

**Course Curricula**

**for**

**Short Term Courses based on  
Modular Employable Skills (MES)**

**in**

**Carpet Sector**



**DIRECTORATE GENERAL OF EMPLOYMENT AND TRAINING  
MINISTRY OF LABOUR & EMPLOYMENT  
GOVERNMENT OF INDIA**

## Course Curricula for Short Term Courses based on Modular Employable Skills (MES) in the Carpet Sector

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## Skill Development based on Modular Employable Skills (MES)

### Background

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The need for giving emphasis on the Skill Development, especially for the less educated, poor and out of school youth has been highlighted in various forums. The skill level and educational attainment of the work force determines the productivity, income levels as well as the adaptability of the working class in changing environment. Large percentage of population in India is living below poverty line. One of the important causes is lower percentage of skilled persons in the workforce

The skill development at present is taking place mostly in the informal way, i.e. persons acquire skill at the work-place when they help their parents, relatives and employers etc. Such persons do not have a formal certificate and thus earn lower wages and are exploited by employers. They have come through informal system due to socio-economic circumstances of the family and the compulsions of earning a livelihood rather than attending a formal course. While their productivity is low, their contribution to the national GDP cannot be ignored. If the country can create a system of certification which not only recognizes their skills but also provides education and training in a mode that suits their economic compulsions, it will not only benefit the workforce to earn a decent living but also contribute to the national economy by better productivity of this workforce.

Another related problem to be tackled is large number of students drop outs (About 63% of the school students drop out at different stages before reaching Class-X).

### Frame work for Skill Development based on 'Modular Employable Skills (MES)'

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Very few opportunities for skill development are available for the above referred groups (out of school youth & existing workers especially in the informal sector). Most of the existing Skill Development programmes are long term in nature. Poor and less educated persons can not afford long term training programmes due to higher entry qualifications, opportunity cost etc. Therefore, a new frame work for Skill Development for the Informal Sector has been evolved by the DGET to address to the above mentioned problems. The **key features of the new frame work for skill development** are:

- ◇ Demand driven Short term training courses based on modular employable skills decided in consultation with Industry
- ◇ Flexible delivery mechanism (part time, weekends, full time)
- ◇ Different levels of programmes (Foundation level as well as skill upgradation) to meet demands of various target groups
- ◇ Central Government will facilitate and promote training while Vocational Training (VT) Providers under the Govt. and Private Sector will provide training
- ◇ Optimum utilisation of existing infrastructure to make training cost effective.
- ◇ Testing of skills of trainees by independent assessing bodies who would not be involved in conduct of the training programme, to ensure that it is done impartially.
- ◇ Testing & certification of prior learning (skills of persons acquired informally)

The Short Term courses would be based on 'Modular Employable Skills (MES)'.

The **concept for the MES** is :

- Identification of 'minimum skills set' which is sufficient to get an employment in the labour market.
- It allows skills upgradation, multiskilling, multi entry and exit, vertical mobility and life long learning opportunities in a flexible manner.
- It also allows recognition of prior learning (certification of skills acquired informally) effectively.
- The modules in a sector when grouped together could lead to a qualification equivalent to National Trade Certificate or higher.
- Courses could be available from level 1 to level 3 in different vocations depending upon the need of the employer organisations.
- MES would benefit different target groups like :
  - Workers seeking certification of their skills acquired informally
  - workers seeking skill upgradation
  - early school drop-outs and unemployed
  - previously child labour and their family

### **Age of participants**

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The minimum age limit for persons to take part in the scheme is 14 years but there is no upper age limit.

### **Curriculum Development Process**

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Following procedure is used for developing course curricula

- Identification of Employable Skills set in a sector based on division of work in the labour market.
- Development of training modules corresponding to skills set identified so as to provide training for specific & fit for purpose
- Organization of modules in to a Course Matrix indicating vertical and horizontal mobility. The course matrix depicts pictorially relation among various modules, pre requisites for higher level modules and how one can progress from one level to another.
- Development of detailed curriculum and vetting by a trade committee and by the NCVT

(Close involvement of Employers Organizations, State Governments, experts, vocational training providers and other stake holders is ensured at each stages).

### **Development of Core Competencies**

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Possession of proper attitudes is one of the most important attribute of a competent person. Without proper attitudes, the performance of a person gets adversely affected. Hence, systematic efforts will be made to develop attitudes during the training programme.

The trainees deal with men, materials and machines. They handle sophisticated tools and instruments. Positive attitudes have to be developed in the trainees by properly guiding them

and setting up examples of good attitudes by demonstrated behaviors and by the environment provided during training.

Some important core competencies to be developed are:

1. Safety consciousness and safe working practices
2. Care of equipment and tools
3. Punctuality, discipline and honesty
4. Concern for quality
5. Respect for rules and regulations
6. Concern for health and hygiene
7. Cordial relationship and Cooperation with co-workers and team Work
8. Positive attitude and behavior
9. Responsibility and accountability
10. Learn continuously
11. Communication Skills
12. Concern for environment and waste disposal

Following competencies should also be developed during level-II and higher courses:

1. Ability for planning, organizing and coordinating
2. Creative thinking, problem solving and decision making
3. Leadership
4. Ability to bear stress
5. Negotiation

### **Duration of the Programmes**

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Time taken to gain the qualification will vary according to the pathway taken and will be kept very flexible for persons with different backgrounds and experience. Duration has been prescribed in hours in the curriculum of individual module, which are based on the content and requirements of a MES Module. However, some persons may take more time than the prescribed time. They should be provided reasonable time to complete the course.

### **Pathways to acquire Qualification:**

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**Access to** the qualification could be through:

- An approved training programme; **Or**
- A combination of an approved training programme plus recognition of prior learning including credit transfer; **Or**
- The recognition of prior learning that provides evidence of the achievement of the competencies for the qualification.

## **Methodology**

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The training methods to be used should be appropriate to the development of competencies. The focus of the programme is on “performing” and not on “Knowing”. Lecturing will be restricted to the minimum necessary and emphasis to be given for ‘hands on training’.

The training methods will be individual centered to make each person a competent one. Opportunities for individual work will be provided. The learning process will be continuously monitored and feedback will be provided on individual basis.

Demonstrations using different models, audio visual aids and equipment will be used intensively.

## **Instructional Media Packages**

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In order to maintain quality of training uniformly all over the country, instructional media packages (IMPs) will be developed by the National Instructional Media Institute (NIMI), Chennai.

## **Assessment**

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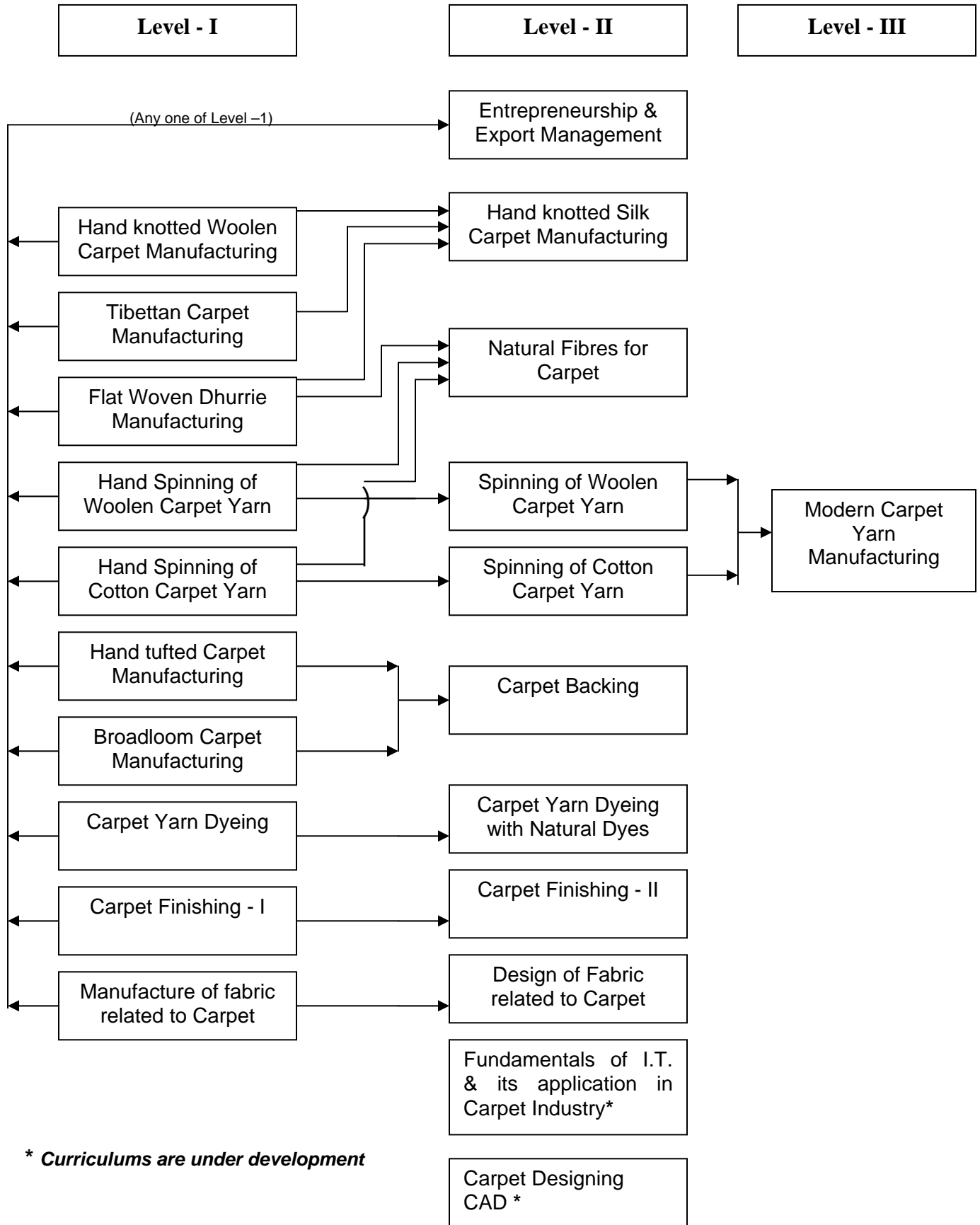
DGE&T will appoint assessing bodies to assess the competencies of the trained persons. The assessing body will be an independent agency, which will not be involved in conducting the training programmes. This, in turn, will ensure quality of training and credibility of the scheme. Keeping in view the target of providing training/testing of one million persons through out the country and to avoid monopoly, more than one assessing bodies will be appointed for a sector or an area.

## **Certificate**

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Successful persons will be awarded certificates issued by National Council for Vocational Training (NCVT).

# COURSE MATRIX based on MODULAR EMPLOYERABLE SKILLS for the CARPET SECTOR



\* *Curriculum are under development*

## **MODULE – 1 (Certificate Level – I)**

<b>NAME</b>	:	Handknotted Woolen Carpet Manufacturing
<b>SECTOR CODE</b>	:	Carpet
<b>ENTRY QUALIFICATION</b>	:	Class V Age: 14 years
<b>TERMINAL COMPETENCY</b>	:	After completion of course the candidate would be able to make hand knotted carpet.
<b>DURATION</b>	:	240 hrs
<b>CONTENT</b>	:	Carpet manufacturing in hand knotted loom.

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"><li>• Identification of various tools &amp; equipment &amp; material.</li><li>• Safe working practices.</li><li>• Warping</li><li>• Preparation of warp beam &amp; mounting on the loom</li><li>• Warp setting</li><li>• Knot setting</li><li>• Knotting on the loom on the basis of design</li><li>• Measurement &amp; control of pile height, knot density, waste, dimension etc</li></ul>	<ul style="list-style-type: none"><li>• Study of sequence of operations</li><li>• Methods of transferring the design to carpet.</li><li>• Defects in manufacturing carpet and remedial measures.</li></ul>

### **TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES**

<b>S. NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1	Hand knotted looms	05
2	Beaters	20
3	Knife	20
4	Pile height gauge	01 set
5	Scissors	20
6	Weighing Balance	01



## **MODULE – 2 (Certificate Level – I)**

<b>NAME</b>	:	Tibbetan Carpet Manufacturing
<b>SECTOR CODE</b>	:	Carpet
<b>ENTRY QUALIFICATION</b>	:	Class V Age: 14 years
<b>TERMINAL COMPETENCY</b>	:	After completion of course the candidate would be able to make tibbat carpet.
<b>DURATION</b>	:	240 hrs
<b>CONTENT</b>	:	Carpet manufacturing in tibbat loom.

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"><li>• Identification of various tools &amp; equipment &amp; material.</li><li>• Safe working practices.</li><li>• Warping</li><li>• Preparation of warp beam &amp; mounting on the loom</li><li>• Warp setting</li><li>• Knot setting</li><li>• Knotting on the loom on the basis of design</li><li>• Measurement &amp; control of pile height, knot density, waste, dimension etc</li><li>• Inspection &amp; Mending of the defects</li></ul>	<ul style="list-style-type: none"><li>• Study of sequence of operations</li><li>• Methods of transferring the design to carpet.</li><li>• Defects in manufacturing carpet and remedial measures.</li></ul>

### **TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES**

<b>S. NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1	Tibbat looms	05
2	Beater	20
3	Knife	20
4	Scissor	20
5	Iron Rod	20

### **MODULE – 3 (Certificate Level – I)**

<b>NAME</b>	:	Flat woven Dhurrie Manufacturing
<b>SECTOR CODE</b>	:	Carpet
<b>ENTRY QUALIFICATION</b>	:	Class V Age: 14 years
<b>TERMINAL COMPETENCY</b>	:	After completion of course the candidate would be able to make dhurries
<b>DURATION</b>	:	240 hrs
<b>CONTENT</b>	:	Carpet manufacturing in flat woven method

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"><li>• Identification of various tools &amp; equipment &amp; material.</li><li>• Safe working practices.</li><li>• Warping on the loom</li><li>• Practice of weaving according to the design on flat looms to make dhurries</li><li>• Inspection &amp; Mending of defects</li></ul>	<ul style="list-style-type: none"><li>• Study of sequence of operations</li><li>• Methods of transferring the design to carpet.</li><li>• Defects in manufacturing carpet and remedial measures</li></ul>

#### **TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES**

<b>S. NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1	Dhurrie looms	10
2	Beater	20

## **MODULE – 4 (Certificate Level – I)**

<b>NAME</b>	:	Hand spinning of Woolen Carpet Yarn
<b>SECTOR CODE</b>	:	Carpet
<b>ENTRY QUALIFICATION</b>	:	Class V Age: 14 years
<b>TERMINAL COMPETENCY</b>	:	After completion of the course the trained person would be able to spin woolen yarn in hand spinning system
<b>DURATION</b>	:	240 hours
<b>CONTENT</b>	:	Spinning

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"><li>• Identification of wool fibre</li><li>• Operation of Gandhi &amp; Ambar charkha for producing woolen yarn</li><li>• Measurement &amp; control of Count &amp; Twist</li><li>• Measurement &amp; control of yarn realisation</li><li>• Practice Do's &amp; Don'ts</li></ul>	<ul style="list-style-type: none"><li>• Study of wool fibre</li><li>• Study of tools and materials required for manufacturing hand spun woolen yarn.</li><li>• Study of feed material required for manufacturing hand spun woolen yarn of the desired count</li><li>• Study of different product setting parameters</li><li>• Study on yarn realisation</li><li>• Do's &amp; Don'ts</li></ul>

### **TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES**

<b>S. NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1	Gandhi Charkha for spinning	05
2	Ambar Charkha	05
3	Calculator	01
4	Scale	20
5	Tape	20
6	Wrap Reel	01
7	Weighing Balance	01
8	Twist tester	01

### **MODULE – 5 (Certificate Level – I)**

**NAME** : Hand spinning of Cotton Carpet Yarn

**SECTOR CODE** : Carpet

**ENTRY QUALIFICATION** : Class V Age: 14 years

**TERMINAL COMPETENCY** : After completion of the course the trained person would be able to spin cotton yarn in hand spinning system

**DURATION** : 240 hours

**CONTENT** : Spinning

<b>PRACTICAL</b>	<b>THEORY</b>
<ul style="list-style-type: none"><li>• Identification of cotton fibre</li><li>• Operation of Gandhi &amp; Ambar charkha for producing cotton yarn</li><li>• Measurement &amp; control of Count &amp; Twist</li><li>• Measurement &amp; control of yarn realisation</li><li>• Practice Do's &amp; Don'ts</li></ul>	<ul style="list-style-type: none"><li>• Study of cotton fibre</li><li>• Study of tools and materials required for manufacturing hand spun cotton yarn.</li><li>• Study of feed material required for manufacturing hand spun cotton yarn of the desired count</li><li>• Study of different product setting parameters</li><li>• Study on yarn realisation</li><li>• Do's &amp; Don'ts</li></ul>

#### **TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES**

1	Gandhi Charkha for spinning	05
2	Ambar Charkha	05
3	Calculator ,	01
4	Scale	20
5	Tape	20
6	Wrap Reel	01
7	Weighing Balance	01
8	Twist tester	01

### **MODULE – 6 (Certificate Level – I)**

<b>NAME</b>	:	Hand tufted Carpet Manufacturing
<b>SECTOR CODE</b>	:	Carpet
<b>ENTRY QUALIFICATION</b>	:	Class V Age: 14 years
<b>TERMINAL COMPETENCY</b>	:	After completion of course the candidate would be able to make tufted carpet.
<b>DURATION</b>	:	240 hrs
<b>CONTENT</b>	:	Carpet manufacturing in tufting method

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"> <li>• Identification of various tools &amp; equipment &amp; material.</li> <li>• Safe working practices.</li> <li>• Stretching of the primary fabric on loom</li> <li>• Inspection &amp; Analysis of primary, secondary &amp; third backing fabric including yarn used for tufting</li> <li>• Maintenance of tufting gun</li> <li>• Transferring the design from trace paper to fabric</li> <li>• Practice of tufting on tufted loom</li> <li>• Inspection &amp; Mending of the defects</li> </ul>	<ul style="list-style-type: none"> <li>• Study of sequence of operations</li> <li>• Study of primary, secondary &amp; third backing fabric including yarn used for tufting</li> <li>• Study of various tufting guns</li> <li>• Methods of transferring the design to carpet.</li> <li>• Defects in manufacturing carpet and remedial measures.</li> </ul>

#### **TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES**

<b>S. NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1	Tufting frame	10
2	Tufting Guns	20

## MODULE – 7 (Certificate Level – I)

<b>NAME</b>	:	Broad loom Carpet Manufacturing
<b>SECTOR CODE</b>	:	Carpet
<b>ENTRY QUALIFICATION</b>	:	Class V      Age: 14 years
<b>TERMINAL COMPETENCY</b>	:	After completion of course the candidate would be able to make broad loom carpet.
<b>DURATION</b>	:	240 hrs
<b>CONTENT</b>	:	Carpet manufacturing in broad loom

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"><li>• Identification of various tools &amp; equipment &amp; material.</li><li>• Safe working practices.</li><li>•     Warping out side the loom</li><li>•     Beam setting on the loom</li><li>•     Weft preparation</li><li>•     Machine setting</li><li>•     Practice of weaving on broadloom.</li><li>•     Inspection &amp; Mending of defects</li></ul>	<ul style="list-style-type: none"><li>• Study of sequence of operations</li><li>• Methods of transferring the design to carpet.</li><li>• Defects in manufacturing carpet and remedial measures.</li></ul>

### **TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES**

<b>S. NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1	Broad looms with all necessary equipments	02

## **MODULE – 8 (Certificate Level – I)**

<b>NAME</b>	:	Carpet Yarn Dyeing
<b>SECTOR CODE</b>	:	Carpet
<b>ENTRY QUALIFICATION</b>	:	Class V Age: 14 years
<b>TERMINAL COMPETENCY</b>	:	After completion of the course the trained person would be able to handle yarn dyeing machine to dye wool/silk/art silk yarn.
<b>DURATION</b>	:	240 hours
<b>CONTENT</b>	:	Carpet Yarn (Wool/ Silk/art silk ) Dyeing

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"> <li>Identification of various tools &amp; equipment &amp; material.</li> <li>Safe working practices.</li> <li>Wool/Silk/Art. Silk identification.</li> <li>Operation of dyeing machine.</li> <li>Dye stuffs identification</li> <li>Practice of Dyeing of wool</li> <li>Practice of Dyeing of silk</li> <li>Practice of Dyeing of Art. Silk</li> <li>Shade Matching</li> <li>Checking of colour fastness to washing, rubbing etc.</li> </ul>	<ul style="list-style-type: none"> <li>Study of wool/silk/art silk Fibre</li> <li>Study of Sequence of operations</li> <li>Importance of machine parameters of dyeing.</li> <li>Different type of machines used for Carpet Yarn Dyeing</li> <li>Function of dyes, chemicals &amp; auxiliaries</li> <li>Recipe, Colour Fastness and shade matching</li> </ul>

### **TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES**

<b>S. NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1.	Cabinet type dyeing machine	01
2.	S. S. Vessels (03 litres)	20
3.	Heating arrangements	10
4.	Beakers (1000 c.c.)	20
5.	Pipette (25 c.c.)	20
6.	Weighing Balance	01 set
7.	Grey Scale	01 set
8.	Crock meter	01 set
9.	Launderometer	01 set

### **MODULE – 9 (Certificate Level – I)**

<b>NAME</b>	:	Carpet Finishing - I
<b>SECTOR CODE</b>	:	Carpet
<b>ENTRY QUALIFICATION</b>	:	Class V Age: 14 years
<b>TERMINAL COMPETENCY</b>	:	After completion of course, the candidates would be able to do woolen carpet Washing.
<b>DURATION</b>	:	240 hours
<b>CONTENT</b>	:	All types of carpet Washing

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"><li>• Identification of various tools &amp; equipment &amp; material.</li><li>• Safe working practices.</li><li>• Practice of washing of handknotted woolen carpet using chemicals and herbal products</li><li>• Practice of washing of hand tufted woolen carpet using chemicals and herbal products</li><li>• Monitoring &amp; control of neutralization &amp; moisture content</li><li>• Practice of after wash process like drying</li><li>• Monitoring &amp; control of residual moisture content</li></ul>	<ul style="list-style-type: none"><li>• Scope &amp; objective of washing</li><li>• Recipes</li><li>• Function of all ingredients</li><li>• Defects of carpets and their remedial measures.</li><li>• Eco-friendliness</li></ul>

### **TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES**

<b>S. NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1.	Washing Platform	01
2.	Washing Scrapper	20
3.	Chemical Containers	10
4.	Moisture Meter	02
5.	pH paper/ Meter	20 sets



## **MODULE – 10 (Certificate Level – I)**

**NAME** : Manufacture of fabric related to Carpet

**SECTOR CODE** : Carpet

**ENTRY QUALIFICATION** : Class V Age: 14 years

**TERMINAL COMPETENCY** : The participants will be able to weave the fabrics related to Carpets

**DURATION** : 150 hours

**CONTENT** : Fabric Manufacture

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"><li>• Identification of various tools &amp; equipment &amp; material.</li><li>• Safe working practices.</li><li>• Operation of looms</li><li>• Practice of beam gaiting</li><li>• Practice of loom setting</li><li>• Practice of Design setting</li><li>• Practice of repairing of thread breaks</li><li>• Inspection &amp; Mending of defects</li></ul>	<ul style="list-style-type: none"><li>• Study of sequence of operations</li><li>• Parts of the loom &amp; its function</li><li>• Motion of the loom &amp; Mechanism behind</li><li>• Specification of fabrics related to carpet/ home furnishing</li><li>• Theory of loom/setting</li><li>• Theory of cloth setting</li><li>• Basics of Fabric Design</li><li>• Study of fabric defects</li></ul>

### **TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES**

<b>S. NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1.	Pick Glass	10
2.	Looms	03
3.	Fabric Inspection Table	01

## MODULE – 11 (Certificate Level – II)

<b>NAME</b>	: Entrepreneurship and Export Management
<b>SECTOR CODE</b>	: Carpet
<b>ENTRY QUALIFICATION</b>	: 10 <sup>th</sup> standard & 14 years of age, any one of level-I MES module
<b>TERMINAL COMPETENCY</b>	: After completion of the course, the participants will be able to manage export documentation of EOU or initiate & manage a small scale manufacturing unit on their own
<b>DURATION</b>	: 240 hours
<b>CONTENT</b>	: Entrepreneurship and Export Management

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"> <li>• Identification of various tools &amp; equipment &amp; material.</li> <li>• Safe working practices.</li> <li>• Preparation of various export documents</li> <li>• Survey &amp; data basing</li> <li>• Preparation of project cum feasibility report for setting up a small scale company</li> </ul>	<ul style="list-style-type: none"> <li>• Types of export documents</li> <li>• L/C and its types</li> <li>• Regulatory requirements of various countries</li> <li>• Basic requirements for entrepreneurs</li> <li>• Basics of production, financial marketing management</li> <li>• Govt. schemes for development of entrepreneurship &amp; employment promotion schemes</li> <li>• Managing people</li> </ul>

### **TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES**

<b>S. NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1.	Computer	05
2.	Set of Standard documents	20
3.	LCD Projector	01

## MODULE – 12 (Certificate Level – II)

<b>NAME</b>	:	Handknotted Silk Carpet Manufacturing
<b>SECTOR CODE</b>	:	Carpet
<b>ENTRY QUALIFICATION</b>	:	Class V Age: 14 years MES module on any one of the following: <ul style="list-style-type: none"> <li>• Hand knotted woolen carpet manufacturing</li> <li>• Tibetan Carpet Manufacturing</li> <li>• Flat woven Dhurrie Manufacturing</li> </ul>
<b>TERMINAL COMPETENCY</b>	:	After completion of course the candidate would be able to make knotted carpet in silk
<b>DURATION</b>	:	240 hrs
<b>CONTENT</b>	:	Silk Carpet manufacturing in hand knotted loom.

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"> <li>• Identification of various tools &amp; equipment &amp; material.</li> <li>• Safe working practices.</li> <li>• Warping</li> <li>• Preparation of warp beam &amp; mounting on the loom</li> <li>• Warp setting</li> <li>• Knot setting</li> <li>• Knotting on the loom on the basis of design</li> <li>• Measurement &amp; control of pile height, knot density, waste, dimension etc</li> </ul>	<ul style="list-style-type: none"> <li>• Study of sequence of operations</li> <li>• Methods of transferring the design to carpet.</li> <li>• Defects in manufacturing carpet and remedial measures.</li> </ul>

## TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES

<b>S. NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1	Hand knotted looms	05
2	Beaters	20
3	Knife	20
4	Pile height gauge	01 set
5	Scissors	20
6	Weighing Balance	01

## MODULE – 13 (Certificate Level – II)

<b>NAME</b>	:	Natural Fibres for Carpets
<b>SECTOR CODE</b>	:	Carpet
<b>ENTRY QUALIFICATION</b>	:	5 <sup>th</sup> Standard & 14 years of age. MES module on one of the following: <ul style="list-style-type: none"> <li>• Flat woven Dhurrie Manufacturing</li> <li>• Hand spinning of Cotton Carpet Yarn</li> <li>• Hand spinning of woolen Carpet Yarn</li> </ul>
<b>TERMINAL COMPETENCY</b>	:	After completion of the course the trained person would be able to manufacture natural fibre based yarn applicable to carpet/floor coverings
<b>DURATION</b>	:	240 hours
<b>CONTENT</b>	:	Fibre identification, their spinning, chemical processing and product development in terms of carpets/ floor covering.

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"> <li>• Identification of various tools &amp; equipment &amp; material.</li> <li>• Safe working practices.</li> <li>• Identification of fibres.</li> <li>• Operation of related spinning techniques</li> <li>• Operation of related Process of dyeing</li> <li>• Operation of related process of Weaving</li> </ul>	<ul style="list-style-type: none"> <li>• Description of different unconventional Natural Fibres, their properties &amp; end use applications.</li> <li>• Study on sequence of operation on yarn spinning</li> <li>• Study on operation in dyeing</li> <li>• Study on operations in related chemical treatments</li> <li>• Study on process of weaving of natural fibre based yarns</li> </ul>

### TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES

S. NO.	DESCRIPTION	QUANTITY
1.	Hand Spinning Machine	10
2.	S. S. Vessels (03 litres)	10 Nos
3.	Hot Plate	02 Sets
4.	Carpet looms (HK, HT, Dhurry, Pit)	01 each
5.	Tool Kit	20 sets
6.	Weighing balance	01

## MODULE –14 (Certificate Level – II)

<b>NAME</b>	:	Spinning of woolen Carpet yarn
<b>SECTOR CODE</b>	:	Carpet
<b>ENTRY QUALIFICATION</b>	:	Class 8 <sup>th</sup> Passed & & 14 years of age, MES on Hand spinning of woolen carpet yarn
<b>TERMINAL COMPETENCY</b>	:	After completion of the course the candidates would be able to produce woolen yarn
<b>DURATION</b>	:	240 hours
<b>CONTENT</b>	:	Spinning of woolen yarn

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"> <li>• Identification of various tools &amp; equipment &amp; material.</li> <li>• Safe working practices.</li> <li>• Identification of wool Fibre</li> <li>• Operation of woolen spinning line</li> <li>• Operation of Semi-Worsted spinning line.</li> <li>• Production of woolen yarn (s) of desired counts</li> <li>• Production of semi worsted yarn (s) of desired counts</li> <li>• Measurement &amp; control of Count &amp; Twist</li> <li>• Measurement &amp; control of yarn realisation</li> <li>• Practice Do's &amp; Don'ts</li> </ul>	<ul style="list-style-type: none"> <li>• Study of wool fibre</li> <li>• Study of sequence of operation of woolen spinning line</li> <li>• Study of the different machine setting parameters</li> <li>• Study of different product setting parameters</li> <li>• Study on yarn realisation</li> <li>• Do's &amp; Don'ts</li> </ul>

### **TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES**

<b>S. NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1.	Calulator, Scale, Tape, Weighing Balance	01 piece each
2.	Inside and outside calipers	01 piece each
3.	Tachometer	01 set each
4.	Gauges (for card, gill box, Rubbing Frame, R/F)	01 set each
5.	Count & Twist Measurement equipment for woolen yarn	01 set each
6.	Woolen Spinning line	01
7.	Semi worsted spinning line	01

### **MODULE –15 (Certificate Level – II)**

<b>NAME</b>	:	Spinning of Cotton Carpet Yarn
<b>SECTOR CODE</b>	:	Carpet
<b>ENTRY QUALIFICATION</b>	:	Class 10 <sup>th</sup> Passed & & 14 years of age, MES on Hand spinning of Cotton carpet yarn
<b>TERMINAL COMPETENCY</b>	:	After completion of the course the candidates would be able to produce cotton yarn
<b>DURATION</b>	:	240 hours
<b>CONTENT</b>	:	Spinning of Cotton Yarns

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"><li>• Identification of various tools &amp; equipment &amp; material.</li><li>• Safe working practices.</li><li>• Identification of cotton Fibre</li><li>• Operation of cotton spinning line</li><li>• Production of cotton yarn (s) of desired counts</li><li>• Measurement &amp; control of Count &amp; Twist of cotton yarn</li><li>• Measurement &amp; control of yarn realisation</li><li>• Practice Do's &amp; Don'ts</li></ul>	<ul style="list-style-type: none"><li>• Study of wool fibre</li><li>• Study of sequence of operation of cotton spinning line</li><li>• Study of the different machine setting parameters</li><li>• Study of different product setting parameters</li><li>• Study on yarn realisation</li><li>• Do's &amp; Don'ts.</li></ul>

### **TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES**

<b>S. NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1.	Gauges (For card, draw frame, Spindle Frame, Ring Frame.	01 set each
2.	Calculator, Scale, Tape	01 piece each
3.	Inside & Outside Calipers	01 piece each
4.	Tachometer	01 set
5.	Count & Twist Measurement equipment of cotton yarn	01 set each
6.	Spinning Line	01

## MODULE – 16 (Certificate Level – II)

<b>NAME</b>	:	Carpet backing
<b>SECTOR CODE</b>	:	Carpet
<b>ENTRY QUALIFICATION</b>	:	Class 10 <sup>th</sup> & & 14 years of age, MES Module on one of the following: <ul style="list-style-type: none"><li>• Hand tufted carpet manufacturing</li><li>• Broad loom carpet manufacturing</li></ul>
<b>TERMINAL COMPETENCY</b>	:	After completion of the course the trained person would be able to do the backing of tufted carpets.
<b>DURATION</b>	:	240 hours
<b>CONTENT</b>	:	Carpet backing

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"><li>• Identification of various tools &amp; equipment &amp; material.</li><li>• Safe working practices.</li><li>• Analysis of latex and/or adhesive material</li><li>• Analysis of backing fabrics</li><li>• Measurement &amp; Monitoring of drying and adhesion</li><li>• Setting of backing process</li><li>• Testing for delamination &amp; tuft withdrawal force</li></ul>	<ul style="list-style-type: none"><li>• Study of sequence of operations</li><li>• Study of backing materials including latex and/ or adhesive materials</li><li>• Study of overall backing system including quality assurance</li></ul>

### **TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES**

<b>S. NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1	Carpet backing system	05
2	Brush	20
3	Scraper	20
4	Testing kit	01
5	Tensile Tester	01
6	Tuft Withdrawal Tensometer	01
7	Moisture Meter	01



## MODULE – 17 (Certificate Level – II)

<b>NAME</b>	:	Carpet yarn dyeing with Natural Dyes
<b>SECTOR CODE</b>	:	Carpet
<b>ENTRY QUALIFICATION</b>	:	Class 10 <sup>th</sup> & & 14 years of age, MES module on carpet yarn dyeing
<b>TERMINAL COMPETENCY</b>	:	After completion of the course the trained person would be able to extract and dye Natural dyes on wool/silk/Art. Silk yarns.
<b>DURATION</b>	:	120 hours
<b>CONTENT</b>	:	Natural dyes: extraction procedure & dyeing on Carpet Yarn (Wool/ Silk/art silk) Dyeing

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"> <li>• Identification of various tools &amp; equipment &amp; material.</li> <li>• Safe working practices.</li> <li>• Collection of harvested Raw materials for extraction of Natural dyes.</li> <li>• Practice of Extraction of dyestuffs from various harvested raw materials</li> <li>• Measurement and control of dye concentration, pH of extracted dye.</li> <li>• Dyeing of wool with extracted natural dyes</li> <li>• Dyeing of silk with extracted natural dyes</li> <li>• Dyeing of Art. Silk with extracted natural dyes</li> <li>• Control of parameters to obtain reproducible shades.</li> <li>• Testing of Colour Fastness</li> </ul>	<ul style="list-style-type: none"> <li>• Study of Fibres: Wool/silk/art. Silk</li> <li>• Study on availability of harvested Raw materials for extraction of Natural dyes.</li> <li>• Sequence of Natural dye extraction</li> <li>• Theory of dyeing with natural dyes</li> <li>• Importance of mordants &amp; auxiliaries.</li> <li>• Study on fastness properties of natural dyes</li> </ul>

### **TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES**

<b>S. NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1.	05 Kgs. Cabinet type dyeing machine	01
2.	S. S. Vessels (03 litres)	20 Nos
3.	Heating arrangements	10 Set
4.	Grinder	01
5.	Crockmeter	01
6.	Launderometer	01
7.	Xenotester	01

## MODULE – 18 (Certificate Level – II)

<b>NAME</b>	:	Carpet Finishing - II
<b>SECTOR CODE</b>	:	Carpet
<b>ENTRY QUALIFICATION</b>	:	Class 10 <sup>th</sup> & & 14 years of age, MES module on Carpet Finishing-I
<b>TERMINAL COMPETENCY</b>	:	After completion of the course the trained person would be able to do the finishing of carpets.
<b>DURATION</b>	:	240 hours
<b>CONTENT</b>	:	Carpet finishing

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"><li>• Identification of various tools &amp; equipment &amp; material.</li><li>• Safe working practices.</li></ul> <p>Practice for</p> <ul style="list-style-type: none"><li>• Singeing</li><li>• Shearing</li><li>• Stretching</li><li>• Sorting</li><li>• Clipping</li><li>• Carving</li><li>• Embossing</li><li>• Binding</li><li>• Colour cut</li><li>• Packaging</li></ul>	<ul style="list-style-type: none"><li>• Study of sequence of operations</li><li>• Study of finishing methods relevant to type of carpets</li><li>• Basics of packaging of carpets</li></ul>

### **TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES**

<b>S. NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1	Shearing machines	10
2	Frames	10 sets
3	Needles	
4	Embossing scissors	
5	Carving scissors	
6	Gas Torch	

## **MODULE – 19 (Certificate Level – II)**

<b>NAME</b>	:	Designing of fabric related to Carpet
<b>SECTOR CODE</b>	:	Carpet
<b>ENTRY QUALIFICATION</b>	:	Class 10 <sup>th</sup> & 14 years of age, MES module on Fabric Manufacture
<b>TERMINAL COMPETENCY</b>	:	The participants will be able to develop the fabric design for specified end use.
<b>DURATION</b>	:	360 hours
<b>CONTENT</b>	:	Fabric Woven Design

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"><li>• Identification of various tools &amp; equipment &amp; material.</li><li>• Safe working practices.</li><li>• Development of dobby and Jacquard with respect to design.</li><li>• Drawing &amp; Drafting</li><li>• Pegging of lattice</li><li>• Card punching</li><li>• Dobby/ Jacquard design development</li></ul>	<ul style="list-style-type: none"><li>• Study of Basics of fabric structure</li><li>• Types of fabric for various end uses.</li><li>• Basics of Cloth setting</li><li>• Trend of design in backing fabrics related to carpet/ home textiles</li><li>• Basics of weaving process</li><li>• Study of dobby and Jacquard with respect to design.</li></ul>

### **TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES**

<b>S. NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1.	Card Punching Machine	02
2.	Loom with dobby & jacquard	01 each
3.	Dobby Lattices	20
4.	Pegs	1000

## MODULE – 20 (Certificate Level – III)

<b>NAME</b>	:	Modern Carpet Yarn Manufacturing
<b>SECTOR CODE</b>	:	Carpet
<b>ENTRY QUALIFICATION</b>	:	Class 10 <sup>th</sup> & & 14 years of age, MES module any one of following: <ul style="list-style-type: none"><li>• Spinning of cotton yarn</li><li>• Spinning of woolen yarn</li></ul>
<b>TERMINAL COMPETENCY</b>	:	After the completion of course the participants will be able to handle the modern spinning machine like Dref to produce yarn as per desired quality.
<b>DURATION</b>	:	120 hours
<b>CONTENT</b>	:	Woolen Yarn Spinning on Dref or such Machine

<b>Practical Competencies</b>	<b>Underpinning Knowledge (Theory)</b>
<ul style="list-style-type: none"><li>• Identification of various tools &amp; equipment &amp; material.</li><li>• Safe working practices.</li><li>• Identification of different parts of DREF 2000 or such machine</li><li>• Setting of process &amp; machine parameter involved.</li><li>• Practice to produce woolen or such yarn in DREF 2000 or such machine</li><li>• Measurement &amp; Control of Count of Yarn</li></ul>	<ul style="list-style-type: none"><li>• Fibres and its uses</li><li>• Types of fibres including wool fibre required for DREF machine</li><li>• Sequence of operation in DREF or such Technology</li><li>• Technique of manufacturing yarn through DREF or such machine</li><li>• Do's &amp; Dont's</li></ul>

### **TOOLS AND EQUIPMENT FOR A BATCH OF 20 TRAINEES**

<b>S. NO.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>
1.	Calulator	01 set
2.	Wrap Reel	01 set
3.	Weighing Balance	01 set
4.	Pick Glass	02 sets
5.	Microscope	01 set
6.	DREF or such Machine	01 set
7.	Stroboscope	01 set

## List of Expert/ Trade Committee Members

### CURRICULUM DEVELOPMENT FOR SHORT TERM COURSES BASED ON MODULAR EMPLOYABLE SKILLS

SECTOR/ AREA: **Carpet**

S. No.	Name, Designation & Organization	
1.	Prof. (Dr) K. K. Goswami, Director, IICT	Chairman
2.	Shri P. K. Bhar, Asstt. Professor & Registrar I/c.	Member
3.	Shri R. K. Malik, Asstt. Professor	Member
4.	Shri Rajesh Gupta, Asstt. Professor	Member
5.	Smt. Betty Dasgupta, Lecturer	Member
6.	Shri Anu Mishra, Lecturer	Member
7.	Shri B. C. Ray, Workshop In-charge	Member
8.	Shri M. A. Ansari, CTO	Member
9.	Shri G. N. Khatry, CTO	Member
10.	Shri R. N. Tripathi, CTO	Member
11.	Shri A. S. Sidhu, Senior Consultant Sahara India Bhawan 1, Kapoorthala Complex, Lucknow – 226 024	Member
12.	Shri Pramod Chand Pandey, In charge Marketing DSMS, DRDA, SRN, Bhadohi	Member
13.	Shri Avinash Chand Baranwal, Hon. Secretary All India Carpet Manufacturers Association, Bhadohi	Member
14.	Shri Ajay Kabra, Hon. General Secretary All India Carpet Yarn Spinner & Dealer Association, Bhadohi	Member
15.	Shri Zainul Abdin Beg, Member National Level Steering Committee, Carpet Export Promotion Council, New Delhi	Member