



Job Role **CCTV Installation Technician Curriculum**

QP Code: ELE/04105

NSQF Level: 4
Sector: Electronics

Class: 11-12



PSS Central Institute of Vocational Education, Bhopal

(A constituent unit of National Council of Educational Research and Training, Ministry of Education, Government of India)

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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

LEARNING OUTCOME-BASED VOCATIONAL CURRICULUM

Electronics -CCTV Installation Technician

Auditor August, 2025

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FOREWORD

The Pandit Sundarlal 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 Qualifications 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 training package for the job role of CCTV installation technician. The curriculum has been developed for the secondary students of Grades 11 and 12 and is aligned to the National Occupation Standards (NOSs) for the job role. The curriculum aims to provide children with employability 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
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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 (erstwhile, Ministry of Human Resource Development (MHRD), Government of India introduced the revised Centrally Sponsored Scheme of Vocationalisation of School Education that aims to provide for the diversification of educational opportunities so as to enhance individual employability, reduce the mismatch between demand and supply of skilled manpower and provide an alternative for those pursuing higher education. 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 material for 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. The curriculum, therefore, aims at developing the desired professional, managerial and communication skills to fulfil the needs of society and the world of work. 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 or world of work and foster a conducive learning environment for the students 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

ACKNOWLEDGEMENTS

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 Sector Skill Council for Management and Entrepreneurship and Professional Skills for their academic support and cooperation in the development of Qualification file and curriculum.

We are grateful to Dr. Sonam Singh, Course Coordinator for his untiring efforts and contribution to the development of this learning outcome-based curriculum. The contribution made by Prof. Vinay Swarup Mehrotra, Professor and Head CDEC, PSSCIVE, Bhopal, Subject

Experts Dr. Kuldeep Verma, Assistant Professor, Department of Defence & Strategic Studies Hindu College, Moradabad, U.P. and Dr. Neha Singh, Assistant Professor Department of ECE, IIIT Bhopal, Madhya Pradesh, in the development of the curriculum for domain and non-domain skills is duly acknowledged.

The editorial support provided by Miss Urvashi Chouhan, Junior Project Fellow, Completing the first Draft of the Curriculum, on contractual basis at PSSCIVE, Bhopal are duly appreciated and acknowledged.

PSSCIVE Team

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			Unit 3: Information and Communication Technology Skills – IV
			Unit 4: Entrepreneurial Skills – IV
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		Part B	Vocational Skills
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1. COURSE OVERVIEW

COURSE TITLE: CCTV Installation Technician

Introduction

The CCTV Installation Technician course is designed to provide learners with the knowledge and skills required to install, operate, and maintain closed-circuit television (CCTV) systems. With the increasing demand for surveillance and security solutions across sectors, trained professionals play a vital role in ensuring safety, reliability, and compliance in security systems. This course emphasizes both theoretical understanding and extensive hands-on training, integrating the latest trends in surveillance technology, networking, and data protection.

A CCTV Installation Technician Can Help in the Following

- Installing and configuring CCTV cameras (analog, IP, AI-enabled).
- Conducting site surveys and preparing installation plans.
- Handling cabling, connectors, and power supply systems.
- Setting up DVR/NVR units and ensuring proper video recording.
- Enabling remote access, mobile app integration, and cloud connectivity.
- Troubleshooting system faults and providing preventive maintenance.
- Ensuring data protection, privacy compliance, and ethical use of surveillance systems.
- Guiding customers on usage, safety, and after-installation support.

Course Outcomes

After successful completion of the course, learners will be able to:

- Demonstrate installation, configuration, and maintenance of CCTV systems.
- Identify and handle different types of cameras, lenses, and recording devices.
- Install and manage DVR/NVR systems, including IP configuration.
- Design and implement cabling layouts using appropriate connectors and tools.
- Provide customer support through documentation, training, and communication.
- Apply troubleshooting techniques for common CCTV issues.
- Ensure compliance with safety, ethical, and privacy standards.
- Explore employment and entrepreneurial opportunities in the security industry.

Course Requirements

- Minimum Grade 10/11 level education.
- Basic knowledge of electronics and interest in security systems.
- Physical fitness to perform installation work at varied locations.
- Willingness to engage in fieldwork and customer service activities

Course Level

- **NSQF Level:** 4/5 (aligned with vocational education framework).
- Suitable for **school students (Grades 11 & 12)**, ITI/Polytechnic students, and entry-level professionals.

COURSE DURATION: 600 hrs

Grade 11: 300 hrs

Grade 12: 300 hrs

Total: 600 hrs**2. SCHEME OF UNITS**

This course is a planned sequence of instructions consisting of Units meant for developing employability and vocational competencies of students of Grades 11 and 12 opting for the vocational subject along with general education subjects. The unit-wise distribution of hours and marks for Grade 11 is as follows:

GRADE 11			
	Units	No. of Hours for Theory and Practical 300	Max. Marks for Theory and 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	110	10
Part B	Vocational Skills		
	Unit 1: Introduction to CCTV Systems & Basics of Electronics	30	40
	Unit 2: CCTV System Components & Tools	40	
	Unit 3: Cables, Connectors, and Power Supply	40	
	Unit 4: Site Survey & Camera Installation	55	
	Total	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 12 is as follows:

GRADE 12			
	Units	No. of Hours for Theory and Practical 300	Max. Marks for Theory and 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	110	10
Part B	Vocational Skills		
	Unit 1: Fundamental of CCTV Technology	75	40
	Unit 2: DVR/NVR Setup and Remote Access	50	
	Unit 3: Advanced CCTV Techniques and features	20	
	Unit 4: Troubleshooting, Maintenance & Customer Service and career guidance	20	
	Total	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 classrooms, laboratory or workshop and field visits. Students should be taken on 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 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 or teaching aids, such as audio-video materials, colour slides, charts, diagrams, models, exhibits, hand-outs, online teaching materials, etc. to transmit knowledge and impart training to students.

PRACTICAL WORK IN LABORATORY/WORKSHOP

Practical work may include but is 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 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 Vocational Teachers for systematic collection of information by 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. At least three field visits should be conducted in a year.

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, 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 an internal assessment and a second, an external examination, including a 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 an objective paper-based test or short structured questions based on the content of the curriculum.

WRITTEN TEST

It allows students to demonstrate that they have the knowledge and understanding of a given topic. Theory question papers for the vocational subject should be prepared by the subject.

experts comprising a group of academicians, experts from existing vocational subject experts/teachers, and subject experts from universities/colleges or industries. 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 blueprint for the question paper may be as follows:

Duration: 3 hrs

Maximum Marks: 40

		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,	3	2	2	13

	concepts, principles, or theories; identify, define or recite, information)				
2.	Understanding (Comprehension –to be familiar with the meaning and to understand conceptually, interpret, compare, contrast, explain, paraphrase, or interpret information)	2	3	2	14
3.	Application – (Use abstract information in a 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 and 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 questions)

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.

A practical examination allows students to demonstrate that they have the knowledge and understanding of performing a task. This will include a hands-on practical exam and viva voce.

For practical, 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.

Project Work (individual or group project) is a great way to assess practical skills on a certain time period or timeline. Project work should be given on the basis of the capability of the individual to perform the tasks or activities involved in the project. Projects should be discussed in the class and the teacher should periodically monitor the progress of the project and provide feedback for improvement and innovation. Field visits should be organised as part of the project work. Field visits can be followed by small-group work/project work. When the class returns from the field visit, each group might be asked to use the information that they have gathered to prepare presentations or reports of their observations. Project work should be assessed on the basis of a practical file or student portfolio.

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.

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.

5. UNIT CONTENTS**GRADE 11****Part A: Employability Skills**

S. No.	Units	Duration (hrs)
1.	Communication Skills- III	25
2.	Self-management Skills - III	25
3.	Information and Communication Technology Skills - III	20
4.	Entrepreneurial Skills - III	25
5.	Green Skills - III	15
	Total	110

UNIT 1: COMMUNICATION SKILLS – III

Learning Outcome	Theory (10 hrs)	Practical (15 hrs)	Duration (25 hrs)
1. Demonstrate the knowledge of communication	1. Introduction to the communication process 2. Importance of communication 3. Elements of communication. 4. Perspectives in communication 5. Effective communication	1. Role-play on the communication process. 2. Group discussion on the importance of communication and factors affecting perspectives in communication. 3. Charts preparation on elements of communication. 4. Classroom discussion on the 7Cs (i.e. Clear, Concise, Concrete, Correct, Coherent, Courteous and Complete) for effective communication. 5. communication.	03
2. Demonstrate verbal communication	1. Verbal communication Public Speaking	1. Role-play of a phone conversation.	02

		2. Group activity on delivering a speech and practicing public speaking.	
3. Demonstrate non- verbal communication	1. Importance of non-verbal communication 2. Types of non-verbal communication 3. Visual communication	1. Role-play on non- verbal communication. 2. Group exercise and discussion on Do's and Don'ts to avoid body language mistakes. 3. Group activity on methods of communication.	02
4. Demonstrate speech using correct pronunciation	1. Pronunciation basics 2. Speaking properly 3. Phonetics 4. Types of sounds	1. Group activities on practicing pronunciation.	01
5. Apply an assertive communication style	1. Important communication styles 2. Assertive communication 3. Advantages of assertive communication 4. Practicing assertive communication	1. Group discussion on communication styles. 2. Group discussion on observing and sharing communication styles.	03
6. Demonstrate the knowledge of saying no	1.Steps for saying 'No' Connecting words	1. Group discussion on how to say 'No?'	02
7. Identify and use parts of speech in writing	1. Capitalization 2. Punctuation 3. Basic parts of speech 4. Supporting parts of speech	1. Group activity on identifying parts of speech. 2. Writing a paragraph with punctuation marks. 3. Group activity on constructing sentences.	03

		5. Group activity on identifying parts of speech.	
8. Write correct sentences and paragraphs	1. Parts of a sentence 2. Types of objects 3. Types of sentences Paragraph	1. Activity on framing sentences. 2. Activity on active and passive voice. 3. Assignment on writing different types of sentences.	02
9. Communicate with people	1. Greetings 2. Introducing self and others	1. Role-play on formal and informal greetings. 2. Role-play on introducing someone. 3. Practice and group discussion on how to greet different people?	02
10. Introduce yourself to others and write about oneself	1. Talking about self Filling a form	1. Practicing self-introduction and filling up forms 2. Practicing self-introduction to others	01
11. Develop questioning skill	1. Main types of questions 2. Forming closed and 3. open-ended questions	1. Practice exercise on forming questions. 2. Group activity on framing questions.	01
12. Communicate information about family to others	1. Names of relatives Relations	1. Practice talking about family. 2. Role-play on talking about family members.	01

13. Describe habits and routines	1. Concept of habits and routines	1. Group discussion on habits and routines. 2. Group activity on 3. describing routines.	01
14. Ask or give directions to others	1. Asking for directions Using landmarks	1. Role-play on asking and giving directions. 2. Identifying symbols used for giving directions.	01
Total			25

UNIT 2: SELF-MANAGEMENT-III

Learning Outcome	Theory (10 hrs)	Practical (15 hrs)	Duration (25 hrs)
1. Identify and analyse own strengths and weaknesses	1. Understanding self Techniques for identifying strengths and weaknesses 2. Difference between interests and abilities	1. Activity on writing aims in life. 2. Preparing a worksheet on interests and abilities.	03
2. Demonstrate personal grooming skills	1. Guidelines for dressing and grooming 2. Preparing a personal grooming checklist	1. Role-play on dressing and grooming standards. 2. Self-reflection activity on various aspects of personal grooming.	04
3. Maintaining personal hygiene	1. Importance of personal hygiene 2. Three steps to personal hygiene Essential steps of hand washing	1. Role-play on personal hygiene. 2. Assignment on personal hygiene.	03
4. Demonstrate the knowledge of working in a team and participating in group activities	1. Describe the benefits of teamwork Working in a team	1. Assignment on working in a team. Self-reflection on teamwork.	03

4. Develop networking skills	1. Benefits of networking skills 2. Steps to build networking skills	1. Group activity on networking in action. 2. Assignment on networking skills.	03
5. Describe the meaning and importance of self- motivation	1. Meaning of self-motivation 2. Types of motivation 3. Steps to building self-motivation	1. Activity on staying motivated. 2. Assignment on reasons hindering motivation. 3. motivation.	03
6. Set goals	1. Meaning of goals and purpose of goal-setting 2. Setting SMART goals	1. Assignment on setting SMART goals. 2. Activity on developing long-term and short-term goals using SMART method.	03
7. Apply time management strategies and techniques	1. Meaning and importance of time management 2. Steps for effective time management	1. Preparing a checklist of daily activities.	03
Total			25

UNIT 3: INFORMATION AND COMMUNICATION TECHNOLOGY-III

Learning Outcome	Theory (08 hrs)	Practical (12 hrs)	Duration (20 hrs)
1. Create a document on the word processor	2. Introduction to ICT 3. Advantages of using a word processor 4. Work with Libre Office Writer	1. Demonstration and practice of the following: a. Creating a new Document a. Typing text b. Saving the text c. Opening and saving a file on Microsoft Word/Libre Office Writer. 3. Writer.	02
2. Identify icons on the toolbar	1. Status bar 2. Menu bar 3. Icons on the Menu bar Multiple ways to perform a function	1. Group activity on using basic user interface of LibreOffice writer. 2. Group activity on working with Microsoft Word.	02

3. Save, close, open and print document	1. Save a word document 2. Close a word document 3. Open an existing document 4. Print	1. Group activity on performing the functions for saving, closing and printing documents in LibreOffice Writer. 2. Group activity on performing the functions 3. for saving, closing and printing documents in 4. Microsoft Word.	02
4. Format text in a word document	1. Change style and size of text 2. Align text 3. Cut, Copy, and Paste 4. Find and replace	1. Group activity on formatting text in LibreOffice Writer. 2. Group activity on formatting text in Microsoft Word.	02
5. Check spelling and grammar in a word document	1. Use of spell checker 2. Autocorrect	1. Group activity on checking spellings and grammar using LibreOffice Writer. 2. Group activity on checking spellings and grammar using 3. Microsoft Word.	02
6. Insert lists, tables, pictures, and shapes in a word document	1. Insert bullet list 2. Number list 3. Tables 4. Pictures 5. Shapes	1. Practical exercise of inserting lists and tables using LibreOffice Writer.	03
7. Insert header, footer and page number in a word document	1. Insert header 2. Insert footer 3. Insert page number 4. Page count	1. Practical exercise of inserting header, footer and page numbers in LibreOffice Writer. 2. Practical exercise of inserting header, footer and page numbers in Microsoft Word.	03

8. Make changes by using the track change option in a word document	1. Tracking option 2. Manage option 3. Compare documents	1. Group activity on performing track changes in LibreOffice Writer. 2. Group activity on performing track changes in Microsoft Word.	04
Total			20

UNIT 4: ENTREPRENEURSHIP SKILLS – III

Learning Outcome	Theory (10 hrs)	Practical (15 hrs)	Duration (25 hrs)
1. Differentiate between different kinds of businesses	1. Introduction to entrepreneurship 2. Types of business activities	1. Role-play on different kinds of businesses around us.	03
2. Describe the significance of entrepreneurial values	1. Meaning of value 2. Values of an Entrepreneur 3. Case study on qualities of an entrepreneur 4. entrepreneur	1. Role-play on qualities of an entrepreneur.	03
3. Demonstrate the attitudinal changes required to become an entrepreneur	1. Difference between the attitude of entrepreneur and employee	1. Interviewing employees and entrepreneurs.	03
4. Develop thinking skills like an entrepreneur	1. Problems of entrepreneurs 2. Problem-solving 3. Ways to think like an entrepreneur	1. Group activity on identifying and solving problems.	04
5. Generate business ideas	1. The business cycle 2. Principles of idea creation 3. Generating a business idea 4. Case studies	1. Brainstorming on generating business ideas.	04

6. Describe customer needs and the importance of conducting a customer survey	1. Understanding customer needs 2. Conducting a customer survey	1. Group activity to conduct a customer survey.	04
7. Create a business plan	1. Importance of business planning 2. Preparing a business plan 3. Principles to follow for growing a business 4. Case studies	1. Group activity on developing a business plan.	04
Total			25

UNIT 5: GREEN SKILLS – III

Learning Outcome	Theory (07 hrs)	Practical (08 hrs)	Duration (15 hrs)
1. Describe the importance of the main sector of the green economy	1. Meaning of eco-system, food chain and sustainable development 2. Main sectors of the green economy- E-waste management, green transportation, renewal energy, green construction, and 3. water management	1. Group discussion on sectors of green economy. 2. Poster making on various sectors for promoting green economy. 3. economy.	06
2. Describe the main recommendations of policies for the green economy	1. Policies for a green economy	1. Group discussion on initiatives for promoting the green economy. 2. Writing an essay or a short note on the important initiatives for promoting green economy.	03

3. Describe the major green sectors/ areas and the role of various stakeholders in the green economy	1. Stakeholders in the green economy	1. Group discussion on the role of stakeholders in the green Economy 2. Making solar bulbs.	03
4. Identify the role of government and private agencies in the green economy	1. Role of the government in promoting a green economy 2. Role of private agencies in promoting green economy	1. Group discussion on the role of Government and Private Agencies in promoting a green economy. 2. Poster-making on green sectors.	03
Total			15

B: Vocational Skills [Class-11]

S.No.	Unit	Duration (Hrs)
1.	Unit 1: Introduction to CCTV Systems & Basics of Electronics	20
2.	Unit 2: CCTV System Components & Tools	20
3.	Unit 3: Cables, Connectors, and Power Supply	20
4.	Unit 4: Site Survey & Camera Installation	40
	Total	165

Unit 1: Introduction to Cctv Systems & Basics Of Electronics			
Learning Outcomes	Theory	Practical	Duration
Session : 1 Overview of CCTV Systems	1. Introduction to CCTV 2. Evolution of surveillance systems 3. Evolution of CCTV 4. Purpose of CCTV 5. Applications of CCTV	1. CCTV application and field mapping exercise. 2. Evolution of CCTV system timelines 3. Role play as a CCTV operator	
Session : 2 Basics of Electronics	1. Voltage, current, resistance – Ohm's Law	1. Verification of Ohm's law 2. AC and DC	

	2. Types of current – AC vs DC 3. Electrical safety practices 4. Power rating and fuse usage 5. Understanding power adapters and SMPS	current identification and applications. 3. Discuss and write different safety measures.	
Total			

Unit 2: CCTV System Components & Tools

Learning Outcomes	Theory	Practical	Duration
Session : 1 Key Hardware Components	1. Cameras: 2. Lenses 3. DVR and NVR units 4. Storage device 5. Monitors 6. Supporting equipment	1. Differentiate various camera types. 2. Install and configure a DVR/NVR system 3. Connect cameras and monitor to DVR/NVR systems	
Session : 2 Tools & Testing Equipment	1. Drill machines and safety use 2. Crimping tools for BNC/RJ45 3. Cable testers and continuity testers 4. Measuring tools and multimeters 5. PPE (gloves, helmets, goggles)	1. Identify the correct drill bit for the surface 2. List out various BNC/RJ45 crimping tools 3. Use a cable tester to confirm correct wiring. 4. Demonstrate safety	

		gear handling.	
Total			
Unit 3: Cables, Connectors, and Power Supply			
Learning Outcomes	Theory	Practical	Duration
Session : 1 Cable Types and Functions	1. Coaxial cable (RG59) 2. CAT5/CAT6 for IP systems 3. Siamese cables – use in analog setups 4. HDMI/VGA cables for monitors 5. Cable quality and shielding	1. Demonstration of different coaxial cables and ethernet cables 2. Dual function of Siamese cable in analog setup 3. Testing display connections in HDMI/VGA cables for monitors	
Session : 2 Connector Termination	1. BNC crimping and screw-on methods 2. RJ45 connector pinout (T568A/B) 3. Cable length limits and testing	1. BNC connector installation and signal transmission 2. Termination of CAT5e/CAT6 cables using T568A/B standards with RJ45 crimping and testing 3. Demonstration of cable length tester	
Total			

Unit 4: Site Survey & Camera Installation			
Learning Outcomes	Theory	Practical	Duration
Session : 1 Site Assessment	1. Site visit checklist 2. Power availability and placement 3. Identifying risk	1. Standardized checklist during a site assessment. 2. Identify available	

	zones 4. Field of view analysis 5. Creating an installation plan	power points and how they impact installation.	
Session : 2 Camera Mounting Techniques	1. Wall vs ceiling mounts 2. Waterproofing and cable routing 3. Focus and angle adjustments 4. IR camera considerations 5. Labeling and documentation	1. Demonstration of focus and angle adjustment in wall vs ceiling mounts 2. Demonstrate how to route cables neatly and protect against weather. 3. Demonstrate how to clearly label equipment and create organized system documentation.	
Session : 3 Basic Troubleshooting & Maintenance	1. Common installation faults and fixes 2. Preventive maintenance routines 3. Customer-friendly troubleshooting 4. Clean a camera lens and check IR LEDs 5. Simulate and fix a no-video error 6. Diagnose a loose connector and re-crimp	1. Spotting and Fixing Typical CCTV Setup Errors 2. Demonstrate customer friendly troubleshooting 3. Demonstrate the step-by-step process to resolve a missing video feed. 4. Demonstrate how to spot and fix bad crimps or loose connectors.	
Total			

GRADE 12**Part A: Employability Skills**

S.No.	Units	Duration (hrs)
1.	Communication Skills – IV	25
2.	Self-management Skills – IV	25
3.	Information and Communication Technology Skills -IV	20
4.	Entrepreneurship Skills – IV	25
5.	Green Skills – IV	15
	Total	110

UNIT 1: COMMUNICATION SKILLS – IV

Learning Outcome	Theory (10 hrs)	Practical (15 hrs)	Duration (25 hrs)
1. Demonstrate active listening skills	1.Active listening - listening skill, stages of active listening 2.Overcoming barriers to active listening	1. Group discussion on factors affecting active listening. 2. Poster making on steps for active listening. 3. Role-play on negative effects of not listening actively.	10
2. Identify the parts of speech	1. Parts of speech – using capitals, punctuation, basic parts of speech, Supporting parts of speech	1. Group practice on identifying parts of speech. 2. Group practice on constructing sentences. 3.	10
3. Write sentences	1. Writing skills to practice the following: a. Simple sentence b. Complex sentence a. Types of objects b. Identify the types of sentences c. Active and Passive sentences d. Statement/ Declarative sentence e. Question/	1. Group activity on writing sentences and paragraphs. 2. Group activity on practicing writing sentences in active or passive voice. 3. Group activity on writing different types of sentences (i.e., declarative,	05

	f. Interrogative sentence g. Emotion/ Reaction or Exclamatory sentence h. Order or Imperative sentence 3. Paragraph writing	exclamatory, interrogative and imperative).	
Total			25

UNIT 2: SELF-MANAGEMENT SKILLS – IV

Learning Outcome	Theory (10 hrs)	Practical (15 hrs)	Duration (25 hrs)
1. Describe the various factors influencing motivation and positive attitude	1. Motivation and positive attitude 2. Intrinsic and extrinsic motivation 3. Positive attitude – ways to maintain a positive attitude 4. Stress and stress management – ways to manage stress	1. Role-play on avoiding stressful situations. 2. Activity on listing negative situations and ways to turn them it positive.	10
2. Describe how to become result oriented	1. How to become result oriented? 2. Goal setting- examples of result-oriented goals	1. Group activity on listing aim in life.	05
3. Describe the importance of self-awareness and the basic personality traits, types and disorders	1. Steps towards self-awareness 2. Personality and basic personality traits 3. Common personality disorders- • Suspicious • Emotional and impulsive • Anxious 4. Steps to overcome personality disorders	1. Group discussion on self-awareness. 2. Group discussion on common personality disorders. 3. Brainstorming steps to overcome personality disorder.	10
Total			25

UNIT 3: INFORMATION AND COMMUNICATION TECHNOLOGY SKILLS – IV

Learning Outcome	Theory (06 hrs)	Practical (14 hrs)	Duration (20 hrs)
1. Identify the components of a spreadsheet application	1. Getting started with spreadsheet 2. types of a spreadsheet, steps to start LibreOffice Calc., components of a worksheet	1. Group activity on identifying components of spreadsheet in LibreOffice Calc.	02
2. Perform basic operations in a spreadsheet	1. Opening workbook and entering data – types of data, steps to enter data, editing and	1. Group activity on working with data on LibreOffice Calc.	
	1. deleting data in a cell 2. Selecting multiple cells 3. Saving the spreadsheet in various formats 4. Closing the spreadsheet 5. Opening the spreadsheet 6. Printing the spreadsheet		03
4. Demonstrate the knowledge of working with data and formatting text	1. 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 2. Need to format cell and content 3. Changing text style and font size 4. Align text in a cell 5. Highlight text	1. Group activity on formatting a spreadsheet in LibreOffice Calc 2. Group activity on performing basic calculations in LibreOffice Calc.	02

5. Demonstrate the knowledge of using advanced features in spreadsheet	1. Sorting data 2. Filtering data 3. Protecting spreadsheet with password	1. Group activity on sorting data in LibreOffice Calc.	03
6. Make use of the software used for making slide presentations	1. Presentation software available 2. Steps to start LibreOffice Impress 3. Adding text to a presentation 4. presentation	1. Group practice on working with LibreOffice Impress tools.	02
7. Demonstrate the knowledge to open, close and save slide presentations	1. Open, Close, Save and Print a slide presentation	1. Group activity on saving, closing and opening a presentation in LibreOffice Impress	01
8. Demonstrate the operations related to slides and texts in the presentation	1. 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	1. Group activity on working with font styles in LibreOffice Impress.	04
9. Demonstrate the use of advanced features in a presentation	1. Advanced features used in a presentation 2. Inserting shapes in the presentation 3. Inserting clipart and images in a presentation 4. Changing slide layout	1. Group activity on changing slide layout on LibreOffice Impress.	03
Total			20

UNIT 4: ENTREPRENEURSHIP SKILLS-IV

Learning Outcome	Theory (10 hrs)	Practical (15 hrs)	Duration (25 hrs)
1. Describe the concept of entrepreneurship	1. Entrepreneurship and entrepreneur 2. Characteristics of	1. Group discussion on the topic "An entrepreneur is	
2. and the types and roles and functions entrepreneur	1. entrepreneurship 2. Entrepreneurship- art and science 3. Qualities of a successful entrepreneur 4. Types of entrepreneurs 5. Roles and functions of an entrepreneur 6. What motivates an entrepreneur 7. Identifying opportunities and risk-taking Startups	1. not born but created". 2. Conducting a classroom quiz on various aspects of entrepreneurship. 3. Chart preparation on types of entrepreneurs. Brainstorming activity on What motivates an entrepreneur.	10
3. Identify the barriers to entrepreneurship	1. Barriers to entrepreneurship 2. Environmental barriers 3. No or faulty business plan Personal barriers	1. Group discussion about "What we fear about entrepreneurship." 2. Activity on taking an interview of an entrepreneur.	05
4. Identify the attitude that makes an entrepreneur successful	1. Entrepreneurial attitude	1. Group activity on identifying entrepreneurial attitude.	05
5. Demonstrate the knowledge of entrepreneurial attitude and competencies	1. Entrepreneurial competencies 2. Decisiveness Initiative 3. Interpersonal skills- positive attitude, stress management 4. Perseverance Organisational skills- time management, goal	1. Playing games, such as "Who am I". 2. Brainstorming business ideas. 3. Group practice on "Best out of Waste." 4. Group discussion on the topic of "Let's grow	05

	setting, efficiency, managing quality	together.” 5. Group activity on listing stress and methods to deal with it like Yoga, deep breathing exercises, etc.\ 6. Group activity on time management.	
Total			25

UNIT 5: GREEN SKILLS-IV

Learning Outcome	Theory (05 hrs)	Practical (10 hrs)	Duration (15 hrs)
1. Identify the benefits of the green jobs	1. Green jobs 2. Benefits of green jobs 3. Green jobs in different sectors: a. Agriculture b. Transportation c. Water conservation d. Solar and wind energy e. Eco-tourism f. Building and construction g. Solid waste management h. Appropriate i. technology	1. Group discussion on the importance of green job. 2. Chart preparation on green jobs in different sectors.	08
2. State the importance of green jobs	1. Importance of green jobs in Limiting greenhouse gas emissions 2. Minimising waste and pollution 3. Protecting and restoring ecosystems Adapting to the effects of climate change	1. Preparing posters on green jobs. 2. Group activity on tree plantation. 3. Brainstorming different ways of minimising waste and pollution.	07
Total			15

B: Vocational Skills [Class-12]

S.No.	Unit	Duration (Hrs)
1.	Unit 1: Fundamental of CCTV Technology	20
2.	Unit 2: DVR/NVR Setup and Remote Access	20
3.	Unit 3: Advanced CCTV Techniques and features	20
4.	Unit 4: Troubleshooting, Maintenance & Customer Service and career guidance	40
Total		100

Unit 1: Fundamental of CCTV Technology			
Learning Outcomes	Theory	Practical	Duration
Session: 1 CCTV Components	1. Introduction to CCTV components 2. CCTV camera types and features 3. Differences: DVR vs. NVR 4. Video compression formats (H.264, H.265)	1. Display various camera types 2. Demonstrate how to access the live view and adjust settings of each camera type 3. Compare H.264 vs H.265 according to file size and recording time	
Session: 2 Networking Basics	1. Basics of networking 2. Router setup for CCTV 3. LAN and WAN differences 4. PoE technology	1. Demonstrate how cameras get IPs from DHCP and how to switch to static for stability. 2. Demonstrate basic router configuration for CCTV remote access. 3. Monitor CCTV bandwidth needs based on resolution, frame rate, and camera count, and compare with real-time usage.	
Total			
Unit 2: DVR/NVR Setup and Remote Access			
Learning Outcomes	Theory	Practical	Duration

Session: 1 DVR/NVR Configuration	1. System overview 2. Hardware setup 3. System initializing and basic setting 4. Video setting and camera configuration	1. Demonstrate Connecting IP Cameras to an NVR 2. Demonstrate how to set a time-based recording plan 3. Explain how resolution and FPS affect video quality and storage.	
Session: 2 Remote monitoring and cloud access	1. Overview of remote access 2. Network configuration for remote viewing 3. Cloud and mobile app-based access 4. Alerts and notification and user management	1. Set Up Remote Access to Cameras/NVR via Port Forwarding and DDNS 2. Remote monitoring via cloud / Mobile App 3. Create User Accounts with Limited Permissions and Verify Access Controls	
Session: 3 Security and Privacy	1. Importance of security in CCTV system. 2. User access and password protection. 3. Privacy concern in CCTV use. 4. Ethical and Legal issue in CCTV surveillance. 5. Data Protection	1. Setting Up User Access and Password Protection in a CCTV System 2. Identifying Privacy Concerns in Real-Life CCTV Surveillance 3. Safe Storage and Data Protection of CCTV Footage 4. Case Study Analysis on Legal Issues in CCTV Surveillance	
Total			
Unit 3: Advanced CCTV Techniques and features			
Learning Outcomes	Theory	Practical	Duration

Session: 1 System Scaling	1. Planning multi-camera installation 2. Camera coverage planning 3. Power management 4. System Integration	1. Set Up Multiple Cameras on NVR and Verify Simultaneous Streaming Without Lag 2. Calculate Total Power for PoE Cameras and Identify Non-PoE Power Requirements 3. Design CCTV Layout for Optimal Coverage of a Building or Outdoor Area	
Session: 2 Advanced Features	1. AI-enabled cameras 2. Facial recognition overview 3. Video Analytics 4. Secure data storage options	1. Set up an AI-enabled camera with motion detection and object classification. 2. Demonstrate how to Enable video analytics 3. Set up an encrypted cloud storage solution or local storage device for storing video data.	
Total			
Unit 4: Troubleshooting, Maintenance & Customer Service and career guidance			
Learning Outcomes	Theory	Practical	Duration
Session: 1 Troubleshooting and maintenance	1. Issues in CCTV system 2. Diagnostic tools and LED indicators. 3. Firmware and software bugs 4. Preventive maintenance practices	1. Demonstrate how to identify and resolve a camera not showing video on the NVR. 2. Demonstrate how to safely update firmware to resolve camera/NVR issues. 3. Access a camera	

		from a mobile app and show delayed/lost signal	
Session: 2 Documentation and Customer Interaction	1. Preparing installation reports and documentation 2. Communicating with clients. 3. AMC and system handover. 4. Safety and compliance standards.	1. Preparing CCTV Installation Reports and System Handover 2. Client Communication and AMC Discussion Role-Play 3. List out various safety and compliance standards	
Session: 3 Career preparation and opportunities	1. Career pathways in CCTV security system 2. Essential skills for career growth 3. Preparing for employment. 4. Entrepreneurship and future opportunity.	1. Exploring Career Pathways in CCTV Security Systems 2. Mock Interview and Resume Building for CCTV Technician Jobs	
Total			

6. ORGANISATION OF FIELD VISITS

Learners will be exposed to real-world applications of CCTV technology through field visits such as:

- Security & surveillance system providers and installation companies.
- Corporate offices, malls, and transport hubs with integrated CCTV systems.
- Police control rooms and public safety command centers.
- Workshops with networking and electronics vendors.

These visits will enhance understanding of installation challenges, large-scale surveillance setups, and maintenance practices.

7. LIST OF EQUIPMENT AND MATERIALS

Tools, Equipment and Materials Required for Training

- Different types of CCTV cameras (Dome, Bullet, PTZ, Fisheye, IP, AI-enabled).
- DVRs, NVRs, storage devices, and monitors.
- Coaxial cables, CAT5/CAT6 cables, HDMI/VGA cables.
- BNC/RJ45 connectors and crimping tools.
- Cable testers, multimeters, and continuity testers.
- Power supplies, PoE switches, adapters, and UPS systems.
- Drill machines, tool kits, and safety gear (gloves, goggles, helmets).
- Networking equipment (routers, switches).
- Software for remote access, cloud monitoring, and video analytics.

8. VOCATIONAL TEACHERS'/TRAINERS' QUALIFICATIONS AND GUIDELINES

- Bachelor's degree/diploma in Electronics, Electrical Engineering, IT, or related fields.
- Certification or professional experience in CCTV installation and networking.
- At least 2–3 years of experience in handling CCTV/security systems.
- Knowledge of cyber security, privacy, and data protection aspects.
- Effective communication and customer service skills.

The suggestive qualifications and minimum competencies for the vocational teacher/trainers for **CCTV Installation Technician** should be as follows:

Qualification	Minimum Competencies	Age Limit
Graduation in any discipline with 1 year of experience in CCTV Installation/ Electronics/ Security Systems/ related field from a recognised Institution/University. OR B.Voc. (Bachelor in Vocation) with specialisation in Electronics/ Electrical/ Security Systems/ CCTV Installation/ related field from a recognised Institution/University.	• Effective communication skills (oral and written) • Basic computing skills • Technical knowledge of CCTV installation and maintenance	• Minimum 18 Years • Age relaxation to be provided as per Govt. rule

Guidelines for Trainers

- Emphasize hands-on practical training along with theoretical knowledge.
- Ensure safe practices during installation, use of electrical tools, and field visits.
- Integrate case studies, role-plays, and real-world troubleshooting exercises.
- Provide exposure to both analog and IP-based CCTV technologies.
- Highlight current trends such as AI-based surveillance and remote/cloud monitoring.
- Instill professional ethics, legal awareness, and customer-centric approaches.
- Encourage entrepreneurship by guiding learners on service setup and small-scale business opportunities.

These guidelines have been prepared with an aim to help and guide the States in engaging quality Vocational Teachers/Trainers in schools. Various parameters that need to be looked into while engaging the Vocational Teachers/Trainers are the 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 the following ways:

- 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
- 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 they will be teaching. Copies of relevant certificates and/or records of experience of the teacher/trainer in the industry should be kept as a 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:

- (i) Written test for the technical/ domain-specific knowledge related to the sector;
- (ii) Interview for assessing the knowledge, interests, and aptitude of the trainer through a panel of experts from the field and state representatives; and
- (iii) 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 schools.

The State should ensure that the existing trainers undergo in-service training for

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:

- (i) Prepare session plans and deliver sessions which have a clear and relevant purpose and which engage the students;

- (ii) Deliver education and training activities to students, based on the curriculum to achieve the learning outcomes;
- (iii) Make effective use of learning aids and ICT tools during the classroom sessions;
- (iv) Engage students in learning activities, which include a mix of different methodologies, such as project-based work, teamwork, practical, and simulation-based learning experiences;
- (v) 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;
- (vi) Identify the weaknesses of students and assist them in upgradation of competency;
- (vii) Cater to different learning styles and levels of ability of students;
- (viii) Assess the learning needs and abilities, when working with students with different abilities;
- (ix) Identify any additional support the student may need and help to make special arrangements for that support and
- (x) 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. The following parameters may be considered during the appraisal process:

1. Participation in guidance and counselling activities conducted at the Institutional, District and State levels;
2. Adoption of innovative teaching and training methods;
3. Improvement in result of vocational students of Grades 10 or Grade 12;
4. Continuous upgradation of knowledge and skills related to the vocational pedagogy, communication skills and vocational subject;
5. Membership of professional society at District, State, Regional, National and International levels;
6. Development of teaching-learning materials in the subject area;
7. Efforts made in developing linkages with the Industry/Establishments;
8. Efforts made towards involving the local community in Vocational Education;
9. Publication of academic papers in National and International Journals;
10. Organisation of activities for promotion of vocational subjects;
11. Involvement in placement of students/student support services.

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