



QUALIFICATION FILE

Aerospace Composite Technician

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

Submitted By:

Aerospace and Aviation Sector skill Council

AASSC, C/o Dynamatic Manufacturing Ltd,

Plot No. V77 & 78, 1st Main Road, 2nd stage

Peenya Industrial Area, Bengaluru- 560058

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Section 1: Basic Details

1.	Qualification Name	Aerospace Composite Technician													
2.	Sector/s	Manufacturing and Assembly													
3.	Type of Qualification: <input type="checkbox"/> New <input checked="" type="checkbox"/> Revised <input type="checkbox"/> Has Electives/Options <input type="checkbox"/> OEM	NQR Code & version of existing/previous qualification: <i>(change to previous, once approved)</i> Version 3 QG-04-AA-04191-2025-V2-AASSC	Qualification Name of existing/previous version: Aerospace Composite Technician												
4.	OEM Name Qualification Name (Wherever applicable)	b. Aerospace Composite Technician													
5.	National Qualification Register (NQR) Code &Version <i>(Will be issued after NSQC approval)</i>	QG-04-AA-04191-2025-V2-AASSC	6. NCrf/NSQF Level: 4												
7.	Award (Certificate/Diploma/Advance Diploma/ Any Other <i>(Wherever applicable specify multiple entry/exits also & provide details in annexure)</i>	certificate													
8.	Brief Description of the Qualification	An Aerospace Composite Technician specializes in manufacturing, repairing, and maintaining composite materials used in aerospace structures. The role involves precise work with materials like carbon fiber and fiberglass, ensuring high-quality and lightweight components. Proficiency in applying advanced techniques, such as layup, curing, and bonding, is essential for meeting aerospace industry standards.													
9.	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 (with Specialization - if applicable)</th> <th>Required Experience (with Specialization - if applicable)</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>12th Class Pass or Equivalent</td> <td>In Science With Maths and Phycis(Mandatory)</td> </tr> <tr> <td>02</td> <td>10th Class Pass</td> <td>3 years' relevant experience</td> </tr> <tr> <td>03</td> <td>Pervious NSQF Level 3 in a relevant job role</td> <td>3 years' relevant experience</td> </tr> </tbody> </table> <p>b. Age: 18</p>		S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)	01	12th Class Pass or Equivalent	In Science With Maths and Phycis(Mandatory)	02	10th Class Pass	3 years' relevant experience	03	Pervious NSQF Level 3 in a relevant job role	3 years' relevant experience
S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)													
01	12th Class Pass or Equivalent	In Science With Maths and Phycis(Mandatory)													
02	10th Class Pass	3 years' relevant experience													
03	Pervious NSQF Level 3 in a relevant job role	3 years' relevant experience													
10.	Credits Assigned to this Qualification, Subject to Assessment <i>(as per National Credit Framework (NCrF))</i>	21	11. Common Cost Norm Category (I/II/III) <i>(wherever applicable):</i> I												

12.	Any Licensing requirements for Undertaking Training on This Qualification (wherever applicable)	NIL																						
13.	Training Duration by Modes of Training Delivery (Specify Total Duration as per selected training delivery modes and as per requirement of the qualification)	<input checked="" type="checkbox"/> Offline <input type="checkbox"/> Online <input type="checkbox"/> Blended <table border="1"> <thead> <tr> <th>Training Delivery Modes</th> <th>Theory (Hours)</th> <th>Practical (Hours)</th> <th>OJT Mandatory (Hours)</th> <th>OJT Recommended (Hours)</th> <th>Total (Hours)</th> </tr> </thead> <tbody> <tr> <td>Classroom (offline)</td> <td>240:00</td> <td>360:00</td> <td>30:00</td> <td>00:00</td> <td>630:00</td> </tr> <tr> <td>Online</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> (Refer Blended Learning Annexure for details)					Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)	Classroom (offline)	240:00	360:00	30:00	00:00	630:00	Online					
Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)																			
Classroom (offline)	240:00	360:00	30:00	00:00	630:00																			
Online																								
14.	Aligned to NCO/ISCO Code/s (if no code is available mention the same)	NCO-2015/8142.9900																						
15.	Progression path after attaining the qualification (Please show Professional and Academic progression)	GM – Manufacturing, Manager Manufacturing, Aerospace Composite & Plastic Engineer, Aerospace Composite Technician																						
16.	Other Indian languages in which the Qualification & Model Curriculum are being submitted	Nil																						
17.	Is similar Qualification(s) available on NQR-if yes, justification for this qualification	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No URLs of similar Qualifications:																						
18.	Is the Job Role Amenable to Persons with Disability	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If "Yes", specify applicable type of Disability:																						
19.	How Participation of Women will be Encouraged	Encouraging women in the Aerospace Composite Technician role requires targeted skill development programs with scholarships and flexible learning options. Collaboration with aerospace companies can introduce women-only apprenticeships and inclusive hiring policies. Awareness efforts, including career guidance and role model showcases, will inspire more women to join the field																						
20.	Are Greening/ Environment Sustainability Aspects Covered (Specify the NOS/Module which covers it)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																						
21.	Is Qualification Suitable to be Offered in Schools/Colleges	Schools <input type="checkbox"/> Yes <input type="checkbox"/> No Colleges <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																						
22.	Name and Contact Details of Submitting / Awarding Body SPOC (In case of CS or MS, provide details of both Lead AB & Supporting ABs)	Name: Aerospace and Aviation Sector Skill Council Email: touchdown@aassc.in Contact No.: 080-28398506 Website: https://www.aassc.in/																						
23.	Final Approval Date by NSQC: 08/05/2025	24. Validity Duration: 3 Years			25. Next Review Date: 08-05-2028																			

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 (if applicable)	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 (%) (if applicable)
1.	Understand different types of composite materials	AAS/N1305 NOS Version No. – 1.0	Core	4	4	50:00	60:00	10:00	00:00	120:00	40	60	-	-	100	10
2.	Understand the composite parts fabrication process for aircraft components/structures	AAS/N1301 NOS Version No. – 2.0	Core	4	5	55:00	90:00	05:00	00:00	150:00	37	63	-	-	100	20
3.	Perform manual fabrication process of the composites for aircraft components/structures	AAS/N1302 NOS Version No. – 2.0	Core	4	4	40:00	75:00	05:00	00:00	120:00	40	60	-	-	100	25
4.	Perform automatic fabrication process of the composites for aircraft components/structures	AAS/N1303 NOS Version No. – 2.0	Core	4	5	55:00	90:00	05:00	00:00	150:00	42	58	-	-	100	25

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	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 (%) (if applicable)
5.	Maintain 5S at the work premises	ASC/N0021 NOS Version No. – 1.0	core	4	1	10:00	15:00	05:00	00:00	30:00	25	75	-	-	100	15
6.	Employability Skills	DGT/VSQ/N0102 NOS Version No. – 1.0	Non-core	4	2	30:00	30:00	00:00	00:00	60:00	20	30	-	-	50	5
Duration (in Hours) / Total Marks					21	240:00	360:00	30:00	00:00	630:00	204	346	-	-	550	100

Elective NOS/s:

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	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 (%) (if applicable)
1.	Nil															
2.																
Duration (in Hours) / Total Marks																

Optional NOS/s:

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	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 (%) (if applicable)
1.	Nil															
2.																
Duration (in Hours) / Total Marks																

Assessment - Minimum Qualifying Percentage

Please specify **any one** of the following:

Minimum Pass Percentage – Aggregate at qualification level: 60 % (Every Trainee should score specified minimum aggregate passing percentage at qualification level to successfully clear the assessment.)

Section 3: Training Related

1.	Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)	Graduate in Any Specialization with 2- 3 years' Experience in relevant field.
2.	Master Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)	Graduate in Any Specialization with 5- 10 years' Experience in relevant field.
3.	Tools and Equipment Required for Training	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If "Yes", details to be provided in Annexure)
4.	In Case of Revised Qualification, Details of Any Upskilling Required for Trainer	Nil

Section 4: Assessment Related

1.	Assessor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	Graduate in Any Specialization with 2- 3 years' Experience in relevant field.
2.	Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	Diploma/ITI in Any Specialization with 2- 3 years' Experience in relevant field.
3.	Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	Graduate in Any Specialization with 5- 10 years' Experience in relevant field.
4.	Assessment Mode (Specify the assessment mode)	Offline
5.	Tools and Equipment Required for Assessment	<input checked="" type="checkbox"/> Same as for training <input type="checkbox"/> Yes <input type="checkbox"/> No (details to be provided in Annexure-if it is different for Assessment)

Section 5: Evidence of the need for the Qualification

Provide Annexure/Supporting documents name.

1.	Latest Skill Gap Study (not older than 2 years) (Yes/No): No
2.	Latest Market Research Reports or any other source (not older than 2 years) (Yes/No): Yes
3.	Government /Industry initiatives/ requirement (Yes/No): Yes
4.	Number of Industry validation provided: 1
5.	Estimated nos. of persons to be trained and employed: 1350
6.	Evidence of Concurrence/Consultation with Line Ministry/State Departments: Yes

Section 6: Annexure & Supporting Documents Check List

Specify Annexure Name / Supporting document file name

1.	Annexure: NCrf/NSQF level justification based on NCrf level/NSQF descriptors (Mandatory)	Attached
2.	Annexure: List of tools and equipment relevant for qualification (Mandatory, except in case of online course)	Attached
3.	Annexure: Detailed Assessment Criteria (Mandatory)	Attached
4.	Annexure: Assessment Strategy (Mandatory)	Attached
5.	Annexure: Blended Learning (Mandatory, in case selected Mode of delivery is "Blended Learning")	
6.	Annexure: Multiple Entry-Exit Details (Mandatory, in case qualification has multiple Entry-Exit)	
7.	Annexure: Acronym and Glossary (Optional)	Attached
8.	Supporting Document: Model Curriculum (Mandatory – Public view)	Attached
9.	Supporting Document: Career Progression (Mandatory - Public view)	Attached
10.	Supporting Document: Occupational Map (Mandatory)	Attached
11.	Supporting Document: Assessment SOP (Mandatory)	Attached
12.	Any other document you wish to submit:	Nil

Annexure: 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	Aerospace Composite Technician is responsible for performing composite operation on aerospace parts and understanding the part drawings and its process sheets and understanding the safety points and precautions for manufacturing composite parts.	The jobholder is responsible for carrying out activities such as understanding the composite part to be manufactured, performing manual or automatic fabrication process of the composite part. This involves working in some familiar, predictable and routine situations. He will be responsible for carrying out a range of jobs where some of them will require them to make choices about the approaches that must be adopted. Hence, it qualifies as a Level 4 Role. For ex: understand the requirements for programming the model and the drawing, understand the composite process to be chosen for manufacturing the part, performing the operations in the manual or automatic fabrication process etc., However, the job holder does not perform problem solving or supervisory role. Therefore, it does not qualify for Level 5 role. At the same time, the job holder is not required to work in a limited to range of jobs under close supervision. He is also not a 'partly skilled' worker, the job role cannot be pegged at level 3 for ex: study and understand the component drawings for fabricating the composite parts mentioned in the drawings, ensure availability of route book and plan lay-up sequence, procedure to manufacture a part, ensure understanding of required fabrication tolerances mentioned in the drawings. etc as mentioned in the adjacent cell. Hence NSQF level should be 4.	4
Professional and Technical Skills/ Expertise/ Professional Knowledge	The user/individual on the job needs to know and understand how to: comprehend the	The job holder is expected to have factual knowledge of the field of Aerospace Composite Part production. For Ex: ensure	

	<p>organisation's safety and security policies and procedures, comprehend the regulatory guidelines on safe conduct of operations and maintenance of conditions to thwart any acts of unlawful interference, report any identified breaches of safety, and security policies and procedures to the designated person, coordinate with other resources at the workplace (within and outside the organisation) to achieve safe and secure environment, identify and mitigate any safety and security hazards like illness, accidents, fires or acts of unlawful interference if it falls within the limits of individual's authority, report any hazards outside the individual's authority to the relevant person in line with organisational procedures and regulatory guidelines, understand the drawings and model related to the part to be produced, understand the tolerances on the part and the manufacturing process, the layup sequence of the composite part, check with shop supervisor/ designer to finalise the manufacturing process for open mould and closed mould composite parts, ensure start layup of part as per the layup sequence/ sketch, refer to drawings where required and ensures correctness of material and orientation. Lay-up of travel coupon panels (TC panels) as</p>	<p>availability of route book and plan lay-up sequence, procedure to manufacture a part, ensure process is finalised and required accessories and tools are available to cut the material etc., Since all the above-mentioned areas are commensurate to the level 4 professional knowledge, the role qualifies for Level 4. As the job holder requires professional knowledge higher than basic facts, processes in the field etc., therefore it cannot be pegged at level 3. For ex: clean the tool layup surface using right cleaning agent as mentioned in the work instructions/ route book, ensure appropriate safety factors have been considered and precautions taken to avoid accidents, follow the various safety instructions mentioned in the work instructions/ safety sign boards / process sheets, interpret and gather components drawings, route book, lay up sequence/ sketch for establishing the process control and development controls, ensure the prepeg material should be kept for the required hours at room temperature before use, ensure availability of required materials like prepregs, adhesives, cores, sheet metal details etc. required to start part/assembly fabrication, ensure start lay-up of part as per the layup sequence/ sketch, refer to drawings where required and ensures correctness of material and orientation. Lay-up of travel coupon panels (TC panels) as required and the route book, lay-up (monolithic or sandwich) as per approved drawings/ process sheet etc., Therefore it cannot be pegged at level 3 and ideally fit as a level 4 Job Role</p>	4
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	required and the route book, lay-up (monolithic or sandwich) as per approved drawings/ process sheet etc.,		
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	The user/individual on the job needs to know and understand how to: make decisions on a suitable course of action or response if permitted by the authority matrix, monitor efficient functioning of all activities, plan and organize work to achieve targets and deadlines, communicate with customers and other stakeholders in a courteous manner, maintain cordial work relationship, identify trends/common causes for errors and suggest possible solutions to the supervisor / management, identify and correct errors, analyze best possible solutions (cost, time, effort, etc.) suited for operations, concentrate on task at hand and complete it without errors, apply balanced judgments to different situations etc.,	The job holder is expected to recall and demonstrate practical skill in carrying out routine and repetitive activities in a narrow range of applications, using appropriate rule and tool. For instance, understand the tolerances on the part and the manufacturing process, the layup sequence of the composite part, check with shop supervisor/ designer to finalise the manufacturing process for open mould and closed mould composite part, recognise a workplace problem or a potential problem and take action, determine problems needing priority action, refer problems outside area of responsibility to appropriate person, gather information and provide assistance as required to solve problems etc., As the job does not require recalling and demonstrating practical skill, routine and repetitive in narrow range application. For ex: analyse best possible solutions (cost, time, effort, etc.) suited for operations, recognise a work place problem or a potential problem and take action, analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communicate to act efficiently etc., Here the jobholder has to use appropriate rules and tools to perform his role; this role does not fit at level 3 but at level 4.	4
	. The individual on the job needs to know and understand how to: write basic level notes and observations, draw basic drawings and charts, discuss task	The job holder is expected to complete accurate, complete accurately well written report in English language detailing the situations of emergency with attention to detail, read instructions/ guidelines/	

<p>Broad Learning Outcomes/Core Skill</p>	<p>lists and job requirements with co-workers, effectively communicate information to team members, question supervisor in order to understand the nature of the problem, attentively listen with full attention and comprehend the information given by the speaker, read documents and notes , interpret/ comprehend the information given in the documents and notes, read and interpret symbols given on equipment and work area.</p>	<p>procedures/rules, listen to and orally communicate information with all concerned, document the available information, note down observations in the given format, write information documents to concerned departments/teams under guidance of supervisor, etc., read and interpret engineering drawings, sketches and symbols used, read the organization/manufacturer manuals and process documents. Hence, this role qualifies for Level 4. As the job holder requires core skills of language, written and oral to communicate with required clarity, read instructions/guidelines and communicate higher than requiring core skills of language, written and oral to communicate with minimum clarity, therefore it cannot be pegged at level 3.</p>	<p>4</p>
<p>Responsibility</p>	<p>The Aerospace CNC Programmer is responsible for Compulsory: 1. AAS/ N1305: understand the different types of composites materials 2. AAS/N1301: Understand the composite parts fabrication process 3. AAS/N 1302: Perform manual fabrication process of the composites for aircraft components/structures 4. AAS/ N1303: Perform automatic fabrication process of the composites for aircraft components/structures 5. ASC/N0021: Maintain 5S at the work premises 6. ELE/N9905: Work effectively at the workplace</p>	<p>The job holder is responsible for only own work and learning. S/he is a skilled worker who carries out work activities of Understand the composite parts fabrication process, Perform manual fabrication process, Perform automatic fabrication process, Follow safety and security procedures, Maintain 5S at the work premises and Work effectively in a team. Hence, this role qualifies for Level 4. It does not comprise of any supervisory activities. As this job is about having responsibility for own working and learning and is not working under close supervision within defined limits. Therefore, it cannot be pegged at level 3. For ex: understand the requirements for producing the composite part, understanding the engineering drawing and the 3D models of the part, the lay up sequence of the part, the tools and accessories to produce the part, the</p>	<p>4</p>

	7. DGT/VSQ/N0102: Employability Skills	understanding the process of the part production etc.,	
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Annexure: Tools and Equipment (Lab Set-Up)

List of Tools and Equipment

Batch Size: 30

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1	Black/White Board & Markers		1
2	PC based projection system		1
3	Computer aided instructional packages/video films		1
4	Concerned wall charts		4
5	First aid kit		3
6	Basic fire safety aids		1
7	Measuring instruments (Vernier Calipers, micrometer, Dial gauges etc.,)		10
8	Personal protective equipment (PPE) (gloves, goggles, ear plugs, nose masks)		10
9	Tool Kit (Reamer, drilling machine, etc.,)		10
10	Autoclave		1
11	Prepregs cutting machine		1
12	Hydraulic press		1
13	Laser projection equipment		1
14	CT scan		1
15	Pneumatic tools		10
16	Water jet cutting machine		1
17	UTM		1
18	Honeycomb tools		10
19	Cold store		1
20	Computers aided instructional packages/video films		1
21	Concerned wall charts		4

Classroom Aids

The aids required to conduct sessions in the classroom are:

1. White/Black, board, Markers, computer and projector, trainer's guide, student handbook

Annexure: Industry Validations Summary

Provide the summary information of all the industry validations in table. This is not required for OEM qualifications.

S. No	Organization Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID	LinkedIn Profile (if available)
1	Hindustan Aeronautics Ltd Bengaluru	Mr. Suresh M	Addl.General Manager	HAL,Skill Development, Bengaluru	9902132788	m.suresh@hal-india.co.in	

Annexure: 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
2025	250					
2026	500					
2027	600					

Data to be provided year-wise for next 3 years

Training, Assessment, Certification, and Placement Data for previous versions of qualifications:

Qualification Version	Year	Total Candidates				Women				People with Disability			
		Trained	Assessed	Certified	Placed	Trained	Assessed	Certified	Placed	Trained	Assessed	Certified	Placed
	2022	256	219	219									
	2023	-	-	-									
	2024	-	-	-									

Applicable for revised qualifications only, data to be provided year-wise for past 3 years.

List Schemes in which the previous version of Qualification was implemented:

- 1.
- 2.

Content availability for previous versions of qualifications:

Participant Handbook Facilitator Guide Digital Content Qualification Handbook Any Other:

Languages in which Content is available:

Annexure: 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 type="checkbox"/> Theory/ Lectures - Imparting theoretical and conceptual knowledge		
2	<input type="checkbox"/> Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners		
3	<input type="checkbox"/> Showing Practical Demonstrations to the learners		
4	<input type="checkbox"/> Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training		
5	<input type="checkbox"/> Tutorials/ Assignments/ Drill/ Practice		
6	<input type="checkbox"/> Proctored Monitoring/ Assessment/ Evaluation/ Examinations		
7	<input type="checkbox"/> On the Job Training (OJT)/ Project Work Internship/ Apprenticeship Training		

Annexure: 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
AAS/ N1305: Understand different types of composites materials	<i>Identify Types and Characteristics of Composite Materials</i>	15	30	-	-
	PC1. Define composite materials and understand their role in aerospace engineering.	3	6	-	-
	PC2. Identify different types of fibers (e.g., carbon, glass, aramid) used in aerospace composites.	3	6	-	-
	PC3. Describe various resin/matrix materials (e.g., epoxy, polyester, phenolic) used in composite structures.	3	6	-	-
	PC4. Distinguish between thermoset and thermoplastic composites and their applications.	3	6	-	-
	PC5. Understand the concept of fiber orientation and lay-up patterns	3	6	-	-
	<i>Understand Manufacturing and Processing Methods</i>	15	15	-	-
	PC6. Identify common manufacturing methods (e.g., hand lay-up, vacuum bagging, RTM, filament winding).	5	5	-	-
	PC7. Understand the curing process and the importance of temperature, pressure, and time control.	5	5	-	-
	PC8. Recognize defects in composite manufacturing such as delamination, porosity, or fiber misalignment.	5	5	-	-
	<i>Know Applications and Limitations of Composites</i>	10	15	-	-
	PC9. Identify key aerospace components made from composite materials (e.g., fuselage panels, fairings, control surfaces).	4	5	-	-
	PC10. Understand the advantages of composites (e.g., high strength-to-weight ratio, corrosion resistance).	3	5	-	-
	PC11. Understand the limitations and challenges, including repair complexity and material sensitivity.	3	5	-	-
	NOS Total	40	60	-	-
	PC1. study and understand the component drawings for fabricating the composite parts mentioned in the drawings.	4	7	-	-
	PC2. ensure availability of route book and plan lay-up sequence, procedure to manufacture a part	4	7	-	-
	PC3. ensure understanding of required fabrication tolerances mentioned in the drawings	4	7	-	-
	PC4. ensure process is finalized and required accessories are available to cut the material	4	7	-	-

AAS/N1301: Understand the composite parts fabrication process for aircraft components/structures	PC6. ensure that the forming tool is calibrated before start of tool cleaning; refer to the calibration sticker attached to the tool for the calibration date check	4	7	-	-
	PC7. clean the tool layup surface using right cleaning agent as mentioned in the work instructions/ route book	4	7	-	-
	PC8. ensure appropriate safety factors have been considered and precautions taken to avoid accidents	4	7	-	-
	PC9. follow the various safety instructions mentioned in the work instructions/ safety sign boards / process sheets	5	7	-	-
	NOS Total	37	63	-	-
AAS/N1302: Perform manual fabrication process of the composites for aircraft components/structures	PC1. ensure the right tool are available for the part layup, refer work instructions and the route book/ process sheet for the tool number and the part number	3	4	-	-
	PC2. ensure the tool is calibrated before start of tool cleaning; refer to the calibration sticker attached to the tool for the calibration date check	3	4	-	-
	PC3. clean the tool layup surface using right cleaning agent as mentioned in the work instructions/ route book	3	4	-	-
	PC4. interpret and gather components drawings, route book, lay up sequence/ sketch for establishing the process control and development controls	3	4	-	-
	PC5. ensure the prepeg material should be kept for the required hours at room temperature before use	3	4	-	-
	PC6. ensure availability of required materials like prepregs, adhesives, cores, sheet metal details etc. required to start part/assembly fabrication	3	4	-	-
	PC7. ensure start lay-up of part as per the layup sequence/ sketch, refer to drawings where required and ensures correctness of material and orientation. Lay-up of travel coupon panels (TC panels) as required and the route book	3	4	-	-
	PC8. lay-up (monolithic or sandwich) as per approved drawings/ process sheet	3	4	-	-
	PC9. place the thermocouple between the tool surface after completion of lay-up, and lay-up to monitor the temperature during curing	3	4	-	-
	PC10. ensure the right bagging film, release film, breather and the sealant are used for bagging; check the shelf life of these materials with the supervisor	3	4	-	-
	PC11. prepare vacuum bag and seal the lay-up with vacuum bag, provide the vacuum valves	2	4	-	-

	PC12. carry out vacuum leak check, vacuum leak shall be within permissible limits	2	4	-	-
	PC13. trim the parts and de-burr as per the drawings.	2	4	-	-
	PC14. maintain a clean and safe working environment near the trimming place to avoid contaminated oil/ moisture absorption.	2	4	-	-
	PC15. prepare test specimens to the correct dimensions as per the standards/ work instructions.	2	4	-	-
	NOS Total	40	60	-	-
AAS/N1303: Perform automatic fabrication process of the composites for aircraft components/structures	PC1. interpret and understand the layup sequence mentioned in the drawing/ route card/ process sheet	3	4	-	-
	PC2. collect all the required tools from stores	3	4	-	-
	PC3. fill up required mixture of composite fibers and resins as mentioned in the process sheet in the hooper.	3	4	-	-
	PC4. prepare the prepregs material for moulding and store in the laying up machine	3	4	-	-
	PC5. ensure that the layup sequence is adhered as per drawings/ process sheet	3	4	-	-
	PC6. maintain the required gap between layup rollers and the bench	3	4	-	-
	PC7. roll the rollers such that there is continuity in laying up the prepreg material or fix up the ends of the fibre on the machine and fix up on the surface. Ensure procedure/ laying instructions as per the laying up machine are followed	3	4	-	-
	PC8. apply adhesives or appropriate bonding on the surface using another set of rollers on the machine	3	4	-	-
	PC9. ensure sufficient thickness has been achieved on the surface as per given process sheet/ work instruction	3	4	-	-
	PC10. trim the excess material using the cutters on the machine	3	4	-	-
	PC11. finish the edges as per procedures provided in the drawing	3	4	-	-
	PC12. maintain a clean and safe working environment near the machine to avoid contaminated oil/ moisture absorption	3	4	-	-
	PC13. prepare the test specimens to the correct dimensions as per the standards/ work instructions	3	5	-	-
	PC14. offer parts and specimen to Quality department for inspection	3	5	-	-
NOS Total	42	58	-	-	

ASC/N0021: Maintain 5S at the work premises	PC1. follow the sorting process and check that the tools, fixtures & jigs that are lying on workstations are the ones in use and unnecessary items are not cluttering the workbenches or work surfaces.	1	3	-	-
	PC2. ensure segregation of waste in hazardous/ non-hazardous waste as per the sorting work instructions	1	3	-	-
	PC3. follow the technique of waste disposal and waste storage in the proper bins as per sop	1	3	-	-
	PC4. segregate the items which are labelled as red tag items for the process area and keep them in the correct places	1	3	-	-
	PC5. sort the tools/ equipment/ fasteners/ spare parts as per specifications/ utility into proper trays, cabinets, lockers as mentioned in the 5s guidelines/ work instructions	1	3	-	-
	PC6. ensure that areas of material storage areas are not overflowing	1	3	-	-
	PC7. properly stack the various types of boxes and containers as per the size/ utility to avoid any fall of items/ breakage and also enable easy sorting when required	1	3	-	-
	PC8. return the extra material and tools to the designated sections and make sure that no additional material/ tool is lying near the work area	1	3	-	-
	PC9. follow the floor markings/ area markings used for demarcating the various sections in the plant as per the prescribed instructions and standards	1	3	-	-
	PC10. follow the proper labeling mechanism of instruments/ boxes/ containers and maintaining reference files/ documents with the codes and the lists	1	3	-	-
	PC11. check that the items in the respective areas have been identified as broken or damaged	1	3	-	-
	PC12. follow the given instructions and check for labelling of fluids oils, lubricants, solvents, chemicals etc. and proper storage of the same to avoid spillage, leakage, fire etc.	1	3	-	-
	PC13. Make sure that all material and tools are stored in the designated places and in the manner indicated in the 5s instructions	1	3	-	-
	PC14. check whether safety glasses are clean and in good condition	1	3	-	-
	PC15. keep all outside surfaces of recycling containers are clean	1	3	-	-
	PC16. ensure that the area has floors swept, machinery clean and generally clean. in case of cleaning, ensure that proper displays are maintained on the floor which indicate potential safety hazards	1	3	-	-
	PC17. check whether all hoses, cabling & wires are clean, in good condition and clamped to avoid any mishap or mix up	1	3	-	-
	PC18. ensure workbenches and work surfaces are clean and in good condition	1	3	-	-

	PC19. follow the cleaning schedule for the lighting system to ensure proper illumination	1	3	-	-
	PC20. store the cleaning material and equipment in the correct location and in good condition	1	3	-	-
	PC21. ensure self-cleanliness - clean uniform, clean shoes, clean gloves, clean helmets, personal hygiene	1	3	-	-
	PC22. follow the daily cleaning standards and schedules to create a clean working environment	1	3	-	-
	PC23. attend all training programs for employees on 5 s	0.5	2	-	-
	PC24. support the team during the audit of 5 s	1	3	-	-
	PC25. participate actively in employee work groups on 5s and encourage team members for active participation	0.5	2	-	-
	PC26. follow the guidelines for what to do and what not to do to build sustainability in 5s as mentioned in the 5s check lists/ work instructions	1	2	-	-
	NOS Total	25	75	-	-
DGT/VSQ/N0102: Employability Skills	<i>Introduction to Employability Skills</i>	1	1	-	-
	PC1. identify employability skills required for jobs in various industries	-	-	-	-
	PC2. identify and explore learning and employability portals	-	-	-	-
	<i>Constitutional values – Citizenship</i>	1	1	-	-
	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.	-	-	-	-
	PC4. follow environmentally sustainable practices	-	-	-	-
	<i>Becoming a Professional in the 21st Century</i>	2	4	-	-
	PC5. recognize the significance of 21st Century Skills for employment	-	-	-	-
	PC6. practice the 21st Century Skills such as Self- Awareness, Behavior 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	-	-	-	-
	<i>Basic English Skills</i>	2	3	-	-
	PC7. use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
	PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
	PC9. write short messages, notes, letters, e-mails etc. in English	-	-	-	-
<i>Career Development & Goal Setting</i>	1	2	-	-	

PC10. understand the difference between job and career	-	-	-	-
PC11. prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
<i>Communication Skills</i>	2	2	-	-
PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
PC13. work collaboratively with others in a team	-	-	-	-
<i>Diversity & Inclusion</i>	1	2	-	-
PC14. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC15. escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
<i>Financial and Legal Literacy</i>	2	3	-	-
PC16. select financial institutions, products and services as per requirement	-	-	-	-
PC17. carry out offline and online financial transactions, safely and securely	-	-	-	-
PC18. identify common components of salary and computing income, expenses, taxes, investments etc	-	-	-	-
PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
<i>Essential Digital Skills</i>	3	4	-	-
PC20. operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-
PC22. use basic features of word processor, spreadsheets, and presentations	-	-	-	-
<i>Entrepreneurship</i>	2	3	-	-
PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-	-
PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-	-
PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	-	-	-	-
<i>Customer Service</i>	1	2	-	-
PC26. identify different types of customers	-	-	-	-
PC27. identify and respond to customer requests and needs in a professional manner.	-	-	-	-

	PC28. follow appropriate hygiene and grooming standards	-	-	-	-
	<i>Getting ready for apprenticeship & Jobs</i>	2	3	-	-
	PC29. create a professional Curriculum vitae (Résumé)	-	-	-	-
	PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-	-
	PC31. apply to identified job openings using offline /online methods as per requirement	-	-	-	-
	PC32. answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-
	PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
	NOS Total	20	30	-	-
	Grand Total	204	346	-	-

Annexure: Assessment Strategy

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

Mention the detailed assessment strategy in the provided template.

Assessment System Overview:

- Batches assigned to the assessment agencies for conducting the assessment on SIP or email
- Assessment agencies send the assessment confirmation to VTP/TC looping SSC
- Assessment agency deploys the ToA certified Assessor for executing the assessment
- SSC monitors the assessment process & records

2. Testing Environment:

- Check the Assessment location, date and time
- If the batch size is more than 30, then there should be 2 Assessors.
- Check that the allotted time to the candidates to complete Theory & Practical Assessment is correct.
- Check the Assessment start and end time to be as 10:00 AM and 05:00 PM
- Check the Eligibility of Attendance

3. Assessment of Quality Assurance levels/Framework:

- Question bank is created by the Subject Matter Experts (SME) are verified by the other SME
- Questions are mapped to the specified assessment criteria
- Assessor must be ToA certified & trainer must be ToT Certified
- Assessment agency must follow the Assessment Guidelines to conduct the Assessment

4. Types of evidence or evidence-gathering protocol:

- Time-stamped & geotagged reporting of the assessor from assessment location
- Centre photographs with signboards and scheme specific branding
- Biometric or manual attendance sheet (stamped by TP) of the trainees during the training period.
- Time-stamped & geotagged assessment (Theory + Viva + Practical) photographs & videos

5. Method of verification or validation:

- Surprise visit to the assessment location.
- Random audit of the batch
- Random audit of any Candidate

6. Method for assessment documentation, archiving, and access

- Hard copies of the documents are stored
- Soft copies of the documents & photographs of the assessment are uploaded / accessed from Cloud Storage
- Soft copies of the documents & photographs of the assessment are uploaded / accessed from Cloud Storage • Soft copies of the documents & photographs of the assessment are stored in the Hard Drives

On the Job:

1. Each module (which covers the job profile of Aerospace CNC Machinist) will be assessed separately.
2. The candidate must score 60% in each module to successfully complete the OJT.
3. Tools of Assessment that will be used for assessing whether the candidate is having desired skills and etiquette of dealing with customers, understanding needs & requirements, assessing the customer and perform Soft Skills effectively:
 - Videos of Trainees during OJT
 - Answer Sheets of Question Banks
 - Assessing the Logbook entries of Trainees at Employer location
 - Employer Performance Feedback.
4. Assessment of each Module will ensure that the candidate is able to:
 - Effective engagement with the customers
 - Understand the working of various tools and equipment

Annexure: Acronym and Glossary**Acronym**

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

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