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Course Curricula
On
Bamboo Fabrication Sector
Under
Skill Development Initiative (SDI) Scheme
Based on
Modular Employable Skills (MES)

Designed in 2010

Government of India
Ministry of Labour & Employment
(DGE&T)

**Course Curricula for Short Term Courses based on
Modular Employable Skills (MES) in**

Bamboo Fabrication Sector

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List of members attended the Trade Committee Meeting for designing the course curriculum on “Bamboo Fabrication Sector” under Skill Development Initiative Skill (SDIS) based on Modular Employable Skills (MES) held on 09.09.2010 & 10.09.2010 at Guwahati

Shri Anil Kumar, Director In Charge, CSTARI, Kolkata-91

Sl.No.	Name and Designation S/Sri	Organisation	Remarks
1	Amlan Baruah, Director	Directorate of Employment & Training, Govt of Assam.	Chairman
2	Pryankarjit Baruah, Executive	Confederation of Indian Industries, Guwahati	Member
3	Dipankar Mahanti, Consultant	L B Agro Pvt Ltd, Assam	Member
4	Bansi Dhar Bhoi, Executive	Coir Board, Assam	Member
5	N. Mukherjee, Executive	Coir Board, Assam	Member
6	S. K. Murthy, Regional Manager	Coir Board, Assam	Member
7	B. Lahkar, Incharge	A.K. vel Board, Assam	Member
8	B. Baruah, Manager (Paper)	H P Corporation, Jrd, Nasjaon, Assam	Member
9	I. R. Thaleu, Sr. Manager (Pulp)	H P Ltd, Jrd, , Assam	Member
10	Tridib Saikia, Entrepreneur	Craftique Bamboo, Nagaon, Assam	Member
11	Sagar Sarma, Entrepreneur	M/S Brahmaputra Enterprise Nagaon, Assam	Member
12	Pranjit Das, Sr. Principal	I. T. I, Guwahati	Member
13	Anjal Goswami, Dy. Manager	Cane & Bamboo Tech Centre, Guwahati	Member
14	Pulak Kr. Mandal, Assistant Manager (Trg)	Cane & Bamboo Tech Centre	Member
15	Sreekanta Sarma, Consultant (Plantation)	Cane & Bamboo Tech Centre	Member
16	Mohibul Huussain, Entrepreneur	Cane & Bamboo Tech Centre	Member
17	Biplaba Nanda Goswami, Entrepreneur	Cane & Bamboo Tech Centre	Member
18	Pulin Kr. Talukdar, Dy Dir of Trg	Directorate of Employment & Training, Govt of Assam.	Member
19	Mousumi Sen, Dy. Dir of Trg	Directorate of Employment & Training, Govt of Assam.	Member
20	G. Goswami, Instructor, COPA	I T I, Guwahati	Member
21	Din Chandra Sarma, Tech Asstt	Directorate of Employment & Training, Govt of Assam.	Member
22	L. K. Mukherjee, Dy. Dir of Trg	C S T A R I, KOLKATA	Member
23	B. K. Singh, Dy. Dir of Trg	C S T A R I, KOLKATA	Member

Skill Development based on Modular Employable Skills (MES)

Background

The need for giving emphasis on Skill Development, especially for the educated unemployed youth (both for rural & urban) has been highlighted in various forums. Unfortunately, our country's current education system does not give any

emphasis on development of skills. As a result, most of the educated unemployed youths are found wanting in this area, which is becoming their Achilles heel.

As India is on the path of economic development and the share of service sector's contribution to the GDP of the country is increasing (53% of GDP) it is becoming imperative that Government of India along with other nodal agencies play an important role in providing employable skills, with special emphasis on Skills.

Hence, need of the hour is some policy change at Apex level which will address the needs of the changing economy and look at providing mandatory skills training to all educated unemployed youths, with a view to have them gainfully employed. This shift in policy will ultimately benefit all the stake holders, namely the individuals, industry, Government and the economy by way of providing employment, increasing the output/productivity and ultimately resulting in a higher DDP for the nation.

- **Frame work for skill development based on 'Modular Employable Skills (MES)'**

Very few opportunities for skill development are available for the above referred groups (educated unemployed youth). Most of the existing skill development programmes are long term in nature. Poor and less educated persons cannot afford long term training programmes due to higher entry qualifications, opportunity cost, etc. Therefore, a new framework for skill development has been evolved by the DGET to address the employability issues.

The **key features of new framework for skill development** are:

- Demand driven short term training courses based on modular employable skills decided in consultation with Industries.
- Flexible delivery mechanism (part time, week ends, full time)
- Different levels of programmes (foundation level as well as skill up gradation) 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 utilization 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, multi skilling, 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 organizations.
- ✓ 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

INTRODUCTION

Economic growth in India is increasingly supported by robust industrial growth. Bamboo Fabrication Sector is one of the relatively lesser known but significant sectors that support almost all industrial activity. However, notwithstanding its importance and size (INR 4 trillion), it has traditionally not been accorded the attention it deserves as a separate sector in itself. The level of inefficiency in **Bamboo** Fabrication activities in the country has been very high across all modes.

The required pace of efficiency and quality improvement will demand rapid development of capabilities of Bamboo Construction service providers. And with Bamboo Construction being a service oriented sector, skill development will emerge as a key capability.

This lack of focus on developing manpower and skills for the Bamboo Fabrication sector has resulted in a significant gap in the numbers and quality of manpower in the sector.

This gap, unless addressed urgently, is likely to be a key impediment in the growth of the Bamboo Fabrication sector in India and in consequence, could impact growth in industry and manufacturing sectors as well.

This underscores the need identifying areas where such manpower and skill gaps are critical, and developing focused action plans to improve the situation.

A look at the required initiatives for manpower development in the sector makes it clear that sustainable development of the sector's manpower requires a collaborative public private effort. The level of commitment demonstrated by each stakeholder would largely determine the direction that the sector heads towards.

Age of participants

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

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 and experts, vocational

Training providers and other stakeholders are ensured at each stage).

Development of Core Competencies

Possession of proper attitudes is one of the most important attributes 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 programmed.

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. Communication skills
2. Better usage of Vernacular
3. Presentation skills
4. Self management
5. Resume preparation
6. GD participation/facing techniques
7. Interview facing techniques

Duration of the Programme:

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:

Access to the qualification could be through:

- ✧ An approved training Programme.

Methodology

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 learning through active participation and involvement.

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

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

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 programme. 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

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

COURSE MATRIX **Bamboo Fabrication Sector**

LEVEL-I

Module No.-06

Mat Weaving

Module No. - 05

**Bamboo Handicraft and
Furniture Making**

Module No. - 04

Bamboo Construction

Module No. - 03

**Secondary Processing of
Bamboo**

Module No. - 02

**Mechanic for Bamboo
Machineries**

Module No. - 01

Bamboo Processing

Module-1

- | | |
|------------------------|---|
| 1. Name of the Module | : Bamboo Processing |
| 2. Sector | : Bamboo Fabrication Sector |
| 3. Code | : BMB101 |
| 4. Entry Qualification | : 5 th Standard |
| 5. Age | : 14 yrs. |
| 6. Terminal Competency | : After completion of this training the
Participant would be able to:
(a) Make proper utilization of bamboo
(b) Processing of bamboo
(c) Preservation of Bamboo and
Bamboo Products
d) Cultivation of Bamboo. |
| 7. Duration | : 320 hrs. |

8. Contents :

SL.NO.	THEORY	SL.NO.	PRACTICAL
1	Knowledge of safety & precautions taken in bamboo work.	1	Handling of safety equipments and their applications.
2	Knowledge of bamboo history. Its day to day utilization & Industrialization. Modern application of bamboo products. Future prospects of bamboo technology.	2	Demonstration on day to day utilization of different types of bamboo. Modern application of bamboo products.
3	Knowledge of bamboo cultivation and various techniques of bamboo propagation.	3	Field practice on nursery techniques and cultivation of bamboo
4	Knowledge of bamboo diseases-its remedies & prevention.	4	Demonstrate the bamboo plantation through field visit & nursery practice
5	Method of bamboo treatment (Ancient & modern).	5	Use of Borax, Boric, smoke chamber & other chemical process.
6	Method of colouring the bamboo.	6	Practice with various chemical and natural dyes for colouring.
7	Introduction of various hand Tools and their brief description. Types of hand Tools & their Speciation.	7	Handling of various hand tools-Hand sawing, skinning, filing etc. Proper upkeep & maintenance.
8	Knowledge of machine Tools like Drill machine etc which are require to make bamboo items.	8	Practice of drilling & other machineries. Preventive maintenance of machineries.
9	Knowledge of different measuring Tools & Conversion table.	9	Practice of measurement of all systems.
10	Knowledge of various joints, method of joints & uses of joints.	10	Practice in tongue & groove joint, male & female joint, bolt fastening joint, Over lapping joint, U-Shape joint, Horizontal & Vertical joint etc.
11	Knowledge of bending, buffing, polishing of bamboo.	11	Use of blow lamp and its precaution.
12	Knowledge of making various jigs and fixtures for uniformity of the products.	12	Practice on jig and fixture making.
13	Concept of Quality assurance. Method of proper packaging of finished products & proper storing.	13	Practice on packaging if require & storing.
14	Knowledge of transportation & marketing. Concept of sales services. Calculation of cost of finished Bamboo.	14	Survey the Bamboo market. Arrange the Transport service.

15	Project Work
16	Test

Lists of Tools & Equipments for a batch of 20 trainees

SL. No.	Description of tools	Qty
1	Adjustable Hacksaw	16 nos.
2	Hand saw	16 nos.
3	Common Hacksaw	8 nos.
4	Flat Chisel (1/2",1",1/4")	16 nos each
5	Half round Chisel (1/2",1/4",1")	16 nos.each
6	Flat File (8",10")	16 nos,each
7	Wood Planner	16 nos.
8	Half Round File	8 nos.
9	Pruning Scissor(Fine Cut)	8nos
10	Combination Stone (Sharpening Stone)	16 nos.
11	Hand saw (450mm)	16 nos.
12	Hunter's saw	8 nos.
13	Screw driver (300 mm)	16 nos.
14	Claw Hammer (500 gms)	16 nos
15	Hammer (250gms)	16 nos
16	Dhau	16 nos.
17	Round Knife	16 nos.
18	Radial Hand splitter (4.8.12.16 blades)	4 nos.
19	Tripura Dhau	8 nos.
20	Foldable knife	16 nos.
21	Multi purpose Knife	16 nos.
22	Handrill	16 nos.
23	Electric Handrill	4 nos.
24	IDC Gauge	16 nos.
25	Steel Rule	16 nos.
26	Folding scale	16 nos.
27	Blow lamp	8 nos
28	Stand Drill Machine (1")	2 nos
29	Carbide Drill Bit sets (Including 5 nos bits)	16 nos
30	Nose plier	16 nos
31	Plus	16 nos

Module-11

- | | |
|------------------------|---|
| 1. Name of the Module | : Mechanic for Bamboo Machineries |
| 2. Sector | : Bamboo Fabrication Sector |
| 3. Code | :BMB102 |
| 4. Entry Qualification | : 5 th Standard |
| 5. Age | : 14 yrs. |
| 6. Terminal Competency | : After completion of this training the participant would be able to take Safety, care & maintenance of Machineries |
| 7. Duration | : 320 hrs. |
| 8. Contents | : |

SL.NO.	THEORY	SL.NO.	PRACTICAL
1	Knowledge of different machineries used in bamboo items & their proper utilization.	1	Operating the different machines used in bamboo Sector.
2	Knowledge of Cross Cutting machine & finding the defects & remedies.	2	Operating the Cross Cutting machine & proper maintenance of machine.
3	Knowledge of Radial Splitting machine and Automatic Splitting machine. Find out the defects & remedies.	3	Operating the Radial Splitting machine & Automatic Splitter machine. Proper maintenance of machines.
4	Knowledge of Knot removing machine. Find out the defects & remedies.	4	Operating the Knot removing machine Proper maintenance of machines.
5	Knowledge of Polishing machine. Find out the defects & remedies.	5	Operating the Polishing machine. Proper maintenance of machine.
6	Knowledge of manual silvering machine. Find out the defects & remedies.	6	Operating the manual silvering machine. Proper maintenance of machine.
7	Knowledge of Round sticks making machine. Find out the defects & remedies.	7	Operating the Round stick making machine. Proper maintenance of machine.
8	Knowledge of Hand drilling & Portable electrical drilling machine. Find out the defects & remedies.	8	Operating the Hand drilling & Portable electrical drilling machine. Proper maintenance of machine.
9	Knowledge of machine Planer. Find out the defects & remedies.	9	Operating the machine Planer. Proper maintenance of machine.
10	Knowledge of Saw machine. Find out the defects & remedies.	10	Operating the Saw machine. Proper maintenance of machine.
11	Observing the various defects of all machines & proper precautions & remedies taken. Knowledge of maintenance work.	11	Cleaning of all machines and use proper oiling & lubrication & find out each defects & their remedies.
12	Project Work		
13	Test		

Lists of Machines, Tools & Equipments for a batch of 20 trainees

List of Machines

SL. No.	Description of tools	Qty
1	Bamboo Cross cutting(Heavy Duty)	1 no
2	Bamboo Portable Cross cutting	1 no
3	Bamboo Radial Splitting(Chain type)	1 no
4	Mitre Saw (Bosch/Hitachi)	1 no
5	Bamboo Square Stick Making Machine	1no
6	Bamboo Stick Polishing	1 no
7	Bamboo Stick Sizing	1 no

8	Bamboo Slicing(Heavy Duty)	1 no
9	Bamboo Double Side cutting, Parallel Splitter	1 no
10	Bamboo Two side planning cum Sizing	1 no
11	Bamboo Four side planning	1 no
12	Bamboo Treatment Plant	1 no
13	Bamboo Dying Tank	1 no
14	Bamboo out Side Knot removing	1 no
15	Manual and Automatic Slivering	1 no each
16	Round Stick making	1 no
17	Manual Square Stick Making Machine	4 Nos
18	Manual Slicing Making Machine for Agarbatti Stick	4 Nos

Wood related machine

1	Universal Grinding Machine	1 no
2	Table Grinding	1 no
3	Machine Saw	1 no
4	Machine Planer	1 no
5	Lathe machine	1 no

List of Hand Tools

1	Screw Driver	16 nos
2	Hand Gloves	16 nos

Module-111

1. Name of the Module : **Secondary Processing of Bamboo**
2. Sector : Bamboo Fabrication Sector
3. Code : **BMB103**
4. Entry Qualification : 5th Standard
5. Age : 14 yrs.
6. Terminal Competency : After completion of this training the participant would be able to:
 - a) Make proper finishing of bamboo products
 - b) Proper packaging of bamboo Items
 - c) Manufacture High-end products
 - d) Manufacture Industrial Products
7. Duration : 320 hrs.
8. Contents :

SL.NO.	THEORY	SL.NO.	PRACTICAL
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1	Brief description about secondary processing machine	1	Demonstration on Secondary processing machine
2	Concept of Secondary Processing and relation with primary processing	2	Demonstrate primary process
3	Process lay out of various industrial products and uses of respective machineries	3	Manufacturing of Bamboo Mat Board, Flooring Board, Strand Board and other laminated products which are substitute of wood
4	Detailed Knowledge about safe operation and maintenance of various secondary processing machineries	4	Practice on various machineries
1	Knowledge of various types of finishing in bamboo works. <ul style="list-style-type: none"> • Knowledge of polishing & machineries used. • Knowledge of Buffing & machineries used. • Knowledge Bamboo Dyeing & machineries used. • Knowledge of method of colouring & accessories used. 	1	Practice on various bamboo works for Finishing:- <ol style="list-style-type: none"> 1. *Polishing* 2. *Buffing* 3. *Dyeing* 4. *Colouring*
2	Knowledge of:- Decorative Techniques for Lamination in Bamboo.	2	Practice the Lamination in Bamboo by Decorative process.
3	Concept of Quality assurance.	3	Checking the finished products in size & shape.
3	Knowledge of storing the Bamboo/ Bamboo items & storing for long terms.	3	Method of Storing in various process:- <ul style="list-style-type: none"> • Storing for short terms. • Storing for long terms.
4	Knowledge of Packaging:- <ul style="list-style-type: none"> • Packaging for short distance Transportation. • Packaging for long distance Transportation. 	4	Method of Packaging in various process:- <ul style="list-style-type: none"> • Packaging for short distance Transportation. • Packaging for long distance Transportation.
5	Project Work		
6	Test		

Lists of Tools & Equipments for a batch of 20 trainees

SL. No.	Description of tools	Qty in no
1	Bamboo Hot press for mat board and laminated board	2
2	Resign Applicator	1
3	Universal Planner	1
4	Heavy Duty Sanding Machine	1
5	Double end cutting & trimming machine	1
6	Five Side planning Machine	1
7	Coating machine/Spray booth fir Finishing	1
8	Portable Hand Planner (Automatic)	1
9	Portable Sanding machine	1
10	Spray Gun	1
11	Treatment tank	1
12	Dying Chamber	1
13	Air Compressor	1
14	Pneumatic Pin gun	1

Module-1V

1. Name of the Module : **Bamboo Construction**
2. Sector : Bamboo Fabrication Sector
3. Code : **BMB 104**
4. Entry Qualification : 5th Standard
5. Age : 14 yrs.
6. Terminal Competency : After completion of training the participant would be able to:
 - a) Build low cost bamboo House as well as for aesthetic look.
 - b) Use bamboo as raw materials for various construction jobs.
7. Duration : 320 hrs.
8. **Contents** :

SL.NO.	THEORY	SL.NO.	PRACTICAL
1	Orientation of construction works:- Knowledge of construction works on Bamboo & its importance. Type of construction works in Bamboo making.	1	Trust of Building orientation:- Draw the neat sketch: - Door, roof, window etc for Bamboo works. Make the different parts of Bamboo building.

	Different parts of construction works.		Field visit in Bamboo production nursery.
2	<p>Knowledge of Construction materials:- Bamboo, Stone Chips, Sand, Cement, Wood, Lime, Steel-Rod, Nut-bolt, PVC sheet and other relating materials.</p> <p>Knowledge of Foundation of building. Precaution taken for proper foundation of earth.</p>	2	<p>Familiarizations of different Constructional materials:- Type of Bamboos as per classification, brick, stone, sand, nut-bolt, binding wire, PVC sheet and other relating materials.</p> <p>Field visit in local market.</p>
3	<p>Knowledge of bonding materials:-</p> <ul style="list-style-type: none"> • Types of Bonds • Necessity of Bonds • English Bonds • Bonds in pillars. <p>Ratio of cement & sand in mortar for different types of brick masonry. Method of Construction for covering material of Tee racing of roofs.</p>	3	<p>Preparation of mortar & brick masonry with proper utility of Tools within the initial setting time of the cement.</p> <p>Method & Tool use in Construction:-</p> <ul style="list-style-type: none"> • Wall & corner junction in super structure. • Foundation in English Bond, Jig-Jag Bond, Flemish Bond, • Stretcher Bond, header Bond in pillars, & walls etc. • Bone Bond in brick flooring. • Tracing of roof, first & second class of Mud roofs.
4	<p>Apply tools and equipment used on construction sites.</p> <p>Range: metric tape, plumb line, saws, chisel, hand drill, surface planner, trowel, tumbler, sovel.</p>	4	<p>Care and maintenance of bamboo tools and machinery is described as recommended by the manufacturer's instructions.</p> <p>Range: blades, knives, cutting edges, adjustment, cleaning, power source, guarding.</p>
5	<p>Select and use portable power tools.</p> <p>Range: metric tape, saws, chisel, hand drill, surface planner, trowel, tumbler, sovel</p>	5	<p>Tools are selected in terms of identified work operations.</p> <p>Tools are set up and used in accordance with manufacturer's specifications, work operations and site specific safety plan.</p> <p>Tools are used without injury to personnel and without damage to equipment or work.</p> <p>Range: guards, fences, personal protective equipment, power source and electrical safe guards</p>

6	Set up a leveling instrument on a construction site.	6	<p>Levelling work required is identified in terms of working drawings and specifications.</p> <p>Levelling instrument is set up and adjusted.</p> <p>Range: evidence is required for a minimum of two types of levelling equipment which can include but is not limited to – straight edge and water level.</p> <p>Systems for measuring and recording are selected to meet site requirements.</p>
7	Demonstrate knowledge of site demarcation and layout of building as per the scope of work	7	<p>Demarcation of building area in relation to site features is described in accordance with job requirements.</p> <p>Range: center line positions, plinth level, site level, drain level, slope if any,</p>
8	Concept of Quality assurance. Method of proper packaging of finished products & proper storing.	8	<p>Checking the items as shape & size. Practice on packaging if require & storing.</p>
9	Estimate the total cost of Bamboo furniture. Knowledge of transportation & marketing. Concept of sales services.	9	<p>Survey the Bamboo market. Arrange the Transport service.</p>
10	Project Work		
11	Test		

Lists of Tools & Equipments for a batch of 20 trainees

SL. No.	Description of tools	Qty
1	Land measuring plastic tape (30 met long)	8 nos
2	Land measuring steel tape (30 met long)	8 nos
3	Bucket G.I. (30cm dia)	8 nos
4	Mason plumber with spirit level	16 nos
5	Big hammer with handle	8 nos

6	Line pin corner block	16 nos
7	Mortar Board (2mx2m)	8 nos
8	Wire brushes	8 nos
9	Spade	16 nos
10	Steel float	8 nos
11	Spirit level (30 cm long)	16 nos
12	Chisel (25 cm long) with hammer	8 nos each
13	Ladder aluminum (30 m)	16 nos
14	Bench vice	8 nos
15	C. Clamp	16 nos
16	Gloves (Canvas)	16 nos
17	Grinding machine with various polishing stones	1 no
18	Brush for painting	As require
19	Drawing board with facility of parallel bar	1 no
20	Mini drafter	16 nos
21	Erasing shield small size	16 nos
22	Template- Architects & builders	8 nos
23	Modern Household & Office furniture	10 set
24	Design book/ Catalogue	1 set
25	Mitre Saw	1 set
26	Electrical Hand Drill Machine	1 set
27	Clamps or Carpentry Vice (2',4',8')	8 sets

Module-V

1. Name of the Module : **Bamboo Handicraft & Furniture Making**
2. Sector : Bamboo Fabrication
3. Code : **BMB 105**
4. Entry Qualification : 5th Standard
5. Age : 14 yrs.
6. Terminal Competency : After completion of this training the participant would be able to:
 - a) Make Bamboo Handicraft Products as per Design.
 - b) Make various Bamboo furniture items
 - c) Make lay out of round bamboo & moulded Bamboo furniture.
7. Duration : 320 hrs.

8. Contents

:

SL.NO.	THEORY	SL.NO.	PRACTICAL
1	Knowledge of various Household & public furniture by Bamboo made. Knowledge of design of each furniture.	1	Observe various type of Furniture & draw the neat sketch of each type of furniture.
2	Knowledge of different jigs & fixture for Bamboo making furniture. Knowledge of other related materials for making Bamboo furniture:- Cane, nail, wood, adhesive, bending wire, plastic rope, nut-bolt etc.	2	To make Bamboo furniture with the use of related materials.
3	Sequence of operations to make different furniture by Bamboo.	3	To make different Bamboo furniture:- Sofa Set, Chair, Table, Bed, Beach & Garden, Dining Chair, Wall Chair, Swing Chair, Relaxing Chair, Centre Table etc.
4	Concept of Quality assurance. Method for proper packaging of finished products & proper storing.	4	Checking the items as shape & size. Practice on packaging & storing.
5	Estimate the total cost of Bamboo furniture. Knowledge of transportation & marketing. Concept of sales services.	5	Survey of the Bamboo market. Arrange the Transport service.
6	Sequence of operations to make different furniture by Bamboo.	6	To make different Bamboo furniture:- Sofa Set, Chair, Table, Bed, Beach & Garden, Dining Chair, Wall Chair, Swing Chair, Relaxing Chair, Centre Table etc.
7	Knowledge regarding Drawings of various Bamboo material Handicraft Products.	7	Draw neat sketch with free hand of various Handicraft Products like gift items, stationery items furniture items, jewelers luggage etc.
8	Knowledge regarding Design of various Bamboo material & Handicraft Products. Method of design.	8	Design various Handicraft Products like gift items, stationery items furniture items, jewelry luggage etc.
9	Knowledge of making Model & Mock up as per selection of marketable product.	9	Practice of making model & mock up as per the trend and demand of present market & time.
10	Design luggage by Bamboo.	10	Make luggage by Bamboo material of various design.
11	Design lamp shades by Bamboo.	11	Make decorative lampshades, vase,

			show-piece etc by Bamboo material.
12	Design Jewelry articles.	12	Make different Jewelers articles by Bamboo materials.
13	Design Stationery items.	13	Make Stationery items by Bamboo materials.
14	Design Kitchen & household product.	14	Make Kitchen & household product by Bamboo material.
15	Design Carriers items.	15	Make Carriers items by Bamboo material.
16	Design Gift Box.	16	Make Gift Box by Bamboo material.
17	Design various type of Tray.	17	Make various type of Tray by Bamboo material.
18	Design Blend, Sital Patti etc.	18	Make various type of Blend, Sital Patti etc by Bamboo material.
19	Concept of Quality assurance. Method of proper packaging of finished products & proper storing.	19	Check the items as shape & size. Practice on packaging & storing.
20	Estimate the total cost of Bamboo Handicraft Product. Knowledge of transportation & marketing. Concept of sales services.	20	Survey Bamboo Handicraft Product market & fare in different places. Arrange Transport service.
21	Project Work		
22	Test		

Lists Tools & Equipments for a batch of 20 trainees

SL. No.	Description of tools	Qty
1	Working Table (8 met x10 met)	8 nos
2	Paper cutting knife	16 nos
3	Bamboo Tool Kit Boxes including 22 nos various small tools	8 nos
4	Portable Sabre Saw	1 no
5	Portable Rip saw	1 no
6	Pneumatic nailer	1 no
7	Portable sanding machines	1 no
8	Gas torch	1 no
9	Portable Jig saw	1 no

Module-VI

1. Name of the Module : **Mat Weaving**
2. Sector : Bamboo Fabrication
3. Code : **BMB 106**
4. Entry Qualification : 5th Standard
5. Age : 14 yrs.
6. Terminal Competency : After completion of this training the participant would be able to:
a) Manufacture various design mat by using different weaving techniques.
b) Manufacture various innovative handicraft & packaging items by using Bamboo Mat.
7. Duration : 220 hrs.
8. **Contents** :

SL.NO.	THEORY	SL.NO.	PRACTICAL
1	Selection of bamboo species which is suitable for mat weaving. Selection of proper Machineries, Tools and Equipment for mat making process	1	Identify bamboo physically (Skin colour, Sizes, diameter, etc) Practice on Machines.
2	Identify process lay out of mat making	2	Make mat by manually & using bamboo slivers & bamboo stick. Practice on Automatic weaving machine & Manual Loom.
3	Methods of colouring and dyeing of slivers and stick.	3	Make different colour on bamboo slivers and stick using chemical and natural dyeing materials
4	Various weaving patterns on Bamboo Mat using slivers and also Bamboo Mat using stick	4	Hand practice of mat making. Identify thickness, width, length of slivers, Identify length, diameter, quality of stick/

5	Knowledge about the sources of accidents & prevention from accidents. Necessary precautions & take remedies. Known necessary safety & precautions taken in each m/c's. Familiarization with organization & their coir Mat Weaving manufacturing unit.	5	Safety precautions taken & use of safety equipments including fire fighting equipments. First aid practice & treatment. Handling of tools, equipments, & machineries in the section & proper utilization & upkeep. Indenting of tools from store & procurement of raw materials as per need.
6	Knowledge of techniques for Mat weaving	6	Make mat by weaving.
7	Knowledge of different standard dimensions of finished Products. Calculation of weight of Finished Products. Calculation of cost of finished products.	7	Making the coir felt.
8	Concept of Quality assurance. Method of proper packaging of finished products & proper storing.	8	Practice on packaging & storing.
9	Knowledge of transportation & marketing. Concept of sales services.	9	Survey of product market. Arrange the Transport service.

Lists of Tools & Equipments for a batch of 20 trainees

SL.NO	DESCRIPTION OF TOOLS	QUANTITY
1	Slivering machine	2 nos
2	Cross cutting Machine	1 no
3	Radial Splitting Machine	1 no
4	Masks	17 nos
5	Gloves	17 pair
6	Aprons	17 pair
7	Eye Glass	17 pair
8	Inside Knot removing cum Slicing Machine	1 no

