

**Scheme of Teaching and Examinations for
II Semester DIPLOMA in ARCHITECTURAL ASSISTANTSHIP (Group-II)**

THEORY

Sr. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME		EXAMINATION – SCHEME						
			Periods per Week	Periods in one Session (Year)	Hours of Exam.	Terminal Exam. (A) Marks	Final Exam. (B) Marks	Total Marks (A+B)	Pass Marks Final Exam.	Pass Marks in the Subject	
1.	Engineering Mathematics-II	00201	06	60	03	20	80	100	26	36	
2.	Free Hand Sketch	37202	06	50	03	20	80	100	26	36	
3.	History of culture	37203	06	60	03	20	80	100	26	36	
4.	Elementary Mechanical Engineering & Engg. Material	02204	04	60	03	20	80	100	26	36	
5.	Language & Communication Skill	02205	04	60	03	20	80	100	26	36	
Total :-								26	500		

PRACTICAL

Sr. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME		EXAMINATION – SCHEME						
			Periods per Week	Periods in one Session (Year)	Hours of Exam.	Marks Internal Exam. (A)	Marks External Exam. (B)	Total Marks (A+B)	Pass Marks Final Exam.	Pass Marks in the Subject	
6.	Workshop Practice.	02208	12	120	06	10	40	50	16	21	
Total :-								12	50		

SESSIONAL

Sr. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME		EXAMINATION – SCHEME			
			Periods per week	Periods in one Session (Year)	Marks of Internal Examiner (X)	Marks of External Examiner (Y)	Total Marks (X+Y)	Pass Marks in the Subject
7.	Workshop Practice.	02209	—	—	40	60	100	50
8.	Free Hand Sketch	37210	—	—	40	60	100	50
Total :-							200	
Total Periods per week			38		Total Marks = 750			

ENGINEERING MATHEMATICS-II

Subject Code 00201	Theory			No of Period in one session : 60		
	No. of Periods Per Week			Full Marks	:	100
	L	T	P/S	Annual Exam.	:	80
	06	—	—	Internal Exam.	:	20

Rationale:

The Subject Engineering Mathematics is being introduced into the Diploma Course to provide mathematical background to the students so that they can be able to grasp the engineering subjects properly. This course will enable them to analyse and understand the engineering problems scientifically based on Mathematics.

The subject is divided into two papers, viz. Engineering Mathematics - I and Engineering Mathematics - II. The paper Engineering Mathematics - I consists of the following:

1. Algebra
2. Trigonometry
3. Co-ordinate Geometry

The details are given in the curriculum:

Objectives:

- By covering the course in Engineering Mathematics - I, the students will be able to:
- Know Sequence & Series, Permutations and Combinations, Binomial Theorem, Determinates and Matrices, Properties of Triangles, Solution of Trigonometrical equations, Inverse Circular functions, complex quantities, co-ordinate systems, equations of lines, circles, equations of lines in three dimensions, equation of plane,
- Understand their engineering applications.
- Solve related simple numerical problems which will enable them to understand the subject.

S.No.	Topics	Periods
01	Algebra - Sequence & Series - Principle of Mathematical Induction - Permutation and Combination - Binomial Theorem - Determinants and Their Properties - Matrix Algebra - Complex Number	(30)
02	Trigonometry - Trigonometrical ratios of compound angles up to conditional Trigo nometrical Identities - Properties of Triangle - Logarithm - Solution of Triangles & General Value - Inverse Circular Function	(15)
03	Co-ordinate Geometry - Two dimensional : upto equation of circles - Three dimensional: upto straight line	(15)

CONTENTS:

TOPIC: 01 - ALGEBRA:

01.01	Sequence & Series: Arithmetic Progression (A.P.), Simple examples of A.P., Geometrical Progression (G.P.), Sum to infinity of a G.P., Sum of Squares and cubes of a naturals, idea of Harmonic Progression (H.P.), Relation between Arithmetic mean, Geometrical Mean and Harmonic mean. Insertions of AMs, GMs & HMs between two numbers.	Periods [08]
01.02	Principle of Mathematical Induction	[02]
01.03	Permutations & Combinations: Introduction, Fundamental Principle of counting; The Factorial; Permutations, Simple practical problems on permutation; Combinations; simple practical problems on combinations.	[04]
01.04	Binomial Theorem: Binomial Theorem for positive Index, Some applications of Binomial Theorem for any Index, Idea of Exponential and Logarithmic Series. (Simple Problem).	[04]
01.05	Determinates: Determinants and their fundamental properties, simple problem, Difference between determinant and a matrix.	[02]

01.06	Matrices: - Different types of Matrices - Algebra of Matrices - Transpose, Adjoint & Inverse of Matrices - Solution of linear simultaneous equations by matrix method	[04]
01.07	Complex Numbers: Idea of a complex number, its geometrical representation, Modulus and Amplitude, Conjugate of a Complex number, Addition & Subtraction of a complex number with geometric notation, Multiplication and Division of one complex number by another with geometric representation. Idea of DeMoivre's Theorem, Roots of a Complex and Cube root of unity.	[04]
01.08	Number System: Binary, octal, Decimal & Hexadecimal system. Radix conversion. Idea of Boolean Algebra	[02]

TOPIC: 02 - TRIGONOMETRY:

02.01	Trigonometrical ratios of Compound angles. Trigonometrical ratios of Multiple sub-multiple angles, transformation formulae & conditional Trigonometrical identities.	[04]
02.02	Properties of Triangle: Relations between the side and angles of a triangle. Simple problems based on it.	[04]
02.03	Logarithm: Definition, Fundamental Rules and properties of Logarithms.	[02]
02.04	General Values and Inverse Functions: Formulae for all angles which have a given Sine, Cosine and Tangent. Formulae for angles both equi-sinal and equi-cosinal Inverse Circular Functions, Solution of Equations expressed in inverse notation.	[05]

TOPIC: 03 - CO-ORDINATE GEOMETRY:

03.01	Two Dimensional Co-ordinate Geometry	
03.01.01	Idea of cartesian and polar co-ordinate systems. Relations between them.	[01]
03.01.02	Distance between two points, section formula and Area of Triangle. Intelligent questions based on these (cartesian system only), centroid and incentre of a triangle.	[02]
03.01.03	Equations of Locus: Equation of a straight line in different forms. Angle between two straight lines and their deduction, equation of circle, simple problem.	[04]
03.02	Three Dimensional Co-ordinate Geometry	
03.02.01	Co-ordinates of a point, Distance between two points, Section formula (Cartesian system only)	[01]
03.02.02	Direction Cosines, Angle between two lines, Important deductions.	[02]
03.02.03	Plane, Projection of the join of two points on a plane, Equation of plane, Angle between two planes, Important deductions.	[02]
03.02.04	Equation of a straight line as intersection of two planes, Symmetric form of a straight line, simple problem.	[03]

Books Recommended:

Engineering Mathematics - I

1.	Mathematics for Class XI Part I	- NCERT/R. S. Aggawal/R.D.Sharma
2.	Mathematics for Class XI Part II	- NCERT/R. S. Aggawal/R.D.Sharma
3.	Mathematics for Class XII Part I	- NCERT/R. S. Aggawal/R.D.Sharma
4.	Mathematics for Class XII Part II	- NCERT/R. S. Aggawal/R.D.Sharma
5.	Algebra	Dr. K.C. Sinha/ Lalgı Pd./Das & Gupta
6.	Trigonometry	Dr. K.C. Sinha/ Lalgı Pd./Das & Gupta
7.	Co-ordinate geometry	Dr. K.C. Sinha/ Lalgı Pd./Das & Gupta
8.	Solid geometry	Dr. K.C. Sinha/ Lalgı Pd./Das & Gupta

Reference Books:

1.	Engineering Mathematics - Part I & Part II	- H.K. Dass, S. Chand & Co.
2.	Polytechnic Mathematics for Diploma level	- H.K. Dass, S. Chand & Co.

FREE HAND SKETCH

Subject Code 37202	Theory			No of Period in one session : 50		
	No. of Periods Per Week			Full Marks	:	100
	L	T	P/S	Annual Exam.	:	80
	06			Internal Exam.	:	20

Rationale

Free hand sketching plays very important role to inculcate interest among the students in the field of drawing. It also helps in developing the skills required for preparing various types of drawings and design. Considerable emphasis on outdoor sketching should be given to attain the required skills in the subject.

Detailed Contents

Free Hand Sketching Exercises in pencil only:

1. Free-hand line exercises of different types of lines (horizontal, vertical, diagonal grid (1 Sheet)
2. Free hand sketching of two-dimensional geometrical figures. (Square, circle, Triangles and Ellipses etc.) (2 Sheets)
3. Free hand sketching of three – dimensional geometrical objects. (Cube, Cones, Prism, Pyramids, Spheres Cylinders etc).(2 Sheets)
4. Free hand sketching of sets of figures and objects. (2 Sheets)
5. Free hand sketching of human figures, trees furniture and vehicles etc. (2 Sheets)
6. Free hand sketching of small buildings with shade and shadow sheets. (2 Sheets)
7. Free-hand sketching of buildings with trees, human figures, sky, clouds and birds and other landscape elements, using various mediums like pencil, ink and colours (water colours and pencil colours etc) (2 sheets)
8. Free-hand sketches of various scenes such as railway-station, parking places, bus stand, market scene, village scene etc. (2 sheets)

Note: Students are also required to maintain sketchbooks for outdoor sketching.

Recommended Books

1. Time Saver Standards for Building Types by Joseph De Chiara and John Callendera
2. Architects Data by Neufert
3. Space, Time and Order by DK Ching
4. Rendering with Pencil and Ink

HISTORY OF CULTURE

Subject Code 37203	Theory			No of Period in one session : 60		
	No. of Periods Per Week			Full Marks		
	L	T	P/S	Annual Exam.	:	80
	06			Internal Exam.	:	20

RATIONLE

The course on History of Culture develops appreciation regarding past and current trends in the field of architecture. The knowledge of this course will help the students to understand how political, physical, social, economical and technological changes affect the architecture, materials and construction techniques. The course covers broad topics like: pre-historic architecture, important civilizations, (Indian, Egyptian, Greek and Roman), medieval architecture in Europe, and temple architecture and Buddhist architecture in India.

The teacher should try to create interest among the students for this course by organizing site visits to the local old monuments. Audio-visual aids should also be used to explain various architectural developments. While imparting instructions, teacher should stress upon the context of form and space, construction methods structural systems and materials. The teacher should motivate the students to take general reference for form, drawings structural solutions and materials from the history, while designing their project.

DETAILED CONTENTS

1. Pre Historical Architecture and Introduction to History of Architecture (15)
 - 1.1 Importance of history to understand the Architecture.
 - 1.2 Examples of Early shelters, Stone Age, Tumuli, etc. as expression of man's physical and spiritual needs.
 - 1.3 Determinants of built form – geo physical, societal, technological etc. (Early caves, timber huts, stone houses etc).
2. Western Civilization (15)
 - 2.1 Egyptian Civilization Concept of the Royal Necropolis, locational context and architectural characteristics of public buildings, e.g. Mastabas (master of sakara) pyramids and temples (rock – cut and structural) – one example of each type to be chosen. Mesopotamian Civilization the urban context and architecture of public buildings (Ziggurats and palaces) - one example of each.
3. Greek Civilization (15)
 - 3.1 Greek towns, location and characteristics of typical civic spaces such as Agora, Acropolis, Theatres etc.
 - 3.2 Significant characteristics of Greek Architecture such as Materials, construction systems, system of proportioning, Greek orders, architecture of Greek temples – Parthenon, Athens.
4. Indian Ancient Civilization (15)
 - 4.1 Indus Valley Civilization: Form of the Harppan city, location and role of public buildings.
 - 4.2 Architecture of the typical Harappan dwelling, Granary and Bath.
 - 4.3 The Vedic Village, building typology and construction.

Note: While imparting instructions wherever possible, in this subject, the teachers should organize site visits to the old monuments and buildings with extra-ordinary architectural features. Experts/Guides should be invited to deliver lectures on the relevant themes in order to generate interest in the students. Audio-visual materials available on the subject, in the country and abroad, be procured and presented to the students from time to time to enrich the quality of classroom instructions. Special architectural features of some old/historical famous Indian and International buildings may be presented to the students as case studies. Students may be encouraged to prepare case studies of at least one famous old/historical building. The teachers and students may visit web sites, relevant to the history of architecture.

RECOMMENDED BOOKS

- 1 History of Architecture by Sir Banister Fletcher
- 2 Indian Architecture (Hindu Period) by Parcey Brown
- 3 Indian Architect ate (Hindu and Buddhist Period) by Satish Grover
- 4 Encyclopedia of Architecture.

ELEMENTARY MECHANICAL ENGINEERING AND ENGG. MATERIAL

Subject Code 02204	Theory			No of Period in one session : 60		
	No. of Periods Per Week			Full Marks	:	100
	L	T	P/S	Annual Exam.	:	80
	06	-	-	Internal Exam.	:	20

Rationale & Objective:

The technicians have to handle and deal with so many materials to be used in construction of Engineering product and making machine tools and structures etc. They have to face many problems involving general mechanical, electrical, electronics and civil Engg. As such the knowledge of general Engg. principles of different branches is essential for a Diploma holder. The course has been designed with a view to include various materials commonly used in Engineering Constructions and general principles of working of different machine tools.

<u>S.No.</u>	<u>Topics</u>	<u>Periods</u>
GROUP - A (Mechanical Engineering)		
1.	Simple machines	(06)
2.	Introduction of ferrous & Non ferrous metals	(05)
3.	General Process	(03)
4.	Heat Engines & fluid machines	(06)
5.	Power Transmission	(07)
6.	Boilers	(03)
	Separate answer books for group A & group B should be given in examination & answer books should be examination by Mechanical & Civil Engg. Teachers separately.	[30]
GROUP - B (Engineering Material)		
7.	Stones	(03)
8.	Clay Products	(03)
9.	Cement & their products	(05)
10.	Timber	(03)
11.	Miscellaneous Material	(16)
		[30]

CONTENTS:

GROUP - A (MECHANICAL ENGINEERING)

TOPIC: 01 – SIMPLE MACHINES **[06]**
Introduction to simple machines, M.A, U.R, & η of simple wheel & Axle, Compound wheel & Axle, Screw jack, worm & worm wheel, Rack & pinion (simple numericals only)

TOPIC: 02 :- Introduction to ferrous & non ferrous metals **[05]**
Physical & mechanical properties & uses of ferrous metals & Alloys & non ferrous metals like, Al, Cu, Zn, & their alloys Properties & uses.

TOPIC: 03 :- GENERAL PROCESS **[03]**
03.01 Introduction to Soldering, brazing & welding.
03.02 Application of soldering, brazing & welding.
03.03 Flame Cutting and Welding.
03.04 Different types of flames used
03.05 Safety precautions in Welding.

TOPIC: 04 - HEAT ENGINES & FLUID MACHINES **[06]**
04.01 Introduction to External & Internal Combustion engines.
04.02 Difference between External & Internal Combustion engines.
04.03 Concept of Heat work and Energy. Thermodynamic system and their properties. (Introduction only)
04.04 Introduction of Two-stroke and four-stroke I.C. engine, their working principles. water wheel, Introduction to Impulse & reaction turbine ,(Pelton, Francis & Kaplan Turbine, working Principle only.)

TOPIC: 05 - POWER TRANSMISSION **[07]**
05.01 Power transmission by belt
05.02 Rope chain & gear drive
05.03 Open & cross belt drive
05.04 Relation between tight side & slack side tension
05.05 Centrifugal tension, simple & compound
05.06 Gear drive, gear train.

TOPIC: 06 – BOILERS(Steam Generators) [03]

- 06.01 Classification of boilers - Fire tube & water tube boiler. Working principle of classification boilers, working principle of Cochran boiler.
- 06.02 Boiler accessories & Mounting, their functions.

GROUP - B (ENGINEERING MATERIAL)

TOPIC: 07 - STONES: [03]

- 07.01 Introduction of stones as engineering materials
- 07.02 Classification of Rocks, qualities, selection and uses of different types of stones in various engineering construction works.
- 07.03 List of tests on stones,
- Dressing of stones & quarrying of stones.

TOPIC: 08 - CLAY PRODUCTS: [03]

- 08.01 Common Clay products, (Vitrified, Porcelain) their manufacture and application.
- 08.02 Uses of brick and characteristics of good bricks.

TOPIC: 09 - CEMENT & THEIR PRODUCTS [05]

- 09.01 Lime:
- Introduction, Manufacturing Process
- Different types of limes & its applications,
- 09.02 Cement:
- Introduction, Manufacturing process
- Different types of cements, their ingredients and applications, grade of cements, storage of cement.

TOPIC: 10- TIMBER [03]

- 10.01 Classification of Timber
- 10.02 Characteristics of good timber
- 10.03 Introduction of seasoning of timber
- 10.04 Preservation of timber and its uses

TOPIC: 11 - MISCELLANEOUS MATERIALS [16]

- 11.01 Plastics:
- Introduction, important commercial products of plastics used in engineering works
- Types of plastics - Thermoplastic & Thermosetting, Epoxy Resins
- 11.02 Glass:
- Types of glass
- Composition of glass
- Uses of glass as industrial material
- 11.03 Adhesive:
- Types of Adhesive
- Its ingredients and uses sealant & joints fillers
- 11.04 Rubber:
- Characteristics of Rubber
- Types and uses of Rubber
- 11.05 Available forms of Aluminum as structural cladding & partition
Different type of bar section & their uses.

Books Recommended:

- | | | |
|----|------------------------|---------------------------|
| 1. | Workshop Technology | - By Hazare and Choudhary |
| 2. | Heat Engine | - By Pandey & Saha |
| 3. | Engineering Material | - By Banga & Sharma |
| 4. | Engineering Material | - By Narang |
| 5. | इंजीनियरिंग पदार्थ | - जनार्दन झा |
| 6. | Electrical Engineering | - By Uppal |
| 7. | वैद्युत अभियांत्रिकी | - डी.आर. नारायण |

LANGUAGE & COMMUNICATION SKILL (ENGLISH & HINDI)

Subject Code 02205	Theory			No of Period in one session : 60		
	No. of Periods Per Week			Full Marks	:	100
	L	T	P/S	Annual Exam.	:	80
	04	-	-	Internal Exam.	:	20

Rationale & Objective:

The primary aim of this course is to help technical students studying in Polytechnics and Engineering Institutes acquire the skills of language and communication in order to be successful in their studies and subsequent professional life. It has been found that in the world of work of diploma holder they have to perform various job functions like Letter Writing, maintaining office records, drawing up tender notices, writing technical reports, communicating with sub-ordinate staff and/or labourer and with superiors.

The curriculum has been designed to improve the knowledge of the Language, comprehension and its application to develop communication skill.

The curriculum also seeks to develop the student's power of oral communication through effective use of body language and necessarily puts knowledge to practice through exposure in varied form.

The curriculum has been designed both in English & Hindi languages.

S.No.	Group	Topic	Periods	Marks
1	A	ENGLISH	30	50
2	B	HINDI	30	50
Total:			60	100

GROUP - A [ENGLISH]

S.No.	Topic	Periods
01	A. Language Practice	[08]
	B. Oral Communication	[05]
02	Comprehension	[03]
03	Paragraph Writing	[02]
04	Letter Writing	[04]
05	Tender Notice & Advertisement	[04]
06	Report Writing	[04]
Total:		30

CONTENTS:

TOPIC 01(A) - Language Practice:

[08]

- 01.01 Tenses of verbs
- 01.01.01 Writing about the Present
 - Subject verb agreement
 - Negative statements
 - Is/ Are VERB - ed (is needed, are powered etc.)
- 01.01.02 Writing about the Past
 - VERB - ed (Past Simple)
 - Was/ Were VERB - ed (Past simple passive)
 - Has/ Have VERB - ed
 - Has/ Have been VERB - ed
 - Has VERB - ed + VERB - ed (Past perfect + Past simple)
(The demonstration has already started before the office broke for lunch)
 - Was/ Were VERB - ed + VERB - ed
(Past continuous + past simple)

- 01.01.03 Writing about the Future
- Shall/ Will VERB (Future simple)
 - Shall/ Will be VERB - ed (Future simple passive)
- 01.02 Auxiliaries
- Use of can could, will would, shall should, may might etc.
(Drilling exercise with suitable examples to be done)
- 01.03 Word Formation
- Common roots in Technical English
 - Noun endings, -tion, -ment, -ance, -ity, -logy, -meter, -metry, -or, -er etc.
 - Prefixes that mean NOT: in, on, non, il, im, de, dis, mis, mal
 - Words that end with: -ize, -ate, -ify
 - Adjectives that end with: -al, -ic, -ical, -ar, -ary, -ory, -ing
- 01.04 Single Word Substitution
- Drilling of exercise
(Page No. 147 to 151 of Text Book)
- 01.05 Sentence Structure
- Completing, joining, reframing (for emphasis) and transformation of sentences
- 01.06 Punctuation
- Correct use of comma, semi-colon, colon, full stop, apostrophe, inverted commas, note of exclamation, note of interruption, dash, brackets, hyphen, capital letters and italics.

TOPIC 01(B) - Oral Communication:

[05]

- Manners & basic etiquettes
- Body Language - the role of body postures, movements, gestures, facial expressions, dress & make up in effective communication
- Information/ Desk/ Front Office/ Telephone conversation
(Practice with audio/ video cassettes)
- Conduct while facing interviews (Mock Interview)
- Group discussions, debates, elocution

TOPIC 02 - Comprehension:

[03]

- 02.01 Prescribed unit from communication in English for Technical Students (Orient Longman):
- i. Uses of Mango Wastes
 - ii. Making Money in India
 - iii. Radar: its operation and benefits
 - iv. Technology for Mankind

TOPIC 03 - Paragraph Writing:

[02]

- 03.01 General – Specific
- 03.02 Process – Description
- 03.03 Problem – Solution
- 03.04 Data – Comment

TOPIC 04 – Letter/ Application Writing:

[04]

- 04.01 Official letters to an from higher authorities/ departments regarding administrative/ establishment/ financial matters.
- 04.02 Commercial letters regarding enquiries/ proposals for purchase/ service.
- 04.03 Drafting application for jobs - format, style & contents

TOPIC 05 - Tender Notice & Advertisement:

[04]

- 05.01 Inviting Tenders/ Quotations - format & contents, formalities involved, placing orders.
- 05.02 Drafting advertisements for 'situation vacant'/ 'situation wanted' columns, for sale/ purchase of items etc.

TOPIC 06 - Report Writing:

[04]

- 06.01 Types, structure and utility of reports
 06.02 Technical reports
 06.02.01 Project reports
 06.02.02 Enquiry reports
 06.02.03 Stock verification reports etc.

(The teacher should help the students in the preparation of their project report)

Books Recommended:**Text Book:**

1. Communication in English for Technical Students - prepared by C.D.C., T.T.T.I. Calcutta (Orient Longman)

Reference Books:

1. An Intermediate English Practice Book - by S. Pit Corder (Orient Longman)
 2. Living English Structure - by W.S. Allen (Orient Longman)
 3. Advance Learner's Dictionary - by A.S. Hornby (O.U.P.)

GROUP - B [HINDI]

क्रम सं.	पाठ्य	व्याख्यान
01	भाषा अभ्यास	[08]
02	मौखिक सम्प्रेषण	[05]
03	अपठित गद्यांश और प्रश्नोत्तर	[03]
04	अनुच्छेद लेखन	[02]
05	पत्र/ आवेदन लेखन	[04]
06	निविदा सूचना एवं विज्ञापन	[04]
07	प्रतिवेदन लेखन	[04]
कुल:		[30]

CONTENTS:**पाठ्य 01 – भाषा अभ्यास:**

[08]

- 01.01 शब्द रचना
 01.01.01 विशेषण
 विशेष्य और विशेषण की रचनाएँ विशेषण बनाने के कुछ नियम, पद वाचक विशेषण
 01.01.02 मूल शब्द, उपसर्ग, प्रत्यय
 01.01.03 विदेशी शब्दों का हिन्दी प्रयोग
 01.02 वाक्य रचना
 01.02.01 वाक्य का रूपान्तर, सामान्य वाक्य, वाक्य उपवाक्य, वाक्य की अशुद्धियाँ, वाक्य में कर्ता और क्रिया का मेल, संज्ञा और सर्वनाम का मेल, वाक्यज्ञत प्रयोग।
 01.03 विराम चिन्ह
 01.04 . विपरीतार्थक शब्द
 . युग्म शब्द
 . अनेक शब्दों के लिए एक शब्द
 . एक शब्द और विभिन्न प्रयोग
 . एक शब्द का विभिन्न शब्द भेदों में प्रयोग
 . संक्षेपण

पाठ्य 02 – मौखिक सम्प्रेषण:**[05]**

- 02.01 तौर तरीके एवं आधारभूत शिष्टाचार
- 02.02 शारीरिक भाषा – शारीरिक भावभंगिमा द्वारा सम्प्रेषण, अतिविहित, संकित मुखाकृति द्वारा सम्प्रेषण, पोशाक तथा प्रसाधन द्वारा प्रभावकारी सम्प्रेषण
- 02.03 जानकारी/ डेस्क/ कार्यालय का अग्रभाग/ टेलीफोन वार्तालाप (श्रष्टा/ दृश्य कैसेटों द्वारा अभ्यास)
- 02.04 अन्तर्वीक्षा के समय आचरण
- 02.05 सामूहिक परिचर्चा, वाद-विवाद, वक्तृता

पाठ्य 03 – अपठित गद्यांश और प्रश्नोत्तर:**[03]**

सम्बद्ध पाठ्यक्रम समसामयिक पत्रिका, अखवार एवं पुस्तक में सम्पादकीय तथा लेख पर आधारित होंगे। परीक्षा अपठित अवतरणों पर आधारित होगी, शब्दार्थ, तर्क, विचार, वाक्य संरचना, वाक्य संरचना एवं प्रयोग के सम्बन्ध में विशेषकर वस्तुनिष्ठ प्रश्न पूछे जायेंगे।

पाठ्य 04 – अनुच्छेद लेखन:**[05]**

- 04.01 सामान्य – विशेष
- 04.02 प्रक्रिया – वर्णन
- 04.03 समस्या – समाधान
- 04.04 अकिंछा – समीक्षा

पाठ्य 05 – पत्र/ आवेदन लेखन:**[04]**

- 05.01 उच्चाधिकारियों/ विभागों के साथ प्रशासनिक/ स्थापना/ वित्तीय मामलों से सम्बन्धित पत्राचार।
- 05.02 पूछताछ/ क्रय/ सेवा से सम्बन्धित पत्राचार।
- 05.03 नियोजन हेतु आवेदन

पाठ्य 06 – निविदा सूचना एवं विज्ञापन:**[04]**

- 06.01 निविदा/ कोटेशन आमंत्रित करना – रूपरेखा एवं संदर्भ सम्बद्ध औपचारिकता, आदेश।
- 06.02 रिक्तियाँ/ आवश्यकता/ क्रय/ विक्रय आदि के लिये विज्ञापन का प्रारूप।

पाठ्य 07 – प्रतिवेदन लेखन:**[04]**

- 07.01 प्रतिवेदन के प्रकार, संरचना एवं उपयोगिता।
- 07.02 तकनीकी प्रतिवेदन – परियोजना प्रतिवेदन, जाँच प्रतिवेदन आदि (परियोजना प्रतिवेदन तैयार करने में शिक्षक को विद्यार्थियों की मदद करनी चाहिए)

निर्धारित पुस्तकें

टेक्स्ट बुक(पाठ्य पुस्तक)/ रदिर्ग पुस्तकें

1. आधुनिक हिन्दी व्याकरण और रचना . डा. वासुदेव नन्दन प्रसाद, भारती भवन, पटना
2. हिन्दी में उन्नत टिप्पण और सार . राम विनायक सिंह, लोक भारती प्रकाशन, इलाहाबाद
3. हिन्दी में प्रशासनिक पत्र लेखन . राम विनायक सिंह, लोक भारती प्रकाशन, इलाहाबाद
4. हिन्दी प्रारूपण और टिप्पण . मल्होत्रा, फ्रेजर रोड, पटना
5. शिक्षार्थी हिन्दी शब्दकोश . डा. हरदेव वाहरी, रामपाल एण्ड सन्स
6. अंग्रेजी हिन्दी शासकीय प्रयोग कोश . गोपीनाथ श्रीवास्तव, सम पाल एण्ड सन्स

WORKSHOP PRACTICE

Subject Code 02208	Practical			No of Period in one session : 120		
	No. of Periods Per Week			Full Marks	:	50
	L	T	P/S	Annual Exam.	:	40
	—	—	04	Internal Exam.	:	10

Rationale & Objective:

A Diploma holder technician must know how to work on shop floor. This helps to develop psychomotor skill and attitude. The knowledge & skill to use machines, equipment, tools and measuring instruments is required to be developed. Safe handling of machines and tools is also very important. So, it is essential for students of 1st year to undergo basic workshop practical training. The topics include practical works in carpentry, welding, fitting, smithy sheet metal shop & machine shop. It is required to inculcate safe habits and attitude so that accidents are avoided at every step. Topics have been prescribed to fulfil these objectives.

The students are supposed to come in proper workshop dress. Wearing shoes in the workshop is compulsory.

<u>S.No.</u>	<u>Topic</u>	<u>No. of Jobs</u>	<u>No. of Periods</u>
01	Safety precautions and knowledge of hand tools	--	(03)
02	Duty & Responsibility of staffs working difference section.	02	(03)
03	Wood working (carpentry section)	02	(30)
04	Fitting Section	02	(30)
05	Blacksmithy Section	02	(20)
06	Welding	02	(19)
07	Sheet metal work	02	(15)
			(120)

CONTENTS:

TOPIC: 01 - SAFETY PRECAUTIONS & KNOWLEDGE OF HAND TOOLS: **[03]**

- 01.01 Importance, general safety precautions on different shop floors.
- 01.02 Personal, tools and general safety.

TOPIC:02 Dution & responsibility of staff working in different sections **(03)**

TOPIC: 03 - WOOD WORKING (CARPENTRY SECTION): **[30]**

- 02.01 Carpentry Practice
- 02.01.01 Use of hand tools for holding drilling, cutting, marking & mixed tools such as vice, clamps, saw, hammers, mallet, screwdriver etc. **[03]**
- 02.01.02 Different carpenter joints & their application (Mortish & Tanon, Dovetail, half lap etc. **[03]**
- 02.02 Identification of joint in a particular job articles of furniture items. **[04]**
- 02.03 Jobs to be made: **[20]**
- 02.03.01 Wall hanger
- 02.03.02 Pulse mixer

TOPIC: 04 - FITTING SECTION: **[30]**

- 03.01 Importance of fitting operation such as chipping, sawing, filling, scraping, drilling, reaming etc. **[03]**
- 03.02 Functions, classification of tools, work holding and clamping specific tools for example File (length, type, grade of cut etc.) vices, cold chiesel, hand tools etc. **[05]**
- 03.03 Use of hand dies & tape for pipe work (water and sans) **[03]**
- 03.04 Fitting practice & jobs **[19]**
- 03.04.01 Male female joint - 01
- 03.04.02 Chipping, Filling, Scraping - 01
- 03.04.03 Marking, fitting

TOPIC: 05 - BLACKSMITHY SECTION: [20]

04.01	Introduction to smithy tools and their uses	[03]
04.02	Smithy Practice (forging)	[03]
04.02.01	Smithy operation such as offsetting, drawing, bending, welding round to square section and vice-versa.	
04.03	<u>Jobs to be made:</u>	[14]
04.03.01	Chiesel	
04.03.02	Ring	
04.03.03	Punch	
04.03.04	Screw Driver	

TOPIC: 06 - WELDING: [19]

	Before starting welding, the Foreman/ Instructor should show to the students the methods of line testing, working of iron clad switches, knife switches.	[03]
	By observation a student is able to:	
	- Identify welding materials	
	- Understand difference between gas welding & electric welding	
	- Understand difference between welding & soldering	
	- Know the materials which can be welded and materials which can not be welded.	
05.01	Introduction to gas welding.	[05]
05.02	Use of welding equipment and tools and accessories including Personal Protective requirement such as Boot, Gloves, safety goggles, Apron etc.	
05.03	Welding Practice	[11]
05.03.01	Butt joint	
05.03.02	'T' joint	
05.04	Introduction to brazing process, filler material and fluxes application of brazing.	

TOPIC: 07 - SHEET METAL WORK: [15]

06.01	Introduction to sheet metal, procedure and safety precautions.	[03]
06.02	Aquaintance with sheet metal tools and their safe use.	
06.03	Sheet metal practice.	[03]
06.03.01	Simple Development and cutting, bending and shearing of sheet metal	
06.03.02	Marking	[09]
06.03.03	Filing & Finishing	
06.03.04	Fabrication of a sheet metal:	
	- Cabinet	
	- Conical funnel	

Books Recommended for Workshop Practice (Practical):

- | | |
|---------------------------------|----------------------------------|
| 1. Shop Theory | - By Anderson (Tata McGraw Hill) |
| 2. Workshop and Tools Hand Book | - Audel Series |
| 3. Workshop Technology | - Hajra & Choudhary |

Reference Books:

- | | |
|----------------------|------------------------------|
| 1. Workshop Practice | - Rajeev Upadhayay, |
| 2. Workshop Practice | - by N.T.T.T.I. Chanandigarh |

WORKSHOP PRACTICE

Subject Code 02209	Sessional			No of Period in one session :		
	No. of Periods Per Week			Full Marks	:	100
	L	T	P/S	Annual Exam.	:	60
	—	—	—	Internal Exam.	:	40

<u>S.No.</u>	<u>Topic</u>	<u>No. of Jobs</u>
1.	Wood Work (carpentry section):	
	(a) Wall Hanger	01
	(b) Pulse Mixer	01
2.	Fitting Section:	
	(a) Male-Female joint	01
	(b) Chipping, filing and scraping	01
3.	Blacksmithy Section:	
	(a) Chiesel	01
	(b) Ring	01
4.	Welding Section:	
	(a) Butt joint	01
	(b) "T" joint	01
5.	Sheet Metal Work:	
	(a) Fabrication of a sheet metal cabinet	01
	(b) Conical Funnel	01
(10) jobs		

FREE HAND SKETCH

Subject Code 37210	Sessional			No of Period in one session :		
	No. of Periods Per Week			Full Marks	:	100
	L	T	P/S	Annual Exam.	:	80
	-	-		Internal Exam.	:	20

Rationale

Free hand sketching plays very important role to inculcate interest among the students in the field of drawing. It also helps in developing the skills required for preparing various types of drawings and design. Considerable emphasis on outdoor sketching should be given to attain the required skills in the subject.

Detailed Contents

Free Hand Sketching Exercises in pencil only:

1. Free-hand line exercises of different types of lines (1 Sheet)
2. Free hand sketching of two-dimensional geometrical figures. (2 Sheets)
3. Free hand sketching of three – dimensional geometrical objects. (2 Sheets)
4. Free hand sketching of sets of figures and objects. (2 Sheets)
5. Free hand sketching of human figures, trees furniture and vehicles etc. (2 Sheets)
6. Free hand sketching of small buildings with shade and shadow sheets. (2 Sheets)
7. Free-hand sketching of buildings with trees, human figures, sky, clouds and birds and other land-scape elements, using various mediums like pencil, ink and colours(2 Sheets)
8. Free-hand sketches of various scenes such as railway-station, parking places, bus stand, market scene, village scene etc. (2 Sheets)

Note: Students are also required to maintain sketchbooks for outdoor sketching.

Recommended Books

1. Time Saver Standards for Building Types by Joseph De Chiara and John Callendera
2. Architects Data by Neufert
3. Space, Time and Order by DK Ching
4. Rendering with Pencil and Ink