



**Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal**  
**Program Name: Three Year Diploma in Cement Technology [C01]**  
**(I Semester) GROUP 'B'**

Name of Scheme: Jul.08

Exam Code: \*

Implemented From: 2008-09

Sub Code	Paper Code	Name of Subject	SCHEME OF STUDIES					SCHEME OF EXAMINATION										
			Hours per Week			Sess. Marks		Prog. Assm		Sess + Prog	UNIV. EXAMINATION						TH+P R.	Total Marks
			TH.	PR.	TOTAL	Term Work	Lab work	I	II	Total Internal Assessment	Th. Paper	Durati on	Marks	PR	Duratio n in Hrs	Mks .	Total Extern al assess ment	
101	6034	Applied Mechanics	06	02	08	15	15	10	10	50	01	3 Hrs	100	01	03	50	150	200
102	6035	Environmental Studies	06	02	06	15	15	10	10	50	01	3 Hrs	100	01	03	50	150	200
103	5132	Introduction to Computers	04	04	08	15	15	10	10	50	01	3 Hrs	100	01	03	50	150	200
104	6036	Engineering Drawing	06	-	08	30	-	10	10	50	01	3 Hrs	100	-	-	-	100	150
105	*	Workshop Practices	-	04	04	-	50	-	-		-	-	-	01	03	100	100	150
106		Professional activities	-	02	02	-	-	-	-	-	-	-	-	-	-	-	-	
		Total	22	14	36	75	95	40	40	250	04		400	04		250	650	900

1. Number of Theory Papers : 04
2. Total theory Marks : 400
3. Number of Practicals : 03
4. Total Practical Marks : 250
5. Total marks of Sessional + Prog. Asst. + Pract. : 250
6. Grand Total : 900

Passing marks for (a) Theory : 33%  
 (b) Practical : 40%  
 (c) Sessional : 60%

**CURRICULUM**  
**FOR**  
**DIPLOMA IN CEMENT TECHNOLOGY**  
**(FIRST SEMESTER)**

**Scheme: JULY 2008**  
**Implemented from session 2008-09**

**Under semester system**

**JULY 2008**

**CURRICULUM DEVELOPMENT CENTRE**  
**CEMENT TECHNOLOGY DEPARTMENT**



**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
**DIPLOMA IN CEMENT TECHNOLOGY**

**SEMESTER: FIRST**

**COURSE CODE: 101**

**NAME OF COURSE: APPLIED MECHANICS**

**SCHEME: Jul.08**

**PAPER CODE: 6034**

## **RATIONALE**

In the wider sense “Applied Mechanics” may be defined as a science which deals with the problems related to objects in motion or in equilibrium. Depending on the discipline of the technicians the depth of knowledge and extent of areas of mechanics will vary.

Only those topics which form common requirement of the different courses and those to, to a depth required by all have been included in this subject. Further study of this subject in respect of topic/ depth is left out and could be integrated with their use in subjects like theory of structure, strength of materials, theory of mechanics and basic machine design.



**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
**DIPLOMA IN CEMENT TECHNOLOGY**

SEMESTER: **FIRST**  
COURSE CODE: **101**  
NAME OF COURSE: **APPLIED MECHANICS**

SCHEME: **Jul.08**  
PAPER CODE: **6034**

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.	COMPOSITION AND RESOLUTION OF FORCES	10	04	14
2.	PARALLEL FORCES AND COUPLES	08	02	10
3.	MOMENTS AND THEIR APPLICATIONS	08	02	10
4.	EQUILIBRIUM OF FORCES	08	04	12
5.	CENTRE OF GRAVITY	08	02	10
6.	FRICTION	10	04	14
7.	SIMPLE LIFTING MACHINE	10	10	20
8.	MOTION OF A PARTICLE	10	-	10
9.	LAWS OF MOTION	08	-	08
10.	WORK, POWER AND ENERGY	10	02	12
	<b>TOTAL</b>	<b>90</b>	<b>30</b>	<b>120</b>



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN CEMENT TECHNOLOGY

SEMESTER: **FIRST**  
COURSE CODE: **101**  
NAME OF COURSE: **APPLIED MECHANICS**

SCHEME: **Jul.08**  
PAPER CODE: **6034**

Lectures: **6** Hrs. per week

### COURSE CONTENTS

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
1.	<b>COMPOSITION AND RESOLUTION OF FORCES</b>	<ul style="list-style-type: none"><li>- Definition , Effect, characteristics of force</li><li>- System of Forces</li><li>- Principle of Transmissibility of Forces</li><li>- Concept of Resultant Force</li><li>- Law of –<ul style="list-style-type: none"><li>- Parallelogram of Forces</li><li>- Triangle of Forces</li><li>- Polygon of Forces</li></ul></li><li>- Determination of Resultant of two or more concurrent forces ( analytically and graphically)</li></ul>	<b>10</b>
2.	<b>PARALLEL FORCES AND COUPLES</b>	<ul style="list-style-type: none"><li>- Classification of Parallel Forces</li><li>- Methods of finding resultant Force of parallel forces- analytically &amp; graphically</li><li>- Position of resultant force of parallel forces</li><li>- Definition, Classification and characteristics of a force Couple, moment of couple</li></ul>	<b>08</b>
3.	<b>MOMENTS AND THEIR APPLICATIONS</b>	<ul style="list-style-type: none"><li>- Definition, Types and law of moment</li><li>- Varignon's Principle of moment and its applications</li><li>- Lever and its Applications</li><li>- Types of supports and determination of</li></ul>	<b>08</b>

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
4.	<b>EQUILIBRIUM OF FORCES</b>	<p>support reactions of a simply supported beam subjected to point load and uniformly distributed load (UDL)</p> <ul style="list-style-type: none"> <li>- Equilibrium of a system of concurrent forces</li> <li>- Conditions and types of Equilibrium</li> <li>- Lami's Theorem and its applications</li> </ul>	<b>08</b>
5.	<b>CENTRE OF GRAVITY</b>	<ul style="list-style-type: none"> <li>- Difference between Centroid and Center of Gravity (CG)</li> <li>- Centroid of standard plane figures and CG of simple solid bodies</li> <li>- Method of finding out Centroid of composite plane laminas and cut sections</li> <li>- Method of finding out CG of Composite solid bodies</li> </ul>	<b>08</b>
6.	<b>FRICTION</b>	<ul style="list-style-type: none"> <li>- Concept and types of friction</li> <li>- Limiting Friction, coefficient of friction, angle of friction, angle of repose</li> <li>- Laws of friction ( Static and Kinetic)</li> <li>- Analysis of equilibrium of Bodies resting on Horizontal and inclined Plane</li> <li>- Utility / Nuisance value of friction</li> </ul>	<b>10</b>
7.	<b>SIMPLE LIFTING MECHINES</b>	<ul style="list-style-type: none"> <li>- Concept of lifting Machines</li> <li>- Definition of Mechanical Advantage, Velocity Ratio and Efficiency of Machines and their relation</li> <li>- Reversibility of Machines and condition for self locking machine</li> <li>- Law of Machines, Maximum mechanical advantage and maximum efficiency of machine</li> <li>- Friction in machine ( In terms of Load and effort)</li> <li>- Calculation of M.A., V.R. and efficiency of following machines <ul style="list-style-type: none"> <li>- Simple wheel and axle</li> <li>- Differential wheel and axle</li> </ul> </li> </ul>	<b>10</b>

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
8.	<b>MOTION OF A PARTICLE</b>	<ul style="list-style-type: none"> <li>- Single purchase crab</li> <li>- Double purchase crab</li> <li>- Simple screw jack</li> <li>- Different System of simple pulley blocks</li> <li>- Definition of speed, velocity, acceleration, uniform velocity, uniform acceleration and variable acceleration</li> <li>- Motion under constant acceleration/ retardation ( equations of motion)</li> <li>- Motion under force of gravity</li> <li>- Concept of relative velocity</li> <li>- Definition of projectile, velocity of projection , angle of projection, time of light, maximum height, horizontal range and their determination</li> <li>- Definition of angular velocity, angular acceleration and angular displacement</li> <li>- Relation between linear and angular velocity of a particle moving in a circular path</li> <li>- Motion of rotation under constant angular acceleration</li> </ul>	<b>10</b>
9.	<b>LAWS OF MOTION</b>	<ul style="list-style-type: none"> <li>- Newton's Laws of motion and their applications</li> </ul>	<b>08</b>
10.	<b>WORK, POWER AND ENERGY</b>	<ul style="list-style-type: none"> <li>- Definition unit and graphical representation of work</li> <li>- <b>Definition and unit of power and types of engine power and efficiency of an engine.</b></li> <li>- <b>Definition and concept of Impulse</b></li> <li>- <b>Definition, unit and types of energies</b></li> <li>- <b>Total energy of a body falling under gravity</b></li> </ul>	<b>10</b>



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN CEMENT TECHNOLOGY

SEMESTER: **FIRST**  
COURSE CODE: **101**  
NAME OF COURSE: **APPLIED MECHANICS**

SCHEME: **Jul.08**  
PAPER CODE: **6034**

Practical: **2 Hrs.** per week

### LIST OF EXPERIMENTS

S.NO.	NAME OF THE EXPERIMENT	HRS OF PRACTICAL
1	Verification of laws of parallelogram of forces.	
2.	Verification of laws of polygon of forces	
3.	Verification of laws of moments	
4.	Determination of forces in the members of Jib Crane	
5.	Determination of Centroid of plane lamina by graphical method	
6.	Determination of coefficient of friction for surfaces of different materials on horizontal plane	
7.	Determination of coefficient of friction for surfaces of different materials on an inclined plane	
8.	Determination of mechanical advantage, velocity ratio and efficiency of the following lifting machines <ul style="list-style-type: none"><li>• Simple wheel and axle</li><li>• Differential wheel axle</li><li>• Single purchase crab</li><li>• Double purchase crab</li><li>• Simple pulley block</li><li>• Simple screw jack</li></ul>	
9.	Measurement of B.H.P. of an engine using roap break dynamometer	
		<b>30</b>





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**DIPLOMA IN CEMENT TECHNOLOGY**

**SEMESTER: FIRST**

**COURSE CODE: 101**

**NAME OF COURSE: APPLIED MECHANICS**

**SCHEME: Jul.08**

**PAPER CODE: 6034**

### **REFERENCES**

1. A text book of Applied Mechanics – R.S. Khurmi , S.C. Chand & Co. , New Delhi
2. Applied Mechanics – I.B. Prasad, Khanna Publishers, New Delhi
3. Applied Mechanics ( Hindi) – R.S. Jog, Anand Publishers, Gwalior
4. Applied Mechanics ( Hindi) – A.R. Page, Deepak Prakashan, Gwalior



**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**

**DIPLOMA IN CEMENT TECHNOLOGY**

**SEMESTER: FIRST**

**SCHEME: Jul.08**

**COURSE CODE: 102**

**PAPER CODE: 6035**

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

### **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 CEMENT TECHNOLOGY

SEMESTER: **FIRST**  
COURSE CODE: **102**

SCHEME: **Jul.08**  
PAPER CODE: **6035**

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

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	-	04
2.	AIR POLLUTION SOURCES AND EFFECTS	09	05	14
3.	METEOROLOGICAL ASPECTS OF AIR POLLUTANT DISPERSION	09	-	09
4.	AIR POLLUTION CONTROL METHODS AND EQUIPMENTS	18	05	23
5.	WATER POLLUTION SOURCES AND CLASSIFICATION	09	05	14
6.	WASTE WATER TREATMENT METHOD	09	10	19
7.	SOLID WASTE MANAGEMENT	14	-	14
8.	NOISE POLLUTION AND CONTROL	09	05	14
9.	SAFETY PRACTICES	09	-	09
	<b>TOTAL</b>	<b>90</b>	<b>30</b>	<b>120</b>



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## DIPLOMA IN CEMENT TECHNOLOGY

SEMESTER: **FIRST**  
COURSE CODE: **102**

SCHEME: **Jul.08**  
PAPER CODE: **6035**

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

Lectures: **6** Hrs. per week

### COURSE CONTENTS

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
1.	<b>INTRODUCTION TO ENVIRONMENT</b>	<ul style="list-style-type: none"><li>- THE BIOSPHERE, biotic and abiotic</li><li>- An aquatic ecosystem</li><li>- Types of pollution</li><li>- Impact of human being on environment.</li><li>- Impact of environment on human being</li><li>- Basic approach to improve environmental qualities</li><li>- Role of an environmental engineer</li></ul>	<b>04</b>
2.	<b>AIR POLLUTION SOURCES AND EFFECTS</b>	<ul style="list-style-type: none"><li>- Standard definition of air pollution</li><li>- Composition of natural air</li><li>- Names of air pollutants</li><li>- Classification of air pollutants, primary and secondary pollutants</li><li>- Classification of source of air pollutants on different bases</li><li>- Definition of different types of aerosols.</li><li>- Effect of air pollution on: human health, material properties, vegetation.</li><li>- Major toxic metals and their effects</li><li>- Major environmental phenomenon e.g., acid rain, global warming, green house effect, ozone layer depletion.</li><li>- Air quality standards</li><li>- Brief description of air pollution laws</li></ul>	<b>09</b>

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
3.	<b>METEOROLOGICAL ASPECTS OF AIR POLLUTANT DISPERSION</b>	<ul style="list-style-type: none"> <li>- Meteorological parameters influencing air pollution</li> <li>- Environmental lapse rate, temperature inversion, atmospheric stability and adiabatic loss rate.</li> <li>- Turbulence, topographical effects,</li> <li>- Plume behavior, looping, coning, fanning fumigation, lofting, trapping.</li> </ul>	<b>09</b>
4.	<b>AIR POLLUTION CONTROL METHODS AND EQUIPMENTS</b>	<ul style="list-style-type: none"> <li>- Natural purification processes of air</li> <li>- Artificial purification methods of air</li> <li>- Brief description of following control equipments along with sketch e.g, gravitation settling chamber, cyclone, scrubber, bag house filter, electrostatic precipitator.</li> <li>- Brief description of following processes for the control of gaseous pollutants e. g., absorption, adsorption, condensation, combustion etc</li> </ul>	<b>18</b>
5.	<b>WATER POLLUTION SOURCES AND CLASSIFICATION</b>	<ul style="list-style-type: none"> <li>- Water resources</li> <li>- Uses of water</li> <li>- Classification of water</li> <li>- Origin, composition and characteristics of domestic waste water as well as industrial waste water</li> <li>- Biochemical oxygen demand</li> <li>- Water pollution laws and standards</li> <li>- Uses of waste water</li> <li>- Classification of waste water</li> <li>- Chemical oxygen demand</li> </ul>	<b>09</b>
6.	<b>WASTE WATER TREATMENT METHOD</b>	<ul style="list-style-type: none"> <li>- basic processes of water treatment</li> <li>- Meaning of primary, secondary and tertiary treatment</li> <li>- Flow chart of a simple effluent treatment plant</li> <li>- Theory of industrial waste treatment</li> <li>- Volume reduction, neutralization and proportioning</li> </ul>	<b>09</b>

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
7.	<b>SOLID WASTE MANAGEMENT</b>	<ul style="list-style-type: none"> <li>- Sources and classification of solid waste</li> <li>- Public health aspects</li> <li>- Disposal methods – open dumping , sanitary , land fill</li> <li>- Incineration , composting</li> <li>- Potential methods of disposal</li> <li>- Recovery and recycling of paper, glass, metal and plastic</li> </ul>	<b>14</b>
8.	<b>NOISE POLLUTION AND CONTROL</b>	<ul style="list-style-type: none"> <li>- Sources of noise pollution</li> <li>- Units of Noise pollution measurement</li> <li>- Allowable limits for different areas</li> <li>- Problems of noise pollution and measures to control it</li> <li>- Noise pollution control devices brief discussion</li> </ul>	<b>09</b>
9.	<b>SAFETY PRACTICES</b>	<ul style="list-style-type: none"> <li>- Responsibility of employees and employers regarding health and safety</li> <li>- Fire hazards ,prevention and precautions</li> <li>- Industrial hazards prevention and protection</li> <li>- Protection from air and noise pollution</li> </ul>	<b>09</b>



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN CEMENT TECHNOLOGY

SEMESTER: **FIRST**  
COURSE CODE: **102**

SCHEME: **Jul.08**  
PAPER CODE: **6035**

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

Practical: **2 Hrs.** per week

### LIST OF EXPERIMENTS

S.NO.	NAME OF THE EXPERIMENT	HRS OF PRACTICAL
	<p><b>GROUP A AIR POLLUTION</b> (Any one experiment may be selected from this group)</p> <ol style="list-style-type: none"><li>1. Air monitoring and determination of SPM, CO, Nox, SO<sub>2</sub> with high volume sampler.</li><li>2. Monitoring of stack gases and determination of SPM, CO, Nox, SO<sub>2</sub> with slack monitoring kit.</li><li>3. Determination of CO, HC, in exhaust gases from petrol vehicle</li></ol> <p><b>GROUP B NOISE POLLUTION</b></p> <ol style="list-style-type: none"><li>4. Determination of sound pollution in (a) Auditorium (b) Factories (c) Busy roads (d) Theatre (e) TV rooms ( select any three situations)</li></ol> <p><b>GROUP C INDUSTRIAL WASTE WATER</b> (Any Two experiment may be selected from this group)</p> <ol style="list-style-type: none"><li>5. Determination of BOD/COD ratio in industrial waste water.</li><li>6. Determination of Ph and alkanity/ acidity in industrial waste water.</li><li>7. Dermination of solids in industrial waste water.</li><li>8. Determination of turbidity, cobur, and temperature of industrial waste water.</li></ol> <p><b>GROUP D POLLUTION STANDARDS</b> (Any Two experiment may be selected from this group)</p> <ol style="list-style-type: none"><li>9. Study of drinking water standards.</li><li>10. Study of effluent standards for water disposal. Study of air pollution standards.</li></ol>	
		<b>30</b>



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**DIPLOMA IN CEMENT TECHNOLOGY**

**SEMESTER: FIRST**

**COURSE CODE: 102**

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

**SCHEME: Jul.08**

**PAPER CODE: 6035**

### **REFERENCES**

1. Environmental 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





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**DIPLOMA IN CEMENT TECHNOLOGY**

**SEMESTER: FIRST**

**COURSE CODE: 103**

**NAME OF COURSE: INTRODUCTION TO COMPUTERS**

**SCHEME: Jul.08**

**PAPER CODE: 5132**

### **RATIONALE**

This subject is design to make students aware of basic concepts of computers including operating systems. Studying this subject will make students acquainted with word processing, spread sheet and data base concepts and working. This subject also introduces computer communication and networks, including internet & E-mail. The basic objective is to make students excel with good knowledge about computers.



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN CEMENT TECHNOLOGY

SEMESTER: **FIRST**

COURSE CODE: **103**

NAME OF COURSE: **INTRODUCTION TO COMPUTERS**

SCHEME: **Jul.08**

PAPER CODE: **5132**

Lectures: **4 Hrs.** per week

Practical: **4 Hrs.** per week

### SCHEME OF STUDIES

S. No.	Topic	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	INTRODUCTION TO COMPUTERS	15	12	27
2.	OPERATING SYSTEM	09	12	21
3.	WORD PROCESSING	06	06	12
4.	SPREADSHEET PACKAGE	06	08	14
5.	PRESENTATION SOFTWARE	06	08	14
6.	DATABASE	08	08	16
7.	COMPUTER COMMUNICATION & NETWORKS	10	06	16
	<b>TOTAL</b>	<b>60</b>	<b>60</b>	<b>120</b>



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN CEMENT TECHNOLOGY

SEMESTER: **FIRST**

COURSE CODE: **103**

NAME OF COURSE: **INTRODUCTION TO COMPUTERS**

SCHEME: **Jul.08**

PAPER CODE: **5132**

Lectures: **4 Hrs.** per week

### **COURSE CONTENTS**

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
1.	<b>INTRODUCTION TO COMPUTERS</b>	<p>1.1 Basic Concepts</p> <ul style="list-style-type: none"><li>– Generations of Computers</li><li>– Overview of computer Systems</li><li>– Classifications of Computers</li><li>– Characteristics of Computers</li><li>– Applications of Computers.</li></ul> <p>1.2 Numbers System &amp; Codes</p> <ul style="list-style-type: none"><li>– Decimal, Binary, Octal, Hexadecimal</li><li>– Conversions from one system to other</li><li>– Binary Coded Decimal &amp; ASCII Code</li></ul> <p>1.3 Computer Hardware</p> <ul style="list-style-type: none"><li>– Input Devices</li><li>– Keyboard, Mouse, Trackball, Joystick,</li><li>– Scanner, OMR OCR Bar-Code Reader, MICR,</li><li>– Digitizer, Card Reader, Voice Recognition,</li><li>– Web Cam, Video Cameras, Etc.</li><li>– Output Devices</li><li>– Monitors, Printers : Dot matrix, Inkjet &amp; Laser,</li><li>– Plotters, Commuter, Output Micro Film (COM),</li><li>– Multimedia Projector, Speech Synthesizer,</li></ul>	<b>15</b>

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
		<ul style="list-style-type: none"> <li>– Dumb, Smart &amp; Intelligent Terminal.</li> <li>– Storage Devices</li> <li>– Primary and Secondary Storage,</li> <li>– Characteristics and Limitation, Floppy,</li> <li>– Hard disk, CD ROM DVD, Disk Cartridge.</li> <li>– Microprocessor</li> <li>– Registers, Arithmetic Unit, Control Unit, Buses,</li> <li>– Instruction Set, Processor Speed.</li> <li>– Memory Concepts</li> <li>– Concept of Memory, Unit of Memory, Types of</li> <li>– Memory, RAM, ROM, PROM, EPROM,</li> <li>– EEPROM, Cache Memory.</li> </ul> <p>1.4 Computer Software</p> <ul style="list-style-type: none"> <li>– Computer Software</li> <li>– System Software V/s Application Software</li> <li>– Operating System Programs</li> <li>– Language Processor, Assembler, Compiler &amp; Interpreter.</li> <li>– Application Software</li> <li>– Types of Application Software and their</li> <li>– examples.</li> <li>– High Level Language, Low Level Language, Assembly</li> <li>– Language.</li> </ul> <p>1.5 Multimedia</p> <ul style="list-style-type: none"> <li>– Basics of Multimedia</li> <li>– Components- Tex, Graphics, Animation, Audio, Images &amp; Video.</li> <li>– Multimedia Applications.</li> </ul>	

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
2.	OPERATING SYSTEM	2.1 Overview of DOS <ul style="list-style-type: none"> <li>– Internal Commands</li> <li>– External Commands</li> </ul> 2.2 Windows Operating System <ul style="list-style-type: none"> <li>– Overview of different versions of Windows</li> <li>– Characteristics and Facilities of Windows,</li> <li>– Terminologies of Windows – Desktop, Icon, Menu etc.</li> <li>– Components of Desktop.</li> <li>– Working with Files and Folders.</li> <li>– Windows Utilities and Accessories – Notepad, WordPad, Paintbrush,</li> <li>– Windows Explorer, Calculator.</li> </ul> 2.3 Introduction to Linux <ul style="list-style-type: none"> <li>– An overview of Linux</li> <li>– Basic Linux elements System</li> <li>– Features Software</li> <li>– Features File structure</li> <li>– Linux H/W &amp; S/W requirements.</li> </ul>	09
3.	WORD PROCESSING	<ul style="list-style-type: none"> <li>– Saving, Closing, Opening of documents</li> <li>– Selecting text</li> <li>– Editing text</li> <li>– Finding and replacing text\</li> <li>– Printing documents</li> <li>– Merge Documents</li> <li>– Character and paragraph Formatting</li> <li>– Page Design and layout</li> <li>– Spell Check</li> <li>– Creating Tables and Charts.</li> <li>– Handling Graphics</li> </ul>	06
4.	SPREADSHEET PACKAGE	<ul style="list-style-type: none"> <li>– Spreadsheet concept – Need, advantage, Terminology like cell, row, column etc.</li> <li>– Working with Spreadsheet – Creating, Saving, Editing and</li> </ul>	06

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
5.	<b>PRESENTATION SOFTWARE</b>	<ul style="list-style-type: none"> <li>printing</li> <li>– Entering data – Entering number, text, date, time etc.</li> <li>– Selecting cells – Cut, copy, paste data</li> <li>– Editing Worksheet data</li> <li>– Formatting – Text and Cells, Applying border shading, background patterns, conditional formats, positioning cells, formatting numbers, text, Date, time.</li> <li>– Creating formulas- Entering, Editing, Using Functions, controlling calculations.</li> <li>– Working with Charts- Creating charts, Adding &amp; changing text, changing the view and display, types of charts.</li> <li>– Introduction</li> <li>– Presentation design tools</li> <li>– Presentation terminologies</li> <li>– Creating, Opening and Saving Presentation</li> <li>– Working with different views</li> <li>– Creating and Organizing slides</li> <li>– Adding and Formatting text in slides</li> <li>– Formatting paragraphs</li> <li>– Adding drawings and objects</li> <li>– Creating special effects</li> <li>– Working with table and charts</li> <li>– Printing Presentation</li> </ul>	<b>06</b>
6.	<b>DATABASE</b>	<ul style="list-style-type: none"> <li>– Introduction – need, Characteristics and terminologies of database</li> <li>– Types of database – relational, Hierarchical and Network</li> <li>– Basic entities – Tables, records, Data types, Data</li> </ul>	<b>08</b>

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
7.	<b>COMPUTER COMMUNICATION &amp; NETWORKS</b>	<ul style="list-style-type: none"> <li>– Validation and constraints, keys relation between tables.</li> <li>– Query – Select, Insert, Update, Delete.</li> <li>– Forms – Creating forms, Forms controls</li> <li>– Report Designer- Customize formats, grouping reports</li> </ul> <p><b>7.1 Information Networks</b></p> <ul style="list-style-type: none"> <li>– <b>The Technology of Workgroup Computing</b></li> <li>– <b>Types of network</b></li> <li>– <b>Network topology</b></li> <li>– <b>Network components</b></li> </ul> <p><b>7.2 Data Communication</b></p> <ul style="list-style-type: none"> <li>– <b>Introduction to Data Communication</b></li> <li>– <b>Types of Data</b></li> <li>– <b>Transmission media</b></li> </ul> <p><b>7.3 Internet and E-mail</b></p> <ul style="list-style-type: none"> <li>– <b>Internet Basics</b></li> <li>– <b>Websites- Applications, terminologies, naming conventions.</b></li> <li>– <b>Web Browsers- Types, Navigation and tools</b></li> <li>– <b>E-mail – concept, terminologies, mailing services provider, advantages comparison with Conventional mailing</b></li> <li>– <b>Search engine – concept, search engine websites, searching methods.</b></li> </ul>	10



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN CEMENT TECHNOLOGY

SEMESTER: **FIRST**

COURSE CODE: **103**

NAME OF COURSE: **INTRODUCTION TO COMPUTERS**

SCHEME: **Jul.08**

PAPER CODE: **5132**

Practical: **4 Hrs.** per week

### LIST OF EXPERIMENTS

S.NO.	NAME OF THE EXPERIMENT	HRS OF PRACTICAL
1	Study of various components of computer like CPU, keyboard, mouse, monitor, printer, CVT and storage devices.	
2.	Internal and external commands of DOS.	
3.	Using Windows operating system, study of desktop, control panel, accessories and settings. File management in windows explorer, Study of WordPad, NotePad, PaintBrush, Calculator etc.	
4.	Study of Linux operating system.	
5.	Study of MS-word – opening and saving of documents, formatting, editing and spell check, find and replace, printing, merging. Creating Table, Charts and Graphics.	
6.	Study of Spreadsheet – creating, saving, editing and printing. Entering data, selecting cells, formatting text, applying border shades and backgrounds, creating formulas, creating charts.	
7.	Study of Power Point – creating, opening, editing and saving of slides. Adding and formatting text, creating animations, working with images and special effects. Printing presentation.	
8.	Study of MSAccess– creating, saving, editing and printing of tables. Managing relationships, writing queries e.g. SELECT, UPDATE, DELETE, INSERT. Forms designing and report printing.	
9.	Study of Web Browser and mailing programs.	
		<b>30</b>





# **RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**

## **DIPLOMA IN CEMENT TECHNOLOGY**

**SEMESTER: FIRST**

**COURSE CODE: 103**

**NAME OF COURSE: INTRODUCTION TO COMPUTERS**

**SCHEME: Jul.08**

**PAPER CODE: 5132**

### **REFERENCES**

1. A First Course in Computers  
- S . Jaiswal Golgotha Publication
2. Computers & Application,  
- Slotnick, Butterfield, Colantonio and Kopetzky C.C. Health  
& Company
3. Computers Today,  
- Suresh K. Basandra Galgotia Publication
4. , The Complete Guide to Microsoft Office Professional,  
- Ron Mansfield Sybex /BPB Asian Edition
5. Inside IBM PC  
- Norton Peter
6. Hardware Bible  
- BPB Publication
7. Computer Hardware  
- Osborne Series
8. DOS & Utilities  
- BPB Publication
9. Learning Windows in 24 Hours  
- Sam Techmedia
10. Multimedia Making it work  
-Tay Vaughan Tata McGrawHill
11. Understanding windows  
-BP Chapman B Publicati



**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**

**DIPLOMA IN CEMENT TECHNOLOGY**

**SEMESTER: FIRST**

**COURSE CODE: 104**

**NAME OF COURSE: ENGINEERING DRAWING**

**SCHEME: Jul.08**

**PAPER CODE: 6036**

### **RATIONALE**

Engineering Technician irrespective of his field of operation in an industry is expected to possess a thorough understanding of drawing which includes clear spatial visualization of objects and the proficiency in reading and interpreting a wide variety of engineering drawings. Besides this he is also expected to possess a certain degree of drafting skill, depending upon his job functions in his day to day activities. This course of engineering drawing for diploma courses in Mechanical and Electrical Engineering is aimed at developing basic knowledge and skill, of engineering drawing.



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN CEMENT TECHNOLOGY

SEMESTER: **FIRST**  
COURSE CODE: **104**  
NAME OF COURSE: **ENGINEERING DRAWING**

SCHEME: **Jul.08**  
PAPER CODE: **6036**

Lectures: **6 Hrs.** per week

### SCHEME OF STUDIES

S. No.	Topic	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	INTRODUCTION TO DRAWING AND DRAWING INSTRUMENTS	02	-	02
2.	PLANNING AND LAYOUT OF DRAWING SHEET	02	-	02
3.	CONVENTIONAL REPRESENTATION	03	-	03
4.	LINE, LETTERING AND DIMENSIONING	02	-	02
5.	GEOMETRICAL CONSTRUCTIONS AND ENGINEERING CURVES	10	-	10
6.	SCALES	10	-	10
7.	THEORY OF PROJECTIONS AND PROJECTIONS OF POINTS, LINES AND PLANES	10	-	10
8.	PROJECTION OF SOLIDS	10	-	10
9.	SECTION OF SOLIDS AND DEVELOPMENT OF SURFACES	15	-	15
10.	INTERSECTION OF SURFACES	01	-	01
11.	ORTHOGRAPHIC PROJECTION OF SIMPLE OBJECTS AND FREE HAND SKETCHING	15	-	15
12.	ISOMETRIC VIEWS	10	-	10
	<b>.TOTAL</b>	<b>90</b>	<b>-</b>	<b>90</b>



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN CEMENT TECHNOLOGY

SEMESTER: **FIRST**  
COURSE CODE: **104**

SCHEME: **Jul.08**  
PAPER CODE: **6036**

NAME OF COURSE: **ENGINEERING DRAWING**

Lectures: **6 Hrs.** per week

### **COURSE CONTENTS**

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
1.	<b>INTRODUCTION TO DRAWING INSTRUMENTS:</b>	<ul style="list-style-type: none"><li>- Introduction of drawing instruments, materials and their uses</li><li>- Applications of minidrafter</li><li>- Applications of compass and divider</li><li>- Applications of French curves and spline</li><li>- Pencils grades and their uses</li><li>- Designation and sizes of drawing sheet and drawing board</li></ul>	<b>02</b>
2.	<b>PLANNING AND LAY-OUT OF DRAWING SHEET</b>	<ul style="list-style-type: none"><li>- Planning of drawing sheet as per I.S.: 696-1972 (SP 46: 1988)</li></ul> This should include <ul style="list-style-type: none"><li>- Margin.</li><li>- Title Block.</li><li>- Zoning.</li><li>- Revision panel.</li><li>- Folding marks.</li><li>- Numbering of sheet.</li></ul>	<b>02</b>
3.	<b>CONVENTIONAL REPRESENTATION:</b>	Conventional representation of the following as per BIS practice <ul style="list-style-type: none"><li>- Common Engineering materials</li></ul>	<b>03</b>

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
4.	<b>LINES, LETTERING AND DIMENSIONING</b>	<ul style="list-style-type: none"> <li>- Electrical installations and fittings – Main switches, (lighting and power), socket outlets (3 pin 5AMP, 3pin15AMP), bell, buzzer, loud speaker, Aerial, ceiling fan, exhaust fan, Bracket fan, fan regulator, battery and earth point.</li> <li>- Electronics components- Diode: Zener, varactor, Scotty, step recovery, light emitting diode (LED), PNP and NPN transistors, resistance, capacitor, Inductors (fixed and variable both), IC (8pin and 14pin) SCR, TRIAC, DIAC, UJT, FET, MOSFET, LOGIC GATES</li> <li>- Sanitary fittings- showerhead, wall lavatory basin, corner Lavatory basin, urinal stall, kitchen sink, Indian type WC, Water closets (Asian pan, urissapan, Anglo-Indian, European)</li> <li>- Building -single and double swing doors and windows.</li> <li>- Mechanical components- Internal and external threads, slotted head, Square end and flat, radial arms and ribs, serrated shaft, splined shaft, Chain wheel, bearing, straight and diamond knurling, Compression and tension spring, leaf spring (with and without eye), Spur and helical gear</li> </ul> <p style="text-align: right;">-----</p> <p>Introduction of type of lines and their applications</p> <ul style="list-style-type: none"> <li>- Single stroke vertical, inclined letters (capital and lowercase) and numerals.</li> <li>- Dimensioning: <ul style="list-style-type: none"> <li>- Elements of dimensioning- dimension line, extension line, arrowhead</li> </ul> </li> </ul>	02

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
5.	<b>GEOMETRICAL CONSTRUCTIONS AND ENGINEERING CURVES</b>	<p>And leader line</p> <ul style="list-style-type: none"> <li>- Dimensioning system – Aligned and unidirectional.</li> <li>- Dimensioning of Arcs and Circles.</li> <li>- Angular Dimensioning.</li> <li>- Dimension of counter sunk and counter bore.</li> <li>- Divide a line into any number of equal parts by parallel line method</li> <li>- Bisecting of line and angle.</li> <li>- Construction of triangles and polygons</li> <li>- Introduction of conic sections (curves)</li> <li>- Construction of Ellipse by Eccentricity and Concentric circles methods</li> <li>- Construction of Parabola by Eccentricity and Rectangle methods</li> <li>- Construction of Hyperbola by Eccentricity method</li> <li>- Construction of Cycloid</li> <li>- Construction of Involute of circle and polygon</li> <li>- Construction of Archimedean Spiral of any number of convolutions</li> </ul>	10
6.	<b>SCALES:</b>	<ul style="list-style-type: none"> <li>- Introduction of scales and their applications</li> <li>- Concept of reducing, enlarging and full size scale</li> <li>- Classification of scales – plain, diagonal, vernier,</li> <li>- Scale of chord and comparative scales</li> <li>- Definition of R.F</li> <li>- Construction of plain and diagonal scales</li> </ul>	10
7.	<b>THEORY OF PROJECTION AND PROJECTION OF POINTS, LINES AND</b>	<ul style="list-style-type: none"> <li>- Definition of various term associated with theory of projection-</li> <li>- Planes of projection, Quadrants, first &amp; third angle projection method</li> </ul>	10

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
	<b>PLANES</b>	<ul style="list-style-type: none"> <li>- Projection of points in all the four quadrants.</li> <li>- Projection of lines- <ul style="list-style-type: none"> <li>- 1.parallel to HP and VP both.</li> <li>- 2.perpendicular to one plane and parallel to other.</li> <li>- 3.Inclined to one plane and parallel to other.</li> <li>- 4.knowledge of projection of line inclined to both the planes (No practice required)</li> </ul> </li> <li>- Projection of planes – <ul style="list-style-type: none"> <li>- 1Perpendicular to HP and VP both</li> <li>- 2 Perpendicular to one plane and parallel to other</li> <li>- 3.Inclined to one plane and perpendicular to other.</li> <li>- 4 Knowledge of projection of plane inclined to both the planes (No practice required)</li> </ul> </li> </ul>	
8.	<b>PROJECTIONS OF SOLIDS:</b>	<p>Projection of cylinder, cone, prism and pyramid.</p> <p>Under the following conditions:</p> <ol style="list-style-type: none"> <li>1 Axis parallel to HP and VP</li> <li>2 Axis perpendicular to HP and parallel to VP</li> <li>3 Axis perpendicular to VP and parallel to HP</li> <li>4 Axis inclined to HP and parallel to VP.</li> <li>5 Axis inclined to VP and parallel to HP.</li> <li>6 Axis inclined to both HP and VP (No Practice required)</li> </ol>	10
9.	<b>SECTION OF SOLIDS AND DEVELOPMENT OF SURFACES</b>	<p>: Section of cone, cylinder, prism and pyramid (Solid resting on its base in the HP i.e. the Axis perpendicular to HP and parallel to VP) in the following cases:</p> <ol style="list-style-type: none"> <li>1 Section plane parallel to HP and</li> </ol>	15

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
10.	INTERSECTION OF SURFACES	<p>perpendicular to VP</p> <p>2 Section plane parallel to VP and perpendicular to HP.</p> <p>3 Section plane inclined to HP and perpendicular to VP.</p> <p>4 Section plane inclined to VP and perpendicular to HP.</p> <ul style="list-style-type: none"> <li>- Drawing True shape of section.</li> <li>- Introduction to development of lateral surface of solids- Cone, Cylinder, Prism and Pyramids (Simple and truncated)</li> </ul> <p>Under the condition – solid resting on its base in the HP and axis Perpendicular to HP and parallel to VP</p> <p>Development of funnel and elbow</p> <p>Intersection of following cases – Cylinder to cylinder and Prism to prism (With their axis intersecting and perpendicular to each other.)</p>	01
11.	ORTHOGRAPHIC PROJECTIONS & FREE HAND SKETCHING:	<ul style="list-style-type: none"> <li>- Principles of orthographic projections</li> <li>- Identification of necessary views and superfluous view</li> <li>- Selection of front view</li> <li>- Preparation of necessary orthographic views of simple objects</li> <li>- From given pictorial views</li> <li>- Dimensioning of orthographic views as per standard practice.</li> <li>- Free hand sketches of simple objects (Using Pencil, Eraser &amp; Paper only)</li> </ul>	15
12.	ISOMETRIC VIEWS	<ul style="list-style-type: none"> <li>- Concept of isometric projection and isometric view (Isometric Drawing)</li> </ul>	10



S.NO.	TOPIC	CONTENTS	HRS OF STUDY
		<ul style="list-style-type: none"> <li>- Construction of isometric scale</li> <li>- Construction of isometric view of polygon and circle</li> <li>- Construction of isometric view of cone, cylinder, prism and pyramids</li> <li>- Construction of isometric view of simple objects from given orthographic views</li> </ul>	



**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**

**DIPLOMA IN CEMENT TECHNOLOGY**

**SEMESTER: FIRST**  
**COURSE CODE: 104**

**SCHEME: Jul.08**  
**PAPER CODE: 6036**

**NAME OF COURSE: ENGINEERING DRAWING**

## **REFERENCES**

1. ENGINEERING DRAWING  
– N.D. Bhatt
2. ENGINEERING DRAWING  
– R.K. Dhawan
3. ENGINEERING DRAWING  
– P.S.Gill
4. FIRST YEAR ENGINEERING DRAWING  
– A.C.Parkinson
5. SP: 46-1988 Bureau of Indian standard
6. PRINCIPLES OF ELECTRONICS  
– Malvino
7. ABHIYANTRIK AAREKHAN  
-SHIVDATT UPADHYAY



## **RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**

### **DIPLOMA IN CEMENT TECHNOLOGY**

**SEMESTER: FIRST**

**SCHEME: Jul.08**

**COURSE CODE: 105**

**NAME OF COURSE: WORKSHOP PRACTICE**

### **RATIONALE**

Work shop practice is the fundamental exposure to basic skill required for all Students pursuing their studies in various diploma-engineering disciplines. The practice experience would help students to understand the intricacies of industrial Working in relatively shorter period of time more over the contents of this Curricula forms a basic link for higher studies of engineering programs

The students are advised to undergo each skill experience with know-how approach giving special emphasis to know-why for the various instructions Imparted to them in each shop.



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN CEMENT TECHNOLOGY

SEMESTER: **FIRST**

SCHEME: **Jul.08**

COURSE CODE: **105**

NAME OF COURSE: **WORKSHOP PRACTICE**

Practical: **4 Hrs. per week**

### SCHEME OF STUDIES

S. No.	Topic	SCHEME OF STUDIES		
		Hrs. of Study		
		Theory	Practical	Total
1.	INTRODUCTION TO WORK SHOP	-	02	02
2.	FITING SHOP	-	09	09
3	CARPENTRY SHOP	-	09	09
4.	BLACK SMITHY SHOP	-	09	09
5.	SHEET METAL SHOP	-	09	09
6.	WELDING SHOP	-	09	09
7.	PLASTIC MOULDING	-	09	09
8.	REVISION	-	04	04
	<b>TOTAL</b>	-	<b>60</b>	<b>60</b>



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN CEMENT TECHNOLOGY

SEMESTER: **FIRST**

SCHEME: **Jul.08**

COURSE CODE: **105**

NAME OF COURSE: **WORKSHOP PRACTICE**

Practical: **4 Hrs. per week**

### **COURSE CONTENTS**

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
1.	INTRODUCTION TO WORK SHOP	<ul style="list-style-type: none"><li>- General Safety rules of workshop</li><li>- State the General Safety Measures to be observed in Workshop.</li><li>- State the General house keeping activities</li><li>- Prepare a list of general safety Rules to be followed in Workshop</li></ul>	02
2.	FITTING SHOP	<ul style="list-style-type: none"><li>- Layout of Shop</li><li>- Sketch &amp; Label Details of shop Layout</li><li>- Type of jobs produced in fitting shop</li><li>- Understand the functions of fitting shop</li><li>- Understand different Metals, Alloys &amp; their Sections</li><li>- List the Commonly used Metals, Alloys.</li><li>- State at least Five Sections, Shape &amp; Size of Metals, Alloys.</li><li>- Use relevant IS Code for commonly used materials with their samples of different Cross sections.</li><li>- Fitting tools.</li><li>- Know use of fitting tools, sketch various tools &amp; label their parts.</li><li>- Classify fitting tools as marking tools, Clamping devices, striking tools, cutting tools etc.</li><li>- Know the marking out &amp; inspection instruments such as surface plate, marking block, scribe, tri square, bevel protractor etc.</li><li>- Fitting operation: - Use of Various fitting tools, inspection</li></ul>	09

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
3.	CARPENTRY SHOP	<p>&amp; measuring Instruments. To produce given jobs.</p> <ul style="list-style-type: none"> <li>- Choose correct Shape &amp; Size of Blank for a given drawing.</li> <li>- Marking as per drawing using correct method, tools &amp; sequence.</li> <li>- Choose correct sequence of operations for the job viz. Sawing, filing, scraping, drilling &amp; Tapping etc.</li> <li>- Select appropriate Tools, inspection and measuring instruments.</li> <li>- Clamping the job in correct position in an appropriate clamping device.</li> <li>- Perform the operation with appropriate body posture, method &amp; precision, exercising personal judgment of need of the force.</li> <li>- Inspect the job as and when necessary.</li> <li>- Introduction to screw threads.</li> <li>- Know common types of screw threads &amp; the terminology used.</li> <li>- Sketch and label details of Metric &amp; Whitworth thread.</li> </ul> <ul style="list-style-type: none"> <li>- Carpentry shop lay out.</li> <li>- Sketch &amp; Label Details of shop Layout.</li> <li>- Type of jobs produced in carpentry shop.</li> <li>- Understand the functions of carpentry shop.</li> <li>- Introduce type of jobs produced by carpenter.</li> <li>- Commonly used raw materials:</li> <li>- Know commonly used raw materials &amp; their commercially available size.</li> <li>- Name various types of raw materials used such as Timber: - logs, planks, battens etc. Ply, Teak ply, block board, sun mica, Formica etc.</li> <li>- Carpentry tools: - Know various carpentry tools with their specifications and uses e.g. different saws, chisels, gauges, scales, hammers, tri squares,</li> </ul>	09

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
4.	BLACK SMITHY SHOP	<p>planners, vice etc.</p> <ul style="list-style-type: none"> <li>- Carpentry Joints:- Introduction of various joints like T, corner, mortise &amp; tennon joints, dovetail, pin, cross half lap joint,etc.</li> <li>- Choose correct shape &amp;size of timber blank for a given job drawing.</li> <li>- <b>Do marking as per drawing using correct method, tools &amp;sequence.</b></li> <li>- Identify correct operations e.g. sawing, chiseling, planning, grooving etc.</li> <li>- Select appropriate Tool, inspection &amp; measuring Instruments.</li> <li>- Clamping the jobs in correct position in an appropriate clamping device.</li> <li>- Perform the operation with appropriate body posture, method &amp; precision, exercising personal judgment of need of the force.</li> <li>- Inspect for size &amp; quality of finish as and when necessary.</li> <li>- Assemble the components produced. Inspect for proper joint quality &amp;take remedial steps.</li> <li>- Understand the function of black smithy &amp; forging shop.</li> <li>- Layout of Shop.</li> <li>- Sketch &amp; Label Details of shop lay out.</li> <li>- Know the different jobs produced in smithy shop e.g. round to hexagonal shapes or vice versa J -hook, S- hook, circle, chain etc.</li> <li>- Commonly used raw materials: - M.S. Bars of different shapes and size.</li> <li>- Smithy Tools: - Know various smithy tools with their specifications e.g. different type of hammers, hot / cold chisel, flatters, tongs, leg vice, swage block, anvils, open hearth and furnaces etc.</li> <li>- Preparation of job (any three): J-hook, S-hook, chain, circle, tong, chisel etc.</li> <li>- Safety measures: Know the safety</li> </ul>	09

S.NO.	TOPIC	CONTENTS	HRS OF STUDY
5.	SHEET METAL SHOP	<p>regulation in black smithy shop.</p> <ul style="list-style-type: none"> <li>- Layout of Shop</li> <li>- Sketch &amp; Label Details of shop lay out.</li> <li>- Know the different jobs produced in sheet metal shop e.g. Open tray, cylinder, prism, Funnel etc.</li> <li>- Commonly used raw materials: -M.S. sheet (black), G.I., M.S.rivets, and aluminum rivet etc.</li> <li>- Understand foil, sheet and plate.</li> <li>- Tools used:- Different snips, shears, stacks, latter punch, figure punch, Solid punch, hollow punch, mallet, soft hammers, channel, Square bars, std. Sheet gauge.</li> <li>- Type of joints and operations: - Introduction of various sheet metal operations &amp;joints e.g. seaming, single seam, double seam, Grooved seam, corner joint, cap joint etc.</li> <li>- Preparation of job (any two): - Open tray, cylinder, prism, Funnel etc.</li> <li>- Choose correct shape &amp;size of sheet for a given job drawing considering allowances for joint or seam.</li> <li>- Do marking as per drawing using correct method, tools and sequence.</li> <li>- Identify correct operation e.g. shearing, punching, bending, debarring, folding, strengthening, stamping, riveting, etc.</li> <li>- Select appropriate Tool, inspection &amp; measuring Instruments.</li> <li>- Holding the job in correct position.</li> <li>- Perform the operation with appropriate body posture, method &amp; precision, exercising personal judgment of need of the force.</li> <li>- Inspect for proper joint quality and take remedial steps.</li> </ul>	09



S.NO.	TOPIC	CONTENTS	HRS OF STUDY
6.	<b>WELDING SHOP</b>	Layout of Shop. - Sketch & Label Details of shop lay out. - Know the different jobs produced in Welding shop e.g. Lap joint, single butt, double butt, corner, T joint, etc. - Tools & equipments used:- Specifications & use of various tools and equipments used in Welding shop e.g. A.C. welding transformer, Gas welding set, electrode used, chipping hammer, wire brush, shield, gloves, apron etc. - Preparation of job: - (any two) Lap joint, single butt, double butt, corner, T joint, etc. - Safety measures: - Know the safety regulation in Welding shop.	<b>09</b>
7.	<b>PLASTIC MOULDING</b>	- Know the commonly used plastic materials i.e. Thermosetting, Thermo plastic. - Sketch & label various parts of bench molding m/c. - Production of any product on bench molding m/c.	<b>09</b>
8.	<b>REVISION</b>	- Understand the difference in theory and practice. - Explain the importance of skills in production of quality jobs	<b>04</b>

NOTE:-1. Theoretical inputs will be provided on shop floor during workshop Practice.  
 2. Shop safety would include First Aid training for each shop.



**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**

**DIPLOMA IN CEMENT TECHNOLOGY**

**SEMESTER: FIRST**

**SCHEME: Jul.08**

**COURSE CODE: 105**

**NAME OF COURSE: WORKSHOP PRACTICE**

### **REFERENCES**

1. Workshop technology vol. I  
- Hazra & Chaudhary
2. Production technology vol. I  
- R.C. Patel & C.G. Gupta
3. Production technology vol. I  
- Dalela
4. Work shop technology vol. I  
- Raghuwanshi
5. Work shop technology vol. I  
- Chapman
6. Workshop Vol. I  
- P.N.Vijayvargiya (Hindi medium)



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN CEMENT TECHNOLOGY

SEMESTER: **FIRST**

SCHEME: **Jul.08**

COURSE CODE: **106**

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.

### 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.

<u>Grades</u>	<u>Level of performance</u>
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.