



QUALIFICATION FILE

Panelworks Machine Operator

- Short Term Training (STT) Long Term Training (LTT) Apprenticeship
 Upskilling Dual/Flexi Qualification For ToT For ToA
- General Multi-skill (MS) Cross Sectoral (CS) Future Skills OEM

NCrF/NSQF Level: 4.5

Submitted By:

Furniture and Fittings Sector Skill Council

Chief Executive Officer

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Section 1: Basic Details

1.	Qualification Name	Panelworks Machine Operator																																		
2.	Sector/s	Interiors, Furniture and Fixtures																																		
3.	Type of Qualification: <input type="checkbox"/> New <input type="checkbox"/> Revised <input checked="" type="checkbox"/> Has Electives <input type="checkbox"/> OEM	NQR Code & version of existing qualification: NA	Qualification Name of existing version: NA																																	
4.	National Qualification Register (NQR) Code &Version	QG-4.5-WC-00821-2023-V1-FFSC	5. NCrF/NSQF Level: 4.5																																	
6.	Award (Certificate/ Diploma/ Advance Diploma/ Any Other)	Certificate																																		
7.	Brief Description of the Qualification	The Panelworks Machine Operator plays the role of operating and monitoring machinery used in the production of panels for various applications. The responsibilities include setting up the machines, ensuring smooth operation, conducting quality checks, and maintaining a safe working environment. The individual may choose a specialization from a range of options, such as pasting/pressing, cutting/sizing, edge banding, drilling, routing, and veneer cutting/splicing operations.																																		
8.	Eligibility Criteria for Entry for Student/ Trainee/ Learner/ Employee	<p>a. Entry Qualification & Relevant Experience:</p> <table border="1"> <thead> <tr> <th>S. No.</th> <th>Academic/Skill Qualification</th> <th>Required Experience</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Completed 1st year of 3-year/ 4-years UG</td> <td>NA</td> </tr> <tr> <td>2</td> <td>Pursuing 1st year of 3-year/ 4-years UG and continuing education</td> <td>NA</td> </tr> <tr> <td>3</td> <td>Pursuing 3rd year of 3-year diploma after Grade 10 and continuing education</td> <td>NA</td> </tr> <tr> <td>4</td> <td>Completed 3-year diploma after Grade 10</td> <td>NA</td> </tr> <tr> <td>5</td> <td>Completed 1st year of 2-year diploma after Grade 12</td> <td>NA</td> </tr> <tr> <td>6</td> <td>Pursuing 2nd year of 2- year diploma after Grade 12 and continuing education</td> <td>NA</td> </tr> <tr> <td>7</td> <td>Grade 12 Pass</td> <td>1 year of relevant experience</td> </tr> <tr> <td>8</td> <td>Grade 10 pass with 2 years of any combination of NTC/NAC/CITS or equivalent</td> <td>1 year of relevant experience</td> </tr> <tr> <td>9</td> <td>Grade 10 pass</td> <td>3 years of relevant experience</td> </tr> <tr> <td>10</td> <td>Previous relevant Qualification of NSQF Level 4.0 (Assistant Panelworks Machine Operator)</td> <td>1.5 years of relevant experience</td> </tr> </tbody> </table> <p>b. Age: 18 years (minimum)</p>		S. No.	Academic/Skill Qualification	Required Experience	1	Completed 1 st year of 3-year/ 4-years UG	NA	2	Pursuing 1 st year of 3-year/ 4-years UG and continuing education	NA	3	Pursuing 3 rd year of 3-year diploma after Grade 10 and continuing education	NA	4	Completed 3-year diploma after Grade 10	NA	5	Completed 1 st year of 2-year diploma after Grade 12	NA	6	Pursuing 2 nd year of 2- year diploma after Grade 12 and continuing education	NA	7	Grade 12 Pass	1 year of relevant experience	8	Grade 10 pass with 2 years of any combination of NTC/NAC/CITS or equivalent	1 year of relevant experience	9	Grade 10 pass	3 years of relevant experience	10	Previous relevant Qualification of NSQF Level 4.0 (Assistant Panelworks Machine Operator)	1.5 years of relevant experience
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9.	Credits Assigned to this Qualification, Subject to Assessment	47	10. Common Cost Norm Category (I/II/III): II																					
11.	Any Licensing requirements for Undertaking Training on This Qualification	Not Applicable																						
12.	Training Duration by Modes of Training Delivery	<input type="checkbox"/> Offline <input type="checkbox"/> Online <input checked="" type="checkbox"/> Blended																						
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Online	93	59	0	0	152																			
13.	Aligned to NCO/ISCO Code/s	NCO-2015/7523.9900																						
14.	Progression path after attaining the qualification	Professional Progression (Vertical): Advanced Furniture Machinist (NSQF Level 5) The occupational map is attached as an annexure which shows the professional progression. Academic Progression (Vertical): Courses on Woodworking Machineries at NSQF Level 5 (UG/Diploma/Ad. Diploma Courses)																						
15.	Other Indian languages in which the Qualification & Model Curriculum are being submitted	Hindi																						
16.	Is similar Qualification(s) available on NQR-if yes, justification for this qualification	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No URLs of similar Qualifications:																						
17.	Is the Job Role Amenable to Persons with Disability	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If "Yes", specify applicable type of Disability: <ul style="list-style-type: none"> Acid Attack Victims Speech and Language Disability 																						

18.	How Participation of Women will be Encouraged	A short-term course of Panelworks Machine Operator can be instrumental in increasing their participation of women in the informal furniture sector. By empowering women with valuable machinery skills, the course helps build their confidence and independence in a traditionally male-dominated field. It challenges gender stereotypes, breaking down barriers that hinder women's involvement in trades. The course provides women with access to economic opportunities, as they gain marketable skills for employment or entrepreneurship in the furniture industry. The course enhances the sector's creativity, innovation, and competitiveness by promoting diversity and inclusivity. Overall, the course empowers women, promotes gender equality, and contributes to the growth and development of the informal furniture sector.	
19.	Are Greening/ Environment Sustainability Aspects Covered	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Covered under the NOS: FFS/N8203 – Maintain health, safety, and greening practices at the worksite Module Name: Material conservation and resource optimization	
20.	Is Qualification Suitable to be Offered in Schools/Colleges	Schools <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Colleges <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No The course can't be offered to schools due to hazardous nature of the job role. Engineering colleges: This course can be offered to colleges at UG level.	
21.	Name and Contact Details of Submitting / Awarding Body SPOC	Name: Mr. Rahul Mehta Email: ceo@ffsc.in Contact No.: +91 124 4513900 Website: ffsc.in	
22.	Final Approval Date by NSQC: 31/08/2023	23. Validity Duration: 3 years	24. Next Review Date: 31/08/2026

Section 2: Module Summary

NOS/s of Qualifications

(In exceptional cases these could be described as components)

Mandatory NOS/s:

Specify the training duration and assessment criteria at NOS/ Module level. For further details refer curriculum document.

Th.-Theory Pr.-Practical OJT-On the Job Man.-Mandatory Training Rec.-Recommended Proj.-Project

S. No	NOS/ Module Name	NOS/ Module Code & Version	Core/ Non-Core	NCrF/ NSQF Level	Credits per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weig. (%)
1	Bridge Module (s)	Version No. 1	Core	4.5	1	12	18	0	0	30	NA	NA	NA	NA	NA	NA
2	Perform team & task management for required machining operation	NOS Code: FFS/N1010 Version No. 1	Core	4.5	2	12	48	0	0	60	10	48	42	0	100	10
3	Manage the worksite for required machine operations	NOS Code: FFS/N1011 Version No. 1	Core	4.5	2	12	48	0	0	60	12	48	36	4	100	15
4	Perform Machine Operations for required job work	NOS Code: FFS/N1012 Version No. 1	Core	4.5	2	12	48	0	0	60	20	40	36	4	100	20
5	Perform machine maintenance and quality checking for required specifications	NOS Code: FFS/N1013 Version No. 1	Core	4.5	2	12	48	0	0	60	18	48	28	6	100	20
6	Maintain health, safety, and greening practices at the worksite	NOS Code: FFS/N8203 Version No. 3	Non-Core	5	1	12	18	0	0	30	16	24	48	12	100	5
7	Employability NOS (60 hour)	NOS Code: DGT/VSQ/N0102 Version No. 1	Non-Core	4	2	30	30	0	0	60	20	30	0	0	50	5
Duration (in Hours) / Total Marks					12	102	258	0	0	360	96	238	190	26	550	75

Electives:

S. No	NOS/Module Name	NOS/Module Code & Version	Core/ Non-Core	NCrF/NSQF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%)
1	Setup and operate pasting and pressing machines	NOS Code: FFS/N1014 Version No. 1	Core	4.5	5	12	48	90	0	150	24	40	30	6	100	25
2	Setup and operate cutting and sizing machines	NOS Code: FFS/N1015 Version No. 1	Core	4.5	5	12	48	90	0	150	24	40	30	6	100	25
3	Setup and operate edge band machines	NOS Code: FFS/N1016 Version No. 1	Core	4.5	5	12	48	90	0	150	24	36	36	4	100	25
4	Setup and operate drilling machines	NOS Code: FFS/N1017 Version No. 1	Core	4.5	5	12	48	90	0	150	24	42	30	4	100	25
5	Setup and operate routing machines	NOS Code: FFS/N1018 Version No. 1	Core	4.5	5	12	48	90	0	150	26	36	34	4	100	25
6	Setup and Operate veneer cutting and splicing machines	NOS Code: FFS/N1019 Version No. 1	Core	4.5	5	12	48	90	0	150	24	48	24	4	100	25
7	Setup and operate panelworks CNC machines	NOS Code: FFS/N1020 Version No. 1	Core	4.5	5	12	48	90	0	150	20	54	22	4	100	25
Duration (in Hours) / Total Marks					35	84	336	630	0	1050	166	296	206	32	700	25

Assessment - Minimum Qualifying Percentage

Please specify any one of the following:

Minimum Pass Percentage – Aggregate at qualification level: 70% (Every Trainee should score specified minimum aggregate passing percentage at qualification level to successfully clear the assessment.)

Minimum Pass Percentage – NOS/Module-wise: 70% (Every Trainee should score specified minimum passing percentage in each mandatory and selected elective NOS/Module to successfully clear the assessment.)

Section 3: Training Related

1	Trainer's Qualification and experience in the relevant sector (in years)	<p>A trainer should be eligible in any of below mentioned categories:</p> <p>Scenario 1: Graduate</p> <ul style="list-style-type: none"> ○ Engineering, Architecture, Interior Design, Furniture Manufacturing, Wood Work, Product Design or Any other Discipline with 5 years' experience (Industry) ○ Preferred: <ul style="list-style-type: none"> ● 1-year experience (Teaching) ● Additional Certification related to specialization in furniture or interior design sector (Software like AutoCAD, etc.), Communication Skills <p>Scenario 2: Certificate-NSQF</p> <p>a. NSQF Level 4.5- Panelworks Machine Operator with 4 years' relevant experience (Industry),</p> <ul style="list-style-type: none"> ● Required: <ul style="list-style-type: none"> ○ Work Experience and Recommendation letter from Employer, Certificates of Training from companies ● Preferable: <ul style="list-style-type: none"> ○ 1 year experience (Teaching) ○ Additional Certification related to specialization in architecture or interior design sector (Software like AutoCAD, etc.), Communication Skills. <p>b. NSQF Level 5- Advanced Furniture Machinist or above with 3 years' relevant experience (Industry)</p> <ul style="list-style-type: none"> ● Required: <ul style="list-style-type: none"> ○ Work Experience and Recommendation letter from Employer, Certificates of Training from companies ● Preferable: <ul style="list-style-type: none"> ○ 1 year experience (Teaching) ○ Additional Certification related to specialization in architecture or interior design sector (Software like AutoCAD, etc.), Communication Skills
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2	Master Trainer's Qualification and experience in the relevant sector (in years)	Graduate (In any field) with minimum 5 years of relevant experience
3	Tools and Equipment Required for Training	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No The detailed tools list is attached in Annexure 2
4	In Case of Revised Qualification, Details of Any Upskilling Required for Trainer	This qualification is revised based on the NCrF framework with the compulsory module of employability skills. The candidates can enroll into a 3-day workshop to upskill themselves based on the new components of the revised qualification and get the desired certifications done.

Section 4: Assessment Related

1.	Assessor's Qualification and experience in relevant sector (in years)	<p>An assessor should be eligible in any of below mentioned categories:</p> <p>Scenario 1: Graduate</p> <ul style="list-style-type: none"> ○ Engineering, Architecture, Interior Design, Furniture Manufacturing, Wood Work, Product Design or Any other Discipline with 5 years' experience (Industry) ○ Preferred: <ul style="list-style-type: none"> ● 1-year experience (Teaching) ● Additional Certification related to specialization in furniture or interior design sector (Software like AutoCAD, etc.), Communication Skills <p>Scenario 2: Certificate-NSQF</p> <p>a. NSQF Level 4.5- Panelworks Machine Operator with 4 years' relevant experience (Industry),</p> <ul style="list-style-type: none"> ● Required: <ul style="list-style-type: none"> ○ Work Experience and Recommendation letter from Employer, Certificates of Training from companies ● Preferable: <ul style="list-style-type: none"> ○ 1 year experience (Teaching) ○ Additional Certification related to specialization in architecture or interior design sector (Software like AutoCAD, etc.), Communication Skills. <p>b. NSQF Level 5- Advanced Furniture Machinist or above with 3 years' relevant experience (Industry)</p> <ul style="list-style-type: none"> ● Required: <ul style="list-style-type: none"> ○ Work Experience and Recommendation letter from Employer, Certificates of Training from companies
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		<ul style="list-style-type: none"> • Preferable: <ul style="list-style-type: none"> ○ 1 year experience (Teaching) ○ Additional Certification related to specialization in architecture or interior design sector (Software like AutoCAD, etc.), Communication Skills
2.	Proctor's Qualification and experience in relevant sector (in years)	Graduate (In any field) with minimum 3 years of relevant experience
3.	Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years)	Graduate (In any field) with minimum 5 years of relevant experience
4.	Assessment Mode	Components might be Online, Offline, or Blended, depending on the location where the evaluation is being carried out.
5.	Tools and Equipment Required for Assessment	<input checked="" type="checkbox"/> Same as for training <input type="checkbox"/> Yes <input type="checkbox"/> No

Section 5: Evidence of the need for the Qualification

1.	<p>Latest Skill Gap Study (not older than 2 years) (Yes/No): No</p> <p>FFSC had conducted the research, analysis, and assessment of the skill gaps in the Interiors, Furniture, and Allied sectors. The report was published in year 2016 and is valid up to 2025 providing a comprehensive analysis of skill gaps and manpower requirement in specific occupations and job role categories. The report can be accessed through Link: Click here</p> <p>Along with this, FFSC has also developed its own indigenous LMS portal- FFSC T:AJ. FFSC T:AJ is a one-stop solution for skilled manpower for interiors, furniture, and allied industries. The job portal is customized per the industry's Occupation Map (OM) to facilitate properly aggregating job and apprenticeship opportunities. The portal offers unique features for employers and candidates to provide the ideal solution for demand aggregation and supply matching. It also facilitates the identification of skill gap and requirement in the industry and relevant sectors on periodic intervals.</p> <p>FFSC T:AJ can be assessed through: https://ffsctaj.in/</p>
2.	<p>Latest Market Research Reports or any other source (not older than 2 years) (Yes/No): Yes</p> <p>The following key research documents are available in the public domain:</p> <ol style="list-style-type: none"> 1. Strategic Roadmap for Furniture Sector of India by IKEA (Link for Report) 2. India – Potential as a Global Furniture Hub by BCG (Link for Report)
3.	Government /Industry initiatives/ requirement (Yes/No): Yes

	<p>The Indian Interiors, Furniture, and Fittings industry is a rapidly growing sector of the country's economy. In 2018, the Government of India recognized the furniture industry as a 'Champion Sector', leading to an increase in its import and exports to promote the sector further. To capitalize on this, the government is creating furniture hubs within certain locations within the country to cater to the local customer base.</p> <p>Demand within the industry has increased significantly, with trends going along the lines of stylish fixtures with minimalist designs, amongst other customizations. Improvements in the quality of these goods, its universal accessibility, and upgradation in the industry standards will only further boost the demand within the sector. Organic materials like wood and new, aesthetically more diverse, and adjustable materials like cement, corrugated cardboard, and concrete have also emerged in the Indian market recently to stay in alignment with redesigned trends.</p> <p>In order to secure good growth within the sector, there is a need to train and teach traditional carpenters and designers and cater to meeting specific occupational standards to improve the quality of the product the industry provides. Also, to promote future skills within the industry, FFSC has been developing job role-specific standards to skill, upskill and re-skill the workforce in the industry.</p> <p>Apart from this, Indigenous Center for Excellence are being set up throughout India to boost entrepreneurship opportunities. This also provides more access to job seekers, especially women, to get wage employment.</p>
4.	Number of Industry validation provided: 30 (Details in Annexure 3)
5.	Estimated nos. of persons to be trained and employed: Refer to Annexure 4
6.	<p>Evidence of Concurrence/Consultation with Line Ministry/State Departments:</p> <p>The Line ministry concurrence is requested from the respective ministry and the response of the same is awaited.</p>

Section 6: Annexure & Supporting Documents Check List

1.	Annexure: NCrF/NSQF level justification based on NCrF level/NSQF descriptors	Refer to Annexure 1
2.	Annexure: List of tools and equipment relevant for qualification	Refer to Annexure 2
3.	Annexure: Industry Validations Summary	Refer to Annexure 3
4.	Annexure: Training and Employment Details	Refer to Annexure 4
5.	Annexure: Blended Learning	Refer to Annexure 5
6.	Annexure: Detailed Assessment Criteria	Refer to Annexure 6
7.	Annexure: Assessment Strat	Refer to Annexure 7
8.	Annexure: Multiple Entry-Exit Details	<i>Not Applicable</i>
9.	Annexure: Acronym and Glossary	Refer to Annexure 8
10.	Supporting Document: Model Curriculum	Attached as a separate document in the Qualification Approval Docket
11.	Supporting Document: Career Progression	Attached as a separate document in the Qualification Approval Docket
12.	Supporting Document: Occupational Map	Attached as a separate document in the Qualification Approval Docket
13.	Supporting Document: Assessment SOP	Attached as a separate document in the Qualification Approval Docket

Annexure 1: Evidence of Level

NCrF/NSQF Level Descriptors	Key requirements of the job role/ outcome of the qualification	How the job role/ outcomes relate to the NCrF/NSQF level descriptor	NCrF/NSQF Level
Professional Theoretical Knowledge/Process	<p>Following are the few processes wise key requirements of the job role:</p> <ul style="list-style-type: none"> • Supervisor coordination, team supervision, and quality check of the project. • Interpret project requirements. • Assist in planning and prioritizing work activities. • Ensure proper resource management at the worksite. • Ensure the worksite preparation for machining process. 	<p>As mentioned in the key requirements, the person carries out the different tasks repetitively on a routine basis. The tasks are predictable in nature.</p> <p>The job requirements match with the NSQF level 4.5 descriptor. Hence the level is pegged at 4.5.</p>	4.5
Professional and Technical Skills/ Expertise	<p>Following are the few professional knowledge requirements of the job role:</p> <ul style="list-style-type: none"> • About different tools and hardware, terminology, pictorial representation, symbols etc. • Correct use of handling tools, equipment, hardware and fittings in the assembly and installation process. • Process of handling and stacking different types of materials, tools and equipment. • Different types of storage appropriate to the type of material, tools and equipment. • Health, safety norms at workplace. • Waste disposal procedures and guidelines. • Standard process and principle of various operations of the worksite. 	<p>According to the key requirements, the person the person should have knowledge about basic facts, process and principle applied in the job role.</p> <p>The job requirements match with the NSQF level 4.5 descriptor. Hence, the level is kept as 4.5.</p>	4.5
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	<p>Following are the few professional skills required for the job role:</p> <ul style="list-style-type: none"> • Preparation of the work area for recce. • Identification and maintenance of the tools and materials. 	<p>The person demonstrates his/ her practical skills, which are routine and repetitive in a narrow range of applications.</p>	4.5

	<ul style="list-style-type: none"> • Ensure the execution of various stages involved in the machine operation process. • Working at the workplace as per the guideline. 	The job requirements match with the NSQF level 4.5 descriptor. Hence the level is kept at 4.5	
Broad Learning Outcomes/Core Skill	<p>The job role demands that the person should be able to understand and possess the skills such as:</p> <ul style="list-style-type: none"> • Read and understand the measurements, understands instructions and standard operating procedures. • Understand basic principles of measurement, geometry, and arithmetic and algebraic calculation. • Read and understand company policy documents; information displayed at the worksite. • Communicate with team members and supervisor. • Understands basics of banking. • Identify risks that affect the health, safety, and environment for self and others while working in the vicinity. 	<p>The person understands the basic arithmetic and algebraic principle, personal financing, and basic understanding of social and natural environments. He/she is able to communicate by writing and speaking.</p> <p>The job requirements match with the NSQF level 4.5 descriptor. Hence the level is kept at 4.5</p>	4.5
Responsibility	<p>Few of the key responsibilities:</p> <ul style="list-style-type: none"> • Perform team & task management for required machining operation. • Manage the worksite for required machine operations. • Perform Machine Operations for required job work. • Perform machine maintenance and quality checking for required specifications. 	<p>The person works under instruction and close supervision. The person has some responsibility for his/ her work.</p> <p>The job requirements match with the NSQF level 4.5 descriptor. Hence the level is kept at 4.5</p>	4.5

Annexure 2: Tools and Equipment (Lab Set-Up)

List of Tools and Equipment
Batch Size: 20 candidates

S. No.	Tool/Equipment	Specifications	Quantity for specified Batch size
1	Aprons	Type: Carpenter's apron, Material: Canvas, Color: Brown	20 Nos
2	Ear Plugs	Type: Ear plugs, Noise Reduction Rating: 25 dB	20 Nos
3	Hand Gloves	Type: Safety gloves, Material: Leather, Size: Large	20 Nos
4	Nose Mask	Type: Respirator mask, Filter Type: N95, Size: Medium	20 Nos
5	Safety Shoes	Type: Safety shoes, Toe Protection: Steel, Size: 10	20 Nos
6	Goggles	Type: Safety goggles, Lens: Clear, Anti-fog coating	20 Nos
7	Fire Extinguisher	Type: ABC Fire Extinguisher, Capacity: 5 lbs	1 Nos
8	First Aid Kit	Type: Basic First Aid Kit, Contents: Bandages, Antiseptic	1 Nos
9	Carpentry Pencil	Type: Carpenter's pencil, Lead: HB	20 Nos
10	Notebook	Type: Spiral-bound notebook, Size: A5	20 Nos
11	Measurement Tape 5M	Type: Measurement tape, Length: 5 meters, Units: Metric	20 Nos
12	Marking Knife	Type: Marking knife, Blade Material: Stainless steel	4 Nos
13	Try Square- 12"	Type: Try square, Size: 12 inches, Material: Steel	4 Nos
14	Half Round File 10" with Handle	Type: Half round file, Length: 10 inches, Cut: Bastard	4 Nos
15	Pasting Machine	Type: Pasting machine, Capacity: 500 sheets per hour	1 Nos
16	Pressing Machine	Type: Pressing machine, Pressure: Adjustable	1 Nos
17	Manual Glue Applicator	Type: Manual glue applicator, Capacity: 250 ml	1 Nos
18	Adhesive for Pasting Machine	Type: Adhesive for pasting machine, Type: PVA	10 Kg
19	Glue Scraper	Type: Glue scraper, Material: Plastic	1 Nos
20	Glue Mixer	Type: Glue mixer, Power: 50W, Speed: Adjustable	1 Nos
21	Panel Saw Machine	Type: Panel saw machine, Blade Size: 12 inches	1 Nos
22	Beam Saw Machine	Type: Beam saw machine, Cutting Capacity: 4 inches	1 Nos
23	Edge Banding Machine	Type: Edge banding machine, Feed Speed: 5 m/min	1 Nos
24	Edge Band Adhesive	Type: Edge band adhesive, Type: Hot melt	10 Kg
25	Drilling Machine	Type: Drilling machine, Power: 800W, Chuck Size: 10mm	1 Nos
26	Routing Machine	Type: Routing machine, Power: 1200W, Speed: 15,000 RPM	1 Nos
27	Machine Drill Bit Set	Type: Set of drill bits for machine drill, Size: 1-10mm	1 Nos
28	Machine Router Bit Set	Type: Set of router bits for routing machine, Type: Carbide	1 Nos
29	Veneer Cutting Machine	Type: Veneer cutting machine, Blade Type: Rotary	1 Nos
30	Veneer Splicing Machine	Type: Veneer splicing machine, Capacity: 2000 sheets/hour	1 Nos

31	Adhesive Roll for Veneer Splicing Machine	Type: Adhesive roll for veneer splicing machine, Type: UF	2 Rolls
32	Panel Stacking and Handling Equipment	Type: Panel stacking equipment, Capacity: 100 panels	1 Nos
33	Worksite Cleaning and Maintenance Equipment	Type: Cleaning equipment, Includes: Broom, Dustpan	1 Nos
34	Dust Extractor	Type: Dust extractor, Power: 1200W, Airflow: 500 CFM	3 Nos
35	Storage Cabinet	Type: Storage cabinet, Material: Steel, Shelves: 4	1 Nos
36	Waste Collection Bins	Type: Waste collection bins, Capacity: 20 liters	1 Set
37	Sharpening Stone	Type: Sharpening stone, Grit: 1000/6000	1 Nos

Classroom Aids

The aids required to conduct sessions in the classroom are:

1. White Board
2. Board Marker
3. Duster
4. Projector/ Smart TV
5. Laptop
6. Chairs/ Stools (For theory lectures)
7. Storage Cabinet (Wardrobe)
8. Trainer's Table
9. Trainer'

Annexure 3: Industry Validations Summary

No. of Validations: 30

S. No	Organization Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID
1	Aryamman Interior Solution Pvt Ltd	Vipuul Mistry	Head - HR	Mumbai	9820439351	hr@aryamman.in
2	Magppie Living Pvt. Ltd.	Mr. Deepak Gupta	Director Operations	Haryana	9810098982	deepak@magppie.com
3	PrimeDecor Furniture & Interiors LLP	Ms. Priyanka Pavithran	Designated Partner	Kerala	8547534628	prima_pavi@yahoo.com priyankapavithran92@gmail.com
4	Belinda Sofas	Mr. Rajeendran. TR	Managing Director	Kerala	9747547462	rejpvm@gmail.com
5	Elegant Interior & Modular Kitchen Pvt. Ltd.	Ranjith K	Managing Director	Kerala	9947208000	elegantinterior79@gmail.com
6	Omega Innovative Industries	Mr. Anil Kumar	Managing Partner	Kerala	7593887604	hyfurn@gmail.com
7	Archistocc Designs Pvt. Ltd.	Mr. Chander Tarachand Devraj	Director	Gujarat	9033011559	chander@archistocc.com
8	Shree Ram Wooden Industries Pvt. Ltd.	Mr. Vishwas Sonigara	Managing Director	Gujarat	9825084241	vishwas@vittaazio.com
9	Narsi & Associates	Mr. Jagdish Kularia	Director	Mumbai	8898855555	jagdishkularia@narsi.in
10	Narsi Interior Infrastructures Pvt. Ltd.	Mr. Narsi Kularia	Managing Director	Mumbai	9821052087	narsikularia@narsi.in
11	Greenply Industries Ltd.	Mr. Rajesh Mittal	Chairman & Managing Director	West Bengal	9999627822	rajeshmittal@greenply.com
12	ELBA Interiors	Mr. Prasanth Kurian	Director	Kerala	9847708649	elba@elbatraders.com
13	Woodtech consultant pvt Ltd	Mr. Gopi T	Managing Director	Karnataka	9448278398	gopi@woodtech.in
14	The Cadia furn	Neethu Raphael	Manager	Kerala	9072100010	thecadiafurn@gmail.com
15	KALAIMAGAL INDUSTRY	VIJAY KUMAR	Manager	Kerala	8946055915	Svfurnituresalam@gmail.com
16	Kamry innovations Pvt Ltd	Shihab	HR- Manager	Kerala	99953775992	Kawryinnovations@gmail.com

17	Sri Velmurugan Furniture	RAJENDRAN G	GENERAL MANAGER	Kerala	7373014458	Svfurnituresalem@gmail.com
18	VIHAS INTERIORS	T SUJAIVEL BALAJI	MANAGING DIRECTOR	Kerala	7373014462	VihASFurnitures@gmail.com
19	A one Furniture	P. ALI	Proprietor	Kerala	9446654914	aonefurniturekannur@gmail.com
20	AL BAITH FURNITURE	Abdul Azeez	MANAGING DIRECTOR	Kerala	9656165997	albaithfurnituremail@gmail.com
21	Casa Design	Afreen	MANAGING DIRECTOR	Kerala	7356772772	casadesignind@gmail.com
22	Hi-style products	SEENIVASAN. D. G	HR- Manager	Kerala	9677310717	hr@vickys.co.in
23	Modo Furniture Factory. LLP	Fayyas k	MANAGING DIRECTOR	Kerala	99950 77520	modofurniturefactory@gmail.com
24	Radheshyam Intex Products Pvt. Ltd.	Bikash Poddar	Director	Bengaluru	9845201519	info@radheshyamintex.com
25	Woodec Wood works	Shaji MK		Kerala	9447902529	woodecwoodworks@gmail.com
26	Taj Sofas	Abdul Salam	Managing Partner	Kerala	9447699508	tajsofa896@gmail.com
27	Caple Industrial Solutions	Zenith Thomas	Regional Manager -North & East	Mumbai	9599487490	zenith@caple.in
28	Niram India Construction Pvt Ltd	Deepak Singh Bisht	Asst Manager	Delhi	9910486543	deepakbisht@nirmanidia.in
29	ANJ Turnkey Projects Pvt LTd	Nehal Mehta	Finance Head	Mumbai	9819338101	nehal@anj.co.in
30	Shapez N Designs (The Plank)	Ms. Hemalatha G.	Proprietor	Tamil Nadu	9094044888	hema@theplank.in

Annexure 4: Training & Employment Details

Training and Employment Projections:

Year	Total Candidates		Women		People with Disability	
	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities
23-24	4000	2000	0	0	0	0
24-25	10000	5000	100	100	0	0
25-26	10000	5000	100	100	0	0

Languages in which Content is available:

English and Hindi

Annexure 5: Blended Learning

Blended Learning Estimated Ratio & Recommended Tools:

Refer NCVET “Guidelines for Blended Learning for Vocational Education, Training & Skilling” available on:

<https://ncvet.gov.in/sites/default/files/Guidelines%20for%20Blended%20Learning%20for%20Vocational%20Education,%20Training%20&%20Skilling.pdf>

S. No.	Select the Components of the Qualification	List Recommended Tools – for all Selected Components	Offline: Online Ratio
1	<input checked="" type="checkbox"/> Theory/ Lectures - Imparting theoretical and conceptual knowledge	<ul style="list-style-type: none"> • eBooks/Textbooks/e-content • Presentations • Classroom Aids • Journals • Assessments & Quizzing Tools Flashcards • Games or quizzes • Collaborative/Group Projects • Video Tutorials & Webinars • Video Conferencing Software • Tracking & Reporting Platforms 	60:40
2	<input checked="" type="checkbox"/> Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners	<ul style="list-style-type: none"> • Presentations • Group Discussions • Case Studies/ Projects • Games or quizzes • Learning Paths • Video Tutorials & Webinars • Video Conferencing Software • Tracking & Reporting Platforms • Simulators/AR Tools 	50:50
3	<input checked="" type="checkbox"/> Showing Practical Demonstrations to the learners	<ul style="list-style-type: none"> • Augmented Reality Applications • Games or quizzes • Interactive Whiteboards • Collaboration Tools • Online Tutorials & Interactive Simulations • Digital Simulations 	60:40
4	<input checked="" type="checkbox"/> Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training	<ul style="list-style-type: none"> • Virtual Labs • Gamification • Digital Twins • Collaborative Authoring Platforms • Simulators/AR Tools • Digital Simulations 	80:20

		<ul style="list-style-type: none"> • Online Course Platforms/LMS 	
5	<input checked="" type="checkbox"/> Tutorials/ Assignments/ Drill/ Practice	<ul style="list-style-type: none"> • Online Course Platforms/LMS • Simulators/AR Tools • Online Tutorials & Interactive Simulations • Screen Recording & Presentation Software • Collaboration Tools • Assessments & Quizzing Tools 	70:30
6	<input checked="" type="checkbox"/> Proctored Monitoring/ Assessment/ Evaluation/ Examinations	<ul style="list-style-type: none"> • Online assessment/quizzing software • Biometric authentication tools • Remote exam locking/proctoring software • Hackathons 	30:70
7	<input checked="" type="checkbox"/> On the Job Training (OJT)/ Project Work Internship/ Apprenticeship Training	<ul style="list-style-type: none"> • Case Studies/Projects • Simulators/AR Tools • Task Management Tools • Online Collaboration Tools 	90:10

Annexure 6: Detailed Assessment Criteria

Detailed assessment criteria for each NOS/Module are as follows:

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
FFS/N1010: Perform team & task management for required machining operations	<i>Task planning and allocation</i>	6	24	24	0
	PC 1. analyse work orders and project details to identify job work requirements	0	8	6	0
	PC 2. assist in planning & scheduling with supervisor to operate machine to its maximum capacity	0	8	6	0
	PC3.allocate tasks to team members based on their skills and capabilities	2	0	6	0
	PC4.foster effective communication with the assistants, ensuring clarity and understanding of assigned tasks	2	0	6	0
	PC5.oversee timely filling and submission of job cards to the supervisor.	2	8	0	0
	<i>Team management & documentation</i>	4	24	18	0
	PC6.evaluate team members' performance and provide constructive feedback and guidance to facilitate improvement.	0	8	6	0
	PC7.assist in addressing any performance issues or conflicts within the team promptly.	0	8	6	0
	PC8.perform documentation of the deliverables based on the scope of the project	2	8	0	0
	PC9.provide work updates to the supervisor at regular intervals	2	0	6	0
NOS Total		10	48	42	0
FFS/N1011: Manage the worksite for required machine operations	<i>Prepare the work site for machine operation</i>	6	30	20	3
	PC1.analyse the technical drawings, part lists, cuttings lists, material lists, tools and equipment, etc. to determine job work requirements	0	6	4	0
	PC2.identify and select suitable machining methods, tools, equipment, and consumables for a given machining task.	0	6	4	0
	PC3.ensure organization of all the necessary tools, materials, and components based on job work requirements	0	6	4	0
	PC4.verify the availability and quality of materials to comply with drawing and specifications	2	6	0	1

	PC5.maintain health and safety (WHS) requirements, including personal protective equipment, during operations.	2	0	4	1
	PC6.perform the cleaning and maintenance of the worksite at regular intervals	2	6	4	1
	<i>Machine and job work setup</i>	<i>6</i>	<i>18</i>	<i>16</i>	<i>1</i>
	PC7. setout and adjust the machining program based on job work specifications	0	6	4	0
	PC8.select and feed the suitable machine consumables (like glue, adhesives, edge bands, etc.) based on job work details	2	6	4	0
	PC9.onitor the loading and unloading of the job work on/from the machine bed	2	0	4	0
	PC10.perform measurement and marking operations based on job work specifications	2	6	4	1
	NOS Total	12	48	36	4
FFS/N1012: Perform Machine Operations for required job work	<i>Perform machine initiation process</i>	<i>10</i>	<i>24</i>	<i>16</i>	<i>3</i>
	PC1.supervise the checking of fundamental systems such as air pressure, dust collector, stabilizers, etc. and mark the connections as per the machine initiation checklist	2	0	4	1
	PC2.perform installation and adjustment of appropriate tools and equipment per the project requirements (e.g., blades, edge bands, drill bits, etc.)	2	8	0	1
	PC3.ensure proper checking of the safety equipment, including emergency stops, gauges, guards and controls, before machine initiation	2	8	4	1
	PC4.perform marking on the dust extraction connections using machine marker as recommended by supervisor	2	8	4	0
	PC5.monitor the machine trial run to evaluate a required operation, accuracy, and quality and make necessary adjustments, if required.	2	0	4	0
	<i>Perform machining operation</i>	<i>10</i>	<i>16</i>	<i>20</i>	<i>1</i>
	PC6.perform feeding and handling of the job work in the machine for required operation	2	8	0	0
	PC7.perform the operation in accordance with its designed capacity and purpose, and to manufacturer recommendations	0	8	4	0
	PC8.monitor the operation periodically to evaluate product quality and yield.	2	0	4	1

	PC9.follow standard operating procedures and safety protocols during machine operation	2	0	4	0
	PC10.oversee material handling and movement after the operation	2	0	4	0
	PC11.ensure machine is operated to full efficiency and safety	2	0	4	0
	NOS Total	20	40	36	4
FFS/N1013: Perform machine maintenance and quality checking for required specifications	<i>Perform machine maintenance activities</i>	6	24	12	2
	PC1.record and report any machine malfunctions or deviations from standard procedures.	0	6	4	0
	PC2.conduct routine maintenance checks on machines to ensure proper functioning	2	6	4	1
	PC3.perform necessary cleaning, lubrication, and calibration of machines as per maintenance schedules	2	6	0	0
	PC4.inspect tools and equipment's for any wear, tear and take appropriate action as required	2	6	4	1
	<i>Perform quality checking for finished job work</i>	4	12	4	2
	PC5.inspect finished panels for measurement, quality, accuracy, and adherence to specifications.	2	6	0	1
	PC6.inspect and mark the defects, if any, such as wear & tear, paint, dents, grooves, cracks, rough edges, etc.	2	6	4	1
	<i>Clean up and maintain work area</i>	8	12	12	2
	PC7.ensure identification and storage of material after machining operation for re-use purpose	2	0	4	0
	PC8.ensure collection and disposal of the waste/ offcut material in the designated bay	2	6	4	1
	PC9.perform internal cleaning of tools and machines after machining operation	2	6	0	0
	PC10.ensure cleanliness at the machine station, tools and equipment at regular intervals	2	0	4	1
	NOS Total	18	48	28	6
FFS/N8203: Maintain health, safety, and greening practices at the worksite	<i>Maintain health and hygiene protocols</i>	6	8	16	5
	PC1. comply with health and personal hygiene- related protocols	1	1	2	1
	PC2. maintain adequate inventory of cleaning materials and consumables	1	1	2	1
	PC3. identify and report poor organizational practices concerning hygiene, food handling, cleaning	1	1	2	0

PC4. ensure that the trash cans or waste collection points are cleared every day	1	1	2	1
PC5. maintain records for cleanliness and maintenance schedule	0	1	2	0
PC6. use appropriate personal protective equipment compatible with the work and compliant with relevant Occupational Health and Safety (OHS) guidelines: masks, safety glasses, head protection, ear muffs, safety	1	1	2	1
PC7. wear clean clothes as per the dress code of the worksite	0	1	2	0
PC8. wash hands regularly using suggested material such as soap, one-use disposable tissue, warm water, etc.	1	1	2	0
<i>Dealing with emergencies</i>	<i>2</i>	<i>4</i>	<i>8</i>	<i>1</i>
PC9. use emergency equipment in accordance with manufacturers' specifications as per requirement	0	1	2	0
PC10. follow emergency and evacuation procedures in case of accidents, fires, natural calamities	1	1	2	0
PC11. respond promptly and appropriately to an accident situation or medical emergency	0	1	2	0
PC12. undertake first aid activities in case of an accident, if required and asked to do so	1	1	2	1
<i>Precautionary measures to avoid work hazards</i>	<i>3</i>	<i>5</i>	<i>10</i>	<i>2</i>
PC13. ensure that safety instructions applicable to the work place are being followed	0	1	2	0
PC14. monitor the usage of harmful chemicals inside the work area as per the specified guidelines only	1	1	2	0
PC15. plan out the routine cleaning of tools, machines, and equipment	0	1	2	0
PC16. employ an effective process to dispose off the hazardous material and wastage	1	1	2	1
PC17. employ safe working practices to perform a lift, carry or move heavy wooden furniture and accessories from one place to another	1	1	2	1
<i>Ensure material conservation and optimization of resources</i>	<i>5</i>	<i>7</i>	<i>14</i>	<i>4</i>

	PC18. plan out the process to ensure optimal material utilization	1	1	2	1
	PC19. collect information on the pattern of electricity and fuel consumption	0	1	2	0
	PC20. identify possibilities of using renewable energy and environment-friendly fuels	1	1	2	0
	PC21. plan the implementation of energy efficient systems in a phased manner	0	1	2	1
	PC22. plan and utilize the reusable materials and wastage in the process	1	1	2	1
	PC23. perform segregation of waste based on the type of material	1	1	2	1
	PC24. ensure to keep the electrical appliances in OFF position when not in use	1	1	2	0
	NOS Total	16	24	48	12
DGT/VSQ/N0102: Employability Skills (60 Hours)	<i>Introduction to Employability Skills</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>0</i>
	PC1. identify employability skills required for jobs in various industries	0	0	0	0
	PC2. identify and explore learning and employability portals	0	0	0	0
	<i>Constitutional values – Citizenship</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>0</i>
	PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc	0	0	0	0
	PC4. follow environmentally sustainable practices	0	0	0	0
	<i>Becoming a Professional in the 21st Century</i>	<i>2</i>	<i>4</i>	<i>0</i>	<i>0</i>
	PC5. recognize the significance of 21st Century Skills for employment	0	0	0	0

PC6. practice the 21st Century Skills such as Self- Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	0	0	0	0
<i>Basic English Skills</i>	2	6	0	0
PC7. use basic English for everyday conversation in different contexts, in person and over the telephone	0	0	0	0
PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English	0	0	0	0
PC9. write short messages, notes, letters, emails etc. in English	0	0	0	0
<i>Career Development & Goal Setting</i>	1	2	0	0
PC10. understand the difference between job and career	0	0	0	0
PC11. prepare a career development plan with short- and long-term goals, based on aptitude	0	0	0	0
<i>Communication Skills</i>	2	2	0	0
PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings	0	0	0	0
PC13. work collaboratively with others in a team	0	0	0	0
<i>Diversity & Inclusion</i>	1	2	0	0
PC14. communicate and behave appropriately with all genders and PwD	0	0	0	0
PC15. escalate any issues related to sexual harassment at workplace according to POSH Act	0	0	0	0
<i>Financial and Legal Literacy</i>	2	3	0	0
PC16. select financial institutions, products and services as per requirement	0	0	0	0
PC17. carry out offline and online financial transactions, safely and securely	0	0	0	0

PC18. identify common components of salary and compute income, expenses, taxes, investments etc	0	0	0	0
PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation	0	0	0	0
<i>Essential Digital Skills</i>	<i>3</i>	<i>4</i>	<i>0</i>	<i>0</i>
PC20. operate digital devices and carry out basic internet operations securely and safely	0	0	0	0
PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively	0	0	0	0
PC22. use basic features of word processor, spreadsheets, and presentations	0	0	0	0
<i>Entrepreneurship</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>0</i>
PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	0	0	0	0
PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	0	0	0	0
PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	0	0	0	0
<i>Customer Service</i>	<i>1</i>	<i>2</i>	<i>0</i>	<i>0</i>
PC26. identify different types of customers	0	0	0	0
PC27. identify and respond to customer requests and needs in a professional manner	0	0	0	0
PC28. follow appropriate hygiene and grooming standards	0	0	0	0
<i>Getting ready for apprenticeship & Jobs</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>0</i>
PC29. create a professional Curriculum vitae (Résumé)	0	0	0	0

	PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	0	0	0	0
	PC31. apply to identified job openings using offline /online methods as per requirement	0	0	0	0
	PC32. answer questions politely, with clarity and confidence, during recruitment and selection	0	0	0	0
	PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements	0	0	0	0
	NOS Total	20	30	0	0
FFS/N1014: Setup and operate pasting and pressing machines	<i>Prepare and setup the worksite</i>	<i>6</i>	<i>10</i>	<i>8</i>	<i>3</i>
	PC1.ensure materials and workpieces are prepared appropriately for machine operation, meeting job specifications, and quality standards.	2	4	0	1
	PC2.identify and select appropriate adhesives or glue for the job work, considering bonding strength, drying time, and compatibility factors.	0	6	4	1
	PC3.set up, configure, and calibrate pasting/pressing machines for various production requirements.	2	0	2	0
	PC4.perform adjustment of machine settings, such as time, temperature and pressure, to ensure optimal pasting/pressing results.	2	0	2	1
	<i>Perform pasting operation</i>	<i>4</i>	<i>12</i>	<i>10</i>	<i>1</i>
	PC5.apply adhesive or glue accurately and evenly to the materials, utilizing specialized tools or equipment such as rollers, sprayers, or applicators.	2	6	4	1
	PC6.check proper alignment and positioning of the materials, using guides, jigs, or templates, to achieve precise and consistent bonding.	2	0	2	0
	PC7.verify the compatibility and adherence of different material types and sizes to ensure successful pasting.	0	6	4	0
	<i>Execute pasting/pressing operation</i>	<i>6</i>	<i>10</i>	<i>8</i>	<i>0</i>
PC8.perform loading and unloading of the job work into the pasting/pressing equipment, ensuring proper alignment using offcut materials	0	6	4	0	

	PC9.ensure the setting up of pasting/pressing parameters, such as pressure, thickness, and duration, etc.	2	4	0	0
	PC10.operate appropriate pasting/pressing machines in accordance with standard operating procedures and safety guidelines.	2	0	2	0
	PC11.monitor the pasting/pressing operation periodically to evaluate product quality and yield.	2	0	2	0
	<i>Maintain equipment and tools</i>	<i>4</i>	<i>4</i>	<i>2</i>	<i>1</i>
	PC12.perform routine maintenance tasks on the pasting/pressing machine, such as cleaning, lubricating, and replacing worn parts.	2	4	0	1
	PC13.ensure management of the workspace by arranging and disposing off materials after the machining operation.	2	0	2	0
	<i>Quality assurance and documentation</i>	<i>4</i>	<i>4</i>	<i>2</i>	<i>1</i>
	PC14.perform quality checks and inspections on the pasted/pressed materials, evaluating the bond strength, alignment, and overall appearance.	2	4	0	1
	PC15.ensuring manufacturing specifications, quality control inspections, and modifications are accurately recorded and maintained.	2	0	2	0
	NOS Total	24	40	30	6
FFS/N1015: Setup and operate cutting and sizing machines	<i>Prepare the worksite</i>	<i>6</i>	<i>8</i>	<i>8</i>	<i>2</i>
	PC1.ensure materials and workpieces are prepared appropriately for machine operation, meeting job specifications, and quality standards.	2	4	0	1
	PC2.select and install appropriate cutting blades or tools based on the material type, thickness, and desired cutting outcome.	2	4	4	1
	PC3.set up, configure, and calibrate cutting/sizing machines for various production requirements like blade height, alignment, mitre angles, etc	2	0	4	0
	<i>Execute cutting/sizing operation</i>	<i>10</i>	<i>20</i>	<i>16</i>	<i>2</i>
	PC4.perform loading and unloading of the job work into the cutting/sizing equipment, ensuring proper alignment using offcut materials	2	4	2	0

	PC5.position and secure panel materials on the machine, ensuring proper alignment and stability.	0	4	2	0
	PC6.ensure cutting/sizing parameters are set up accurately, such as speed, depth, or angle, for efficient and precise results.	2	4	0	0
	PC7.measure and mark the materials accurately based on the project specifications and cutting requirements.	2	4	2	1
	PC8.operate cutting/sizing machines in accordance with standard operating procedures and safety guidelines.	2	0	4	0
	PC9.make use of advanced techniques and jigs to achieve intricate cuts, angles, or patterns as required by the project specifications.	0	4	2	0
	PC10.monitor the cutting/sizing operation periodically to evaluate product quality and yield.	2	0	4	1
	<i>Maintain equipment and tools</i>	4	8	2	1
	PC11.perform routine maintenance tasks on the cutting/sizing machine, such as cleaning, lubricating, and re-sharpening/replacement of worn parts.	2	4	0	1
	PC12.ensure management of the workspace by arranging and disposing off materials, tools, blades etc. after the machining operation.	2	4	2	0
	<i>Quality assurance and documentation</i>	4	4	4	1
	PC13.perform quality checks and inspections on the cut and sized materials, verifying dimensional accuracy, surface finish, and overall quality.	2	4	0	1
	PC14.ensuring manufacturing specifications, quality control inspections, and modifications are accurately recorded and maintained.	2	0	4	0
	NOS Total	24	40	30	6
FFS/N1016: Setup and operate edge band machines	<i>Prepare the worksite</i>	4	8	6	2
	PC1.ensure materials and workpieces are prepared appropriately for machine operation, meeting job specifications, and quality standards.	2	4	0	1
	PC2.select and install appropriate cutting tools, edge banding materials, adhesives, and other consumables.	0	4	2	0
	PC3.perform adjustment of machine settings, such as feed rate, temperature, pressure, and trimming tools, to ensure optimal edge banding results.	2	0	4	1

	<i>Execute edge banding operation</i>	12	20	22	1
	PC4.set up, configure, and calibrate edge band machines based on job work requirement like adhesive type, panel thickness, edge band thickness, etc.	2	4	0	0
	PC5.prepare the desired program on the machine to perform edge banding operation in required configurations	0	4	4	0
	PC6.execute the machine initialization process to preheat the machine prior to operation, ensuring the appropriate temperature for the glue is maintained	2	0	4	1
	PC7.operate edge banding machines in accordance with standard operating procedures and safety guidelines.	2	0	4	0
	PC8.feed panel materials into the machine and guide them through the edge banding process.	0	4	4	0
	PC9.ensure proper alignment and positioning of the edge band material to achieve precise edge banding results.	2	4	0	0
	PC10.perform the manual application of adhesive and edge banding material to the panel edges with precision and consistency using hand or power tools.	2	4	2	0
	PC11.monitor the edge band operation periodically to evaluate product quality and yield.	2	0	4	0
	<i>Maintain equipment and tools</i>	4	4	4	1
	PC12. perform routine maintenance tasks on the edge banding machine, such as cleaning, lubricating, and re-sharpening/replacement of worn parts.	2	4	0	1
	PC13.ensure management of the workspace by arranging and disposing off materials after the machining operation.	2	0	4	0
	<i>Quality assurance and documentation</i>	4	4	4	0
	PC14.perform quality checks and inspections on the edge banding results for adherence, smoothness, and overall quality.	2	4	0	0
	PC15.ensuring manufacturing specifications, quality control inspections, and modifications are accurately recorded and maintained.	2	0	4	0
	NOS Total	24	36	36	4
FFS/N1017: Setup and operate drilling machines	<i>Prepare the worksite</i>	6	12	6	3
	PC1.ensure materials and workpieces are prepared appropriately for machine operation, meeting job specifications, and quality standards.	2	6	0	1

PC2.select and install appropriate drill bits, and cutting tools, ensuring they are securely mounted and aligned for precise cutting.	2	6	2	1
PC3.set up, configure, and calibrate drilling machines for various production requirements.	2	0	4	1
<i>Execute drilling operation</i>	<i>8</i>	<i>18</i>	<i>12</i>	<i>0</i>
PC4.safely load and position workpieces onto the machine table or holding fixtures, ensuring they are securely clamped or held in place.	2	6	2	0
PC5.perform the machine initiation and guide the workpieces through the drilling operations, maintaining proper feed rates and tool engagement.	2	0	4	0
PC6.perform drilling operations, accurately creating holes or recesses in the workpieces according to the specified locations and dimensions.	0	6	2	0
PC7.ensure drilling parameters are set up accurately, such as speed, depth, or angle, for efficient and precise results.	2	6	0	0
PC8.monitor the drilling operation periodically to evaluate product quality and yield.	2	0	4	0
<i>Maintain equipment and tools</i>	<i>6</i>	<i>6</i>	<i>8</i>	<i>1</i>
PC9. perform routine maintenance tasks on the drilling machine, such as cleaning, lubricating, and re-sharpening/replacement of worn parts.	2	6	0	1
PC10.conduct regular inspections of the machine's components, checking for loose screws, belts, or bearings, sharpening, and tightening as needed.	2	0	4	0
PC11.ensure management of the workspace by arranging and disposing off materials after the machining operation.	2	0	4	0
<i>Quality assurance and documentation Prepare the worksite</i>	<i>4</i>	<i>6</i>	<i>4</i>	<i>0</i>
PC12.inspect the drilled workpieces using measuring tools, such as calipers or rulers, to verify hole diameters, depths, etc.	2	6	0	0
PC13.ensuring manufacturing specifications, quality control inspections, and modifications are accurately recorded and maintained.	2	0	4	0
NOS Total	24	42	30	4
<i>Prepare the worksite</i>	<i>6</i>	<i>10</i>	<i>6</i>	<i>3</i>

FFS/N1018: Setup and operate routing machines	PC1.ensure materials and workpieces are prepared appropriately for machine operation, meeting job specifications, and quality standards.	2	6	0	1
	PC2.select and install appropriate tool holders, collets, router bits, and cutting tools, ensuring they are securely mounted and aligned for precise cutting.	2	4	2	1
	PC3.set up, configure, and calibrate routing machines for various production requirements.	2	0	4	1
	<i>Execute routing operation</i>	<i>10</i>	<i>14</i>	<i>16</i>	<i>0</i>
	PC4.safely load and position workpieces onto the machine table or holding fixtures, ensuring they are securely clamped or held in place	2	4	2	0
	PC5.perform the machine initiation and guide the workpieces through the routing operations, maintaining proper feed rates and tool engagement.	2	0	4	0
	PC6.perform routing operations, accurately creating holes or recesses in the workpieces according to the specified locations and dimensions.	0	4	2	0
	PC7.perform routing operations with attention to detail, following the provided patterns or guidelines to shape, trim, or carve the workpieces.	2	0	4	0
	PC8.ensure routing parameters are set up accurately, such as speed, depth, or angle, for efficient and precise results.	2	6	0	0
	PC9.monitor the routing operation periodically to evaluate product quality and yield.	2	0	4	0
	<i>Maintain equipment and tools</i>	<i>6</i>	<i>6</i>	<i>8</i>	<i>1</i>
	PC10. perform routine maintenance tasks on the routing machine, such as cleaning, lubricating, and re-sharpening/replacement of worn parts.	2	6	0	1
	PC11.conduct regular inspections of the machine's components, checking for loose screws, belts, or bearings, sharpening, and tightening as needed.	2	0	4	0
	PC12.ensure management of the workspace by arranging and disposing off materials after the machining operation.	2	0	4	0
<i>Quality assurance and documentation</i>	<i>4</i>	<i>6</i>	<i>4</i>	<i>0</i>	
PC13.inspect the routed workpieces using measuring tools, such as callipers or rulers, to verify hole diameters, depths, or routing dimensions	2	6	0	0	

	PC14.ensuring manufacturing specifications, quality control inspections, and modifications are accurately recorded and maintained.	2	0	4	0
	NOS Total	26	36	34	4
FFS/N1019: Setup and Operate veneer cutting and splicing machines	<i>Prepare the worksite</i>	<i>4</i>	<i>12</i>	<i>8</i>	<i>1</i>
	PC1.ensure materials and workpieces are prepared appropriately for machine operation, meeting job specifications, and quality standards.	2	6	0	1
	PC2.select and install appropriate tools, adhesives, and veneer materials based on the material type, thickness, and desired cutting outcome.	0	6	4	0
	PC3.set up, configure, and calibrate veneer cutting/splicing machines for optimal results such as time, pressure, thickness, etc.	2	0	4	0
	<i>Execute veneer cutting/splicing operation Maintain equipment and tools</i>	<i>10</i>	<i>24</i>	<i>8</i>	<i>1</i>
	PC4.safely load and position workpieces onto the machine table or holding fixtures, ensuring they are securely clamped or held in place.	2	4	2	0
	PC5.perform the machine initiation and guide the workpieces through the veneer cutting/splicing machine	2	4	2	0
	PC6.measure, mark out, and cut veneers within the specified tolerances using veneer cutting machine to meet specifications	2	6	0	1
	PC7.join veneers using veneer splicing machine ensuring edges are correctly aligned with required tolerances and without distortion	0	4	2	0
	PC8.prepare the veneer sheets with desired size, shape, and pattern by marking, tracing, cutting, and joining the veneer sheets	2	6	0	0
	PC9.monitor the veneer cutting/splicing operation periodically to evaluate product quality and yield.	2	0	2	0
	<i>Maintain equipment and tools</i>	<i>6</i>	<i>6</i>	<i>6</i>	<i>1</i>
	PC10. perform routine maintenance tasks on the veneer cutting/splicing machine, such as cleaning, lubricating, and re-sharpening/replacement of worn parts.	2	6	0	1
PC11.conduct regular inspections of the machine's components, checking for loose screws, belts, or bearings, sharpening, and tightening as needed.	2	0	4	0	

	PC12.ensure management of the workspace by arranging and disposing off materials after the machining operation.	2	0	2	0
	<i>Quality assurance and documentation</i>	4	6	2	1
	PC13.perform quality checks and inspections on the materials, verifying dimensional accuracy, surface finish, and overall quality.	2	6	0	1
	PC14.ensuring manufacturing specifications, quality control inspections, and modifications are accurately recorded and maintained.	2	0	2	0
	NOS Total	24	48	24	4
FFS/N1020: Setup and operate panelworks CNC Machines	<i>Prepare worksite & set up machine</i>	4	24	8	2
	PC1.perform stacking and storage of materials and workpieces for machine operation at the designated machine stations	2	6	0	1
	PC2.check the quality of job work received for the CNC operation	0	6	2	1
	PC3.configure the CNC program to align with the task requirements	2	0	2	0
	PC4.adjust machine settings and perform necessary modifications based on job requirements and instructions provided by the machine and tool manufacturers.	0	6	2	0
	PC5.make final adjustments to CNC programs and equipment according to the task requirements and workplace protocols.	0	6	2	0
	<i>Perform CNC operation</i>	8	18	10	1
	PC6.support in handling and loading of the workpieces onto the machine accurately and efficiently.	2	6	2	0
	PC7.support in positioning and securing the materials on the CNC machines, utilizing clamps, jigs, or other appropriate methods.	0	6	2	0
	PC8.assist in performing measurement and marking on the job work for CNC operation	2	6	2	1
	PC9.operate the machine in line with its designated capacity, intended purpose, and the manufacturer's recommendations	2	0	2	0
	PC10.monitor machine operation to ensure the production of high-quality outputs.	2	0	2	0
<i>Maintain workspace and equipment</i>	4	6	2	1	

	PC11.assist the operator in cleaning and maintaining the CNC machine and its parts (machine bed, blade chamber, etc.).	2	6	0	1
	PC12. and manage the workspace, ensuring proper storage of panels and disposal of waste.	2	0	2	0
	<i>Quality control and inspection</i>	<i>4</i>	<i>6</i>	<i>2</i>	<i>0</i>
	PC13.assist in inspecting the materials for dimensional accuracy, cleanliness, and quality, ensuring they meet the required specifications.	2	6	0	0
	PC14.maintain proper documentation of manufacturing specifications and quality control inspections for the CNC process.	2	0	2	0
	NOS Total	20	54	22	4
	Grand Total	262	534	396	58

Annexure 7: Assessment Strategy

This section includes the processes involved in identifying, gathering, and interpreting information to evaluate the learner on the required competencies of the program.

At FFSC, we believe in gauging a candidate's performance, a holistic approach for Assessment is essential. We have devised a multi-tier process to keep track of candidate's overall progress at various stages. While a few techniques are imbibed as part of the training delivery program, others are explicit testing methods. These are:

1. Internal (Preferred)

- a. Trainer Led Assessment
- b. Master Trainer/ Program Mentor Led Assessment

2. External

- a. Assessment Partners/ Freelance Assessors (Mandatory)
- b. Industry (Preferred)

1. Internal (Preferred)

A. Trainer Led Assessment:

As part of the Training Delivery Program, various tests and projects are designed regularly to gauge the candidate's progress during the training program. These are a mix of Theory & practical, individual, and group activities.

Trainers will be provided specific training under the ToT programs to conduct these assessments. A report of the same will be submitted to the assigned Master Trainer/ Program Mentor.

B. Master Trainer/ Program Mentor Led Assessment:

Every trainer/ batch should be connected with a Master Trainer/ Program Mentor, who will keep a check on the progress of the batch. The Trainer can consult the Master Trainer/ Program Mentor regarding training delivery or conducting periodic assessments.

Master Trainer/ Program Mentor may conduct their session to assess the candidates' progress, using the means deemed suitable and feasible.

2. External

A. Assessment Partners/ Freelance Assessors:

Assessment Partners shall mandatorily conduct an external assessment via ToA certified Assessors or ToA certified Freelance Assessors. There are three critical stages of any assessment activity – Pre-Assessment, During Assessment, and Post Assessment. The defined system for conducting the Assessment shall be followed at each stage.

FFSC Training & Assessment Team or any other assigned authority by FFSC may conduct surprise or planned visits and checks from a quality assurance and monitoring perspective.

The requirements and details of each stage are highlighted below:

1. Pre-Assessment:

- a. Assessment Partner/ Assessor/ Freelance Assessor Validation
- b. Training Centre Check for Assessment Setup/ Infra
- c. Question Papers submission by Assessment Partner/ Freelance Assessor to FFSC
- d. FFSC to validate and approve the Question papers in line with NOS and PC.
- e. FFSC Affiliation and Project Assessment Approval
- f. Centre ready for Assessment intimation by Training Partner or by the assigned Neutral Assessment Centre

2. During Assessment (on the Assessment Day): The Assessment can be conducted in offline, online, or hybrid format depending on the feasibility and approvals from FFSC. Under either process, the below guidelines are essential to be compiled:

- a. Check the availability of the Lab Equipment for the particular Job Role as per the mode of conducting the Assessment.
- b. Candidate Validation: Confirm the Aadhar Card details of candidates
- c. Check the duration of the training
- d. Check the Assessment Start and End time to be as specified in documents
- e. Assessor/ Freelance Assessor must follow the assessment guidelines at all times.
- f. Intimation to FFSC Training & Assessment Monitoring Team for Assessment Quality Assurance checks.
- g. Ensure evidence of conducting Assessment gathered as per FFSC protocol:
 - i. Time-stamped & geotagged reporting of the Assessor from assessment location
 - ii. Centre photographs with signboards and scheme-specific branding

- iii. Biometric or manual attendance sheet (stamped by T.P.) of the trainees during the training period
- iv. Time-stamped & geotagged assessment (Theory + Viva + Practical) photographs & videos
- h. Required documentation for submissions to the FFSC

3. Post Assessment:

- a. Timely submission of the assessment documentation and feedback to FFSC
- b. Hard copies of the documents are stored
- c. Soft copies of the documents & photographs of the Assessment are uploaded/accessed from Cloud Storage
- d. Soft copies of the documents & photographs of the Assessment stored in the Hard Drives
- e. Any other compliance requirement as defined by FFSC

B. Industry Partner:

FFSC may engage the Industry Partners and the Subject Matter Experts to conduct the Assessment of the candidates at various stages during the training program.

Annexure 8: Acronym and Glossary

Acronym	Description
AA	Assessment Agency
AB	Awarding Body
ISCO	International Standard Classification of Occupations
NCO	National Classification of Occupations
NCrF	National Credit Framework
NOS	National Occupational Standard(s)
NQR	National Qualification Register
NSQF	National Skills Qualifications Framework
OJT	On the Job Training
MEP	Mechanical Electrical Plumbing
CAD	Computer-Aided Design
PwD	Person with Disability
POSH	Prevention Of Sexual Harassment
OHS	Occupational Health and Safety

Glossary

Term	Description
National Occupational Standards (NOS)	NOS define the measurable performance outcomes required from an individual engaged in a particular task. They list down what an individual performing that task should know and also do.
Qualification	A formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards
Qualification File	A Qualification File is a template designed to capture necessary information of a Qualification from the perspective of NSQF compliance. The Qualification File will be normally submitted by the awarding body for the qualification.
Sector	A grouping of professional activities on the basis of their main economic function, product, service or technology.
Long Term Training	Long-term skilling means any vocational training program undertaken for a year and above. https://ncvet.gov.in/sites/default/files/NCVET.pdf
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities