CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI

DIPLOMA PROGRAMME IN INSTRUMENTATION

Semester – II

COURSE OF STUDY AND SCHEME OF EXAMINATION

S.No.	Board of Studies	Subject Code	Subject	Periods/week			Scheme of Examination					Total Marks	Credit L+(T+P)/2
							Theory			Practical			
				L	T	P	ESE	CT	TA	ESE	TA		
1	Humanities	200211 (46)	Communication Skill-II	4	1	-	100	20	20	-	-	140	5
2	Basic Science	200212 (14)	Applied Maths-II	3	1	-	100	20	20	-	-	140	4
3	Mechanical Engineering	200213 (37)	Applied Mechanics	3	1	-	100	20	20	-	-	140	4
4	Computer Science & Engg	200214 (22)	Computer Fundamentals and its Application	4	1	-	100	20	20	-	-	140	5
5	Mechanical Engineering	200215(37)	Engg. Drawing	2	4	-	100	20	20	-	-	140	4
6	Computer Science & Engg	200221 (22)	Computer Fundamentals and its Application Lab	-	-	6	-	-	-	100	20	120	3
7	Mechanical Engineering	200222 (37)	Applied Mechanics Lab	-	-	2	-	-	-	50	20	70	1
8	Humanities	200224 (46)	PPA	-	-	2	-	-	-	-	40	40	1
9	Elex. and Teclcom. Engg	234221 (28)	Electronic Workshop	-	-	3	-			50	20	70	2
Total				16	8	13	500	100	100	200	100	1000	29

PPA - PROFICIENCY IN PROFESSIONAL ACTIVITY

L- LECTURE, T. TUTORIAL, P-PRACTICAL.

ESE- END OF SEMESTER EXAMINATION, CT-CLASS TEST, T – TEACHER'S ASSESSMENT.

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI

SEMESTER : II

COURSE TITLE : COMMUNICATION SKILLS -II

THEORY CODE : 200211 (46)

BRANCH / DISCIPLINE : ALL DISCIPLINES

Minimum number of class tests to be conducted: 2

DISTRIBUTION OF MARKS AND HOURS:

S. No.	Chapter No.	Chapter Name	No. of Hours/Periods	Marks
1	1	PASSAGES FOR COMPREHENSION	10	20
2	2	APPLIED GRAMMAR	25	25
3	3	PASSAGES IN GENERAL STUDIES	10	15
4	4	TECHNICAL WRITING	17	20
5	5	LETTER WRITING	18	20
		TOTAL	**80**	**100**

DETAILED COURSE CONTENTS:

Chapter –1 : PASSAGES FOR COMPREHENSION

?? Taming the Atom
?? Radar and its Uses
?? A Volcano
?? Precision – A Measure of Progress
?? Laser

Chapter –2 : APPLIED GRAMMAR

?? Basic Sentence Pattern
?? Infinitives
?? Narration
?? Common Errors
?? Modifiers
?? Paragraph Writing

Chapter –3 : PASSAGES IN GENERAL STUDIES

- ?? Salient Features of the Indian Constitution
- ?? Structure of Government
- ?? Functioning of an Economic System
- ?? Production and Productivity by
- ?? Professional Ethics

Chapter –4: TECHNICAL WRITING

- ?? Technical Writing
  a. A Communication Skill
  b. Basic facts of Technical Writing
- ?? Main Features of Technical Writing
  a. Features of Technical Writing
  b. Style: Literary and Technical
  c. Mechanics of Technical Writing
- ?? Forms of Technical Writing
  a. Forms
  b. Writing Definitions
  c. Writing Technical Descriptions
  d. Writing Technical Descriptions of Processes
  e. Writing Instructions
- ?? . Writing Technical Reports
  a. Qualities of a Good Report
  b. Forms of Reports
  c. Types of Reports

Chapter –5 : LETTER WRITING

- ?? Introduction
- ?? Purposes of Letters
- ?? Characteristics of a Letter
- ?? Mechanics and Style
- ?? Types of Business Letters
  - Letter of Enquiry
  - Answer to an Enquiry

INSTRUCTIONAL STRATEGIES

- ?? Regular assignments should be given on every topics.
- ?? Arranging expert lecture on specific topics.
- ?? Assessment of term work of conduction of minimum two progressive tests during the session.
- ?? Use of Audio-Visual aids.
- ?? Group Discussions.
- ?? Paper Presentation on different topic.

LIST OF TUTORIALS

- ?? Group discussion and seminar
- ?? Small report writing
- ?? Translation works
- ?? Practice of various letter writing / precise writing / essay writing

LEARNING RESOURCES

(a) Reference Books:

Sl.No.	Title	Author, Publisher, Edition & Year
1	Business Communication	Asha Kaul,Prentice Hall of India Pvt.Ltd, New Delhi
2	A Course in Technical English, Book-I	Somaiya Publication Pvt. Ltd. Bombay
3	A Course in Technical English, Book-II	Somaiya Publication Pvt. Ltd. Bombay
4	Living English Structure	W.S Allen
5	Practical English Grammar	Thomos and Martinet
6.	Essentials of English & Business Communication.	Rajendra Pal,J.S Korlahalli S.Chand & Sons, New Delhi.
7.	Grammar & Composition	P R Sarkar, Anand Marg Publication, Easter, Matropolition Calcutta
8.	How To Write Correct English	R P Sinha, Bharti Bhavan Publication, Patna
9	English Errors of Indian Students	Oxford University Publication, By TLH Smith Pearse
10	Passages in General Studies	Vikas Publication, Bhopal

(b) Others:

- ?? VCD
- ?? OHP Transparencies
- ?? Computer Aided Instructional Packages
- ?? Video/Audio Cassettes

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CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI

SEMESTER : II

COURSE TITLE : APPLIED MATHEMATICS-II

THEORY CODE : 200212 (14)

BRANCH/DISCIPLINE : CIVIL/MECH./ELECTRICAL/ METALLURGY/COMPUTER SCIENCE & ENGINEERING/INFORMATION TECHNOLOGY/INSTRUMENTATION/ELEX. & TELCOMMUNICATION

Minimum number of class tests to be conducted: 2

DISTRIBUTION OF MARKS AND HOURS:

Chapter No.	Chapter Name	No. of Hours/ Periods	Marks
1.	NUMERICAL ANALYSIS	02	4
2.	**FINITE DIFFERENCES**	04	6
3.	NUMERICAL DIFFERENTIATION & INTEGRATION	06	10
4.	DIFFERENCE EQUATION	08	10
5.	MATRICS	12	20
6.	SIMPLE INTEGRATION	12	20
7.	FORMATION OF DIFFERENTIAL EQUATION	15	20
8.	LAPLACE TRANSFORMATION	05	10
TOTAL		**64**	**100**

DETAILED CONTENT

Chapter – 1 : NUMERICAL ANALYSIS

?? Bisection Method
?? False Position Method
?? Newton-Raphson Method

Chapter – 2 FINITE DIFFERENCES

- ?? Interpolation forward differences
- ?? Backward differences
- ?? Factorial Polynomial
- ?? Newton's Forward interpolation, formula for equal intervals
- ?? Sterling Formula (Central Difference)
- ?? Newton's Backward Formula
- ?? Lagrange's interpolation formula for unequal intervals.

Chapter – 3 : NUMERICAL DIFFERENTIATION & INTEGRATION

- ?? Numerical Differentiation (Forward & Backward Difference formula)
- ?? Numerical Integration by Trapezoidal & Simpon's Rule

Chapter – 4 : DIFFERENCE EQUATION

- ?? Order of a difference equation
- ?? Solution of Difference equation
- ?? Complementary Section
- ?? Particular Integral.

Chapter – 5 : MATRICS

- ?? Introduction
- ?? Definition
- ?? Special Matrices
- ?? Addition and Subtraction of Matrices
- ?? Multiplication of Matrices
- ?? Transpose of a Matrix
- ?? Symmetric & Skew Symmetric Matrix
- ?? Ad-joint of a Square Matrix
- ?? Inverse of Matrix
- ?? Solution of simultaneous Linear equations
- ?? Rank of Matrix
- ?? Consistency of Linear System of Equations

Chapter – 6 : SIMPLE INTEGRATION

- ✍ Introduction, Definition
- ✍ Method of substitution
- ✍ Integration by parts
- ✍ Integration by Partial Fraction Method
- ✍ Integration of the form and Reduction Formula.
- ✍ Definite Integral – Introduction
- ✍ Theorems Definite Integrals
- ✍ Gamma function

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Chapter – 7 : FORMATION OF DIFFERENTIAL EQUATION

- ?? Differential Equations
- ?? Definition
- ?? Order and Degree of Differential Equations
- ?? Formation of Differential Equations
- ?? Solution of a Differential Equation
- ?? Differential Equation of the first order and first degree
- ?? Variable Separable
- ?? Homogeneous Differential Equations
- ?? Equations Reducible to Homogeneous form
- ?? Linear Differential Equations
- ?? Equations Reducible to the Linear Form
- ?? Exact Differential Equations
- ?? Equation Reducible to the Exact Equations
- ?? Second order Linear Differential Equation with constant coefficient – Complementary function particular integral

Chapter – 8 : LAP LACE TRANSFORMATION

- ?? Definition, Transforms of Elementary functions
- ?? Properties of Lap lace transforms
- ?? Transform of Derivatives
- ?? Transform of Integral

INSTRUCTIONAL STRATEGIES:

- ✍ Chalk and talk method to explain various laws, theorems etc.
- ✍ Expert Lecture
- ✍ Demonstration and use of log tables
- ✍ Classroom practices for different typical exercises
- ✍ Use of derivation and formulas.

LEARNING RESOURCES

(a) Reference Books :

Sl. No.	Title	Author, Publisher, Edition & Year
1	Introductory Method of Numerical Analysis	Sastry S. S. (, PHI)
2	Mathematical Statistics	Ray and Sharma
3	Discrete Mathematics	Liu CL (Tata Mc Graw Hill)
4	Linear Programming	Srinath L.S. (East-West Press)
5	Set Theory and Related Topics Schum's Out Line Series	Tata Mc Graw Hill, New Delhi.
6	Finite Differences and Numerical Analysis	Saxena H.C.
7	Modern Algebra	Sharma and Seth (Ram Prasad and Sons)
8	Computer Oriented Numerical Methods, PHI	Raja Raman V. (PHI)

(b) Others:

- Practice sheets
- Learning Packages
- Work book

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CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI

SEMESTER : II

COURSE TITLE : APPLIED MECHANICS

THEORY CODE : 200213 (37)

BRANCH/DISCIPLINE : CIVIL/MECHANICAL/ELECTRICAL/ METALLURGICAL/INSTRUMENTATION

Minimum number of class tests to be conducted: 2

DISTRIBUTION OF MARKS AND HOURS:

S.No.	Chapter No.	Chapter Name	No. of Hours/Periods	Marks
1	1	FUNDAMENTAL CONCEPTS	3	6
2	2	COMPOSITION & RESOLUTION OF FORCES	8	14
3	3	CENTROID & MOMENT OF INERTIA	7	10
4	4	FRICTION	6	10
5	5	WORK, POWER & ENERGY	7	10
6	6	KINEMATICS	7	12
7	7	KINETICS	7	10
8	8	SIMPLE LIFTING MACHINES	10	14
9	9	TRANSMISSION OF POWER	9	14
		Total	**64**	**100**

DETAILED COURSE CONTENTS:

Chapter – 1 : FUNDAMENTAL CONCEPTS

- Definition of Mechanics, Statics, Dynamics, Kinetics, Kinematics.
- Concept of space, mass, particle, body, rigid body.
- Scalar, vector, fundamental units, derived units.

Chapter – 2 : COMPOSITION & RESOLUTION OF FORCES

- Force- concept, definition, unit, graphical representation.
- Concept of system of forces- non-coplanar, coplanar, concurrent, non-concurrent & parallel forces.
- Composition & Resolution of forces.
- Free body diagrams, law of parallelogram, Varigonon's theorems.
- Equilibrium of Coplanar concurrent forces, parallel forces & non-concurrent forces, Lami's Theorem.
- Moment of a force and Couple.

Chapter – 3 : CENTROID & MOMENT OF INERTIA

- Location of centroid and center of gravity.
- Centroid of regular plane and compound areas.
- Center of gravity of simple solids.
- Moment of Inertia of plane areas.
- Perpendicular & Parallel. Axes theorems.

Chapter – 4 : FRICTION

- Rough & Smooth surfaces, concept of friction.
- Types of friction, Coloumb's law of friction, Co-efficient of friction, angle of friction, angle of repose.
- Friction on inclined plane, Screw and Nut friction.
- Ladder and wedge friction.
- Friction in Journal bearings
- Method of reducing friction.

Chapter – 5 : WORK, POWER & ENERGY

- Definition and unit of Work done, Power and Energy.
- Forms of Energy- Kinetic and Potential Energy.
- Principle of Conservation of power and energy.
- Power of engine and pumps, mean effective pressure, power measurement.
- Relation between Heat & Mechanical work, relation between Electrical & Mechanical energy.

Chapter – 6 : KINEMATICS

- Kinematics in Cartesian and polar coordinates.
- Concept of speed, velocity, acceleration, radial and transverse velocity, particle under uniform and non-uniform acceleration, tangential and normal acceleration.
- Angular displacement, Angular Velocity, Angular Acceleration.
- Motion under gravity.

Chapter – 7 : KINETICS

- Kinetics of particle, motion under constant force, Newton’s Laws of Motion.
- Momentum and energy principles, Impulses and angular momentum.
- D' Alemberts principle.
- Motion under constant torque, Flywheel.

Chapter – 8 : SIMPLE LIFTING MACHINES

- Load, Effort, Mechanical advantage, Velocity ratio, Efficiency and relation between them.
- Law of Machine, Reversibility of Lifting machine.
- Study of Machines- Differential wheel & axel, Weston differential pulley block, Simple Screw Jack, Worm & Wheel, Single and Double purchase Winch, System of pulleys.

Chapter – 9 : TRANSMISSION OF POWER

- Transmission of power through Belt, Rope and Gears,
- Ratio of tension on tight and slack sides.
- Spur, Helical & Bevel gear, Rack and Pinion gear.
- Gear Trains- Simple, Compound, Reverted.

INSTRUCTIONAL STRATEGIES:

- Lecture Method.
- Industrial visits.
- Expert Lecture.
- Demonstration**.** The course shall be taught using the laboratory side by side. Underpinning laws and Principles should be explained using desktop models. Special emphasis should be given on Laboratory experiments.

PRACTICAL

PRACTICAL CODE : 200222 (37)

NO. OF HOURS/PERIODS : 32

LIST OF PRACTICALS / TUTORIALS:

- Verification of law of triangle of forces.
- Verification of law of Parallelogram of forces.
- Verification of law of Polygon of forces.
- Verification of Lami's Theorem by Jib crane method.
- Demonstration of Non-concurrent, Non-Parallel forces (Funicular diagram)
- Verification of Law of Moments.
- Determination of C.G. of a given lamina.
- Determination of coefficient of friction for surfaces of different materials on-
    a) Horizontal Plane
    b) Inclined Plane
- Draw – V-T diagram's for different combinations of-
    a) Velocities
    b) Uniform accelerations
- Find-out Mechanical advantage, Velocity Ratio and Efficiency for following machines-
    a) Simple Screw
    b) Differential Wheel & Axle
    c) Simple Purchase Crab
    d) Differential Pulley Block
- Demonstration of use of inclined plane as a lifting machine.

LEARNING RESOURCES

(a) Reference Books :

Sl. No.	Title	Author and Publisher
1	A Text Book of Applied Mechanics	R.S. Khurmi, S. Chand & Company Ltd., New Delhi
2	Applied Mechanics	I. B. Prasad, Khanna Publisher, New Delhi
3	Applied Mechanics	Ramanathsn, Dhanpat Rai and Sons, New Delhi
4	Engineering Mechanics	Timoshenko & Young, Mc Garawhills Publication
5.	Engineering Mechanics	S. Rajshekaran & G. Sankarsubramaniam, Vikas Publishing House Pvt. Ltd. New Delhi
5	Strength of Material and Mechanics of Structure	Punamia, Standard Publisher Distributor New Delhi

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CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI

SEMESTER : II
COURSE : COMPUTER FUNDAMENTALS AND ITS APPLICATIONS
THEORY CODE : 200214 (22)

BRANCH/DISCIPLINE : CIVIL/MECHANICAL/ELECTRICAL/ METALLURGICAL/INSTRUMENTATION/ELEX. AND TELECOMMUNICATION/ MINING AND MINE SURVEYING

Minimum number of class tests to be conducted: 2

DISTRIBUTION OF MARKS AND HOURS

Chapter No.	Chapter Name	No. of Hours/ Periods	Marks
1.	INTRODUCTION TO COMPUTERS	6	10
2.	MICROCOMPUTER	7	10
3.	DATA REPRESENTATION	6	10
4.	NUMBER SYSTEM	10	10
5.	COMPUTER LANGUAGE	7	10
6.	INTRODUCTION TO DOS OPERATING SYSTEM	8	10
7.	INTRODUCTION TO WINDOWS OPERATING SYSTEM	10	10
8.	COMPUTER APPLICATIONS	10	10
9.	INTERNET APPLICATIONS	8	10
10.	INTERNET CONNECTIVITY	8	10
	Total	**80**	**100**

DETAILED COURSE CONTENT

CHAPTER - 1 **INTRODUCTION TO COMPUTERS**

?? Generations Of Computer.
- First, Second, Third and Fourth generation

Hard Ware, Soft Ware , Firm Ware with Examples.

?? Classification & Applications Of Computers.
- Micro, Mini, Mainframes and Super- Computers
- Applications of computers

CHAPTER - 2 **MICROCOMPUTER**

Structure & Working of Micro-Computers

Block diagram of computer

?? Central Processing Unit

?? Memory Unit

?? Input & Output Devices

CHAPTER – 3 **DATA REPRESENTATION**

?? Number Systems.
- Types of number systems- Binary, Octal, Decimal, Hexadecimal
- Bit Byte ,Nibble, ASCII code,Bcd,Gray,Excess-3,EBCDIC.

CHAPTER – 4 **NUMBER SYSTEM CONVERSION & ITS OPERATIONS**

?? Binary addition, subtraction
- BCD addition, subtraction.
- 1's complement and 2's complement methods of subtraction.

CHAPTER – 5 **COMPUTER LANGUAGES**

?? Classification and characteristics of languages.
- Machine language.
- Assembly language
- High level language

?? Computer Hardware

?? Classification of Software: and firmware

?? System software: O.S. Loader, Linker, Interpreter, Compiler and Assembler

?? Application Software

CHAPTER – 6 **INTRODUCTION TO OPERATING SYSTEMS**

?? Micro-Soft Disk Operating System (MS-DOS)
- System files: BIOS, COMMAND.COM, CONFIG.SYS, Autoexec.bat file

?? MS-DOS Commands.
- Internal Commands- dir, cd, md, rd, del, ren, date, time, vol. And copy
- External commands – attrib, format, edit, find, diskcopy, backup & Restore

CHAPTER – 7 ?? **INTRODUCTION TO WINDOWS OPERATING SYSTEM.**
- Concept of Windows-Arranging, Moving, Resizing, Opening, and Closing of windows
- Folder/ File Management-Search, copy, delete and rename files and folders
- Windows Accessories: Notepad, Word Pad, Paint

CHAPTER – 8 COMPUTER APPLICATIONS SOFTWARE

?? Word processing software
- MS-WORD

?? Data analysis software
- MS-EXCEL Introduction to electronic spreadsheet

?? Presentations software
- MS-POWER POINT

CHAPTER – 9 INTERNET TECHNOLOGY

?? Introduction To Internet.

?? Different Services Of Internet.
- www
- Email
- Chat (textual /voice)
- Bulletin Boards
- Video conferencing
- FTP(uploading and downloading files)

?? Web-Site Access And Information Search.
- Browsers and search engines.

CHAPTER – 10 INTERNET CONNECTIVITY.
- Internet Service Provider (ISP)
- Internet accounts : Shell account, TCP/IP ISDN and Leased Line
- account and its features

?? Hardware Required.
- MODEM and Terminal Adapters.

IMPLEMENTATION STRATEGIES

The subject 'Computer Fundamentals and Applications' is designed to make the student familiar with computer technology and its applications.

?? Chapters 1 to 5 deals with the basics and concepts of computers technology Chapter 6 & 7 deals with the Operating System and Chapter 8 to 10 deals with the application of computers for office automation and Internet technology.

?? The subject is expected to be taught as per the teaching scheme and weightage of marks allotted for topics in theory as well as practical.

?? Chapters 6 to 10 should be covered during the practical sessions.

The students should be given maximum hands on practice to develop skills in operating computer systems and working with different application software. Assignments should be given on real time applications. More assignments can be given as per the availability of time. For effective teaching/learning it is expected that list of questions based on related topics may be given.

PRACTICAL

Practical Code : 200221 (22)

No. of Hours/Periods: 96

LIST OF PRACTICAL / TUTORIALS:

?? Study of input and output devices

?? Study of storage devices

?? Practice on internal and external MS-DOS commands

?? Practice on Windows 95/98/2000
- Starting Windows, Exploring the desktop, Arranging windows, My Computer, The start button, Creating Shortcuts, Practice on moving and sizing of windows
- Study of file organization: creating, copying, moving, renaming and deleting
- Practice on Windows Accessories- Notepad, Word Pad and Paint
- Editing document & formatting text, Previewing and printing document/Image file
- Practice on Windows Explorer
- Recycle bin
- Shutting down windows

?? Practice on MS-Word
- Create and format document
- Edit and Modify text- changing font size type and style
- AutoText, AutoComplete, AutoCorrect, grammar and spellchecker, Find and replace of text
- Open save and print a document
- Insert, modify table

?? Practice on Microsoft Excel
- Create, save & format worksheet
- Open and save worksheet file
- edit & modify data
- use formula and functions
- split windows and freeze pans
- Create, edit, modify, print worksheet/charts .

?? Practice on PowerPoint
- Create, edit, insert, move, slides
- Open and save presentation
- Insert picture, slide layout, action button
- Present slide show

?? Practice on:
- Identification of type of Account.
- Connecting to internet

?? Dial up access
- Web browsing

?? Searching websites

? ? Information searching

- Email services

? ? Creating email accounts & Receiving and sending mails

LEARNING RESOURCES

a) Reference Books

S.No.	Title	Author Publisher & Address, Edition Year
1.	Introduction to Computers	Peter Norton's, Tata McGraw Hills Publishing Co.l Ltd. N. Delhi, IInd Edition, 1998
2.	The ABCs of Ms-Office 97	Gay Hart Davis, BPB Publications N. Delhi, Ist Edition 1996
3.	Computer Organization and Architecture	William Stalling, Prentice Hall of India Pvt.Ltd , N.Delhi, IV th - Edition, 1999
4.	Structured computer Organization	Andrews Tanenbaum, Prentice Hall of India Pvt.Ltd, N.Delhi, III rd- Edition, 1997
5.	Teach yourself…. Windows 95	AL Stevens Comer,BPB Publication, N.Delhi, I st – Edition, 1995
6.	The Internet Book	Douglas E., Prentice Hall of India Pvt.Ltd, N.Delhi, II – Edition, 2000
7	Computer Today	S.K.Basanbhara, Galgotia Publication, 1 st Edition, 2000

b) Others

1. Lab manuals (if any)
2. CAI packages (if any)
3. OHP transparencies Models (if any)

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CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI

SEMESTER : II

COURSE TITLE : ENGINEERING DRAWING

THEORY CODE : 200215 (37)

BRANCH/DESCIPLINE : CIVIL/MECHANICAL/ELECTRICAL/METALLURGY/ INSTRUMENTATION/MINING/COMPUTER SCIENCE & ENGINEERING/ INFORMATION TECHNOLOGY

Minimum number of class tests to be conducted: 2

DISTRIBUTION OF HOURS & MARKS

hapter No.	hapter Name	ours	arks
1.	INTRODUCTION	6	8
2.	DIMENSIONING TECHNIQUES & STANDARD CONVENTIONS	8	8
3.	ENGINEERING CURVES AND SCALES	8	8
4.	ORTHOGRAPHIC PROJECTIONS OF POINTS, LINES AND PLANES	8	10
5.	PROJECTION OF SIMPLE MACHINE PARTS AND COMPONENTS.	8	10
6.	ROJECTION OF SOLIDS	10	12
7.	ECTION OF SOLIDS	10	12
8.	EVELOPMENT OF SURFACES	10	12
9.	OMETRIC PROJECTIONS	10	10
10.	ASICS OF CAD	18	10
	Total	**96**	**100**

DETAILED COURSE CONTENTS

Chapter –1: Introduction

- ?? Introduction to drawing equipments, instruments and their uses
- ?? Planning of drawing sheet as per I.S. 696 – 1972
- ?? Indian standard practices of laying out and folding of drawing
- ?? Different types of lines used in engineering drawing
- ?? Standard practice for writing single stroke vertical and inclined capital and lower cases letters (practice to be done on sketch book)
- ?? Standard practice of writing numerals (practice to be done on sketch book)

Chapter –2: Dimensioning techniques and standard conventions

- ?? Identification and representation of various symbols used in Mechanical and Electrical Drawing
- ?? Drawing Identification and representation of various symbols of building elements, materials and sanitary fittings
- ?? Principles, system and arrangement of dimensioning
- ?? Practice problems of current method of dimensioning

Chapter –3: Engineering curves and scales

- ?? Form associated with engineering curves
- ?? Types of engineering curves
- ?? Method of construction of Engineering Curves
- ?? Practice problems of drawing various Engineering Curves.
- ?? Importance of scale in Engineering drawing
- ?? Types of scales- plain, diagonal etc.
- ?? Practical problems for constructing various types of scale.

Chapter –4: Orthographic projection of points, lines and planes

- ?? Definitions of various terms associated with orthographic projections.
- ?? Planes of projections
- ?? Concept of Quadrants
- ?? First and third angle method of projection
- ?? Projection of line in different positions with respects to H.P. V.P. and X-Y line
- ?? Projection of planes in different position with respect to reference planes
- ?? Practice problems on projection of points, lines and planes.

Chapter –5: Projections of simple machine parts and components

- ?? Procedure for drawing projections and sectional views of simple machine components
- ?? Practice problems of sketching and drawing the projections and sections of simple machine components.

Chapter –6: Projections of solids

- ?? Types of solids and associated terminology
- ?? Position of solid with respect to reference planes
- ?? Drawing projections of solid in different position with respect to reference planes
- ?? Practice problems to draw projections of solid in different positions.

Chapter –7: Section of solids

- ?? Concept of sectioning planes
- ?? Auxiliary planes and true shape of section

?? Practice problems for drawing projections and section of solids.

Chapter –8: Development of surfaces

?? Concept and importance of surface development in engineering field
?? Development of surfaces for the following
  - Cube
  - Cylinder
  - Prism
  - Cone and Frustum cone
?? Practice problems.

Chapter –9: Isometric projections

?? Limitations of orthographic projections
?? Definitions of the terms axonometric, oblique, Isometric and diametric projections
?? Procedure for preparing isometric oblique
?? Isometric view of geometrical solids and simple machine parts
?? Practice problems.

Chapter –10: Basics of CAD

?? Computer hardware and software requirement for CAD
?? Co-ordinate systems
?? Set up for a CAD drawing
?? Drawing objects like- Line, Circle, Arc, Ellipse, Regular Polygons, Polylines, Donuts etc.
?? Editing Commands like- Move, Copy, Rotate, Scale, Fillet, Chamfer, Trim, Extend, Array, Mirror etc.
?? Basic dimensioning, geometric dimensioning and tolerance
?? Use CAD commands for simple orthographic and isometric drawings

INSTRUCTIONAL STRATEGIES

?? Lecture Method
?? Demonstration and use of instrument used in drawing.
?? Classroom practices for different typical exercises.
?? Use of computer for developing drawing
?? OHP Transparencies for complicated drawing objects

LIST OF TUTORIAL WORK

?? Problems on Scales and Letterings (One sheet)
?? Problems on Curves (One sheet)
?? Simple Orthographic Projections- One for First Angle and One for Third Angle Projection (Two sheets)
?? Orthographic projections with sections (One sheet)
?? Isometric projection for two objects (One sheet)
?? Projection of Points and Lines (One sheet)
?? Projection of Planes (One sheet)
?? Projection of Solids (Two sheets)

?? Section of Solids (Two sheets)
?? Development of surface (Two sheets)
?? Use CAD for orthographic projection (Five problems)
?? Use CAD for isometric projection (Three problems)

LEARNING RESOURCES

a) Reference Books

S.No.	Title	Author/Publisher
1.	I.S. 696. (Latest revision).	BIS, India
2.	Engineering Drawing	N.D. Bhatt, Charoter Publisher,Anand
3.	Engineering Drawing & Machine Drawing	R. K. Dhawan, Kumar
4.	Engineering Drawing	R.B. Gupta, Satya Prakashan, Delhi
5.	Geometrical Drawing	P.S. Gill , ketson & Sons
6.	Machine Drawing	By P.S. Gill, ketson & Sons
7.	Engineering Drawing	Gujral & Shende, Khanna Pub. N.Delhi
8.	Work Book in Mechanical Drafting	TTTI, Bhopal
9.	Engineering Drawing & Graphics Using AutoCAD 2000	T. Jeyapoovan, Vikas Publishing House Pvt. Ltd, New Delhi.

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CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI

SEMESTER : II

SUBJECT TITLE : PROFICIENCY IN PROFESSIONAL ACTIVITY (PPA)

CODE : 200224 (46)

BRANCH/DISCIPLINE : ALL DISCIPLINES

DISTRIBUTION OF MARKS AND HOURS:

Chapter No.	Chapter Name	No. of Hours/ Periods	Marks
1	Presentation Skills	8	9
2	Learning To Learn Skills	3	5
3	Study Skills	3	5
4	Information Search	5	5
5	Time Management	3	5
6	Personality	5	5
7	Personal Grooming	5	6
TOTAL		**32**	**40**

In this particular subject though it has been classified as practical, it maybe essential to take up certain theory classes and assignments this may include expert lectures, group discussion, plenary session etc.

DETAILED COURSE CONTENTS:

Chapter – 1 : PRESENTATION SKILLS :

Oral Presentation :

?? Need of effective oral presentation.
?? Characteristics of good oral presentation.
?? Ways of Oral Presentation (Seminar, Viva-voce, Interview, Group Discussion, Lecturing, Power Point etc.)
?? Gestures/Mannerism during oral presentation Media, methods used for effective oral presentation.
?? Assessment of oral presentation.

Written Presentation :

?? Need of written presentation.
?? Characteristics of written presentation.
?? Ways of written presentation (Report writing, manual, handout, notes etc.).
?? Grammar, Punctuation, referencing paragraphing during written presentation.

Chapter – 2 : LEARNING TO LEARN SKILLS :

?? Need of Learning to Learn Skills.
?? Type of Learning Skills (Learning face to face, Individualized learning, Distance learning, Self-learning).
?? Developing Learning to Learn Skills.

Chapter - 3 : STUDY SKILLS :

?? Methods of Good Study Habits
?? Note Taking
?? Developing Reading Skills

Chapter – 4 : INFORMATION SEARCH :

?? Objectives of information search.
?? Ways of information search (Internet surfing, Library search, Abstracts, Journals, books etc.)
?? Assimilation and presentation of information.

Chapter – 5 : TIME MANAGEMENT :

?? Principles of Time Management.
?? Time Management matrix.
?? Criteria governing Time Management.
?? Possible time waster

Chapter- 6 : PERSONALITY :

?? Concept and meaning of personality
?? Characteristics of good personality
?? Factors influencing personality
?? Types of personality.
?? .Need for desirable personality for success
?? Qualities of complete personality.

Chapter - 7 PERSONAL GROOMING:

?? Posture and Health.
?? Types of posture.
?? Importance of posture.
?? Factors affecting good health-diet, exercise personal cleanliness, sleep and rest.
?? Use of cosmetics.
?? Dress Code
?? Physical Fitness and Inner Strength

INSTRUCTIONAL STRATEGIES:

- ?? Lecture Method.
- ?? Industrial visits.
- ?? Expert Lecture.
- ?? Demonstration
- ?? Assignments-Individual and Group
- ?? Group Discussions
- ?? Presentation

LIST OF PRACTICALS

- ✍ Seminar Presentation on Specific topic for fixed time duration
- ✍ Information Collection on a particular topic followed by presentation in specified time duration.
- ✍ Visit to multinational outlet for observing personality traits of officials and preparing detailed report
- ✍ Demonstration exercise by personality experts
- ✍ Guest lectures by well known personality

LEARNING RESOURCES:

(b) Reference Books

Sl. No.	**Title**	**Author, Publisher, Edition & Year**
1	How to achieve success and happiness	Sultan Chand and Sons,New Delhi
2	How to develop effective personality	Dr Mittal and Agarwal CS
3	The Art of Public Speaking	Stephen E Lucas
4	Public Speaking and Influencing Business	Dale Carnegie

(b) Others:

- ✍ Video Programs.
- ✍ Learning Packages.
- ✍ Computer with internet facilities
- ✍ Television
- ✍ Charts.

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CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI

SEMESTER : II

COURSE TITLE : ELECTRONICS WORKSHOP

CODE : 223221 (28)

BRANCH / DISCIPLINE : INSTRUMENTATION ENGINEERING

NO. OF PERIODS/HOURS : 48

DETAILED COURSE CONTENTS:

Chapter – 1 ELECTRONICS COMPONENTS & IDENTIFICATION

✍ **RESISTORS :**
- Various types of Carbon Resistors & their Application.
- Wire-wound Resistors& their Application.
- Metal Resistors & their Application.
- Printed Circuit Resistors & their Application.

✍ **CAPACITORS :**
- Electrolytic Capacitor & their Application.
- Paper Capacitor & their Application.
- Ceramic Capacitor & their Application.
- Mica Capacitor & their Application.
- Polystyrene.
- Variable Capacitor.
- Trimmer.

✍ **COILS :**
- Transformers.
- Relays.
- Radio, RF and Antenna Coils.

✍ **DISPLAYS :**
- Light Emitting Displays (LED), 7-Segment LED, Matrix LED.
- Alpha-Numeric Display.
- Liquid Crystal Displays (LCD).

✍ **ACTIVE DEVICES :**
- Diodes.
- p-n Junction Diode, Zener-Diode, Photo-Diode, IR Diode.
- Transistors.
- BJT, UJT, FET, MOSFET, P-MOS, N-MOS, C-MOS
- Ics.
- Type of C-Packaging (Metal Can / DIL / Flat etc.)
- Various Series of Linear / Analog & Digital Series.

✍ **COMMON TOOLS & ACCESSORIES**

✍ CUTTING & BENDING TOOLS
- Wire Cutter.
- Wire Stripper.
- Wire Lead Bender.
- Various types of Pliers.
- Vice.
- Crimping Tools (RJ-11 / RJ-45).
- Tongs & Tweezers.
- Screw-Drivers.

✍ **DRILL MACHINE :**
- Hand Drill Machine (Electric & Manual)
- Bench-Drill Machine

✍ SOLDERING TOOL
- Soldering Iron.
- Soldering Gun
- De-soldering Pump
- Soldering Work Station

1.0 **SOLDERING TECHNIQUES**

?? SOLDER MATERIALS
- Composition of Solder-Wire
- Flux & Flux-Material

?? SOLDERING METHODS
- General Soldering Procedures
- Bits used for various type of soldering
- Measures for Good Soldering
- Identification of Faulty Solder Joints

?? Printed Circuit Boards
- Various types of PCB Materials & their uses
- General Purpose PCBs
- General concept of PCB Lay-out Design

Chapter – 2 COMMON MEASURING INSTRUMENTS

Use of :
- Multimeter
- Panel Meters
- LCR Meter
- Regulated Power Supply
- Cables and connectors
- Function Generator and CRO

✍ SYMBOLS & CIRCUIT DIAGRAM :L

- Symbols For Electrical Circuit- Elements.
- Symbols For Electronics Devices & Circuit Elements.
- Symbols For Programming Flow-Chart.
- Symbols For Commonly Used Circuit-Blocks.
- Circuit Drawing Techniques.
- Labelling Of Circuit Elements.
- Specification Of Electronic Component.

DURATION OF END SEMESTER PRACTICAL EXAMINATION: 3-Hrs.

LIST OF PRACTICALS:

1. Identify the various types of resistances and Find out the values from color bands on / written values them.
2. Find out the vale of a resistance with the help of Color-Bands & by use of Multi-meter and the difference in values.
3. Identify the various types of Capacitances and Find out the values using Color Code / written values on them.
4. Identify the type of Components and Find out the values using LCR-Meter.
5. Identify the terminals of a Diode and its Polarity.
6. Identify the terminals of a Transistor and its Type (n-p-n or p-n-p)
7. Check the continuity of a printed line on a PCB using Multi-meter.
8. Identify the various tools & write down their uses.
9. Identify the various type of connector used in various Gadgets & Instruments / Equipments
10. Identify the various types of Copper-Clads and write down their application.
11. Draft a design lay-out for a FW – Rectifier (On Paper / Graph) using Pen / Pencil / Drafting Aid.
12. Solder the joint connection of wires and check it. De-solder it and Re-solder.

INSTRUCTIONAL STRATEGIES:

1. Available resources in the institution may be used for the identification of type of Tools & Tackles, commonly used in Electrical / Electronics Workshop.

2. Visits in the nearby industries may be organized for viewing the production line and the use of Tools & Tackles, Instruments.

3. Explanation of the method for the selection of Materials (Type, Quality, Quantity, Size etc.) in the laboratory.

4. Motivating to adopt Safety Precautions & Procedure for developing Safety Awareness towards the handling of Tools, Equipments, Chemical Hazards etc.

5. Retracing the PCB Lay-out of Electronic Gadget to understand the procedure of PCB Lay-out drafting.

LEARNING RESOURCES:

(a) REFERENCE BOOKS

Sl.No.	Title	Author, Publisher, Edition & Year
1	Printed Circuit Board . Design & Technology	Collin Boschart,Tata mcliraw thill New I
2	Basic Eletronics & Linear circuits,	Bhargava & Gupta, Tata megrow
3	Practical Semiconductor Data Manuals	BPB Publication new Delhi
4	Transistor Selector Data Manual	Towers International BPB Publications, Delhi.
5	A course in Electrical Engg. Materials	S P seth & A.V Gupta,Dhanpat Rai & S
6.	Electronic Computer & Materials	M.V. Jarhi A.H. Wheeler & Co., Allah
7.	Electrical Engg. Materials	A. J Dekker.

b) LAB. MANUAL

Lab . Manual & Teacher Guide in Basic Electronics,
by TTTI Bhopal & DTE Goa.

c) NON PRINT MATERIAL

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