

# COMPUTER AIDED EMBROIDERY & DESIGNING

NSQF LEVEL-5



SECTORS - APPAREL

COMPETENCY BASED CURRICULUM

CRAFT INSTRUCTOR TRAINING SCHEME (CITS)



सत्यमेव जयते

GOVERNMENT OF INDIA

Ministry of Skill Development & Entrepreneurship

Directorate General of Training

**CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE**

EN-81, Sector-V, Salt Lake City, Kolkata – 700091

# COMPUTER AIDED EMBROIDERY & DESIGNING

(Non-Engineering Trade)

**SECTOR – APPAREL**

(Designed in 2023)

**Version: 2.0**

**CRAFT INSTRUCTOR TRAINING SCHEME (CITS)**

**NSQF LEVEL – 5**

Developed By

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[www.cstaricalutta.gov.in](http://www.cstaricalutta.gov.in)

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## 1. COURSE OVERVIEW

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The Craft Instructor Training Scheme is operational since inception of the Craftsmen Training Scheme. The first Craft Instructors' Training Institute was established in 1948. Subsequently, 6 more institutes namely, Central Training Institute for Instructors (now called as National Skill Training Institute (NSTI)), NSTI at Ludhiana, Kanpur, Howrah, Mumbai, Chennai and Hyderabad were established in 1960's by DGT. Since then the CITS course is successfully running in all the NSTIs across India as well as in DGT affiliated institutes viz. Institutes for Training of Trainers (ITOT). This is a competency based course of one-year duration. "Computer Aided Embroidery & Designing" CITS trade is applicable for Instructors of "Computer Aided Embroidery & Designing" Trade.

The main objective of Craft Instructor training programme is to enable Instructors explore different aspects of the techniques in pedagogy and transferring of hands-on skills so as to develop a pool of skilled manpower for industries, also leading to their career growth & benefiting society at large. Thus promoting a holistic learning experience where trainee acquires specialized knowledge, skills & develops attitude towards learning & contributing in vocational training ecosystem.

This course also enables the instructors to develop instructional skills for mentoring the trainees, engaging all trainees in learning process and managing effective utilization of resources. It emphasizes on the importance of collaborative learning & innovative ways of doing things. All trainees will be able to understand and interpret the course content in right perspective, so that they are engaged in & empowered by their learning experiences and above all, ensure quality delivery.

## 2. TRAINING SYSTEM

### 2.1 GENERAL

CITS courses are delivered in National Skill Training Institutes (NSTIs) & DGT affiliated institutes viz., Institutes for Training of Trainers (ITOT). For detailed guidelines regarding admission on CITS, instructions issued by DGT from time to time are to be observed. Further complete admission details are made available on NIMI web portal <http://www.nimionlineadmission.in>. The course is of one-year duration. It consists of Trade Technology (Professional skills and Professional knowledge), Training Methodology and Engineering Technology/ Soft skills. After successful completion of the training programme, the trainees appear in All India Trade Test for Craft Instructor. The successful trainee is awarded NCIC certificate by DGT.

### 2.2 COURSE STRUCTURE

Table below depicts the distribution of training hours across various course elements during a period of one year:

S No.	Course Element	Notional Training Hours
1.	<b>Trade Technology</b>	
	Professional Skill (Trade Practical)	480
	Professional Knowledge (Trade Theory)	270
2.	<b>Training Methodology</b>	
	TM Practical	270
	TM Theory	180
	<b>Total</b>	<b>1200</b>

Every year 150 hours of mandatory OJT (On the Job Training) at nearby industry, wherever not available then group project is mandatory.

3	On the Job Training (OJT)/ Group Project	150
4	Optional Course	240

CITS Trainees can also opt for optional courses of 240 hours' duration.

### 2.3 PROGRESSION PATHWAYS

- Can join as an Instructor in vocational training Institute/ technical Institute.
- Can join as a supervisor in Industries.
- Run their own Embroidery unit
- Can progress as Digitizer in relevant Industry

## 2.4 ASSESSMENT & CERTIFICATION

The CITS trainee will be assessed for his/her Instructional skills, knowledge and attitude towards learning throughout the course span and also at the end of the training program.

a) The Continuous Assessment (Internal) during the period of training will be done by **Formative Assessment Method** to test competency of instructor with respect to assessment criteria set against each learning outcomes. The training institute has to maintain an individual trainee portfolio in line with assessment guidelines. The marks of internal assessment will be as per the formative assessment template provided on [www.bharatskills.gov.in](http://www.bharatskills.gov.in)

b) The **Final Assessment** will be in the form of **Summative Assessment Method**. The All India Trade Test for awarding National Craft Instructor Certificate will be conducted by DGT as per the guidelines of DGT. The learning outcome and assessment criteria will be the basis for setting question papers for final assessment. The external examiner during final examination will also check the individual trainee's profile as detailed in assessment guideline before giving marks for practical examination.

### 2.4.1 PASS CRITERIA

#### Allotment of Marks among the subjects for Examination:

The minimum pass percent for Trade Practical, TM Practical, Soft Skill Practical Examinations and Formative assessment is 60% & for all other subjects is 40%. There will be no Grace marks.

### 2.4.2 ASSESSMENT GUIDELINE

Appropriate arrangements should be made to ensure that there will be no artificial barriers to assessment. The nature of special needs should be taken into account while undertaking the assessment. While assessing, the major factors to be considered are approaches to generate solutions to specific problems by involving standard/non-standard practices.

Due consideration should also be given while assessing for teamwork, avoidance/reduction of scrap/wastage and disposal of scrap/waste as per procedure, behavioral attitude, sensitivity to the environment and regularity in training. The sensitivity towards OSHE and self-learning attitude are to be considered while assessing competency.

Assessment will be evidence based comprising of the following:

- Demonstration of Instructional Skills (Lesson Plan, Demonstration Plan)
- Record book/daily diary
- Assessment Sheet

- Progress chart
- Video Recording
- Attendance and punctuality
- Viva-voce
- Practical work done /Models
- Assignments
- Project work

Evidences and records of internal (Formative) assessments are to be preserved until forthcoming examination for audit and verification by examining body. The following marking pattern to be adopted while assessing:

Performance Level	Evidence
(a) Weightage in the range of 60%-75% to be allotted during assessment	
<p>For performance in this grade, the candidate should be well versed with instructional design, implement learning programme and assess learners which demonstrates attainment of an acceptable standard of crafts instructorship with occasional guidance and engage students by demonstrating good attributes of a trainer.</p>	<ul style="list-style-type: none"> <li>• Demonstration of fairly good skill to establish a rapport with audience, presentation in orderly manner and establish as an expert in the field.</li> <li>• Average engagement of students for learning and achievement of goals while undertaking the training on specific topic.</li> <li>• A fairly good level of competency in expressing each concept in terms the student can relate, draw analogy and summarize the entire lesson.</li> <li>• Occasional support in imparting effective training.</li> </ul>
(b) Weightage in the range of 75%-90% to be allotted during assessment	
<p>For performance in this grade, the candidate should be well versed with instructional design, implement learning programme and assess learners which demonstrates attainment of a reasonable standard of crafts instructorship with little guidance and engage students by demonstrating good attributes of a trainer.</p>	<ul style="list-style-type: none"> <li>• Demonstration of good skill to establish a rapport with audience, presentation in orderly manner and establish as an expert in the field.</li> <li>• Above average engagement of students for learning and achievement of goals while undertaking the training on specific topic.</li> <li>• A good level of competency in expressing each concept in terms the student can relate, draw analogy and summarize the entire lesson.</li> <li>• Little support in imparting effective training.</li> </ul>
(c) Weightage in the range of more than 90% to be allotted during assessment	

For performance in this grade, the candidate should be well versed with instructional design, implement learning programme and assess learners which demonstrates attainment of a high standard of crafts instructorship with minimal or no support and engage students by demonstrating good attributes of a trainer.

- Demonstration of high skill level to establish a rapport with audience, presentation in orderly manner and establish as an expert in the field.
- Good engagement of students for learning and achievement of goals while undertaking the training on specific topic.
- A high level of competency in expressing each concept in terms the student can relate, draw analogy and summarize the entire lesson.
- Minimal or no support in imparting effective training.



### 3. GENERAL INFORMATION

<b>Name of the Trade</b>	<b>COMPUTER AIDED EMBROIDERY &amp; DESIGNING – CITS</b>
<b>Trade Code</b>	DGT/4048
<b>NCO – 2015</b>	2356.0100 8153.0701, 7533.9900
<b>NOS Covered</b>	AMH/N9405, AMH/N9406, AMH/N9414, AMH/N9415, AMH/9416, AMH/N9417, AMH/N9409, AMH/N9410, AMH/N9418, AMH/N9423 MEP/N9443
<b>NSQF Level</b>	Level-5
<b>Duration of Craft Instructor Training</b>	One Year
<b>Unit Strength (No. Of Student)</b>	25
<b>Entry Qualification</b>	<p>Degree in Textile Designing/ Fashion Technology/ Costume Design &amp; Dress Making from recognized Board / University.</p> <p style="text-align: center;">OR</p> <p>03 yrs. diploma in Textile Designing/ Fashion Technology/ Costume Design &amp; Dress Making after class 10th from recognized board/ University.</p> <p style="text-align: center;">OR</p> <p>Ex-serviceman from Indian Armed forces with 15 years of service in related field as per equivalency through DGR.</p> <p style="text-align: center;">OR</p> <p>10th Class with 1 years NTC/NAC in the trade of “Computer Aided Embroidery &amp; Designing” +2 years related experience</p> <p>*Wherever diploma is of 2 yr. duration, 1 yr. experience will be required.</p>
<b>Minimum Age</b>	18 years as on first day of academic session.
<b>Space Norms</b>	<p>Theory Room - 65 Sq. m</p> <p>Computer Lab - 65 Sq. m</p> <p>Embroidery Lab 120 sq m</p>
<b>Power Norms</b>	8 KW
<b>Instructor’s Qualification for</b>	
<b>1. Computer Aided Embroidery &amp; Designing (CITS) Trade</b>	<p>B.Voc /Degree in Textile Designing/ Fashion Technology/ Costume Design &amp; Dress Making from AICTE/ UGC recognized Board / University with two years’ experience in relevant field.</p> <p style="text-align: center;">OR</p> <p>Diploma (Minimum 2 years) in Textile Designing/ Fashion Technology/ Costume Design &amp; Dress Making from recognized Board / University or relevant Advanced Diploma (Vocational) from DGT with five years of experience in relevant field.</p> <p style="text-align: center;">OR</p> <p>Ex-serviceman from Indian Armed forces with 15 years of service in</p>

	<p>related field as per equivalency through DGR. Candidate should have undergone methods of instruction course or minimum 02 years of experience in technical training institute of Indian Armed forces.</p> <p align="center">OR</p> <p>NTC/ NAC passed in 'Computer Aided Embroidery &amp; Designing' trade with seven years of experience in relevant field.</p> <p><b><u>Essential Qualification:</u></b> National Craft Instructor Certificate (NCIC) in 'Computer Aided Embroidery &amp; Designing', in any of the variants under DGT. (Trainees completed National Craft Instructor Certificate in 'Surface Ornamentation Techniques' from the year 2015 to 2020 are also eligible )</p>
<p><b>2. Soft skills</b></p>	<p>MBA/ BBA / Any Graduate/ Diploma in any discipline from AICTE/ UGC recognized College/ university with Three years' experience and short term ToT Course in Soft Skills from DGT institutes.</p> <p>(Must have studied English/ Communication Skills and Basic Computer at 12th / Diploma level and above).</p>
<p><b>3. Training Methodology</b></p>	<p>B. VoC/ Degree in any discipline from AICTE/ UGC recognized College/ university with two years of experience in training/ teaching field.</p> <p align="center">OR</p> <p>Diploma in any discipline from recognized board / University with five years' experience in training/teaching field.</p> <p align="center">OR</p> <p>NTC/ NAC passed in any trade with seven years' experience in training/ teaching field.</p> <p><b><u>Essential Qualification:</u></b> National Craft Instructor Certificate (NCIC) in any of the variants under DGT / B.Ed. /ToT from NITTTR or equivalent.</p>
<p><b>4. Minimum Age for Instructor</b></p>	<p>21 Years</p>

## 4. JOB ROLE

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**Manual Training Teacher/Craft Instructor;** instructs students in ITIs/Vocational Training Institutes in respective trades as per defined job role. Imparts theoretical instructions for the use of tools & equipment of related trades and related subjects. Demonstrate process and operations related to the trade in the workshop; supervises, assesses and evaluates students in their practical work. Ensures availability & proper functioning of equipment and tools in stores.

**Entrepreneur (Computerized Embroidery):** Entrepreneur can run business by using Computer Aided Machine Embroidery related knowledge and skills by setting his/ her own unit after searching target market. Can set up the machine with accessories and Produces various designs on fabric or garment by multithread computerized embroidery machine. Identify all necessary supplies required e.g. needle, fabric, stabilizers, and threads etc. Able to manage all the embroidery process for mass production. Able to edit designs and conversions of design. Estimates and fix the cost of embroidered article.

**Free Lancer (Embroidery Design Developer):** Free Lancer can develop own designs for embroidery irrespective of hand or machine embroidery by using CorelDraw or embroidery digitizing software and share with different embroidery units. Can also develop customized/specialized designs. Able to digitize designs for special embroideries.

**Free Lancer (Embroidery Designs by Corel Draw software):** Free Lancer can develop own designs for embroidery irrespective of hand or machine embroidery by using coral draw software and share with different embroidery units. Can also develop customized/specialized designs. Uses the CorelDraw tools to create and edit vector art work for embroidery digitizing. Able to use all the tool sets for develop and transforming a small motif to a large design. Scans sketches and artwork and traces bitmaps to convert them to vector graphics.

**Embroidery Digitizer:** One who can perform the following functions – Able for transforming pre-existing artwork into machine embroidery design file by using Embroidery software, with a series of commands so that embroidery machine can stitch the art work into a finished work. Able to operate the computerized embroidery machine, single head or multi head with accessories and attachments. Able to develop designs by CorelDraw or embroidery digitizing software. Able to run the machine for specialized work like Sequins, cording, chenille, taping & aari work. Able to develop lace work/ cut work with machine.

**Framer-Computerized Embroidery Machine;** is responsible for preparation and setup of the embroidery machine for embroidery and carries out hooping and framing operations. The Framer is also responsible for removal of frame and fabric panel once the embroidery has been completed. While the embroidery is done through the computerized embroidery machine, the Framer needs to monitor the progress, and ensure the required quality of embroidery is achieved.

### Reference NCO-2015:

2356.100 – Manual Training Teacher/ Craft Instructor.

8153.0701 – Framer-Computerized Embroidery Machine

7533.9900 - Sewers, Embroiderers and Related Workers, Other

**Reference NOS:**

- AMH/N9405
- AMH/N9406
- AMH/N9414
- AMH/N9415
- AMH/N9416
- AMH/N9417
- AMH/N9409
- AMH/N9410
- AMH/N9418
- AMH/N9423
- MEP/N9443

## 5. LEARNING OUTCOMES

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*Learning outcomes are a reflection of total competencies of a trainee and assessment will be carried out as per the assessment criteria.*

### 5.1 TRADE TECHNOLOGY

1. Develop embroidery design by using CorelDraw software and embroidery digitizing software on basic level. (NOS: AMH/N9405)
2. Demonstrate multi head computerized embroidery machine with proper knowledge about its tools. (NOS: AMH/N9406)
3. Set up the machine and machine accessories as per requirement and Demonstrate the threading process according to the fabric type, needles and threads used. (NOS: AMH/N9414)
4. Identifying defect and their troubleshooting while making designs on machine. (NOS: AMH/N9415)
5. Demonstrate the process of digitizing designs on software for mass production on multi head embroidery machine for industrial work. (NOS: AMH/N9416)
6. Demonstrate the digitizing process of specialized embroidery designs and set up the attachments. (NOS: AMH/N9417)
7. Prepare different specialized embroidery samples with use of special attachments. (NOS: AMH/N9423)
8. Create decorative embroidery designs and run the machine to develop various design. (NOS: AMH/N9409)
9. Set up the Computerized Aare Embroidery Machine with proper knowledge about parts, maintenance and capabilities. (NOS: AMH/N9410)
10. Operate Computerized Aare Embroidery Machine and make Aare embroidery designs with safety. (NOS: AMH/N9410)
11. Attain knowledge of placement setting of designs on different articles with machine. (NOS: AMH/N9418)
12. Exhibit effective communication skills with logical reasoning ability and quantitative aptitude to maximize efficiency in work. (NOS: MEP/N9443)

6. COURSE CONTENT

SYLLABUS FOR COMPUTER AIDED EMBROIDERY & DESIGNING (CITS TRADE )			
TRADE TECHNOLOGY			
Duration	Reference Learning Outcome	Professional Skills (Trade Practical)	Professional Knowledge (Trade Theory)
Practical 25Hrs  Theory 10Hrs	Develop embroidery design by using CorelDraw software and embroidery digitizing software on basic level.	<ol style="list-style-type: none"> <li>1. Practice of making design in Corel Draw.</li> <li>2. Practice of making design in embroidery digitizing software.</li> </ol>	<ul style="list-style-type: none"> <li>• Knowledge of trade and job prospects</li> <li>• Revision of CTS contents</li> </ul>
Practical 12Hrs  Theory 06Hrs	Demonstrate multi head computerized embroidery machine with proper knowledge about its tools.	<ol style="list-style-type: none"> <li>3. Identify multi head embroidery machine</li> <li>4. Recognize Tools and equipment as per requirement</li> <li>5. Perform Machine oiling and maintenance</li> </ol>	<ul style="list-style-type: none"> <li>• Describe Different types of computerized embroidery machine (Domestic and industrial model)</li> <li>• Identify Related tools and their importance</li> <li>• Memorize Importance of machine maintenance</li> <li>• Memorize Safe operating principle</li> </ul>
Practical 35Hrs  Theory 12Hrs	Set up the machine and machine accessories as per requirement and Demonstrate the threading process according to the fabric type, needles and threads used.	<ol style="list-style-type: none"> <li>6. Practice of Multi head computerized embroidery machine operations                             <ul style="list-style-type: none"> <li>• Start and shutdown process of machine</li> <li>• Loading thread on machine</li> <li>• Upper thread tension</li> <li>• Winding/installing the bobbin</li> <li>• Changing needle</li> </ul> </li> <li>7. Clipping fabric with stabilizer on pantograph/frame</li> </ol>	<ul style="list-style-type: none"> <li>• Describe the Parts of computerized embroidery machine</li> <li>• Recognize machine area and its capabilities</li> <li>• Understand the fabric classification/construction/weight to select the needle and threads accordingly.</li> <li>• Describe handling of different fabrics</li> <li>• Describe Importance of stabilizers/backing material and sprays</li> </ul>
Practical 45Hrs  Theory 20Hrs	Identifying defect and their troubleshooting while making design on machine.	<ol style="list-style-type: none"> <li>8. Load design to multi head embroidery machine                             <ul style="list-style-type: none"> <li>• Setting of origin</li> <li>• Familiarization with control panel</li> </ul> </li> </ol>	<ul style="list-style-type: none"> <li>• Describe machine operating system/software</li> <li>• Describe Information of design on control panel (display unit)</li> </ul>

			<p>Define Troubleshooting</p> <ul style="list-style-type: none"> <li>• Needle break, thread break, puckering and bird nesting etc.</li> </ul>
<p>Practical 75Hrs</p> <p>Theory 26Hrs</p>	<p>Demonstrate the process of digitizing designs on software for mass production on multi head embroidery machine for industrial work.</p>	<p>9. Setting of self-made designs for multi head machine and practice operating machine</p> <ul style="list-style-type: none"> <li>• Repeat set</li> <li>• Stitch control and smooth running of machine</li> </ul> <p>10. Practice of making borders and butte designs for running material e.g. saree, suit, bedsheet and dupatta's etc.</p>	<ul style="list-style-type: none"> <li>• Define Different digitizing software.</li> </ul>
<p>Practical 60Hrs</p> <p>Theory 24Hrs</p>	<p>Demonstrate the digitizing process of specialized embroidery designs and set up the attachments.</p>	<p>11. Practice of Digitizing process of specialized embroidery</p> <ul style="list-style-type: none"> <li>• Sequins work</li> <li>• Cording work</li> <li>• Chenille work</li> <li>• Taping work</li> <li>• Aari embroidery work</li> </ul>	<ul style="list-style-type: none"> <li>• Describe specialized embroidery with suitable needle, designs, fabric, thread, stabilizers and other material etc.</li> </ul>
<p>Practical 45Hrs</p> <p>Theory 20Hrs</p>	<p>Prepare different specialized embroidery samples with use of special attachments.</p>	<p>12. Practice of making samples using attachments with safety</p> <p>13. Practice of handling special attachments with precautions.</p>	<ul style="list-style-type: none"> <li>• Describe different machine attachments</li> <li>• Describe Maintenance of machine attachments</li> </ul>
<p>Practical 88Hrs</p> <p>Theory 32Hrs</p>	<p>Create decorative embroidery designs and run machine to develop various designs.</p>	<p>14. Practice of Digitizing process of decorative embroideries with complex design editing</p> <ul style="list-style-type: none"> <li>• Lace work</li> <li>• Cutwork</li> <li>• Develop new fill patterns</li> </ul>	<p>Describe types of decorative embroideries</p> <ul style="list-style-type: none"> <li>• Lace work</li> <li>• Cutwork</li> <li>• Develop new fill patterns</li> </ul>
<p>Practical 12Hrs</p> <p>Theory 06Hrs</p>	<p>Set up the Computerized Aari Embroidery Machine with proper knowledge about parts, maintenance and capabilities.</p>	<p>15. Recognize the Aari Embroidery Machine</p> <p>16. Identify Different part of Aari Embroidery Machine</p> <p>17. Practice of Machine oiling and maintenance</p>	<ul style="list-style-type: none"> <li>• Describe machine operating system/software</li> <li>• Describe computerized Aari embroidery machine</li> <li>• Describe Parts of machine</li> <li>• Work Area and capabilities of machine</li> </ul>
<p>Practical</p>	<p>Operate Computerized</p>	<p>18. Practice of Computerized</p>	<p>Describe computerized Aari</p>

<p>48Hrs  Theory 22Hrs</p>	<p>Aari Embroidery Machine and make Aari embroidery designs with safety.</p>	<p>Aari Embroidery Machine operations</p> <ul style="list-style-type: none"> <li>• Start and shutdown process of machine</li> <li>• Loading thread on machine</li> <li>• Upper thread tension</li> <li>• Winding/installing the bobbin</li> <li>• Changing needle</li> </ul> <p>19. practice of machine operations on Aari embroidery designs</p>	<p>embroidery with suitable needle, thread, stabilizer and design etc.</p>
<p>Practical 35Hrs  Theory 12Hrs</p>	<p>Attain knowledge of placement setting of designs on different articles with machine.</p>	<p>20. Placement of designs on different made-up and garments</p> <p>21. Costing of prepared article during the session.</p> <p>Garments/Designs prepared during the session may be checked as per quality aspects and a report may be prepared for the same</p>	<ul style="list-style-type: none"> <li>• Define the Standard size charts of made-ups and garments</li> <li>• Name the Types of design settings</li> <li>• Describe Importance of design specification sheet</li> <li>• Define Estimation and costing of articles</li> <li>• Describe Quality control and quality assurance.</li> </ul>
<p><b>SOFT SKILLS: 80 Hrs.</b></p>			
<p>Professional Knowledge Soft Skills- 80 Hrs.</p>	<p>Exhibit effective communication skills with logical reasoning ability and quantitative aptitude to maximize efficiency in work.</p>	<p><b>COMMUNICATION SKILLS:</b> Oral communication Skills, Voice, accent, Voice modulation, pace, Intonation, etc. Study of different pictorial expressions of non-verbal communication and its analysis. Demo on Strengths and Weaknesses Demo on Motivation, Positive attitude. Practice on personal appearance, Dressing Manners &amp; Etiquettes. Practice on attending of mock interview of different types. Listening &amp; doubt clarifying etc. Case studies on Interview sessions.</p> <p><b>Communication &amp; Listening Skills</b> Components of effective communication, Types of communication- Oral, Written, Reading &amp; body language, Handling of communication, Barriers of communication, Listening Tools &amp; Speaking Tools, Non-verbal communication and its importance.</p> <p><b>Self-Management &amp; Personality Development</b> Self-Management, SWOT analysis, self-learning and management. Motivation and Image building Techniques</p>	



**Personal Grooming & Hygiene** Presentation of Self, Formal & Informal Dressing, Dressing for Occasions.  
**Techniques of Attending Interviews** Interview & its types. Preparation for the interview, stages of interview. Do's & Don'ts in an interview.

**BASIC MATHEMATICAL CALCULATION:**

Conversions of different units viz. length, area, mass etc. Simple Problems on Perimeter and area of a triangle, a circle, a square, rectangle, semicircle etc. Simple Problems on Comparing quantities, weight, speed, height, age, ratio, percentage, and price, etc. Simple calculation on profit and loss statement, discount calculations of products. Demonstration of utilization of mobile apps for financial transactions.

Exercises on aptitude/puzzles

Practice on Types of Charts and Graphs

Introduction to units and dimensions of different objects. Perimeter, Area of regular shapes, viz. Triangle, Square, and Circle, rectangle, semicircle etc.

**Quantitative Aptitude** Introduction, Comparing quantities viz.

Speed, age, height, ratio, percentage, weight, and price, etc.

Introduction to cost price, sale price, profit, loss and discounts of products. Introduction to online internet banking mechanisms, various modes of payments, cash transactions and associated mobile apps. Concept of insurance and taxes and types. Personal saving and investment mechanism.

**Logical reasoning** Introduction to logical reasoning.

Types of logical reasoning. Principles of logical reasoning with examples on numbers and sequences, arrangement and relations,

**Data Interpretation** Data analysis and interpretation. Types of variables for different applications. Basic graph types (Bar, Line, PIE Charts).

**ENERGY & ENVIRONMENT:**

Video demo on different types of energy resources. Conventional & Non-Conventional Energy Resources. Fossil Fuel, Biomass, Bio-Gas, Solar, etc. Public awareness on Energy conservation and use of clean energy.

**ENGLISH LITERACY:**

Pronunciation of simple words, Diction (use of word and speech)

Transformation of sentences, Spellings. Reading and understanding simple sentences about self, work and environment. Construction of simple sentences Writing simple English, Speaking with preparation on self, on family, on friends/ classmates, on work. Role-playing and discussions on current affairs. Job description. Practice of Taking messages, passing on instructions. Practice making Resumes or curriculum vita. Letters of application & referencing to previous communication.

Each trainee shall prepare a Garment/Made Up showing different embroidery skills learnt during the session as a project.

**Note:**

1. Trainees Tool kit may be treated as consumables in respect of trainees actually completing the course of

*one-year duration.*

- 2. Experts from the Industry may be called for special lectures and demo's as and when required.*
- 3. Periodical training of trainers for upgrading/updating their knowledge base, training skills and vision to form the career path of their trainees should be mandatory. This training shall also include discussion on changes in course material whenever they happen.*
- 4. The trainers will have the liberty to choose the sequence of contents of the course material to be taught by way of planning weekly/ monthly schedules well in advance, so utilization/practice on machinery at maximum level can be attained.*
- 5. With the ever evolving technology, the specification of tools and equipment keep changing rapidly. Whenever tools and equipment are to be procured, the purchase committee should ensure to go for latest version of equipment instead of sticking to what is specified in syllabus, which normally are outdated.*
- 6. There should be a provision for up gradation of the software whenever upgraded version of software is launched by the company irrespective of life / validity of the software in use.*
- 7. After the final examinations, each trainee will be required to go for a minimum 15 days ON THE JOB TRAINING after completion of which, the trainee will be required to submit copy of the certificate to the Institute.*

**SYLLABUS FOR CORE SKILLS**

## 2. Training Methodology (Common for all trades) (270Hrs + 180Hrs)

Learning outcomes, assessment criteria, syllabus and Tool List of above Core Skills subjects which is common for a group of trades, provided separately in [www.bharatskills.gov.in](http://www.bharatskills.gov.in)

## 7. ASSESSMENT CRITERIA

LEARNING OUTCOMES	ASSESSMENT CRITERIA
1. Develop embroidery design by using CorelDraw software and embroidery digitizing software on basic level. (NOS :AMH/N9405)	Develop designs in CorelDraw software and embroidery digitizing software
	Follow the designing principal.
	Maintain quality as per requirement.
2. Demonstrate multi head computerized embroidery machine with proper knowledge about its tools. (NOS : AMH/N9406)	Identify the embroidery tools
	Use the tool with safely.
	Handle tools and equipment with safe practical exercise.
	Explain the difference between single head and multi head embroidery machine.
	Explain benefits of multi head embroidery machine.
3. Set up the machine and machine accessories as per requirement and Demonstrate the threading process according to the fabric type, needles and threads used. (NOS :AMH/N9414)	Identify the parts of multi head computerized embroidery machine.
	Perform start and shutdown process of machine.
	Identify defect of needle.
	Identify and use tools to remove the needle with safety precautions.
	Select needle according to the fabric.
	Fix needle in correct position and place.
	Wind bobbin with correct tension of thread.
	Identify machine part to install the bobbin case.
	Check the thread tension of bobbin case and clean if needed.
	Install bobbin case in machine with precautions.
	Identify upper thread path of machine.
	Identify and use tools to load thread on to the machine and follow the thread path.
	Follow the safety instructions throughout the process.
4. Identifying defect and their troubleshooting while making design on machine. (NOS :AMH/N9415)	Open the software (Embroidery Software) and Select Design according to requirement.
	Load design to multi head embroidery machine.
	Select correct design, needle, frame and stabilizer.
	Do upper and lower threading of the machine.
	Select colors and color combination.
	Decide placement of the design in the fabric.
	Fix fabric with appropriate stabilizer properly in the embroidery frame/pantograph.
	Set the origin of design.
	Check all things before start.
	Run machine and start embroidery.

	Monitor and complete the design.
	Use control unit/panel whenever required.
	Trouble shoots the machine whenever required.
	Remove the frame trim extra thread and press the embroidered fabric neatly.
	Maintain hygiene.
	Working area should be clean and clutter free.
	Follow safety instructions throughout the process.
5. Demonstrate the process of digitizing designs on software for mass production on multi head embroidery machine for industrial work. (NOS: AMH/N9416)	Open digitizing software and do required design such as border and buttes etc.
	Perform digitizing process using all commands in software.
	Set repeats of buttes and borders designs for running material like bedsheet, suits, saree and dupatta's etc.
	Prepare design for production of suit/saree.
	Follow designing principle.
	Select suitable stitches for the design.
	Apply suitable colors to the design by following color scheme.
	Run design on multi head embroidery machine and produce running material such as suit, saree and dupattas etc.
	Maintain sequence of all elements of designs.
	Designs should run smoothly on machine.
	Maintain quality as per requirement.
	Follow safety instructions throughout the process.
6. Demonstrate the digitizing process of specialized embroidery designs and set up the attachments. (NOS : AMH/N9417)	Perform digitizing process of specialized embroideries such as sequins work, cording work, taping work, chenille work and Aari work.
	Set up special attachments according to the requirements.
	Designs should run smoothly on machine.
	Maintain quality as per requirement.
	Follow safety instructions throughout the process.
7. Prepare different specialized embroidery samples with use of special attachments. (NOS :AMH/N9423)	Run machine on specialized embroideries such as sequins work, cording work, taping work, chenille work
	Handle special attachments with safe practical exercise.
	Designs should run smoothly on machine.
	Maintain quality as per requirement.
	Follow the safety instructions throughout the process.
8. Create decorative embroidery designs and run the machine to develop various designs. (NOS :AMH/N9409)	Perform digitizing process of decorative embroideries such as FSL work and cut work.
	Create new fill patterns.
	Do editing wherever required.
	Designs should run smoothly on machine.
	Maintain quality as per requirement.
	Follow safety instructions throughout the process.

9. Set up the Computerized Aari Embroidery Machine with proper knowledge about parts, maintenance and capabilities. (NOS :AMH/N9410)	Identify parts of computerized Aari embroidery machine.
	Oiling and maintenance of machine.
10. Operate Computerized Aari embroidery Machine and make Aari embroidery designs with safety. (NOS :AMH/N9410)	Select design for Aari embroidery
	Load design on to the Aari machine.
	Run machine and Prepare garment/article using different embroidery stitches and suitable color scheme.
	Trouble shoots the machine whenever required.
	Designs should run smoothly on machine.
	Follow safety instructions throughout the process.
	Maintain quality as per requirement.
	Working area should be clean.
11. Attain knowledge of placement setting of designs on different articles with machine. (NOS :AMH/N9418)	Select design for a garment/article.
	Decide placement of design.
	Setting of design according to requirement.
	Explain different types of settings of design.
	Prepare costing of given embroidered products.
	Produce an estimate and cost sheet.
12. Exhibit effective communication skills with logical reasoning ability and quantitative aptitude to maximize efficiency in work. (NOS :MEP/N9443)	Demonstrate reasonable quantitative aptitude and interpret data in the field of work
	Demonstrate effective communication skills with logical reasoning ability.
	Describe method of energy conservation and day-to- day contribution to work for optimum utilization of resources.
	Demonstrate English language fluency while carrying out official work.

## 8. INFRASTRUCTURE

LIST OF TOOLS AND EQUIPMENT FOR COMPUTER AIDED EMBROIDERY & DESIGNING - CITS			
For batch of 25 candidates			
S No.	Name of the Tool & Equipment	Specification	Quantity
<b>A. TRAINEES TOOL KIT (consumable item)</b>			
1.	Measuring Tape	150 cm	26 (25+1) Nos.
2.	Seam Ripper		26 (25+1) Nos.
3.	Thimble		26 (25+1) Nos.

4.	Thread cutter		26 (25+1) Nos.
5.	Scale plastic	12"	26 (25+1) Nos.
6.	Eraser, Pencil, Sharpener		26 (25+1) Nos.
7.	Water erasable marking Pen		26 (25+1) Nos.
<b>B. THEORY ROOM</b>			
8.	Single desks for trainees with arrangements of keeping Books etc.		25 Nos.
9.	Revolving Chairs without arms		25 Nos.
10.	Faculty Table & Chair set		01 No.
11.	Desktop computer with UPS	CPU: 64 Bit, i7 or latest processor, Speed: 3 GHz or Higher. RAM: -8 GB DDR-III or Higher, NVidia Graphics Card 2GB or Higher, Wi-Fi Enabled. Network Card: Integrated Gigabit Ethernet, with USB Mouse, USB Keyboard and Monitor (Min. 17 Inch). Licensed Operating System and Antivirus compatible with Trade related software's.	01 No.
12.	Computer Table and Chair		01 No.
13.	Multimedia Projector with accessories		01 No.
14.	White Magnetic Board with Felt board & accessories		01 No.
15.	Display Board		01 No.
16.	Notice board		01 No.
17.	Storage Almira		01 No.
18.	Book Shelf		01 No.
19.	A/C unit split type with Stabilizer	2 TR capacity	As per requirement
<b>C. MACHINE LAB</b>			
20.	Multi Head Computerized Embroidery Machine with necessary attachments (Sequins, Cording, Taping, Beads Etc.) Accessories Hoops and UPS	Minimum 4 head	01 No.
21.	Computerized Aari Embroidery Machine with UPS	Minimum 2 head	01 No.

22.	Single head multi needle computerized embroidery machine with accessories and UPS		01 No.
23.	Single Needle Lock Stitch Industrial Sewing Machine with necessary attachments (Zip Fixing, Picot, Gathering Foot etc.)		01 No.
24.	Over Lock Machine	3 Thread	1 No.
25.	Scissors	25 cm	5 No.
26.	Pinking Shears		5 No.
27.	Steam Iron		01 No.
28.	Pressing Stand (Metal)		1 No.
29.	Cutting Tables		02 No.
30.	Pigeon Hole Almirah 10 Lockers & Separate Locking Arrangements For Trainees		2 Nos.
31.	Locks For Above Pigeon Hole		20 Nos.
32.	Chair/Stool For Sewing Machines		2 No.
33.	Almira		2 No.
34.	Thread Storage Box/stand		2 Nos.
35.	A/C unit split type with Stabilizer	2 TR capacity	As per requirement
36.	Display Board		01 o.
37.	Notice board		01 o.
38.	Mannequins	lady	02 os.
39.	Garment steamer		1 no.
40.	Laptop	Processor-i7 or above, Ram - 8GB or above, Graphics 2 GB or above 1 TB Hard disk 15.6 inch screen	01 No. for each faculty
<b>D. COMPUTER LAB TOOLS &amp; EQUIPMENT</b>			
41	Desktop computer with UPS	CPU: 64 Bit, i7 or latest processor, Speed: 3 GHz or Higher. RAM: -8 GB DDR-III or Higher, NVidia Graphics Card 2GB or Higher, Wi-Fi Enabled. Network Card: Integrated Gigabit Ethernet, with USB Mouse, USB Keyboard and Monitor (Min. 17 Inch). Licensed Operating System and	25+1 Nos.



		Antivirus compatible with Trade related software.	
42.	Trade Related Software like Wilco, Wings, CorelDraw etc.		1 each. for each system 25+1
43.	Computer Tables & Chairs		25+1 Nos.
44.	Projector With Accessories		01 o.
45.	A3 Size laser jet Color Printer		01 No.
46.	A3 color Scanner (minimum 1200 ), flatbed		01 o.
47.	Printer Table		01 o.
48.	Scanner Table		01 o.
49.	Hard Disk	2 TB	01 o.
50.	Book Shelf		01 o.
51.	Notice Boards		01 o.
52.	Display Boards		01 o.
53.	Faculty Table & Chair		01 o.
54.	Almira		01 o.
55.	A/C Unit Split Type With Stabilizer		As per requirement
56.	LAN Connectivity		As per requirement
<b>Note: -</b>			
1. Internet facility is desired to be provided in the class room.			

