RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA,BHOPAL

CURRICULUM

FOR

DIPLOMA IN INFORMATION TECHNOLOGY, COMPUTER SCIENCE& COMPUTER HARDWARE AND MAINTENANCE

(FIRST SEMESTER)

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST**
COURSE CODE: **101**
NAME OF COURSE: **COMMUNICATION SKILLS**

SCHEME: **CGPA-2012**
PAPER CODE: **5161**

RATIONALE

The wide range of communicative and functional need of English in the evolving global and technical professional environment has more than ever imposed a demand of acquiring proficiency in communication skills in our technicians and diploma pass outs. Besides being a professional language, it also acts as a window to technical and scientific knowledge. Diploma pass outs are required to communicate with personnel belonging to different echelons of authority. Therefore, acquiring proficiency in listening, speaking, reading and writing English is an integral part of professional and technical competence.

Upon completion of this course, the student will be able to:

- Understand slowly delivered spoken material in Indian English.
- Understand general purpose words of English.
- Use general purpose words of English to express himself in speaking reasonably clearly and correctly on routine matters.
- Write reasonably and grammatically correct English.
- Develop a habit of reading with comprehension to achieve an optimum speed of 75 WPM.
- Communicate effectively in a professional environment through speaking and writing to achieve desired objectives.

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SEMESTER: **FIRST**
COURSE CODE: **101**
NAME OF COURSE: **COMMUNICATION SKILLS**

SCHEME:
PAPER CODE: **5161**

Lectures: **6** Hrs. per week

SCHEME OF STUDIES

S. No.	Topic	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	COMMUNICATION PROCESS AND ITS NEEDS	**24**	**-**	**24**
2.	PASSAGES OF COMPREHENSION	**24**	-	**24**
3.	BUSINESS COMMUNICATION (ONE QUESTION WITH INTERNAL CHOICE)	**18**	**-**	**18**
4.	COMPOSITION & TRANSLATION	**16**	**-**	**16**
5.	UNSEEN PASSAGES & PRECIS WRITING	**08**	**-**	**08**
	TOTAL	**90**	**-**	**90**

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NAME OF COURSE: **COMMUNICATION SKILLS**

SCHEME:
PAPER CODE: **5161**

Lectures: **6** Hrs. per week

COURSE CONTENTS

S.NO.	*TOPIC*	CONTENTS	HRS OF STUDY
01.	***COMMUNICATION PROCESS AND ITS NEEDS***	1.1 (i) How to make communication effective (ii) Barriers in communication, Removal of barriers 1.2 Grammar and vocabulary for correct English usage. (i) Determiners, Prepositions, Auxiliary verbs and subject-verb agreement (ii) Rewrite as directed (change voice, correct form of verbs/ tenses) (iii) Vocabulary – One word substitution, words often misused and wrongly spelt	**24**
02.	***PASSAGES OF COMPREHENSION***	2.1 Prescribed passages (six from existing syllabus) i Language of Science ii Desalination or Desalting Process iii Safety Practices iv Non-conventional Sources of Energy v Our Environment vi Entrepreneurship 2.2 Writing summary, moral and characterization of any one story from the book prescribed.	**24**
03.	***BUSINESS COMMUNICATION (One question with internal choice)***	3.1 Principles of effective business correspondence Its parts, mechanics, styles and forms 3.2 Application for job, Bio-Data and C.V. 3.3 Letter of Enquiry 3.4 Placing order 3.5 Complaint	**18**

S.NO.	*TOPIC*	CONTENTS	HRS OF STUDY
04.	***COMPOSITION & TRANSLATION***	4.1 Writing paragraphs of 150 words on topics of general interest i.e. pollution, ragging in college, importance of computers, importance of communication skill, importance of science and technology etc. 4.2 Translation (Hindi to English and vice-versa).	**16**
05.	***UNSEEN PASSAGES & PRECIS WRITING***	**i** Answer the questions based on the passage. ii Give suitable title OR iii Writing Precis	**08**

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SCHEME:
PAPER CODE: **5161**

REFERENCES

1. English Conversation Practice
   - Grant Taylor

2. Practical English Grammar
   - Thomson & Martinet

3. Communication Skills for Technical Students Book – I, Book – II
   - M/S Somaiya Publication, Bombay

4. Living English Structure
   - S. Allen

5. English Grammar, Usage, and Composition
   - Tickoo & Subramanian, S. Chand & Co. Standard Allen Longman.

6. Essentials of Business Communication
   - Dr. Rajendra Pal & J.S. Korlahalli S.Chand & Sons, New Delhi.

7. Effective Business Communication
   - M.V. Rodriques, Concept Pub. Co., New Delhi.

8. Communication for Business
   - Shirely Taylor, Longman, England.

9. Communication for Engineers and Professors
   - P. Prasad, S.K.Kataria and sons publications, New Delhi

10. Technical English Book-II,
    - Somaya Publications, New Delhi

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SCHEME:
PAPER CODE: **5161**

SUGGESTED READINGS

S.No.	SGGESTED READINGS
1	<u>To enhance The reading skills and generate interest</u> ➢ A Brief History of Time: - Stephan Hawking, Bentham Books, Great Britain ➢ Cosmos: - Carl Sagan, Bentham Books, Great Britain. ➢ Ignited Minds: - A.P.J. Abdul Kalam, Penguin Books. ➢ India 2020: - A.P.J. Abdul Kalam, and Y.S. Rajan Penguin Books. ➢ Beyond the Last Blue Mountain: - J.R.D. Tata, Penguin Books ➢ Life and Times: - Albert Einstein, Bentham Books. ➢ Power of Oration: - Abraham Lincoln.
2	<u>Faster reading for deriving Pleasure.</u> ➢ Interpreter of Maladies: - Jhumpa Lahiri.,Harper & Collins. ➢ Short stories by R.K.Narayan,Tagore,Tolstoy,Mulkraj Anand,O.Henry.
3	<u>For Vocabulary Building.</u> ➢ Word Power made Easy: - Norman Lewis, Bloomsbury ➢ Reading, Spelling, Vocabulary, Pronunciation, Book 1,2 &3: - Norman Lewis. ➢ The Joy of Vocabulary: - Levine, Levine & Levine. ➢ Roget's Thesaurus of Synonyms and Antonyms. ➢ Cambridge English Pronouncing Dictionary: - Danial Jones . ➢ Audio- Visual learning resources and multimedia learning material for pronunciation improvement and listening skills.

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DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST**
COURSE CODE: **102**
NAME OF COURSE: **PHYSICS**

SCHEME:
PAPER CODE: **6031**

RATIONALE

Curriculum revision needs to be updated and revised in the light of the changes occurring in the life so that they fulfill the objectives.

1. To minimize the poor technical knowledge in the basics of his / her discipline.
2. To improve practical skill on the basis of theoretical knowledge imported.
3. To improve the problem solving skill.

Physical science forms the foundation of engineering, the subject of physics has its importance amongst all the physical sciences, therefore, it is to be taught exclusively to the students of diploma in engineering.

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DIPLOMA IN

INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST**
COURSE CODE: **102**
NAME OF COURSE: **PHYSICS**

SCHEME:
PAPER CODE: **6031**

Lectures: **6** Hrs. per week
Practical: **4** Hrs. per week

SCHEME OF STUDIES

S. No.	Topic	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	UNITS & MEASUREMENT	05		
2.	MOTION	10		
3.	MOLECULAR PHENOMENON OF SOLIDS, LIQUIDS AND GASES	06		
4.	PROPERTIES OF MATTER	10		
5.	HEAT	10		
6.	HEATING EFFECT OF CURRENT AND THERMOELECTRICITY	06		
7.	SOUND	08		
8.	OPTICS AND OPTICAL INSTRUMENTS	10		
9.	ELECTROSTATICS AND ELECTROMAGNETIC INDUCTION	10		
10.	MODERN PHYSICS, BASIC ELECTRONICS	15		
	TOTAL	**90**	**60**	**150**

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DIPLOMA IN

INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST**
COURSE CODE: **102**
NAME OF COURSE: **PHYSICS**

SCHEME:
PAPER CODE: **6031**

Lectures: **6** Hrs. per week

COURSE CONTENTS

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
1.	**UNITS & MEASUREMENT**	– Fundamental and derived units – Scalar and vector, Basic requirements to represent vector – Symbols, abbreviation, and proculation – Linear measurement by vernier calipers, screw gauge and spherometer – Angular measurement by angular vernier	**05**

2.	**MOTION**	– Motion and its type
		– Linear motion (laws and equation)
		– Circular motion
		  – Angular velocity and relation with linear velocity
		  – Centripetal acceleration, Centripetal and Centrifugal forces
		– Rotatory motion
		  – Axis of rotation
		  – Moment of Inertia, Radius of gyration
		  – Kinetic energy of rotation
		– Numerical problems and solution on the topic
			10

3.	**MOLECULAR PHENOMENON OF SOLIDS, LIQUIDS AND GASES**	– Postulates Of Molecular Kinetic Theory Of Structure of matter
		– Brownian motion
		– Kinetic and Potential energy of molecules
		– Kinetic theory of gases
		  – Postulates
		  – Calculation of pressure by Kinetic theory
		  – Prove of different gases law by Kinetic theory.
			06

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
4.	**PROPERTIES OF MATTER**	– Elasticity: Meaning, definition, stress, stain, Hook's law and elastic limit – Surface Tension : Meaning, definition, molecular forces, cohesive and adhesive forces, surface energy, capillary rise and capillary rise method. – Viscosity : Meaning, definition, stream line and turbulent flow, critical velocity, Stock's law. – Numerical problems and solution on the topic.	**10**
5.	**HEAT**	– Heat and temperature, concept of heat as molecular motion – Transmission of heat, study state and variable state. – Concept of heat capacity, specific heat and latent heat. – Calorimeter and its uses – Thermodynamics – Relation between heat and work – Mechanical equivalent of heat – First law of thermodynamics and its application – Second law of thermodynamics and its application – Carnot cycle – Numerical problems and solution on the topic.	**10**
6.	**HEATING EFFECT OF CURRENT AND THERMOELECTRICITY**	– Heating effect of electric current: Joule's law, work energy and power in electric circuit, calculation of electric energy. – Thermo electricity – Seeback effect and thermoelectric power. – Neutral temperature, temperature of inversion and relation between them – Thermo electric thermometer and thermo couples. – Numerical problems and solution on the topic.	**06**
7.	**SOUND**	– Production of sound waves(Longitudinal and transverse waves)	**08**

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
8.	**OPTICS AND OPTICAL INSTRUMENTS**	– Progressive and stationary waves – Basic knowledge of refraction , reflection, interference and diffraction. – Ultrasonic, – Audible range, Production of ultrasonic, properties and uses – Refraction, critical angle and total internal reflection, refraction through lenses and problems – Power of lenses – Spherical and chromatic aberrations – Simple and compound microscope, telescope and derivation for their magnifying power – Numerical problems and solution on the topic.	**10**
9.	**ELECTROSTATICS AND ELECTROMAGNETIC INDUCTION**	– Coulomb's law, Electric field intensity, potential. – Capacity, principle of capacitor, types of capacitor, combination of capacitors – Electromagnetic Induction: – Faraday's law, Lenz's law – Self and mutual inductance – Transformer and electric motor, Induction coil	**10**
10.	**MODERN PHYSICS, BASIC ELECTRONICS**	– Photoelectric effect, threshold frequency, Einstein- equation, Photo electric cells – Radioactivity : decay constant, Half life, mean life – Properties of nucleus, nuclear mass, mass defect – Production of x-rays, properties and its uses – Thermal emission, semiconductors, – Types of semiconductors – Explanation of conductor, semiconductor and insulators on the basis of band theory – P-N junction, diode as rectifier.	**15**

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SEMESTER: **FIRST**
COURSE CODE: **102**
NAME OF COURSE: **PHYSICS**

SCHEME:
PAPER CODE: **6031**

Practical: **4** Hrs. per week

LIST OF EXPERIMENTS

S.NO.	NAME OF THE EXPERIMENT	HRS OF PRACTICAL
1	Refractive index of prism (I-d) curve	
2.	Refractive index of prism (spectrometer)	
3.	Focal length of a convex lens by u-v method	
4.	Focal length of a convex lens by displacement method	
5.	Verification of Ohm's law	
6.	To find out unknown resistance by meter bridge	
7.	To find out internal radius of hollow tube by vernier calipers. To find out volume of given cylinder by screw gauge.	
8.	Surface tension by Capillary rise method. Coefficient of viscosity	
9.	Coefficient of Thermal conductivity by searl's method.	
10.	Verification of Newton's cooling law.	
		60

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NAME OF COURSE: **PHYSICS**

SCHEME:
PAPER CODE: **6031**

REFERENCES

1. APPLIED PHYSICS VOL. 1 & 2
   - SAXENA AND PRABHAKAR
2. PHYSICS
   - TTTI PUBLICATION
3. PHYSICS VOL. 1 &2
   - HALLIDAY AND RESNIC R
4. ENGINEERING PHYSICS
   - GAUR AND GUPTA
5. PRINCIPLE OF PHYSICS
   - BRIJ LAL & SUBRAMANYAN
6. PHYSICS FOR TECHNICAL EDUCATION
   - LS ZEDNOV

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DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST** SCHEME:
COURSE CODE: **103** PAPER CODE: **6033**
NAME OF COURSE: **MATHEMATICS**

RATIONALE

Mathematics forms backbone for all technologies and hence occupies an important place in the curriculum of polytechnic education. The subject is equally important for the future self development of Polytechnic students. In designing the curriculum for foundation course the admission level to Polytechnics has been considered as 10th Board examination and mathematical needs of Technical subject have been given due consideration. To understand difficult concepts in higher engineering courses and to solve many problems of design and development a good back ground in mathematics is necessary.
Keeping in view this course is required for engineering diploma programmes.

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DIPLOMA IN

INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST** SCHEME:
COURSE CODE: **103** PAPER CODE: **6033**
NAME OF COURSE: **MATHEMATICS**

Lectures: **8** Hrs. per week

SCHEME OF STUDIES

S. No.	Topic	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	ALGEBRA	20		
2.	TRIGONOMETRY	11		
3.	MATRIX	11		
4.	CO-ORDINATE GEOMETRY	11		
5.	STATISTICS	11		
6.	DIFFERENTIAL CALCULUS	18		
7.	INTEGRAL CALCULUS	18		
8.	VECTOR ALGEBRA	20		
	TOTAL	**120**		**120**

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DIPLOMA IN

INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST**
COURSE CODE: **103**
NAME OF COURSE: **MATHEMATICS**

SCHEME:
PAPER CODE: **6033**

Lectures: **8** Hrs. per week

COURSE CONTENTS

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
1.	**ALGEBRA**	1.1 Permutation - Meaning of factorial n - Permutation of 'n' dissimilar thing taken 'r' at a time, 1.2 Combination - Combination of n dissimilar things taken 'r' at a time, 1.3 Binomial Theorem - Statement of the theorem for positive integer - General Term, Middle term, Constant term 1.4 Partial Fractions - Define a proper-improper fraction - Break a fraction into partial fraction whose denominator contains Linear, Repeated linear and Non repeated quadratic factors. 1.5 Determinant - Concept & principles of determinants - Properties of determinant - Simple examples. 1.6 Complex Numbers - Algebra of Complex Numbers - Polar form	**20**
2.	**TRIGONOMETRY**	2.1 Allied angles. 2.2 Trigonometrical ratios of sum and difference of angles, (Only statement) 2.3 Sum and difference of trigometric ratios (C-D formula) 2.4 Multiple angles (Only double angle and half angle) 2.5 Properties of triangle (without proof)	**11**

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
3.	**MATRIX**	3.1 Definition of Matrix. 3.2 Types of Matrix. - Row, Column, Square, Unit, Upper and lower triangular, Symmetric & Skew Symmetric, Singular and non Singular Matrices. 3.3 Adjoint of a Matrix. 3.4 Inverse of a Matrix.	**11**
4.	**CO-ORDINATE GEOMETRY**	4.1 Co-ordinate System : Cartesian and Polar. 4.2 Distance, Division, Area of a triangle. 4.3 Locus of a point and its equation. 4.4 Slope of St. Line - Angle between two St. lines. - Parallel and perpendicular St. lines. 4.5 Standard and general equation of St. line. Point of intersection of two st lines.	**11**
5.	**STATISTICS**	5.1 Measures of Central tendency (Mean, Mode, Median) 5.2 Measures of Dispersion (Mean deviation, standard deviation)	**11**
6.	**DIFFERENTIAL CALCULUS**	6.1 Define constant, variable, function. 6.2 Value of the function 6.3 Concept of limit of a function. 6.4 Definition and concept of differential coefficient as a limit. 6.5 Standard results. 6.6 Derivatives of sum, difference, product, quotient of two functions. 6.7 Diff. coeff. of function of a function. 6.8 Diff. coeff. of implicit function. 6.9 Logarithmic Differentiation. 6.10 Differential coeff. of Parametric function.	**18**
7.	**INTEGRAL CALCULUS**	7.1 Definition as a inverse process of differentiation 7.2 Standard Results (including inverse function) 7.3 Methods of Integration - Substitution - Integration by parts - Breaking up into partial fraction 7.4 Concept of Definite Integral	**18**

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
8.	**VECTOR ALGEBRA**	8.1 Concept of Vector and Scalar Quantities. 8.2 Different types of vectors. 8.3 Addition and subtraction of vectors. 8.4 Components of a vector 8.5 Multiplication of two vectors - Scalar Product - Vector Product - Applications (Work done, power & reactive power)	**20**

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NAME OF COURSE: **MATHEMATICS**

SCHEME:
PAPER CODE: **6033**

REFERENCES

1. Mathematics for Polytechnics Vol. I and II
   - Prepared by T.T.T.I. Bhopal
2. Differential Calculus
   - Gorakh Prasad
3. Integral Calculus
   - Gorakh Prasad
4. Co-ordinate Geometry
   - S.L. Loni
5. Engineering Mathematics (M.P. Hindi Granth Akadami)
   - Dr. S.K. Chouksey & Manoj Singh
6. Mathematical Statistics
   - Ray and Sharma
7. Higher Engineering Mathematics
   - B.S. Grewal

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DIPLOMA IN
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SEMESTER: **FIRST**
COURSE CODE: **104**
NAME OF COURSE: **COMPUTER FUNDAMENTALS AND ITS APPLICATION**

SCHEME:
PAPER CODE: **6340**

RATIONALE

Today's age is computer age. Most of our daily activities are being influenced by the use of computers. While in areas like science and technology, improvements cannot be achieved without computers. It has become necessary for each and every student to have a basic knowledge of computers, related devices and Applications. This subject is being offered to acquaint the students about fundamentals of Computers and peripherals, basics of operating system and basic application software like Ms word, MS PowerPoint, and MS Excel

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SEMESTER: **FIRST**
COURSE CODE: **104**
NAME OF COURSE: : **COMPUTER FUNDAMENTALS AND ITS APPLICATION**

SCHEME:
PAPER CODE: **6340**

Lectures: **8** Hrs. per week

SCHEME OF STUDIES

S. No.	Topic	*SCHEME OF STUDIES*		
		Hrs. of Study		
		Theory	*Practical*	*Total*
1.	Computer Organization			
2.	Evolution And Generation Of Computer Systems			
3.	Number System , Codes & Data Representation			
4.	Storage Devices			
5.	Computer Softwares & Language			
6.	Concept of Operating system			
7.	System security			
8.	Internet Applications			

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SEMESTER: **FIRST**
COURSE CODE: **104**
NAME OF COURSE: **COMPUTER FUNDAMENTALS AND ITS APPLICATION**

SCHEME:
PAPER CODE: **6340**

Lectures: **8** Hrs. per week

COURSE CONTENTS

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
1	**Computer Organization**	Block Diagram of computer system: Central Processing Unit, Memory Unit, ALU, Control unit, Input & Output devices. **Input Device Categorizing input hardware :** KeyBoard, Card Readers, Scanning Devices, Bar Code Readers, OCR, OMR, MICR, Pointing Device – Mouse & Its Types, Light Pen, Touch Devices, Web Camera, Microphone, Joystick, Digitizing tablet. **Output Device :** printers: Impact & nonimpact printers, Dot matrix, Laser, Inkjet, Thermal Printers, Plotters, Monitors: CRT, TFT, Plasma, LCD Projector, DLP Projector, Speaker.	
2.	**Evolution And Generation Of Computer Systems:**	**Computer System Characteristics and capabilities :** Speed ,Accuracy, Reliability, Memory Capabilities, Repeatability **Types of Computers & its Applications** : Analog, Digital & Hybrid, General & Special Purpose Computer, Application of computer system **Computer Generations & Classification of Computer Systems :** Characteristics of Micros, Minis, Mainframes & Super Computer. **Evolution of micro-computers :** PCs: Comparative study w.r.t. Micro-processor, clock speed, data bus, controllers, memory, peripheral interface of PC to Pentium-IV computer systems. Decimal, Binary, Octal, Hexadecimal number	

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
3.	**Number System , Codes & Data Representation**	systems. Inter-Conversion from decimal to binary, octal, hexadecimal, conversion of binary number System to decimal, hexadecimal. Codes used for information exchange between computers–ASCII, Unicode, Data representation- Bit, Nibble, Byte, KiloByte, MegaByte, GigaByte, TeraByte, PetaByte etc.	
4.	**Storage Devices.**	Storage Fundamentals, Primary & Secondary Storage. RAM, dynamic and static ROM, PROM, EPROM, EEPROM,Tape storage Devices, Characteristics & limitations, Floppy & their types. Direct access Storage– Hard Disk, Disk Cartridges, Mass Storage Device Optical Disk , CD Rom, DVD, flash drive, ZIP drive	
5.	**Computer Softwares & Language**	○ System Software V/s Application Software. Types of System Software, Operating System, Loader, Linker, Language Processor, Assembler, Compiler and Interpreter, Device Driver. ○ CLASSIFICATION AND CHARACTERISTICS OF LANGUAGES- Machine language, Assembly language, High-level language, Generationsof Computer Language ○ Application Software: working with MS-OFFICE components, creating editing, formatting and printing documents using MSWORD, Data analysis and charting with MSEXCEL, Creating and presenting slide show using MS POWERPOINT	
6.	**Concept of Operating system**	Introduction, Functions of operating system, Types –batch, single user, multiuser, multiprogramming, multitasking, multithreading, realtime , embedded, Network, Distributed CLI(Command Line Interface) and GUI modes of O.S. Booting Process, BIOS, POST, Boot Strap Loader	
7.	**System security**	Introduction to viruses, worms, Trojans, AntiViruses scanning & Removal of Viruses, safety measures- Firewall, updates, Patches	
8.	**Internet Applications**	Introduction to internet, different services of internet- www, E-Mail, Chat (Textual/Voice), web-site access and information search, Browsers And Search Engines	

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SEMESTER: **FIRST**
COURSE CODE: **104**
NAME OF COURSE: : **COMPUTER FUNDAMENTALS AND ITS APPLICATION**

SCHEME:
PAPER CODE: **6340**

LIST OF EXPERIMENTS

1. Study the uses of input and output device
2. study the uses of storage devices
3. Backup of data on tape, floppy & hard disk, CD, DVD and in PEN drive
4. use of windows media player, recording, editing playing sound and video files.
5. MICRO-SOFT DISK OPERATING SYSTEM (MS-DOS) : System files: BIOS, COMMAND.COM, CONFIG.SYS, Autoexec.bat file.
6. MS-DOS COMMANDS
   - Internal Commands – dir, cd, md, rd, del, ren, date, time, vol & copy
   - External commands – Sys, attrib, format, edit, find, diskcopy, Xcopy, backup & restore

7. PRACTICE ON WINDOWS 2000/ XP/Vista
   - Starting Windows, Exploring the desktop, Arranging windows, My Computer, The start button, Creating Shortcuts, Practice on moving and sizing of windows.
   - Practice on Windows Explorer
   - File organization: creating, copying, moving, renaming and deleting and use of recycle bin.
   - Practice on Windows Accessories – Notepad, WordPad and Paint, Character Map.
   - Creating editing, formatting, previewing and printing documents using Wordpad.
   - Shutting down windows.

8. PRACTICE ON MS-WORD
   - Creating editing, formatting, saving, previewing and printing documents.
   - Auto Text, AutoComplete, AutoCorrect, grammar and spellchecker, Find and replace of text.
   - Insert, modify table.
   - Mail merge, Macro, Hyperlink
   - Header, footer, Watermark.

9. PRACTICE ON MICROSOFT EXCEL
   - Creating editing, formatting, saving, previewing and printing worksheet.
   - Use of formula and functions.
   - Split windows and freeze pans.
   - Create, edit, modify, print worksheet/charts.
   - Import & Export Data & worksheet
   - Pivot table- create, modify
   - Sorting & Filter data
   - Header, footer, Watermark.

10. PRACTICE ON POWERPOINT
    - Create, edit, insert, move, slides.
    - Open and save presentation.
    - Insert Object, picture, Diagram, chart, Table, Movie & Sound, Hyperlink
    - Slide design, layout, background.
    - slide show, setup, action button, animation scheme, custom animation, Slide transition and mater slide.

11. PRACTICE ON Internet
    - Connecting to internet
    - Web browsing
    - Searching websites
    - Email services
    - Creating email accounts & sending and receiving e-mails with or without attachments.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST**
COURSE CODE: **104**
NAME OF COURSE: : **COMPUTER FUNDAMENTALS AND ITS APPLICATION**

SCHEME:
PAPER CODE: **6340**

TITLE	AUTHOR & PUBLICATION	ISBN no
Fundamentals of Computers	Balaguruswamy, Tata MacGrawhills	9780070141605
Computer Today	S K Basandra, Galgotia Publications	8186340742
Digital Computer Fundamentals	Bartee, Thomas.C, Tata MacGrawhills	0074604007

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL
DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST**
COURSE CODE: **105**
NAME OF COURSE: **PROFESSIONAL ACTIVITIES**

Practical: **2** Hrs. per week

RATIONALE

Professional Activities is not a descriptive course, as per conventional norms; therefore specific content for this course cannot be prescribed. It is a group of open-ended activities; where in variety of tasks are to be performed, to achieve objectives. However general guidelines for achieving the target and procedure for its assessment are given under the course content.

As the student has to practice this course in all the six semesters, the guidelines given therein are common and applicable to each semester.

OBJECTIVES:

- To allow for professional development of students as per the demand of engineering profession.
- To provide time for organization of student chapter activities of professional bodies) i.e. Institute of engineers, ISTE or Computer Society of India etc.)
- TO allow for development of abilities in students for leadership and public speaking through organization of student's seminar etc.
- To provide time for organization of guest lectures by expert engineers/eminent professionals of industry.
- To provide time for organization of technical quiz or group discussion or any other group activity.
- To provide time for visiting library or using Internet.
- To provide time for group discussion or solving case studies.
- To provide time for personality development of students.
- To provide time for working for social cause like awareness for environmental and ecology etc.

DETAILED INSTRUCTIONS TO CONDUCT PROFESSIONAL ACTIVITIES:

A. Study hours, if possible should be given greater time slot with a minimum of two hrs/week to a maximum of four hrs/week.
B. This course should be evaluated on the basis of grades and mark sheet of students, should have a separate mention of the grade awarded. There will be no pass/fail in professional activities (PA).
C. Following grade scale of evaluation of performance in PA has been established.

Grades	Level of performance
A	Excellent
B	Good
C	Fair

D	Average
E	Below Expectations

D. Grades once obtained in a particular examination shall become final and no chance of improvement in grades will be given to the students.
E. Assessment of performance in PA is to be done internally by the Institution, twice in a Semester/Term through a simultaneous evaluation of the candidate by a group of three teachers, of the deptt. Concerned. Group of teachers will jointly award the grade to candidate in the assessment. Best of the grades obtained by the student in these two assessments shall be finally taken on the mark sheet of the respective Semester/Term.

   Candidate abstaining from the prescribed course work and/or assessment planned at the Institute shall be marked ABSENT in the mark sheet, instead of any grade.
F. While awarding the grades for performance in PA, examining teacher should reach the final consensus based on the attendance, punctuality, interest, presentation skills in seminar on the topic assigned (collection of relevant data, observations, analysis, findings/conclusion) and its written report, awareness of latest developments in the chosen programme of study.
G. Institution shall maintain the record of grades awarded to all the students in PA for a period of 1 year.
H. It shall be mandatory for students to submit a compendium for his PA in the form of a Journal.
I. Compendium shall contain following:
   I. Record of written quiz.
   II. Report/write up of seminar presented
   III. Abstract of the guest lectures arranged in the Institution.
   IV. Topic and outcome of the group discussion held.
   V. Report on the problems solved through case studies.
   VI. Report on social awareness camps(organized for social and environmental prevention).
   VII. Report on student chapter activities of professional bodies like ISTE, IE (India), CSI etc.
J. PA is not a descriptive course to be taught in the classroom by a particular teacher. Various activities involved in the achievement of objectives of this course should be distributed to a number of teachers so that the talent and creativity of group of teacher's benefit the treatment of the course content.
   These activities should preferably be conducted in English language to maintain continuity and provide reinforcement to skill development.
   Small groups shall be formed like in tutorials, group discussion, case studies, seminar, project methods, roll play and simulation to make the development of personality affective.

Treatment of PA demands special efforts, attention, close co-operation and creative instinct on the part of teachers of department concerned. Since this course is totally learner centered, many of the activities planned under this course shall come out from the useful interaction of student, among themselves and with the teachers. The guide teacher/s shall best act as a facilitator of these creative hunts/ exercises, which unfold many of the hidden talents of the students or bring out greater amount of confidence in them, to execute certain activity.

CURRICULUM

FOR
DIPLOMA IN INFORMATION TECHNOLOGY, COMPUTER SCIENCE& COMPUTER HARDWARE AND MAINTENANCE

(SECOND SEMESTER)

Scheme: CGPA-2012
Implemented from session 2012-13

Under Credit Based Grading System
AS PER ORDINANCE 24(A)

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST** SCHEME: **CGPA-2012**
COURSE CODE: **201** PAPER CODE: **6341**
NAME OF COURSE: **PROGRAMMING IN C**

RATIONALE

'C' is a general-purpose computer programming language. Originally C was designed for implementing system software; it is also widely used for developing portable application software. C is one of the most popular programming languages. It is widely used on many different software platforms for developing versatile applications.

For Diploma course this subject intends to develop basic programming skills in the students'. The students will learn the step by step procedure (i.e. Algorithm and flowcharting) in any program development process. The programming skills thus acquired using `C' language can be used in developing programs for the scientific and business purposes. This subject will also serve as a first course of programming language later which will be useful to understand more advanced Object oriented Languages such as C++ or Java.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST**
COURSE CODE: **201**
NAME OF COURSE: **PROGRAMMING IN C**

SCHEME:
PAPER CODE: **6341**

ENABLING OBJECTIVES

The students after completing the course will be able to

- Use a C programming environment including an editor, compiler, linker, and debugger.
- Create simple programs for input and output operations
- Understand and apply control structures of a procedural programming language
- Understand and apply the principles of data storage and manipulation
- Develop program modularity by creating functions and using library functions and header files
- Perform tests in programs by using the "if" and "switch" control flow branching statements and repeat code segments by including "for, while," and "do…while" control flow loops
- Use critical thinking skills to develop and debug C programs
- Read and modify C programs written by others

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST**
COURSE CODE: **104**
NAME OF COURSE: **PROGRAMMING IN C**

SCHEME:
PAPER CODE: **6341**

Lectures: **5** Hrs. per week

SCHEME OF STUDIES

S. No.	Topic	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	Introduction To `C' Programming			
2.	Decision Control Statements			
3.	Loop Control Statements			
4.	Arrays & Strings			
5.	Functions & Macro			
6.	Pointers			
7.	Structure, Union and Enumeration			
8.	File handling			
	TOTAL			

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST** SCHEME:
COURSE CODE:201 PAPER CODE: **6341**
NAME OF COURSE: **PROGRAMMING IN C**

Lectures: **8** Hrs. per week

COURSE CONTENTS

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
1.	Introduction To `C' Programming	• Algorithms, Flowcharts, structured programming Concepts, History and features of 'C', `C' Programme structure, Pre-processor directives • Character set and data types- Character set of 'C', identifiers, keywords, variables, Constants, data types, int, float, double, char, Qualifiers, long, short, unsigned and signed data type conversion, Escape sequences ((like \n, \b etc.), Comments • Operators and Expressions - Arithmetic, Relational, Logical, Assignment operators, unary & ternary operatiors, hierarchy of operators. • Input & Output Statements - Input and Output statements, Printf, Scanf, getchar, putchar, getch, putch, Conversion specifiers in format control string	
2.	Decision Control Statements	• Conditional branching statements: if statement, • if- else, nested if • use of logical operators and Compound Relational Tests • Unconditional branching: goto statement • Multiple branching statements: switch case statement.	

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
3.	Loop Control Statements	Loop Statements: syntax and use of `for' statement, while statement, `Do-while' statement, `break-continue' statement, nested looping.	
4.	Arrays & Strings	• Arrays- Concept of one dimensional and Multi- dimensional array, array declaration, Array initialisation, operations on one and two-dimensional arrays. • String Manipulations - Strings, gets, puts, string operations, string function (concatenation, comparison, length of a string etc.)	
5.	Functions & Macro	• Library and User-Defined Functions - Concepts of library functions, Library functions (ceil, floor, exp, log, pow, fmod, abs, fabs, rand, srand, toupper, tolower, toascii etc.) -user-defined Functions, Function declaration, Function prototype, local and global variables - Parameter passing mechanisms, recursion - Storage classes –static auto, extern, register - simples and Conditional Macros and Its expansions	
6.	Pointers	• Definition, Types, Declaration, & and * operator, pointer expression, pointer arithmetic, pointer to pointer, array of pointer, pointer to function. • Dynamic memory management functions-malloc, calloc and free.	
7.	Structure, Union and Enumeration	• Structure:-Definition, Declaration, initializing structure, membership operator, accessing structure elements, structure within structure , array of structure, pointer to structure. • Union:-Definition, Declaration and Implementations • Enumerated Data Type:- Definition, Declaration and Type Def • Command line argument.	
8.	File handling	File system basics, Opening & closing file, Reading & writing in file, File opening modes, String I/O in files.	

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST**
COURSE CODE: **201**
NAME OF COURSE: **PROGRAMMING IN C**
3 Hrs. per week

SCHEME:
PAPER CODE: **6341**

LIST OF EXPERIMENTS

1. Assignment to prepare general algorithms and flow chart.
2. Study of turbo C editor -file menu, edit menu, run menu, compile menu etc.
3. Assignment to write character, operator set of C Language.
4. Assignment to identify valid and invalid variables, constants and expressions.
5. Program based on Input/Output statements.
6. Programs based on Arithmetic expression
7. Programs based on goto statement
8. Programs based on `if' and `Nested if''
9. A Program based on `switch case' statement.
10. At least one program based on each:
    i. `for' statement
    ii. `while' statement
    iii. `do-while' statement
    iv. break continue statement
11. program based on pointer expression
12. program based on pointer arithmetic.
13. program based on pointer to pointer.
14. program based on array of pointer
15. program based on dynamic memory management functions.
16. Program based on two dimensional array.
17. Program based on Library functions
18. Programs based on string operations
19. Programs based on functions.
20. program based on pointer to function
21. program based on Parameter passing mechanisms.
22. programs based on recursion
23. program based on macros.
24. program based on storage classes.
25. program based on structure, union and enumeration.
26. program based on command line argument
27. programs based on files.

Yashwant Kanetkar ,BPB
Publications, B-14, Connaught

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST**
COURSE CODE: **201**
NAME OF COURSE: **PROGRAMMING IN C**

SCHEME:
PAPER CODE: **6341**

SUGGESTED LEARNING RESOURCES:

Textbooks/Reference books (as mentioned below).

TITLE	AUTHOR	PUBLICATION
Programming in C	Balaguruswamy	Tata MacGrewhills
Let Us Learn C	Yashwant Kanetkar	BPB Publications,
The Spirit of C	Mullish Cooper,	Jaico Publishing House, Mumbai
The C Programming	Kernighan, Brian W.; Dennis M. Ritchie, Prentice Hall	ISBN 0-13-110163-3
C: The Complete Reference	Herbert Schildt,4 edition, Osborne Media;	McGraw-Hill
Exploring C	Yashwant Kanetkar	BPB Publications,

Web sites : http://www.w3schools.com

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER:SECOND SCHEME: **CGPA-2012**
COURSE CODE: **203** PAPER CODE: **6342**
NAME OF COURSE: **DIGITAL TECHNIQUES**

RATIONALE

This subject will help the students to learn facts, Concepts, principle and procedure of digital electronics. These techniques can be used for designing sequential and combinational circuits, which forms the basis of any electronic device.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER:SECOND
COURSE CODE: **203**
NAME OF COURSE: **DIGITAL TECHNIQUES**

SCHEME: **CGPA-2012**
PAPER CODE: **6342**

Lectures: **8** Hrs. per week

SCHEME OF STUDIES

S. No.	Topic	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	FUNDAMENTAL CONCEPTS			
2.	LOGIC GATES			
3.	BOOLEAN ALGEBRA			
4.	COMBINATIONAL LOGIC DESIGN			
7.	SEQUENTIAL LOGIC CIRCUIT			
	TOTAL			

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER:SECOND
COURSE CODE: **203**
NAME OF COURSE: **DIGITAL TECHNIQUES**

SCHEME:
PAPER CODE: **6342**

Lectures: **8** Hrs. per week

COURSE CONTENTS

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
1.	**FUNDAMENTAL CONCEPTS:**	1.1 Comparison between analog and digital signals. 1.2 Different types of number system and codes used in digital computer	
2.	**LOGIC GATES :**	2.1 Basic Logic Gates: Logic symbols and truth table of all gates: AND, OR, NOT, NAND, NOR, EX-OR,EX-NOR 2.2 Realization of all other gates using universal gate.	
3.	**BOOLEAN ALGEBRA:**	3.1 Rules and laws of Boolean algebra, Demorgan's theorem. 3.2 Evaluation of logic expression, algebraic reduction of Boolean	
4.	**COMBINATIONAL LOGIC DESIGN**	4.0 COMBINATIONAL LOGIC DESIGN 4.1 Introduction to logic design 4.2 Karnaugh map representation of logical functions, Simplification of logical function using K-map, (2, 3, 4 variable) Sum of products (SOP) Pproduct of Sum (POS) 4.3 Don't care conditions. 4.4 Design example: half adder, full adder, Half subtractor, full subtractor, BCD to seven-segment decoder (using k-map) 4.5 Gray to binary code converter (using k-map) 4.6 Universal Gate	
5.	**CONBINATIONAL LOGIC DESIGN USING MSI CIRCUITS**	5.1 Multiplexer (:1) demultiplexer (1:4), Decoder (3:8) encoder (8:3) using combinational logic design.	

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
6.	**LOGIC FAMILIES**	5.2 BCD adder, using (7483). ALU(74181). Digital comparator (7485),Parity generator/checkers(74180). 5.3 Code converters: BCD to binary(74184), Binary to BCD(74185A) 5.4 Priority encoder: Decimal to BCD(74147), Octal to binary priority encoder (74148) Hexadecimal to binary priority encoder using 74148 encoders. 5.5 Decoder/drivers for display device:BCD to decimal decoder/driver (7447, 7448) 6.1 Digital integrated circuits, its introduction 6.2 Introduction: RTL, DTL, IIL, ECL, MOS families 6.3 Propagation delay time, speed, power consumption, fan_in , fan_out. 6.4 TTL and C-MOS logic families: Introduction 6.5 Analysis of open collector and tri-state logic, Input/output parameters, advantages, applications, 6.6 IC-interfacing, TTL driving CMOS, CMO driving TTL	
7.	**SEQUENTIAL LOGIC CIRCUIT**	7.1 Introduction : One bit memory cell 7.2 Flip-Flop-S-R, Clocked RS, T,D, J-K, master slave , JK 7.3 Triggering of flip-flops, analysis of clocked sequential circuits, state reduction and assignment, Flip-flop excitation table, design procedures, design of counters, design with state equation. Working Principle and Truth-Table 7.4 Registers ,shift registers. Working with SISO,SIPO,PISO,PIPO shift registers . 7.5 Counters : Ripple counters, synchronous and asynchronous counters, timing sequences, Ring and Johnson counter, application of counters, Counter 4 Bit .	

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER:SECOND
COURSE CODE: **203**
NAME OF COURSE: **DIGITAL TECHNIQUES**

SCHEME:
PAPER CODE: **6342**

SUGGESTED LIST OF EXPERIENCES/TUTORIALS

1 Study and Verify the truth table of logic gates (74xx series).
2 Realization of AND, OR, NOT and Ex-OR logic gates using NAND and NOR gate
3 Verification of Demorgan's theorem
4 Implementation of full adder, substractor using gates
5 Study of gray to binary code convertor using gates
6 Study to multiplexer and demultiplexers.
7 Implementation of combination logic circuit using mux and Dmux.
8 Study of BCD adder
9 Study of BCD to seven segment decoder.
10 Verification of truth table of flip flop using IC's
11 Shift registers using D flip-flop.
12 Presetable shift right, shift left registers.
13 Ripple counter using J-K flip flap
14 Decode counter 7490.
15 Synchronous counter using J-K flip-flops.
16 Up/down counter.
17 Mod N counter using J-K flip-flop
18 Study of 6116 RAM
19 Study of 2732 EPROM

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER:SECOND
COURSE CODE: **203**
NAME OF COURSE: **DIGITAL TECHNIQUES**

SCHEME:
PAPER CODE: **6342**

REFERENCE BOOKS

S.No.	TITLE	AUTHOR, PUBLISHER, EDITION AND YEAR OF PUBLICATION
1.	Digital principles	Malvino & Leach, Tata McGraw-Hill Publishing Company Ltd. New Delhi, Latest, 2000
2.	Modern Digital Electronics	R.P.Jain, Tata McGraw-Hill Publishing Company Ltd. New Delhi, 2nd Edition,2000
3.	Digital Electronics	V.K. Puri, Tata McGraw-Hill Publishing Company Ltd. New Delhi, 1st Edition,2000
4.	Computer Design Latest & Digital Techniques	Morris Mano, Tata MacGrawHills
5.	Digital principles	Malvino & Leach, Tata McGraw-Hill Publishing Company Ltd. New Delhi, Latest, 2000
6.	Modern Digital Electronics	R.P.Jain, Tata McGraw-Hill Publishing Company

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN

INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST** SCHEME:

COURSE CODE: **202**

NAME OF COURSE: **ENVIORNMENTAL ENGINEERING AND SAFETY**

PAPER CODE: **6035**

RATIONALE

Engineers and scientists from a number of related disciplines have been involved over years in the development of an academic basis for understanding and management of the environment. The purpose of keeping the environmental Engineering and safety is to introduce a unique approach to the overall concept of environment engineering, an approach that emphasizes the relationship between the principles observed in the natural purification process and those employed in the engineered process.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER:**FIRST**
COURSE CODE: **202**
NAME OF COURSE: **ENVIORNMENTAL ENGINEERING AND SAFETY**

SCHEME:
PAPER CODE: **6035**

Lectures: **6** Hrs. per week
Practical: **2** Hrs. per week

SCHEME OF STUDIES

S. No.	Topic	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	INTRODUCTION TO ENVIRONMENT	04		
2.	AIR POLLUTION SOURCES AND EFFECTS	09		
3.	METEOROLOGICAL ASPECTS OF AIR POLLUTANT DISPERSION	09		
4.	AIR POLLUTION CONTROL METHODS AND EQUIPMENTS	18		
5.	WATER POLLUTION SOURCES AND CLASSIFICATION	09		
6.	WASTE WATER TREATMENT METHOD	09		
7.	SOLID WASTE MANAGEMENT	14		
8.	NOISE POLLUTION AND CONTROL	09		
9.	SAFETY PRACTICES	09		
	TOTAL	**90**	**30**	**120**

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN

INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER:**FIRST** SCHEME:
COURSE CODE: **202** PAPER CODE: **6035**
NAME OF COURSE: **ENVIORNMENTAL ENGINEERING AND SAFETY**

Lectures: **6** Hrs. per week

COURSE CONTENTS

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
1.	**INTRODUCTION TO ENVIRONMENT**	- THE BIOSPHERE, biotic and abiotic - An aquatic ecosystem - Types of pollution - Impact of human being on environment. - Impact of environment on human being - Basic approach to improve environmental qualities - Role of an environmental engineer	**04**
2.	**AIR POLLUTION SOURCES AND EFFECTS**	- Standard definition of air pollution - Composition of natural air - Names of air pollutants - Classification of air pollutants, primary and secondary pollutants - Classification of source of air pollutants on different bases - Definition of different types of aerosols. - Effect of air pollution on: human health, material properties, vegetation. - Major toxic metals and their effects - Major environmental phenomenon e.g., acid rain, global warming, green house effect, ozone layer depletion. - Air quality standards - Brief description of air pollution laws	**09**
3.	**METEOROLOGICAL ASPECTS OF AIR POLLUTANT DISPERSION**	- Meteorological parameters influencing air pollution - Environmental laps rate, temperature	**09**

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
		inversion, atmospheric stability and adiabatic loss rate. - Turbulence, topographical effects, - Plume behavior, looping, coning, fanning fumigation, lofting, trapping.	
4.	**AIR POLLUTION CONTROL METHODS AND EQUIPMENTS**	- Natural purification processes of air - Artificial purification methods of air - Brief description of following control equipments along with sketch e.g, gravitation settling chamber, cyclone, scrubber, bag house filter, electrostatic precipitator. - Brief description of following processes for the control of gaseous pollutants e. g., absorption, adsorption, condensation, combustion etc	**18**
5.	**WATER POLLUTION SOURCES AND CLASSIFICATION**	- Water resources - Uses of water - Classification of water - Origin, composition and characteristics of domestic waste water as well as industrial waste water - Biochemical oxygen demand - Water pollution laws and standards	**09**
6.	**WASTE WATER TREATMENT METHOD**	- Uses of waste water - Classification of waste water - Chemical oxygen demand - basic processes of water treatment - Meaning of primary, secondary and tertiary treatment - Flow chart of a simple effluent treatment plant - Theory of industrial waste treatment - Volume reduction, neutralization and proportioning	**09**
7.	**SOLID WASTE MANAGEMENT**	- Sources and classification of solid waste - Public health aspects - Disposal methods – open dumping , sanitary , land fill - Incineration , compositing - Potential methods of disposal - Recovery and recycling of paper, glass, metal and plastic	**14**
8.	**NOISE POLLUTION AND CONTROL**	- Sources of noise pollution - Units of Noise pollution measurement - Allowable limits for different areas - Problems of noise pollution and measures to control it	**09**

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
9.	**SAFETY PRACTICES**	- Noise pollution control devices brief discussion - Responsibility of employees and employers regarding health and safety - Fire hazards ,prevention and precautions - Industrial hazards prevention and protection - Protection from air and noise pollution	**09**

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER:**FIRST** SCHEME:
COURSE CODE: **202** PAPER CODE: **6035**
NAME OF COURSE: **ENVIORNMENTAL ENGINEERING AND SAFETY**

Practical: **2** Hrs. per week

LIST OF EXPERIMENTS

S.NO.	NAME OF THE EXPERIMENT	HRS OF PRACTICAL
	GROUP A AIR POLLUTION (Any one experiment may be selected from this group) 1. Air monitoring and determination of SPM, CO, Nox, SO2 with high volume sampler. 2. Monitoring of stack gases and determination of SPM, CO, Nox, SO2 with slack monitoring kit. 3 Determination of CO,HC, in exhaust gases from petrol vehicle **GROUP B NOISE POLLUTION** 4 Determination of sound pollution in (a) Auditorium (b) Factories (c) Busy roads (d) Theatre (e) TV rooms (select any three situations) **GROUP C INDUSTRIAL WASTE WATER** (Any Two experiment may be selected from this group) 5 Determination of BOD/COD ratio in industrial waste water. 6 Determination of Ph and alkanity/ acidity in industrial waste water. 7 Dermination of solids in industrial waste water. 8 Determination of turbidity, cobur,and temperature of industrial waste water. **GROUP D POLLUTION STANDARDS** (Any Two experiment may be selected from this group) 9 Study of drinking water standards. 10 Study of effluent standards for water disposal. 11 Study of air pollution standards.	**30**

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN

INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER:**FIRST**
COURSE CODE: **202**
NAME OF COURSE: **ENVIORNMENTAL ENGINEERING AND SAFETY**

SCHEME: **CGPA-2012**
PAPER CODE: **6035**

REFERENCES

1. Enviornmental pollution control Engineering by C.S. Rao
2. Air pollution and control by Seth
3. Air pollution by M.N Rao
4. Industrial waste and its treatment by Seth
5. Paryavaran Yantriki Hindi granth akadami

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST**
COURSE CODE: **204**
NAME OF COURSE: **BASIC ELECTRICAL, ELECTRONICS & MEASUREMENT**

SCHEME: **CGPA-2012**
PAPER CODE: **6343**

RATIONALE

The students after studying this subject will be able to understand the basics of electrical, electronics and measurements. Electricity finds its base as basic energy for modem industrial activities. Electronics, which is being extensively, used today, in all industries, power system operation, communication systems, computers and information technology. This course will form the base for handling various types of equipment used in IT industry and will facilitate in operation and maintenance to carry out his/her job function effectively.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST**
COURSE CODE: **204**
NAME OF COURSE: **BASIC ELECTRICAL, ELECTRONICS & MEASUREMENT**

SCHEME: **CGPA-2012**
PAPER CODE: **6343**

SCHEME OF STUDIES

S. No.	Topic	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	INTRODUCTION TO ENVIRONMENT	04		
2.	AIR POLLUTION SOURCES AND EFFECTS	09		
3.	METEOROLOGICAL ASPECTS OF AIR POLLUTANT DISPERSION	09		
4.	AIR POLLUTION CONTROL METHODS AND EQUIPMENTS	18		
5.	WATER POLLUTION SOURCES AND CLASSIFICATION	09		
6.	WASTE WATER TREATMENT METHOD	09		
7.	SOLID WASTE MANAGEMENT	14		
8.	NOISE POLLUTION AND CONTROL	09		
9.	SAFETY PRACTICES	09		
	TOTAL	**90**	**30**	**120**

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DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER: **FIRST**
COURSE CODE: **204**
NAME OF COURSE: **BASIC ELECTRICAL, ELECTRONICS & MEASUREMENT**

SCHEME: **CGPA-2012**
PAPER CODE: **6343**

COURSE CONTENTS

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
1.	**REVIEW OF GENERAL TOPICS**	1.1 Atomic Structure of Conducting and Semi-Conducting materials. 1.2 Behavior of materials with electricity. 1.3 Concept of unit of Electric current and Voltage 1.4 Ohm's Law, Concept of Resistance, Conductance, Resistivity and Conductivity. Their units and dependence on temperature 1.5 Power & Energy, heating effect of electric current and conversion of units (Mechanical to Electrical) 1.6 Kirchoff's Voltage and current Laws & their applications in simple DC Circuits. 1.7 Series & Parallel combination of resistance and wattage, Consideration with Simple Problem	**08**
2.	ELECTROMAGNETISM	Concept of magnetic field production by flow of current, concept of m m f, flux, reluctance, permeability, Analogy between electrical & magnetic circuits. 2.2 Faraday's Laws of electromagnetic induction, self and mutually induced e m fs, simple numerical problems	**06**
3.	A.C. THEORY	3.1 Concept of alternating voltage and current, difference between AC and DC. 3.2 Concept of cycle, frequency, period, amplitude, instantaneous value, average value, r.m.s. value and peak value, form factor (definitions only.) 3.3 Concept of impedance, phase angle,	**06**

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
		numerical problems, RL & RLC series circuits.	
4.	GENERAL ELECTRICAL MACHINES	4.1 Introduction, definition of motor & generator and common features of static &.rotating electrical machines. 4.2 Transformer- Construction- core type, shell type, transformation ratio and e.m.f equation	**12**
5.	SEMINDUCTOR PHYSICS	5.1 Conducting materials, effect of temperature conductivity in Germanium and Silicon. 5.2 Extrinsic Semi-Conductors, doping, P-N type Semi-Conductor, majority and minority carriers, effects of temperature. 5.3 P-N junction, drift and diffusion currents, depletion layer, potential barrier , effects of forward and reverse biasing of P-N junction. Energy band diagrams, breakdown mechanism.	**12**
6.	SEMI CONDUCTOR DIODES	6.1 Use of diode as half wave and full wave (Centre tapped and bridge type) rectifiers. Relation between d.c. output and a.c. input voltage. 6.2 Concept of ripples, filter circuits, Shunt capacitor, Series inductor &filters and their applications. 6.3 Zener-diode and its.V-I Characteristics.	**08**
7.	**TRANSISTORS**	7.1 Construction of bi-polar junction transistor with respect to :- 7.1.1 Working-principle of transistor, forward and reverse biasing. 7.1.2 Transistor Configuration-Common Base (CB), Common Emitter (CE) and Common Collector (CC), their Comparison of configuration and applications. General introduction of UJT, FET and SCR.	**08**
8.	**REGULATED POWER SUPPLY**	8.1 Need of regulated power supply, regulation, Block diagram of regulated power supply, stabilisation of voltage by Zener-diode, its limitations. 8.2 transistorised regulated power supply and short circuit protection	
9.	MEASURING INSTRUMENTS	9.1 Working principle and Construction of Ammeters and Voltmeter, difference	

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
		between them, extension of range and simple numerical problems. 9.2 Principle and working of Watt meter (dynamometer type) and Energy meter (static type) 9.3 Digital measuring instruments, Basic concepts of CRO.	

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LIST OF EXPERIENCES/TUTORIALS

1. Verification of Ohm's law
2 Verification of Kirchoff's law
3 Find out the value of capacitance of corrector
4 Plotting V-I Characteristics of semi-conductor diode.
5 Plotting V-I characteristics of Zener diode and finding its reverse breakdown voltage.
6 Observation of output wave shapes and input wave shapes of Full wave/Half wave rectifier.
7 Plotting input/output characteristics of CE configuration of transistor.
8 Measure voltage, current, power and energy in single phase AC circuit.
9 Colour coding of resistance and units of capacitance.
10 Study of AC/DC Voltmeter
11 Study of AC/DC Ammeter
12 Study of AC/DC Wattmeter
13 Study of Digital Instruments and Displays
14 Study of Regulated Power Supply

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LIST OF REFERENCE BOOK

1.	Electronic Technology	E.admirality
2.	Electrical Engineering basic technology	Hubscher, Klaue pfloger,Appelt, Willey Eastern Ltd, New Delhi
3.	Electrical Engineering	J.B. Gupta
4.	Experiments in basic electrical Engineering	S.K. Bhattacharya, S.K. Rastogi, K.M., New Age International , New Delhi
5.	Problems in Electrical Engineering	Smith P., 1st ,1996,
6.	A Text book of Applied Electronics	R.S. Sedha, S. Chand & Co.New Delhi
7.	Principals of Electronics	Latest ,V.K.Mehta , S.Chand Publication
8.	Electronics Principles	Malvino TMH
9.	Electrical Technology	B.L.Thereja ,Chand Rai
10.	Electronic Technology	E.admirality

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DIPLOMA IN
INFORMATION TECHNOLOGY,CSE AND CHM

SEMESTER:SECOND
COURSE CODE: **203**
NAME OF COURSE: **ELECTRONIC WORKSHOP**

SCHEME: **CGPA-2012**
PAPER CODE:

RATIONALE

This subject envisages to develop practical skills in handling various tools, accessories, equipment used in the manufacturing and testing electronic circuits. It will also make the students familiar with the measuring techniques used in electrical/electronics systems. The student will also be able to implement, test electronics circuits on breadboard and prepare PCB.

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SCHEME: **CGPA-2012**
PAPER CODE:

SCHEME OF STUDIES

S. No.	Topic	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	TOOLS AND ACCESSORIES USED IN MANUFACTURING OF ELECTRONIC CIRCUITS	3		
2.	BASIC ELECTRONIC COMPONENTS	2		
3.	DIGITAL MULTIMETER :	1		
4.	FUNCTION GENERATOR	2		
5.	CRO	2		
6.	DIFFERENT CABLES & CONNECTORS	1		
7.	DIFFERENT CONNECTORS	1		
8.	DIFFERENT SWITCHES	1		
9.	DIFFERENT DISPLAY DEVICES	1		
10.	PREPARING CABLES AND BOARDS	1		

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NAME OF COURSE: **ELECTRONIC WORKSHOP**

SCHEME: **CGPA-2012**
PAPER CODE:

COURSE CONTENTS

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
1.	TOOLS AND ACCESSORIES USED IN MANUFACTURING OF ELECTRONIC CIRCUITS.	○ Different types of cutters. ○ Nose pliers. ○ Wire strippers ○ Screw drivers ○ Lead straightners ○ Extracters ○ Soldering Iron ○ Desoldering Pump ○ Crimping tool.	
2.	BASIC ELECTRONIC COMPONENTS	○ Colour coding of resistors and capacitors ○ Types of resistors, capacitors inductors ○ Identification of components i.e. Diodes, Transistors, FET, UJT, SCR, Transormers. ○ Study and use analog multi-meter to measure: AC and DC voltage. AC and DC current Different resistor Continuity testing	
3.	DIGITAL MULTIMETER :	Study and use digital multimeter to measure: AC and DC voltage AC and DC current Different resistor Continuity testing	

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
4.	FUNCTION GENERATOR	Front panel controls and there uses Frequency changer and amplifier	
5.	CRO	Front panel control and their functions Different waveforms. Measurement of amplitude and frequencies	
6.	DIFFERENT CABLES & CONNECTORS	Co-axial cable Twisted pair cable Flat ribbon cable Fibre optic cable	
7.	DIFFERENT CONNECTORS	BNC connector Banana connector Crocodile connector Male and female Dtype connector Flat cable connector Printed circuit connector UTP connector	
8.	DIFFERENT SWITCHES	Toggle switches-SPST, SPDT,DPST,DPDT Thumb-wheel switches Rotary switches Push on/Push off switches Keyboard switches-mechanical, capacitive, membrane DIP switches	
9.	DIFFERENT DISPLAY DEVICES	LED display Seven segment display LCD display	
10.	PREPARING CABLES AND BOARDS	Prepare computer network cable (use different type of cable and connectors stated as in chapter 6). Study and use bread boards to implement simple electronic circuits using resistors/ capacitors/ diodes/ transistors/ switches/display devices. Prepare two simple electronic circuits using general purpose PCBs. Prepare two PCBs for simple electronic circuits	

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SCHEME: **CGPA-2012**
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LIST OF EXPERIMENTS /TUTORIALS

1. Identify the various types of resistors and find out the values from color bands /written values on them and measure with multimeter.
2. Identify the (i) terminals of a diode and its polarity, (ii)zener, LED, Photodiode, IR diode (ii) terminals of a Transistor and its Type (n-p-n or p-n-p).
3. Identify and use different tools and accessories used in manufacturing of electronic circuits.
   - Different types of cutters.
   - Nose pliers
   - Wire strippers
   - Screw drivers
   - strengtheners
   - Extractors
   - Soldering iron
   - Desoldering pump
   - Crimping tool

4. Identify the type of components(L,C,R) and find out the values using LCR- Meter
5. Identify the various waveforms of Function Generator using CRO. Measure Amplitude & Frequency for various waveforms using CRO.
6. Use regulated power supply and identify front panel controls and their functions.
7. Use DC and AC voltmeter and ammeter to measure DC and AC voltage current.
8. Use analog multi-meter to measure
   - AC and DC voltage
   - AC and DC current
   - Resistance of Different resistors
   - Continuity testing.
9. Use digital multi meter to measure:
   - AC and DC voltage
   - AC and DC current
   - Different resistor
   - Continuity testing.
10. Identify various kinds of electronic components
11. Use different switches

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- Toggle switches – SPST, SPDT, DPST, DPDT
- Thumb-wheel switches
- Rotary switches
- Push on/Push off switches

- Keyboard switches – mechanical, capacitive, membrane
- DIP switches

12. Use different switches
13. LED display
14. Seven segment display
15. LCD display
16. Solder the joint connection of wires and components on a PCB and check it. De-solder it and Re-solder.
17. Prepare computer network cable (use different type of cable sand connectors)
18. Use of breadboards to implement simple electronic circuits using resistors/ capacitors/ diodes/ transistors/switches/display devices.
19. Prepare two simple electronic circuits using general purpose PCBs.
20. Prepare two PCBs for simple electronic circuits.
21. Assemble circuit on breadboards and PCBs (e.g rectifiers, oscillators, amplifiers).

SUGGESTED IMPLEMENTATION STRATEGIES :

The subject content is expected to be taught by the teacher from electronics department. The teacher is expected to explain functions of the front panel controls of all electronic instruments/equipments along with measuring techniques. Teacher in the electronic workshop should demonstrate and guide students for developing the skills of soldering and PCB manufacturing.

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DIPLOMA IN
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SEMESTER: **FIRST**
COURSE CODE: **105**
NAME OF COURSE: **PROFESSIONAL ACTIVITIES** SCHEME: **CGPA-2012**

Practical: **2** Hrs. per week

RATIONALE

Professional Activities is not a descriptive course, as per conventional norms; therefore specific content for this course cannot be prescribed. It is a group of open-ended activities; where in variety of tasks are to be performed, to achieve objectives. However general guidelines for achieving the target and procedure for its assessment are given under the course content.

As the student has to practice this course in all the six semesters, the guidelines given therein are common and applicable to each semester.

OBJECTIVES:

- To allow for professional development of students as per the demand of engineering profession.
- To provide time for organization of student chapter activities of professional bodies) i.e. Institute of engineers, ISTE or Computer Society of India etc.)
- TO allow for development of abilities in students for leadership and public speaking through organization of student's seminar etc.
- To provide time for organization of guest lectures by expert engineers/eminent professionals of industry.
- To provide time for organization of technical quiz or group discussion or any other group activity.
- To provide time for visiting library or using Internet.
- To provide time for group discussion or solving case studies.
- To provide time for personality development of students.
- To provide time for working for social cause like awareness for environmental and ecology etc.

DETAILED INSTRUCTIONS TO CONDUCT PROFESSIONAL ACTIVITIES:

J. Study hours, if possible should be given greater time slot with a minimum of two hrs/week to a maximum of four hrs/week.

K. This course should be evaluated on the basis of grades and mark sheet of students, should have a separate mention of the grade awarded. There will be no pass/fail in professional activities (PA).

L. Following grade scale of evaluation of performance in PA has been established.

Grades	Level of performance
A	Excellent
B	Good
C	Fair
D	Average
E	Below Expectations

M. Grades once obtained in a particular examination shall become final and no chance of improvement in grades will be given to the students.

N. Assessment of performance in PA is to be done internally by the Institution, twice in a Semester/Term through a simultaneous evaluation of the candidate by a group of three teachers, of the deptt. Concerned. Group of teachers will jointly award the grade to candidate in the assessment. Best of the grades obtained by the student in these two assessments shall be finally taken on the mark sheet of the respective Semester/Term.

Candidate abstaining from the prescribed course work and/or assessment planned at the Institute shall be marked ABSENT in the mark sheet, instead of any grade.

O. While awarding the grades for performance in PA, examining teacher should reach the final consensus based on the attendance, punctuality, interest, presentation skills in seminar on the topic assigned (collection of relevant data, observations, analysis, findings/conclusion) and its written report, awareness of latest developments in the chosen programme of study.

P. Institution shall maintain the record of grades awarded to all the students in PA for a period of 1 year.

Q. It shall be mandatory for students to submit a compendium for his PA in the form of a Journal.

R. Compendium shall contain following:

VIII. Record of written quiz.
IX. Report/write up of seminar presented
X. Abstract of the guest lectures arranged in the Institution.
XI. Topic and outcome of the group discussion held.
XII. Report on the problems solved through case studies.
XIII. Report on social awareness camps(organized for social and environmental prevention).
XIV. Report on student chapter activities of professional bodies like ISTE, IE (India), CSI etc.

K. PA is not a descriptive course to be taught in the classroom by a particular teacher. Various activities involved in the achievement of objectives of this course should be distributed to a number of teachers so that the talent and creativity of group of teacher's benefit the treatment of the course content.

These activities should preferably be conducted in English language to maintain continuity and provide reinforcement to skill development.

Small groups shall be formed like in tutorials, group discussion, case studies, seminar, project methods, roll play and simulation to make the development of personality affective.

Treatment of PA demands special efforts, attention, close co-operation and creative instinct on the part of teachers of department concerned. Since this course is totally learner centered, many of the activities planned under this course shall come out from the useful interaction of student, among themselves and with the teachers. The guide teacher/s shall best act as a facilitator of these creative hunts/ exercises, which unfold many of the hidden talents of the students or bring out greater amount of confidence in them, to execute certain activity.