

**COURSE CURRICULUM IN THE AREA/SECTOR OF
BROAD BASED BASIC TRAINING**

BAMBOO TECHNOLOGY

UPGRADATION OF

INDUSTRIAL TRAINING INSTITUTE

INTO

CENTRE OF EXCELLENCE (CoE)

Upgradation of ITIs into Centers of Excellence-Broad guidelines for implementation of the scheme for Sector “Bamboo Technology”

Upgradation of it is into Centres of Excellence-Broad guidelines for implementation of Broad Based Basic Training in “**Bamboo Technology**”.

These centres will be providing multi skill training to meet the skill requirement. The training will be providing multi-skill training to meet the skill requirement of Bamboo Technology sector of industry with their active involvement in all aspects of training. The training will be provided in three parts as given below:-

Training in Basic skill areas for a period of one year.

Training in Advanced modules for next six months.

The testing certification for the basic skill training during first year and also for advanced training during next six months conducted by NCVT.

Training in specialized modules mainly in industry (The course curriculum, duration etc. will be designed in consultation with the IMC/Local Industry. The trade testing and certification for the component will be done jointly by the State Government & Industry. Said certificate will be recognized by NCVT.

As per the recommendation of EFC, Training in the shop floor should constitute 25 to 40% of the curriculum. The training programme will have multi-exit provisions.

Trainee can opt to go to the Labour Market after completing board based basic training of one year duration as well as after completing one and half year of training.

Trainee can join training after some time for advance/specialized training in another module of same sector.

ITI pass out trainee of the particular trade (s) from the conventional system can seek admission for advanced/specialized trainee in the relevant sector.

As per the approval curricula in the sector of “**Bamboo Technology**” uniform rotation of trainees in six modules each of eight weeks durations as mentioned below is envisaged to be taken up. The trades from where existing infrastructure i.e. equipment/instructor etc. could be utilized for the training in sector “Bamboo Technology” and space requirement of each module is as under:

BASIC Module	NAME OF THE MODULE	Trade(s) from where existing equipment/Instructor or could be utilized	Minimum Space requirement (Sqm)
1	2	3	4
BTBT-I	BASIC ELECTRICAL & BASIC COMPUTER, AUTO CAD	-	100
BTBT-II	BAMBOO PROCESSING	-	100
BTBT-III	BASIC COURSE OF BAMBOO	-	100

	PROCESSING MACHINE		
BTBT-IV	BASIC COURSE ON SECONDARY PROCESSING OF BAMBOO	-	100
BTBT-V	BASIC COURSE OF CONSTRUCTION & FURNITURE MAKING	-	100
BTBT-VI	BASIC COURSE ON DESIGN INTERPRETATION & BAMBOO HANDICRAFTS PRODUCTS	-	100

For each above module, Trade Practical will be 28 hours/week and Trade theory for 4 hours/week. Apart from above, Generic modules as mentioned below will be taught throughout the year.

G- I	WORKSHOP CALCULATION AND SCIENCE	-	2 HOURS/WEEK
G-II	ENGINEERING DRAWING	-	2 HOURS/WEEK
G-III	ENTREPRENEURSHIP & COMMUNICATION SKILL	-	2 HOURS/WEEK

In addition, 4 hours per week have been kept for Library and physical training spoken English Course.

VOCATIONAL INSTRUCTORS

<u>NAME OF THE MODULE</u>	<u>No. of Vocational Instructors(Vis)</u>
BTBT- 1 TO VI -----	Six VI one each for 6 module of relevant trades
G-I & G-II -----	Having Diploma in relevant field.
G- III -----	One contract/part-time/guest faculty for Generic module, ENTREPRE-NUERSHIP AND COMMUNICATION SKILLS-G-1

The eligibility and other criteria will be as follows:-

Eligibility	10 th pass under 10 + 2 system
Batch size	96 trainees, 16 in each module (20% supernumeraries be allowed to taken care of dropouts as already exist under CTS)

Admission:

For basic training, admission is to be made in August/February each year.

Fee Structure

Fee Structure may be decide by States Govt. in consultation with IMCs. It may be desirable to prescribe a uniform tuition fee for a sector in all Centre of Excellence of a state.

Space :

Since Workshop/theory class rooms are envisaged to be accommodation in the existing building of the ITI, therefore, following norms are prescribed only new infrastructure is to be crated.

- 1) **Workshop space of minimum 100 sqm. for each basic module.**
- 2) **Three Theory classrooms of 30 sqm. each.**

Theory classroom should have latest information including AV aids as per details given below :-

1.	Suitable Chairs/Tables	As required
2.	OHP/Epidiascope	1 No..
3.	Laptop Computer/PC (latest) & LCD Projector	1 No.
4.	Magnetic White board	1 No.
5.	White Board	1 No.
6.	Flip chat	1 No.
7.	Storage Almirah	As required

Optimum utilization/flexibility may be kept in view)

(** Keeping in view the constraints of funds under the scheme, it is proposed to procure Any one set of laptop Computer/PC/LCD projector for CoE. However, States may procure additional Laptop Computer/PC/LCD projector from their fund) While selecting furniture, it should be kept in mind that these are meant for Centres of Excellence. Criteria like maximum flexibility/utilization of space should be kept in view.

Office Equipment:-

For each CoE one Scanner, one photocopy Machine and one PC/printer along with suitable accessories/furniture and internet connection (if not already available in the institute) is proposed to be provided for each Coe, in addition to the equipment prescribed in the syllabus.

Additional/alternation/Construction

For Civil Works, tentative amount of Rs.40.00 lakhs have been proposed per CoE. It is envisaged to have separate blocks/wing for the Centres of Excellence in the ITI campus. In case space is available in the existing building of an ITI for taking up new means as per requirement of the cluster of Industry, the existing space will be renovated as per the need. Alternately, separate block will be build up in the same campus keeping in view the space requirements of the Electrical Sector. While planning for addition/alteration/Construction of Workshop and Class rooms, following may be kept in view:

Concept of a Centre of Excellence

The fact that the requirement of funds for construction/addition/alteration of r advanced training will be higher than that of basic training.

Publicity

While publicity & advertisement be given for better response. The role of the local as well as the concerned Industry is very vital for the success of this programme.

State may consider providing additional equipment/other facilities like separate Library/upgradation of existing Library, Conference Hall/Committee Room etc. from their own funds.

INDEX

UPGRADATION OF ITIS INTO CENTRES OF EXCELLENCE (CoE)

SECTOR/AREA: BAMBOO TECHNOLOGY

BOARD BASED BASIC TRAINING 9 ONE YEAR)

BASIC MODULE	NAME OF THE BASIC MODULE	DURATION IN WEEKS
BTBT-I	BASIC ELECTRICAL & COMPUTR AUTO CAD	8
BTBT-II	BASIC COURSE ON BAMBOO	8
BTBT-III	BASIC COURSE OF BAMBOO PROCESSING MACHINE	8
BTBT-IV	BASIC COURSE ON SECONDARY PROCESSING	8
BTBT-V	BASIC COURSE ON CONSTRUCTION & FURNITURE MAKING	8
BTBT-VI	BASIC COURSE DESIGN INTER-RETTION & BAMBOO HANDICRAFTS PRODUCTS.	8
G-I	WORKSHOP CALCULATION & SCIENCE	8
G-II	ENGINERING DRAWING	8
G-III	ENTREPRENEURSHIP & COMMUNICATON SKILLS	8

**BOARD BASED BASIC TRAINING
BASIC MODULE BBT-I BASIC COURSE OF ELECTRICAL & BASIC COMPUTER
AUTOCAD**

DURATION: 8 WEEKS

COURSE CONTENT

- a) Electrical
- b) Basic Computer & Auto Cad

THEROY	PRACTICAL
<p>Importance of Safety – Description, Specification, general care & maintenance of common tools.</p> <p>Wire & Cable – conductors, Insulators & semiconductors – their shapes, sizes</p> <p>With respect to low, medium & high voltage</p> <p>Soldering Printed circuit boards & and its uses – different fluxes for different purposes on metals – crimping equipment – Joining of conductors by soldering.</p> <p>Importance of Preventive Maintenance and routine tests.</p> <p>Earthling and its importance</p>	<p>Demonstration of use of Safety equipments and artificial respiration.</p> <p>Use of hand tools, Joining Practice with single and multi-stand conductors of different wires.</p> <p>Joining practice of bare conductors-soldering practice on printed circuit boards – Demonstration & Practice on soldering the aluminum conductor, cable joints. Use of aluminum flux and Alca ‘P’ solder. Demonstration and practice of crimping of various wires.</p>
<p>Resistance “Voltage, Current, open circuit and short circuits – Ohm’s – Voltage drop – series & parallel circuit – power & energy relations – electrical measuring Instruments – Multi-meters Common electrical accessories used in industries – Bus – bars, Relays, contactors, Circuit Breakers etc.</p> <p>Fuses and its ratings materials used.</p>	<p>Making of simple circuit with a lamp and battery</p> <p>Study and use of Millimeters – measurement of current, voltage, resistance in DC/AC circuits.</p> <p>Demonstration & verification on ohm’s law – Series circuits – Parallel circuit</p> <p>Demonstration & practice on connecting & replacement of common electrical accessories in circuits – use of tong Tester and Megger.</p>
<p>Induction principles – Electro magnetism – Faradays’ laws.</p> <p>Single phase & Poly phase system 3 phase star – delta connections, impedance & power factor – Principle & applications of DC motors, series, shunt & compound motor – AC motors.</p> <p>transformers & its applications</p> <p>Chemical effect of electrical current – Rechargeable batteries – care & maintenance of cells.</p> <p>AC motor starring with DOL starter and Star – Delta Starter.</p>	<p>Simple wiring practice with distribution boards, junction Boxes, Main switches two way and intermediate Switches.</p> <p>Identification of different parts of DC field and armature resistances.</p> <p>Identification of different parts of AC motors – Testing and measurement on Induction motors – Demonstration on alternators.</p> <p>Identification and testing of transformers.</p> <p>Grouping & testing o cells for a specified voltage & current – Preparation of battery charging.</p>

<p>Static Electricity – capacitors & its applications Fundamentals of electron theory – semiconductor devices – Symbols – specifications – diodes, Transistors, Unijunction Transistor and Field effect Transistor Silicon Controlled Rectified & ICs. Half wave, full wave & bridge rectified with filters, DC power supply.</p>	<p>Identification of different type of capacitors p- Testing of capacitors -</p>
<p>Introduction to computer fundamentals and its parts, Familiarizing with Drives, Booting of a Computer system, Using the mouse, right click, left click and use of operating systems like Windows XP, menu system, Tool bars,.</p>	<p>Booting the Computer, Opening Windows, menus, using the mouse, create a directory in XP, format a floppy, create a directory in floppy, create a directory in hard disk, use my documents, use start menu for opening an application, change control panel settings for display, Familiarize with Key Board and Keys.</p>
<p>Use of desktop, control panel settings, Explorer, regional settings creating shortcuts, Use of-simple applications like Paint, notepad.</p>	<p>Techniques of Changing desktop wall paper, changing Desktop Screen properties, Control Panel, Use Accounts, customizing icons, writing a sample text using Notepad, using paid for drawing figures to get accustomed with mouse,. Saving a file.</p>
<p>Open internet explorer,change the settings in IE, customize Internet Explorer for default applications, enable cookies, change the security settings, setup an internet connection, user ID and password saving in the computer for future usage, setup outlook express for an e-mail account, setup server authentication settings, receive and send emails from the account. Search using Yahoo and Google for certain topics, download a file from the internet, save the downloaded file. Set up the netmeeting using MSN or Yahoo Messenger.</p>	
<p>Open MS WORD, Create a new file, Save a file, open an existing file, Save as a text file, type a paragraph , Set for left and right margins, change the letters from upper to lower case, vice versa, cut a paragraph, copy a paragraph, setup tab positions, set hanging indents, draw a simple table, insert rows, insert columns, erase rows, erase columns, search the document for spelling corrections, print the letter in a printer attached, in portrait and landscape.</p> <p>MS EXCEL</p>	<p>Creating sample documents using MS WORD. Text wrapping, Text Formatting, Changing Letters to different case, drawing table, Mail Merging, Page formatting, Using different Font Types, Printing a document</p> <p>Using Excel as spread Sheet, Familiarising with Cells, Formaulae, Text , Numbers, and date, Using shortcuts for entering date and Numbers in Progressive cells, Copying</p>

	Formulae, Text and Numbers, Using borders, Merging Cells, Unmerging, Changing Cell width, Row height, Printing an area of the sheet, Options of Printing like fit to paper, shrinking, etc , Using different Sheets in a work book, changing Colour of cells, fonts, text
<p>What is AutoCAD & its purpose</p> <p>Menu bar :- Contains the AutoCAD pull down menu</p> <p>Standard Toolbar: - Contains frequency used buttons.</p> <p>Drawing Area:- The area where you create drawings</p> <p>Crosshairs:- The AutoCAD cursor, made up of two intersecting lines with a pick box at the intersection.</p> <p>User Coordinate System Icon:- Show the orientation of the X and Y axes.</p> <p>Command Line: - The area where you enter a command by typing it.</p> <p>Command windows: - Display the current command, prompts and messages.</p>	
Draw and Modify Toolbars :- Provides access to common draw and modify	

II TOOLS, MACHINERY, EQUIPMENTS ETC. for a batch of 16 trainees.

SL No.	Item	Qty
1.	Combination pliers 200 mm insulated	16 Nos.
2.	Screw driver 100mm, 200mm	16 Nos. each
3.	Neon Tester 500 V pencil bit type	16 Nos.
4.	Electrician knife	16 Nos.
5.	Hammer ball pein 0.25 kg	16 Nos.
6.	File round 150mm	16 Nos.
7.	Plier side cutting 200 mm	16 Nos.
8.	Plier round nose 200 mm	16 Nos.
9.	Plier flat nose 150 mm	16 Nos.
10.	Pliers long nose 200 mm	16 Nos.
11.	Hammer chisel 25 mm	16 Nos.
12.	Hammer ball pin 1.0 kg	16 Nos.
13.	Wall Jumper Octagonal 37 mm x 450 mm	16 Nos.
14.	Center punch 100 mm	16 Nos.
15.	Steel measuring tape 20 mts.	16 Sets
16.	Allen keys	16 Sets
17.	Spanner double ended set of G	16 Sets
18.	Adjustable Spanner	16 Nos.
19.	Steel rule 300 mm	16 Nos.

20.	Electric soldering iron 35 w	16 Nos.
21	Electric soldering iron 125 w	16 Nos.
22.	Rubber gloves 5000 v	4 pairs
23.	Multimeter 0-5, 100, 200, 500 mili amperes 0-100-1000 10000 ohms 0-150, 300, 600 VAC/DC	8 Nos.
24.	Bar magnet	8 No.
25.	Horse shoe magnet	8 No.
26.	Electric machine 6 mm Capacity universal type 250 V	4 No.
27.	D.C. shunt motor 1 H.P. 250 V (Laboratory type)	1 No.
28.	Universal motor 750 W AC/DC 250 V	2 Nos.
29.	Squirrel cage induction motor 1 H.P. 230 V with DOI	1 No.
30.	Transforming single phase 500 mm/250/12 V	4 Nos.
31.	L.F. Oscilloscope with attenuation probes	1 No.
32.	Star Delta Starter (contact type 8 points)	1 No.
33.	Tong Tester	1 No.
34.	Megger	1 No.
35.	DC Power Supply 0 V 110V/SA	1 No.
36.	Auto transformer variac 230 V	1 No.
37.	Tweezers	16 No.
38.	Crimping Tools	2 sets
39.	PENTIUM IV COMPUTER or latest WITH 512 MB RAM WITH FOLLOWING ASSESSORIES DVD COMBO DRIVE WITH THE LATEST X VERSION, HARD DISK WITH 80 GB OR ABOVE, 17" MONITOR, AGP GRAPHICS CARD WITH 64 MB 10/100 INTERNET CARD, MODEM	9 Nos.
SL No.	Item	Qty
40.	GENERIC ISD UPS WITH 5 KVA CAPACITY	1 No.
41.	LASER PRINTER	1 NO.
42.	DOT MATRIX PRINTER	1 No.
43	WINDOWS XP OPERATING SYSTEM	1 NO.
44.	MS OFFICE 2000	09 Nos.
Sl. No.	Workshop furniture	Qty
1.	Suitable Work Tables	4 Nos.
2.	Stools	17 Nos.
3.	Discussion Table	1 Nos.
4.	Tool Cabinet	2 nos.
5.	Trainees locker with 16 boxes	2 Nos.
6.	Fire fighting equipment, first aid box etc.	5 Nos.
7.	Book Shelf(Glass panel)	1 No.
8.	Storage Rack	2 Nos.
9.	Storage Shelf	2 Nos.
Sl. No.	Furniture – Computer Lab	Qty
1.	Suitable Computer Tables	9 Nos.
2.	Computer Chairs	17 Nos
3.	Tool Cabinet	2 Nos.
4.	Trainees Locker with 16 boxes.	2 Nos.
5.	Book Shelf (Glass panel)	1 No.
6.	Shoes Rack	2 Nos.
7.	Vacuum cleaner	1 No.

BASIC MODULE BTBT – II: BASIC COURSE ON BAMBOO PROCESSING**DURATION: 8 Weeks**

Course contents: 1. History of Bamboo and its utilization
2. Basic skill up-gradation

THEORY	PRACTICAL
History of Bamboo utilization, day-to-day Use of bamboo and modern application of bamboo. Types of Bamboo: Future prospects of bamboo technology. General Workshop safety & Tools safety.	Demonstration of different bamboo item, its modern utilization by showing visual aids. Use of tools safety and workshop safety.
Bamboo cultivation, type of propagation and practice in India and abroad, bamboo diseases its remedies and prevention. Selection of bamboo to make various bamboo products.	Demonstration through field visit and Nursery Practice
Treatment of Bamboo(In ancient and modern method)	Use of Borax & Boric, use of Smoke chamber and other Chemical Process.
Colouring of Bamboo	Dye processing Chemical colouring etc.
Introduction of various hand tools and machine tools use of Bamboo technology, measuring tools. Conversion table etc.	Operate and practice of hand tools. It's maintenance and precaution. Practice of measurement of all systems. Hand sawing, Drilling, Skinning, Filling practice.
Brief description of Hand tools and Machine tools. Specification of tools and types of tools. Maintenance of all tools and machineries.	Practice of hand-sawing. Drilling. Skinning, filling practice etc.
Joints: Briefing about various joints, method of joints, uses of joints.	Practice in tongue and groove or male and female joint, Bolt fastening joint. Overlapping joint, U-shape joint. Horizontal joint, Vertical joint etc.
How to make pattern, banding, buffing, and polishing of bamboo.	Practice of pattern making, use of blow lamp and it precaution.

**List of Tools & Equipments basic course on Bamboo processing:-
BTBT II**

	<u>Quantity</u>
Crook stick –	16 Nos.
AXA	16 Nos.
Common Hackswa	8 Nos.
Chisel	16 Nos.
Beveledge(6.10.15)	16 Nos.
Mortice (6.10.15)	16 Nos.
Half round Scanner	16 Nos.
Pull Scanner	16 Nos.
Short Planner	18 Nos.
Round Bottom Planner	8 Nos.
Common Hackshaw	
Adjustable Hackshaw	8 Nos.
I Shaped Saw	16 Nos.
Hand saw(450 mm)	16 Nos.
Hunter's saw	8 Nos.
Screw driver (300 mm)	16 Nos.
Claw hammer (500 gms)	16 Nos.
Hammer(250 gms)	16 Nos.
Dhau	16 Nos.
Round Knife	16 Nos.
Radial Hand splitter (4.8.12.16 blades)	16 Nos.
Splitting cross	16 Nos.
Splitting wedges	16 Nos.
Tripura Dhanu	8 Nos.
Foldable knife	16 Nos.
Multi purpose Knife	16 Nos.
Common scissors	16 Nos.
Curve Jaw shears	16 Nos.
Sheet Trimmer	4 Nos.
Strip Trimmer	4 Nos.
Bow Handrill	16 Nos.
Handrill	16 Nos.
Electric Handrill	4 Nos.
IDC Gauge	16 Nos.
Steel Rule	16 Nos.
Folding scale	16 Nos.

BOARDBASED BASIC TRAINING
BASIC MOUDLE BTBT – III BASIC COURSE OF BAMBOO PROCESSING MAHINE
DURATION: 8 WEEKS

COURSE CONTENT

- a) Introduction of Machines use on Bamboo Technology
- b) Brief description and uses of Machinerie in Bamboo Sector

Sl.No.	Theory	Sl.No.	Practical
1.	Introduction of Bamboo Machinerie and its uses	1	Practice of different machine use in bamboo sector
2.	Brief description of cross cutting machine and how to operate, trouble shooting of his machines	2.	Practice of operation in cross cutting machine, oiling and lubrication of machine
3.	Brief description of Radial Splitting machine, Automatic Splitter Machine and how to operate, trouble shooting of this machines	3.	Practice of operation in Radial splitting,. Machine Automatic splitting Machine, oiling and lubrication of machine
4.	Brief description of knot removing machine and how to operate, trouble shooting of the machine	4.	Practice of operation in not removing machine. Oiling
5.	Brief description of polishing machine and how to operate, trouble shooting of the machine	5.	Practice of operation in polishing machine, oiling and lubrication of machine
6.	Brief description of manual slivering machine and how to operate, trouble shooting of the machine.	6.	Practice of operation in manual slivering machine, oiling and lubrication of machine
7.	Brief description of Round stick making machine and how to operate trouble shooting of this machine	7.	Practice of operation in round stick machine oiling and lubrication of machine
8.	Brief description of electric Drill Machine and how to operate trouble shooting of this machines	8.	Practice of operation in electric drill machine, oiling and lubrication of machine
9.	Brief description of machine planner and how to operate trouble shooting of this machine`	9.	Practice of operation in machine planner, oiling and lubrication of machine
10.	Brief description of machine saw and how to operate trouble shooting of this machine	10.	Practice of operation in machine saw, oiling and lubrication of machine
11.	What precaution should be observed in operating bamboo processing machine and proper maintenance of machine	11.	Cleaning of machine. Lubrication and oiling of machine and trouble shooting.

**List of Machine, tools and equipments for basic course on bamboo processing machine
BTBT – III**

<u>Name of tools & equipments</u>	<u>Quantity</u>
Bamboo Cross cutting machine(Heavy Duty)	1 No.
Bamboo Portable cross cutting m/c	1 no.
Bamboo Radial splitting m/c(Chain type)	1 No.
Bamboo Round Making Machine	1 No.
Bamboo Square Stick Making Machine	1 No.
Bamboo Stick Polishing Machine	1 No.
Bamboo Slicing Machine (Heavy Duty)	1 No.
Bamboo Stick Sizing Machine	1 No.
Bamboo Double Side Cutting Machine, Parallel Splitter	1 No.
Bamboo Two Side Planning cum Sizing Machine	1 No.
Bamboo Four Side Planning Machine	1 No.
Bamboo Treatment Plant	1 No.
Bamboo Stick Sizing Machine	1 No.
Bamboo Dying Tank	1 No.
Bamboo Resin Application	1 No.
Glue Mixing Machine	1 No.
D.D. SAW MACHINE (TRIMER) Power	1 No.
Glue Squeezer cum Spreader Machine 1400 mm(54")	1 No.
Bamboo knot removing machine	1 No.
Polishing machine	1 No.
Manual Slivering machine	1 No.
Automatic Slivering machine	1 No.
Round stick making machine	1 No.
Two side planning machine	1 No.
Four sides planning machine	1 No.
Wood related machine	
1) Universal Grinding machine	1 No.
2) Table grinding machine	1 No.
3) Machine saw	1 No.
4) Machine planner	1 No.
5) Lathe machine	1 No.
Screw Driver	16 Nos.
Hand Gloves	16 Nos.

Basic Module BTBT - IV: Basic Course on secondary processing of Bamboo
Duration: 8 weeks

Course Contents: 1) Technique of Value added Finishing
 2) Technique of Packaging Forwarding

Theory

What is Finishing
 Finishing in Bamboo
 Polishing, Buffing, colouring
 Bamboo Dyeing

Decorative Techniques for Bamboo
 Lamination etc.

Packaging for Long distance Transpiration
 Methodology for long term Storing
 Check up procedure of finishing
 Product

Practical

Practice on
 Polishing, Dyeing, Finishing

Practice on Decorative
 Technologies- Lamination etc.

Practice on packaging

List of Tools & Equipment for basic course of secondary processing of bamboo

BTBT – IV

Name of Machine, Tools & Equipments	Quantity
Building Machine	1 each
Portable sanding machine	1 each
Spray Gun	1 each
Treatment tank	1 each
Dying Chamber	1 each
Resin Applicator	1 each
Glue mixing machine	1 each
Drying chamber	1 each

BORAD BASED BASIC TRAINING
BASIC MODULE BTBT-V BASIC COURSE OF CONSTRUCTION AND FURNITURE
MAKING
DURATION: 8 WEEKS

COURSE CONTENT

- 1) Introduction of Construction
- 2) Skill Development construction combining with other building Materials and furniture Making

THEORY	PRACTICAL
Introduction about construction : Its importance, type, different parts of construction, orientation	Introduction with bamboo building with Different parts of the building. Neat sketch, Passing door, Window and Roof, Trust of Building orientation.
Construction material like Bamboo, Break, Stone, Sand, Cement, Wood, Lime, Steel-Rod, Nut-bolt, PVC sheet and other relating material. Foundation of building, precaution for proper foundation of earth.	Introduction by showing the different materials like bamboo, brick, stone, sand, nut-bolt binding wire, PVC sheet and other relating material available in local markets. Field visit in bamboo production nursery etc.
Technical terms: Types of Bonds, Necessity of Bond, English, Bond, Bonds in Pillars, Tools used in brick masonry, Ratio of Cement & sand in mortar for different types of Brick masonry, Preparation of mortar and used with in the initial setting time of the Cement. Roofs covering material tee racing of roofs, Its method of construction.	How to use tools of Brick masonry, Construction of wall and corner junction, of Wall in superstructure and foundation in English bond, Jig-Zac bond, Flemish bond, Stretcher bond, header bond in Pillars & Wall etc. Bone Bond in Brick flooring etc. Tracing of Roof, First and second class of Mud roofs, Method of construction.
Introduction: Use of various Household and Public furniture, Advantage of sketch making of various furniture designs.	Demo of various type of furniture, Draw the Neat sketch of furniture.
Use of Jigs & fixture. Introduction of various Household in furniture Making : Bamboo, Cane, Wood, Nail, Adhesive, Binding wire, Plastic Rope, Nut-bolt etc.	Demonstration of different material used in Furniture making
	Practice of furniture making 3- weeks <ol style="list-style-type: none"> 1. Sofa set 2. Chair 3. Table 4. Bed 5. Beach & Garden 6. Dining chair 7. Wall Chair 8. Swing 9. Relaxing Char 10. Centre Table

**Tools & Equipments for basic course of construction and furniture making
BTBT : V**

<u>Name of Machine, Tools & Equipments</u>	<u>Quantity</u>
Land measuring plastic tap(30 mt long)	8 Nos.
Land measuring steel tap(30 mt long)	8 Nos.
Bucket G.I.(30 cm dia)	8 Nos.
Masson plumber with spirit level	16 Nos.
Big hummer with handle	8 Nos.
Line pin corner block	16 Nos.
Mortar Board (2m X 2 m)	8 Nos.
Wire brushes	8 Nos.
Spade	16 Nos.
Steel float	8 Nos.
Spirit level (30 cm long)	16 Nos.
Chisel (25 c long hammer)	6 Nos.
Ladder aluminum (30 m)	16 Nos.
Bench vice	16 Nos.
C. Clamp	16 Nos.
Gloves Canvas	8 Nos.
Grinding machine with various polishing stones	1 Nos.
Brush for painting	as reqd
Drawing board with facility of parallel bar	16 Nos.
Mini drafter	16 Nos.
Erasing shield small size	16 Nos.
Template – Architects and builders	16 Nos.
Modern Household & Office Furniture designing book	10 set.

BOARD BASED BASIC TRAINING

Basic Module BTBT VI: Basic course on Design Interpretation and Bamboo and Bamboo Handicraft Production & Packaging

DURATION: 8 WEEKS

Course Content: 1) Design Practice
2) Handicraft Product Practice

Theory**Practical**

What is Design
Drawing various gift items, stationery
Item, furniture item,

Design & Net Sketch & Free hand
How to make a design Gift item, jewelers
luggage etc.

How to make model & mock up
Selection of Marketable Product

Practice of making model and mock
up.

Bamboo as a designer Material

Design Methodology

Luggage Design

Practice

Furniture lamps

Practice

Bamboo lamps

Practice

Designing for gift market

Practice

Jewelers design

Practice

Gift & souvenirs

Practice

Stationery items

Practice

Kitchen & household product

Practice

Planters

Practice

Carriers items

Practice

Gift Box

Practice

Tray

Practice

Bamboo diversified product

Practice

(Bamboo, Blend, Sital patti. etc)

List of Tools & Equipments for basic course of design interpretation and bamboo handicraft product BTBT : VI

Name of Machine/tools/equipments**Quantity**

Working Table (8 X 10)	-	4 Nos.
Paper cutting knife	-	16 Nos.
Boiler accessories, insulation duct etc.	-	1 No.
Automatic weaving machine	-	1 No.
Thermic fluid heater	-	1 No.
Pneumatic nailer	-	1 No.
Portable sanding machines	-	1 No.
Gas torch	-	1 No.

**BOARD BASED BASIC TRAINING
(FIRST YEAR)
GENERIC CODULE – I
WORKSHOP CALCULATION AND SCIENCE
DURATION: 48 WEEKS
COURSE CONTENTS**

WEEK NO.	CONTENTS
1.	Introduction
2.	Applied w/s problems involving multiplication and division. Common fraction addition, subtraction, multiplication, and division, application of fraction to shop problem.
3.	Applied workshop problems as in week no. 2
4.	Square root – the square root of a perfect square, the square root a whole number and decimals.
5.	Reduction of common fraction to decimal fraction applied problem, shop problems.
6.	Ratio and proportion. Applied problems.
7.	Proportion – Direct and inverse proportion – shop problems
8.	Percentage and its application shop problems
9.	C.G.C. and F.P.S. System of unit of length, weight, their conversion
10.	C.G.C. and F.P.S. System of unit length, weight, their conversion
11.	Algebraic symbols and fundamentals – Addition, subtraction, multiplication, division - problems,
12.	Algebraic symbols and fundamentals – Addition, subtraction, multiplication, division - problems,
13.	Algebra – simple equations – problems
14.	Algebra – simultaneous equations – problems
15.	Algebra – Quadratic equations – problems
16.	Newton's law of motion-definition of force-unit of force in M.K.S system's
17.	Work-unit of work in M.K.S. system and S.I. unit of work
18.	Power- Practical unit of power such as watt and this power.

WEEK NO.	CONTENTS
19.	Definition of Energy, Potential energy, Kinetic energy, law conservation of energy-S.I. unit of energy, Simple problems in P.E. and K.E.
20 & 21	Heat and temperature, different thermometric scale such as Celsius, Farahenheit. Conversion between the above scales.
22 to 25	Trigonometry ratios and functions of sub – multiple angle and compound angles, radial measurement and relation between system of measurement of angles formula connecting sides, angles and areas of triangles.
26 & 27	Problems on height and distance
28 to 31	Surface area and volume of rectangular. Parallelopoids, cylinders prisms pyramids and spheres. Units of force and weight. Equation of motion.
32 to 33	Determination of area of circle, sectors, sectors, segments and ellipse, Simpson's rule.
34 t0 37	Determination of sides, area of triangular, quadrilateral and polygons
38 to 40	Properties of plane geometrical figures-triangular, rectangular and quadrilaterals.
41 to 42	Load, elongation stress and strain, hook's law
43	Modules of elasticity, elastic limits and yield point.
44	Ultimate stress and breaking stress and problem thereof.
45 t- 48	Bending movements, shear force, their definition and their calculations.

BOARD BASED BASIC TRAINING
(First Year)
GENERIC MODULE – II
ENGINEERING DRAWING – 2 Hours/week – 48 weeks

1) COURSE CONTENT

Engineering Drawing
Familiarizing with the Institute
Introduction of Engineering Drawing and its importance. Different types of standards used engineering drawing
Drawing instruments and their uses – Drawing board. T square set square, protractor. Drawing sheets, Drawing Pencils – Grade and Selection, eraser. Practice: Layout of drawing sheet.
Type of lines – Thickness, shade of lines and its general applications. Practice: Draw type of lines as per IS-70714 – 1983.
Draw figures involving horizontal, vertical and inclined lines.
Type of Angle, Triangles and their types.
Practical: construct Scalene triangles, right angle triangles, isosceles triangles and equilateral triangles.
Lettering Styles – single stroke letters; Gothic letters as per IS standard. Practice : Lettering practice
Dimensioning – types of dimensioning elements of dimensioning, methods of indicating values, arrangement and indicating of dimensioning
Practice : place dimensioning in the drawing by aligned system and unidirectional system, give dimensioning to the give drawing by following dimensioning principles as per BIS
Method dimension common feature
Geometrical construction using drawing instrument s – lines, Angles, patterns, circle, Arc, Tangents, Triangles, Quadrilaterals, regulars Polygons. Different types of tapers related Exercise on this topic. Practice: Construct square, rectangle, parallelogram, rhombus, trapezium and quadrilateral.
Practice : Draw a regular pentagon by circum scribing & inscribing
Practice : Draw a regular hexagon by arc method
Practice : Draw a regular octagon and various types of tapers
Free hand sketching of straight lines, rectangular, circles, squares, Polygons, ellipse. Practice : Prepare proportionate free hand sketches of plane figures
Practice: Sketch horizontal, vertical and inclined line by free hand, Draw circles by free hand using square and radial line method, Draw arcs and ellipse by free hand.
Orthographic projection I and angle – Simple machine elements, Procedure for preparing a scale drawing.
Practice : Draw a plan, elevation and side view of prism and cylinder
Practice : Draw a plan, elevation and side view of cone and pyramids
Practice : Draw plan, elevation and side view of frustum of cone & pyramids
Practice : Draw 1 st and 3 rd angle projection (i) Front View (ii) Top View and (iii) Side

LIST OF TOOLS & EQUIPMENTS AND OTHER REQUIREMENTS GENERIC MODULE

Lab & Class Room Furniture

1. Class Room

- a) Instructor Chair & Table
- b) Dual Desk

2. Computer Lab

- a) Computer Table
- b) Computer Chairs
- c) Discussion Table

- 3. Tool Cabinet : 2 Nos.
- 4. Trainees Locker : 2 Nos.
- 5. First Aid Box : As required
- 6. Book Shelf (glass panel) : 1 No.
- 7. Storage Rack : As required
- 8. Storage Self : As required
- 9. Flip Chart : 1 No.

D) MACHINERY AND EQUIPMENT

1 No. each 8 Nos.

5 Nos. 17 Nos. 1 Nos.

- 1. Computer with latest technology : 5 No's
- 2. Laser Printer : 1 No.
- 3. Scanner : 1 No.
- 4. UPS for 5 Units : 5 Nos.
- 5. Latest version of AutoCAD Software : 1 No.
- 6. Architecture 3 – D home Software : 1 No.
(Latest)
- 7. Plotter latest : 1 No.

WEEK NO	CONTENTS
1	<p>Computer Hardware & Software Concepts</p> <ul style="list-style-type: none"> - Input Devices : <ul style="list-style-type: none"> • Text Entry Devices • Pointing Devices • Audio, Video and graphic Input • Source Data automation Input Devices - Output Devices : <ul style="list-style-type: none"> • Monitors • Printers • Sound Output Device - Input/Output Devices <ul style="list-style-type: none"> • Sound & Motion • Fax Machines & Modems
2	<p>Hardware Tips</p> <ul style="list-style-type: none"> - Mouse - Joystick - Scanners - Printers - Sound cards & Multimedia - CD-ROM/DVD Drives & Burners - TV Cards, Web/Digital Camera
3	<ul style="list-style-type: none"> - Installing/Upgrading Windows on Computer
4 to 6	<p>Getting to know the Interface</p> <ul style="list-style-type: none"> - Starting Windows - Parts of the Windows Screen - Types of Windows - Anatomy of a Window - All about Menus - All about Dialog Boxes - Using the New Web View - Use of Help Features - Exit Windows

WEEK NO	CONTENTS
7 to 9	<p>Using Programme Manger</p> <ul style="list-style-type: none"> - Create/Add Groups using Program Manger - Move/Copy/Delete Program Items - Change Program item Properties - Delete Groups

	<ul style="list-style-type: none"> - Open File Manger - Expand Compressed Directories and Files - Open & Manage Multiple Director Windows - Views & Sort Files - Save File Manager Settings - Exit File Manager
10	Study of Control Panel
11 to 16	Window Office Basics <ul style="list-style-type: none"> - Getting started with Office - File Operations in the Office Applications - Word : Creating and Saving your First Document - Excel : Entering Data and Creating Workbooks
17 to 19	Internet <ul style="list-style-type: none"> - Understanding Internet and World Wide Web(WWW) Basics - Connecting to the Internet - Communicating with E-Mail - Browsing the Web with Internet Explorer - Downloading Web Pages to your computer
20	Games & Your PC <ul style="list-style-type: none"> - Introduction to Gaming & Your PC
AUTOCAD	
21	What is AutoCAD & its purpose
22 to 25	Menu bar :- Contains the AutoCAD pull down menu Standard Toolbar :- Contains frequency used buttons. Drawing Area :- The area where you create drawings Crosshairs :- The AutoCAD cursor, made up of two intersecting lines with a pick box at the intersection. User Coordinate System Icon :- Show the orientation of the X and Y axes. Command Line :- The area where you enter a command by typing it. Command windows :- Display the current command, prompts and messages.
26 to 27	Draw and Modify Toolbars :- Provides access to common draw and modify