सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय
DEVELOPMENT COMMISSIONER
MINISTRY OF MICRO, SMALL & MEDIUM ENTERPRISES

MSME TECHNOLOGY CENTRE

Please refer Guidelines for STT/LTT/Apprenticeship/OEM Qualification File

QUALIFICATION FILE

FULL-STACK DEVELOPER

☐ Short Term Training (STT) ☒ Long Term Training (LTT) ☐ Apprenticeship

☐ Up skilling ☐ Dual/Flexi Qualification ☐ For ToT ☐ For ToA

☒General ☐ Multi-skill (MS) ☒ Cross Sectoral (CS) ☐ Future Skills ☐ OEM

NCrF/NSQF Level: 4.5

Submitted By:

MSME TECHNOLOGY CENTRE

O/o DC MSME, Ministry of Micro, Small and Medium Enterprises

Govt. of India

A-Wing, 7th Floor, Nirman Bhawan, Maulana Azad road

New Delhi-110108

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Table of Contents

Section 1: Basic Details

1.	**Qualification Name**	**FULL-STACK DEVELOPER**	
2.	**Sectors**	**IT & ITes**	
3.	**Type of Qualification: ☒ New ☐ Revised** **☐ Has Electives/Options** **☐OEM**	**NQR Code & version of existing/previous qualification:** *(change to previous, once approved)* **QG-4.5-IT-02395-2024-V1-MSME**	**Qualification Name of existing/previous version: 1.0**
4.	**a. OEM Name** **b. Qualification Name** (*Wherever applicable)*	**NA** **-**	
5.	**National Qualification Register (NQR) Code& Version** (*Will be issued after NSQC approval)*		**6. NCrF/NSQF Level: *4.5***
7.	**Award (Certificate/Diploma/Advanced Diploma/Any Other***(Wherever, applicable specify multiple entry/exits also & provide details in annexure)*	**Certificate**	
8.	**Brief Description of the Qualification**	This qualifications helps learner in the following: • Qualified learners should be able to create backend & front end programs to develop the website. • Learners are capable to support in designing, installing and maintaining the software systems. • Learners are capable in writing the programs for different application • Learners are competent in getting employment in IT industries or also become an entrepreneur	

<table>
<tr><td>9.</td><td>Eligibility Criteria for Entry for Student/Trainee/Learner/Employee</td><td colspan="2">a. Entry Qualification & Relevant Experience: Diploma /Any Graduate Pass.
<table>
<tr><th>Sl. No.</th><th>Academic/Skill Qualification (with Specialization - if applicable)</th><th>Required Experience (with Specialization - if applicable)</th></tr>
<tr><td>1</td><td>1st year of UG#</td><td>No Experience Required</td></tr>
<tr><td>2</td><td>10th + 3-year diploma#</td><td>No Experience Required</td></tr>
<tr><td>4</td><td>Pursuing 3rd year of 3 year diploma after 10*</td><td>No Experience Required</td></tr>
<tr><td>5</td><td>Previous relevant Qualification of NSQF Level 4</td><td>1.5 year relevant experience</td></tr>
<tr><td colspan="2">* Subject to being offered as 6 months internship/ project</td><td>#in the field of IT/Computer Science</td></tr>
</table>
b. Age: 18 years</td></tr>
<tr><td>10.</td><td>Credits Assigned to this Qualification, Subject to Assessment(as per National Credit Framework (NCrF)</td><td>20</td><td>11. Common Cost Norm Category (I/II/III) (wherever applicable): II</td></tr>
<tr><td>12.</td><td>Any Licensing requirements for Undertaking Training on This Qualification(wherever applicable)</td><td colspan="2">NA</td></tr>
<tr><td>13.</td><td>Training Duration by Modes of Training Delivery (Specify Total Duration as per selected training delivery modes and as per requirements of the qualification)</td><td colspan="2">☐Offline ☐Online ☒Blended
<table>
<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>
<tr><td>Classroom (offline)</td><td>54</td><td>450</td><td>60</td><td>-</td><td>564</td></tr>
<tr><td>Online</td><td>36</td><td>-</td><td>-</td><td>-</td><td>36</td></tr>
<tr><td>Total</td><td>90</td><td>450</td><td>60</td><td></td><td>600</td></tr>
</table>
(Refer Blended Learning Annexure for details)</td></tr>
<tr><td>14.</td><td>Aligned to NCO/ISCO Code/s(if no code is available mention the same)</td><td colspan="2">2513.01 (Web Developer)</td></tr>
</table>

15.	**Progression path after attaining the qualification** *(Please show Professional and Academic progression)*	***Professional / Career Progress:*** Web 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**	**☐Yes ☒No URLs of similar Qualifications:**	
18.	**Is the Job Role Amenable to Persons with Disability**	**☒ Yes ☐ No** **If "Yes", specify applicable type of Disability: As per Govt. norms.**	
19.	**How Participation of Women will be Encouraged**	**Seats are reserve as per Govt. norms.**	
20.	**Are Greening/ Environment Sustainability Aspects Covered** *(Specify the NOS/Module which covers it)*	**☒Yes ☐No** **The said aspect cover in Employability Skills.**	
21.	**Is Qualification Suitable to be Offered in Schools/Colleges**	**Schools ☐ Yes ☒ No Colleges ☒ Yes ☐ 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: Sh. Vijay Mahipatrao Bankar** **Contact No. +0755 3501078** **Email-msmetcab@gmail.com**	
23.	**Final Approval Date by NSQC:30.04.24**	**24. Validity Duration:3 years**	**25. Next Review Date:30.04.27**

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 **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.	Understanding the Concepts of C and Python Programming	MSME/FSD/01 & version 1.0	Core	4.5	2	10	50	-	-	60	100	100	-	-	100	
2.	Gaining knowledge in Oracle and MySQL Database Management System	MSME/FSD/02 & version 1.0	Core	4.5	3	10	80	-	-	90	100	100	-	-	100	
3.	Working Back-End design with Spring Boot & Hibernate Framework	MSME/FSD/03 & version 1.0	Core	4.5	7	20	190	-	-	210	100	100	-	-	100	
4.	Mastering UI design with Angular	MSME/FSD/04 & version 1.0	Core	4.5	2	10	50	--	-	60	100	100	-	-	100	
5.	Deploying & Hosting Application with Docker & Kubernetes	MSME/FSD/05 & version 1.0	Core	4.5	3	10	80	-	-	90	100	100	-	-	100	
6.	Employability Skill	MSME/ES/01	Non-Core	4.5	1	30	-	-	-	30	100	-	-	-	100	
7.	OJT				2			60		60						
Duration (in Hours) / Total Marks					**20**	**90**	**450**	**60**		**600**	**600**	**500**	**-**	**-**	**1100**	-

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

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

Minimum Marks to pass Theory Exam: 40%
Minimum Marks to pass Practical Exam: 60%

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

Minimum Marks to pass Theory Exam: 40%
Minimum Marks to pass Practical Exam: 60%

Section 3: Training Related

1.	**Trainer's Qualification and experience in the relevant sector (in years)***(as per NCVET guidelines)*	Diploma / Degree in Computer Science/ IT /Any Graduate / or Equivalent with Practical skills and knowledge required in the relevant job role at least one level higher i.e. Level 5 and above in related field and minimum 2 years of experience in Tool Room/ Technology Centre of MSME or any reputed industry will become a trainer, or in accordance with the TOT guideline of NCVET.
2.	**Master Trainer's Qualification and experience in the relevant sector (in years)** *(as per NCVET guidelines)*	Diploma / Degree in Computer Science/ IT / Any Graduate/ or Equivalent with 3 to 5 years of experience in IT / IT Department from Tool Room/ Technology Centre of MSME or any reputed industry will become as a Master Trainer, Or in accordance with the TOT guideline of NCVET
3.	**Tools and Equipment Required for Training**	☒Yes ☐No (If "Yes", details to be provided in Annexure)
4.	**In Case of Revised Qualification, Details of Any Up skilling Required for Trainer**	Yes

Section 4: Assessment Related

1.	**Assessor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	Diploma / Degree in Computer Science/ IT /Any Graduate / or Equivalent with 3 years of experience in IT/CS/ Training/ IT from Tool Room/ Technology Centre of MSME or any reputed industry and Only (TOA) certified assessors will be able to conduct the assessments.
2.	**Proctor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	Degree in Computer Science/ IT /Any Graduate / or Equivalent with 5 years of experience in IT/ Training/ IT Department from Tool Room/ Technology Centre of MSME or any reputed industry.
3.	**Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	Post Graduate in the relevant discipline with minimum 5 years of experience in CS/IT/ Training/ IT Department from Tool Room/ Technology Centre of MSME or any reputed industry.
4.	**Assessment Mode***(Specify the assessment mode)*	**Blended Type (Online + Offline)**
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):**Yes Skill Gap Analysis Report for IT and ITES Industry
2.	**Latest Market Research Reports or any other source (not older than 2years) (Yes/No):-** Full Stack Web Development: Vision, Challenges and Future Scope
3.	**Government /Industry initiatives/ requirement (Yes/No):** Yes
4.	**Number of Industry validation provided:30**
5.	**Estimated nos. of persons to be trained and employed: Approx. 2000 Nos.**
6.	**Evidence of Concurrence/Consultation with Line Ministry/State Departments:** Yes 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 *(Mandatory)*	*Annexure-I*
2.	**Annexure:** List of tools and equipment relevant for qualification *(Mandatory, except in case of online course)*	*Annexure-II*
3.	**Annexure:** Industry Validations Summary	*Annexure-III*
4.	**Annexure:** Training & Employment Details	*Annexure-IV*
5.	**Annexure:** Blended Learning *(Mandatory, in case selected Mode of delivery is "Blended Learning")*	*Annexure-V*
6.	**Annexure:** Detailed Assessment Criteria *(Mandatory)*	*Annexure-VI*

7.	**Annexure:** Assessment Strategy *(Mandatory)*	*Annexure-VII*
8.	**Annexure:** Acronym and Glossary *(Optional)*	*Annexure- VIII*
9.	**Annexure:** Multiple Entry-Exit Details *(Mandatory, in case qualification has multiple Entry-Exit)*	*NA*
10.	**Supporting Document:** Model Curriculum *(Mandatory – Public view)*	*Annexure- IX*
11.	**Supporting Document:** Career Progression *(Mandatory - Public view)*	*This aspect mentioned in point no. 15*
12.	**Supporting Document:** Occupational Map *(Mandatory)*	*Annexure-X*
13.	**Supporting Document:** Assessment SOP *(Mandatory)*	*Annexure- XI*
14.	Any other document you wish to submit:	*NA*

Annexure I: 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	Software engineers/Developers apply the principles and techniques of computer science, engineering, and mathematical analysis to the design backend and front end, development apps, and evaluation of the software and the systems that enable computers to perform their many applications. This demands wide range of specialized technical skill, clarity of knowledge.	Analyze users' needs and then design, test, and develop software to meet those needs. Recommend software upgrades for customers' existing programs and systems. Create a variety of models and diagrams (such as flowcharts) that the learner understand how to write software code. Ensure that a program continues to function normally through software maintenance and testing.	4.5

Professional and Technical Skills/ Expertise/ Professional Knowledge	Understanding and analysing project requirements and translating it into specifications and programming deliverables Working closely with analysts, designers and clients to enhance existing applications as well as build new applications. Testing and debugging the product in controlled, real situations Maintaining the systems and updating as per requirements.	The Developers must analyze users' needs and then design software to meet those needs. Developers must understand computer capabilities and programming languages in order to design effective software. Creativity Developers are the creative minds behind new computer software. Interpersonal skills. Software developers must be able to work well with others who contribute to designing, developing, and programming successful software. The developers are in charge of software from beginning to end, they must be able to solve problems that arise throughout the design process.	4.5
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	Software engineer is a skilled professional focused on the design and creation of computer applications. Software engineers are also involved in designing and creating applications for other computerized devices such as, security systems etc. which are cognitive in nature and generate solutions to specific problems in the field of study.	Computer applications software engineers analyze user needs and design, construct, and maintain general computer applications software or specialized utility programs. These engineers use different programming languages, depending on the purpose of the program. The programming languages most often used are C, C++, python, and Java. Some software engineers develop both packaged systems and systems software, or create customized applications as per need of IT Industry.	4.5
Broad Learning Outcomes/Core Skill	The Software developer ability to understand an existing code base in order to analyze its behavior and make fixes or enhancements to it.	As a Software engineer he/she have ability to determine what code is necessary to achieve some specified functionality, particularly the higher-level structure or organization of the code. Software Engineer's ability to analyze the behavior of code to diagnose a problem and find the underlying cause. This includes but is not limited to using a debugger.	4.5

Responsibility	Execute full lifecycle software development Write well designed, testable, efficient code Produce specifications and determine operational feasibility Integrate software components into a fully functional software system Develop software verification plans and quality assurance procedures Document and maintain software functionality Tailor and deploy software tools, processes and metrics Expertise in current computer software languages along with Strong communication skills. Ability to work in a team Eye for detail and identifying problems	Programming computer controls, Working with business analyst to develop project implementation and develop plans including user interfaces, Modifying IT systems already in use, Writing documentation, Developing Coding and debugging across a variety of products, Testing new Software's for compatibility with other existing software's, Fixing any technical problems while testing, Designing, prototyping and implementing graphical user interfaces, etc. Thus the curriculum of the qualification is so designed to take the responsibility for own work and learning as well as other team members work and learning.	4.5

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

List of Tools and Equipment's: Batch Size: 20

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
TOOLS AND EQUIPMENTS:		Industry Standard	
1	Computer System		20 Nos
2	Programing software Turbo C & C++ / DEV C++		20 Nos
3	Programing software JAVA JDK, Eclipse		20 Nos
4	Programing software Apache Tomcat, MySQL workbench , Microsoft Office		20 Nos

	Front Page , VS code , Oracle XE univ, STS, POSTMAN,GIT		

Annexure III: 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)*

Annexure IV: Training & Employment Details

Training and Employment Projections:

Year	Total Candidates		Women		People with Disability	
	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities
23-24	2000	1600	400	320	-	-
24-25	2500	2000	500	400	-	-
25-26	3000	2400	600	480	-	-

Data to be provided year-wise for next 3 years

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

Qualification Version		Total Candidates				Women				People with Disability			
		Trained	Assessed	Certified	Placed	Trained	Assessed	Certified	Placed	Trained	Assessed	Certified	Placed

	Year												
New Qualification										-	-	-	-

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: New Qualification

Content availability for previous versions of qualifications:

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

Languages in which Content is available:

English

Annexure V: 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	Books/ e-books, Presentations, Reference Material , Audio / Video Modules with installation step, settings and configuration Self-Learning Videos /Broadcasts /Mobile Learning /Curated Digital content	40:60

2	☐Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners	Self-Learning Videos , Broadcasts, Mobile Learning , Curated Digital content	40:60
3	☐Showing Practical Demonstrations to the learners	Installation & path set of software, website design, database connectivity, GUI application, Video Content, E-Resource library.	100:0
4	☐Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training	Turbo C++, DEV C++, My Eclipse , Apache Tomcat, MySQL workbench , Microsoft Office Front Page , VS code , Oracle XE univ	100:0
5	☐Tutorials/ Assignments/ Practice	Online Question Bank, Mobile Quick test app, MCQ based tests, Practical Test on Machines	40:60
6	☐Proctored Monitoring/ Assessment/ Evaluation/ Examinations	Assessment engine for Essays, Up-loadable file examinations, Mock test sessions	50:50
7	☐On the Job Training (OJT)	NA	100:0

Annexure: VI 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
NOS / Module: MSME/FSD/01 & version 1.0 Understanding concepts of Python and C programming	PC.1 Demonstrate the structure of C program PC.2 Demonstrate different data types, variable and keywords and identifier, operator and its uses. PC.3 Explain different control statement, types of loop and go to, continue keyword PC.4 Explain the way to declare, define and call a function. PC.5 Explain pointers- concepts, initialize pointer variables, Character pointers and functions, pointers to pointers PC.6 Explain types of array, store, sort and search data within it. PC.7 Explain string and its pre-defined function.	100	100		

	PC.8 Explain structure and union. PC.9 Explain file handling for Permanente data store process PC.10 Demonstrate the Python program PC.11 Demonstrate the use of print statements PC.12 Demonstrate the knowledge of operator, control system and looping PC.13 Demonstrate the knowledge of functions in python				
NOS / Module: MSME/FSD/02 & version 1.0 **Gaining knowledge in Oracle and MySQL database management**	PC.1 Explain the Difference between DBMS and File Base System, DBMS Architecture. PC.2 Explain the concept of Data Definition Language (DDL). PC.3 Explain the concept of Data Manipulation Language (DML) to manipulate over Data. PC.4 Explain the Concept of Different types of constraints. PC.5 Demonstrate how two or more table can be join using different types of join operation. PC.6 Explain the concept of stored procedure and function. PC.7 Install Data Base software's like MYSQL, SQL Server, Oracle and DB2. PC.8 Execute SQL Query using Create, alter, drop table Using Data Definition Language (DDL). PC.9 Execute select, insert, update and delete statement using SQL Data Manipulation Language. PC.10 Able to modify the table structure by adding different constraints to the existing table. PC.11 Explain a table and then join those table by using different types of joining operation.	100	100		

	PC.12 Able to create a store procedure by using both IN and OUT parameter and then execute them.				
NOS / Module: MSME/FSD/03 & version 1.0 **Attaining skills in Java and JEE development**	PC.1 Explain the concept of control statement and looping PC.2 Explain the concept of class and object and using object access the member of a class. PC.3 Explain Different ways of representing a method passing primitive data types to method, method overloading, Types of method: instance, static, recursive, factory method. Passing object to method, passing array to method. PC.4 Explain the use of inheritance in programming Language. PC.5 Create a Thread by using Thread class and Runnable interface, Lifecycle of Thread, Thread class constructor and methods, Thread priorities, thread group, multithreading and synchronization PC.6 Explain the Concept of file PC.7 Explain the concept of TCP/IP protocol, sockets, Knowing IP Address, URL and URL Connection class PC.8 Develop GUI application using swing through Net Beans IDE. PC.9 Explain the Architecture of JDBC and Types of JDBC Driver. PC.10 Explain the Concept of Statement, Prepared Statement PC.11 Execute stored procedure and function using Callable Statement Interface. PC.12 Explain the concept of Spring & Spring Boot. PC.13 Develop CRUD application using Hibernate with Data JPA. PC.14 Explain the concept of Restful web services.	100	100		
NOS / Module: MSME/FSD/04 & version 1.0	PC.1 Demonstrate the Structure of an html Page. PC.2 Demonstrate different types of basic html tag. PC.3 Demonstrate the use of list and table tag. PC.4 Demonstrate the different types of form tag and their uses for User interfaces.	100	100		

Mastering UI design with Angular	PC.5 Demonstrate External Style Sheets, Internal Style Sheets, and Inline Style, The class selector, div & span tag. PC.6 Run a HTML Program using manual process and Adobe Dream weaver IDE. PC.7 Design and develop a web page using heading, font, image, marquee tag. PC.8 Develop a web page using order list, unordered list and definition list. PC.9 Design a Student registration form that will take all student Data including their photo and CV. PC.10 Design a web page using html and CSS with batter look and fill and then understand the concept of class and id in CSS. PC.11 Design web page using Angular JS.				
NOS / Module: MSME/FSD/05 & version 1.0 **Deploying & Hosting Application with Docker & Kubernetes**	PC 1. Explain the concepts of cloud computing. PC 2. Understand the importance of virtualization in distributed computing and how this has enabled the development of Cloud Computing. PC 3. Analyze the performance of Cloud Computing. PC 4. Understand the concept of Cloud Security. PC 5. Learn the Concept of Cloud Infrastructure Model. PC 6. Understand about the concept of AWS. PC 7. Able to create AWS Account. PC 8. Demonstrate the concept of IAM & AWS CLI. PC 9. Able to create an EC2 Instance. PC 10. Understand the concept of Amazon RDS. PC 11. Able to deploy Spring Boot application on AWS using Elastic Beanstalk.	100	100		

	PC 12. Able to explain the concepts of Docker & Kubernetes.				
NOS / Module:- MSME/ES/01 Employability Skill	PC.1 Explain the major applications of MS Office PC.2 Explain the different types of e-commerce PC.3 List the benefits of e-commerce for retailers and customers PC.4 Discuss how the Digital India campaign will help boost e-commerce in India PC.5 Write applications pertaining to various matters. PC.6 Explain power of positive attitude and Importance of commitment PC.7 Explain motivation and the Ways to motivate oneself and Personal goal setting PC.8 Explain the Effective & Level of Communication PC.9 Explain communication and Significance of technical communication? PC.10 Explain the methods of listening Skills. PC.11 Explain the differences between bio-data, CV and Resume. PC.12 Explain verbal and non-verbal Communication PC.13 Explain how to face an interview. PC.14 Explain team work, group work, team formation process PC.15 How to Minimize the team conflicts PC.16 Explain Ethics & values PC.17 Explain the concept of entrepreneurship, and entrepreneurship v/s Management PC.18 Explain the process of project report preparation for setting up a new business PC.19 Explain the role of various schemes and institute for self-employment i.e. MSME, DIC, NSIC, SIDBI etc., PC.20 Role of financial institution to support startup PC.21 Discuss the importance of saving money PC.22 Discuss the main types of bank accounts PC.23 Differentiate between fixed and variable costs PC.24 Describe the different types of insurance products PC.25 Discuss the main types of electronic funds transfers	100	-		

Grand Total	600	500		

Annexure VII: 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.

1. Assessment System Overview:

- Batches are assigned to the MSME NSQF Assessment Agency via email for the assessment.
- MSME NSQF Assessment Agency sends the assessment confirmation to respective TC.
- MSME NSQF Assessment Agency deploys the certified Assessor for executing the assessment at respective TC via online / offline mode.
- MSME NSQF Assessment Agency & respective TC Internal Assessment cell monitors the assessment process & records.

2. Testing Environment:

- MSME NSQF Assessment Agency confirms the Assessment location, date and time
- For number of candidates more than 30 separate assessors are assigned for the assessment.
- MSME NSQF Assessment Agency & respective assessor confirms that the allotted time to the candidates to complete Theory & Practical Assessment is correct.

3. Assessment Quality Assurance levels/Framework:

- Each TC Submits the Question Bank for the individual subject Theory & Practice separately, submits to MSME NSQF Assessment Agency and it is verified by the MSME NSQF Assessment Agency Committee members.
- Questions are mapped to the specified assessment criteria
- All the assessors & Trainers are well qualified & trained to carry out the specified task.

4. Types of evidence or evidence-gathering protocol:

- Online Link is send by MSME NSQF Assessment Agency to respective TC & Assessor. Reporting of the assessor from assessment location is verified by the MSME NSQF Assessment Agency through the online Meeting Link. Students are also required to join for the online link for verification by the MSME NSQF Assessment Agency.
- Assessment Photographs are shared with the MSME NSQF Assessment Agency & are also with the respective TC.

5. Method of verification or validation:

- Online Link is send by MSME NSQF Assessment Agency to respective TC & Assessor. Reporting of the assessor from assessment location is verified by the MSME NSQF Assessment Agency through the online Meeting Link. Students are also required to join for the online link for verification by the MSME NSQF Assessment Agency.

6. Method for assessment documentation, archiving, and access:

- The Assessment records are shared with MSME NSQF Assessment Agency & also stored at respective TC.
- Assessor fills the assessment report and shares with the MSME NSQF Assessment Agency.

On the Job Training:

- Each module will be assessed separately.
- The candidate must score 60% marks to successfully complete the OJT.
- Learner will be assessed on the basis of OJT report followed by Viva
- Assessment will ensure that the Learner is able to:
    - ✓ Effective engagement with the customers / Subordinates and team
    - ✓ Understand the working of various tools and equipment
    - ✓ Understand the working environment of the industry

Annexure VIII: 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 Qualification 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