

SPECIALIZED SEWING MACHINE OPERATOR

(QUALIFICATION PACK: Ref.Id.AMH/Q2301)

SECTOR: APPAREL, MADE-UPS AND HOME FURNISHING

LEARNING OUTCOME BASED VOCATIONAL CURRICULUM

Class 11 & 12

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NCERT

PSS CENTRAL INSTITUTE OF VOCATIONAL EDUCATION

(A constituent Unit of National Council of Educational Research and Training,
under Ministry of Human Resource Development, Government of India)

Shyamla Hills, BHOPAL-462013, Madhya Pradesh, India

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**JOB ROLE: SPECIALIZED SEWING MACHINE
OPERATOR**

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

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CURRICULUM**

**Apparel, Made-Ups and Home Furnishing–
Specialized Sewing Machine Operator
JANUARY 2020**

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FOREWORD

The Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), a constituent unit of National Council of Educational Research and Training (NCERT) is spearheading the efforts of developing learning outcome based vocational curriculum and courseware aimed at integrating both vocational and general qualifications to open pathways of career progression for students. It is a part of Vocationalisation of Education under *Samagra Shiksha*. The PSS Central Institute of Vocational Education (PSSCIVE) is developing curricula under the project approved by the Project Approval Board (PAB) of *Samagra Shiksha* of Ministry of Human Resource Development (MHRD), Govt. of India. The main purpose of the learning outcome based vocational curriculum is to bring about improvement in teaching-learning process and working competencies through learning outcomes embedded in the vocational subject.

It is a matter of great pleasure to introduce this learning outcome based vocational curriculum as part of the vocational training package for the job role of **Specialized Sewing Machine Operator (AMH/Q2301)**. The curriculum has been developed for the higher secondary students of vocational education and is aligned to the National Occupation Standards (NOSs) of a job role identified and approved under the National Skill Qualification Framework (NSQF).

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 needs. The teaching process is to be performed through the interactive sessions in classrooms, practical activities in laboratories and workshops, projects, field visits, and professional experiences.

The curriculum has been developed and reviewed by a group of experts and their contributions are greatly 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.

HRUSHIKESH SENAPATY
Director

National Council of Education Research and Training

PREFACE

India today stands poised at a very exciting juncture in its saga. The potential for achieving inclusive growth are 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. The much-discussed demographic dividend will bring sustaining benefits only if this young workforce is skilled and its potential is channelized in the right direction.

In order to fulfil the growing aspirations of our youth and the demand of skilled human resource, the Ministry of Human Resource Development (MHRD), Government of India introduced the revised Centrally Sponsored Scheme of Vocationalisation of Secondary and Higher Secondary Education in 2012 with the aim 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. The scheme was subsumed in *Samagra Shiksha* in 2018 along with other schemes of school education. For spearheading the Vocationalisation Education, the PSS Central Institute of Vocational Education (PSSCIVE) was entrusted the responsibility to develop learning outcome based vocational curriculum, student workbooks, teacher handbooks and e-learning materials for the job roles in various sectors, with growth potential for employment.

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 the society and the world of work. In order to honour its commitment to the nation, the PSSCIVE has initiated the work on developing learning outcome based vocational curriculum with the involvement of faculty members and leading experts in respective fields. It is being done through the concerted efforts of leading academicians, professionals, policy makers, partner institutions, Vocational Education and Training 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. Currently, the Institute is working on developing curricula and courseware for over 50 job roles in various sectors, besides the curricula developed for 100 job roles.

We extend our gratitude to all the contributors for selflessly sharing their precious knowledge, acclaimed expertise, valuable time and positively responding to our request for development of curriculum. We are grateful to MHRD and NCERT for the financial support and cooperation in realising the objective of providing learning outcome based vocational curriculum and courseware to the States and other stakeholders under the PAB (Project Approval Board) approved project of *Samagra Shiksha* of Ministry of Human Resource Development (MHRD), Government of India.

Finally, for transforming the proposed curriculum design into a vibrant reality of implementation, all the institutions involved in the delivery system shall have to come together with a firm commitment and they should secure optimal community support. The success of this curriculum depends upon its effective implementation and it is expected that

the managers of vocational education and training system, including subject teachers will make efforts to create better facilities, develop linkages with the world of work and foster a conducive environment as per the content of the curriculum document.

The PSSCIVE, Bhopal remains committed in bringing about reforms in the vocational education and training system through the learner-centric curricula and courseware. We hope that this document will prove useful in turning out more competent Indian workforce for the 21st Century.

RAJESH P. KHAMBAYAT

Joint Director

PSS Central Institute of Vocational Education

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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 Human Resource Development (MHRD), Government of India for the financial support to the project for development of curricula.

We are grateful to the Director, National Council of Educational Research & Training (NCERT) for his support and guidance. We also acknowledge the contributions of our colleagues at the Technical Support Group of Samagra Shiksha, MHRD, National Skill Development Agency (NSDA) and National Skill Development Corporation (NSDC) and **Apparel, Made-ups and Home Furnishing Sector Skill Council (AMHSSC)** for their academic support and cooperation.

We are grateful to the expert contributors for their earnest effort and contributions in the development of this learning outcome based vocational curriculum. Their names are acknowledged in the list of contributors.

We are also grateful to Dr. Pinki Khanna, Course Coordinator, Department of Home Science & Hospitality Management, PSSCIVE, Bhopal for her contributions.

The contributions made by Dr. Vinay Swarup Mehrotra, Professor and Head, Department of Agriculture and Animal Husbandry and Curriculum Development and Evaluation Centre (CDEC), Dr. Vipin Kumar Jain, Associate Professor and Head, Department of Humanities, Science, Education and Research and Dr. Dipak D. Shudhalwar, Associate Professor and Head, Department of Engineering and Technology, PSSCIVE in development of the curriculum for the employability skills are duly acknowledged.

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PSSCIVE Team

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1. COURSE OVERVIEW

COURSE TITLE: Apparel, Made-Ups and Home Furnishing - Specialized Sewing Machine Operator

Sewing machine operator's work in the clothing and textile industry using a single machine but the specialized sewing machine operator should have the knowledge of different types of machines, stitches, seams and specialized techniques used. A specialized sewing machine operator is a textile worker who sews fabric with electronic machines, high speed motorized machines (umbrella), specific specialized machines used for specific stitches.

A Specialized Sewing Machine Operator is responsible for operating the specialized sewing machine to sew different kinds of stitches of fabric/garments in the apparel industry. They must understand the limits of their machines, faults, difficulties as all machines are not created equal. A specialized sewing machine operator should have a good eyesight, eye co-ordination, motor skills, distance vision and colour vision.

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

- Apply effective oral and written communication skills to interact with people and customers
- Identify the principal components of a computer system
- Demonstrate the basic skills of using computer
- Demonstrate self-management skills
- Demonstrate the ability to provide a self-analysis in context of entrepreneurial skills and abilities
- Demonstrate the knowledge of the importance of green skills in meeting the challenges of sustainable development and environment protection
- Describe the different garment production system
- Explain garment operating procedure
- Identify different types of thread, needle and demonstrate their uses in specialized sewing machines
- Demonstrate different types of seam finishes machines lock stitch, overlock stitch machines and their uses
- Demonstrate different types of ornamental stitches machines embroidery and zigzag stitch machines and their uses
- Demonstrate different types of attachment belt and loop attachment machines, button sewing machine, and buttonhole sewing machine and their uses
- Explain use and importance of specification sheet
- Demonstrate operating procedure of feed off arm machine and bar tack machine and their uses
- Demonstrate operating procedure of flat lock machine, blind stitch machine, finishing machines & other equipments and their uses
- Explain health, safety and cleaning procedure at workplace
- Describe maintenance of health, work area, tools and machines
- Explain quality control in stitching process

COURSE REQUIREMENTS: The learner should have the basic knowledge of Sewing Machines and Textiles and Clothing.

COURSE LEVEL: This is a course for class XI and XII. On completion of this course, a student can take up a higher level course in the area of Apparel, Made-ups and Home Furnishing.

COURSE DURATION: **600 Hrs**

Class 11: 300 Hrs

Class 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 Class 11 and 12 opting for vocational subject along with general education subjects. The unit wise distribution of hours and marks for Class 11 is as follows:

CLASS 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: Production Technology	25	40
	Unit 2: Introduction to Industrial Sewing Machines	25	
	Unit 3: Machines for Seam Finishes	30	
	Unit 4: Machines for Ornamental Stitches	30	
	Unit 5: Machines for Attachments	30	
	Unit 6: Personal Hygiene & Cleaning and Maintenance at workplace	25	
	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 Class 12 is as follows:

CLASS 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: Introduction to Garment Pre-Production Processes	25	40
	Unit 2: Feed Off Arm and Bar tack Machines	35	
	Unit 3: Flat Lock Machine, Blind Stitch Machine, Finishing Machines and Other Equipment	50	
	Unit 4: Organization Health, Safety and Security at workplace	25	
	Unit 5: Quality Control in Stitching Process	30	
	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 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 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 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. At least three field visits should be conducted in a year.

4. ASSESSMENT AND CERTIFICATION

Upon successful completion of the course by the candidate, the Central/ State Examination Board for Secondary Education and the respective Sector Skill Council will certify the competencies.

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 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

S. No.	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	0	2	0	04

	and/ or integrate unique pieces of information from a variety of sources)				
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 by the students should be done by the assessors/examiners on the basis of practical demonstration of skills by the candidate, 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 an effective training in assessment principles and practices. The Sector Skill Councils should ensure that the assessors are provided with the training on the assessment of competencies.

Practical examination allows candidates to demonstrate that they have the knowledge and understanding of performing a task. This will include 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 the 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 a 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 practical file or student portfolio.

Student Portfolio is a compilation of documents that supports the candidate's claim of competence. Documents may include reports, articles, 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

CLASS 11

Part A: Employability Skills

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

Unit 1: Communication Skills - III			
Learning Outcome	Theory (10 Hrs)	Practical (15 Hrs)	Duration (25 Hrs)
1. Explain methods of communication	1. Types of communication - Verbal - Non-verbal - Visual	1. Writing pros and cons of written, verbal and non-verbal communication 2. Listing do's and don'ts for avoiding common body language mistakes	15
2. Identify specific communication styles	1. Communication styles- assertive, aggressive, passive-aggressive, submissive, etc.	1. Observing and sharing communication styles of friends, teachers and family members and adapting the best practices 2. Role plays on communication styles	10
Total			25

Unit 2: Self-management Skills - III			
Learning Outcome	Theory (10hrs)	Practical (15hrs)	Duration (25Hrs)
1. Demonstrate impressive appearance and grooming	1. Describe the importance of dressing appropriately, looking decent and positive body language 2. Describe the term grooming	1. Demonstration of impressive appearance and groomed personality 2. Demonstration the ability to self- explore	07

Unit 2: Self-management Skills - III			
Learning Outcome	Theory (10hrs)	Practical (15hrs)	Duration (25Hrs)
	3. Prepare a personal grooming checklist 4. Describe the techniques of self-exploration		
2. Demonstrate team work skills	1. Describe the important factors that influence in team building 2. Describe factors influencing team work	1. Group discussion on qualities of a good team 2. Group discussion on strategies that are adopted for team building and team work	08
3. Apply time management strategies and techniques	1. Meaning and importance of time management – setting and prioritizing goals, creating a schedule, making lists of tasks, balancing work and leisure, using different optimization tools to break large tasks into smaller tasks	1. Game on time management 2. Checklist preparation 3. To-do-list preparation	10
Total			25

Unit 3: Information & Communication Technology Skills - III			
Learning Outcome	Theory (08 Hrs)	Practical (12 Hrs)	Duration (20 Hrs)
1. Create a document on word processor	1. Introduction to word processing 2. Software packages for word processing 3. Opening and exiting the word processor 4. Creating a document	1. Demonstration and practice of the following: <ul style="list-style-type: none"> • Listing the features of word processing • Listing the software packages for word processing • Opening and exit the word processor • Creating a document 	10
2. Edit, save and print a document in word processor	1. Editing text 2. Wrapping and aligning the text 3. Font size, type and face 4. Header and Footer 5. Auto correct 6. Numbering and bullet	1. Demonstration and practising the following: <ul style="list-style-type: none"> • Editing the text • Word wrapping and alignment • Changing font type, size and face • Inserting header and 	10

Unit 3: Information & Communication Technology Skills - III			
Learning Outcome	Theory (08 Hrs)	Practical (12 Hrs)	Duration (20 Hrs)
	7. Creating table 8. Find and replace 9. Page numbering 10. Printing document 11. Saving a document in various formats	footer <ul style="list-style-type: none"> • Removing header and footer 1. Using autocorrect option 2. Insert page numbers and bullet 3. Save and print a document	
Total			20

Unit 4: Entrepreneurship Development Skills - III			
Learning Outcome	Theory (10 Hrs)	Practical (15 Hrs)	Duration (25 Hrs)
1. Describe the significance of entrepreneurial values and attitude	1. Values in general and entrepreneurial values 2. Entrepreneurial value orientation with respect to innovativeness, independence, outstanding performance and respect for work	1. Listing of entrepreneurial values by the students 2. Group work on identification of entrepreneurial values and their roles after listing or reading 2-3 stories of successful entrepreneur 3. Exhibiting entrepreneurial values in Ice breaking, rapport building, group work and home assignments	10
2. Demonstrate the knowledge of attitudinal changes required to become an entrepreneur	1. Attitudes in general and entrepreneurial attitudes 2. Using imagination/intuition 3. Tendency to take moderate risk 4. Enjoying freedom of expression and action 5. Looking for economic opportunities 6. Believing that we can change the environment 7. Analyzing situation	1. Preparing a list of factors that influence attitude in general and entrepreneurial attitude 2. Demonstrating and identifying own entrepreneurial attitudes during the following micro lab activities: (i) thematic appreciation test, (ii) preparing a short write-up on "who am I"	15

Unit 4: Entrepreneurship Development Skills - III			
Learning Outcome	Theory (10 Hrs)	Practical (15 Hrs)	Duration (25 Hrs)
	and planning action 8. Involving in activity		
Total			25

Unit 5: Green Skills - III			
Learning Outcome	Theory (07 Hrs)	Practical (08 Hrs)	Duration (15 Hrs)
1. Describe importance of main sector of green economy	1. Main sectors of green economy- E-waste management, green transportation, renewal energy, green construction, water management 2. Policy initiatives for greening economy in India	1. Preparing a poster on any one of the sectors of green economy 2. Writing a two-page essay on important initiatives taken in India for promoting green economy	08
2. Describe the major green Sectors/Areas and the role of various stakeholder in green economy	1. Stakeholders in green economy 2. Role of government and private agencies in greening cities, buildings, tourism, industry, transport, renewable energy, waste management, agriculture, water, forests and fisheries	1. Preparing posters on green Sectors/Areas: cities, buildings, tourism, industry, transport, renewable energy, waste management, agriculture, water, forests and fisheries	07
Total			15

Part B: Vocational Skills

S. No.	Units	Duration (Hrs)
1.	Unit 1: Production Technology	25
2.	Unit 2: Introduction to Industrial Sewing Machines	25
3.	Unit 3: Machines for Seam Finishes	30
4.	Unit 4: Machines for Ornamental Stitches	30
5.	Unit 5: Machines for Attachments	30
6.	Unit 6: Personal Hygiene & Cleaning and Maintenance at Workplace	25
	Total	165

Unit 1: Production Technology			
Learning Outcome	Theory (10 Hrs)	Practical (15 Hrs)	Duration (25 Hrs)
1. Explain garment production system, it's types and evaluation of production systems	1. Introduction to garment production system 2. Types of garment production system a. Individual system b. Group System 3. Evaluation of production systems	1. Prepare chart for garment production systems 2. Make a report on types of garment production system, it's advantages and disadvantages	10
2. Describe garment operating procedure	1. Introduction to garment operating procedure 2. Need of process flow chart in garment production 3. Assembly sequence of long sleeve shirt and trouser	1. Prepare process flow chart in garment manufacturing 2. Prepare assembly sequence chart on for garment like :Long sleeve shirt and Trouser	15
Total			25

Unit 2: Introduction to Industrial Sewing Machines			
Learning Outcome	Theory (10 Hrs)	Practical (15 Hrs)	Duration (25 Hrs)
1. Identify and explain types of threads, it's classification and suitability of threads	1. Types of threads 2. Thread classification based on: a. fibre type b. manufacturing c. finishing d. their end uses 3. Terminology related to sewing threads 4. Suitability of threads for: a. fabrics b. machines	1. Prepare a list of thread types 2. Prepare a chart on thread classification 3. Make a small dictionary for thread terminology 4. Prepare a short report on suitability of threads for fabrics and machines	12
2. Identify and describe parts of needle, it's types, selection and needle system	1. Introduction to sewing machine needles for specialized machines 2. Various parts of a needle 3. Types of needles: a. standard needles b. decorative needles c. special purpose needle	1. Make a sketch of various parts of needle in practical file 2. Prepare a table on types of needles in practical file 3. Prepare a short report on needle system 4. Prepare a chart on	13

Unit 2: Introduction to Industrial Sewing Machines			
Learning Outcome	Theory (10 Hrs)	Practical (15 Hrs)	Duration (25 Hrs)
	4. Choose appropriate needle for fabric and machine 5. Needle system	selection of thread type and needle size for industrial sewing machines 5. Use various needles and threads and prepare samples, paste in practical file	
Total			25

Unit 3: Machines for Seam Finishes			
Learning Outcome	Theory (10 Hrs)	Practical (20 Hrs)	Duration (30 HRS)
1. Explain and demonstrate operating procedure of lock stitch machine	1. Introduction and importance of lock stitch machine 2. Single needle lock stitch machine 3. Double needle lock stitch machine 4. Parts of single needle lock stitch machine 5. Operating procedure of lock stitch machine 6. Maintenance of machine	1. Labelling the parts of lock stitch machine in practical file 2. Prepare the machine for threading and needling before stitching 3. Prepare samples of lock stitch machine and paste in practical file	15
2. Explain and demonstrate operating procedure of overlock stitch machine	1. Introduction and importance of overlock stitch machine 2. Classification of overlock machine 3. Types of overlock stitches 4. Parts of overlock stitch machine 5. Operating steps of overlock stitch machine	1. Labelling the parts of overlock stitch machine in practical file 2. Prepare the machine for threading and needling before stitching 3. Prepare samples of overlock stitch machine and paste in practical file	15
Total			30

Unit 4: Machines for Ornamental Stitches			
Learning Outcome	Theory (10 Hrs)	Practical (20 Hrs)	Duration (30 Hrs)
1. Describe types of embroidery machine and demonstrate operating procedure of embroidery machine	1. Introduction and types of embroidery machines: a. free-motion embroidery b. computerized embroidery 2. Types of computerized embroidery machines: a. single head embroidery b. multi head embroidery c. tubular embroidery d. chenille embroidery e. mixed chenille embroidery 3. Advantages for high speed motorized machines for embroidery	1. Threading and needling embroidery machine 2. Prepare samples from embroidery machine and paste in practical file	15
1. Explain parts and demonstrate operating procedure of zigzag machine	1. Introduction to zigzag machine 2. Different parts of zigzag sewing machine 3. Operating steps of zigzag sewing	1. Threading and needling zigzag sewing machine 2. Prepare samples from zigzag sewing machine and paste in practical file	15
Total			30

Unit 5: Machines for Attachments			
Learning Outcome	Theory (10 Hrs)	Practical (20 Hrs)	Duration (30 Hrs)
1. Explain belt - loop setter, parts and operating procedure of button sewing machine	1. Introduction to belt-loop sewing machine 2. Introduction and importance of button sewing machine 3. Parts of button sewing machine 4. Threading and operating steps of button sewing machine	1. Functioning of belt-loop setter 2. Threading and needling of button sewing machine 3. Prepare samples from button sewing machine and paste in practical file	17
1. Explain parts and demonstrate operating procedure of buttonhole sewing machine	1. Introduction and importance of buttonhole sewing machine 2. Different parts of buttonhole sewing machine	1. Threading and needling of buttonhole sewing machine 2. Sewing practices on buttonhole sewing machine and prepare	13

Unit 5: Machines for Attachments			
Learning Outcome	Theory (10 Hrs)	Practical (20 Hrs)	Duration (30 Hrs)
	3. Threading and operating steps of buttonhole sewing machine	samples and paste in practical file	
Total			30

Unit 6: Personal Hygiene & Cleaning and Maintenance at Workplace			
Learning Outcome	Theory (10 Hrs)	Practical (15 Hrs)	Duration (25 Hrs)
1. Describe importance of health and hygiene, factors for good health	1. Introduction and importance to health and hygiene 2. factors affect the maintenance of good health: <ul style="list-style-type: none"> • physical well being • mental and emotional well being • social being 3. Characteristics of well adjusted people 4. Common danger signals of mal-adjustment	1. Prepare a chart on factors affecting maintenance of good health 2. Make a short report on health and hygiene 3. Role play for importance of personal health and hygiene	09
2. Explain importance of cleaning and maintenance at workplace	1. Introduction to maintenance, types of maintenance: <ul style="list-style-type: none"> • routine • breakdown 2. Benefits of maintenance 3. Benefits of clean environment	1. Make a report on cleaning and maintenance at workplace 2. Enlist benefits of clean environment 3. Role play for maintain cleanliness at workplace	08
3. Explain and demonstrate cleaning and maintenance of specialized machines	1. Cleaning importance of specialized sewing machines 2. Steps of cleaning and oiling of specialized sewing machine	1. Prepare a chart for cleaning and oiling of sewing machine 2. Prepare maintenance checklist	08
Total			25

CLASS 12

Part A - Employability Skills

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

Unit 1: Communication Skills - IV			
Learning Outcome	Theory (10 Hrs)	Practical (15 Hrs)	Duration (25 Hrs)
1. Describe the steps to active listening skills	1. Importance of active listening at workplace 2. Steps to active listening	1. Demonstration of the key aspects of becoming active listener 2. Preparing posters of steps for active listening	10
2. Demonstrate basic writing skills	1. Writing skills to the following: <ul style="list-style-type: none"> • Sentence • Phrase • Kinds of Sentences • Parts of Sentence • Parts of Speech • Articles • Construction of a Paragraph 	1. Demonstration and practice of writing sentences and paragraphs on topics related to the subject	15
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 self-motivation	1. Finding and listing motives (needs and desires); 2. Finding sources of motivation and inspiration (music, books, activities); think expansive thoughts;	1. Group discussion on identifying needs and desire 2. Discussion on sources of motivation and inspiration	10

Unit 2: Self-management Skills -IV			
Learning Outcome	Theory (10 Hrs)	Practical (15 Hrs)	Duration (25 Hrs)
	living fully in the present moment; Dreaming big		
2. Describe the basic personality traits, types and disorders	<ol style="list-style-type: none"> 1. Describe the meaning of personality 2. Describe how personality influence others 3. Describe basic personality traits 4. Describe common personality disorders- paranoid, antisocial, schizoid, borderline, narcissistic, avoidant, dependent and obsessive 	1. Demonstrate the knowledge of different personality types	15
Total			25

Unit 3: Information & Communication Technology Skills - IV			
Learning Outcome	Theory (08 Hrs)	Practical (12 Hrs)	Duration (20 Hrs)
1. Perform tabulation using spreadsheet application	<ol style="list-style-type: none"> 1. Introduction to spreadsheet application 2. Spreadsheet applications 3. Creating a new worksheet 4. Opening workbook and entering text 5. Resizing fonts and styles 6. Copying and moving 7. Filter and sorting 8. Formulas and functions 9. Password protection. 10. Printing a spreadsheet. 11. Saving a spreadsheet in various formats 	1. Demonstration and practice on the following: <ul style="list-style-type: none"> • Introduction to the spreadsheet application • Listing the spreadsheet applications • Creating a new worksheet • Opening the workbook and enter text • Resizing fonts and styles • Copying and move the cell data • Sorting and Filter the data • Applying elementary formulas and functions • Protecting the spreadsheet with 	10

Unit 3: Information & Communication Technology Skills - IV			
Learning Outcome	Theory (08 Hrs)	Practical (12 Hrs)	Duration (20 Hrs)
		password • Printing a spreadsheet • Saving the spreadsheet in various formats	
2. Prepare presentation using presentation application	1. Introduction to presentation 2. Software packages for presentation 3. Creating a new presentation 4. Adding a slide 5. Deleting a slide 6. Entering and editing text 7. Formatting text 8. Inserting clipart and images 9. Slide layout 10. Saving a presentation 11. Printing a presentation document	1. Demonstration and practice on the following: • Listing the software packages for presentation • Explaining the features of presentation • Creating a new presentation • Adding a slide to presentation • Deleting a slide • Entering and edit text • Formatting text • Inserting clipart and images • Sliding layout • Saving a presentation • Printing a presentation document	10
Total			20

Unit 4: Entrepreneurship Development Skills - IV			
Learning Outcome	Theory (10 Hrs)	Practical (15 Hrs)	Duration (25 Hrs)
1. Describe the general and entrepreneurial behavioural competencies	1. Barriers to becoming entrepreneur 2. Behavioural and entrepreneurial competencies – adaptability/ decisiveness, initiative/perseverance, interpersonal skills, organizational skills, stress management, valuing service and diversity	1. Administering self-rating questionnaire and score responses on each of the competencies 2. Collect small story/ anecdote of prominent successful entrepreneurs 3. Identify entrepreneurial competencies reflected in each story and connect it to the	10

Unit 4: Entrepreneurship Development Skills - IV			
Learning Outcome	Theory (10 Hrs)	Practical (15 Hrs)	Duration (25 Hrs)
		definition of behavioural competencies 4. Preparation of competencies profile of students	
2. Self-assessment of behavioural competencies	1. Entrepreneurial competencies in particular: self - confidence, initiative, seeing and acting on opportunities, concern for quality, goal setting and risk taking, problem solving and creativity, systematic planning and efficiency, information seeking, persistence, influencing and negotiating, team building	1. Games and exercises on changing entrepreneurial behaviour and development of competencies for enhancing self-confidence, problem solving, goal setting, information seeking, team building and creativity	15
Total			25

Unit 5: Green Skills - IV			
Learning Outcome	Theory (05 Hrs)	Practical (10 Hrs)	Duration (15 Hrs)
1. Describe the role of green jobs	1. Role of green jobs in toxin-free homes 2. Green organic gardening, public transport and energy conservation 3. Green jobs in water conservation 4. Green jobs in solar and wind power, waste reduction, reuse and recycling of wastes 5. Green jobs in tourism 6. Green jobs in building and construction 7. Green jobs in appropriate technology 8. Role of green jobs in Improving energy and raw materials use 9. Role of green jobs in	1. Listing of green jobs and preparation of posters on green job profiles 2. Prepare posters on green jobs	15

Unit 5: Green Skills - IV			
Learning Outcome	Theory (05 Hrs)	Practical (10 Hrs)	Duration (15 Hrs)
	limiting greenhouse gas emissions 10. Role of green jobs minimizing waste and pollution 11. Role of green jobs in protecting and restoring ecosystems 12. Role of green jobs in support adaptation to the effects of climate change		
Total			15

Part B–Vocational Skills

S. No.	Units	Duration (Hrs)
1.	Unit 1: Introduction to Garment Pre-Production Processes	25
2.	Unit 2: Feed Off Arm and Bar Tack Machines	35
3.	Unit 3: Flat Lock Machine, Blind Stitch Machine, Finishing Machines and Other Equipments	50
4.	Unit 4: Organization Maintain Health, Safety and Security at Workplace	25
5.	Unit 5: Quality Control in Stitching Process	30
	Total	165

Unit 1: Introduction to Garment Pre-Production Processes			
Learning Outcome	Theory (10 Hrs)	Practical (15 Hrs)	Duration (25 Hrs)
1. Explain the meaning and importance of specification sheet	1. Introduction and contents of a specification sheet: fabric type, seams and stitches, colour, accessory details (zippers, pockets, etc.), and ornamentation (embroidery, cutwork, patchwork	1. Search a specification sheet from internet and interpret the details given in it 2. Prepare different types of specification sheet like fabric type, seams and stitches, colour, accessory details (zippers, pockets, etc.), and ornamentation (embroidery, cutwork, patchwork etc. and	09

Unit 1: Introduction to Garment Pre-Production Processes			
Learning Outcome	Theory (10 Hrs)	Practical (15 Hrs)	Duration (25 Hrs)
		prepare a sample file	
2. Describe the pre-production operations in an apparel industry	<ol style="list-style-type: none"> 1. Meaning and importance of pre-production operations 2. Garment specifications, approval of colour and shades, care label and other label approval, and making preproduction instructions for a specialized sewing machine operator 	1. Make a chart of pre-production operations in the apparel industry and list out their utilities	08
3. Describe and demonstrate various attachments of sewing machines	<ol style="list-style-type: none"> 1. Use of various attachments like: <ul style="list-style-type: none"> • Gathering foot • ¼" seam foot • darning foot • binder foot • 3-way cording foot • pin tucking foot • ribbon/sequin foot • piping foot • ruffle foot 	1. Sewing practice with various attachments of sewing machines and prepare a sample file	08
Total			25

Unit 2: Feed Off Arm and Bar Tack Machines			
Learning Outcome	Theory (15 Hrs)	Practical (20 Hrs)	Duration (35 Hrs)
1. Explain and demonstrate operating system of feed off arm machine	<ol style="list-style-type: none"> 1. Importance of feed off arm machine 2. Different parts of feed off arm machine 3. Operating steps of feed off arm machine 	<ol style="list-style-type: none"> 1. Sewing practice on feed off arm machine 2. Collect pictures of garments in which feed off arm machine is used and paste in practical file 	18
2. Demonstrate operating procedure of bar-tack machine	<ol style="list-style-type: none"> 1. Importance of bar-tack sewing machine 2. Different parts of bar-tack sewing machine 3. Operating steps of bar-tack sewing machine 	<ol style="list-style-type: none"> 1. Sewing practice on bar-tack machine 2. Make a collage of pictures of bar-tack stitch used on different garment 	17
Total			35

Unit 3: Flat Lock Machine, Blind Stitch Machine, Finishing Machines and Other Equipments			
Learning Outcome	Theory (20 Hrs)	Practical (30 Hrs)	Duration (50 Hrs)
1. Explain and demonstrate operating procedure of flat lock stitch machine	1. Operating procedure and use of Flat lock stitch machine	1. Prepare samples through flat lock stitch machine and paste in practical file	15
2. Describe and demonstrate operating procedure of blind stitch machine	1. Operating procedure and use of blind stitch machine	1. Prepare samples by using blind stitch machine and paste in practical file	15
3. Explain and demonstrate operating procedure of finishing machines And other equipment	1. Describe types of finishing machines: a. Welting b. fusing 2. Parts of welt attaching machine 3. Operating procedure and uses of finishing machines 4. Operating steps or methods of finishing 5. Types of pressing equipment and machines	1. Prepare samples by using finishing machines and paste in practical file 2. Enlist pressing equipment and machines	20
Total			50

Unit 4: Maintain Health, Safety and Security at Workplace			
Learning Outcome	Theory (10 Hrs)	Practical (15 Hrs)	Duration (25 Hrs)
1. Explain the health and safety related instruction applicable to workplace	1. Health and safety related practices applicable at workplace 2. Organizational procedures for safe handling of equipment and machine operations 3. Potential risk due to own actions and methods	1. Practice the effective use of health and safety related instructions at workplace	05
2. Describe the steps of reporting procedures, actions and emergencies to be taken at work place	1. Reporting protocol and documentation required 2. Details of personal training on first aid, fire fitting and emergencies 3. Actions to be taken in the event of a mock drill	1. Demonstrate proper actions taking in case of emergencies at workplace	06
3. Explain steps of Storing materials and equipment in	1. Productive equipment and methods used 2. Proper disposal system for	1. Practice proper handling and storage of hazardous	06

Unit 4: Maintain Health, Safety and Security at Workplace			
Learning Outcome	Theory (10 Hrs)	Practical (15 Hrs)	Duration (25 Hrs)
line	waste and by-products	substance at workplace	
4. Explain the effects and importance of health, safety and securities at workplace	1. Importance of sound health, hygiene, and good habits 2. Effect of alcohol, tobacco and drugs 3. Meaning of signage related to health safety	1. Demonstrate good health, hygiene and safety measures at workplace	08
Total			25

Unit 5: Quality Control in Stitching Process			
Learning Outcome	Theory (10 Hrs)	Practical (20 Hrs)	Duration (30 Hrs)
1. Identify common factors affecting stitching and its quality	1. Importance of quality in stitching process 2. Types of problem and factors which affecting quality of stitching	1. Write importance of quality in stitching and the factors affecting quality in practical file	08
2. Narrate types of faults & corrections required in stitching process	1. Steps of finding the faults and correct them 2. Test, sort, track feed and examine the work progress 3. Consequences of incorrect setting in specialized sewing machine	1. Examine and make a report in case of any faults in specialized sewing machine 2. Check sequence of setting in specialized sewing machine	12
3. Explain the rejections according to the specification of the specialized sewing machine	1. Importance of making and segregating rejects 2. Finding faults and components like creased, stain and damages	1. Collect pictures of some common faults occurring while quality check and paste in practical file	10
Total			30

6. ORGANISATION OF FIELD VISITS

In a year, at least 03 field visits/educational tours should be organised for the students to expose them to the activities in the workplace.

Visit Boutiques, Market, Workshops, relevant industries and small units to observe the following: Location, Site, Office building, Store, Fabric yard, Packing area, Fabric store, Cutting area

and Industrial machines. During the visit, students should obtain the following information from the owner or the supervisor of the industry:

1. Area under industry and its layout
2. Departments in industry
3. Work culture and environment of various departments
4. Various cutting, sewing, pattern making and layout machines
5. Different Specialized sewing machines
6. Different buyers, the company deals with
7. Product range of the industry
8. Understand time and action calendar
9. Manufacture, export, import, sale procedure
10. Manpower engaged
11. Total expenditure of industry
12. Total annual income
13. Profit/Loss (Annual)
14. Any other information

7. LIST OF EQUIPMENT AND MATERIALS

The list given below is suggestive and an exhaustive list should be prepared by the vocational teacher. Only basic tools, equipment and accessories should be procured by the Institution so that the routine tasks can be performed by the students regularly for practice and acquiring adequate practical experience:

1. Thread
2. Needle
3. Trims
4. Fabric
5. Buttons
6. Scissors
7. Measuring tape
8. Chalk
9. Pins
10. Sheets
11. Paper
12. Pictures (Apparel magazines)
13. Zipper
14. Embroidery machine
15. Chain stitch machine
16. Over-lock machine
17. Button hole sewing machine
18. Button sewing machine
19. Zigzag sewing machine
20. Lock stitch machine
21. Feed of arm machine
22. Bar-tack machine
23. Blind stitch machine

24. High speed sewing machine
25. High speed interlock machine

8. VOCATIONAL TEACHER'S/ TRAINER'S QUALIFICATION AND GUIDELINES

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:

S. No.	Qualification	Minimum Competencies
1.	Post-graduate degree in Textiles and Clothing or relevant area from a recognized Institute/University, with at least 01 year work/teaching experience in the relevant area	<ul style="list-style-type: none"> • Effective communication skills (oral and written) • Basic computing skills

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 *Samagra Shiksha* in the following ways:

- (i) 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

- (ii) 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/she 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:

- (i) Written test for the technical/domain specific knowledge related to the sector;
- (ii) Interview for assessing the knowledge, interests and aptitude of 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 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 Headmaster/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, team work, 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 up-gradation of competency;
- (vii) Cater to different learning styles and level 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;
- (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. Following parameters may be considered during the appraisal process:

1. Participation in guidance and counselling activities conducted at Institutional, District and State level;
2. Adoption of innovative teaching and training methods;
3. Improvement in result of vocational students of Class X or Class XII;
4. Continuous up-gradation 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 level;
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 papers in National and International Journals;
10. Organisation of activities for promotion of vocational subjects;
11. Involvement in placement of students/student support services.

9. LIST OF CONTRIBUTORS

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विद्यया ऽ मृतमश्नुते



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