

# **Model Curriculum**

## **Lead Furniture Maker-Bamboo (Option: Round Bamboo Furniture Maker)**

**SECTOR: FURNITURE & FITTINGS**  
**SUB-SECTOR: Cane and Bamboo Furniture**  
**OCCUPATION: Furniture Making**  
**REF ID: FFS/Q4102, V1.0**  
**NSQF LEVEL: 4**

## Certificate

### CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

**FURNITURE & FITTINGS SKILLS COUNCIL**

for

### MODEL CURRICULUM

Complying to National Occupational Standards of

Job Role/ Qualification Pack: '**Lead Furniture Maker- Bamboo (Option: Round Bamboo Furniture Maker)**'

QP No. '**FFS/Q4102 NSQF Level 4**'

Date of Issuance: August 22<sup>nd</sup>, 2019

Valid up to\*: September 22<sup>nd</sup>, 2022

\*Valid up to the next review date of the Qualification Pack



Authorized Signatory  
(Furniture & Fittings Skill Council)

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# Lead Furniture Maker- FFSQ4102

## CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Lead Furniture Maker- Bamboo (Option: Round Bamboo Furniture Maker) FFS/Q4102”, in the “Furniture & Fittings” Sector/Industry and aims at building the following key competencies amongst the learner.

<b>Program Name</b>	<b>Lead Furniture Maker-Bamboo (Option: Round Bamboo Furniture Maker) FFSQ4102</b>		
<b>Qualification Pack Name &amp; Reference ID</b>	FFS/Q4102, v1.0		
<b>Version No.</b>	1.0	<b>Version Update Date</b>	12-07-2017
<b>Pre-requisites to Training</b>	Class VIII		
<b>Training Outcomes</b>	<p><b>After completing this programme, participants will be able to:</b></p> <ul style="list-style-type: none"> <li>• <b>Perform his/ her job:</b> He/she will understand the job role, importance of the furniture maker with respect to the furniture industry, potential and prospects of furniture maker in the industry. He/she will make full range of rough and finished bamboo products.</li> <li>• <b>Identify basic tools, equipment and materials:</b> He/she effectively identify, select and use the specified tools and equipment relevant to carpentry works.</li> <li>• <b>Carry out the cutting, trimming and processing of bamboo:</b> He /she is able to identify the right kind of material, can cut, trim &amp; process the identified bamboo according to the designs/ sketches</li> <li>• <b>Carry out assembling of different parts of the bamboo furniture:</b> Joining the cut and trimmed bamboo parts/ components as per the given lay out, right use of adhesives, fixtures etc. for making the final product</li> <li>• <b>Maintain the work area, tools and equipment:</b> He/she appropriately use tools, equipment and organize the work area</li> <li>• <b>Maintain environment, health and safety:</b> He/she will get well versed with health and safety measures in terms of personal and equipment safety</li> <li>• <b>Work effectively with others:</b> He/she will work effectively with stakeholder and others</li> </ul>		

This course encompasses 5 out of 5 **Compulsory** NOS (National Occupational Standards), 2 out of 2 **Optional NOS** of “Lead Furniture Maker-Bamboo (Option: Round Bamboo Furniture Maker) - FFS/Q4102” Qualification Pack issued by “Furniture & Fittings Skill Council”.

Sr No	Module	Key Learning Outcomes	Equipment required
1	<b>Introduction</b>  <b>Theory Duration</b> (hh:mm) 08:00  <b>Practical Duration</b> (hh:mm) 00:00  <b>Corresponding NOS Code</b> Bridge Module	<ul style="list-style-type: none"> <li>Maintain discipline in the class room</li> <li>Explain the role of a Lead Furniture Maker-Bamboo and its job opportunities</li> <li>Explain scope of furniture &amp; fittings industry</li> </ul>	1XBlackboard, chalk, 2 packet, duster 1 pc.
2	<b>Understanding the organizational context/ company/ employer</b>  <b>Theory Duration</b> (hh:mm) 08:00  <b>Practical Duration</b> (hh:mm) 00:00  <b>Corresponding NOS Code</b> FFS/N4103	<ul style="list-style-type: none"> <li>Acquire knowledge to understand the codes, standards, policies, manuals, rules and regulation of the organization</li> <li>Contact the concerned persons in case of queries on procedures, products, any problem</li> <li>Explain the escalation procedure within organization</li> </ul>	1XBlackboard, chalk 2 packet, duster 1 pc.
3	<b>Ensuring health and safety at workplace</b>  <b>Theory Duration</b> (hh:mm) 04:00  <b>Practical Duration</b> (hh:mm) 04:00  <b>Corresponding NOS Code</b> FFS/N8601	<ul style="list-style-type: none"> <li>Work safely by complying relevant guidelines</li> <li>Assess the worksite for any possible health and safety hazards</li> <li>Follow instructions of manufacturer related to safe use of materials specifically chemicals and power equipment</li> <li>Ensure safe handling and disposal of waste and debris</li> <li>Identify and report of any hazards and potential risks to supervisor or other authorized personnel</li> <li>Undertake first aid activities in case of any accident</li> <li>Demonstrate use of appropriate personal protective equipment</li> </ul>	1XBlackboard, chalk 2 packet, duster 1 pc.  Personal protective equipment gloves, safety shoes, earplugs, goggles, nose mask, first aid, different types of fire extinguisher

		<p>compatible to the work and compliant to relevant occupational health and safety guidelines</p> <ul style="list-style-type: none"> <li>• Maintain correct body posture while standing and working for long hours and also while carrying heavy materials</li> <li>• Know about lifting, carrying or moving heavy wooden furniture and accessories from one place to another using appropriate safe working practices</li> <li>• Handle all required tools, machines, materials and equipment safely</li> <li>• Adhere to relevant occupational safety procedures while handling sharp tools, glass, heavy wood, and chemicals</li> <li>• Apply good housekeeping practices always by keeping the work area tidy</li> <li>• Report of accident to authorized person</li> </ul>	
4	<p><b>Dealing with emergencies</b></p> <p><b>Theory Duration</b> (hh:mm) 04:00</p> <p><b>Practical Duration</b> (hh:mm) 04:00</p> <p><b>Corresponding NOS Code</b> FFS/N8601</p>	<ul style="list-style-type: none"> <li>• Follow appropriate procedure in case of fire</li> <li>• Follow the electrical safety measures while working with electrical power tools and equipment</li> <li>• Follow the evacuation procedure in the event of an emergency or an accident, fire, natural calamity</li> <li>• Check and ensure general health and safety equipment are available at site</li> <li>• Describe the use of general health and safety equipment</li> <li>• Comply with restrictions imposed on harmful chemicals during working hours</li> <li>• Know the correct rescue techniques during fire hazard</li> <li>• Demonstrate good housekeeping in order to prevent any accident</li> <li>• Demonstrate the correct use of a fire extinguisher</li> <li>• Respond promptly and appropriately to an accident situation or medical emergency</li> <li>• Know the methods of accident prevention in the working area</li> </ul>	<p>1XBlackboard, chalk 2 packet, duster 1 pc</p> <p>Personal protective equipment gloves, safety shoes, earplugs, goggles, nose mask, first aid, different types of fire extinguisher</p> <p>Gloves, safety shoes, earplugs, goggles, nose mask</p>
5	<p><b>Interaction with seniors</b></p> <p><b>Theory Duration</b> (hh:mm) 04:00</p>	<ul style="list-style-type: none"> <li>• Seek and obtain clarifications on policies from the supervisor or other authorized personnel</li> <li>• Identify and report any deviations to appropriate authority</li> <li>• Address the problems effectively and report if required to immediate</li> </ul>	<p>1XBlackboard, chalk 2 packet, duster 1 pc</p>

	<b>Practical Duration</b> (hh:mm) 04:00  <b>Corresponding NOS Code</b> FFS/N8801	supervisor <ul style="list-style-type: none"> <li>Seek instructions from supervisor and respond effectively on the same</li> <li>Follow escalation matrix in case of any grievance</li> </ul>	
6	<b>Work effectively</b>  <b>Theory Duration</b> (hh:mm) 04:00  <b>Practical Duration</b> (hh:mm) 04:00  <b>Corresponding NOS Code</b> FFS/N8801	<ul style="list-style-type: none"> <li>Coordinate and cooperate with colleagues to achieve work objectives</li> <li>Display courteous behaviour</li> <li>Respond politely to customer queries and team members</li> <li>Follow dress code at work place</li> <li>Keep work area in a tidy and organized manner</li> <li>Adhere to timeline and quality standards</li> <li>Follow organizational policies and procedures</li> <li>Share information with team wherever and whenever required to enhance quality and productivity at work place</li> <li>Work together with co-workers in a synchronized manner</li> <li>Communicate with others clearly, at a pace and in a manner that helps them to understand</li> <li>Show respect to others and their work</li> <li>Display active listening skills while interacting with others at work</li> </ul>	1XBlackboard, chalk 2 packet, duster 1 pc
7	<b>Understanding the work requirement</b>  <b>Theory Duration</b> (hh:mm) 08:00  <b>Practical Duration</b> (hh:mm) 04:00  <b>Corresponding NOS Code</b> FFS/N4103	<ul style="list-style-type: none"> <li>Obtain job instructions from responsible personnel</li> <li>Follow the client requirement</li> <li>Confirm that the given instructions and design are complete and correct</li> <li>Plan out an efficient sequence of work as per the job requirement and specification</li> </ul>	1XBlackboard, chalk 2 packet, duster 1 pc
8	<b>Prepare work area for bamboo furniture making</b>  <b>Theory Duration</b> (hh:mm) 04:00	<ul style="list-style-type: none"> <li>Read and understand the instructions and designs</li> <li>Obtain appropriate materials and tools suitable to carry out marking activities</li> <li>Find any shortage or defect of tools and materials and communicate to the concerned person</li> </ul>	1XBlackboard, chalk 2 packet, duster 1 pc Hand Tools: dado, chisel set, dropping knife, width seizers, scissors, hammer, round planer/

	<p><b>Practical Duration</b> (hh:mm) 12:00</p> <p><b>Corresponding NOS Code</b> FFS/N4103</p>	<ul style="list-style-type: none"> <li>• Check the selected tools and machines</li> <li>• Inspect bamboo visually for any defects</li> <li>• Check bamboo for treatment against insects, fungus and other weather exposures</li> <li>• Check the bamboo for any splits that can affect the furniture strength and making process</li> </ul>	<p>knot remover, scrapper, blow torch, thicknesser, hand plane, V-shaped knifer, pointed knifer, mallet, wood saw, hacksaw, pliers, hand drill, bits, sand container, pencil, marker, measuring tape, steel rule etc.</p> <p>Power Tools: power saw, power drill, hand cutting machine, hand splicer, surface planer, trowel, tumbler, etc.</p> <p>Material: treated bamboo of required diameter, adhesive, sand paper, nails, cane (3-4 mm for binding), wood pegs, bending wire, nut bolt etc.</p> <p>Personal protective equipment Gloves, safety shoes, earplugs, goggles, nose mask etc.</p>
9	<p><b>Read and interpret sketches, drawings and designs</b></p> <p><b>Theory Duration</b> (hh:mm) 08:00</p> <p><b>Practical Duration</b> (hh:mm) 24:00</p> <p><b>Corresponding NOS Code</b> FFS/N4103</p>	<ul style="list-style-type: none"> <li>• Interpret the details from drawings relevant to furniture making</li> <li>• Interpret manufacturer's specification of material and its uses</li> </ul>	<p>1XBlackboard, chalk 2 packet, duster 1 pc</p>
10	<p><b>Prepare cost estimates</b></p> <p><b>Theory Duration</b> (hh:mm) 08:00</p> <p><b>Practical Duration</b> (hh:mm) 16:00</p>	<ul style="list-style-type: none"> <li>• Interact with client to decide on procurement of material</li> <li>• Finalize the cost considering furniture styles, durability, patterns, comfort, and appearance</li> <li>• Prepare and provide cost estimate to the client after evaluating various factors</li> </ul>	<p>1XBlackboard, chalk 2 packet, duster 1 pc</p>



	<p><b>Corresponding NOS Code</b> FFS/N4103</p>		
11	<p><b>Measuring, marking and cutting bamboo</b></p> <p><b>Theory Duration</b> (hh:mm) 08:00</p> <p><b>Practical Duration</b> (hh:mm) 28:00</p> <p><b>Corresponding NOS Code</b> FFS/N4104</p>	<ul style="list-style-type: none"> <li>Understand the correctness of instructions and design</li> <li>Get appropriate materials and tools suitable to carry out marking activities</li> <li>Identify the surfaces and dimensions as per the drawing</li> <li>Take the size of the furniture component from the design</li> <li>Make marks as per drawing specification</li> <li>Hold the pieces correctly to take measurements</li> <li>Calculate height and width as per design</li> <li>Carry out marking activities using templates</li> <li>Cut bamboo culms in different sizes using cutting machine as per markings and design specification</li> <li>Minimise waste by following correct cutting techniques</li> </ul>	<p>1XBlackboard, chalk 2 packet, duster 1 pc, pencil, pen, ruler, bamboo pieces</p> <p><b>Hand Tools:</b> dado, chisel set, dropping knife, width seizers, scissors, hammer, round planer/knot remover, scrapper, blow torch, vice, grinder, , hand plane, V-shaped knife, pointed knife, mallet, wood saw, hacksaw, pliers, hand drill and bits, sand container, pencil, marker, measuring tape, steel rule, staple gun etc.</p> <p><b>Power Tools:</b> power saw, power drill, hand cutting machine, hand splicer, surface planer, trowel, tumbler, etc.</p> <p>Material: e.g. treated bamboo of required diameter, adhesive, sand paper, nails, cane (3-4mm for binding), wood pegs, bending wire, nut bolt etc.</p> <p>Personal protective equipment Gloves, safety shoes, earplugs, goggles, nose mask etc.</p>
12	<p><b>Making bamboo furniture components</b></p> <p><b>Theory Duration</b> (hh:mm) 04:00</p> <p><b>Practical Duration</b> (hh:mm) 34:00</p> <p><b>Corresponding NOS Code</b> FFS/N4104</p>	<ul style="list-style-type: none"> <li>Learn use of power tools and carry material suitable for the given tasks</li> <li>Procure material as per furniture component requirement and design specification</li> <li>Make different furniture components from bamboo</li> <li>Make leg poles by using appropriate technique</li> <li>Make bent mortise using appropriate technique</li> <li>Make surface support battens from bamboo culms of appropriate thickness for strength as per design specification</li> </ul>	<p>1XBlackboard, chalk 2 packet, duster 1 pc, pencil, pen, ruler, bamboo pieces</p> <p><b>Hand Tools:</b> dado, chisel set, dropping knife, width seizers, scissors, hammer, round planer/knot remover, scrapper, blow torch, vice, grinder, , hand plane, V-shaped knife, pointed knife, mallet, wood saw, hacksaw, pliers, hand drill and bits,</p>

		<ul style="list-style-type: none"> <li>Make flattened bamboo surface mat board manually using appropriate technique</li> </ul>	<p>sand container, pencil, marker, measuring tape, steel rule, staple gun etc.</p> <p><b>Power Tools:</b>. power saw, power drill, hand cutting machine, hand splicer, surface planer, trowel, tumbler, etc. Material: e.g. treated bamboo of required diameter, adhesive, sand paper, nails, cane (3-4mm for binding), wood pegs, bending wire, nut bolt etc.</p> <p>Personal protective equipment Gloves, safety shoes, earplugs, goggles, nose mask etc.</p>
13	<p><b>Assembling and Joining</b></p> <p><b>Theory Duration</b> (hh:mm) 04:00</p> <p><b>Practical Duration</b> (hh:mm) 28:00</p> <p><b>Corresponding NOS Code</b> FFS/N4104</p>	<ul style="list-style-type: none"> <li>Make different kinds of joinery components of bamboo to assemble bamboo furniture like plug joint, pin joint, U-cut joint, C-shaped joint, flat spokes, round spokes etc.</li> <li>Make joints pin for furniture joining</li> <li>Make bamboo plugs to be used for joining that tightly fit in the cavity of the leg poles</li> <li>Make pointed bamboo nails for furniture joining by tapering the bamboo</li> <li>Make dowels of bamboo or wood for assembling furniture</li> <li>Make different kind of bamboo joints and connections Identify and make different joints using various techniques</li> <li>Join bamboo using different lashing techniques</li> <li>Adjust the surface strips across the batons and fix them with nails or weave them together with fibre, removing any surplus material</li> <li>Assemble furniture using cane and nail fitting</li> <li>Assemble furniture using hollow bamboo joining technique</li> <li>Fix leg poles with the support of bend mortise grooves using appropriate technique</li> <li>Fix the supporting poles to the leg poles as per design specification using</li> </ul>	<p>1XBlackboard, chalk 2 packet, duster 1 pc, pencil, pen, ruler, bamboo pieces</p> <p><b>Hand Tools:</b> e.g. dado, chisel set, dropping knife, width seizers, scissors, hammer, round planer/knot remover, scrapper, blow torch, vice, grinder, , hand plane, V-shaped knife, pointed knife, mallet, wood saw, hacksaw, pliers, hand drill and bits, sand container, pencil, marker, measuring tape, steel rule, staple gun etc.</p> <p><b>Power Tools:</b> e.g. power saw, power drill, hand cutting machine, hand splicer, surface planer, trowel, tumbler, etc. Material: e.g. treated bamboo of required diameter, adhesive, sand paper, nails, cane (3-4mm for binding), wood pegs, bending wire, nut bolt etc.</p> <p>Personal protective</p>

		<ul style="list-style-type: none"> <li>various joining techniques</li> <li>Fix the batons to the frame using nails, preferably made of bamboo</li> <li>Assemble back rest and back rest support</li> <li>Sand the surface for smoothness</li> <li>Seal the joints neatly with glue/adhesive</li> </ul>	<p>equipment</p> <p>Gloves, safety shoes, earplugs, goggles, nose mask etc.</p>
14	<p><b>Quality check at different stages of bamboo furniture making</b></p> <p>(hh:mm) 04:00</p> <p><b>Practical Duration</b> (hh:mm) 28:00</p> <p><b>Corresponding NOS Code</b> FFS/N8401</p>	<ul style="list-style-type: none"> <li>Check and use raw material as per the specified quality standards</li> <li>Identify defects and communicate to the appropriate personnel</li> <li>Check for any irregularities like splinters, protruding nails, cracks and unwanted cavities</li> <li>Check for symmetry and right angles</li> <li>Check for structural strength by applying load on furniture made</li> <li>Identify amendable or adjustable defects and modify them</li> <li>Carry out quality checks at specified intervals according to instructions</li> <li>Check and ensure that the final finish of the product is as per client requirement and design specification</li> <li>Take appropriate action for fault rectification</li> <li>Check for appropriate moisture content in bamboo for quality processing</li> <li>Check the quality of mat boards prepared</li> </ul>	<p>Recommended power tools for cutting, trimming, drilling etc., implements, moulds, jigs, fixtures, holding tools like clamps, working table</p>
	<p><b>COMPULSORY NOS:</b></p> <p><b>Total Duration</b> <b>270:00</b></p> <p><b>Theory Duration</b> <b>80:00</b></p> <p><b>Practical Duration</b> <b>190:00</b></p>	<p><b>Unique Equipment Required for the QP:</b></p> <ul style="list-style-type: none"> <li>1XBlackboard, Chalk 2 Packet, Duster 1 pc</li> <li>Personal protective equipment, gloves, earplugs, goggles, nose mask, safety shoes, measurement tools, planning tools, Sawing tools, testing tools, chipping tools, holding tools, boring tools</li> </ul> <p><b>Hand Tools:</b> dado, chisel set, dropping knife, width seizers, scissors, hammer, round planer/knot remover, scrapper, blow torch, vice, grinder, , hand plane, V-shaped knife, pointed knife, mallet, wood saw, hacksaw, pliers, hand drill and bits, sand container, pencil, marker, measuring tape, steel rule, staple gun etc.</p> <p><b>Power Tools:</b> power saw, power drill, hand cutting machine, hand splicer, surface planer, trowel, tumbler, etc. Material: e.g. treated bamboo of required diameter, adhesive, sand paper, nails, cane (3-4mm for binding), wood pegs, bending wire, nut bolt etc.</p>	

**OPTIONS (Optional to choose any or all or none)**
**OPTION 1: Round Bamboo Furniture Maker**

Sr No	Module	Key Learning Outcomes	Equipment required
1	<b>Understanding the work requirement</b>  <b>Theory Duration</b> (hh:mm) 02:00 <b>Practical Duration</b> (hh:mm) 04:00  <b>Corresponding NOS Code</b> FFS/N4101	<ul style="list-style-type: none"> <li>Analyse job instructions</li> <li>Analyse the client requirement</li> <li>Confirm that the given instructions and design are complete and correct</li> <li>Plan out an efficient sequence of work as per the job requirement and specification</li> </ul>	<p>Hand Tools: Dado, chisel set, dropping knife, width seizers, scissors, hammer, round planer/knot remover, scrapper, blow torch, vice, grinder, , hand plane, V-shaped knife, pointed knife, mallet, wood saw, hacksaw, pliers, hand drill and bits, sand container, pencil, marker, measuring tape, steel rule, staple gun etc.</p> <p>Power Tools: Power saw, power drill, hand cutting machine, hand splicer, surface planer, trowel, tumbler, etc.</p> <p>Other tools: Bamboo cross cutting machine, hand held bamboo splitter, hot air gun, edge trimmer machine, hand engraver machine, stand drill machine, stand zig saw, chalk liner etc</p> <p>Material: Treated bamboo of required diameter, adhesive, sand paper, nails, cane (3-4mm for binding), wood pegs, bending wire, nut bolt</p>
2	<b>Prepare work area for furniture making</b>  <b>Theory Duration</b> (hh:mm) 02:00  <b>Practical Duration</b> (hh:mm) 04:00	<ul style="list-style-type: none"> <li>Obtain appropriate hand tools, power tools and material suitable to carry out the given tasks</li> <li>Report on any shortage or defect of tools and materials to the concerned person before commencement of work</li> <li>Check that the selected tools &amp; machines are in safe working condition and ready for use</li> <li>Check the bamboo for treatment against insects, fungus and other weather exposures</li> </ul>	<p>Hand Tools: Dado, chisel set, dropping knife, width seizers, scissors, hammer, round planer/knot remover, scrapper, blow torch, thicknesser, hand plane, V-shaped knifer, pointed knife, mallet, wood saw, hacksaw, pliers, hand drill, bits, sand container, pencil, marker,</p>



	<b>Practical Duration</b> (hh:mm) 12:00  <b>Corresponding NOS Code</b> FFS/N4101	factors	
5	<b>Carry out marking activities</b>  <b>Theory Duration</b> (hh:mm) 04:00  <b>Practical Duration</b> (hh:mm) 08:00  <b>Corresponding NOS Code</b> FFS/N4102	<ul style="list-style-type: none"> <li>• Read and confirm that the given instructions and design are correct</li> <li>• Collect appropriate materials and tools suitable to carry out marking activities</li> <li>• Identify the surfaces and dimensions as per the drawing</li> <li>• Take the size of the furniture component from the design and mark the same on bamboo culms</li> <li>• Make markings using pencil and ruler or measuring tape as per drawing specification</li> <li>• Hold the pieces correctly to take measurements</li> <li>• Calculate height and width as per design</li> <li>• Carry out marking activities using templates</li> <li>• Carry out markings to guide activities of subordinates for cutting</li> </ul>	
6	<b>Making round bamboo furniture</b>  <b>Theory Duration</b> (hh:mm) 04:00  <b>Practical Duration</b> (hh:mm) 10:00  <b>Corresponding NOS Code</b> FFS/N4102	<ul style="list-style-type: none"> <li>• Select appropriate hand tools, power tools and material suitable to carry out the given tasks</li> <li>• Procure material as per furniture component requirement and design specification</li> <li>• Cut bamboo culms in different sizes using cutting machine as per markings and design specification</li> <li>• Check and ensure that the cut pieces are as per given specification and quality</li> <li>• Minimize waste by following correct cutting techniques</li> <li>• Drill holes in bamboo as per design specification using drill machine</li> <li>• Make furniture frame by inserting frame rails into drilled holes</li> <li>• Join furniture frame using adhesive and pegs</li> <li>• Assemble furniture components using hollow bamboo joining technique</li> <li>• Perform binding of joints using cane and nail fitting</li> <li>• Join bamboo using different lashing techniques</li> <li>• Weave the seat, back and other parts</li> </ul>	<p>Hand Tools: Dado, chisel set, dropping knife, width seizers, scissors, hammer, round planer/knot remover, scrapper, blow torch, vice, grinder, , hand plane, V-shaped knife, pointed knife, mallet, wood saw, hacksaw, pliers, hand drill and bits, sand container, pencil, marker, measuring tape, steel rule, staple gun etc.</p> <p>Power Tools: Power saw, power drill, hand cutting machine, hand splicer, surface planer, trowel, tumbler, etc.</p> <p>Other tools: Bamboo cross cutting machine, hand held bamboo splitter, hot air gun, edge trimmer machine, hand engraver machine, stand</p>



		as per design requirement	<p>drill machine, stand zig saw, chalk liner etc</p> <p>Material: treated bamboo of required diameter, adhesive, sand paper, nails, cane (3-4mm for binding), wood pegs, bending wire, nut bolt etc.</p> <p>Personal protective equipment: Gloves, safety shoes, earplugs, goggles, nose mask etc.</p>
7	<p><b>Finishing</b></p> <p><b>Theory Duration</b> (hh:mm) 04:00</p> <p><b>Practical Duration</b> (hh:mm) 08:00</p> <p><b>Corresponding NOS Code</b> FFS/N4102</p>	<ul style="list-style-type: none"> <li>Remove or chisel of the surplus material to get a smooth surface using appropriate tools</li> <li>Fill any cracks or unwanted cavities with the mix of saw dust and glue</li> <li>Sand the surface for smoothness</li> </ul>	<p>Hand Tools: Dado, chisel set, dropping knife, width seizers, scissors, hammer, round planer/knot remover, scrapper, blow torch, vice, grinder, , hand plane, V-shaped knife, pointed knife, mallet, wood saw, hacksaw, pliers, hand drill and bits, sand container, pencil, marker, measuring tape, steel rule, staple gun etc.</p> <p>Power Tools: Power saw, power drill, hand cutting machine, hand splicer, surface planer, trowel, tumbler, etc. Material: e.g. treated bamboo of required diameter, adhesive, sand paper, nails, cane (3-4mm for binding), wood pegs, bending wire, nut bolt etc.</p> <p>Personal protective equipment apron, gloves, safety shoes, earplugs, goggles, nose mask etc.</p> <p>Buffing wheel, hand buff, wax polish clothe, oil pad, lacquer spray gun, paint brush, roller coating etc</p>





## Trainer Prerequisites for Job role: “Lead Furniture Maker- Bamboo (Option: Round Bamboo Furniture Maker)FFSQ4102” mapped to Qualification Pack: “FFS/Q4102”

Sr. No.	Area	Details
1	<b>Description</b>	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “ <u>FFS/Q4102</u> ”.
2	<b>Personal Attributes</b>	Aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training. Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well organized and focused, eager to learn and keep oneself updated with the latest in the mentioned field
3	<b>Minimum Educational Qualifications</b>	Minimum 10 <sup>th</sup> pass Minimum age 25 years
4a	<b>Domain Certification</b>	Certified for Job Role: “ <u>Lead Furniture Maker- Bamboo (Option: Round Bamboo Furniture Maker)- FFSQ4102</u> ” mapped to QP: “ <u>FFS/Q4102</u> ”. Minimum accepted score 80% as per the FFSC guideline.
4b	<b>Platform Certification</b>	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “MEP/Q0102”. Minimum accepted score as per respective FFSC guideline is 80%.
5	<b>Experience</b>	<ul style="list-style-type: none"> <li>Minimum five years of experience in furniture making specially in bamboo furniture making</li> </ul>

## Annexure: Assessment Criteria

**Job Role** Lead Furniture Maker- Bamboo (Option: Round Bamboo Furniture Maker) FFS/Q4102

**Qualification Pack** FFS/Q4102

**Sector Skill Council** Furniture & Fittings Skill Council

### Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below)
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on this criteria
6. To pass the Qualification Pack, every trainee should score a minimum of 70% in aggregate
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack

Compulsory NOS		Marks Allocation			
<b>Total Marks: 500+200= 700</b>		Total Marks	Out of	Theory	Skills Practical
Assessable Outcomes	Assessment Criteria				
FFS/N4103 Prepare for bamboo furniture making	PC1. obtain job instructions from responsible personnel Job instruction: design, structural characteristics, frame instruction, durability factor, appearance, color, type of finish etc.	100	5	2	3
	PC2. interact with supervisor in order to understand the client requirement		5	2	3
	PC3. read and confirm that the given instructions and design are complete and correct		6	6	0
	PC4. plan out an efficient sequence of work as per the job requirement and specification		5	5	0
	PC5. obtain appropriate hand tools, power tools and material suitable to carry out the given tasks Hand Tools: e.g. dao, chisel set, dropping knife, width seizers, scissors, hammer, round planer/knot remover, scrapper, blow touch, vice, grinder, thicknesser, hand plane, V-shaped knife, pointed knife, mallet, wood saw, hacksaw, pliers, hand drill and bits, sand container, pencil, marker, measuring tape, steel rule, staple gun etc. Power Tools: e.g. power saw, power drill, hand cutting machine, hand splicer,		6	0	6



	PC4. take the size of the bamboo furniture component from the design and mark the same on bamboo culms		1	0	1
	PC5. make markings using pencil and ruler or measuring tape as per drawing specification		2	1	1
	PC6. hold the pieces correctly to take measurements		1	0	1
	PC7. calculate height and width as per design		2	2	0
	PC8. carryout marking activities using templates		2	1	1
	PC9. carry out markings to guide activities of subordinates for cutting		3	0	3
	PC10. cut bamboo culms in different sizes using cutting machine as per markings and design specification	100	3	2	1
	PC11. check and ensure that the cut pieces are as per given specification and quality		1	0	1
	PC12. minimise waste by following correct cutting techniques		1	1	0
	PC13. take safety precautions while carrying out cutting activities		1	1	0
	PC14. use appropriate hand tools, power tools and material suitable to carry out the given tasks Hand Tools: e.g. dao, chisel set, dropping knife, width seizers, scissors, hammer, round planer/knot remover, scrapper, blow torch, vice, grinder, thicknesser, hand plane, V-shaped knife, pointed knife, mallet, wood saw, hacksaw, pliers, hand drill and bits, sand container, pencil, marker, measuring tape, steel rule, staple gun etc. Power Tools: e.g. power saw, power drill, hand cutting machine, hand splicer, surface planer, trowel, tumbler, sovel etc. Material: e.g. treated bamboo of required diameter, adhesive, sand paper, nails, cane (3-4mm for binding), wood pegs, bending wire, nut bolt etc.		4	2	2
	PC15. procure material as per bamboo furniture component requirement and design specification Material: treated bamboo of different diameter as per design requirement, battens made of bamboo, finished bamboo sticks, bamboo dowels etc. Component requirement: Selection of material is done in accordance with required properties like strength or flexibility that vary with different furniture components		2	1	1

	<p>PC16. bend the bamboo culms for making furniture components using appropriate method Appropriate method: fill the culms with sand; apply heat using a blow torch, in proximity to the portion to be bent, Move the blow torch back and forth, so as not to crack the bamboo culm. Single point heating should be avoided, Bend the culm by applying force on opposite ends, .Cool the bend of the culm with water to fix the fibers, in order to maintain its position, Continue to apply heating and cooling till the desired curve has been obtained.</p>		2	0	2
	<p>PC17. make different furniture components from bamboo culms Furniture components: leg poles, stool leg support, mortise frame, bamboo or wooden plugs, surface supporting battens, bamboo nails, surface strips, concealing belt, flattened bamboo surface, back rest support, back rest, flat spokes, seat surface etc.</p>		2	0	2
	<p>PC18. make leg poles using appropriate technique Appropriate technique: cut the required number of legs out of a single culm, ensure that each leg pole has a node at one end for strength reasons, check if all the pieces are vertically upright and equal in length, make both the cut ends perpendicular to the culm length.</p>		2	0	2
	<p>PC19. make bent mortise using appropriate technique Appropriate technique: determine the mortise groove length, mark reference lines on the culm, make a template stick, mark the culm using template stick, cut the mortise grooves, make the double pins and finally apply heat bending to bend the mortise</p>		4	0	4
	<p>PC20. make surface support battens from bamboo culms of appropriate thickness for strength as per design specification Appropriate thickness: approx. 8-10 mm thickness is normally used. For special cases follow the design specification</p>		2	0	2
	<p>PC21. make flattened bamboo surface mat board manually using appropriate technique Appropriate technique: split the culm in 2 halves, remove the inner nodes and put the halves on the ground with the opened</p>		2	0	2

	side down, make multiple slits using an axe starting from one end of the culm, while crushing move towards the middle of the culm and then start at other end making sure that the starting point of the slit is not in line with the slits made from the other side, after making the bamboo flat, glue it to a veneer ply, cut the crushed bamboo surface into desired shape and size for their application				
PC22.	follow appropriate process of nailing in bamboo while making furniture Appropriate process: nailing without pre-boring frequently results in splitting. moreover, nails tend to become loose with time and may also corrode, both increase the risk of fungal attack		1	0	1
PC23.	make different kinds of joinery components of bamboo to assemble bamboo furniture Joinery components: plug joint, pin joint, U-cut joint, C-shaped joint, flat spokes, round spokes etc.		4	1	3
PC24.	make joints pin for bamboo furniture joining		4	1	3
PC25.	make bamboo plugs to be used for joining that tightly fit in the cavity of the leg poles		4	1	3
PC26.	make pointed bamboo nails for furniture joining by tapering the bamboo		4	1	3
PC27.	make dowels of bamboo or wood for assembling furniture		4	1	3
PC28.	make different kind of bamboo joints and connections Different joints: tongue and groove joint, male and female joint, bolt fastening joint, Over lapping joint, Horizontal joints Vertical joint, double butt bent joint, etc. Connections: friction-tight rope connection, plug-in/bolt connection, positive fitting connection, interlocking connection etc.		4	1	3
PC29.	identify and make different joints using various techniques		4	1	3
PC30.	join bamboo using different lashing techniques		4	1	3
PC31.	Assemble bamboo furniture using joint appropriately		4	1	3
PC32.	adjust the surface strips across the battens and fix them with nails or weave		2	1	1







	PC17. follow recommended material handling procedure to control damage and personal injury		3	2	1
	PC18. follow safe working practices at all times		3	1	2
	PC19. follow appropriate procedure in case a of fire emergency		3	1	2
	PC20. follow electrical safety measures while working with electrically powered tools & equipment		3	1	2
	PC21. follow agreed work location procedures in the event of an emergency or an accident		4	2	2
	PC22. follow emergency and evacuation procedures in case of accidents, fires, natural calamities		3	1	2
	PC23. check and ensure general health and safety equipment are available at work site General health and safety equipment: fire extinguishers; first aid equipment; safety instruments and clothing; safety installations (e.g. fire exits, exhaust fans)		3	1	2
	PC24. comply with restrictions imposed on harmful chemicals inside work area during working hours		4	2	2
	PC25. correctly demonstrate rescue techniques applied during fire hazard		3	0	3
	PC26. demonstrate good housekeeping in order to prevent fire hazards		3	0	3
	PC27. demonstrate the correct use of a fire extinguisher		3	0	3
	PC28. demonstrate how to free a person from electrocution		3	1	2
	PC29. respond promptly and appropriately to an accident situation or medical emergency		3	0	3
	PC30. participate in emergency procedures Emergency procedures: raising alarm, safe/efficient, evacuation, correct means of escape, correct assembly point, roll call, correct return to work		3	0	3
	PC31. use the various appropriate fire extinguishers on different types of fires correctly Types of fires: Class A: e.g. ordinary solid combustibles, such as wood, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class C: e.g. electrical equipment such as appliances, wiring, breaker panels, etc.		3	1	2

	These categories of fires become Class A, B, and D fires when the electrical equipment that initiated the fire is no longer receiving electricity); Class D: combustible metals such as magnesium, titanium, and sodium (These fires burn at extremely high temperatures and require special suppression agents)				
	PC32. state methods of accident prevention in the work environment Methods of accident prevention: training in health and safety procedures; using health and safety procedures; use of equipment and working practices (such as safe carrying procedures); safety notices, advice; instruction from colleagues and supervisors		3	3	0
		<b>Total</b>	<b>100</b>	<b>30</b>	<b>70</b>
FFS/N 8801 Work effectively with others	PC1. seek assistance from supervisor or any such appropriate authority as and when required	100	3	1	2
	PC2. ask questions and seek clarifications on work tasks whenever required		3	1	2
	PC3. seek and obtain clarifications on policies and procedures, from the supervisor or other authorized personnel		5	5	0
	PC4. identify and report any possible deviations to appropriate authority		3	1	2
	PC5. address the problems effectively and report if required to immediate supervisor appropriately		5	2	3
	PC6. receive instructions clearly from superiors and respond effectively on the same		3	1	2
	PC7. follow escalation matrix in case of any grievance		5	4	1
	PC8. accurately receive information and instructions from the supervisor related to one's work		5	3	2
	PC9. coordinate and cooperate with colleagues to achieve work objectives		5	0	5
	PC10. display courteous behaviour at all times		5	0	5
	PC11. respond politely to customer queries and other team members		5	1	4
	PC12. follow work place dress code		5	0	5
	PC13. keep work area in a tidy and organized state		5	0	5
	PC14. adhere to time lines and quality standards		5	2	3
	PC15. follow organizational policies and procedures		4	4	0

	PC16. share information with team wherever and whenever required to enhance quality and productivity at work place		5	2	3
	PC17. work together with co-workers in a synchronized manner		5	0	5
	PC18. communicate with others clearly, at a pace and in a manner that helps them to understand		5	2	3
	PC19. show respect to other and their work		5	0	5
	PC20. display active listening skills while interacting with others at work		5	0	5
	PC21. demonstrate responsible and disciplined behaviors at the workplace		5	0	5
	PC22. disciplined behaviors: e.g. punctuality; completing tasks as per given time and standards; not gossiping and idling time; eliminating waste, honesty, etc.		4	1	3
		<b>Total</b>	<b>100</b>	<b>30</b>	<b>70</b>
<b>Option: FFS/Q4101- Round Bamboo Furniture Maker</b>					
<b>Optional NOS</b>		<b>Marks Allocation</b>			
<b>Total Marks: 500+200= 700</b>					
<b>Assessable Outcomes</b>	<b>Assessment Criteria</b>	<b>Total Marks</b>	<b>Out of</b>	<b>Theory</b>	<b>Skills Practical</b>
FFS/N 4101 Prepare to make round bamboo furniture	PC1. obtain job instructions from responsible personnel Job instruction: design, structural characteristics, frame instruction, durability factor, appearance, color, type of finish etc.	100	5	2	3
	PC2. interact with supervisor in order to understand the client requirement		5	2	3
	PC3. read and confirm that the given instructions and design are complete and correct		6	6	0
	PC4. plan out an efficient sequence of work as per the job requirement and specification		5	5	0
	PC5. obtain appropriate hand tools, power tools and material suitable to carry out the given tasks Hand Tools: e.g. dao, chisel set, dropping knife, width seizers, scissors, hammer, round planer/knot remover, scrapper, blow touch, vice, grinder, thicknesser, hand plane, V-shaped knife, pointed knife, mallet, wood saw, hacksaw, pliers, hand drill and bits, sand container, pencil, marker, measuring tape, steel rule, staple gun etc. Power Tools: e.g. power saw, power drill, hand cutting machine, hand splicer, surface planer, trowel, tumbler, sovel etc. Material: e.g. treated bamboo of required diameter, adhesive, sand paper, nails, cane, wood pegs, bending wire, nut bolt etc.		6	0	6

	PC6. report on any shortage or defect of tools and materials to the concerned person before commencement of work		6	0	6
	PC7. check that the selected tools & machines are in safe working condition and ready for use		5	0	5
	PC8. check the bamboo for treatment against insects, fungus and other weather exposures		7	0	7
	PC9. check the bamboo for any splits that can affect the furniture strength and its making process		7	0	7
	PC10. use approved procedures to inspect bamboo visually for any possible defects as per required standard parameters prior to work Defects: splinters, cracks, unwanted cavities, exposed to fungus or any other insects, size/diameter variation, waviness, etc.		6	3	3
	PC11. read and interpret the details from design/drawings relevant to furniture making		6	6	0
	PC12. read and understand manufacturer's specification of material and its uses		6	3	3
	PC13. identify the surfaces and dimensions as per the drawing		6	0	6
	PC14. read and understand the scope of work		6	0	6
	PC15. interact with client to decide on the procurement of material		6	0	6
	PC16. suggest cost to the client considering furniture styles , durability, patterns, comfort, modern appearance etc.		6	1	5
	PC17. prepare and provide cost estimate to the client after evaluating various factors Various Factors: type of furniture, type of finish, cost of labour for complex design cost of raw material etc.		6	2	4
		<b>Total</b>	<b>100</b>	<b>30</b>	<b>70</b>
FFS/N 4102 Make round bamboo furniture	PC1. read and confirm that the given instructions and design are correct	100	3	1	2
	PC2. obtain appropriate materials and tools suitable to carry out marking activities		3	0	3
	PC3. identify the surfaces and dimensions as per the drawing		3	0	3
	PC4. take the size of the furniture component from the design and mark the same on bamboo culms		4	2	2
	PC5. make markings using pencil and ruler or measuring tape as per drawing specification		3	1	2
	PC6. hold the pieces correctly to take measurements		2	0	2
	PC7. calculate height and width as per design		3	3	0
	PC8. carryout marking activities using templates		4	2	2
	PC9. carry out markings to guide activities of subordinates for cutting		3	0	3

PC10. use appropriate hand tools, power tools and material suitable to carry out the given tasks Hand Tools: e.g. dao, chisel set, dropping knife, width seizers, scissors, hammer, round planer/knot remover, scrapper, blow torch, vice, grinder, thicknesser, hand plane, V-shaped knife, pointed knife, mallet, wood saw, hacksaw, pliers, hand drill and bits, sand container, pencil, marker, measuring tape, steel rule, staple gun etc. Power Tools: e.g. power saw, power drill, hand cutting machine, hand splicer, surface planer, trowel, tumbler, sovel etc. Material: e.g. treated bamboo of required diameter, adhesive, sand paper, nails, cane (3-4mm for binding), wood pegs, bending wire, nut bolt etc.	3	0	3
PC11. procure material as per furniture component requirement and design specification Material: treated bamboo of different diameter as per design requirement, battens made of bamboo, furniture frame components, bamboo dowels etc. Component requirement: Selection of material is done in accordance with required properties like strength or flexibility that vary with different furniture components	3	1	2
PC12. cut bamboo culms in different sizes using cutting machine as per markings and design specification	3	0	3
PC13. check and ensure that the cut pieces are as per given specification and quality	2	1	1
PC14. minimise waste by following correct cutting techniques	1	0	1
PC15. drill holes in bamboo as per design specification using drill machine	4	2	2
PC16. make furniture frame by inserting frame rails into drilled holes	4	0	4
PC17. join furniture frame using adhesive and pegs	4	0	4
PC18. assemble furniture components using hollow bamboo joining technique	4	0	4
PC19. perform binding of joints using cane and nail fitting	4	0	4
PC20. join bamboo using different lashing techniques Different lashing techniques: square lashing, round lashing, diagonal lashing, shear lashing, tripod lashing, floor lashing, or ladder lashing	4	0	4
PC21. weave the seat, back and other parts as per design requirement	4	0	4
PC22. remove or chisel of the surplus material to get a smooth surface using appropriate tools	2	0	2
PC23. fill any cracks or unwanted cavities with the mix of saw dust and glue	3	0	3

	PC24. sand the surface for smoothness		2	0	2
	PC25. return all the used tools and materials safely to the appropriate personal		5	3	2
	PC26. work safely at all times, complying with health and safety legislation, regulations and other relevant guidelines		4	4	0
	PC27. maintain correct body posture while sitting and working for long hours and carrying heavy materials		4	0	4
	PC28. lift, carry or move heavy furniture from one place to another using approved safe working practices		4	0	4
	PC29. select and use appropriate personal protective equipment compatible to the work and compliant to relevant occupational health and safety guidelines Personal protective equipment: masks, safety glasses, head protection, ear muffs, safety footwear, gloves, aprons etc.		4	2	2
	PC30. follow electrical safety measures while working with electrically powered tools & equipment		4	2	2
		<b>Total</b>	<b>100</b>	<b>30</b>	<b>70</b>