

QUALIFICATION FILE

XR Developer

- ☒ 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: 5

Submitted By:

IT-ITeS Sector Skills Council NASSCOM (SSC NASSCOM)

Plot No. – 7, 8, 9 & 10

Sector – 126, Noida, Uttar Pradesh - 201303

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Section 1: Basic Details

1.	Qualification Name	XR Developer				
2.	Sector/s	IT/ITeS				
3.	Type of Qualification: ☐ New ☒ Revised ☐ Has Electives/Options ☐ OEM	NQR Code & version of the existing /previous qualification: QG-05-IT-01858-2024-V1.1-NASSCOM & Version 2	Qualification Name of the existing/previous version: ARVR Software Developer			
4.	a. OEM Name b. Qualification Name (Wherever applicable)	XR Developer				
5.	National Qualification Register (NQR) Code &Version (Will be issued after NSQC approval)	QG-05-IT-03661-2025-V2-NASSCOM & Version 3	6. NCrF/NSQF Level: 5			
7.	Award (Certificate/Diploma/Advance Diploma/ Any Other (Wherever applicable specify multiple entry/exits also & provide details in annexure)	Certificate				
8.	Brief Description of the Qualification	Individuals in this job role are responsible for developing software for AR/VR/MR experiences for varied industrial use cases. They also customize the solution based on the feedback and are responsible for evaluating and documenting product/software performance reports.They must manage and collaborate with various stakeholders involved in developing AR/VR solution experiences. They must have a strong analytical mindset and a zeal to learn new things.				
9.	Eligibility Criteria for Entry for a Student/Trainee/Learner/Employee	a. Entry Qualification & Relevant Experience: **Relevant Experience in job roles related to ARVR /Computer Science/IT The relevant experience would include work, internship, and apprenticeship after completing relevant educational qualifications. *PG/UG/Degree/Diploma in (Engg./Science) <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> </tbody> </table>		S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)
S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)				

		<table border="1"> <tr> <td>1</td><td>Completed 2nd year of 3-year/ 4-year UG*</td><td>-</td></tr> <tr> <td>2</td><td>Completed 3-Year Diploma* after 10th</td><td>3 Years of relevant experience**</td></tr> <tr> <td>3</td><td>Previous Relevant qualification of NSQF level 4</td><td>1.5 years of relevant experience**</td></tr> </table>	1	Completed 2nd year of 3-year/ 4-year UG*	-	2	Completed 3-Year Diploma* after 10 th	3 Years of relevant experience**	3	Previous Relevant qualification of NSQF level 4	1.5 years of relevant experience**										
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2	Completed 3-Year Diploma* after 10 th	3 Years of relevant experience**																			
3	Previous Relevant qualification of NSQF level 4	1.5 years of relevant experience**																			
		b. Age: NA																			
10.	Credits Assigned to this Qualification, Subject to Assessment (as per National Credit Framework (NCrF))	16 Credits	11. Common Cost Norm Category (I/II/III) (wherever applicable): II																		
12.	Any Licensing Requirements for Undertaking Training on This Qualification (wherever applicable)	NA																			
13.	Training Duration by Modes of Training Delivery (Specify Total Duration as per selected training delivery modes and as per requirement of the qualification)	☐ Offline Only ☐ Online Only ☒ Blended																			
		<table border="1"> <thead> <tr> <th>Training Delivery Mode</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>144</td><td>246</td><td>90</td><td>-</td><td>480</td></tr> <tr> <td>Online</td><td>144</td><td>246</td><td>90</td><td>-</td><td>480</td></tr> </tbody> </table>		Training Delivery Mode	Theory (Hours)	Practical (Hours)	OJT (Mandatory) Hours	OJT (Recommended) Hours	Total (Hours)	Classroom (offline)	144	246	90	-	480	Online	144	246	90	-	480
Training Delivery Mode	Theory (Hours)	Practical (Hours)	OJT (Mandatory) Hours	OJT (Recommended) Hours	Total (Hours)																
Classroom (offline)	144	246	90	-	480																
Online	144	246	90	-	480																
		(Refer Blended Learning Annexure for details)																			
14.	Aligned to NCO/ISCO Code/s (if no code is available mention the same)	NCO-2015/2512																			
15.	Progression Path After Attaining the Qualification, wherever applicable (Please show Professional and Academic progression)	This entry should refer to one or more of the following: Professional progression: access to related qualification(s) at the next NSQF level – Senior AR/VR Software Developer, Lead AR/VR Software Developer, etc. Academic progression: access to other qualifications at the same NSQF level – AR/VR Designer, AR/VR Infrastructure Engineer, etc.																			

16.	Other Indian languages in which the Qualification & Model Curriculum are being submitted	Hindi	
17.	Is similar Qualification(s) available on NQR-if yes, justification for this qualification	☐ Yes ☒ No URLs of similar Qualifications:	
18.	Is the Job Amenable to Persons with Disability	☐ Yes ☒ No If "Yes", specify applicable type of Disability:	
19.	How participation of women will be encouraged?	The Program is gender neutral, although to increase women's participation, organizations are keeping aside few seats to encourage the female candidates	
20.	Are Greening/Environment Sustainability Aspects covered (Specify the NOS/Module which Covers it)	☒ Yes ☐ No, DGT/VSQ/N0102: Employability Skills (60 Hours)	
21.	Is Qualification suitable to be offered in Schools/Colleges	Schools: ☐ Yes ☒ No Colleges ☒ Yes ☐ No	
22.	Name and Contact Details Submitting / Awarding Body SPOC (In case of CS or MS, provide details of both Lead AB & Supporting ABs)	Name: Namrata Kapur Email: Standards@nasscom.in Contact No.: 0120-4990111 Website: https://www.sscnasscom.com/	
23.	Final Approval Date by NSQC: 07/10/2025	24. Validity Duration: 3 Years	25. Next Review Date: 07/10/2028

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.	Translate design concepts into functional applications while focusing on user experience, usability, and intuitive interaction methods.	SSC/N8825, V1.0	Core	5	06	60:00	90:00	30:00	00:00	180:00	30	50	-	20	100	30
2.	Develop software for a wide range of AR/VR experiences for varied industrial use cases	SSC/N8812, V3.0	Core	5	05	30:00	90:00	30:00	00:00	150:00	30	50	-	20	100	30
3.	Collaborate with designers to integrate 3D models, animations, audio, and other assets into applications, ensuring they function	SSC/N8826, V1.0	Core	5	03	30:00	30:00	30:00	00:00	90:00	30	50	-	20	100	30

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)
	seamlessly within AR/VR environments.															
4.	Employability Skills (60 Hours)	DGT/VSQ/N0102, V1.0	Non-Core	4	02	24:00	36:00	00:00	00:00	60:00	20	30	-	-	50	10
Duration (in Hours)/Total Marks					16	144:00	246:00	90:00	00:00	480:00	110	180	-	60	350	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.																
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.																
2.																
Duration (in Hours) / Total Marks																

Assessment - Minimum Qualifying Percentage

Assessment - Minimum Qualifying Percentage

Minimum Pass Percentage – Aggregate at qualification level: 70 % (Every Trainee should score a 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) <i>(as per NCVET guidelines)</i>	Educational Qualification: Graduate (Engineering/ Technology/ Computer Science) Industry & training experience: 2 years of industry experience in AR/VR. The industry experience would include work, internship, and apprenticeships undertaken after regular graduation. Certification: "Trainer" mapped to the Qualification Pack "MEP/Q2601" Minimum accepted score is 80% aggregate
2.	Master Trainer's Qualification and experience in the relevant sector (in years) <i>(as per NCVET guidelines)</i>	Educational Qualification: Graduate (Engineering/ Technology/ Computer Science) Industry & training experience: 4 years of industry experience in AR/VR. The full-time experience would include work, internship, and apprenticeships undertaken after regular graduation. Certification: "Master Trainer" mapped to the Qualification Pack "MEP/Q2602" Minimum accepted score is 90% aggregate
3.	Tools and Equipment Required for the Training	☒ Yes ☐ No <i>(If "Yes", details to be provided in Annexure)</i>
4.	In Case of Revised Qualification, details of Any Upskilling Required for Trainer	NA

Section 4: Assessment Related

1.	Assessor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	Educational Qualification: Graduate (Engineering/ Technology/ Computer Science) Industry & Training Experience: 2 years of industry experience in AR/VR. The full-time experience would include work, internship, and apprenticeship undertaken after regular graduation. Certification: "Assessor" mapped to the Qualification Pack "MEP/Q2701" Minimum accepted score is 80% aggregate.
2.	Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines), (wherever applicable)	Educational Qualification: Graduate (Engineering/ Technology/ Computer Science) Industry & Training Experience: 2 years of industry experience in AR/VR. The full-time experience would include work, internship, and apprenticeship undertaken after regular graduation. Certification: "Assessor" mapped to the Qualification Pack "MEP/Q2701" Minimum accepted score is 80% aggregate.
3.	Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	Educational Qualification: Graduate (Engineering/ Technology/ Computer Science) Industry & Training Experience: 4 years of industry experience in AR/VR. The full-time experience would include work, internship, and apprenticeship undertaken after regular graduation. Certification: "Lead Assessor" mapped to the Qualification Pack "MEP/Q2702" Minimum accepted score is 90% aggregate.
4.	Assessment Mode (Specify the assessment mode)	The assessment will consist of a blend of hands-on practical evaluations, viva-voce, and online proctored scenario-based multiple-choice questions ensuring a thorough evaluation of the individual's proficiency in learning outcomes, practical understanding, and real-world application of concepts.
5.	Tools and Equipment Required for Assessment	☒ Same as for training ☐ Yes ☐ 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):
2.	Latest Market Research Reports or any other source (not older than 2 years) (Yes/No):
3.	Government/Industry initiatives/requirement (Yes/No):

4.	Number of industry validations provided: 21
5.	Estimated number of people to be trained and employed:
6.	Evidence of Concurrence/Consultation with Line/State Departments: If “No”, why:

Section 6: Annexure & Supporting Documents Check List

Specify Annexure Name / Supporting document file name

1.	Annexure: NCrF/NSQF level justification based on NCrF/NSQF descriptors <i>(Mandatory)</i>	Evidence of Level
2.	Annexure: List of tools and equipment relevant for NOS <i>(Mandatory, except in case of online course)</i>	Tools and Equipment (lab set-up)
3.	Annexure: Detailed Assessment criteria <i>(Mandatory)</i>	Performance Criteria Details
4.	Annexure: Assessment Strategy <i>(Mandatory)</i>	Assessment Strategy
5.	Annexure: Blended Learning <i>(Mandatory, in case selected Mode of delivery is Blended Learning)</i>	NA
6.	Annexure: Multiple Entry Exit Details <i>(Mandatory, in case qualification has multiple entry-exit)</i>	Acronym and Glossary
7.	Annexure: Acronym and Glossary <i>(Optional)</i>	Acronym and Glossary
8.	Supporting Document: Model Curriculum <i>(Mandatory-Public View)</i>	MC_SSCQ8804_XR Developer_V3
9.	Supporting Document: Career Progression <i>(Mandatory-Public View)</i>	ARVR Occupational Map
10.	Supporting Document: Occupational Map <i>(Mandatory)</i>	ARVR Occupational Map
11.	Supporting Document: Assessment SOP <i>(Mandatory)</i>	NA

12.	Any Other document you wish to submit:	NA
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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	- Document business processes and the major functionalities and specifications of the software - Prepare impact analysis to understand the performance of the product/solution. - Processes involved in designing virtualization, custom object detection, 3D models and environment for AR/VR experience. - Processes involved in bug fixing of AR/VR software. - How to carry out various testing for AR/VR software. - Gather requirements for development of software application from relevant stakeholders. - Processes involved in customizing solution based on customer feedback. - Monitor and manage deployed solution	The individual in this role must work in a constantly changing environment where he/she needs to develop software while actively engaging with other stakeholders within the company. To perform his/her role and collaborate with other stakeholders effectively, the individual must understand the processes used to build software for AR/VR platforms. The individual needs to combine a knowledge of the processes along with a solid understanding of their contexts.	5
Professional and Technical Skills/ Expertise/ Professional Knowledge	Different types of testing methodologies	The individual in the role must have knowledge of the different aspects of software development on various AR/VR platforms.	5

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
	• How to analyse debugging, troubleshooting and log analysis tools • How to incorporate continuous improvement based on feedback. • Different types of tools and techniques for 3D modelling, testing • Different types of tools and techniques for customization, upgradation, integration, and release management • How to define metrics to monitor solution	This knowledge across various disciplines must be accompanied with an in-depth understanding of each discipline to perform this role effectively.	
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	• Knowledge of how to detect and remove existing and potential errors associated with the solution. • Knowledge of various testing methods • Knowledge of how to customize AR/VR features to integrate with existing systems. • How to develop audio/ speech interfaces using NLP • How to efficiently integrate 3Dmodels, various tools and features on multiple platforms and end-user devices for a seamless experience • How to evaluate KPIs and utilisation patterns of the product	The role demands a skillset that allows the individual to build applications. This requires a wide range of skills. The individual, therefore, needs to be proficient at using several tools and must have the analytical ability to use them effectively	5
Broad Learning Outcomes/Core Skill	• How to develop functional and non-functional requirements	The individual must apply his/her app development skills and sound understanding of the more significant business, technological and regulatory trends. This would enable him/her to build code	5

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
	- How to design and customize the solution based on feedback - How to develop high-performance graphics and implement custom object detection for the 3D models and environment. - How to study utilisation patterns to estimate efforts required for utilizing the solution - How to analyse bug trends for design change	across the stack and effectively align with industry best practices.	
Responsibility	- How to develop your knowledge, skills, and competence - How to build and maintain relationships at the workplace - How to convince others to take appropriate action in different situations - How to collaborate with stakeholders for project success	The role demands working in a team to create and maintain applications. This may involve helping peers with their work from time to time. The individual should collaborate with relevant stakeholders and get their work checked from their supervisor. He/she holds some responsibility for their role.	5

Annexure: Tools and Equipment (lab set-up)

List of Tools and Equipment

Batch Size:

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1	PC/Laptop with internet		
2	XR Development Frameworks	Unity (Free Tier)	
3	3D Modelling Software	Blender	

4	VFX Software	Blender	
5	SDKs/Plugins	Apple ARKit	
6	Audio Middleware	FMOD (Free Tier)	
7	Version Control	Git	
8	Configuration Management Tools	Ansible	
9	Programming Languages	Python, C#, C/C++, Java, JavaScript, Kotlin etc.	
10	3D Graphics APIs	DirectX	
11	AR/VR hardware	- VR Headset: Oculus Rift, HTC Vive - AR Glasses/Headsets: Microsoft Hololens	

*Tools are open source

Classroom Aids

The aids required to conduct sessions in the classroom are:

1. White Board
2. White Board Marker
3. Projector
4. Sketch pens & Chart papers

Annexure: Industry Validations Summary

Provide summary information of all the industry validation 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	Imaginate	Hemanth Kumar Satyanarayana	CEO of Imagine XR		9966010133	hemanth@imagine.in	https://www.linkedin.com/in/hemanths/
2	Acolyte	Saranya Varun	Research Analyst		9944313170	saranyakathir128@gmail.com	
3	Amazon	Asvin Ragav R	Data Associate		9994308478	asvinragav16@gmail.com	

4	Data Switch	Thilak hariharaSudhan A	Product Engineer	DataSwitch, Chennai	6393798750	thilakhariharan@gmail.com	https://www.linkedin.com/in/thilak-hariharasudhan-43a89b269/
5	Forbes	Naveenkumar Janakiraman	Senior Associate		9976773109	naveenkumarj4997@gmail.com	https://www.linkedin.com/in/naveenkumar-janakiraman
6	Iamneo	Raj Suriya	Digital Marketer & media specialist	1205/A, 3rd Floor, SPA SRR Towers, Avinashi Rd, Pappanaickenpalayam, Coimbatore, Tamil Nadu 641037	9600953249	rajsurya13@gmail.com	https://in.linkedin.com/in/raj-suriya-896221180
7	Impekable	sreepathi.D	Lead Market Research and Business Development		9655036999	sanjeevsree22@gmail.com	
8	Kornferry	Ragul	Data analyst	-	9659964881	ragulblooper143@gmail.com	https://www.linkedin.com/in/ragul-kumar-b2297a171/
9	Rndsoft	Tamilselvan	Software developer	274/4, Anna Private Industrial Estate Villankurichi, Road, Coimbatore	9361784871	dtamilselvan1004@gmail.com	
10	TCS	Sree Karthikeyan	System Engineer		9626165768	sreekarthikeyan0898@gmail.com	
11	Wipro	Abdul Rahim	Senior Associate		7339471256	Abdul.rahims@wipro.com/	https://in.linkedin.com/in/abdul-rahim-bb428b1a1
12	Draup	MD Mahabub Alam	Software Architect		9731517171	mahabubalam@draup.com	https://in.linkedin.com/in/mdmahabubalam
13	IBM	Arpita Majumder	Tech Consultant	IBM DLF Park 1 New Town Kolkata West Bengal-700156	7894369677	Arpita.majumder@ibm.com	https://www.linkedin.com/in/arpita-majumder-85612a67/
14	Infosys	Vivek Pilaniya	Program Manager	Infosys, delhi	9718423687	vivek.pilania@infosys.com	https://www.linkedin.com/in/vivekpilania-iimc/?originalSubdomain=in

15	Intellibren	Kailash PD	Director, Technology	Intellibren services LLP Unit 101, Oxford Towers, 139 HAL OLD Airport Rd. Kodihalli Bengaluru-560008	6374700185	kailash@intellibren.com	-
16	Mindshare	Paminder Singh	Team Lead		8713901984	paminder.singh@themindshare.in	https://www.linkedin.com/in/paminder-singh-7990b8101/
17	Upgrad	Samneesh Sharma	Sr Manager-project delivery		8679334000	shamneesh.sharma@upgrad.com	https://www.linkedin.com/in/shamneeshsharma1987/
18	FLAM	Shaurya Agarwal	Founder FLAM	-	9460652333	shourya@flamapp.com	https://www.linkedin.com/in/shourya-agarwal-015947b5/

Annexure: Training & Employment Details

Training & Employment Projections:

Year	Total Candidates		Women		People with Disability	
	Estimated Training #	Estimated Employed Opportunities	Estimated Training #	Estimated Employed Opportunities	Estimated Training #	Estimated Employed Opportunities

Data to be provided year-wise for the 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	Trained	Assessed	Certified	Trained	Assessed	Certified

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

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

1.

Content availability for previous version of qualifications:

☐ Participant Handbook ☐ Facilitator Guide ☐ Digital Content ☐ Qualification Handbook ☐ Any Other:

Language 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	☐ Theory/ Lectures - Imparting theoretical and conceptual knowledge	NA	NA
2	☐ Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners	NA	NA
3	☐ Showing Practical Demonstrations to the learners	NA	NA
4	☐ Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training	NA	NA
5	☐ Tutorials/ Assignments/ Drill/ Practice	NA	NA
6	☐ Proctored Monitoring/ Assessment/ Evaluation/ Examinations	NA	NA
7	☐ On the Job Training (OJT)/ Project Work Internship/ Candidate Training	NA	NA

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
SSC/N8825: Translate design concepts into functional applications while focusing on user experience, usability, and intuitive interaction methods.	PC1. Understand the design concepts developed during the prototyping phase and ensuring alignment with user needs and business requirements	3	4	-	2
	PC2. Collaborate closely with UX/UI designers to translate visual designs and interaction specifications into functional requirements. This may involve discussions about user flows, interface elements, and intended interactions	3	4	-	2
	PC3. Keep the user's perspective at the forefront of the development process. Ensure that every feature and interaction is designed to enhance the user experience, making it pleasant and engaging.	3	4	-	2
	PC4. Develop interfaces that are easy to navigate and use. Focus on creating layouts and controls that follow established usability principles, enabling users to accomplish tasks with minimal effort.	3	4	-	2
	PC5. Implement visual and auditory feedback mechanisms within the application. Users should receive immediate responses to their interactions, such as highlighting buttons when hovered over or providing sound cues for actions.	2	4	-	2
	PC6. Utilize interaction methods that feel natural and aligned with human behaviors. In AR/VR applications, this may include gesture recognition, eye-tracking, voice commands, and physical movements that mimic users' real-world actions.	2	4	-	2
	PC7. Select appropriate development frameworks and tools that support the translation of design concepts into functional applications. For AR/VR, this may involve platforms such as Unity or Unreal Engine, which provide specific capabilities for creating immersive experiences.	2	4	-	2
	PC8. Translate visual and functional designs into code, focusing on both front-end and back-end development. This includes creating user interfaces, programming interactions, and integrating necessary features and functionalities into the application.	2	4	-	1
	PC9. Implement iterative testing throughout the development process. Usability testing sessions and user feedback loops should be integrated into the workflow to validate interactions and ensure that the application meets user expectations.	2	4	-	1
	PC10. Use insights gained from testing to refine and enhance features, usability, and interactivity. This iterative approach helps create a more effective end product that resonates with users.	2	4	-	1

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
	PC11.Maintain clear documentation throughout the development phase, outlining the features implemented, design decisions made, and technical specifications for future reference.	2	4	-	1
	PC12.Plan and execute the deployment of the final application, ensuring that it is tested and optimized for target devices and platforms. This includes preparing for any launch-related activities and user training sessions.	2	3	-	1
	PC13. Continue to monitor usage and collect user feedback, being prepared to iterate and enhance the application based on real-world user interactions and experiences.	2	3	-	1
	Total Marks	30	50	-	20
SSC/N8812: Develop software for a wide range of AR/VR experiences for varied industrial use cases	PC1. Identify the platforms on which the AR/VR application would run.	2	3	-	2
	PC2. Identify internal development platforms and end-user devices.	2	3	-	2
	PC3. Gather information on interactive elements and 3D objects to be included in the product from relevant teams (Design, Architecture, etc.)	1	2	-	1
	PC4. Interact with design and content teams and contribute to the development of 3D assets as required.	1	2	-	1
	PC5. Develop virtualization applications based on AR/VR to visualize the product.	1	2	-	1
	PC6. Develop product-specific features based on functional requirements such as face detection, tracking, real-time networking for synchronous play, etc.	1	2	-	1
	PC7. Develop apps to support monoscopic or stereoscopic videos as per requirement	2	3	-	1
	PC8. Develop computer vision to implement Custom Object Detection for AR/VR applications	2	3	-	1
	PC9. Develop high-performance graphics using appropriate modes of rendering, render pipelines, textures	2	3	-	1
	PC10. Optimize 3D models and environment using appropriate techniques and levels of detailing to ensure smooth performance with good quality imagery	2	3	-	1
	PC11. Ensure proper integration of 3D models, CMS systems, and other existing systems	2	3	-	1
	PC12. Include features for adaptive streaming and transcoding in the product/solution	2	3	-	1
	PC13. Develop audio/ speech interfaces using NLP when required.	2	3	-	1
	PC14. Test the software code for robustness, including corner cases, usability, and general reliability	2	3	-	1
	PC15. Carry out unit testing of software to ensure desired performance	2	3	-	1
	PC16. Debug the code and fix coding errors.	1	3	-	1
	PC17. Apply coding practices such as reusability, continuous integration, continuous delivery, platform-specific best practices/guidelines, etc	2	3	-	1
	PC18. Create documents, demonstrations, and relevant artefacts for the software code, product usage, and troubleshooting	1	3	-	1
	Total Marks	30	50	-	20

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
SSC/N8826: Collaborate with designers to integrate 3D models, animations, audio, and other assets into applications, ensuring they function seamlessly within AR/VR environments.	PC1. Collaborate with 3D artists to optimise models for performance in AR/VR environments. This includes reducing polygon counts, simplifying textures, and ensuring that models are efficient without sacrificing quality.	3	3	-	1
	PC2. Ensure that the 3D models are in compatible file formats that can be seamlessly imported into development environments, such as Unity or Unreal Engine. Common formats include FBX, OBJ, and glTF.	3	3	-	1
	PC3. Carefully position and scale 3D models within the AR/VR environment. This involves considering the user's viewpoint and interactions to create a natural and immersive experience.	3	3	-	1
	PC4. Coordinate with designers and animators to implement animations effectively. This may involve setting up animation timelines, ensuring smooth transitions, and defining triggers for animations based on user interactions.	3	4	-	2
	PC5. Optimize animations to run smoothly in real time within AR/VR applications. This can include techniques like baking animations or using skeletal animations to ensure fluid motion.	2	4	-	1
	PC6. Work with sound designers to integrate audio elements that enhance the immersive environment, including background music, sound effects, and spatial audio that responds to user movements and interactions.	2	4	-	2
	PC7. Utilize audio middleware (e.g., FMOD, Wwise) to manage complex audio systems, allowing for dynamic audio playback that adapts to the user's actions and the environment's context.	2	4	-	2
	PC8. Conduct thorough testing of audio elements in conjunction with visual assets, ensuring that soundscapes complement the visual experience and that audio cues provide effective feedback during user interactions.	2	4	-	2
	PC9. Implement an organized asset management system that keeps all 3D models, animations, and audio files easily accessible. Use version control systems to manage asset updates and collaborate effectively.	2	4	-	2
	PC10. If using third-party assets or purchasing from asset stores, evaluate their compatibility, quality, and licensing terms before integration into the project.	2	4	-	2
	PC11. Collaborate with designers to define how users will interact with 3D models and animations. This includes setting up interactive elements, such as buttons, sliders, or objects that respond to gestures, and ensuring they are intuitive and engaging.	2	5	-	2
	PC12. Implement visual and auditory feedback mechanisms that respond to user interactions. For example, making objects change visually or produce sounds when selected or manipulated.	2	4	-	1
	PC13. Conduct thorough testing of all integrated assets within the AR/VR environment to identify any issues with performance, usability, or visual fidelity	2	4	-	1
	Total Marks	30	50	-	20
DGT/VSQ/N0102	PC1. Introduction to Employability Skills	1	1	-	-
	PC2. Constitutional values – Citizenship	1	1	-	-

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Employability Skill (60 Hours)	PC3. Becoming a Professional in the 21st Century	2	4	-	-
	PC4. Basic English Skills	2	3	-	-
	PC5. Career Development & Goal Setting	1	2	-	-
	PC6. Communication Skills	2	2	-	-
	PC7. Diversity & Inclusion	1	2	-	-
	PC8. Financial and Legal Literacy	2	3	-	-
	PC9. Essential Digital Skills	3	4	-	-
	PC10. Entrepreneurship	2	3	-	-
	PC11. Customer Service	1	2	-	-
	PC12. Getting Ready for Apprenticeship & Jobs	2	3	-	-
	Total Marks	20	30	-	-
Grand Total Marks		110	180	-	60

Annexure: Assessment Strategy

Assessment Process Overview

Batch Creation & Assessment Request:

Training Providers (TP) or Training Centers (TC), including any other authorized partner of Ministry/ Department create batches / push batches on the SIDH portal. Assessment requests are submitted through the SIDH portal or via email or other media as authorized from time to time. For NON-SIDH schemes, assessment requests are received electronically or through respective State Skill Mission portals. TP/TC initiates the assessment request through the InSDMS portal and processes the payment (where applicable).

Batch Alignment & Confirmation:

Upon payment confirmation, batches are assigned to the Assessment Agency based on factors like:

- Assessment readiness
- Availability of certified assessors for the specific job role
- Assessment capping to an assessment agency as prescribed from time to time for an AB An email communication / prescribed mode communication is sent to TP/TC for confirmation of the assessment date, with IT-ITeS SSC in the loop. Once confirmation is received, the Assessment Agency designates a TOA-certified assessor to conduct or facilitate the assessment.

- Batches are only formed when the Qualification is active.

Candidate Verification & Assessment Execution:

Candidate details are verified and documented at the beginning of the assessment by a certified assessor. A Quality Assurance (QA) mechanism is enforced, requiring an undertaking from the TC. Regular feedback is collected from TP/TC to ensure continuous improvement.

Evidence Collection & Validation:

Proctors or assessors capture date/time-stamped and geo-tagged photographs of the assessment location during the process. Attendance is also ensured offline. A PC-wise result analysis is conducted to refine assessment standards.

Monitoring & Compliance:

Batch monitoring follows established protocols, ensuring adherence to assessment guidelines. Sample based surprise visits are conducted at TC locations during both training and assessments to verify compliance. This structured approach ensures transparency, quality control, and validation throughout the assessment process.

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.

Assessment Quality Assurance levels/Framework:

IT-ITeS SSC nasscom is responsible for the development and periodic review of the question bank developed for a specific job role. We publish an openly accessible sample /model question paper on our website for all stakeholders. The quality of the Question Bank created by the assessment designer is validated by a Subject matter experts on the following parameters:

- Appropriateness of the Question Bank in terms of facts, data and information.
- Checks for grammar, spellings, scripting and formatting.
- The information provided should be specific enough to remove any ambiguity in answers/solutions to the question.
- Relevance – Assessing the topic well w.r.t. the job role.
- Check if the difficulty level of each question is as per the matrix.
- Check if the images used in the question are clear and relevant.

- All variables, symbols and abbreviations used must be declared.
- The correct answer option should be unique, and the options should not be overlapping

Annexure: Acronym and Glossary

Acronym

Acronym	Description
AA	Assessment Agency
AB	Awarding Body
NCrF	National Credit Framework
NOS	National Occupational Standard(s)
NQR	National Qualification Register
NSQF	National Skills Qualifications Framework
OJT	On 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 based on their main economic function, product, service or technology.