



GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP
DIRECTORATE GENERAL OF TRAINING

COMPETENCY BASED CURRICULUM

BAMBOO WORKS

(Duration: One Year)

CRAFTSMEN TRAINING SCHEME (CTS)

NSQF LEVEL- 3



SECTOR – HANDICRAFTS

BAMBOO WORKS

(Non-Engineering Trade)

(Revised in 2018)

Version: 1.0

CRAFTSMEN TRAINING SCHEME (CTS)

NSQF LEVEL - 3

Skill India
कौशल भारत - कुशल भारत

Developed By

Ministry of Skill Development and Entrepreneurship

Directorate General of Training

CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE

EN-81, Sector-V, Salt Lake City,
Kolkata – 700 091

ACKNOWLEDGEMENT

The DGT sincerely acknowledges contributions of the Industries, State Directorates, Trade Experts, Domain Experts and all others who contributed in revising the curriculum. Special acknowledgement is extended by DGT to the following expert members who had contributed immensely in this curriculum.

List of Expert Members participated/ contributed for finalizing the course curriculum of Bamboo Works Trade.			
S No.	Name & Designation Sh/Mr/Ms	Organization	Remarks
Members of Sector Mentor council			
1.	Dr.G.Buvanashakaran AGM	WRI, Trichy– Chairman	Chairman
2.	Dr.K.Ashokkumar, AGM	BHEL, Trichy	Member
3.	Prof. Jyothi Mukhopadhyaya	IIT, Ahmedabad	Member
4.	B .Pattabhiraman, MD	GB Engineering, Trichy	Member
5.	Dr.Rajeevkumar	IIT, Mandi	Member
6.	Dr. Vishalchauhan	IIT, Mandi	Member
7.	Shri D.K.Singh	ITI, Kanpur	Member
8.	Shri. Navneet Arora	IIT, Roorkee	Member
9.	Shri. R. K. Sharma	SDC, JBM Group, Faridabad	Member
10.	Shri. Puneet Sinha, Deputy Director	MSME, New Delhi	Member
Mentor			
11.	Shri. Deepankar Mallick, Director	DGE &T Heat Quarter,	Mentor
Members of Core/NSQF Compliances			
12.	L. K. Mukherjee, DDT	CSTARI, Kolkata	Team Leader
13.	SAMIR JAMATIA Bamboo Technologist	Twipra Bamboo & Cane Handicrafts, Agartala	Member (Technology)
14.	SUSANTH C S Faculty	Head of Centre for Bamboo Initiative National Institute of Design, Bangalore	Member (Design)
15.	AMULY DEBBARMA Forestry Expert	Bamboo & Cane Development Institute, Agartala	Member
16.	R.K.SINGH Professor	BCRU, Botany Department, Tripura University	Member
17.	NAKUL NANDA MALSOM Architect	North East Bamboo Housing, Guwahati	Member
18.	AWSINI RUPINI	Industries Department, Govt. of	Member

	Manager (Credit)	Tripura, Agartala	
19.	B. BRAHMA Instructor (Bamboo)	Bamboo Studies Centre, Bodoland University, Kokrajhar, Assam	Member
20.	P.C.GULGULIA Director	Mizoram Venus Bamboo Products (P) Ltd, Mizoram	Member
21.	R. K. Taj, Scientist	RFRI, Itanagar, Arunachal Pradesh	Member
22.	ANAND BHANTIA	Garnet Tools, Dewas, MP	Member
23.	SABITA RUPINI Head	Twiprasa Village Cluster, Teliamura,	Member
24.	P. MALI Faculty	Cane & Bamboo Technology Centre Guwahati	Member



Skill India
कौशल भारत - कुशल भारत

CONTENTS

S No.	Topics	Page No.
1.	Course Information	1
2.	Training System	2-5
3.	Job Role	6-7
4.	General Information	8-9
5.	NSQF Level Compliance	10
6.	Learning/ Assessable Outcome	11-12
7.	Learning Outcome with Assessment Criteria	13-19
8.	Trade Syllabus	20-27
9.	Core Skill – Employability Skill	28-32
10.	Annexure I	
	List of Trade Tools & Equipment	33-41
	List of Tools & Equipment for Employability Skill	42
11.	Annexure II - Format for Internal Assessment	43

कौशल भारत - कुशल भारत

1. COURSE INFORMATION

During the one-year duration of “Bamboo Works” trade, a candidate is trained on Professional Skill, Professional Knowledge and Employability Skill. In addition to this, a candidate is entrusted to undertake project work, extracurricular activities and on-the-job training to build up confidence. The broad components covered related to the trade are categorized in two semesters each of six months duration. The semester wise course coverage is categorized as below:

1st Semester – In the first semester, trainee learns about elementary first aid, fire fighting, environment regulation and housekeeping etc. The trainee identifies bamboo species, safety tools & explains various Bamboo resource generations. He will be able to recognize and operate various hand tools & machines used in Bamboo Technology. He identifies plans & applies preservatives, dyes, smoke treatment & chemical treatment process to preserve bamboo products. The trainee learns to operate various bamboo processing machineries and carry out their maintenance. He is able to operate glue mixing machine & weaving machine for fixing different parts of bamboo products. He is able to bend bamboo strips, slivers & bamboo pole using blow lamp. The trainee will be able to troubleshoot & perform maintenance procedure of different machines used in Bamboo works. Also he can also carry out different process of seasoning of bamboos & various propagation methods.

2nd Semester - In the second semester, trainee identifies and selects appropriate bamboo species for different industrial Handicraft products. He can design various gift items, stationery Item by free hand drawing. He is able to identify different computer parts; boots & operates basic functions of computer. He is able to install utilize AutoCAD software to prepare different shapes and design of the products. The trainee learns to make various decorative products by designing innovative gift items, stationary items models/ prototype. He is able to select & apply different process of bending & joints in different sections like furniture, handicraft & housing etc. He is able to apply different techniques and process of making various kinds of bamboo furniture; uses Jigs & fixture to make uniform size & reduce production cost. He identifies the finishing materials & applies different methods of finishing of bamboo products. Also he is able to identify quality products as per market demand for production as per requirement and estimate the cost.

2. TRAINING SYSTEM

2.1 GENERAL

The Directorate General of Training (DGT) under Ministry of Skill Development & Entrepreneurship offers a range of vocational training courses catering to the need of different sectors of the economy/ labour market. The vocational training programs are delivered under the aegis of National Council of Vocational Training (NCVT). Craftsman Training Scheme (CTS) and Apprenticeship Training Scheme (ATS) are two pioneer programs of NCVT for propagating vocational training.

‘Bamboo Works’ trade under CTS is delivered nationwide through a network of ITIs. The course is of one year (02 semester) duration. It mainly consists of Domain area and Core area. The Domain area (Trade Theory & Practical) imparts professional skills and knowledge, while the Core area (Employability Skill) imparts requisite core skills, knowledge, and life skills. After passing out the training program, the trainee is awarded National Trade Certificate (NTC) by NCVT which is recognized world-wide.

Candidates broadly need to demonstrate that they are able to:

- Read and interpret technical parameters/documents, plan and organize work processes, identify necessary materials and tools;
- Perform tasks with due consideration to safety rules, accident prevention regulations and environmental protection stipulations;
- Apply professional skill, knowledge & employability skills while performing jobs.
- Document the technical parameters related to the task undertaken.

2.2 CAREER PROGRESSION PATHWAYS

- Can join Apprenticeship programs in different types of industries leading to a National Apprenticeship certificate (NAC).
- Can join industries related to Bamboo works.
- Can become an entrepreneur.

2.3 COURSE STRUCTURE

Table below depicts the distribution of training hours across various course elements during a period of one year (02 semesters): -

S No.	Course Element	Notional Training Hours
1.	Professional Skill (Trade Practical)	1290
2.	Professional Knowledge (Trade Theory)	258
3.	Employability Skills	110
5.	Library & Extracurricular activities	62
6.	Project Work	160
7.	Revision & Examination	200
	Total	2080

2.4 ASSESSMENT & CERTIFICATION

The trainee will be tested for his skill, knowledge and attitude during the period of the course and at the end of the training program as notified by the Government of India (GoI) from time to time. The employability skills will be tested in the first two semesters itself.

a) The **Internal Assessment** during the period of training will be done by **Formative Assessment Method** by testing for assessment criteria listed against learning outcomes. The training institute has to maintain an individual trainee portfolio as detailed in assessment guideline. The marks of internal assessment will be as per the template (Annexure – II).

b) The final assessment will be in the form of summative assessment method. The All India Trade Test for awarding NTC will be conducted by NCVT at the end of each semester as per the guideline of Government of India. The pattern and marking structure is being notified by Govt. of India from time to time. **The learning outcome and assessment criteria will be the basis for setting question papers for final assessment. The examiner during final examination will also check the individual trainee's profile as detailed in assessment guideline before giving marks for practical examination.**

2.4.1 PASS REGULATION

The minimum pass percentage for practical is 60% & minimum pass percentage of theory subjects is 40%. For the purposes of determining the overall result, 50% weight age is applied to the result of each semester examination.

2.4.2 ASSESSMENT GUIDELINE

Appropriate arrangements should be made to ensure that there will be no artificial barriers to assessment. The nature of special needs should be taken into account while undertaking the assessment. Due consideration should be given while assessing for teamwork, avoidance/reduction of scrap/wastage and disposal of scrap/waste as per procedure, behavioral attitude, sensitivity to the environment and regularity in training. The sensitivity towards OSHE and self-learning attitude are to be considered while assessing competency.

Assessment will be evidence based comprising the following:

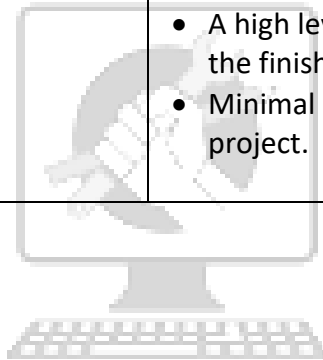
- Job carried out in labs/workshop
- Record book/ daily diary
- Answer sheet of assessment
- Viva-voce
- Progress chart
- Attendance and punctuality
- Assignment
- Project work



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

Performance Level	Evidence
(a) Weightage in the range of 60%-75% to be allotted during assessment	
For performance in this grade, the candidate should produce work which demonstrates attainment of an acceptable standard of craftsmanship with occasional guidance, and due regard for safety procedures and practices	<ul style="list-style-type: none"> • Demonstration of good skill in the use of hand tools, machine tools and workshop equipment. • Below 70% tolerance dimension achieved while undertaking different work with those demanded by the component/job. • A fairly good level of neatness and consistency in the finish. • Occasional support in completing the project/job.
(b) Weightage in the range of 75%-90% to be allotted during assessment	
For this grade, a candidate should produce work which demonstrates attainment of a reasonable standard of craftsmanship, with	<ul style="list-style-type: none"> • Good skill levels in the use of hand tools, machine tools and workshop equipment. • 70-80% tolerance dimension achieved while

little guidance, and regard for safety procedures and practices	<p>undertaking different work with those demanded by the component/job.</p> <ul style="list-style-type: none"> • A good level of neatness and consistency in the finish. • Little support in completing the project/job.
(c) Weightage in the range of more than 90% to be allotted during assessment	
For performance in this grade, the candidate, with minimal or no support in organization and execution and with due regard for safety procedures and practices, has produced work which demonstrates attainment of a high standard of craftsmanship.	<ul style="list-style-type: none"> • High skill levels in the use of hand tools, machine tools and workshop equipment. • Above 80% tolerance dimension achieved while undertaking different work with those demanded by the component/job. • A high level of neatness and consistency in the finish. • Minimal or no support in completing the project.



Skill India
कौशल भारत - कुशल भारत

Brief description of job role

Mat Weaver, Bamboo; makes mats of seasoned and coloured bamboo strips according to pattern or design. Soaks pre-cut bamboo stakes in water to soften and bleach them; removes stakes from bath when soft, cuts and removes splints and splits them into strips of desired size and thickness; dresses bamboo strips to remove sharpness; colours strips according to desired pattern and weaves them into mat, cutting off and concealing or weaving together loose ends to finish edges; weaves thicker strips and ornamental borders on edge or end of mat. May make own designs. May weave window and door screens. May make fans, Industrial mat weaving for board, corrugated roofing sheet, products packaging, etc.

Furniture Maker, Bamboo; makes bamboo furniture by sizing and dressing bamboo pieces, drilling holes, building frames and body with strengthening pieces. Studies pattern, size or design of furniture to be made; collects seasoned bamboo stakes (rods) then soaks in water; removes stakes from bath when soft and cuts and removes thin splints and splits them into strips of desired size and thickness with selects cut bamboo into specific sizes, drills holes where necessary and sets them into required pattern; completes object by weaving seat, back and other parts as necessary and fastening ends either with bamboo or cane strips. May specialize in a particular article such as Table, Chair, Sofa set, school joint table, engineering furniture etc. May also undertake repair work.

Basket Maker; makes baskets of specified size and shape by interlacing rattan or other materials. Forms bottom of basket by interlacing strips of bamboo or similar material with framework of bamboo ribs; inserts ribs around edge of bottom and between woven sections of bottom to serve as framework of sides; bends ribs perpendicular to bottom and secures to hold them in position for weaving of sides; weaves strips through ribs until sides are completed; tapers or points ends of protruding ribs, and bends and inserts them into spaces in top edge of woven sides. May make solid bottom boards, using band saw, drill press, and special bamboo artisan's hand tools (extended by IDC, IIT, Bombay & BCDI, Tripura). May interlace reeds through stakes (rods), secured in screw blocks, to form parts of basket, such as woven bottom. May design baskets. May be designated according to type of basket woven as Hamper Maker; Market-Basket Maker; lampshade basket or according to material used as rattan worker; fruit baskets, etc.

Chick Maker; makes reed or bamboo chicks by sizing and dressing reeds or bamboo wickers and fastening together by twine. Collects material, cuts and sizes them into thin strips according to design; assembles and fastens strips together with thin rope or twine to form into mat of desired size; trims edges and fixes cloth piping on four sides. May stitch coloured cloth over chicks.

Khas Thatti Maker; makes Khas Thatties; (screens made with Khas) a type of aromatic grass roots used for keeping room cool from summer heat when cold water is sprinkled on them. Collects dry khas roots; prepares bamboo frames of required size; spreads layers of khas roots to make bed of required thickness and fastens it into bamboo frame with bamboo splinters to support on both sides and binds them with thin rope or sutli; trims edges to complete screen.

Reference NCO-2015:

- a) 7317.0800 – Mat Weaver, Bamboo
- b) 7317.0300 – Furniture Maker, Bamboo
- c) 7317.0700 – Basket Maker
- d) 7317.1100 – Chick Maker
- e) 7317.1200 – Khas Thatti Maker



Skill India
कौशल भारत - कुशल भारत

4. GENERAL INFORMATION

Name of the Trade	BAMBOO WORKS
NCO - 2015	7317.0800, 7317.0300, 7317.0700, 7317.1100, 7317.1200
NSQF Level	Level 3
Duration of Craftsmen Training	1 Year (02 Semesters each of six months duration)
Entry Qualification	Passed 8 th Class Examination under 10 th system of education.
Unit Strength (No. of Student)	20 (Max. Supernumeraries seats: 6)
Space Norms	100 Sq. m
Power Norms	10 KW
Instructors Qualification for:	
(i) Bamboo Works Trade	<p>Degree in Bamboo Technology / Bamboo Studies from recognized university with one year post qualification experience in the relevant field.</p> <p style="text-align: center;">OR</p> <p>Diploma in Bamboo Technology / Bamboo Studies from a recognized board of education / university with two-year post qualification experience in the relevant field.</p> <p style="text-align: center;">OR</p> <p>NTC/NAC passed in the Trade of “Cane Willow and Bamboo Worker / Bamboo Works/ Bamboo Technology” With 3 years’ post qualification experience in the relevant field.</p> <p><u>Desirable:</u> Preference will be given to a candidate with Craft Instructor Certificate (CIC) in the relevant trade.</p> <p><u>Note:</u> <i>Out of two Instructors required for the unit of 2(1+1), one must have Degree/Diploma and other must have NTC/NAC qualifications.</i></p>

(ii) Employability Skill	MBA OR BBA with two-year experience OR Graduate in Sociology/ Social Welfare/ Economics with two-year experience OR Graduate/ Diploma with two-year experience and trained in Employability Skills from DGT institutes. AND Must have studied English/ Communication Skills and Basic Computer at 12 th / Diploma level and above. OR Existing Social Studies Instructors duly trained in Employability Skills from DGT institutes.			
List of Tools and Equipment	As per Annexure – I			
Distribution of training on hourly basis: (Indicative only)				
Total Hrs/ Week	Trade Practical	Trade Theory	Employability Skills	Extracurricular Activity
40 Hours	30 Hours	6 Hours	2 Hours	2 Hours

Skill India
कौशल भारत - कुशल भारत

5. NSQF LEVEL COMPLIANCE

NSQF level for '**Bamboo Works**' trade under CTS: **Level 3**

As per notification issued by Govt. of India dated- 27.12.2013 on National Skill Qualification Framework total 10 (Ten) Levels are defined.

Each level of the NSQF is associated with a set of descriptors made up of five outcome statements, which describe in general terms, the minimum knowledge, skills and attributes that a learner needs to acquire in order to be certified for that level.

Each level of the NSQF is described by a statement of learning outcomes in five domains, known as level descriptors. These five domains are:

- a. Process
- b. Professional knowledge
- c. Professional skill
- d. Core skill
- e. Responsibility

The Broad Learning outcome of '**Bamboo Works**' trade under CTS mostly matches with the Level descriptor at Level- 3.

The NSQF level-3 descriptor is given below:

Level	Process required	Professional knowledge	Professional skill	Core skill	Responsibility
Level 3	person may carry out a job which may require limited range of activities routine and predictable	Basic facts, process and principle applied in trade of employment	recall and demonstrate practical skill, routine and repetitive in narrow range of application	Communication written and oral, with minimum required clarity, skill of basic arithmetic and algebraic principles, personal banking, basic understanding of social and natural environment	Under close supervision Some Responsibility for own work within defined limit.

6. LEARNING/ ASSESSABLE OUTCOME

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

6.1 GENERIC LEARNING OUTCOME

1. Apply safe working practices.
2. Comply with environment regulation and housekeeping.
3. Assist in exigencies and carry out elementary first-aid during emergencies.
4. Work in a team, understand and practice soft skills, technical English to communicate with required clarity.
5. Explain energy conservation, global warming and pollution and contribute in day-to-day work by optimally using available resources.
6. Explain personnel finance, entrepreneurship and manage/organize related task in day-to-day work for personal & societal growth.

6.2 SPECIFIC LEARNING OUTCOME

SEMESTER-I

7. Identify bamboo, safety tools & explain various Bamboo resource generation Techniques.
8. Identify and operate various hand tools used in Bamboo Technology.
9. Identify, plan & apply preservatives, dyes, smoke treatment & chemical treatment process to preserve bamboo products.
10. Operate various bamboo processing machineries and carry out their maintenance.
11. Operate Glue Mixing machine & weaving machine for fixing different parts of bamboo products.
12. Bend bamboo strips, Slivers & bamboo pole using blow lamp.
13. Troubleshoot & perform maintenance procedure of different machines used in Bamboo works.
14. Carry out different process of seasoning of bamboos & various propagation methods.

SEMESTER-II

15. Identify & select appropriate bamboo species for different industrial Handicraft products.
16. Design various gift products, stationery Item by free hand drawing.
17. Identify different computer parts; boot & operate basic functions of computer.
18. Install & utilize AutoCAD software to prepare different shapes and design of the products.
19. Make various decorative products by designing innovative gift items, stationary items models/ prototype.
20. Select & apply different process of bending & joints in different sections like furniture, handicraft & housing etc.
21. Apply different techniques and process of making various kinds of bamboo furniture.
22. Use Jigs & fixture to make uniform size & reduce production cost.
23. Identify finishing materials & apply different methods of finishing of bamboo products.
24. Identify quality products as per market demand for production as per requirement and estimate the cost.

Skill India
कौशल भारत - कुशल भारत

7. LEARNING OUTCOME WITH ASSESSMENT CRITERIA

GENERIC LEARNING/ ASSESSABLE OUTCOME	
LEARNING/ ASSESSABLE OUTCOME	ASSESSMENT CRITERIA
1. Apply safe working practices	1.1 Follow and maintain procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements, and according to policy.
	1.2 Recognize and report all unsafe situations according to policy.
	1.3 Identify and take necessary precautions on fire and safety hazards and report according to work policy and procedures.
	1.4 Identify, handle and store/ dispose-off dangerous goods and substances according to policy and procedures following safety regulations and requirements.
	1.5 Identify and observe policies and procedures with regard to illness or accident.
	1.6 Identify safety alarms accurately.
	1.7 Report supervisor/ competent of authority in the event of accident or sickness of any staff and record accident details correctly according to accident/injury procedures.
	1.8 Identify and observe evacuation procedures according to site policy.
	1.9 Identify Personal Protective Equipment (PPE) and use the same as per related working environment.
	1.10 Identify basic first-aid and use them under different circumstances.
	1.11 Identify different fire extinguisher and use the same as per requirement.
2. Comply with environment regulation and housekeeping	2.1 Identify environmental pollution & contribute to the avoidance of instances of environmental pollution.
	2.2 Deploy environmental protection legislation & regulations.
	2.3 Use energy and materials in an environment friendly manner.
	2.4 Avoid waste and dispose waste as per procedure.
3. Assist in exigencies and carry out elementary first-aid during emergencies.	3.1 Demonstrate elementary first-aids.
	3.2 Demonstrate safety practices to be observed in kitchen.
	3.3 Demonstrate use of personal protective dresses.
	3.4 Identify emergency exit route.
	3.5 Demonstrate fire fighting procedure using fire extinguishers.

4. Work in a team, understand and practice soft skills, technical English to communicate with required clarity.	4.1 Obtain sources of information and recognize information.
	4.2 Use documents, regulations and occupationally related provisions.
	4.3 Conduct appropriate and target oriented discussions with higher authority and within the team.
	4.4 Present facts and circumstances, possible solutions & use English and French terminology.
	4.5 Resolve disputes within the team.
	4.6 Conduct written communication.
5. Explain energy conservation, global warming, pollution, and contribute in day-to-day work by using available resources optimally.	5.1 Explain the concept of energy conservation, global warming, pollution and utilize the available resources optimally & remain sensitive to avoid environment pollution.
	5.2 Explain standard procedure for disposal of waste.
6. Explain personnel finance, entrepreneurship and manage/organize related task in day-to-day work for personal & societal growth.	6.1 Explain personnel finance and entrepreneurship.
	6.2 Explain role of various schemes and institutes for self-employment i.e. DIC, SIDA, SISI, NSIC, SIDO, Idea for financing/ non-financing support agencies to familiarize with the policies/ programmes, procedure & the available scheme.

कौशल भारत - कुशल भारत

SPECIFIC LEARNING/ ASSESSABLE OUTCOME	
LEARNING/ ASSESSABLE OUTCOME	ASSESSMENT CRITERIA
SEMESTER-I	
7. Identify bamboo items, safety tools & explain various Bamboo resource generation Techniques.	7.1 Demonstrate workshop safety & discipline.
	7.2 Use of tools safety and workshop safety.
	7.3 Identify different types of bamboo items.
	7.4 Demonstrate via field visit/ Harvesting Practice.
	7.5 Demonstrate modern utilization of bamboo products by showing visual aids.
8. Identify and operate various hand tools used in Bamboo Technology.	8.1 Identify various kinds of hand tools/machine tools used in bamboo works industry.
	8.2 Maintain the hand tools/machine tools and follow the safety /precautionary guidelines.
	8.3 Identify measuring tools & use conversion tables for measurement.
	8.4 Check for dimensional accuracy.
	8.5 Plan and select material and machine for drill holes to make observing safety points.
	8.6 Perform hand sawing/ drilling/ skinning/ filing process.
	8.7 Mark the job as per drawing.
	8.8 Demonstrate pattern making by using blow lamp and it precautions.
9. Identify, plan & apply preservatives, dyes, smoke treatment & chemical treatment process to preserve bamboo products.	9.1 Identify various preservatives / dyes used to preserve the bamboos/ bamboo products.
	9.2 Perform finishing of the surface of bamboo product as per requirement and arrange required items and tools.
	9.3 Select material and inspect visually for defects.
	9.4 Explain use of Borax, Boric Acid in preservation and others chemical process.
	9.5 Demonstrate smoke chamber / other chemical process of preservation.
	9.6 Perform Traditional processes of preservation.
	9.7 Dye the bamboo products utilizing various chemical / vegetative dyes.
10. Operate various bamboo processing	10.1 Plan and select the job and set up machine accessories at position to perform desired operation.

machineries and carry out their maintenance.	10.2	Set the job and perform desired operation with proper adjustment of table, guide, fence and blade guard.
	10.3	Operate Cross Cutting machine & perform oiling/ lubrication including preventive maintenance of the machine.
	10.4	Operate Radial splitting Machine/ Automatic splitting Machine/ knot removing machine according to the marking following safety norms
	10.5	Troubleshoot & maintain the Radial splitting Machine/ Automatic splitting Machine/ knot removing machine
	10.6	Polish /oil /lubricate different machines like manual slivering machine/ round stick machine for proper functioning.
	10.7	Operate & maintain electric drill machine/ 2 side / 4 side machine planer.
	10.8	Perform desired operation and check the correctness as per drawing.
	10.9	Operate & troubleshoot Hydraulic Press Machine/ Resign Applicator machine.
11. Operate Glue Mixing machine & weaving machine for fixing different parts of bamboo products.	11.1	Operate & maintain the Glue Mixing machine / DD Saw machine
	11.2	Operate & maintain weaving Machine
	11.3	Avoid waste and plan for reuse/ dispose of the unused items.
12. Bend bamboo strips, Slivers & bamboo pole using blow lamp.	12.1	Study the drawing and make a plan for making desired pattern.
	12.2	Mark the work as per dimension of the drawing.
	12.3	Make pattern, using blow torch and explain it precautions.
	12.4	Bend bamboo strips/bamboo poles using blow lamp.
	12.5	Check for dimensional accuracy of the bamboo product
13. Troubleshoot & perform maintenance procedure of different machines used in Bamboo works.	13.1	Clean & maintain machine parts by oiling/greasing/lubricating.
	13.2	Identify basic faults and trouble shoot them
	13.3	Explain different procedures of maintenance of machines
14. Carry out different process of seasoning of bamboos & various propagation methods.	14.1	Explain Anatomical properties/ Chemical properties/ Physical/ Mechanical properties of bamboos
	14.2	Demonstrate various bamboo propagation methods.
	14.3	Perform Air seasoning/ Kiln seasoning/ chemical seasoning
	14.4	Trace seasoning defects and take remedial action

	14.5 Explain Gross anatomy-Parechyma/ Vascular bundles/fibres.
SEMESTER II	
15. Identify & select appropriate bamboo species for different industrial handicraft products.	15.1 Identify bamboo species as per job requirement at practical field.
	15.2 Select appropriate bamboo species as per requirement of the bamboo product.
	15.3 Utilize various bamboo species for the formation of different bamboo handicrafts.
16. Design various gift items, stationery Item by free hand drawing.	16.1 Demonstrate free hand drawing & mark layout as per drawing.
	16.2 Draw various gift items/stationery Item.
	16.3 Plan required steps of operation to produce the gift/stationary item.
	16.4 Arrange required materials, tools and machineries for smooth performance of the operations.
17. Identify different computer parts; boot & operate basic functions of computer.	17.1 Boot the Computer / Open Windows / menus /use mouse.
	17.2 Create a directory in Windows.
	17.3 Create a File/ Folder
	17.4 Use my documents.
	17.5 Use start menu for opening an application.
	17.6 Change control panel settings for display
	17.7 Familiarize with Key Board and other computer components.
18. Install & utilize AutoCAD software to prepare different shapes and design of the products.	18.1 Install AutoCad Software.
	18.2 Identify various tools of Menu bar.
	18.3 Select & use various tools of Menu bar.
	18.4 Use AutoCAD pull down menu
	18.5 Apply User Coordinate System Icon
	18.6 Use Command Line / Command windows
19. Make various decorative products by designing innovative gift items, stationary items models/ prototype.	19.1 Design intervention on new innovative products.
	19.2 Make different gift items/stationery Item
	19.3 Make Bamboo Models / Prototype/ mock.
	19.4 Select Marketable Product.
20. Select & apply different process of bending & joints in different sections like furniture, handicraft	20.1 Choose exact type of joint to employ and arrange materials, tools and equipments to perform the operation.
	20.2 Construct tongue and groove/ male and female joint/ Bolt fastening joint/Overlapping joint/U-shape joint/ Horizontal joint/ Vertical joint etc.

&housing etc	20.3	Assemble different parts and check for correctness, strength and finishing
	20.4	Make a design of Gift item and bamboo jewelleryes / ornaments
	20.5	Make Bamboo bags.
	20.6	Make tea coaster/ bamboo bags etc. in workshop with the help of machines and hand tools.
	20.7	Identify& select various type of furniture as per requirement.
	20.8	Draw the Neat sketch of furniture
	20.9	Demonstrate different material used in furniture making
	20.10	Make Bamboo Mats and Blinds.
	20.11	Make Bamboo Mats / Bamboo Blinds by using Weaving Machine / manually.
21. Apply different techniques and process of making various kinds of bamboo furniture.	21.1	Apply appropriate Techniques for making furniture.
	21.2	Make Sofa set/Chair/ Table/Bed Beach & Garden/ Dining chair/Wall Chair/Swing/Relaxing Chair/Centre Table.
	21.3	Select raw material for bamboo houses.
	21.4	Make prototype houses.
	21.5	Preserve & use bamboo for structural purposes - Code of practice.
22. Use Jigs & fixture to make uniform size & reduce production cost.	22.1	Identify & select materials for making jigs & fixtures
	22.2	Make various jig & fixtures as per requirement
	22.3	Make different products using jigs & fixtures.
	22.4	Make various moulds for making moulded Products.
23. Identify finishing materials & apply different methods of finishing of bamboo products.	23.1	Identify & select finishing tools/materials.
	23.2	Plan for finish the surface of bamboo product as per requirement and arrange required items and tools.
	23.3	Apply different techniques of finishing
	23.4	Final touch on the products using finishing materials.
24. Identify quality products as per market demand for production as per requirement and estimate the cost.	24.1	Collect sample according to Company sampling procedures.
	24.2	Measure samples for specified parameters according to company technical specifications.
	24.3	Estimate cost of production.

8. SYLLABUS

SYLLABUS - BAMBOO WORKS			
FIRST SEMESTER – 06 Months			
Week No.	Reference Learning Outcome	Professional Skills (Trade Practical)	Professional Knowledge (Trade Theory)
1	Comply with environment regulation and housekeeping and orientation	<ol style="list-style-type: none"> 1. Familiarization with the Institute, classroom and equipment's. 2. Barrier free environment. 3. Identifying safety symbols and hazard identification. 4. Practice safe methods of fire fighting in case of electrical fire. 5. Use of fire extinguishers. 	<p>Introduction to the trade</p> <p>Safe working practices Scope of the Bamboo works trade. Safety rules and safety signs. Types and working of fire extinguishers.</p>
2	Identify bamboo items, safety tools & explain various Bamboo Techniques.	<p>History of Bamboo</p> <ol style="list-style-type: none"> 6. Demonstration of different bamboo item, its modern utilization by showing visual aids. 7. Use of tools safety and workshop safety. 8. Demonstration through field visit and Harvesting Practice. 	<p>History of Bamboo utilization, day-to-day use of bamboo and modern application of bamboo.</p> <p>Types of Bamboo: Future prospects of bamboo technology.</p> <p>General Workshop safety and Tools safety.</p> <p>Basics of Bamboo Resource, type of propagation and practice in India and abroad, Selection of bamboo to make various bamboo products.</p>
3	Identify and operate various hand tools used in Bamboo Technology.	<p>Introduction of Tools</p> <ol style="list-style-type: none"> 9. Operate and practice of hand tools. It maintenance and precaution. 10. Practice of measurement of all systems. 11. Hand sawing, Drilling, Skinning, Filling practice. 	<p>Introduction of various hand tools and machine tools used on Bamboo technology, measuring tools. Conversion table etc.</p> <p>Brief description of Hand tools and Machine tools. Specification of tools and types of tools.</p>

		12. Practice of hand-sawing. 13. Drilling, Skinning, filling practice etc	
4	-do-	Use of Blow lamp 14. Practice of pattern making, use of blow lamp and its precaution.	How to make pattern, banding, buffing and polishing of bamboo.
5	Identify, plan & apply preservatives, dyes, smoke treatment & chemical treatment process to preserve bamboo items.	Preservation of Bamboo 15. Use of Borax & Boric Acid. 16. Use of Smoke chamber and other Chemical Process. 17. Practice of Traditional process 18. Practice of dying utilizing various chemical and vegetative dyes.	Various techniques of Preservation and Treatment of Bamboo (Through ancient/traditional and modern methods) Colouring/Dying of Bamboo strips/ slivers
6	Operate various bamboo processing machineries and carry out their maintenance.	Bamboo processing Machine 19. Practice on different machineries used to make various primary bamboo products. 20. Practice of Cross Cutting machine, oiling and lubrication of machine.	Introduction of Bamboo Primary processing Machineries and its uses. Brief description of cross cutting machine and how to operate, trouble shooting of this machines.
7	-do-	Splitting Machine 21. Practice of operation in Radial splitting Machine, Automatic splitting Machine, oiling and lubrication of machine. 22. Practice of operation in knot removing machine.	Brief description of Radial Splitting machine, Automatic Splitter Machine and how to operate, trouble shooting of this machines. Brief description of knot removing machine and how to operate, trouble shooting of the machine.
8	-do-	Polishing Machine 23. Practice of operation in polishing machine, oiling and lubrication of machine. 24. Practice of operation in manual slivering machine,	Brief description of polishing machine and how to operate, trouble shooting of the machine. Brief description of manual slivering machine and how to operate, trouble shooting of the

		<p>oiling and lubrication of machine.</p> <p>25. Practice of operation in round stick machine oiling and lubrication of machine.</p>	<p>machine.</p> <p>Brief description of Round stick making machine and how to operate trouble shooting of this machine.</p>
9	-do-	<p>Drill Machine</p> <p>26. Practice of operation in electric drill machine, oiling and lubrication of machine.</p> <p>27. Practice of operation in 2 side / 4 side machine planer, oiling and lubrication of machine including preventive maintenance.</p>	<p>Brief description of electric Drill Machine and how to operate trouble shooting of these machines.</p> <p>Brief description of 2 side/4 side planer machine and how to operate trouble shooting of this machine.</p>
10	-do-	<p>Pressure Machine</p> <p>28. Practice on Hydraulic Press Machine.</p> <p>29. Practice on Resign Applicator machine.</p>	<p>Brief description of Hydraulic Press Machine and its operation & maintenance and also trouble shooting of these machines.</p> <p>Brief description of Resign Applicator and Its operation & maintenance and also trouble shooting of these machines.</p>
11-12	Operate Glue Mixing machine & weaving machine for fixing different parts of bamboo products.	<p>Glue Mixing and Weaving Machine</p> <p>30. Practice on Glue Mixing machine and DD Saw machine.</p> <p>31. Practice on weaving Machine.</p>	<p>Brief description of Glue Mixing Machine, DD Saw machine. How to operate and maintenance these machine.</p> <p>Operation and maintenance of Automatic Weaving machine</p>
13	Bend bamboo strips, Slivers & bamboo pole using blow lamp.	<p>Use of Blow Torch (LPG)</p> <p>32. Practice of pattern making, use of blow torch and it precaution.</p>	<p>How to make pattern, bending, buffing and polishing of bamboo.</p>
14-15	Troubleshoot & perform maintenance procedure of different machines used in Bamboo	<p>Maintenance of Machine</p> <p>33. Cleaning of machine.</p> <p>34. Lubrication and oiling of machine and trouble shooting.</p>	<p>What precaution should be observed in operating bamboo processing machine and proper maintenance of machine</p>

	works.		
16-21	Carry out different process of seasoning of bamboos & various propagation methods.	Methods used of lab 35. Properties- Anatomical properties, Chemical properties, Physical and Mechanical properties, Grading and seasoning.	Introduction of various - Anatomical structure, Chemical properties, Physical properties and Mechanical Properties. Gross anatomy-Parenchyma, Vascular bundles, fibres. Chemical constitution, Cellulose and hemicelluloses, lignin etc. Moisture content, Fibre saturation point and shrinkage, Specific gravity and mechanical properties, influence of age Air seasoning; Kiln seasoning; chemical seasoning and seasoning defects & remedies. Others process.
22-23	Project work/ Industrial visit: - Broad Areas: <ol style="list-style-type: none"> Visit to testing laboratory / manufacturing works and write a report. Visit to fields for collection of product samples and prototype made. Inspiration deficiency innovation in bamboo products. Modern techniques for data collection. 		
24-25	Revision		
26	Examination		

Note: -

- Some of the sample project works (indicative only) are given against each semester.
- Instructor may design their own project and also inputs from local industry may be taken for designing such new project.
- The project should broadly cover maximum skills in the particular trade and must involve some problem solving skill. Emphasis should be on Teamwork: Knowing the power of synergy/ collaboration, work to be assigned in a group (Group of at least 4 trainees). The group should demonstrate Planning, Execution, Contribution and Application of Learning. They need to submit Project report.
- If the instructor feels that for execution of specific project more time is required than he may plan accordingly to produce components/ sub-assemblies in appropriate time i.e., may be in the previous semester or during execution of normal trade practical.

SYLLABUS - BAMBOO WORKS

SECOND SEMESTER – 06 Month

Week No.	Reference Learning outcome	Professional Skills (Trade Practical)	Professional Knowledge (Trade Theory)
27-28	Identify & select appropriate bamboo species for different industrial Handicraft products.	Selection of Bamboo Variety 36. Identify bamboo as per job requirement at practical field.	Various bamboo species and their utilization. Selection of bamboo as per job specification.
29	Design various gift items, stationery Item by free hand drawing.	Designing 37. Practice on free hand drawing. 38. Practice on Drawing of various gift items, stationery Item.	What is Design? Free hand drawing of various items.
30	Identify different computer parts; boot & operate basic functions of computer.	Basics of Computer 39. Boot the Computer, Open Windows, menus, use the mouse. 40. Create a directory in Windows. 41. Create a directory. 42. Create a File and Folder. 43. Use my documents. 44. Use start menu for opening an application. 45. Change control panel settings for display. 46. Familiarize with Key Board and Keys.	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 OS, menu system, Tool bars,.
31-32	Install & utilize AutoCAD software to prepare different shapes and design of the products.	AutoCAD 47. Menu bar. 48. AutoCAD pull down menu. 49. Standard Toolbar. 50. User Coordinate System Icon. 51. Command Line. 52. Command windows.	What is AutoCAD & its purpose
33	Make various decorative products by designing	Design practice on AutoCAD 53. Practice on Drawing of various	Design intervention on new innovative products.

	innovative gift items, stationary items models/ prototype.	gift items, stationery Item. 54. Making of Bamboo Models / Prototype. 55. Practice of making model and mock.	Different aspects of drawing How to make model and mock up Selection of Marketable Product
34-35	Select & apply different process of bending & joints in different sections like furniture, handicraft & housing etc.	56. Practice in tongue and groove or male and female joint, Bolt fastening joint. 57. Overlapping joint, U-shape joint. Horizontal joint, Vertical joint etc.	Joints: Briefing about various joints, method of joints, uses of joints.
36-37	-do-	Gift items and Jewellery 58. How to make a design of Gift item and bamboo jewelleryes /ornaments. 59. Making of Bamboo bags. 60. Making some products like tea coaster, bamboo bags, etc in workshop with the help of machines and hand tools.	Practice of bamboo ornaments and various gift items Designing of various Handicraft items Identification of suitable products as per market demand like tea coaster, bamboo bags, placemat etc. Make a process lay-out of individual products
38	-do-	Types of Furniture 61. Demo of various type of furniture. 62. Draw the Neat sketch of furniture.	Introduction: Use of various Household and Public furniture, Advantage of sketch making of various furniture designs.
39	-do-	Materials of Furniture 63. Demonstration of different material used in furniture making.	Use of Jigs& fixture. Bamboo, Cane, Wood, Nail, Adhesive, Binding wire, Plastic Rope, Nut-bolt etc.
40-41	-do-	64. Making of Bamboo Mats and Blinds. 65. Making of Bamboo Mats by using Weaving Machine and Manually. 66. Making of Bamboo Blinds.	Process of Weaving Bamboo Mats, Process of making Bamboo Blinds Different patterns of Mat and Blind.
42-43	Apply different techniques and process of making	67. Techniques and furniture making. 68. Practice of furniture making	Various joineries used in furniture making process

	various kinds of bamboo furniture.	<ul style="list-style-type: none"> (i) Sofa set; (ii) Chair; (iii) Table; (iv) Bed (v) Beach & Garden; (vi) Dining chair; (vii) Wall Chair; (viii) Swing; (ix) Relaxing Chair; (x) Centre Table 	
44	-do-	69. Selection of raw material for bamboo houses. 70. Prototype houses. 71. Structural uses of bamboo. Preservation of bamboo for structural purposes - Code of practice (IS 9096).	Architecture, Engineering and Social Housing aspects- their relevance Free hand houses design and drawing Bamboo in construction, Infrastructure, Reinforcement and Scaffolding Preservation of bamboo for structural purposes - Code of practice (IS 9096)
45	Use Jigs & fixture to make uniform size & reduce production cost	Jigs and Fixtures 72. Make various jig & fixtures as per requirement and make different products. 73. Make various moulds for making moulded Products.	What are jig and fixtures? What are the advantages of Jig & fixtures? When we use Jig & Fixtures? Materials using to make jig & fixtures.
46	Identify finishing materials & apply different methods of finishing of bamboo products.	Finishing Technique 74. Final touch on the products using finishing materials.	Various methods of finishing techniques, Various finishing materials & there uses.
47-48	Identify quality products as per market demand for production as per requirement and estimate the cost.	Quality Concern 75. Random samples are taken according to Company sampling procedures. 76. Samples are measured for specified parameters according to company technical specifications.	What is Quality concerns Sample and assess Bamboo production according to company technical specifications. Range: parameters to be specified.

49-50	Project work/ Industrial Visit (Optional) Broad areas: - <ol style="list-style-type: none"> Visit to various shops and exhibitions. Market survey in some rural / urban areas. Innovative decorative, gift and stationary items. Participating at various Exhibition, Seminar, Trade fair etc.
51	Revision
52	Examination

Note: -

- Some of the sample project works (indicative only) are given against each semester.*
- Instructor may design their own project and also inputs from local industry may be taken for designing such new project.*
- The project should broadly cover maximum skills in the particular trade and must involve some problem solving skill. Emphasis should be on Teamwork: Knowing the power of synergy/ collaboration, work to be assigned in a group (Group of at least 4 trainees). The group should demonstrate Planning, Execution, Contribution and Application of Learning. They need to submit Project report.*
- If the instructor feels that for execution of specific project more time is required than he may plan accordingly to produce components/ sub-assemblies in appropriate time i.e., may be in the previous semester or during execution of normal trade practical.*

Skill India
कौशल भारत - कुशल भारत

9. SYLLABUS - CORE SKILLS

CORE SKILL – EMPLOYABILITY SKILL		
First Semester		
1. English Literacy		Duration : 20 hrs Marks : 09
Pronunciation	Accentuation (mode of pronunciation) on simple words, Diction (use of word and speech)	
Functional Grammar	Transformation of sentences, Voice change, Change of tense, Spellings.	
Reading	Reading and understanding simple sentences about self, work and environment	
Writing	Construction of simple sentences Writing simple English	
Speaking/ Spoken English	Speaking with preparation on self, on family, on friends/ classmates, on known people, picture reading, gain confidence through role-playing and discussions on current happening, job description, asking about someone's job, habitual actions. Cardinal (fundamental) numbers, ordinal numbers. Taking messages, passing on messages and filling in message forms, Greeting and introductions, office hospitality, Resumes or curriculum vita essential parts, letters of application reference to previous communication.	
2. IT Literacy		Duration : 20 hrs Marks : 09
Basics of Computer	Introduction, Computer and its applications, Hardware and peripherals, Switching on-Starting and shutting down of the computer.	
Computer Operating System	Basics of Operating System, WINDOWS, The user interface of Windows OS, Create, Copy, Move and delete Files and Folders, Use of External memory like pen drive, CD, DVD etc. Use of Common applications.	
Word Processing and Worksheet	Basic operating of Word Processing, Creating, Opening and Closing Documents, Use of shortcuts, Creating and Editing of Text, Formatting the Text, Insertion & Creation of Tables. Printing document. Basics of Excel worksheet, understanding basic	

	commands, creating simple worksheets, understanding sample worksheets, use of simple formulas and functions, Printing of simple excel sheets.
Computer Networking and Internet	Basic of Computer Networks (using real life examples), Definitions of Local Area Network (LAN), Wide Area Network (WAN), Internet, Concept of Internet (Network of Networks), Meaning of World Wide Web (WWW), Web Browser, Web site, Web page and Search Engines. Accessing the Internet using Web Browser, Downloading and Printing Web Pages, Opening an email account and use of email. Social media sites and its implication. Information Security and antivirus tools, Do's and Don'ts in Information Security, Awareness of IT - ACT, types of cyber crimes.
3. Communication Skills	
	Duration : 15 hrs Marks : 07
Introduction to Communication Skills	Communication and its importance Principles of effective communication Types of communication - verbal, non-verbal, written, email, talking on phone. Non-verbal communication -characteristics, components-Para-language Body language Barriers to communication and dealing with barriers. Handling nervousness/ discomfort.
Listening Skills	Listening-hearing and listening, effective listening, barriers to effective listening, guidelines for effective listening. Triple- A Listening - Attitude, Attention & Adjustment. Active listening skills.
Motivational Training	Characteristics essential to achieving success. The power of positive attitude. Self awareness Importance of commitment Ethics and values Ways to motivate oneself Personal goal setting and employability planning.
Facing Interviews	Manners, etiquettes, dress code for an interview Do's & don'ts for an interview

Behavioral Skills	Problem solving Confidence building Attitude
Second Semester	
4. Entrepreneurship Skills	Duration : 15 hrs Marks : 06
Concept of Entrepreneurship	Entrepreneur - Entrepreneurship - Enterprises: Conceptual issue Entrepreneurship vs. management, Entrepreneurial motivation. Performance & record, Role & function of entrepreneurs in relation to the enterprise & relation to the economy, Source of business ideas, Entrepreneurial opportunities, The process of setting up a business.
Project Preparation & Marketing Analysis	Qualities of a good entrepreneur, SWOT and risk analysis. Concept & Application of PLC, Sales & Distribution management. Difference between small scale & large scale business, Market survey, Method of marketing, Publicity and advertisement, Marketing mix.
Institution's Support	Preparation of project. Role of various schemes and institutes for self-employment i.e. DIC, SIDA, SISI, NSIC, SIDO, Idea for financing/ non-financing support agencies to familiarize with the policies /programmes, procedure & the available scheme.
Investment Procurement	Project formation, Feasibility, Legal formalities i.e., Shop act, Estimation & costing, Investment procedure - Loan procurement - Banking processes.
5. Productivity	Duration : 10 hrs Marks : 05
Benefits	Personal/ Workman - Incentive, Production linked Bonus, Improvement in living standard.
Affecting Factors	Skills, Working aids, Automation, Environment, Motivation - How it improves or slows down productivity.
Comparison with Developed Countries	Comparative productivity in developed countries (viz. Germany, Japan and Australia) in select industries, e.g. Manufacturing, Steel, Mining, Construction etc. Living standards of those countries, wages.
Personal Finance Management	Banking processes, Handling ATM, KYC registration, safe cash handling, Personal risk and insurance.
6. Occupational Safety, Health and Environment Education	Duration : 15 hrs Marks : 06

Safety & Health	Introduction to occupational safety and health Importance of safety and health at workplace.
Occupational Hazards	Basic hazards, chemical hazards, vibro-acoustic hazards, mechanical hazards, electrical hazards, thermal hazards. Occupational health, occupational hygiene, occupational diseases/ disorders & its prevention.
Accident & Safety	Basic principles for protective equipment. Accident prevention techniques - control of accidents and safety measures.
First Aid	Care of injured & sick at the workplaces, First-aid & transportation of sick person.
Basic Provisions	Idea of basic provision legislation of India. Safety, health, welfare under legislative of India.
Ecosystem	Introduction to environment. Relationship between society and environment, ecosystem and factors causing imbalance.
Pollution	Pollution and pollutants including liquid, gaseous, solid and hazardous waste.
Energy Conservation	Conservation of energy, re-use and recycle.
Global Warming	Global warming, climate change and ozone layer depletion.
Ground Water	Hydrological cycle, ground and surface water, Conservation and harvesting of water.
Environment	Right attitude towards environment, Maintenance of in-house environment.
7. Labour Welfare Legislation	
Duration : 05 hrs Marks : 03	
Welfare Acts	Benefits guaranteed under various acts- Factories Act, Apprenticeship Act, Employees State Insurance Act (ESI), Payment Wages Act, Employees Provident Fund Act, The Workmen's Compensation Act.
8. Quality Tools	
Duration : 10 hrs Marks : 05	
Quality Consciousness	Meaning of quality, Quality characteristic.

Quality Circles	Definition, Advantage of small group activity, objectives of quality circle, Roles and function of quality circles in organization, Operation of quality circle. Approaches to starting quality circles, Steps for continuation quality circles.
Quality Management System	Idea of ISO 9000 and BIS systems and its importance in maintaining qualities.
House Keeping	Purpose of housekeeping, Practice of good housekeeping.
Quality Tools	Basic quality tools with a few examples.



Skill India
कौशल भारत - कुशल भारत

ANNEXURE-I

LIST OF TOOLS & EQUIPMENT			
BAMBOO WORKS (for Batch of 20 Candidates)			
S No.	Name of the Tools and Equipment	Specification	Quantity
A. TRAINEES TOOL KIT			
1.	Combination pliers	200 mm insulated	20 Nos.
2.	Screw driver	100 mm, 200 mm	20 Nos. each
3.	Neon Tester	500 V pencil bit type	20 Nos.
4.	Electrician knife		20 Nos.
5.	Hammer ball pin	0.25 kg	20 Nos.
6.	File round	150mm	20 Nos.
7.	Plier side cutting	200 mm	20 Nos.
8.	Plier round nose	200 mm	20 Nos.
9.	Plier flat nose	150 mm	20 Nos.
10.	Pliers long nose	200 mm	20 Nos.
11.	Hammer chisel	25 mm	20 Nos.
12.	Hammer ball pin	1.0 kg	20 Nos.
13.	Wall Jumper Octagonal mm	37 mm x 450	20 Nos.
14.	Center punch	100 mm	20 Nos.
15.	Steel measuring tape	20 mts.	20 Sets
16.	Allen keys		20 Sets
17.	Spanner double ended set of G		20 Sets
18.	Adjustable Spanner		20 Nos.
19.	Steel rule	300 mm	20 Nos.
20.	Electric soldering iron	35 w	20 Nos.
21.	Electric soldering iron	125 w	20 Nos.
LIST OF THE TOOLS AND EQUIPMENT			
22.	Rubber gloves	5000 v	4 pairs
23.	Multi meter	0-5, 100, 200, 500 mili amperes 0-100-1000 10000 ohms 0-150, 300, 600 VAC/DC	8 Nos.
24.	Tong Tester		1 No.
25.	Megger		1 No.
26.	DC Power Supply	0 V 110V/SA	1 No.

27.	Auto transformer variac	230 V	1 No.
28.	Tweezers		20 Nos.
29.	Crimping Tools		2 Sets
30.	Desktop Computer with latest configuration		10 Nos.
31.	UPS	5 KVA	1 No.
32.	Laser Printer		1 No.
33.	Scanner		1 No.
34.	Plotter		1 No.
35.	Windows-7 Operating System		10 Nos.
36.	MS Office 2010		10 Nos.
37.	Latest version of AutoCAD Software		10 Nos.
38.	Common Hacksaw		10 Nos.
39.	Adjustable Hacksaw		10 Nos.
40.	Hand saw	450 mm	05 Nos.
41.	Dhau		20 Nos.
42.	Round Knife		20 Nos.
43.	Radial Hand splitter	4.8.12.16 blades	2 Nos.
44.	Tripura Dhahu		10 Nos.
45.	Foldable knife		10 Nos.
46.	Multi purpose Knife		10 Nos.
47.	Common scissors		20 Nos.
48.	Hand drill		05 Nos.
49.	Electric Hand drill		02 Nos.
50.	IDC Gauge		10 Nos.
51.	Steel Rule		20 Nos.
52.	Folding scale		10 Nos.
53.	Bamboo Cross cutting machine(Heavy Duty)	Pneumatic type job clamping and automatic cutter feeding system, 2 H.P Motor, Starter should be ISI/ISO make and Carbide tipped circular Saw 400 MM. x 120 teeth, spindle speed in revolution per minutes:2700 RPM, conveyor length of intake system – 4 metres and length of output system -03 metres, cutting capacity- 150 mm, size approximately- 33" x 16" 54"	01 No.

54.	Bamboo Portable crosscutting m/c	01 HP 3 PH 1440 RPM ISI/ISO make Motor, Starter and Carbide tipped circular Saw dia: 300 mm, Cutting capacity- 100 mm, production capacity- 8500 stroke in 08 hrs. Bamboo clamping- half round fixing attachment to hold the Bamboo, Safety Guard- Double safety cover to protect the Circular saw while working, Extension table- attached to hold long Bamboo, Length mark-fixed to mark as per required length, Bamboo holding fence – Provide both side metal fence that cut bamboo can keep in one place.	01 No.
55.	Bamboo Radial splitting m/c (Chain type)	Auto Splitter type, Splitter Dia.-10" , Divination of Splitter 6, 8 AND 12 Feeding –Auto chain drive – 1" width, 7.5 HP 3 PH ISI make motor, Drive- by double side heavy duty chain, Max. Working length 12 feet, Safety guard- both side chain safety guard for safe working, Tail post- 200mm dia. gauge plate and 150 mm screw, Splitter hanger- fixed, Size appx. (LxWxH)- 222" x 35" x 50"	01 No.
56.	Bamboo Round Stick Making Machine	4 Motor machine 12HP, ISI /ISO make motors with control panel and variable feed facility and a set of CNC tungsten carbide tipped cutters, Max. Size of sticks: 4 MM, Min. 1.3 mm, Machine dimension 52"x	01 No.

		28" x 35'inches, Cutter set of 3mm provided	
57.	Bamboo Square Stick Making Machine	Including cutter and 2 H.P motor with starter ISI/ISO make, Dia. Of Cutter:78 mm, production size min. 1mm square to 6mm or higher, Size- appx. 0.6 x 0.6 x 1.2 metres,	01 No.
58.	Bamboo Stick Polishing Machine	Including 2 HP motor and starter ISI/ISO make, spindle speed 90 RPM. Polishing length: 210 – 780 mm	01 No.
59.	Bamboo Slicing Machine (Heavy Duty)	Including 2 H.P. Motor, Starter And An Extra Chisel, Heavy duty gearbox with three set of rollers for better holding	01 No.
60.	Bamboo Stick Sizing Machine	Stick sizing machine, Including Motor: 1HP with starter ISO/ISI make, Size: L- 74" x W-24" x H-35" inches.	01 No.
61.	Bamboo Double Side Cutting Machine, Parallel Splitter	Including Carbide Tipped Circular Saws 250 Mm.x48 Teethx4 Nos. and 7.5 H.P. Motor And Starter Machine uses flexible clamping system for variety of bamboo. Capacity to hold bamboo from 2inch to 4 inch diameter. Movement of slide on Dust proof LM guides with scrappers	01 No.
62.	Bamboo Two Side Planing cum Sizing Machine	Including motors (2HP- 02nos. And 3 HP- 1nos.), gear box, control panel, starter ISI/ISO make with carbide tipped planning cutter 02 nos. Outer dia- 100mm, bore-25.4 mm, width-35mm, slicing chisel-	01 No.

		01 no., chisels and extra set for internal knot removing pry. 1 no., final 1no. width sizing chisel 02 nos., Max. Width of bamboo strip :25 mm	
63.	Bamboo Four Side Planing Machine	Including 3HP x 04 nos. and 2HP – 1 nos.. 4 spindle four side planning machine along with dust collector system of four bags motors ISI/ISO make with set of Starter and a set of carbide tipped two side planning cutters, Max. Width 35 mm and thickness 20mm.	01 No.
64.	Bamboo Treatment Plant	Vacuum pressure based Bamboo treatment tank without leaks. For treating bamboo upto a length of 8 feet using vacuum, pressure and filling pump. Machine with water storage tank and easy system for bamboo removal	01 No.
65.	Bamboo Dying Tank	Stainless Steel make 304/316 gauge sheet metal size L-8' x w-2' x H-1 feet,	01 No.
66.	Bamboo knot removing machine	Including 3 H.P. Motor, Starter and Carbide Tipped External Knot Removing Cutter.	01 No.
67.	Manual Slivering machine	Slicing Thickness: min. 0.5 mm – 2 mm, Accuracy:- product material dimension should be give appx. Including handle and bolt system for fixing on stand	01 No.
68.	Universal Grinding machine	Motor with starter ISO/ISI make, and set of various type of cutter & Grinding wheel, M/c weight not less than 300 Kgs and sizes may	01 No.

		appx. L-53" x W-32" x H-48" inch.	
69.	Table grinding machine	Surface Grinding Machine, Grinding Capacity L-610 x W-127 x H-16 MM Grinder size Outer dia150mm x Inner dia100mm x Hole dia25.4 mm, Grinder speed 3300 r.p.m, Motors 2HP+1/4HP+1/8HP, make ISO/ISI , Size may L47" x W37" x H53" inch. Accuracy:- product material dimension should be give appx. Tolerance +/- 0.05 mm. with grinding wheel set for fine and coarse grinding	01 No.
70.	Machine saw	Circular saw machine for cutting capacity: 150mm using TCT saw and 3Hp motor and a cast iron heavy duty table with up down system	01 No.
71.	Machine planner	Surface and thickness planner 24" working along with four feeding rollers for easy material feeding. Top table with depth of cut adjustment. Motor power 5HP + 2 HP	01 No.
72.	Lathe machine		01 No.
73.	Hand Gloves	Highly tear and wear resistant type	20 Nos.
74.	Portable sanding machine	Bosch or hitachi or makita of similar make hand held type. 5 nos. extra discs	01 No.
75.	Spray Gun	Standard size machine for various color making on bamboo designed product with all accessories set	05 Nos.
76.	Dying Chamber	Automatic Drying system using Automatic	01 No.

		temperature and Humidity controllers. Electrical heaters and Dehumidifications system using dual compressor based process for moisture absorption. The process is by burning bamboo or wood waste machine can produce vaporized firepower to dry bamboo & wood ware. The hot Air temperature is kept at 10 degree to 55 degree Centigrade or higher with reading temperature meter	
77.	Resign Applicator	Leak proof tank make Stainless Steel with hand operated screw for tank and standard sized. Tank size 3' x 6' with 1 feet depth	01 No.
78.	Glue mixing machine	Including 1 HP+2 HP 2/1 motors ISI/ISO mark with starter and min. Size: appx. L65 x W64 x H52	01 No.
79.	Hydraulic Press Machine	(4' X2') (Maximum pressure required 45 kg/cm ²) Automatic press with Touch panel operation for system parameter setting. Synchronised cycle operation system as per requirement and set on the touch screen. Machine can press mats or Bamboo strips are hydraulically laminated together with 20-25kg/cm ² pressure from top and side pressure at around 100C, Working table:1250 x 650mm, Power	01 No.

		<p>requirement: 20-25HP</p> <p>Alignment and pressing setting for side pressure</p> <p>Thickness of board required can be changes</p> <p>Hydraulic Power Pack with automatic pressure control manometer and electrical heating</p> <p>Maximum gap between platens – 150 mm.</p> <p>Hydraulic Power Pack with automatic pressure control manometer</p> <p>Safety features like proximity switches, Limit switches, Guards</p> <p>Ergonomically designed remote buttons</p> <p>Machine designed, manufactured and sold by an ISO 9001:2008 Certified company, Certifying agency must be NABCB, Government of India approved for the purpose</p>	
80.	DD Saw		01 No.
81.	Steam Boiler with accessories	250 Kg steam/hr.	01 No.
82.	Spade		10 No.
83.	Steel float		10 No.
84.	Spirit level	30 cm long	10 No.
85.	Chisel	25clong hammer	10 No.
86.	Ladder aluminum	30 m	01 No.
87.	Bench vice		05 Nos.

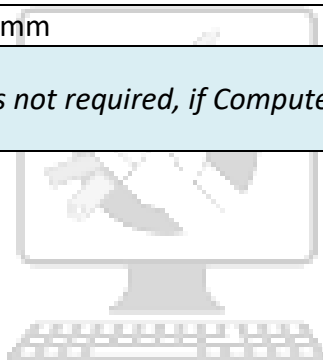
88.	C. Clamp		01 No.
89.	Gloves Canvas		10 No.
90.	Grinding machine with various polishing stones		01 No.
91.	Brush for painting		10 Nos.
92.	Drawing board with facility of parallel bar		10 Nos.
93.	Mini drafter		20 Nos.
94.	Erasing shield small size		20 Nos.
95.	Automatic weaving machine		01 No.
96.	Pneumatic Nailer		01 No.
97.	Gas torch		10 Nos.
98.	Wood turning lathe	6'	02 Nos.
99.	Table Grinding machine	8"	02 Nos.
100.	Industrial Sewing Machine		04 Nos.
101.	Bamboo Tool kit boxes including 24 Nos. various kits		20 Nos.
102.	Clamps for holding or tightening the jobs		10 Nos.
103.	Manual ball press machine		04 Nos.
104.	Sizing machine for window blinds		01 No.
105.	Compressor	300 lbs	02 Nos.
106.	Manual Slivering Machine		04 Nos.
107.	Automatic Slivering Machine		02 Nos.
108.	Portable Planner		02 Nos.
109.	Various Mould for making moulded Furniture		As required
110.	Portable rip saw		04 Nos.
111.	Mitre saw		02 Nos.
112.	Universal Planner		01 No.
Workshop furniture			
113.	Suitable Work Tables - Wood		04 Nos.
114.	Stools		17 Nos.
115.	"A" design stand frame for Dhau stand used		20 Nos
116.	Discussion Table		01 Nos.
117.	Tool Cabinet		02 Nos.
118.	Trainees locker with		20 Nos
119.	Firefighting equipment, first aid box etc.		05 Nos.
120.	Book Shelf (Glass panel)		01 No.
121.	Storage Rack		02 Nos.

Furniture -Computer Lab			
122.	Suitable Computer Tables		10 Nos.
123.	Computer Chairs		20 Nos.
124.	Tool Cabinet		02 Nos.
125.	Trainees Locker with		20 Nos.
126.	Book Shelf (Glass panel)		01 No.
127.	Shoes Rack		04 Nos.
128.	Vacuum cleaner		01 No.
Note: All the tools and equipment are to be procured as per BIS specification.			



LIST OF CONSUMABLE MATERIALS			
Sl. no.	Consumable materials	Quantity	Specifications
1.	Bamboo (Raw Green)	As per required	Bambusa balcooa, Bambusa polymorpha, Bambusa tulda, Bambusa nutans, Bambusa pallida, Bambusa cacharensis, Dendrocalamus longispathus, Neohuzeaua dullooa, Dendrocalamus hamiltonii, Thyrsostchys oliveri, Dendrocalamus giganteus, Melocanna baccifera, Bambusa spp. And as per available local species bamboo use.
2.	Chemicals	As per required	Borax, Boric Acid, CCB, CCA, Acetic Acid, Sodium Pentachlorophenate, Glue, Boliden salts(S-25), etc
3.	Finishing	As per required	Wooden Pencil (HB), Fevical(Adhesive), Strainer, Lacquer, Melamine, K.Oil, LPG, Dry colours, brush different side, polishing paper or sand paper (60/80/100/120), steel nail/other nail, etc
4.	Plastic tubs / buckets	As per required	Plastic buckets size – 10 to 15 liters Plastic buckets size – 1 liters with handle
5.	Lab material	As per required	Mask, Eyes safety glass, Apron, Hand wash (Dettol), Cotton cloths, Industrial hand glass & Shoes, First aid kit box and other safety items
6.	Theory / Practical material	As per required	Board marker or White board marker(Three Colours), Drawing sheet, Drawing tools

TOOLS & EQUIPMENTS FOR EMPLOYABILITY SKILLS		
S No.	Name of the Equipment	Quantity
1.	Computer (PC) with latest configurations and Internet connection with standard operating system and standard word processor and worksheet software.	10 Nos.
2.	UPS - 500VA	10 Nos.
3.	Scanner cum Printer	01 No.
4.	Computer Tables	10 Nos.
5.	Computer Chairs	20 Nos.
6.	LCD Projector	01 No.
7.	White Board 1200mm x 900mm	01 No.
Note: Above Tools & Equipments not required, if Computer LAB is available in the institute.		



Skill India
कौशल भारत - कुशल भारत

FORMAT FOR INTERNAL ASSESSMENT

Name & Address of the Assessor:						Year of Enrollment:								
Name & Address of ITI (Govt./Pvt.):						Date of Assessment:								
Name & Address of the Industry:						Assessment location: Industry/ ITI								
Trade Name:			Semester:			Duration of the Trade/course:								
Learning Outcome:														
S No.	Maximum Marks (Total 100 Marks)		15	5	10	5	10	10	5	10	15	15	Total Internal Assessment Marks	Result (Y/N)
	Candidate Name	Father's/Mother's Name	Safety Consciousness	Workplace Hygiene	Attendance/ Punctuality	Ability to Follow Manuals/ Written Instructions	Application of Knowledge	Skills to Handle Tools & Equipment	Economical Use of Materials	Speed in Doing Work	Quality in Workmanship	VIVA		
1														
2														