



QUALIFICATION FILE

Software Product 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: 5.0

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	Software Product Developer													
2.	Sector/s	IT/ITeS													
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: 2022/ITES/ITSSC/05259, v3.0	Qualification Name of existing/previous version: Software Developer-Product Development												
4.	a. OEM Name b. Qualification Name (Wherever applicable)	NA Software Product Developer													
5.	National Qualification Register (NQR) Code &Version (Will be issued after NSQC approval)	QG-05-IT-03651-2025-V2-NASSCOM & v1.0	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	A Software Product Developer uses specialized knowledge of programming languages and software integration to build products and deliver business solutions. Their responsibilities include application enhancement, debugging, maintenance, and documentation. They handle the full development lifecycle, from coding to deployment, while collaborating with teams to integrate new features and ensure functionality. Additionally, they stay updated on industry trends and technologies.													
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>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>1.5-year relevant experience*</td> </tr> <tr> <td>3.</td> <td>Previous Relevant qualification of NSQF level 4</td> <td>3-year relevant experience</td> </tr> </tbody> </table> <p>*Science, Technology, Engineering, And Mathematics (STEM) **Relevant Experience in Software Development The relevant experience would include work, internship and apprenticeship after completion of relevant educational qualification.</p> <p>b. Age:</p>		S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)	1.	Completed 2nd year of 3-year/ 4-year UG*		2.	Completed 3-Year Diploma* after 10th	1.5-year relevant experience*	3.	Previous Relevant qualification of NSQF level 4	3-year relevant experience
S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)													
1.	Completed 2nd year of 3-year/ 4-year UG*														
2.	Completed 3-Year Diploma* after 10th	1.5-year relevant experience*													
3.	Previous Relevant qualification of NSQF level 4	3-year relevant experience													

10.	Credits Assigned to this Qualification, Subject to Assessment <i>(as per National Credit Framework (NCrF))</i>	16	11. Common Cost Norm Category (I/II/III) <i>(wherever applicable):</i> II																					
12.	Any Licensing requirements for Undertaking Training on This Qualification <i>(wherever applicable)</i>	NA																						
13.	Training Duration by Modes of Training Delivery <i>(Specify Total Duration as per selected training delivery modes and as per requirement of the qualification)</i>	<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>150</td><td>240</td><td>90</td><td></td><td>480</td></tr> <tr> <td>Online</td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table> <i>(Refer Blended Learning Annexure for details)</i>					Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)	Classroom (offline)	150	240	90		480	Online					
Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)																			
Classroom (offline)	150	240	90		480																			
Online																								
14.	Aligned to NCO/ISCO Code/s <i>(if no code is available mention the same)</i>	NCO-2015/2511.0103																						
15.	Progression path after attaining the qualification <i>(Please show Professional and Academic progression)</i>	This entry should refer to one or more of the following: Academic progression: access to other qualifications at the same NSQF level – Senior Software Developer, Senior Functional Developer.																						
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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No URLs of similar Qualifications:																						
18.	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: <i>Visual, Hearing or Speech impairment, Locomotor Disability</i>																						
19.	How Participation of Women will be Encouraged	To encourage women to participate Software Development job roles, it is important to provide education, mentorship, and networking opportunities, as well as training and development programs. Flexible work arrangements and promoting successful women in Software Development job roles can also inspire and encourage women to pursue careers in this field. Creating a culture of inclusion and diversity can help women feel welcome and valued in Software Development job roles, through policies and practices that support work-life balance, equal pay and promotion opportunities, and a safe and respectful workplace.																						
20.	Are Greening/ Environment Sustainability Aspects Covered <i>(Specify the NOS/Module which covers it)</i>	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No (Covered in DGT/VSQ/N0102)																						
21.	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																						

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: Namrata Kapur Email: standards@nasscom.in Website: https://nasscom.in	Contact No.: 0120-4990111
23.	Final Approval Date by NSQC: 18-02-2025	24. Validity Duration: 3 years	25. Next Review Date: 18-02-2028

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 Training **Man.**-Mandatory **Rec.**-Recommended **Proj.**-Project

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	Core/Non-Core	NCrF/NS QF 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.	Develop and Design Software Products and Applications	SSC/N0514, v1.0	Core	5.0	6	30	120	30	-	180	30	50	-	20	100	45
2.	Develop Software Code Based on Specifications	SSC/N0502, v3.0	Core	5.0	8	60	120	60	-	240	30	50	-	20	100	45
3.	Employability Skills (60 Hours)	DGT/VSQ/N 0102, v1.0	Non-Core	4.0	2	60	-	-	-	60	20	30	-	-	50	10
Duration (in Hours) / Total Marks					16	150	240	90		480	80	130	-	40	250	100

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.)

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 in any discipline. Industry & Training Experience: 2 years of industry experience in IT job roles/Software Development 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 in any discipline. Industry & Training Experience: 4 years of industry experience in IT job roles/Software Development Certification: "Master Trainer" mapped to the Qualification Pack "MEP/Q2602" Minimum accepted score is 90% aggregate.
3.	Tools and Equipment Required for Training	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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) <i>(as per NCVET guidelines)</i>	Educational Qualification: Graduate in any discipline. Industry & Training Experience: 2 years of industry experience in IT job roles/Software Development 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) <i>(as per NCVET guidelines)</i>	Educational Qualification: Graduate in any discipline. Industry & Training Experience: 2 years of industry experience in IT job roles/Software Development 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) <i>(as per NCVET guidelines)</i>	Educational Qualification: Graduate in any discipline. Industry & Training Experience: 4 years of industry experience in IT job roles/Software Development Certification: "Lead Assessor" mapped to the Qualification Pack "MEP/Q2702" Minimum accepted score is 90% aggregate.

4.	Assessment Mode <i>(Specify the assessment mode)</i>	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	<input checked="" type="checkbox"/> Same as for training <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(details to be provided in Annexure-if it is different for Assessment)</i>

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): Yes
2.	Latest Market Research Reports or any other source (not older than 2 years) (Yes/No): NA
3.	Government /Industry initiatives/ requirement (Yes/No): NA
4.	Number of Industry validation provided: 30
5.	Estimated nos. of persons to be trained and employed: 1000
6.	Evidence of Concurrence/Consultation with Line Ministry/State Departments: <i>In Process</i> 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 level/NSQF descriptors <i>(Mandatory)</i>	<i>Annexure 1</i>
2.	Annexure: List of tools and equipment relevant for qualification <i>(Mandatory, except in case of online course)</i>	<i>Annexure 2</i>
3.	Annexure: Detailed Assessment Criteria <i>(Mandatory)</i>	<i>Annexure 6</i>
4.	Annexure: Assessment Strategy <i>(Mandatory)</i>	<i>Annexure 7</i>
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>	NA
7.	Annexure: Acronym and Glossary <i>(Optional)</i>	<i>Annexure 8</i>
8.	Supporting Document: Model Curriculum <i>(Mandatory – Public view)</i>	<i>Attached</i>
9.	Supporting Document: Career Progression <i>(Mandatory - Public view)</i>	<i>Attached</i>

10.	Supporting Document: Occupational Map (Mandatory)	Attached
11.	Supporting Document: Assessment SOP (Mandatory)	Attached
12.	Any other document you wish to submit:	NO

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>Possesses specialized operational knowledge and understanding of the work.</p> <p>Develop Software Applications (Manual)</p> <ul style="list-style-type: none"> • Design and develop software applications based on requirements and specifications. • Write clean, efficient, and scalable code to implement core features. • Debug and resolve issues reported during development and testing phases. <p>Implement Automated Development Processes</p> <ul style="list-style-type: none"> • Identify tasks and processes that can be automated to improve efficiency. • Create and integrate automation scripts for repetitive development tasks. • Regularly update scripts and processes to adapt to new system changes and features. <p>Perform Code Optimization and Performance Tuning</p> <ul style="list-style-type: none"> • Analyze application performance and identify areas for optimization. • Implement code optimizations to improve efficiency, response time, and memory usage. • Use profiling and debugging tools to track and improve system performance. <p>Develop and Validate APIs</p> <ul style="list-style-type: none"> • Design and implement robust APIs to support seamless 	<p>A Software Product Developer is required to have a deep understanding of software development methodologies, such as Agile, Scrum, and DevOps, to ensure effective development practices. Knowledge in designing, implementing, and maintaining scalable software applications, along with expertise in system architecture, version control, and continuous integration, is essential.</p> <p>Hence, this falls under NSQF level 5.</p>	5.0

	<p>communication between systems.</p> <ul style="list-style-type: none"> • Write test cases to validate API functionality, including data handling and error management. • Ensure proper integration of APIs with front-end and back-end systems, ensuring smooth data flow. <p>Document and Maintain Codebase</p> <ul style="list-style-type: none"> • Prepare and maintain detailed documentation for code structure, development processes, and system architecture. • Create clear, concise commit messages and document code changes. • Ensure all relevant technical documentation is up to date and accessible for future development and maintenance. 		
Professional and Technical Skills/ Expertise/ Professional Knowledge	<ul style="list-style-type: none"> • Understand the software development lifecycle (SDLC), including methodologies like Agile, Scrum, and Waterfall. • Knowledge of programming languages such as Java, Python, C++, JavaScript, or Ruby. • Understanding of data structures and algorithms, and their application in optimizing software performance. • Know the principles of object-oriented design (OOD) and how to implement them effectively in software development. • Understand version control systems like Git and SVN to manage code and collaborate with team members. • Knowledge of web development frameworks such as Angular, React, or Django for building scalable web applications. • Understand database management systems (DBMS) like MySQL, PostgreSQL, and NoSQL databases. • Know software testing principles including unit testing, integration testing, and test-driven development (TDD). • Knowledge of cloud computing platforms such as AWS, Azure, or Google Cloud for deploying applications. • Understand the principles of secure coding to protect software applications from vulnerabilities and cyber threats. 	A Software Product Developer must be proficient in programming languages and frameworks such as Java, Python, JavaScript, React, and Django. Mastery of full-stack development, database management, API integration, and cloud technologies is necessary to build robust applications. Their ability to write clean, efficient code and debug issues further strengthens the software product's quality. This technical proficiency is a key requirement at NSQF level 5, as it ensures the developer can independently manage complex software development tasks and contribute to the product's success.	5.0
Employment Readiness & Entrepreneurship Skills & Mind - set/Professional Skill	<ul style="list-style-type: none"> • Understand the software development life cycle (SDLC) and its various stages, including planning, design, coding, testing, and deployment. • Knowledge of programming languages used in software development, such as Java, Python, or C++ for writing efficient code based on specifications. 	For a Software Product Developer, an entrepreneurial mindset, coupled with strong problem-solving and adaptability, is crucial. The ability to collaborate effectively with cross-functional teams, manage time efficiently, and stay committed to continuous learning directly impacts the developer's ability to meet changing project demands.	5.0

	<ul style="list-style-type: none"> Understand the principles of software design and how to translate requirements into structured and modular code. Know how to develop software code based on technical specifications, ensuring functionality aligns with user needs and business goals. Understand version control systems like Git to manage and track changes to the codebase effectively. Knowledge of testing and debugging techniques to ensure code quality, including identifying and resolving issues in the software. Understand software performance optimization techniques to improve the efficiency and scalability of applications. Know how to document code and software designs to ensure maintainability and ease of collaboration with other developers. Knowledge of integrating software applications with databases and third-party systems, ensuring seamless data flow. Understand software security principles to protect applications from vulnerabilities and ensure secure coding practices. 	These professional skills make them well-prepared to handle the dynamic nature of software development. As such, this aligns with NSQF level 5, demonstrating readiness for leadership roles and entrepreneurial thinking in the software industry.	
Broad Learning Outcomes/Core Skill	<ul style="list-style-type: none"> Develop software products and applications that meet user requirements and industry standards. Write efficient, error-free code and perform thorough testing to ensure high-quality software delivery. Collaborate effectively with cross-functional teams to align software features with project goals. Optimize software performance and scalability to ensure efficient operation in diverse environments. Adhere to software development best practices, including documentation, version control, and secure coding standards. 	A Software Product Developer must possess core competencies in writing optimized code, performing thorough testing, and ensuring software performance and security. Staying up to date with new technologies and methodologies is a requirement for maintaining competitive industry standards. Furthermore, their ability to work independently and as part of a team, including engaging in open-source contributions, highlights their commitment to continuous growth. This aligns with the expectations for NSQF level 5, as it showcases a well-rounded professional capable of thriving in diverse development environments.	5.0
Responsibility	<p>The individual in this job role will be responsible for the below-mentioned activities:</p> <ul style="list-style-type: none"> Develop Test Strategy for Software Products/Applications/Modules Design and Create Detailed Test Cases 	A Software Product Developer uses specialized knowledge of programming languages and software integration to build products and deliver business solutions. Their responsibilities include application enhancement, debugging, maintenance, and documentation. They handle the full development lifecycle, from coding to deployment,	5.0

	<ul style="list-style-type: none"> • Perform Test Execution and Reporting • Incorporate Gen AI in Software Testing • Maintain Test Documentation and Test Metrics • Collaborate with Cross-functional Teams for Testing • Interpret Software Specifications and Design Code • Write Efficient and Maintainable Code • Follow Coding Standards and Guidelines • Collaborate with Team Members to Review Code • Utilize Tools and Platforms for Code Development • Monitor and Maintain Software Code Post-Development • Apply Prompt Engineering for Software Code Enhancement • Unit Testing and Automation 	while collaborating with teams to integrate new features and ensure functionality. Additionally, they stay updated on industry trends and technologies.	
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Annexure 2: 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.	API Testing Tool (e.g. SoapUI, Insomnia, etc.)	Nos	
2.	Test Automation Tool (e.g., Selenium, Cypress, Appium, etc.)	Nos	
3.	Bug Tracking Tool (e.g. Bugzilla, Redmine, etc.)	Nos	
4.	Performance Testing Tool (e.g., JMeter, Gatling, etc.)	Nos	
5.	Version Control System (e.g., GitLab, Gitea, etc.)	Nos	

Classroom Aids

The aids required to conduct sessions in the classroom are:

1. Whiteboard
2. Projector
3. Computer/Laptop with Internet
4. Chairs
5. Tables
6. Whiteboard marker
7. Duster

Annexure 3: 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.	Dell Technologies	Ariba Syed	Software Engineer	Surat		ariba.syed2017@gmail.com	
2.	PwC	Yatharth Bhatnagar	Software Engineer	Pune	7276325777	yatharth23@gmail.com	
3.	Siemens Digital Industries Software	Snehal Pandey	Software Engineer	Pune	7387151993	snehalpande93@gmail.com	
4.	Protiviti Global Business Consulting	Sakshi Samtani	Senior Manager	Mumbai	8080536463	sakshi3192@gmail.com	
5.	Michelin India Private Ltd.	Himanshu Sharma	Business Analyst/Product Owner	Kharadi, Pune		sharmaaz.himanshu@gmail.com	
6.	Capgemini	Shruti Gupta	Manager	Chennai, Tamil Nadu, India	9004343572	shrutivijendra@gmail.com	
7.	Deloitte Support Services Private Limited	Shreya Sharma	Senior Analyst (PMO)	Hyderabad Deloitte Towers, MindSPACE Road, P Janardhan Reddy Nagar, Gachibowli, Hyderabad, Telangana 500032	8999530108	shreyasharma5@deloitte.com	
8.	HCL Tech	Sheeloo Sachan	Technical Specialist	Plot No 3A, Sector 126, Noida, Uttar Pradesh 201301	9717036547	sachan.sheeloo@gmail.com	
9.	T-Systems ICT India Pvt Ltd	Monica Sharma	Sr. Consultant	Panchshil business park, Balewadi High St, Laxman Nagar, Baner, Pune, Maharashtra 411045	7389777739	monica.sharma@t-systems.com	
10.	Nasdaq Inc	Alfiya Khan	Software Engineer	Unit 201 and 203, Akruti Center Point, MIDC Road, Andheri (East) Mumbai: 400-093, India.	8109690056	alfiya.Khan@Nasdaq.com	

11.	Infosys Ltd	Shraddha Sethiya	Technology Analyst	No. 44 & 97/A, Infosys Avenue, Next SBI Bank, Hosur Road, Electronic City- Bengaluru 560100, Karnataka, India	99267854201	shraddha.sethiya@infosys.com	
12.	Globant	Rishi Kumar	Analytics	Wing A & B, Level 5, Tower IV, Cybercity, Magarpatta City, Hadapsar, Pune - 411 013. Pune	9717036547	rishi.kumar@globant.com	
13.	Temenos India Pvt Ltd	Yash Kumawat	Senior product engineer	Bengaluru	8319749784	yash120997@gmail.com	
14.	PWC	Ruchita Panchal	Senior Consultant	Gurgaon	7354047944	ruchita.panchal@pwc@gmail.com	
15.	Sopra Steria India	Rikan Singh	Team Leader	Plot No. 20 & 21, Seaview Special Economic Zone, Building 4, Sector 135, Noida, Uttar Pradesh 201304	9899507967	rikan.singh@soprasteria.com	
16.	Sycamore Informatics	Rahul Kumar Kaushik	Product Manager	No. 6, 2nd Floor, 2nd Main, Arekere, Off Bannerghatta Road, Bangalore 560076	8859885973	rahul.kaushik@sycamoreinformatics.com	
17.	Movate	Rohit Kumar Sharma	Manager Development	A-21, sector 4, Block A, Kailash Colony, Greater Kailash, New Delhi,	9927564461	rohit.sharma.movate@gopangea.com	
18.	GlobalLogic	Rashid Muhammad	Associate Manager	Oxygen Business Park SEZ, Tower, 3, Noida-Greater Noida	8881474420	rashid.muhammad@globallogic.com	
19.	Reckitt Benckiser	Sachin Sharma	Demand Manager	Udyog Vihar, Phase V, Gurgaon, Haryana	9758573077	sachin.Sharma@rb.com	
20.	TCS	Ankit Garg	Assistant Consultant	Skyview Corporate Park, Gurgaon - Delhi Expy, Sector 74A, Gurugram, Haryana 122004	9808254808	ankit.garg8@tcs.com	

21.	Getronics Solutions	Devender Prasad	Team Lead – Quality & Performance	6th Floor, Magnum Tower 1, above Axis Bank, Sector 58, Gurugram, Haryana 122008	9711592810	devprasad83@gmail.com	
22.	Nagarro	Firoz Zaidi	Senior Developer	Block A, Sector 64, Noida, Uttar Pradesh 201301, India	8218191014	firoz@nagarro.com	
23.	KPMG	Vaishali Tomar	Associate Consultant	Block A, 100 Feet Rd, Embassy Golf Link Business Park, Koramangala, Bengaluru, Karnataka-560071	9479421477	vaishalitomar@kpmg.com	
24.	Ecom Express.in	Shekhar Poswal	Senior QA L1	10 th Floor, Ambience Corporate Tower II, Ambience Island, Gurugram 122001	8588820616	Shekhar.p@ecomexpress.in	
25.	Ivy Comptech Hyderabad	Sakshi Tomar	Analyst Test Engineering	Survey No.13, DIVYA SREE OMEGA, 5th & 6th Floor, “B, Plot No 13/E, part, Kondapur, Hyderabad, Telangana 500084	9599621311	Sakshi.Tomar@ivycomptech.com	
26.	FIS Global Business Solution	Mangal Deep Patel	Sr. Software Developer	B-402, I Park, Plot No. 15, Phase IV, Gurugram, Haryana 122016	9718146851	Mangal.deeppatel@fisglobal.com	
27.	Tecnova India	Happy Sharma	Senior Manager	412, Nimai Tower, Phase IV, Sector 18, Gurgaon - 122015	9821179301	Happy.sharma@tecnovaglobal.com	
28.	Conduent	Prince Jain	Sr. Business Analyst	Plot No. 20, Candor Tech Space, Noida 201304	9013241797	Prince.jain@conduent.com	
29.	Senryaku Management	Udit Kaushik	Co-founder	UTC031, DLF The Ultima, Sector 81, Gurugram 122004	9690909024	Udit.kau@gmail.com	

30.	Tata Consultancy Services	Sheepra Kaushik	Associate Consultant	Hiranandani SEZ, Powai, Mumbai 400076	8433595090	Sheepra.sharma@tcs.com	
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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
2024	200	75	10	5	5	5
2025	300	100	15	10	10	10
2026	500	200	25	10	10	10

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
v2.0	2024												
v2.0	2023												
v2.0	2022												

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: 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"> Books/ e-books Presentations Reference Material Audio / Video Modules 	
2	<input checked="" type="checkbox"/> Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners	<ul style="list-style-type: none"> 	
3	<input checked="" type="checkbox"/> Showing Practical Demonstrations to the learners	<ul style="list-style-type: none"> 	
4	<input checked="" type="checkbox"/> Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training	<ul style="list-style-type: none"> Training tools (tools list attached) Video Play Presentations 	
5	<input checked="" type="checkbox"/> Tutorials/ Assignments/ Drill/ Practice	<ul style="list-style-type: none"> Online Question Bank MCQ based tests 	
6	<input checked="" type="checkbox"/> Proctored Monitoring/ Assessment/ Evaluation/ Examinations	<ul style="list-style-type: none"> 	
7	<input checked="" type="checkbox"/> On the Job Training (OJT)/ Project Work Internship/ Apprenticeship Training	<ul style="list-style-type: none"> 	

Annexure 6: Detailed Assessment Criteria

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

Procter online assessment and case study base questions are included.

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
SSC/N0514: Develop and Design Software Products and Applications	<i>Understand Requirements and Define Architecture</i>	4	6	-	3
	PC1. analyze user requirements and create detailed technical specifications.	1	2	-	1
	PC2. define software architecture and system design based on functional and non-functional requirements.	2	2	-	1
	PC3. evaluate feasibility and risks, ensuring scalability and performance optimization.	1	2	-	1

	<i>Incorporate UI/UX Principles in Software Design</i>	6	9	-	3
PC4.	understand and apply UI/UX principles to ensure user-friendly interfaces and workflows.	2	3	-	1
PC5.	collaborate with UI/UX designers to translate wireframes and mockups into functional interfaces.	2	3	-	1
PC6.	conduct usability testing and incorporate user feedback into design refinements.	2	3		1
	<i>Develop and Implement Software Solutions</i>	6	10	-	3
PC7.	write clean, maintainable, and scalable code in accordance with coding standards.	2	3	-	1
PC8.	implement features and functionalities aligned with requirements and system architecture.	2	4	-	1
PC9.	integrate third-party APIs and libraries as required by the project.	2	3		1
	<i>Perform Testing, Debugging, and Optimization</i>	3	5	-	3
PC10.	develop and execute unit tests to validate code functionality.	1	2	-	1
PC11.	identify and resolve defects and performance issues through debugging and profiling tools.	1	2	-	1
PC12.	optimize code and database queries for enhanced performance and efficiency	1	1	-	1
	<i>Maintain and Document Software Applications</i>	3	4	-	2
PC13.	document software architecture, modules, and changes for future reference.	1	1		1
PC14.	maintain version control and update software as required.	1	2		0.5
PC15.	provide support for software deployment and post-launch maintenance.	1	1		0.5
	<i>Collaborate with Teams for Development and Deployment</i>	3	6	-	3
PC16.	work with cross-functional teams, including business analysts, QA testers, and operations teams.	1	2		1
PC17.	participate in Agile or Scrum meetings to plan, prioritize, and review progress.	1	2		1
PC18.	ensure successful integration and deployment in production environments.	1	2		1
	<i>Leverage Gen AI for Software Design and Development</i>	5	10	-	3
PC19.	understand the fundamentals of Generative AI (Gen AI), including its capabilities, limitations, and ethical considerations.	1	2	-	1
PC20.	explore Gen AI use cases, such as code generation, automated testing, and prototyping	1	2		0.5
PC21.	apply prompt engineering techniques to leverage Gen AI tools for designing, developing, and optimizing software applications.	1	2		0.5
PC22.	integrate AI-powered platforms to automate repetitive tasks and improve efficiency during software development.	1	2		0.5

	PC23. evaluate the performance and applicability of AI-generated solutions and incorporate improvements.	1	2	-	0.5
	Total Marks	30	50	-	20
SSC/N0502: Develop Software Code Based on Specifications	<i>Interpret Software Specifications and Design Code</i>	<i>7</i>	<i>15</i>	<i>-</i>	<i>6</i>
	PC1. interpret software specifications accurately to understand the required functionality.	1	3	-	1
	PC2. analyze and break down technical requirements into coding tasks.	2	3	-	1
	PC3. Access reusable components, code generation tools, and unit testing tools from the organization's knowledge base	1	3	-	1
	PC4. ensure alignment of the code with project requirements and design guidelines.	1	2	-	1
	PC5. identify potential issues in the specifications and clarify with stakeholders.	1	2	-	1
	PC6. maintain proper documentation for high-level and low-level design.	1	2	-	1
	<i>Write Efficient and Maintainable Code</i>	<i>4</i>	<i>6</i>	<i>-</i>	<i>2</i>
	PC7. develop modular, efficient, and maintainable software code, ensuring readability and scalability.	2	3	-	1
	PC8. test, debug, and optimize code to meet intended functionality, performance, and scalability requirements.	2	3	-	1
	<i>Follow Coding Standards and Guidelines</i>	<i>2</i>	<i>6</i>	<i>-</i>	<i>2</i>
	PC9. follow industry-standard coding practices and organizational guidelines to ensure consistency and quality.	1	3	-	1
	PC10. maintain consistent code formatting, naming conventions, and documentation for clarity and adherence to best practices.	1	3	-	1
	<i>Collaborate with Team Members to Review Code</i>	<i>3</i>	<i>6</i>	<i>-</i>	<i>2</i>
	PC11. collaborate with team members for code reviews, incorporating feedback to improve code quality and resolve issues.	2	3	-	1
	PC12. use version control tools like Git to ensure effective collaboration and maintain code specifications.	1	3	-	1
	<i>Utilize Tools and Platforms for Code Development</i>	<i>5</i>	<i>6</i>	<i>-</i>	<i>3</i>
	PC13. use integrated development environments (IDEs) and other tools for coding.	2	2	-	1
	PC14. manage version control and handle merges effectively.	2	2	-	1
	PC15. leverage automated testing tools to validate the correctness of the code.	1	2		1
	<i>Monitor and Maintain Software Code Post-Development</i>	<i>5</i>	<i>6</i>	<i>-</i>	<i>3</i>
	PC16. monitor and optimize software performance post-deployment, addressing issues and implementing updates based on user feedback and performance metrics.	2	2	-	1

	PC17. debug and resolve errors, ensuring deployment-ready code with proper documentation and reviews.	2	2	-	1
	PC18. conduct peer reviews, incorporate feedback, and finalize code before handoff.	1	2	-	1
	<i>Apply Prompt Engineering for Software Code Enhancement</i>	4	5	-	2
	PC19. use prompt engineering techniques to generate better code suggestions with Gen AI tools.	2	3	-	1
	PC20. apply prompt engineering in testing scenarios to create efficient test cases.	2	2	-	1
	Total Marks	30	50	-	20
DGT/VSQ/N0102: Employability Skills (60 Hours)	<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, 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	-	-	-	-
	<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 compute 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	-	-	-	-
	Total Marks	20	30	-	-
Grand Total		80	130	-	40

Annexure 7: 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.

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 8: 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
NASSCOM	National Association of Software and Service Companies
IT-ITeS	Information Technology and Information Technology Enabled Services
Gen AI	Generative Artificial Intelligence
ITSM	IT Service Management
CRMs	Customer Relationship Management Systems

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