

# Shri Vishwakarma Skill University

## Shri Vishwakarma Skill University

(A STATE GOVT SKILL UNIVERSITY ESTABLISHED BY GOVT. OF HARYANA)

Name of the Skill Faculty: Skill Faculty of Engineering & Technology

Name of the Programme/Course: Diploma in Draughtsmanship (Civil)

Duration of the course: One Year , Batch: 2023-2024 (onwards)

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Scheme/Syllabus:-Diploma in Draughtsmanship (Civil)

# Shri Vishwakarma Skill University

SCHEME/ SYLLABUS: Diploma in Draughtsmanship (Civil)

## Semester 1

Subject Code	Subject Name	Credits			Marks						Hours			
					Theory			Practical						Total
		T	P	TO	I	E	TO	I	E	TO	(T+P)	T	P	TO
DEDM101	Communication Skills	1	-	1	15	35	50	-	-	-	100	30	-	60
DEDM111	Communication Skills-Lab		1	1	-	-	-	35	15	50		-	30	
DEDM102	Health & safety	2	0	2	15	35	50	-	-	-	50	60	-	60
DEDM113	Engineering Drawing Lab	-	4	4	-	-	-	70	30	100	100	-	120	120
DEDM104	Basics of Surveying	2	-	2	15	35	50	-	-	-	100	60	-	120
DEDM114	Surveying lab	-	2	2	-	-	-	35	15	50		-	60	
DEDM105	Building Materials and Construction	2	-	2	15	35	50	-	-	-	100	60	-	120
DEDM115	Building Materials and Construction Lab	-	2	2	-	-	-	35	15	50		-	60	
DEDM116	Auto Cad lab	0	4	4	-	-	-	70	30	100	100	-	120	120
	Total	7	13	20	60	140	200	245	105	350	550	210	390	600

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### Semester 2

Subject Code	Subject Name	Credits			Marks							Hours		
					Theory			Practical			Total			
		T	P	TO	I	E	TO	I	E	TO	(T+P)	T	P	TO
DEDM211	Building Design and Drawing	-	4	4	-	-	-	70	30	100	100	-	120	120
DEDM202	Estimating and Quantity Survey	2	-	2	15	35	50	-	-	-	100	60	-	60
DEDM212	Estimating and Quantity Survey Lab	-	1	1	-	-	-	35	15	50		-	30	30
DEDM213	Auto Cad lab-2	-	4	4	-	-	-	70	30	100	100	-	120	120
DEDM224	OJT	-	9	9	-	-	-	120	120	240	240	-	270	270
	Total	2	18	20	15	35	50	295	195	490	540	60	540	600

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## Semester- 1

Subject: Communication Skills

Subject Code: DEDM101

Total Marks: 50

Credit	Hours	Marks		
		I	E	To
1	30	15	35	50

### Objectives

- To inculcate in students professional and ethical attitude, effective communication skills, teamwork, skills, multidisciplinary approach and an ability to understand engineer's social responsibilities.
- To inculcate in students written communication skills.

### Learning Outcomes

- The syllabus introduces students to have basic skill set of channelizing information, self-development, decision making and interpersonal skills.

Unit	Topic	Key Learning
I	Communication	<ul style="list-style-type: none"> <li>• Meaning of Communication, Importance of Communication, Types of communication. Process of communication.</li> <li>• Communication network in an organization.</li> <li>• Barriers to communication, Essentials of good communication.</li> </ul>
II	English Grammar Understanding and applying Vocabulary	<ul style="list-style-type: none"> <li>• Fill in the Blanks, Idioms &amp; Phrases, One-word substitution</li> <li>• Synonyms, Antonyms, Mis-spelt words, Common errors, Grammar, Tenses, shuffling of sentence parts, sentence improvement, Shuffling of sentence in passage, Cloze passage, Comprehension Passage, Active/passive voice of verbs, Conversion into direct/indirect narration etc.</li> </ul>
III	Listening Skills	<ul style="list-style-type: none"> <li>• The process of listening, Types of listening, Benefits of effective listening.</li> <li>• Barriers to listening, listening to announcements at work place.</li> </ul>

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IV	<b>Reading Skills</b>	<ul style="list-style-type: none"> <li>• Process and methodologies of reading, Skimming and scanning, Levels of reading, Proofreading, Summarizing, Precise writing.</li> <li>• Unseen comprehension passage, Note taking and reviewing.</li> <li>• Convert the given information into charts and graphs.</li> </ul>
V	<b>Writing Skills</b>	<ul style="list-style-type: none"> <li>• Main Forms of Written Communication: Notices, Drafting an E-mail.</li> <li>• Correspondence: Personal and Official, Notices.</li> <li>• Technical Report Writing, Preparing agenda and minutes of meeting.</li> <li>• Resume/ CV writing.</li> </ul>

### Suggested Readings:

- Sethi, J & et al. A Practice Course in English Pronunciation, Prentice Hall of India, New Delhi.
- Sen, Leena. Communication Skills, Prentice Hall of India, New Delhi.
- Prasad, P. Communication Skills, S.K. Kataria & Sons.
- Bansal, R.K. and J.B. Harrison. Spoken English, Orient Language.
- Roach Peter. English Phonetics and Phonology.
- A.S. Hornby's. Oxford Advanced Learners Dictionary of Current English, 7th Edition.
- Prasad, P. The Functional Aspects of Communication Skills, Delhi.
- McCarthy, Michael. English Vocabulary in Use, Cambridge University Press.
- Rajinder Pal and Prem Lata. English Grammar and Composition, Sultan Chand Publication.
- Idioms & Phrases (English-Hindi), Arihant Publication (India) Pvt. Ltd.
- One Word Substitution, Dr. Ashok Kumar Singh, Arihant Publications (India) Pvt, Ltd

**Subject: Communication Skills Lab**

**Subject Code: DEDM111**

**Total Marks: 50**

Credit	Hours	Marks		
		I	E	To
1	30	35	15	50

### Objectives:

- The language Lab focuses on computer-aided multi-media instruction and language acquisition to achieve the following targets:
- To expose the students to a variety of self-instructional learner- friendly modes of language learning.
- To enable them to learn better pronunciation through stress on word accent, Intonation and rhythm and to increase vocabulary.
- To train them to use language effectively to face interviews, group discussions, public speaking.

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- To train them to give a positive feedback in various situation, to use appropriate body language and to avoid barrier for effective communication.
- To acquaint them with the uses of resume/CV preparation, report writing, format making etc. and to improve writing skills.
- To train them to use the basic concepts of communication in an organised set up and social context.

### Learning Outcomes

- The syllabus introduces students to have basic skill set of channelizing information, self-development, decision making.
- The syllabus enhances interpersonal skills of students such as presenting on group discussion, seminars and conferences.

### List of Experiments:

#### 1. Listening Skills

- The student should be able to listen to a text read aloud in normal speed with focus on intonation.
- After listening the student can fill-in-blanks, choose a suitable title, make a summary, supply required information and be able to answer comprehension questions from the passage read aloud.

#### 2. Speaking Skill

- Reading aloud of dialogues, texts, poems, speeches focusing on intonation.
- Self-introduction
- Role plays on any two-situations.
- Telephonic Conversations.

#### 3. Personality Development

- Initiation
- Physical Appearance
- Audience Purpose

#### 4. Interpersonal Skills

- Appropriate use of non-verbal skills in face to face communication [i.e. Viva –Voce, group –interviews, GDs and seminars.]

#### 5. Presenting in GD, Seminars and Conferences.

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- Leadership Quality
- Time Management
- Achieving the target.

**Subject: Health and Safety**

**Subject Code: DEDM102**

**Total Marks: 50**

Credit	Hours	Marks		
		I	E	To
2	60	15	35	50

### Objectives

- To understand & follow General Safety in construction site.
- To understand & Follow Fire & First Aid safety organizational guidelines.
- To understand & follow waste disposal safety organizational guidelines.

### Learning Outcomes

- The syllabus introduces students to have basic skill set of health and safety measures, first aid process, waste disposal etc.

Unit	Topic	Key Learning
I	Introduction	<ul style="list-style-type: none"> <li>• Types of hazards involved in construction sites.</li> <li>• Types of hazard involved in plumbing, electrical, carpentry works.</li> </ul>
II	First Aid	<ul style="list-style-type: none"> <li>• Concept of First Aid process.</li> <li>• Use of fire extinguisher, Classification of fires and fire extinguisher Safety drills.</li> <li>• Types and use of PPEs as per general and plumbing safety norms.</li> <li>• Reporting procedure to the concerned authority in emergency situations.</li> </ul>
III	Emergency safety	<ul style="list-style-type: none"> <li>• Emergency safety control measures and actions to be taken under emergency situation.</li> </ul>
IV	Waste disposal	<ul style="list-style-type: none"> <li>• Safe disposal of waste, type of waste and their disposal.</li> <li>• Basic ergonomic principles as per level.</li> </ul>
V	Material Handling	<ul style="list-style-type: none"> <li>• Standard procedure of handling, storing and stacking material, plumbing fixtures and accessories.</li> </ul>

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## Shri Vishwakarma Skill University

Subject: Engineering Drawing Lab

Subject Code: DEDM113

Total Marks: 100

Credit	Hours	Marks		
		I	E	To
4	120	70	30	100

### Objectives

- Understand and appreciate the importance of Engineering Graphics in Engineering.
- Understand the basic principles of Technical/Engineering Drawing.
- Understand the different steps in producing drawings according to BIS conventions.

### Learning outcomes

- The students will become familiar with fundamentals of engineering design.
- Understanding the concept generation, design optimization and evaluation.
- Students will be able to effectively design various engineering components and make process plan for the production.

Unit	Topic	Key Learning
I	Introduction	<ul style="list-style-type: none"> <li>• Scope and importance of engineering drawing.</li> <li>• Drawing instruments and their uses.</li> <li>• Indian standard of drawing (IS-962,1989, SP-46,2003).</li> <li>• Sheet layout, border, title block, etc.</li> <li>• Conventions of line and their uses, Lettering.</li> <li>• Introduction to general principals of Dimensioning.</li> <li>• Scales.</li> </ul>
II	Orthographic Projections	<ul style="list-style-type: none"> <li>• Principal of projections.</li> <li>• Theory of orthographic projections (Elaborate theoretical instructions).</li> <li>• Projection of Points in different quadrant.</li> <li>• Projection of Straight Line (1st and 3rd angle), Line parallel to both the planes, Line perpendicular to any one of the reference plane, Line inclined to any one of the reference plane.</li> <li>• Projection of Plane – Different lamina like square, rectangular, triangular and circle inclined to one plane, parallel and perpendicular to another plane in 1<sup>st</sup> angle only.</li> <li>• Three views of orthographic projection of different objects. (At least one sheet in 3rd angle).</li> <li>• Identification of surfaces.</li> </ul>

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III	<b>Sectioning of solids</b>	<ul style="list-style-type: none"> <li>• Importance and salient feature.</li> <li>• Drawing of full section, half section, partial or broken out sections, offset sections, revolved sections and removed sections.</li> <li>• Convention sectional representation of various materials, conventional breaks for shafts, pipes, rectangular, square, angle, channel, rolled sections.</li> <li>• Orthographic sectional views of different objects.</li> </ul>
IV	<b>Isometric Views</b>	<ul style="list-style-type: none"> <li>• Fundamentals of isometric projections and isometric scale.</li> <li>• Isometric views of combination of regular solids like cylinder, cone, cube and prism.</li> </ul>
V	<b>Common Symbols and Conventions used in Engineering</b>	<ul style="list-style-type: none"> <li>• Civil Engineering sanitary fitting symbols.</li> <li>• Electrical fitting symbols for domestic interior installations.</li> </ul>

### RECOMMENDED BOOKS

1. A Text Book of Engineering Drawing by Surjit Singh; Dhanpat Rai & Co., Delhi.
2. Engineering Drawing by PS Gill; SK Kataria & Sons, New Delhi
3. Elementary Engineering Drawing in First Angle Projection by ND Bhatt; Charotar Publishing House Pvt. Ltd., Anand
4. Engineering Drawing, I & II by JS Layall; Eagle Parkashan, Jaipur
5. Engineering Drawing, I by DK Goel, GBD Publication.

Subject: Basics of Surveying  
 Subject Code: DEDM104  
 Total Marks: 50

Credit	Hours	Marks		
		I	E	TO
2	60	15	35	50

### Objectives:

- Carryout civil engineering survey to prepare drawings & maps.
- Interpret the drawings and maps for calculating different physical quantities like length, area, volume, elevations etc.

### Learning Outcomes:

- To carry out simple land survey to prepare maps with existing details.
- Find out area of irregular shaped plane figures.

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Unit	Topic	Key Learning
I	Introduction	<ul style="list-style-type: none"> <li>• Units of measurement.</li> <li>• Basic principles of surveying.</li> <li>• Concept and purpose of surveying, measurements-linear and angular, units of measurements.</li> <li>• Instruments used for taking these measurements, classification based on surveying instruments.</li> <li>• Tapes</li> </ul>
II	Chain surveying	<ul style="list-style-type: none"> <li>• Purpose of chain surveying, principles of chain surveying and its advantages and disadvantages.</li> <li>• Obstacles in chain surveying.</li> </ul>
III	Compass surveying	<ul style="list-style-type: none"> <li>• Purpose of compass surveying. Use of prismatic compass: Setting and taking observations</li> <li>• Concept of following with simple numerical problems: a) Meridian - Magnetic and true b) Bearing - Magnetic, True and Arbitrary c) Whole circle bearing and reduced bearing d) Fore and back bearing e) Magnetic dip and declination.</li> </ul>
IV	Levelling:	<ul style="list-style-type: none"> <li>• Purpose of levelling, concept of a level surface, horizontal surface, vertical surface, datum, reduced level and bench marks</li> <li>• Identification of various parts of Dumpy level and use of Dumpy level, Engineer' level, Auto level: advantages and disadvantages, use of auto level.</li> <li>• Concepts of line of collimation, axis of the bubble tube, axis of the telescope and vertical axis</li> <li>• Levelling staff: single piece, folding, invar precision staff, telescopic</li> <li>• Temporary adjustment and permanent adjustment of dumpy level by two peg method.</li> <li>• Concept of back sight, foresight, intermediate sight, change point, to determine reduce levels.</li> <li>• Level book and reduction of levels by 1) Height</li> </ul>

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		<p>of collimation method and ii) Rise and fall method.</p> <ul style="list-style-type: none"> <li>Arithmetic checks, problem on reduction of levels, fly levelling, check levelling and profile levelling (L-section and X-section), errors in levelling, permissible limits, reciprocal levelling, Numerical problems.</li> </ul>
V	Plane Table Surveying	<ul style="list-style-type: none"> <li>Purpose of plane table surveying, equipment used in plane table survey:</li> <li>Setting of a plane table: (a) Centering (b) Levelling (c) Orientation</li> <li>Methods of plane table surveying (a) Radiation, (b) Intersection (c) Traversing (d) Resection.</li> <li>Concept of Two-point problem.</li> </ul>
VI	Theodolite, Total station and Drone surveying	<ul style="list-style-type: none"> <li>Introduction, uses and working of theodolite, total station, taking coordinates vertical and horizontal measurements in total station.</li> <li>Introduction to GPS surveying.</li> <li>Introduction to Drone Surveying.</li> </ul>

### Suggested Readings:

- Hussain, SK and Nagraj, MS; "Text Book of Surveying"; New Delhi, S Chand and Co Ltd.
- Deshpande, RS; "A Text Book Surveying and Levelling"; Poona, United Book Corporation
- Kocher, CL; "A Text Book of Surveying"; Ludhiana, Katson Publishing House
- Kanetkar, TP and Kulkarni, SV., "Surveying and Leveling", Poona, AVG Parkashan
- Kanetkar, TP; and Kulkarni, SV; "Surveying and Leveling" Poona, AVG Prakashan
- Mahajan, Sanjay "Surveying -I", Tech. Publication, Delhi
- Punmia, BC; "Surveying and Leveling", Delhi Standard Publishers Distributors.
- Shahai, PB; "A Text Book of Surveying", Oxford and IBH Publishing Co.

Subject: Surveying Lab  
 Subject Code: DEDM114  
 Total Marks: 50

Credit	Hours	Marks		
		I	E	To
2	60	35	15	50

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### Objectives

- To determine the distance and angle between different objects.
- To prepare a map or plan to represent an area on a horizontal plan.
- To develop methods through the knowledge of modern science and the technology and use them in the field.
- To solve measurement problems in an optimal way.

### Learning outcomes

- To learn to work as team, ethics and prepare technical reports of surveying.
- To relate theoretical knowledge of surveying to resolve real field problems.
- To establish horizontal control and vertical control by traversing and triangulation.
- To prepare topographical map and contour map on an area.

### List of Experiments:

- Measurement of distance by ranging and chaining.
- Determination of area of polygon by chain and cross staff survey.
- Measurement of bearings of sides of traverse with prismatic compass and computation of correct included angle.
- Determination of elevation of various points with dumpy level by collimation plane method and rise & fall method.
- Fixing bench mark with respect to temporary bench mark with dumpy level by fly levelling and check levelling.
- Measurement of horizontal angles theodolite by method of repetition.
- Measurement of vertical angles with theodolite.
- Determination of horizontal distance between two inaccessible points with theodolite.
- Two-point problem in plane table traversing.
- Determination of elevation of point by trigonometric levelling.
- Determination of area of irregular figure by using planimeter.

**Subject: Building Materials and Construction**

**Subject Code: DEDM105**

**Total Marks: 50**

Credit	Hours	Marks		
		I	E	To
2	60	15	35	50

### Objectives:

- To teach students about the physical and mechanical properties of various

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construction materials and their testing procedure.

- To teach students about the principles and methods to be followed in constructing various components of a building.
- To make the students aware of precautionary measures to be taken during construction to avoid any damage to the structure at a later date.
- To teach students about assessment of damages and methods of repairs and restoration.

**Learning Outcomes:** Students will gain knowledge in

1. Follow BIS and NB codes for different components of building construction along with testing procedure of building materials with respect to relevant codes.
2. Supervise construction work with technical ability within the frame work of codal provision.
3. Select the modern construction materials appropriate to the climate and functional aspects of the buildings.
4. Supervise the construction technique to be followed in brick and stone masonry, concreting, flooring, roofing and plastering etc.
5. Understand the common lapses during the construction which results in the deterioration/damage to the structure at the later date.

### PART -I: Building Materi

	Topic	Key Learning
I	Aggregates, Cement, admixtures	<ul style="list-style-type: none"> <li>• Classification of aggregates as per IS:383, zoning, all in aggregate and testing etc.</li> <li>• Cements composition, types of cement, manufacturing of ordinary Portland cement, testing of cement, special types of cement, storage of cement.</li> <li>• Introduction to admixtures and plasticizers.</li> </ul>
II	Brick, Tiles, ACC blocks	<ul style="list-style-type: none"> <li>• Classification of bricks, constituents of good brick earth, hollow bricks, modular bricks etc., harmful ingredients, manufacturing of bricks, testing of bricks.</li> <li>• Brick Tiles.</li> <li>• ACC Blocks.</li> </ul>
III	Steel	<ul style="list-style-type: none"> <li>• Ferrous metals: Composition, properties and uses of cast iron, mild steel, HYSD steel, high tension steel as per BIS, Commercial forms of ferrous, metals, Aluminum &amp; Stainless Steel.</li> </ul>

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IV	<b>Stone, timber,</b>	<ul style="list-style-type: none"> <li>• Classification, requirements of good structural stone, quarrying, blasting and sorting out of stones, dressing, sawing and polishing, prevention and seasoning of stone.</li> <li>• Classification of timber, structure of timber, seasoning of timber, defects in timber, important Indian timbers, Other wood based products, laminated board, block board, fibre board, hard board, sunmica, plywood, veneers, nu-wood, adhesives for wood work and study of the brand name and cost of the wood-based products available in the market, Cement Panel Board, wooden acoustic fire doors.</li> </ul>
V	<b>Paints, varnishes and polymers</b>	<ul style="list-style-type: none"> <li>• Basic constituents of paints, types of paints, painting of wood, covering capacity of paints, constituents of varnishes, characteristics and types of varnishes.</li> </ul>
VI	<b>Miscellaneous Materials</b>	<ul style="list-style-type: none"> <li>• Plastics – Introduction and uses of various plastic products in buildings such as doors, water tanks and PVC pipes.</li> <li>• Fibre Sheets and their manufacture process.</li> <li>• Types and uses of insulating materials for sound and thermal insulation</li> <li>• Construction chemicals like water proofing compound, epoxies, polymers, additives.</li> <li>• Water proofing, termite proofing and fire resistance materials – types and uses.</li> <li>• Plaster of Paris, uses.</li> </ul>
		<ul style="list-style-type: none"> <li>• Stainless steel railings.</li> <li>• aluminum extrusions</li> <li>• Molded Door.</li> </ul>

### Suggested Reading

- Sharma, SK; and Mathur, GC; "Engineering Materials;" Delhi-Jalandhar, S. Chand and Co.
- Surendra Singh; "Engineering Materials;" New Delhi, Vikas Publishing House Pvt. Ltd.
- Chowdhuri, N; "Engineering Materials;" Calcutta, Technical Publishers of India.
- Kulkarni, GJ; "Engineering Materials;" Ahmedabad, Ahmedabad Book Depot.
- SP – 62 Hand Book of BIS.
- B.I.S. – 6313 Part 1, 2, 3.
- National Building Code.

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- Handbook of Civil Engineering by PN Khanna.
- SP: 2009. National Building Code.

### PART -2: Building Construction

	Topic	Key Learning
VII	Soil	<ul style="list-style-type: none"> <li>• Classification of soil and their bearing capacities.</li> <li>• Introduction to anti- termite treatment.</li> </ul>
III	Masonry Construction, Cavity and Partition Walls, Foundation:	<ul style="list-style-type: none"> <li>• Brick masonry-bonds in brick work, laying brick work, structural brick work-cavity and hollow walls, reinforced brick work, Defects in brick masonry, composite stone and brick masonry, glass block masonry.</li> <li>• Introduction, Advantages, position of cavity, types of non-bearing partitions, constructional details and precautions, construction of masonry cavity wall.</li> <li>• Functions, types of shallow foundations, sub-surface investigations, geophysical methods, general feature of shallow foundation, foundations in water logged areas.</li> </ul>
IX	Reinforced Cement Concrete	<ul style="list-style-type: none"> <li>• Basics of Concrete, mixing of ingredients, reinforcing, shuttering and formwork, curing.</li> </ul>
X	Damp-Proofing and Water-Proofing, Roofs and Floors, Doors and Windows, Plastering	<ul style="list-style-type: none"> <li>• Defects and causes of dampness, prevention of dampness, materials used, damp-proofing treatment in buildings.</li> <li>• Types of roofs, various terms used, roof trusses-king post truss, queen post truss etc.</li> <li>• Floor structures, ground, basement and upper floors, various types of floorings i.e. ceramic tiles, marbels, vinyl flooring, vitrified tiles, paver tiles.</li> <li>• Locations, sizes, types of doors and windows, fixtures and fasteners for doors and windows.</li> <li>• Plastering and its types.</li> </ul>

### Suggested Reading

- SC Rangawala, "Construction Materials", Charotar Publishers.
- Handbook of Civil Engineering by PN Khanna.
- Gupta, Sushil Kumar, Singla, DR, and Juneja BM; "A Text Book of Building Construction"; Ludhiana, Katson Publishing House.
- Rangwala, SC: "Building Construction"; Anand, Charotar Book Stall.
- A.K. Watal and Mahesh Sharma; "Quality Control in Civil engineering", Standard

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Publishers, New Delhi.

- SP – 62 Hand Book of BIS.
- B.I.S. – 6313 Part 1, 2, 3.
- National Building Code.
- Handbook of Civil Engineering by PN Khanna.
- SP: 2009. National Building Code.

**Subject: Building Material and  
Construction Lab**  
**Subject Code: DEDM115**  
**Total Marks: 50**

Credit	Hours	Marks		
		I	E	To
2	30	35	15	50

### Objectives

- To facilitate the understanding of the behavior of construction materials.
- To know about the various test procedures on different construction materials.
- To understand the properties of various construction materials

### Learning Outcomes

- Students will aware about various building materials.
- Students will understand the testing procedure of various construction materials.

### List of Experiments:

1. To create awareness of all building materials Viz; Stones, Bricks, Timber, Cement, Fine and coarse aggregate.
2. To determine the crushing strength of bricks.
3. To determine the Water Absorption of bricks.
4. To identify various types of timbers such as: Teak, Sal, Deodar, Kail, Hillock
5. To determine the consistency of cement.
6. To determine the fineness modulus of cement.
7. To determine the initial and final setting of cement.
8. To conduct the sieve analysis of aggregates.
9. To determine the silt content of fine aggregate.
10. To determine the compressive strength of a concrete cube.
11. Demonstration of tools and plants used in building construction
12. Demonstration of following items of work at construction site by: a) Timbering of excavated trenching b) Damp proof courses laying c) Construction of masonry walls d) Laying of flooring on an already prepared cement concrete base e) Plastering and pointing exercise f) Constructing RCC

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work g) Pre-construction and post construction treatment of building and woodwork.

13. NB: -The students should submit a report on the construction tools and materials, covering water proofing material, cement, steel, paints and timber products available in the local market. They should also show the competitive study based upon the cost, brand name, sizes available in the local market.

**Subject: Auto Cad Lab-1**  
**Subject Code: DEDM116**  
**Total Marks: 100**

Credit	Hours	Marks		
		I	E	TO
4	120	70	30	100

### Objectives

- Understand the fundamental concepts and features of AutoCAD.
- Use the precision drafting tools in AutoCAD to develop accurate technical drawings.
- Present drawings in a detailed and visually impressive manner.

### Learning Outcomes

- Demonstrate basic concepts of the AutoCAD software.
- Apply basic concepts to develop construction (drawing) techniques.
- Ability to manipulate drawings through editing and plotting techniques.
- Understand geometric construction.
- Produce 2D Orthographic Projections.
- Understand and demonstrate dimensioning concepts and techniques.
- Become familiar with Solid Modeling concepts and techniques.

### List of Experiments:

- Introduction to various CAD commands with simple examples.
- Line diagrams of different structures.
- Isometric exercises.
- Doors and Windows.
- Calculation of area of closed traverse.
- Plan, section and elevation of residential building.
- Plan, section and elevation of public building.
- Plan, section and elevation of multistoried building.
- Preparation of Site plan of a Residential building.

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# Shri Vishwakarma Skill University

## Semester- 2

**Subject: Building Design and Drawing lab**  
**Subject Code: DEDM211**  
**Total Marks: 100**

Credit	Hours	Marks		
		1	E	To
4	120	70	30	100

### Objectives

- Understand the classification of different construction drawing.
- To recognize elements and symbol construction drawings.
- To understand how to develop and design a building plan.

### Learning Outcomes

- After completion of this students will able to understand basic principles of building design.
- They will explore building drawing as a way of discovering and developing ideas for designing different elements of building.

### List of Experiments:

#### Drawing No. 1:

Introduction of Vastu- shastra and its application in buildings.

#### Drawing No. 2:

Details of spread footing foundations, load bearing and non-load bearing wall for given thickness of walls with the help of given data or rule of the thumb, showing offsets, position of DPC. The details of the concrete and brick plinth protection have to be shown in the drawing.

#### Drawing No. 3:

Elevation, sectional plan and sectional side elevation of flush door, glazed door, paneled door and window, Aluminium door and window with wire gauge shutter. Sketches of various joints of different members.

#### Drawing No. 4:

Drawing plan, elevation of a one room building and foundation detail and sectional elevation.

#### Drawing No. 5:

Drawing detailed plan, elevation and section of a two-room residential building from a given line plan, showing details of foundations, roof and parapet.

Draw detailed plan, elevation and section of Single flight R.C.C. stair case.

#### Drawing No. 6:

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Drawing of flat roof, showing the heat/thermal insulation provisions.

**Drawing No. 7:**

Drawing details of damp proofing arrangement of roofs and walls as per BIS Code. Show the rain water drainage arrangement also.

**Drawing No. 8:**

Drawings showing various pipe joints for underground drainage/ plumbing.

**Drawing No. 9:**

Prepare drawings for a simple of culvert.

**Drawing No. 10:**

Prepare a schematic electric drawing of a one room building.

**Subject: Estimation and Quantity Survey**

**Subject Code: DEDM202**

**Total Marks: 50**

Credit	Hours	Marks		
		I	E	To
2	60	15	35	50

**Objectives**

- Summarize the basic principal and standard methods for working out quantities in estimating.
- Demonstrate the detailed estimate of buildings and workout rate analysis of the various items of work.
- Understand the material requirements as per specified norms and standards.
- Assess the valuation of buildings and provide practical knowledge of standard specifications of items of buildings construction.

**Learning Outcomes**

- Organizing the units for various quantities of items of work.
- Associating the preparation of detailed estimation of building.
- Demonstrate the calculation of earth work quantity.
- Understand how to prepare a Notice inviting tender document for bidding.
- Analyze the building as per new estimated cost.
- Have knowledge on specifications and tendering process for contracts.
- Examining the rate analysis of various items of civil works.
- Calculate the quantities for different items of work.
- Identify specifications and tendering process for contracts.
- Create various Tender documents for bidding purpose.

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## Shri Vishwakarma Skill University

Unit	Topic	Key Learning
I	Estimate of Buildings	<ul style="list-style-type: none"> <li>• Load bearing of one room and two room building – Calculation of quantities of brick work, RCC, PCC, Plastering, white washing, colour washing and painting/ varnishing for shops, rooms, residential building with flat and pitched roof.</li> <li>• Estimate of joineries for paneled and glazed doors, windows, ventilators, handrails etc.</li> <li>• Measurement of books and preparation of bills.</li> </ul>
II	Estimate of other structures	<ul style="list-style-type: none"> <li>• Estimating of septic tank, soak pit.</li> <li>• Estimate of bituminous and cement concrete roads.</li> <li>• Estimate of retaining walls.</li> </ul>
III	Specification and Tenders	<ul style="list-style-type: none"> <li>• Data, Schedule of rates, Analysis of rates, Specifications, sources.</li> <li>• Preparation of detailed and general specifications Tenders, e-tender, Preparation of Tender Notice and Document, uploading of e-tender on portal.</li> <li>• Contracts, Types of contracts, Drafting of contract documents.</li> <li>• ADR awareness.</li> </ul>
IV	Report preparation	<ul style="list-style-type: none"> <li>• Principles for report preparation</li> <li>• Report on estimate of residential building, Culvert, Roads.</li> </ul>

### Suggested Readings:

- Estimating and Costing for Building & Civil Engg. Works by P.L. Bhasin, S. Chand & Co., N. Delhi.
- Estimating, Costing & Specification in Civil Engineering by m. Chakraborty, Calcutta.
- Estimating and costing in civil engineering (theory & practice) by B. N. Dutta, S. Dutta & Co., Lucknow.
- Building Construction Estimating by George H. Cooper, Mc Graw- Hill Book Co., New York.

Subject: Estimating and Quantity Survey Lab  
 Subject Code: DEDM212  
 Total marks: 50

Credit	Hours	Marks		
		I	E	To
1	30	35	15	50

*Receipts*

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Scheme/Syllabus:-Diploma in Draughtsmanship (Civil)

## Shri Vishwakarma Skill University

### Objectives

- Understand the detailed estimate of buildings and workout rate analysis of the various items of work.

### Learning Outcomes

- Associating the preparation of detailed estimation of building.
- Demonstrate the calculation of earth work quantity.
- Examining the rate analysis of various items of civil works.

### List of Practical:

- Making model of a single room building, detachable at plinth level- for understanding the drawing (plan and sections) and fame the estimate accordingly.
- Making model of a two-room building, detachable at plinth level- for understanding the drawing (plan and sections) and fame the estimate accordingly.
- To make the model for a combined RCC footing of two columns as per the given plan and estimate the quantities.
- To make the model of RCC roof slab and calculate the quantities of cement, fine aggregate (sand) and coarse aggregate (aggregate).

Subject: Auto CAD Lab -2

Subject Code: DEDM213

Total Marks: 100

Credit	Hours	Marks		
		I	E	To
4	120	70	30	100

### Objectives

- Understand the fundamental concepts and features of AutoCAD.
- Use the precision drafting tools in AutoCAD to develop accurate technical drawings.
- Present drawings in a detailed and visually impressive manner.

### Learning Outcomes

- Apply basic concepts to develop construction (drawing) techniques.
- Ability to manipulate drawings through editing and plotting techniques.
- Understand geometric construction of building plans such as single storeyed and multi-storeyed buildings.
- Understand and demonstrate RCC in buildings.

### List of Practical:

- Introduction to computer aided drafting.
- Software for CAD- Introduction to different software's.
- Practice exercises on CAD software
- Drawing of plans of buildings using software
  - a) Single storeyed
  - b) Multi storeyed

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Scheme/Syllabus:-Diploma in Draughtsmanship (Civil)

## Shri Vishwakarma Skill University

- Developing sections and elevations for
  - a) Single storeyed
  - b) Multi storeyed
- Detailing of building components like doors, windows, rooftrusses etc. using CAD software's.
- Exercises on development of working of buildings.
- Practice with signs & symbols in Building Drawings
- Practice with local building.
- Showing details of RCC in Buildings: footing, columns, beam, slabs.
- Drawing details of steel structures.
- Drawing details of various opening structures with form work.

Note: -

Subject: OJT  
 Subject Code: DEDM224  
 Total Marks: 100

Credit	Hours	Marks		
		I	E	To
9	270	120	120	240

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