during Practical periods)

Chapter	Name of the Topic
1	**HTML** 1.1 Introduction to HTML 1.1.1 Terminologies used in Web Design: Web, Web site, Web page, Web server, Web Browser, Search Engine. 1.1.2 Components of HTML: Tags – closed tags and open tags, Attributes, Elements. 1.1.3 Structure Tags : !DOCTYPE, HTML, HEAD, TITLE, BODY tags. 1.1.4 Block Level Elements : Headings, Paragraphs, Breaks, Divisions, Centered Text, Block Quotes, Preformatted text, Address. 1.1.5 Text Level Elements : Bold, Italic, Teletype, Underline, Strikethrough, Superscript, subscript. 1.1.6 Horizontal Rules. 1.1.7 Special characters. 1.1.8 Adding comments 1.1.9 The Meta tag. 1.2 Creating Lists 1.2.1 Ordered Lists 1.2.2 Unordered Lists 1.2.3 Definition Lists 1.2.4 Nested Lists 1.3 Linking HTML Documents 1.3.1 URL : Types of URLs, Absolute URLs, Relative URLs 1.3.2 The Anchor Tag. 1.3.3 Linking : To document in the same folder. To document in the different folder. To document on the web. To specific section within the document. 1.3.4 Inserting E-mail links
2	**IMAGES, COLORS AND BACKGROUNDS** 2.1 Images 2.1.1 Image formats : gif, jpeg, png 2.1.2 The inline image : an IMG tag, alternate text, image alignment, buffer space – HSPACE, VSPACE, wrapping text, height and width of images. 2.1.3 Image as a link. 2.1.4 Image maps : Server side image maps, Client side image maps. 2.2 Colors and Backgrounds 2.2.1 The text color : color attribute of FONT tag, text attribute of BODY tag. 2.2.2 Background color : bgcolor attribute of BODY tag. 2.2.3 Background images : background attribute of BODY tag. 2.2.4 Changing link colors : link, alink, vlink attributes of BODY tag.
3	**TABLES, FRAMES AND FORMS** 3.1 Tables

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	3.1.1 Creating basic tables : TABLE, TR, TH, TD tags. 3.1.2 Formatting tables : border, cellspacing, cellpadding, width, align, bgcolor attributes. 3.1.3 Adding captions : CAPTION tag. 3.1.4 Formatting contents in the table cells : align, valign, bgcolor, height, width, nowrap attributes. 3.1.5 Spanning rows and coloums : rowspan and colspan attributes. 3.2 Frames 3.2.1 Introduction to frames : What is frame?, Advantages and disadvantages of using frames. 3.2.2 Creating frames : FRAMESET tag – rows, cols attributes, FRAME tag – name, frameborder, marginheight, marginwidth, src, resize, scrolling attributes. 3.2.3 Use of NOFRAMES tag 3.2.4 Frame targeting. 3.3 Forms 3.3.1 Creating basic form: FORM tag, action and method attributes. 3.3.2 Form fields: Single line text field, password field, multiple line text area, radio buttons, check boxes. 3.3.3 Pull down menus: SELECT and OPTION tags. 3.3.4 Buttons: submit, reset and generalized buttons. 3.3.5 Formatting technique: Using table to layout form.
4	**STYLE SHEETS** 4.1 Adding style to the document: Linking to style sheets, Embedding style sheets, Using inline style. 4.2 Selectors: CLASS rules, ID rules. 4.3 Style sheet properties: font, text, box, color and background properties.
5	**INTRODUCTION TO JAVASCRIPT** 5.1 Embedding JavaScript in HTML document. 5.2 Variables, Constants, Adding comments. 5.3 Operators: Assignment, Arithmetic and Comparison operators. 5.4 Control structures and looping: if, if..else, for, for..in, while, do..while, break and continue. 5.5 Event handlers: onClick, onMouseOver, onMouseOut, onSubmit, onReset, onFocus, onBlur, onSelect.
6	**ANIMATION** 6.1 Creating a gif animation using gif animator. 6.2 Controlling gif animation through internal setting of gif animator. 6.3 Creating banner using gif animation. 6.4 Creating smooth transition between gif animation frames using twinning.

Assignments:

1. Design Web page and apply some block level tags and some text level tags.
2. Include Horizontal Rules and special characters in a Web page.
3. Design Web page and include different lists.
4. Include various links in a Web page

5. Include images with different alignments and wrapped text in Web page. Also include image as a link in the Web page.
6. Design a web page and set background colour and document wide text colour.
7. Design a web page with background image, different text colour for different paragraphs, and set colours for links, active links and visited links.
8. Create HTML table, format contents in table cells and span the rows and columns.
9. Create basic frameset and format the frames within the frameset using different attributes. Also use frame targeting.
10. Create a basic form using different input controls and pull down menu.
11. Use table to lay out form with different form controls and generalized buttons.
12. Create a web page and apply style sheet properties (font, text and box properties).
13. Create a web page to get watermark effect using style rules.
14. One script using controls structure and looping.
15. One script using event handlers.
16. Create GIF animation using GIF animator and incorporate in web page.
17. Create Banner Ad and incorporate in web page.

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Mini Project:

Design a website using all topics mentioned in syllabus.

Learning Resources:

Books:

Sr. No.	Author	Title	Publisher
01	Thomas Powell	HTML and XHTML – The complete reference	Tata McGraw Hill, New Delhi.
02	Jamsa, King, Anderson	HTML and Web Design – Tips and Techniques	Tata McGraw Hill, New Delhi.

Course Name : All Branches of Diploma in Engineering and Technology

Semester : SECOND

Subject Title : Development of Life Skills-I

Subject Code : 12018

TEACHING AND EXAMINATION SCHEME:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
01	--	02	--	--	--	25#	25@	50

Rationale:

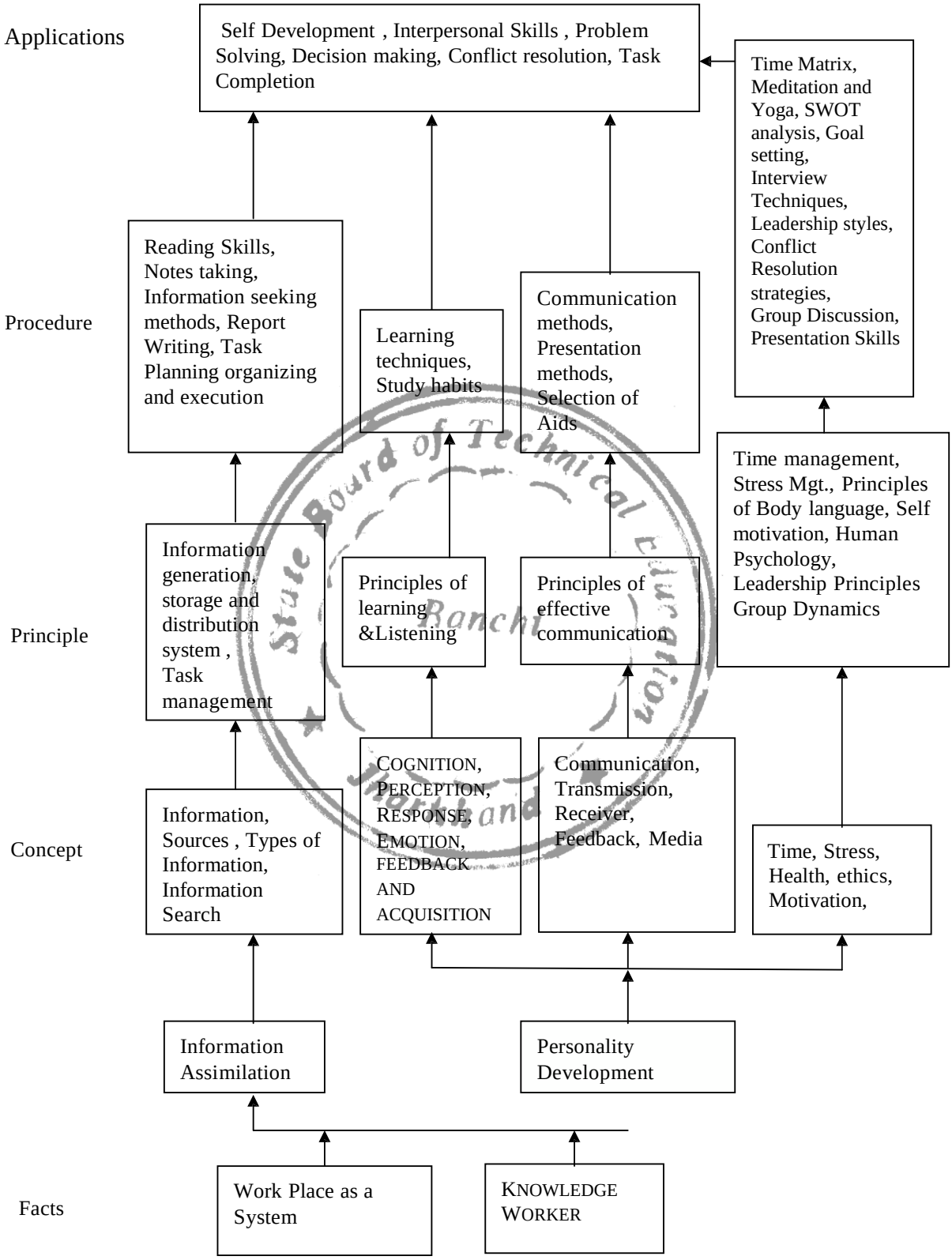
In today's competitive world, the nature of organizations is changing at very rapid speed. In this situation the responsibility of diploma holder is not unique. He will be a part of a team in the organization. As such the individual skills are not sufficient to work at his best.

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, solving challenging problems**.** The Subject Is Classified Under Human Science.

Objectives: The students will be able to:

1. Develop reading skills
2. Use techniques of acquisition of information from various sources
3. Draw the notes from the text for better learning.
4. Apply the techniques of enhancing the memory power.
5. Develop assertive skills.
6. Prepare report on industrial visit.
7. Apply techniques of effective time management.
8. Set the goal for personal development.
9. Enhance creativity skills.
10. Develop good habits to overcome stress.
11. Face problems with confidence.

LEARNING STRUCTURE:



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Contents: Theory

Topic No	Contents	Hours
1	**Importance of DGS,** Introduction to subject, importance in present context ,application	**01**
2	**Information Search** Information source –Primary, secondary, tertiary Print and non - print , documentary, Electronic Information center, Library , exhibition, Government Departments. Internet Information search – Process of searching, collection of data -questionnaire , taking Interview , observation method.	**02**
3	**Written communication** METHOD OF NOTE TAKING Report writing –Concept, types and format.	**01**
4	**Self Analysis** Understanding self— Attitude, aptitude, assertiveness, self esteem, Confidence buildings. Concept of motivation.	**02**
5	**Self Development** Stress Management –Concept, causes, effects , remedies to void/minimize stress. Health Management – Importance, dietary guidelines and exercises. Time management- Importance, Process of time planning, Urgent Vs importance, Factors leading to time loss and ways to handle it ,Tips for effective time management. EMOTION-CONCEPT, TYPES, CONTROLLING, EMOTIONAL INTELLIGENCE. CREATIVITY-CONCEPT, FACTORS ENHANCING CREATIVITY. GOAL SETTING – CONCEPT, SETTING SMART GOAL.	**07**
6	**Study habits** Ways to enhance memory and concentration. Developing reading skill. Organisation of knowledge. Model and methods of learning.	**03**
	Total	**16**

LIST OF ASSIGNMENTS:

The Term Work Will Consist Of Following Assignments.

1) Self Awareness.
2) Techniques of developing positive attitude.
3) Learning, Memory and Concentration.
4) To understand the concept of study techniques and participate in a panel discussion on it.
5) To understand the concept of motivation and emotional intelligence.
6) Goal Setting.
7) Information search in library.
8) Information search through internet.
9) Time Management.
10) Health and stress Management
11) Assertiveness and confidence building
12) Creativity

NOTE:- *THESE ARE THE* ***SUGGESTED ASSIGNMENT*** *FOR GUIDE LINES TO THE SUBJECT TEACHER. HOWEVER THE SUBJECT TEACHERS CAN SELECT, DESIGN ANY ASSIGNMENT RELEVANT TO THE TOPIC, KEEPING IN MIND THE OBJECTIVES OF THIS SUBJECT.*

Learning Resources:

Books:

Sr. No	Author	Title of the book	Publisher
1	Marshall Cooks	Adams Time management	Viva Books
2	E.H. Mc Grath , S.J.	Basic Managerial Skills for All	Pretice Hall of India, Pvt Ltd
3	Allen Pease	Body Language	Sudha Publications Pvt. Ltd.
4	Lowe and Phil	Creativity and problem solving	Kogan Page (I) P Ltd
5	Adair, J	Decision making & Problem Solving	Orient Longman
6	Bishop , Sue	Develop Your Assertiveness	Kogan Page India
7	Marion E Haynes	Make Every Minute Count	Kogan page India
8	Pearson Education Asia	Organizational Behavior	Tata McGraw Hill
9	Michael Hatton (Canada – India Project)	Presentation Skills	ISTE New Delhi
10	--	Stress Management Through Yoga and Meditation	Sterling Publisher Pvt Ltd.
11	Richard Hale ,Peter Whilom	Target setting and Goal Achievement	Kogan page India
11	Chakravarty, Ajanta	Time management	Rupa and Company
12	Harding ham .A	Working in Teams	Orient Longman

Internet Assistance:

1) http://www.mindtools.com
2) http://www.stress.org
3) http://www.ethics.com
4) http://www.coopcomm.org/workbook.htm
5) http://www.mapfornonprofits.org/
6) http://www.learningmeditition.com http://bbc.co.uk/learning/courses/
7) http://eqi.org/
8) http://www.abacon.com/commstudies/interpersonal/indisclosure.html
9) http://www.mapnp.org/library/ethics/ethxgde.htm
10) http://www.mapnp.org/library/grp_cnfl/grp_cnfl.htm
11) http://members.aol.com/nonverbal2/diction1.htm
12) http://www.thomasarmstron.com/multiple_intelligences.htm
13) http://snow.utoronto.ca/Learn2/modules.html
14) http://www.quickmba.com/strategy/swot/

Course Name : Computer Engineering Group

Semester : Second

Subject Title : Professional Practices - II

Subject Code : 12029

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
--	--	02	--	--	--	--	50@	50

Rationale:

Most of the diploma holders jin 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. Industrial visits, expert lectures, seminars on technical topics and group discussion are planned in a semester so that there will be increased participation of students in learning process.

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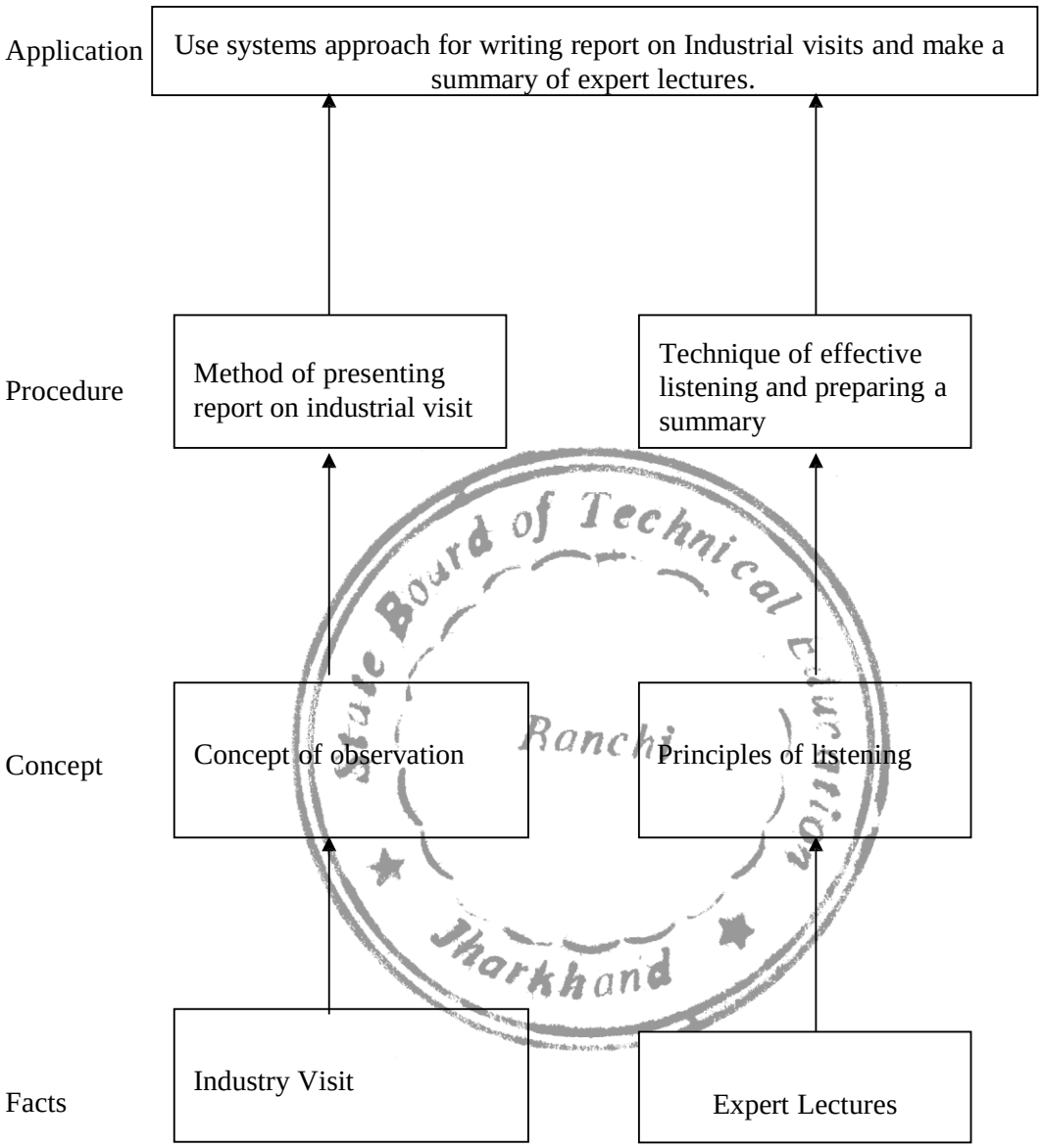
Objectives:

Student will be able to:

1. Acquire information from different sources.
2. Prepare notes for given topic.
3. Present given topic in a seminar.
4. Interact with peers to share thoughts..
5. Prepare a report on industrial visit, expert lecture.

LEARNING STRUCTURE:



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Activity	Content	Hours
1	**Industrial Visits:** Structured industrial visits be arranged and report of the same should be submitted by the individual student, to form part of the term work. Visits to any two of the following: **Real time system (shopping Mall, Railway Reservation System etc.)**	**14**
2	**Lectures by Professional / Industrial Expert to be organized on any three topics of the following suggested areas or any other suitable topics:** i) Pollution control. ii) Safety Precautions and First aids. iii) Vedic Mathematics. Topics related to Social Awareness such as –Traffic Control System, Career opportunities , Communication in Industry, Blood Donation Camp, Yoga Meditation, Aids awareness and health awareness	**10**
3	**Group Discussion :** The students should discuss in group of six to eight students and write a brief report on the same as part of term work. The topic for group discussions may be selected by the faculty members. Some of the suggested topics are - i) Sports. ii) Cultural. iii) Discipline and House Keeping. iv) Current topic related to IT engineering field.	**08**
	Total	**32**

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