



LEARNING OUTCOME BASED VOCATIONAL CURRICULUM

JOB ROLE: DRAUGHTSMAN CIVIL

**(QUALIFICATION PACK: QG-05-
CO-00943-2023-V2-DGT - NSQF Level 4)**


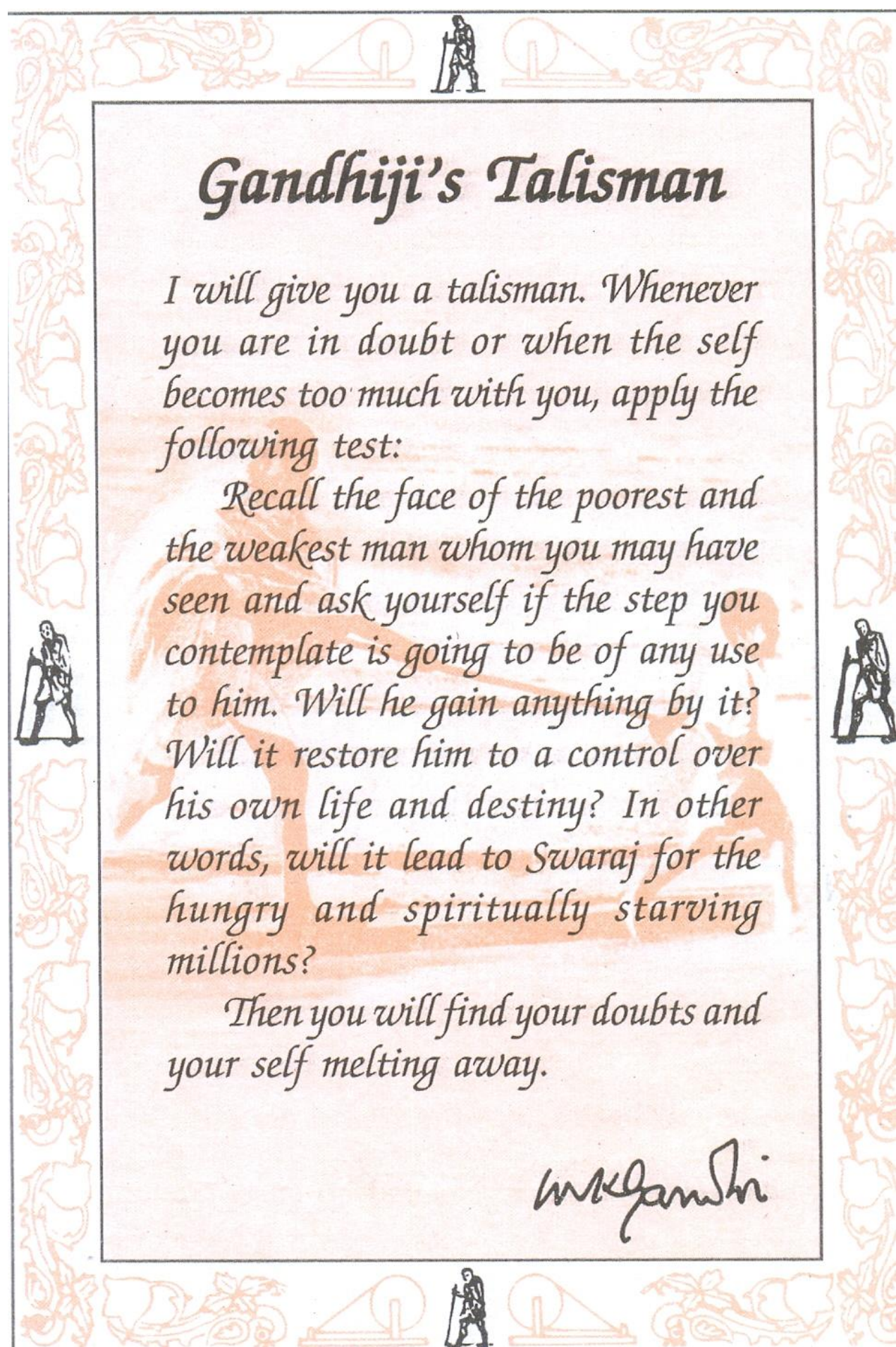
SECTOR: CONSTRUCTION

GRADES XI and XII

PSS CENTRAL INSTITUTE OF VOCATIONAL EDUCATION


Shyamla Hills, Bhopal – 462 002, M.P., India

www.psscive.ac.in




Gandhiji's Talisman

I will give you a talisman. Whenever you are in doubt or when the self becomes too much with you, apply the following test:



Recall the face of the poorest and the weakest man whom you may have seen and ask yourself if the step you contemplate is going to be of any use to him. Will he gain anything by it? Will it restore him to a control over his own life and destiny? In other words, will it lead to Swaraj for the hungry and spiritually starving millions?



Then you will find your doubts and your self melting away.

M.K. Gandhi

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Draughtsman Civil

Construction Sector



Sep, 2025

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FOREWORD

The Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), a constituent of the National Council of Educational Research and Training (NCERT) is spearheading the efforts of developing learning outcome-based curricula and courseware aimed at integrating both vocational and general education to open pathways of career progression for students. The curriculum has been developed for the vocational education programme introduced under the Centrally Sponsored Scheme of Samagra Shiksha of the Ministry of Education (erstwhile, Ministry of Human Resource Development) and is aligned to the National Skill Qualification Framework (NSQF). The curricula for vocational courses are being developed under the project approved by the Project Approval Board (PAB) of 'Samagra Shiksha', which is an overarching programme for the school education sector extending from pre-school to Grade 12.

It is a matter of great pleasure to introduce this learning outcome-based curriculum as part of the vocational education and training package for the job role/vocational subject of "Draughtsman Civil- (QUALIFICATION PACK: QG-05-CO-00943-2023-V2-DGT)". The curriculum has been developed for the secondary students of Grades 11 and 12 and is aligned to the National Occupation Standards (NOSs) for and vocational skills to support occupational mobility and lifelong learning. It will help them to acquire specific occupational skills that meet employers' immediate skill needs. The teaching-learning is to be done through interactive sessions in classrooms, practical activities in laboratories or workshops, projects, field visits, etc. and professional experience is to be provided through on-the-job training.

The curriculum has been developed and reviewed by a group of experts and their contributions are duly acknowledged. The utility of the curriculum will be adjudged by the qualitative improvement that it brings about in teaching-learning. The feedback and suggestions on the content by the teachers and other stakeholders will be of immense value to us in bringing about further improvement in this document.

Dinesh Prasad Saklani
Director
National Council of Educational Research & Training

PREFACE

India today stands poised at a very exciting juncture in its saga. The potential for achieving inclusive growth is immense and the possibilities are equally exciting. The world is looking at us to deliver sustainable growth and progress. To meet the growing expectations, India will largely depend upon its young workforce. In order to fulfil the growing aspirations of our youth and the demand for a skilled human resource, the Ministry of Education, Government of India introduced the revised Centrally Sponsored Scheme of Vocationalisation of School Education under Samagra Shiksha. For spearheading the scheme, the PSS Central Institute of Vocational Education (PSSCIVE) was entrusted with the responsibility to develop learning outcome-based curricula, student textbooks and e-learning materials for the job roles in various sectors.

The PSSCIVE firmly believes that the vocationalisation of education in the nation needs to be established on a strong footing of philosophical, cultural and sociological traditions and it should aptly address the needs and aspirations of the students besides meeting the skill demands of the industry. In order to honour its commitment to the nation, the PSSCIVE is developing learning outcome-based curricula with the involvement of faculty members and leading experts in the field. It is being done through the concerted efforts of leading academicians, professionals, policymakers, partner institutions, Vocational Education and Training (VET) experts, industry representatives, and teachers.

The expert group, through a series of consultations, working group meetings and use of reference materials develops a national curriculum. We extend our gratitude to all the contributors for selflessly sharing their precious knowledge, acclaimed expertise, and valuable time and positively responding to our request for development of curriculum.

The success of this curriculum depends upon its effective implementation, and it is expected that the managers of vocational education programme, vocational educators, vocational teachers/trainers, and other stakeholders will make earnest efforts to provide better facilities, develop linkages with the industry and foster a conducive learning environment for effectively transacting the curriculum and to achieve the learning outcomes as per the content of the curriculum document.

Deepak Paliwal
Joint Director
PSS Central Institute of Vocational Education

ACKNOWLEDGMENT

On behalf of the team at the PSS Central Institute of Vocational Education (PSSCIVE), we are grateful to the members of the Project Approval Board (PAB) of Samagra Shiksha and the officials of the Ministry of Education (MoE), Government of India for the financial support to the project for development of learning outcome-based curricula.

We are grateful to the Director, National Council of Educational Research and Training (NCERT) for his support and guidance. We also acknowledge the contributions of our colleagues at the NCERT, National Council for Vocational Education and Training (NCVET), National Skill Development Corporation (NSDC) and Skill Council for Green Jobs (SCGJ) for their academic support and cooperation.

We are grateful to Dr. Deepak Paliwal, Joint Director, PSS Central Institute of Vocational Education, for his consistent guidance and support in the development of Textbook.

We are grateful to Dr. V. S. Mehrotra, Head CDCE and Professor, PSS Central Institute of Vocational Education, for his support and motivation.

We are grateful to Dr. Saurabh Prakash, Head of Department of Engineering and Technology, PSS Central Institute of Vocational Education, Bhopal for his huge support.

We are also thankful to Dr. Vinod Kumar Yadav, Associate Professor and Course Coordinator for his untiring efforts and contribution to the development of this learning outcome-based curriculum.

We are grateful to Mr. Shaiwesh Singh, Founder, M/s Pushpa Infra Developer, Bhopal and Mr. Neeraj Bhandari, Assistant Professor (Civil Engineering), PSS Central Institute of Vocational Education, Bhopal, for their contribution.

The contributions of the experts and the writing support provided by Ms. Rashmi Maravi, Intern, PSSCIVE is appreciated and acknowledged.

PSSCIVE Team

CONTENTS

Sn.	Title	Page No.
	Foreword	i
	Preface	ii
	Acknowledgment	iii
1	Course Overview	1
2	Scheme of Units and assessment	2
3	Teaching/ Training Activities	4
4	Assessment and Certification	4
5	Unit Content	8
	Grade XI	
	Part A Employability Skills	8
	Unit 1 Communication Skills – III	8
	Unit 2 Self-management Skills – III	10
	Unit 3 Information and Communication Technology Skills-III	11
	Unit 4 Entrepreneurial Skills – III	12
	Unit 5 Green Skills – III	13
	Part B Vocational Skills	14
	Unit 1 Draughtsmanship and Safety Practices	14
	Unit 2 Basics of Engineering Drawing	14
	Unit 3 Building Components and Materials	16
	Unit 4 Building Planning and Drawing	17
	Unit 5 Surveying	18
	Grade XII	20
	Part A Employability Skills	20
	Unit 1 Communication Skills – IV	20
	Unit 2 Self-management Skills – IV	20
	Unit 3 Information and Communication Technology Skills-IV	21
	Unit 4 Entrepreneurial Skills – IV	22
	Unit 5 Green Skills – IV	23
	Part B Vocational Skills	24
	Unit 1 Introduction to AutoCAD	24
	Unit 2 AutoCAD for Building plans	25
	Unit 3 Roads and Railway tracks	27
	Unit 4 Bridges and Culverts	28
	Unit 5 Basics of 3D modelling in AutoCAD	28
6	Organization of Filed Visits and OJT	29
7	List of Equipment and Materials	30
8	Vocational Teacher's/ Trainer's Qualification and Guidelines	31
9	List of Contributors	34

1. COURSE OVERVIEW

Course Title: Draughtsman Civil

The Draughtsman Civil plays a vital role in the construction sector, integrating planning and architectural sectors by preparing detailed technical drawings and plans used in the design and construction of buildings and structures. Students will be introduced to the basic principles of technical drawing, including drawing standards, line types, scales, symbols, and dimensioning with a particular emphasis on building planning, architectural drawing, and the use of computer-aided design (CAD) tools.

COURSE OUTCOMES: On completion of the course, students should be able to:

- ✓ Understand the role and responsibilities of a Draughtsman in construction sector.
- ✓ Understand the basics of engineering drawing, including drawing sheets and instruments with the demonstration of types of lines, lettering methods, and scales for accurate representation.
- ✓ Read and interpret architectural and construction drawings.
- ✓ Demonstrate knowledge of building codes, design standards, and functional space in planning.
- ✓ Ensure compliance with suggested dimension for different components of the building by Indian Standards.
- ✓ Able to perform site survey of any topography with the help of chain, compass, dumpy level, and total station.
- ✓ Handling of surveying instrument.
- ✓ Demonstrate the application of basic CAD commands and draw geometric patterns and simple plans of some civil infrastructure by using AutoCAD (2D and 3D).

COURSE REQUIREMENTS: The learner should be holding a 10th Grade pass certificate.

COURSE LEVEL: This course can be taken up at Intermediate level in Grade XI and Grade XII.

COURSE DURATION: Total: 600 hours

Grade 11: 300 hours

Grade 12: 300 hours

Total: 600 hours

2. SCHEME OF UNITS AND ASSESSMENT

This course is a planned sequence of instructions consisting of Units meant for developing employ-ability and vocational competencies of students of Grade XI and XII opting for vocational subject along with general education subjects. The unit-wise distribution of hours and marks for **Grade XI** is as follows:

GRADE XI			
	Units	No. of Hours for Theory and Practical 300	Max. Marks for Theory & Practical 100
Part A	Employability Skills		
Unit 1	Communication Skills – III	25	10
Unit 2	Self-management Skills – III	25	
Unit 3	Information and Communication Technology Skills-III	20	
Unit 4	Entrepreneurial Skills – III	25	
Unit 5	Green Skills – III	15	
	Total Hours	110	10
Part B	Vocational Skills		
Unit 1	Draughtsmanship and Safety Practices	40	40
Unit 2	Basics of Engineering Drawing	15	
Unit 3	Building Components and Materials	30	
Unit 4	Building Planning and Drawing	40	
Unit 5	Surveying	40	
	Total Hours	165	40
Part C	Practical Work		
	Practical Examination	06	15
	Written Test	01	10
	Viva Voce	03	10
	Total	10	35
Part D	Project Work/ Field Visit		
	Practical File/Student Portfolio	10	10
	Viva Voce	05	05
	Total	15	15
	Grand Total	300	100

The unit-wise distribution of hours and marks for **Grade XII** is as follows:

GRADE XII			
	Units	No. of Hours for Theory and Practical 300	Max. Marks for Theory & Practical 100
Part A	Employability Skills		
Unit 1	Communication Skills – IV	25	10
Unit 2	Self-management Skills – IV	25	
Unit 3	Information and Communication Technology Skills-IV	20	
Unit 4	Entrepreneurial Skills – IV	25	
Unit 5	Green Skills – IV	15	
	Total Hours	110	10
Part B	Vocational Skills		
Unit 1	Introduction to AutoCAD	40	40
Unit 2	AutoCAD for Building plans	40	
Unit 3	Roads and Railways	30	
Unit 4	Bridges and Culverts	20	
Unit 5	Basics of 3D modelling in AutoCAD	35	
	Total Hours	165	40
Part C	Practical Work		
	Practical Examination	06	15
	Written Test	01	10
	Viva Voce	03	10
	Total	10	35
Part D	Project Work/ Field Visit		
	Practical File/Student Portfolio	10	10
	Viva Voce	05	05
	Total	15	15
	Grand Total	300	100

3. TEACHING/TRAINING ACTIVITIES

The teaching and training activities have to be conducted in classroom, laboratory/ workshops and field visits. Students should be taken to field visits for interaction with experts and to expose them to the various tools, equipment, materials, procedures and operations in the workplace. Special emphasis should be laid on the occupational safety, health and hygiene during the training and field visits.

CLASSROOM ACTIVITIES

Classroom activities are an integral part of this course and interactive lecture sessions, followed by discussions should be conducted by trained vocational teachers. Vocational teachers should make effective use of a variety of instructional aides, such as audio-video materials, colour slides, charts, diagrams, models, exhibits, hand-outs, online teaching materials, etc. to transmit knowledge and impart training to the students.

PRACTICAL WORK IN LABORATORY/WORKSHOP

Practical work may include but not limited to hands-on-training, simulated training, role play, case-based studies, exercises, etc. Equipment and supplies should be provided to enhance hands-on learning experience of students. Only trained personnel should teach specialized techniques. A training plan that reflects tools, equipment, materials, skills and activities to be performed by the students should be submitted by the vocational teacher to the Head of the Institution.

FIELD VISITS/ EDUCATIONAL TOUR

In field visits, children will go outside the classroom to obtain specific information from experts or to make observations of the activities. A checklist of observations to be made by the students during the field visits should be developed by the Vocational Teachers for systematic collection of information by the students on the various aspects. Principals and Teachers should identify the different opportunities for field visits within a short distance from the school and make necessary arrangements for the visits.

4. ASSESSMENT AND CERTIFICATION

The National Skills Qualifications Framework (NSQF) is based on outcomes referenced to the National Occupation Standards (NOSs), rather than inputs. The NSQF level descriptors, which are the learning outcomes for each level, include the process, professional knowledge, professional skills, core skills and responsibility. The assessment is to be undertaken to verify that individuals have the knowledge and skills needed to perform a particular job and that the learning programme undertaken has delivered education at a given standard. It should be closely linked to certification so that the individual and the employer could come to know the competencies acquired through the vocational subject or course. The assessment should be reliable, valid, flexible, convenient, and cost effective and above all it should be fair and transparent. Standardized assessment tools should be used for assessment of knowledge of students. Necessary arrangements should be made for using technology in assessment of students.

KNOWLEDGE ASSESSMENT (THEORY)

Knowledge Assessment should include two components: one comprising of internal assessment and second an external examination, including theory examination to be conducted by the Board. The assessment tools shall contain components for testing the knowledge and application of knowledge.

The knowledge test can be objective paper-based test or short structured questions based on the content of the curriculum.

WRITTEN TEST

It allows candidates to demonstrate that they have the knowledge and understanding of a given topic. Theory question paper for the vocational subject should be prepared by the subject experts comprising group of experts of academicians, experts from existing vocational subject experts/teachers, and subject experts from university/colleges or industry. The respective Sector Skill Council should be consulted by the Central/State Board for preparing the panel of experts for question paper setting and conducting the examinations.

The blue print for the question paper may be as follows:

Duration: 3 hrs

Max. Mark: 40

	Typology of Question	No. of Questions			Marks
		Very Short Answer (1 mark)	Short Answer (2 Marks)	Long Answer (3 Marks)	
1.	Remembering – (Knowledge based simple recall questions, to know specific facts, terms, concepts, principles, or theories; identify, define or recite, information)	3	2	2	13
2.	Understanding – (Comprehension – to be familiar with meaning and to understand conceptually, interpret, compare, contrast, explain, paraphrase, or interpret information)	2	3	2	14
3.	Application – (Use abstract information in concrete situation, to apply knowledge to new situations: Use given content to interpret a situation, provide an example, or solve a problem)	0	2	1	07
4.	High Order Thinking Skills – (Analysis & Synthesis – Classify, compare, contrast, or differentiate between different pieces of information; Organize and/ or integrate unique pieces of information from a variety of sources)	0	2	0	04
5.	Evaluation – (Appraise, judge, and/or justify the value or worth of a decision or outcome, or to predict outcomes based on values)	0	1	0	02
	Total	5x1=5	10x2=20	5x3=15	40 (20 Ques.)

SKILL ASSESSMENT (PRACTICAL)

Assessment of skills should be done by the assessors/examiners on the basis of practical demonstration of skills by students, using a competency checklist. The competency checklist should be developed as per the National Occupation Standards (NOSs) given in the Qualification Pack for the Job Role to bring about necessary consistency in the quality of assessment across different sectors and Institutions. The student has to demonstrate competency against the performance criteria defined in the National Occupation Standards and the assessment will indicate that they are 'competent', or are 'not yet competent'. The assessors assessing the skills of the students should possess a current experience in the industry and should have undergone effective training in assessment principles and practices. The Sector Skill Councils should ensure that the assessors are provided with training on the assessment of competencies.

Practical examination

Practical examination allows candidates to demonstrate the knowledge and understanding of performing a task. This will include the performance of tasks and viva voce. Teachers/Examiner will clearly define the tasks that candidates are required to perform during the practical examination. These tasks should align with the learning objectives of the course. Students are to be evaluated based on their skills, technique, accuracy, and overall performance. For the practical exam, there should be a team of two evaluators – the subject teacher and the expert from the relevant industry certified by the Board or concerned Sector Skill Council. The same team of examiners will conduct the viva voce. They will assess the candidates' skills, adherence to industry standards, and efficiency in task execution. Special emphasis should be on assessment of the candidate's ability to troubleshoot and solve problems related to the tasks. During the viva voce, focus should be on assessment of candidate's communication skills and understanding of the subject.

Project Work Project work is a great way to assess the practical skills on a certain period or timeline. Projects should simulate real-world scenarios, allowing students to solve problems or create something tangible using the skills and knowledge they've acquired. Projects should align with the curriculum's learning objectives, ensuring that students are applying relevant concepts and skills. Clear and detailed guidelines, including project objectives, evaluation criteria, and deadlines should be provided by the teachers/assessors. Rubrics, which would include aspects like content, creativity, organization, presentation, and adherence to deadlines, should be used by the Assessors to establish specific criteria for marking or grading.

Field visits can be followed by the submission of reports by the students, based on checklist. Teachers will develop a detailed checklist of items or questions students need to address during the visit. This could include specific observations, data collection, interviews, etc. Teachers will assess the reports based on the completeness of checklist items, depth of observations, analysis, and overall presentation. After the visit, teachers will also encourage students to reflect on their field experience, for example what students learned, how will they apply the knowledge gained through the field visit, etc.

Student Portfolio is a compilation of documents that supports the students' claim of competence. Documents may include reports, articles, and photos of products prepared by students in relation to the unit of competency. Copies of certificates and awards received for academic achievements, extracurricular activities, or competitions may also be included in the portfolio. Student's portfolio may

also include personal reflections of the students on their learning journey, challenges faced, and lessons learned.

Viva voce allows candidates to demonstrate communication skills and content knowledge. Audio or video recording can be done at the time of viva voce. The number of external examiners would be decided as per the existing norms of the Board and these norms should be suitably adopted/adapted as per the specific requirements of the vocational subject. Viva voce should also be conducted to obtain feedback on the student's experiences and learning during the project work/field visits.

CONTINUOUS AND COMPREHENSIVE EVALUATION

Continuous and Comprehensive Evaluation (CCE) refers to a system of school-based evaluation of students that covers all aspects of student's development. In this scheme, the term 'continuous' is meant to emphasize that evaluation of identified aspects of students 'growth and development' is a continuous process rather than an event, built into the total teaching-learning process and spread over the entire span of academic session. The second term 'comprehensive' means that the scheme attempts to cover both the scholastic and the co-scholastic aspects of students' growth and development. For details, the CCE manual of Central Board of Secondary Education (CBSE) or the guidelines issued by the State Boards on the procedure for CCE should be followed by the Institutions.

5. UNIT CONTENTS

GRADE XI Part A: Employability Skills

Unit No.	Unit Name	Duration in Hours
Unit 1	Communication Skills – III	25
Unit 2	Self-management Skills – III	25
Unit 3	Information and Communication Technology Skills - III	20
Unit 4	Entrepreneurial Skills – III	25
Unit 5	Green Skills – III	15
	Total	110

Unit 1: Communication Skills – III

S.no	Learning Outcome	Theory (10 Hours)	Practical (15 Hours)	25
1	Demonstrate the knowledge of communication	<ul style="list-style-type: none"> • Introduction to the communication process • Importance of communication • Elements of communication. • Perspectives in communication • Effective communication 	<ul style="list-style-type: none"> • Role-play on the communication process. • Group discussion on the importance of communication and factors affecting perspectives in communication. • Charts preparation on elements of communication. • Classroom discussion on the 7Cs (i.e. Clear, Concise, Concrete, Correct, Coherent, Courteous and Complete) for effective communication 	03
2	Demonstrate verbal communication	<ul style="list-style-type: none"> • Verbal communication • Public Speaking 	<ul style="list-style-type: none"> • Role play of a phone conversation, • Group exercise on delivering a speech and practicing public speaking 	02
3	Demonstrate non-verbal communication	<ul style="list-style-type: none"> • Importance of non-verbal communication, • Types of non-verbal communication, • Visual communication 	<ul style="list-style-type: none"> • Role plays on non-verbal communication, • Group exercise and discussion on Do's and Don'ts to avoid body language mistakes, 	02

			<ul style="list-style-type: none"> Group activity on methods of communication. 	
4	Demonstrate speech using correct pronunciation	<ul style="list-style-type: none"> Pronunciation basics, Speaking properly, Phonetics, Types of sounds 	<ul style="list-style-type: none"> Group activities on pronouncing words, 	01
5	Demonstrate the knowledge of assertive communication style	<ul style="list-style-type: none"> Important communication styles, Assertive communication, Advantages of assertive communication, Practicing assertive communication. 	<ul style="list-style-type: none"> Group discussion on communication styles, Group discussion on observing and sharing communication styles. 	02
6	Demonstrate the knowledge of saying no	<ul style="list-style-type: none"> Steps for saying "No" Connecting words (Conjunctions) 	<ul style="list-style-type: none"> Group discussion on how to respond, Group discussion on how to say 'No' 	01
7	Identify and use parts of speech in writing	<ul style="list-style-type: none"> Capitalisation, Punctuation, Basic parts of speech, Supporting parts of speech 	<ul style="list-style-type: none"> Group exercises on identifying parts of speech, Group activity on constructing sentences, Group exercises on nouns. 	02
8	Write sentences and paragraphs	<ul style="list-style-type: none"> Parts of a sentence, Types of objects, Types of sentences, Paragraph 	<ul style="list-style-type: none"> Exercises on making sentences, Activity on active and passive voice, Assignment on writing different types of sentences. 	01
9	Communicate with people	<ul style="list-style-type: none"> Greetings, Introducing self and others 	<ul style="list-style-type: none"> Role-play on formal and informal greetings, Role-play on introducing someone, Practice session and group discussion on greeting different people 	03
10	Introduce yourself to others and write about oneself	<ul style="list-style-type: none"> Talking about self, Filling out a form to write about self 	<ul style="list-style-type: none"> Practicing self-introduction to write about self, Filling up forms to write about self 	02
11	Develop questioning skill	<ul style="list-style-type: none"> Main types of questions, Forming closed and open-ended questions 	<ul style="list-style-type: none"> Exercise on asking different types of questions, Group activity on framing open ended and close ended questions. 	01

12	Communicate information about family to others	<ul style="list-style-type: none"> Names of relatives, Relations 	<ul style="list-style-type: none"> Practice taking about family, Role-ply on talking about family members 	02
13	Describe habits and routines	<ul style="list-style-type: none"> Concept of habits and routines 	<ul style="list-style-type: none"> Group discussion on habits and routines, Group activity on describing routines. 	02
14	Ask or give directions to others	<ul style="list-style-type: none"> Asking for directions to place, Giving directions for a place. 	<ul style="list-style-type: none"> Role-play on asking and giving directions, Identifying symbols used for giving directions. 	01
Total Duration in Hours				25

Unit 2: Self-management Skills – III

S.No	Learning Outcome	Theory (10 Hours)	Practical (15 Hours)	25
1.	Identify and analyse own strengths and weaknesses	<ul style="list-style-type: none"> Knowing yourself, Identifying strengths and weaknesses, Difference between interests and abilities. 	<ul style="list-style-type: none"> Activity on writing aims in life, Prepare a worksheet on interests and abilities. 	03
2.	Demonstrate personal grooming skills	<ul style="list-style-type: none"> Guidelines for dressing and grooming, 	<ul style="list-style-type: none"> Role-play on dressing and grooming standards, Self-reflection activity on dressing and grooming. 	04
3.	Maintain personal hygiene	<ul style="list-style-type: none"> Importance of personal hygiene Three steps to personal hygiene Essential steps of hand washing 	<ul style="list-style-type: none"> Role-play on personal hygiene, Assignment on personal hygiene. 	03
4.	Demonstrate the knowledge of working in a team and participating in group activities	<ul style="list-style-type: none"> Describe the benefits of teamwork, Working in a team. 	<ul style="list-style-type: none"> Assignment on working in a team, Self-reflection on teamwork. 	03
5	Describe the importance of networking skills	<ul style="list-style-type: none"> Benefits of networking skills, Steps to build networking skills. 	<ul style="list-style-type: none"> Group exercise on networking in action, Assignment on networking skills. 	03
6	Describe the meaning and	<ul style="list-style-type: none"> Self-motivation, Types of motivation, 	<ul style="list-style-type: none"> Activity on staying motivated, 	03

	importance of self-motivation	<ul style="list-style-type: none"> Qualities of self-motivation. 	<ul style="list-style-type: none"> Assignment on reasons hindering motivation. 	
7	Set SMART goals	<ul style="list-style-type: none"> Meaning of goals and purpose of goal-setting, Setting SMART (Specific, Measurable, Attainable, Realistic and Timebound) goals 	<ul style="list-style-type: none"> Assignment on setting SMART goals, Activity on developing long-term and short-term goals using SMART method. 	03
8	Apply time management strategies and techniques	<ul style="list-style-type: none"> Time management, Steps for effective time management 	<ul style="list-style-type: none"> Preparing checklist of daily activities, Preparing to-do-list. 	03
Total Duration in Hours				25

Unit 3: Information and Communication Technology Skills – III

S.No	Learning Outcome	Theory (08 Hours)	Practical (12 Hours)	20
1.	Create a document on the word processor	<ul style="list-style-type: none"> Introduction to ICT, Advantages of using a word processor, Working with LibreOffice Writer 	<ul style="list-style-type: none"> Group activity on demonstration and practice of the following: Creating a new document Typing text Saving the text Opening and saving file in Microsoft word/Libre Office Writer 	02
2.	Identify icons on the toolbar	<ul style="list-style-type: none"> Standard user interface of LibreOffice Writer Status bar, Menu bar, Tool bar Making text bold 	<ul style="list-style-type: none"> Group activity on using basic user interface of LibreOffice Writer, Group activity on working with Microsoft Word. 	02
3.	Save, close, open and print document	<ul style="list-style-type: none"> Saving a document, Closing a document, Opening an existing document, Printing a document 	<ul style="list-style-type: none"> Group activity on performing the functions for saving, closing and printing documents in LibreOffice Writer, Group activity on performing the functions to save, close and print documents. 	02
4.	Format text in a document	<ul style="list-style-type: none"> Changing style and size of text Aligning text, Cutting, Copying, Pasting text, Find and replace 	<ul style="list-style-type: none"> Group activity on formatting text in LibreOffice Writer, Group activity on formatting text in Microsoft Word 	02
5.	Check spelling	<ul style="list-style-type: none"> Starting s spell checker, 	<ul style="list-style-type: none"> Group activity on checking 	02

	and grammar in a word document	<ul style="list-style-type: none"> • Short-cut menu for spell checker, • Autocorrect spelling. 	spellings and Grammar using LibreOffice Writer, <ul style="list-style-type: none"> • Group activity on checking spellings and Grammar using Microsoft Word 	
6.	Insert lists, tables, pictures, and shapes in a word document	<ul style="list-style-type: none"> • Inserting bullet list, number list in document, • Inserting Tables in document, • Inserting Pictures in document, • Inserting Shapes in document, 	<ul style="list-style-type: none"> • Practical exercise of inserting lists and tables in LibreOffice Writer 	03
7.	Insert header, footer and page number in a word document	<ul style="list-style-type: none"> • Inserting header, • Inserting footer, • Inserting page number, • Inserting page count 	<ul style="list-style-type: none"> • Practical exercise of inserting header, footer and page numbers in LibreOffice Writer and Microsoft Word. 	03
8.	Make changes by using the track change option in a word document	<ul style="list-style-type: none"> • Tracking option • Manage option • Compare documents 	<ul style="list-style-type: none"> • Group activity on performing track changes in LibreOffice Writer and Microsoft Word 	04
Total Duration in Hours				20

Unit 4: Entrepreneurial Skills – III

S.no	Learning Outcome	Theory (10 Hours)	Practical (15 Hours)	25
1.	Differentiate between different kinds of businesses	<ul style="list-style-type: none"> • Introduction to entrepreneurship • Types of business activities – manufacturing, trading and service. 	<ul style="list-style-type: none"> • Role plays on different kind of business around us. 	03
2.	Describe the significance of entrepreneurial values	<ul style="list-style-type: none"> • Values of an Entrepreneur, • Case study on qualities of an entrepreneur. 	<ul style="list-style-type: none"> • Role plays on qualities of an entrepreneur 	03
3.	Describe the attitudinal changes required to become an entrepreneur	<ul style="list-style-type: none"> • Difference between the attitude of entrepreneur and employee. 	<ul style="list-style-type: none"> • Interviewing employees and entrepreneurs. 	03
4.	Describe the importance of thinking like an	<ul style="list-style-type: none"> • Problems of entrepreneurs • Problem-solving, • Thinking like an entrepreneur to solve problems. 	<ul style="list-style-type: none"> • Group activity on identifying and solving problems 	04

	entrepreneur			
5.	Generate business ideas	<ul style="list-style-type: none"> The business cycle, Principles of idea creation, Generating a business idea, Case studies. 	<ul style="list-style-type: none"> Group activity to create business ideas. 	04
6.	Describe customer needs and importance of conducting a customer survey	<ul style="list-style-type: none"> Understanding customer needs Conducting a customer survey 	<ul style="list-style-type: none"> Group activity to conduct a customer survey 	04
7.	Create a business plan	<ul style="list-style-type: none"> Importance of business planning, Preparing a business plan, Principles to follow for growing a business, Case studies 	<ul style="list-style-type: none"> Group activity on developing a business plan 	04
Total Duration in Hours				25

Unit 5: Green Skills – III

S.no	Learning Outcome	Theory (07 Hours)	Practical (08 Hours)	15
1.	Describe the importance of the main sector of the green economy	<ul style="list-style-type: none"> Important sectors of the green economy- Articulture, Energy resources, Construction, Fisheries, Forestry, Tourism, Transport, Water Management, Waste Management, Manufacturing, Industry. 	<ul style="list-style-type: none"> Group discussion on sectors of green economy, Poster making on various sectors for promoting green economy 	06
2.	Describe the policies for the green economy	<ul style="list-style-type: none"> Policies for a green economy 	<ul style="list-style-type: none"> Group discussion on initiatives for promoting the green economy, Writing an essay or short note on initiatives for promoting the green economy. 	03
3.	Describe the major green sector/area and the role of various stakeholders in the green economy	<ul style="list-style-type: none"> Stakeholders in the green economy 	<ul style="list-style-type: none"> Group discussion on the role of stakeholders in green economy, Making solar bulbs. 	03

4.	Identify the role of government and private agencies in the green economy	<ul style="list-style-type: none"> • Role of the government in promoting a green economy, • Role of private agencies in promoting green economy. 	<ul style="list-style-type: none"> • Group discussion on the role of government and private agencies in promoting a green economy. • Preparing posters on green sectors. 	03
			Total Duration in Hours	15

GRADE XI

Part B: Vocational Skills

Unit No.	Unit Name	Duration in Hours
Unit 1	Draughtsmanship and Safety Practices	20
Unit 2	Basics of Engineering Drawing	35
Unit 3	Building Components and Materials	30
Unit 4	Building Planning and Drawing	40
Unit 5	Surveying	40
	Total Duration	165

Unit 1: Draughtsmanship and Safety Practices

S. No.	Learning Outcome	Theory (15 Hours)	Practical (5 Hours)	20
1.	Understand the role of a Draughtsman civil.	<ul style="list-style-type: none"> Introduction to Draughtsman – civil. Roles of draughtsman- civil Scope of work and skills required 	<ul style="list-style-type: none"> Observation of various types of plans used in the construction of civil infrastructures. 	5
2.	Use of personal protective equipment and identification of safety symbols and hazards.	<ul style="list-style-type: none"> Personal protective equipment. Identification of safety symbols and hazards. Practising first aid. 	<ul style="list-style-type: none"> Use of personal protective equipment. Use of first aid. 	15
			Total Duration in Hours	20

Unit 2: Basics of Engineering Drawing

S.No	Learning Outcome	Theory (10 Hours)	Practical (25 Hours)	35
1.	Understand Engineering Drawing tools and draw geometrical shapes in different projections and scales to enhance	<ul style="list-style-type: none"> Introduction to Engineering Drawing and drawing tools Lines, Lettering and Dimensioning. Scales - Plain scale and Diagonal Scale Projections-Orthographic and Isometric. 	<ul style="list-style-type: none"> Drawing different types of lines. Practicing different letters and numbers. Drawing different types of scales. Drawing geometrical shapes with different projections. 	25

	visualization.			
2.	Understand and represent various building components and utilities using symbols.	<ul style="list-style-type: none"> Abbreviations used in drawing Types of Doors and Ventilations Different utilities used in a civil infrastructure. 	<ul style="list-style-type: none"> Drawings of the symbols used to indicate different materials. Drawing of the symbols used to indicate doors, windows and ventilation. Drawing electrical installation symbols. Drawing sanitary installation symbols. 	10
Total Duration in Hours				35

Unit 3: Building Components and Materials

S.No	Learning Outcome	Theory (20 Hours)	Practical (10 Hours)	30
1.	Understanding about different building materials, its uses and properties	<ul style="list-style-type: none"> Stones - definition, types, properties and uses. Bricks - types, properties, Different types of brick bonds. Timber - Types, properties, and uses. Steels - types, properties, and uses. Cement- types, components, properties etc. Mortar and concrete. 	<ul style="list-style-type: none"> Drawing different types of brick bonds. 	15
2.	Understand various parts of a building.	<ul style="list-style-type: none"> Building sub structure <ul style="list-style-type: none"> Foundation – shallow and deep foundation Plinth Beam Damp Proof Course (DPC) Super Structure <ul style="list-style-type: none"> Floors Walls Columns and Beams Roof or Slab Parapet walls. 	<ul style="list-style-type: none"> Drawing top view and Cross-section of different types of foundation and footing. Drawing cross section of a building showing various components of both sub structure and super structure. 	15
Total Duration in Hours				30

Unit 4: Building Planning and Drawing

S.No	Learning Outcome	Theory (10 Hours)	Practical (20 Hours)	30
1.	<ul style="list-style-type: none"> Understand types of buildings and 	<ul style="list-style-type: none"> Types of Buildings Types of building drawings Principle of planning 	<ul style="list-style-type: none"> Planning of simple residential building in a drawing sheet. 	10

	building drawings <ul style="list-style-type: none"> Development of plans using principle of planning. 	<ul style="list-style-type: none"> Aspect Prospect Orientation Grouping Circulation Privacy Water supply and Sanitation Economy Safety 		
2.	Draw building plans with recommended space requirements and norms as per Indian Standards.	<ul style="list-style-type: none"> Building area requirements <ul style="list-style-type: none"> Set back area Open area Plinth area Floor area Carpet area Built-up area Super built-up area Floor area ratio/ FSI Standard norms <ul style="list-style-type: none"> Importance of space norms Minimum dimensions of rooms Residential building norms Public Building norms. Minimum dimensions for doors and windows Space requirement for various utilities of the building 	<ul style="list-style-type: none"> Draw a plan and front elevation for 1 BHK residential building. Draw a plan for 2 BHK residential building. Draw a plan for simple commercial building or an office. 	30
Total Duration in Hours				40

Unit 5: Surveying

S.No	Learning Outcome	Theory (10 Hours)	Practical (30 Hours)	50
1.	Understand the fundamental principles and types of surveying.	<ul style="list-style-type: none"> Introduction and fundamental principles of Surveying Types of Surveying 	<ul style="list-style-type: none"> Demonstrate common type of surveying equipment used with all type of surveying. 	2
2.	Perform site survey with chain and compass to prepare site plan	<ul style="list-style-type: none"> Chain Survey <ul style="list-style-type: none"> Equipment used to perform chain survey. Distance measuring with chain <ul style="list-style-type: none"> Entering field book and calculation of 	<ul style="list-style-type: none"> Perform chain and compass survey in a group of a site. Entering field book and plotting. 	18

		area. • Compass Survey <ul style="list-style-type: none"> Types of compasses. Bearing and angles 		
3.	Perform site survey by using levelling instrument to prepare site plan	• Levelling <ul style="list-style-type: none"> Definition of the technical terms used in levelling. Levelling instruments. Temporary adjustments of the instruments. Steps involve in levelling. Calculating reduce levels and documentation 	• Perform levelling of a site in a group. • Entering field book and plotting.	10
4.	Application of Total Station in surveying	• Introduction to Total Station • Application • How it works? • Coordinate determination	• Performing Surveying by using Total Station on site.	10
Total Duration in Hours				40

GRADE XII

Part A: Employability Skills

Unit No.	Unit Name	Duration (Hrs.)
Unit 1	Communication Skills – IV	25
Unit 2	Self-management Skills – IV	25
Unit 3	Information and Communication Technology Skills – IV	20
Unit 4	Entrepreneurial Skills – IV	25
Unit 5	Green Skills – IV	15
Total Hours		110

Unit 1: Communication Skills – IV

S.No	Learning Outcome	Theory (10 Hours)	Practical (15 Hours)	25
1.	Demonstrate active listening skills	• Active listening -listening skill and stages of active listening, • Overcoming barriers to active listening.	• Group discussion on the factors affecting active listening, • Preparing posters of steps for active listening,	10

			<ul style="list-style-type: none"> • Role-play on negative effects of not listening actively. 	
2.	Identify the parts of speech	<ul style="list-style-type: none"> • Parts of speech – using capitals, punctuation, basic parts of speech, supporting parts of speech, • Supporting parts of speech. 	<ul style="list-style-type: none"> • Group practice on identifying parts of speech. • Group practice on constructing sentences. 	10
3.	Write sentences	<ul style="list-style-type: none"> • Writing simple sentence, • Writing complex sentence, • Types of objects, • Types of sentences <ul style="list-style-type: none"> • Active and Passive sentences, • Statement/Declarative sentence, • Question/Interrogative sentence, • Emotion/Reaction or Exclamatory sentence, • Order or Imperative sentence. 	<ul style="list-style-type: none"> • Group work on writing sentences and paragraphs, • Group work on practicing writing sentences in active or passive voice, • Group activity on writing different types of sentences (i.e., declarative, exclamatory, interrogative and imperative) 	05
Total Duration in Hours				25

Unit 2: Self-management Skills – IV

S.No	Learning Outcome	Theory (10 Hours)	Practical (15 Hours)	25
1.	Describe the various factors influencing motivation and positive attitude	<ul style="list-style-type: none"> • Motivation and positive attitude, • Intrinsic and extrinsic motivation • Positive attitude – ways to maintain positive attitude, • Stress and stress management - ways to manage stress 	<ul style="list-style-type: none"> • Role Play on avoiding stressful situation, • Activity on listing negative situations and ways to turn it positive. 	10
2.	Demonstrate the knowledge of becoming oriented	<ul style="list-style-type: none"> • Becoming result oriented, • Goal setting – examples of result-oriented goals. 	<ul style="list-style-type: none"> • Group activity on listing sim in life. 	05
3.	Describe the importance of self-awareness and the basic personality traits, types and disorders	<ul style="list-style-type: none"> • Steps towards self-awareness, • Personality and basic personality traits, • Common personality disorders- <ul style="list-style-type: none"> • Suspicious, • Emotional and impulsive, • Anxious, • Steps to overcome personality disorders 	<ul style="list-style-type: none"> • Group discussion on self-awareness. 	10

			Total Duration in Hours	25
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Unit 3: Information and Communication Technology Skills – IV

S.No	Learning Outcome	Theory (06 Hours)	Practical (14 Hours)	20
1.	Identify the components of a spreadsheet application	<ul style="list-style-type: none"> Getting started with spreadsheet – types of a spreadsheet, components of a worksheet, Steps to start LibreOffice Calc, Components of worksheet 	<ul style="list-style-type: none"> Group activity on identifying components of spreadsheet in LibreOffice Calc 	02
2.	Perform basic operations in a spreadsheet	<ul style="list-style-type: none"> Opening workbook and entering data – types of data, steps to enter data, editing and deleting data in a cell, Selecting multiple cells, Saving the spreadsheet in various formats, Closing the spreadsheet, Opening the spreadsheet, Printing the spreadsheet. 	<ul style="list-style-type: none"> Group activity on working with data on LibreOffice Calc 	03
3.	Demonstrate the knowledge of working with data and formatting text	<ul style="list-style-type: none"> Using a spreadsheet for addition – adding value directly, adding by using cell address, using a mouse to select values in a formula, using sum function, copying and moving formula, Need to format cell and content, Changing text style and font size, Aligning text in a cell, Highlighting text. 	<ul style="list-style-type: none"> Group activity on formatting a spreadsheet in LibreOffice Calc Group activity on performing basic calculations in LibreOffice Calc. 	02
4.	Demonstrate the knowledge of using advanced features in spreadsheet	<ul style="list-style-type: none"> Sorting data, Filtering data, Protecting spreadsheet with password 	<ul style="list-style-type: none"> Group activity on sorting data in LibreOffice Calc 	03
5.	Make use of the software used for making slide presentations	<ul style="list-style-type: none"> Steps to start LibreOffice Impress, Adding text to a slide presentation 	<ul style="list-style-type: none"> Group practice on working with LibreOffice Impress tools 	02
6.	Demonstrate the knowledge to open, close and save slide presentations	<ul style="list-style-type: none"> Open, Close, Save and Print a slide presentation 	<ul style="list-style-type: none"> Group activity on saving, closing and opening a presentation in LibreOffice Impress 	01

7.	Demonstrate the operations related to slides and texts in the presentation	<ul style="list-style-type: none"> Working with slides and text in a presentation- adding slides to a presentation, deleting slides, adding and formatting text, highlighting text, aligning text, changing text colour 	<ul style="list-style-type: none"> Group practice on working with font styles and types in LibreOffice Impress. 	04
8.	Demonstrate the use of advanced features in a presentation	<ul style="list-style-type: none"> Advanced features used in the presentation, Inserting shapes in the presentation, Inserting clipart and images in the presentation, Changing slide layout. 	<ul style="list-style-type: none"> Group activity on changing slide layout in LibreOffice Impress. 	03
Total Duration in Hours				20

Unit 4: Entrepreneurial Skills – IV

S.No	Learning Outcome	Theory (10 Hours)	Practical (15 Hours)	25
1.	Describe the concept of entrepreneurship and the types and roles and functions entrepreneur	<ul style="list-style-type: none"> Entrepreneurship and entrepreneur, Characteristics of entrepreneurship, Entrepreneurship-art and science, Qualities of a successful entrepreneur, Types of entrepreneurs, Roles and functions of an entrepreneur, What motivates an entrepreneur? Identifying opportunities and risk-taking, Startup. 	<ul style="list-style-type: none"> Group discussion on the topic "An entrepreneur is not born but created". Conducting a classroom quiz on various aspects of entrepreneurship. 	10
2.	Identify the barriers to entrepreneurship	<ul style="list-style-type: none"> Barriers to entrepreneurship, Environmental barriers, Faulty business plan, Personal barriers 	<ul style="list-style-type: none"> Group discussion about "What we fear about entrepreneurship" Activity on taking an interview of an entrepreneur. 	05
3.	Identify the attitude that make entrepreneur successful	<ul style="list-style-type: none"> Entrepreneurial attitude. 	<ul style="list-style-type: none"> Group activity on identifying entrepreneurial attitude. 	05
4.	Demonstrate the knowledge of entrepreneurial attitude and competencies	<ul style="list-style-type: none"> Entrepreneurial competencies Decisiveness, Initiative Interpersonal skills-positive attitude, stress management 	<ul style="list-style-type: none"> Playing games, such as "Who am I". Brainstorming a business idea Group practice on "Best out of Waste" 	05

		<ul style="list-style-type: none"> Perseverance Organisational skills- time management, goal setting, efficiency, managing quality. 	<ul style="list-style-type: none"> Group discussion on the topic of "Let's grow together" Group activity on listing stress and methods to deal with it like Yoga, deep breathing exercise. 	
			Total Duration in Hours	25

Unit 5: Green Skills – IV

S.No	Learning Outcome	Theory (05 Hours)	Practical (10 Hours)	15
1.	Identify the benefits of the green jobs	<ul style="list-style-type: none"> Green jobs Benefits of green jobs Green jobs in different sectors: <ul style="list-style-type: none"> Agriculture Transportation Water conservation Solar and wind energy Eco-tourism Building and construction Solid waste management Appropriate technology 	<ul style="list-style-type: none"> Group discussion on the importance of green job, 	08
2	State the importance of green jobs	<ul style="list-style-type: none"> Importance of green jobs in <ul style="list-style-type: none"> Limiting greenhouse gas emissions, Minimizing waste and pollution, Protecting and restoring ecosystems, Adapting to the effects of climate change 	<ul style="list-style-type: none"> Preparing posters on green jobs, Group activity on tree plantation. 	07
			Total Duration in Hours	15

GRADE XII

Part B: Vocational Skills

S.No	Units	Duration in Hours
Unit 1	Introduction to AutoCAD	40
Unit 2	AutoCAD for Building Plans	40
Unit 3	Roads and Railway tracks	30
Unit 4	Bridges and Culverts	20
Unit 5	Basics of 3D modelling in AutoCAD	30
	Total Duration	165

Unit 1: Introduction to AutoCAD

S.No	Learning Outcome	Theory (10 Hours)	Practical (30 Hours)	40
1.	Understand history and wide range of application of AutoCAD software	<ul style="list-style-type: none"> • Introduction to Autodesk and AutoCAD • History of AutoCAD • Applications of AutoCAD • Introduction to the AutoCAD's interface. 	<ul style="list-style-type: none"> • Open AutoCAD and observe its interface • Setting units • Save file in AutoCAD 	05
2.	Understand and apply various AutoCAD commands for preparing 2D geometrical drawings.	<ul style="list-style-type: none"> • Drawing commands <ul style="list-style-type: none"> • Line • Circle • Arc • Rectangle • Polygon • Ellipse • Point • Hatch • Text • Modify commands <ul style="list-style-type: none"> • Move • Copy • Rotate • Mirror • Offset • Trim • Extend • Fillet • Chamfer • Scale • Stretch • Array • Erase • Dimensioning and layering • Object snap and view port • File management and plotting <ul style="list-style-type: none"> • New drawing • Open existing drawing • Save drawing • Export and import • Dwg to PDF • Print/plot drawing 	<ul style="list-style-type: none"> • Drawing different geometrical shapes and patterns using AutoCAD commands 	35
			Total Duration in Hours	35

Unit 2: AutoCAD for Building Plans

S.No	Learning Outcome	Theory (10 Hours)	Practical (30 Hours)	40
1.	Use AutoCAD commands for building Plans.	<ul style="list-style-type: none"> Steps for drawing common doors (Top view) Steps for drawing common windows (top view) Steps for drawing L-shaped, U shaped and circular stairs. 	<ul style="list-style-type: none"> Drawing the plan and front elevation of 1 BHK residential building. Draw plan for 2 BHK residential building. Draw plan for simple commercial building or an office. <p><i>Note – Draw above-mentioned drawings with doors, windows, staircase with appropriate dimensioning.</i></p>	40
			Total Duration in Hours	40

Unit 3: Roads and Railways

S.no	Learning Outcome	Theory (10 Hours)	Practical (20 Hours)	30
1.	Understand and draw the typical cross-section of a road using AutoCAD.	<ul style="list-style-type: none"> Components of roads. <ul style="list-style-type: none"> Carriage way or pavement Road way or formation width Camber Kerbs Medians Road Margins Right of way Types of roads 	<ul style="list-style-type: none"> Draw typical cross section of the road given in the exercise and practice it by changing the data. 	15
2.	Understand and demonstrate the typical cross-section of a railway track	<ul style="list-style-type: none"> Components of a railway track. <ul style="list-style-type: none"> Rails Sleepers Ballast Subgrade 	<ul style="list-style-type: none"> Draw typical cross section of the railway track given in the exercise and practice it by changing the data. 	15
			Total Duration in Hours	30

Unit 4: Bridges and Culverts

S.No	Learning Outcome	Theory (10 Hours)	Practical (10 Hours)	20
1.	Understand and draw components	<ul style="list-style-type: none"> Types of bridge Components of bridge Types of culverts 	<ul style="list-style-type: none"> Draw basic structure of bridge 	20

	of bridge.	• Components of culvert		
			Total Duration in Hours	20

Unit 5: Basics of 3D modelling in AutoCAD				
S.No	Learning Outcome	Theory (10 Hours)	Practical (25 Hours)	35
1.	Draw 3D geometrical figures using 3D modelling commands.	<ul style="list-style-type: none"> 3D workspace, viewing and navigation commands. <ul style="list-style-type: none"> 3D Orbit View cube Hide Workspace Display (2D wireframe, realistic, conceptual etc) 3D modelling commands. <ul style="list-style-type: none"> Box Cone Sphere Cylinder Pyramid Extrude Press-pull Revolve Sweep Loft Editing and modification. <ul style="list-style-type: none"> Union Subtract Intersect Slice Section Plane Fillet edge Chamfer edge Shell Thicken Visualization and rendering. 	<ul style="list-style-type: none"> Drawing 3D geometrical figures using AutoCAD 3D commands. Create a 3D model of a building. 	35
			Total Duration in Hours	35

6. ORGANISATION OF FIELD VISITS and OJT

In a year, at least 3 field visits/educational tours should be organised for students to expose them to real-world workplace activities related to Draughtsman civil. These visits will provide hands-on learning experiences and insights into the functioning of various automotive setups.

The following are recommended sites for field visits:

1. Construction Site

7. LIST OF EQUIPMENT AND MATERIALS

The list provided below serves as a preliminary guide; a comprehensive inventory should be developed by the vocational instructor. The institution should limit its procurement to essential tools, equipment, and accessories to facilitate students in performing routine tasks consistently. This approach will enable students to engage in practical activities regularly and acquire the necessary hands-on experience.

Classroom Aids	Equipment and Software	Consumable items
<ul style="list-style-type: none"> Charts, CBTs, LCD Projector and Videos. Cleaning equipment and solutions SOP Charts on safety norms and drills Charts of dos and Don'ts in work area. Audio/video on English, Hindi or local language course 	<p>DRAFTING EQUIPMENT</p> <ul style="list-style-type: none"> Refer Annexure 1 <p>SURVEYING EQUIPMENT</p> <ul style="list-style-type: none"> Chain and tape Arrows Pegs Ranging Rod Offset rod Plumb bob Cross staff Prismatic and Surveyor compass Tripod Dumpy Level Levelling staff Total station with prism and prism pole. <p>SOFTWARE</p> <ul style="list-style-type: none"> AutoCAD 	<ul style="list-style-type: none"> Measuring thread Rope Marking powder Stakes/pins Marking paint Marking flag Spray paint/ chalk Batteries for total station

Annexure 1 (Engineering Drawing Instruments)

S. No.	Equipment & Materials	Quantity
1.	Drawing paper	10
2.	Masking tape	1
3.	Pencil sharpener	1
4.	Eraser	1
5.	Drawing pencils	5
6.	Triangular scales	1 set
7.	Erasing shield	1
8.	T-square	1
9.	Triangles (30°-60° and 45°)	1
10.	Compass	1
11.	Divider	1
12.	Protractor	1
13.	Templates	1

14.	Portable drafting board	1
15.	Drafting table	1
16.	Drafting stool	1
17.	Drafting machine	1
18.	Blueprint machine	1
19.	French curve	1 set
20.	Ruling pen	1
21.	Drawing ink	1
22.	Water colour	1
23.	Tracing paper	1
24.	Drafting tape	1
25.	Speedball pens	1
26.	AutoCAD software	As per users

8. TEACHER'S/TRAINER'S QUALIFICATION

Qualification and other requirements for appointment of vocational teachers/trainers on contractual basis should be decided by the State/UT. The suggestive qualifications and minimum competencies for the vocational teacher should be as follows:

Qualification	Minimum Competencies	Age Limit
Essential: B. Tech in Civil Engineering from a recognized Institute/University, with at least 1-year work/teaching experience in Civil Drafting. OR Diploma in Civil Engineering from a recognized Institute/University, with at least 2 years of work/teaching experience in Civil drafting. OR B. Voc. in Civil Engineering from a recognized Institute/University, with at least 1 year of work/teaching experience in Civil Drafting.	Effective communication skills (oral and written) Basic computing skills	18-37 years (as on Jan. 01 (year)) Age relaxation to be provided as per Govt. rules

Vocational Teachers/Trainers form the backbone of Vocational Education being imparted as an integral part of Samagra Shiksha. They are directly involved in teaching of vocational subjects and also serve as a link between the industry and the schools for arranging industry visits, On-the-Job Training (OJT) and placement.

These guidelines have been prepared with an aim to help and guide the States in engaging quality Vocational Teachers/Trainers in the schools. Various parameters that need to be looked into while engaging the Vocational Teachers/Trainers are mode and procedure of selection of Vocational Teachers/Trainers, Educational Qualifications, Industry Experience, and Certification/ Accreditation.

The State may engage Vocational Teachers/Trainers in schools approved under the component of Vocationalisation of Secondary and Higher Secondary Education under RMSA in following ways:

2. Directly as per the prescribed qualifications and industry experience suggested by the PSS Central Institute of Vocational Education (PSSCIVE), NCERT or the respective Sector Skill Council (SSC).

OR

1. Through accredited Vocational Training Providers accredited under the National Quality Assurance Framework (NQAF*) approved by the National Skill Qualification Committee on 21.07.2016. If the State is engaging Vocational Teachers/Trainers through the Vocational Training Provider (VTP), it should ensure that VTP should have been accredited at NQAF Level 2 or higher.

** The National Quality Assurance Framework (NQAF) provides the benchmarks or quality criteria which the different organisations involved in education and training must meet in order to be accredited by competent bodies to provide government-funded education and training/skills activities. This is applicable to all organizations offering NSQF-compliant qualifications.*

The educational qualifications required for being a Vocational Teacher/Trainer for a particular job role are clearly mentioned in the curriculum for the particular NSQF compliant job role. The State should ensure that teachers / trainers deployed in the schools have relevant technical competencies for the NSQF qualification being delivered. The Vocational Teachers/Trainers preferably should be certified by the concerned Sector Skill Council for the particular Qualification Pack/Job role which he will be teaching. Copies of relevant certificates and/or record of experience of the teacher/trainer in the industry should be kept as record.

To ensure the quality of the Vocational Teachers/Trainers, the State should ensure that a standardized procedure for selection of Vocational Teachers/Trainers is followed. The selection procedure should consist of the following:

1. Written test for the technical/domain specific knowledge related to the sector;
2. Interview for assessing the knowledge, interests and aptitude of trainer through a panel of experts from the field and state representatives; and
3. Practical test/mock test in classroom/workshop/laboratory.

In case of appointment through VTPs, the selection may be done based on the above procedure by a committee having representatives of both the State Government and the VTP.

The State should ensure that the Vocational Teachers/ Trainers who are recruited should undergo induction training of 20 days for understanding the scheme, NSQF framework and Vocational Pedagogy before being deployed in the schools.

The State should ensure that the existing trainers undergo in-service training of 5 days every year to make them aware of the relevant and new techniques/approaches in their sector and understand the latest trends and policy reforms in vocational education.

The Head Master/Principal of the school where the scheme is being implemented should facilitate and ensure that the Vocational Teachers/Trainers:

- Prepare session plans and deliver sessions which have a clear and relevant purpose and which engage the students;
- Deliver education and training activities to students, based on the curriculum to achieve the learning outcomes;
- Make effective use of learning aids and ICT tools during the classroom sessions;

- Engage students in learning activities, which include a mix of different methodologies, such as project-based work, team work, practical and simulation-based learning experiences;
- Work with the institution's management to organise skill demonstrations, site visits, on-job trainings, and presentations for students in cooperation with industry, enterprises and other workplaces;
- Identify the weaknesses of students and assist them in up-gradation of competency;
- Cater to different learning styles and level of ability of students;
- Assess the learning needs and abilities, when working with students with different abilities
- Identify any additional support the student may need and help to make special arrangements for that support;
- Provide placement assistance

Assessment and evaluation of Vocational Teachers/Trainers is very critical for making them aware of their performance and for suggesting corrective actions. The States/UTs should ensure that the performance of the Vocational Teachers/Trainers is appraised annually. Performance based appraisal in relation to certain pre-established criteria and objectives should be done periodically to ensure the quality of the Vocational Teachers/Trainers. Following parameters may be considered during the appraisal process:

- Participation in guidance and counselling activities conducted at Institutional, District and State level;
- Adoption of innovative teaching and training methods;
- Improvement in result of vocational students of Class X or Class XII;
- Continuous up-gradation of knowledge and skills related to the vocational pedagogy, communication skills and vocational subject;
- Membership of professional society at District, State, Regional, National and International level;
- Development of teaching-learning materials in the subject area;
- Efforts made in developing linkages with the Industry/Establishments;
- Efforts made towards involving the local community in Vocational Education
- Publication of papers in National and International Journals;
- Organisation of activities for promotion of vocational subjects;
- Involvement in placement of students/student support services.

9. LIST OF CONTRIBUTORS

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