Model Curriculum

QP Name: WED DEVELOPER

QP Code: SSC/Q0503

QP Version: 3.0

NSQF Level: 4

Model Curriculum Version: 3.0

IT-ITeS Sector Skills Council NASSCOM | Plot No – 7,8,9 & 10, Sector 126, Noida, UP.
Pin code: 201303

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Training Parameters

Sector	IT-ITeS
Sub-Sector	IT Services
Occupation	Application Development
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/ 2513.0101
Minimum Educational Qualification and Experience	Class 11th OR 10th+1-Yr NTC/NAC/CITS OR NSQF Level 3 STT Min Age-16 years
Pre-Requisite License or Training	Relevant animation and graphics courses/ Certifications/training
Minimum Job Entry Age	16 Years
Last Reviewed On	17-11-2022
Next Review Date	17-11-2025
NSQC Approval Date	17-11-2022
QP Version	3.0
Model Curriculum Creation Date	17-11-2022
Model Curriculum Valid Up to Date	17-11-2025
Model Curriculum Version	3.0
Minimum Duration of the Course	390 hours
Maximum Duration of the Course	390 hours

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills.

- Evaluate the functioning of Business Requirement Specification, User Requirements Specification, Software Requirements Specification and Low-Level Design in the web development domain.
- Examine how assumptions, constraints, interfaces determine the process of web designing.
- Collate basic programming structures related to High Level design/Low Level Design and monitor the same.
- Examine how to create software code that is efficient, readable, and maintainable.
- Evaluate the process for converting designs into media and graphic content.
- Examine how to test new products and applications.
- Illustrate the various forms of coding tools required for software applications and web designs.
- Convert requirements into web content and graphic designs, leveraging reusable components.
- Discuss the technical validation of a web's HTML implementation.
- Demonstrate effective communication and collaboration with colleagues.
- Apply measures to maintain standards of health and safety at the workplace.
- Use different approaches to effectively manage and share data and information.
- Develop strong relationships at the workplace through effective communication and conflict management.
- Identify best practices to maintain an inclusive, environmentally sustainable workplace.

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration (In Hours)	Practical Duration (In Hours)	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration (In Hours)
SSC/N0501 Contribute to the design of software products and applications NOS Version No. 2 NSQF Level 4	33:00	57:00	00:00	00:00	90:00
Module 1: Programming for the Web	13:00	27:00	00:00	00:00	40:00

Module 2: Contribute to the design of software products and applications	15:00	15:00	00:00	00:00	30:00
Module 3: Technical skills for software design	05:00	15:00	00:00	00:00	20:00
SSC/N0503 Develop media content and graphic designs for software products and applications NOS Version No. 2 NSQF Level 4	56:00	94:00	00:00	00:00	150:00
Module 4: Analysis and design of web-based applications	21:00	39:00	00:00	00:00	60:00
Module 5: Develop media content and graphic designs for software products and applications	15:00	30:00	00:00	00:00	45:00
Module 6: Interpret design specification	20:00	25:00	00:00	00:00	45:00
SSC/N9014 Implement & Improve the Gender Sensitivity, PWD (Person/People with Disability) Sensitivity and Greening NOS Version No. 1 NSQF Level 5	**10:00**	**20:00**	**00:00**	**00:00**	**30:00**
Module 7: Inclusive and environmentally sustainable workplaces	10:00	20:00	00:00	00:00	30:00
Employability Skill 60 Hours	**24:00**	**36:00**	**00:00**	**00:00**	**60:00**
Module 8: Introduction to Employability Skills	00:30	01:00	00:00	00:00	01:30
Module 9: Constitutional values - Citizenship	00:30	01:00	00:00	00:00	01:30
Module 10: Becoming a Professional in the 21st Century	01:00	01:30	00:00	00:00	02:30
Module 11: Basic English Skills	04:00	06:00	00:00	00:00	10:00
Module 12: Career Development & Goal Setting	01:00	01:00	00:00	00:00	02:00
Module 13: Communication Skills	02:00	03:00	00:00	00:00	05:00
Module 14: Diversity & Inclusion	01:00	01:30	00:00	00:00	02:30
Module 15: Financial and Legal Literacy	02:00	03:00	00:00	00:00	05:00
Module 16: Essential Digital Skills	04:00	06:00	00:00	00:00	10:00

Module 17: Entrepreneurship	03:00	04:00	00:00	00:00	07:00
Module 18: Customer Service	02:00	03:00	00:00	00:00	05:00
Module 19: Getting ready for apprenticeship & Jobs	03:00	05:00	00:00	00:00	08:00
OJT	**00:00**	**00:00**	**60:00**	**00:00**	**60:00**
Total Duration	**123:00**	**207:00**	**60:00**	**00:00**	**390:00**

Module Details

Module 1: Programming for the Web
Mapped to SSC/N0501, v2.0

Terminal Outcomes:

- Evaluate the functioning of Business Requirement Specification, User Requirements Specification, Software Requirements Specification and Low-Level Design in the web development domain.
- Examine how assumptions, constraints, interfaces determine the process of web designing.

Duration: *13:00(In Hours)*	**Duration**: *27:00(In Hours)*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Evaluate the use of the Business Requirements Specification (BRS)/User Requirements Specification (URS). - Identify the Software Requirements Specification (SRS).	- Examine the software requirements for carrying out web development process. - Evaluate the process of HLD (High Level Design) application for web programming. - Elaborate the application of LLD (Low Level Design) to create a web program. - Design basic programming structures to implement functionality in line with requirements defined in BRS/URS, SRS, and HLD. - Examine how assumptions, constraints, interfaces determine the process and build-up for web design.
Classroom Aids:	
Whiteboard and Markers Chart paper and sketch pens LCD Projector and Laptop for presentations	
Tools, Equipment and Other Requirements:	
Labs equipped with the following: PCs/Laptops Internet with Wi-Fi (Min 2 Mbps Dedicated) Microphone / voice system for lecture and class activities Computer Lab with 1:1 PC: trainee ratio and having internet connection, MS Office / Open office, Browser, Outlook / Any other Email Client, and chat tools HTML5, Javascript, CSS, SQL, Web Builder, Word Press, Joomla and modelling tools such as Visio, UML	

Module 2: Contribute to the Design of Software Products and Applications
Mapped to SSC/N0501, v2.0

Terminal Outcomes:

- Collate basic programming structures related to High Level design/Low Level Design and monitor the same.
- Examine how to create software code that is efficient, readable, and maintainable.

Duration: *15:00(In Hours)*	Duration: *15:00(In Hours)*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Collate inputs from design experts to identify, resolve and record design defects. • Discuss conclusions from defects for improving future designs. • Discuss how to use various ranges of coding tools.	• Interpret design specifications, pertaining to Business Requirements Specification (BRS), User Requirements Specification (URS), Software Requirements Specification (SRS), etc. • Create proper documentation of the designs using standard templates and tools. • Review the designs of programming structures with experts.
Classroom Aids:	
Whiteboard and Markers Chart paper and sketch pens LCD Projector and Laptop for presentations	
Tools, Equipment and Other Requirements:	
Labs equipped with the following: PCs/Laptops Internet with Wi-Fi (Min 2 Mbps Dedicated) Microphone / voice system for lecture and class activities Computer Lab with 1:1 PC: trainee ratio and having internet connection, MS Office / Open office, Browser, Outlook / Any other Email Client, and chat tools HTML5, Javascript, CSS, SQL, Web Builder, Word Press, Joomla and modelling tools such as Visio, UML	

Module 3: Technical Skills for Software Design
Mapped to SSC/N0501, v2.0

Terminal Outcomes:

- Utilize the codes constructed to meet technical specifications.
- Practice hands-on experience on various software for designing.

Duration: *05:00(In Hours)*	Duration: *15:00(In Hours)*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the functional and non-functional requirements in software application for web development. • Discuss the current practice in the design of software products.	• Demonstrate skills to run various software including JavaScript, WordPress, SQL, Web Builder, Photoshop, etc.
Classroom Aids:	
Whiteboard and Markers Chart paper and sketch pens LCD Projector and Laptop for presentations	
Tools, Equipment and Other Requirements:	
Labs equipped with the following: PCs/Laptops Internet with Wi-Fi (Min 2 Mbps Dedicated) Microphone / voice system for lecture and class activities Computer Lab with 1:1 PC: trainee ratio and having internet connection, MS Office / Open office, Browser, Outlook / Any other Email Client, and chat tools HTML5, Javascript, CSS, SQL, Web Builder, Word Press, Joomla and modelling tools such as Visio, UML	

Module 4: Analysis and Design of Web Based Applications
Mapped to SSC/N0503, v2.0

Terminal Outcomes:

- Evaluate the process for converting designs into media and graphic content.
- Examine how to test new products and applications.

Duration: *21:00(In Hours)*	**Duration**: *39:00(In Hours)*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Discuss the implications that new products and applications may have on business processes. - Identify the sources of information to design software products and specifications. - List range of equipment used to design software products and applications.	- Utilize basic program structures to design suitable software applications. - Determine how to test new products and applications to determine if they are fit for design purpose. - Evaluate common design defects and their resolution. - Examine functional and non-functional requirement for web-based applications.
Classroom Aids:	
Whiteboard and Markers Chart paper and sketch pens LCD Projector and Laptop for presentations	
Tools, Equipment and Other Requirements:	
Labs equipped with the following: PCs/Laptops Internet with Wi-Fi (Min 2 Mbps Dedicated) Microphone / voice system for lecture and class activities Computer Lab with 1:1 PC: trainee ratio and having internet connection, MS Office / Open office, Browser, Outlook / Any other Email Client, and chat tools HTML5, CSS, Flash, Photoshop, Windows media player, Eclipse, XAMPP	

Terminal Outcomes:

- Illustrate the various forms of coding tools required for software applications and web designs.
- Convert requirements into web content and graphic designs, leveraging reusable components.

Duration: *15:00(In Hours)*	Duration: *30:00(In Hours)*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Select reusable components, media and graphical packages and tools to develop media content. • Identify any defects and corrective actions taken to improve media and graphics.	• Convert requirements into web content and graphic designs, leveraging reusable components. • Validate web content and graphic designs created. • Examine whether components are suitable for re-use before final corrections. • Review the final design before final software product application.
Classroom Aids:	
Whiteboard and Markers Chart paper and sketch pens LCD Projector and Laptop for presentations	
Tools, Equipment and Other Requirements:	
Labs equipped with the following: PCs/Laptops Internet with Wi-Fi (Min 2 Mbps Dedicated) Microphone / voice system for lecture and class activities Computer Lab with 1:1 PC: trainee ratio and having internet connection, MS Office / Open office, Browser, Outlook / Any other Email Client, and chat tools HTML5, CSS, Flash, Photoshop, Windows media player, Eclipse, XAMPP.	

Module 6: Interpret Design Specification
Mapped to SSC/N0503, v2.0

Terminal Outcomes:

- Check the technical implementation of the web design with validation tools.
- Discuss the technical validation of a web's HTML implementation.

Duration: *20:00(In Hours)*	**Duration**: *25:00(In Hours)*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Identify the current practice in developing media content and graphic designs. • Discuss the technical validation of a web's HTML implementation.	• Examine conversion process of media content and graphic designs using HLD and LLD application. • Test media content and graphic designs to validate their purpose in the configuration system. • Rework media content and graphic designs, to incorporate feedback.
Classroom Aids:	
Whiteboard and Markers Chart paper and sketch pens LCD Projector and Laptop for presentations	
Tools, Equipment and Other Requirements:	
Labs equipped with the following: PCs/Laptops Internet with Wi-Fi (Min 2 Mbps Dedicated) Microphone / voice system for lecture and class activities Computer Lab with 1:1 PC: trainee ratio and having internet connection, MS Office / Open office, Browser, Outlook / Any other Email Client, and chat tools HTML5, CSS, Flash, Photoshop, Windows media player, Eclipse, XAMPP.	

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N·S·D·C
National Skill Development Corporation
Transforming the skill landscape

Module 7: Inclusive and environmentally sustainable workplaces
Mapped to SSC/N9014, v2.0

Terminal Outcomes:

- Illustrate sustainable practices at workplace for energy efficiency and waste management.
- Apply different approaches to maintain gender equality and increase inclusiveness for PwD.

Duration: *10:00(In Hours)*	**Duration**: *20:00(In Hours)*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe different approaches for efficient energy resource utilisation and waste management. • Describe the importance of following the diversity policies. • Identify stereotypes and prejudices associated with people with disabilities and the negative consequences of prejudice and stereotypes. • Discuss the importance of promoting, sharing, and implementing gender equality and PwD sensitivity guidelines at organization level.	• Practice the segregation of recyclable, non-recyclable and hazardous waste generated. • Demonstrate different methods of energy resource use optimization and conservation. • Demonstrate essential communication methods in line with gender inclusiveness and PwD sensitivity.
Classroom Aids:	
Whiteboard and Markers Chart paper and sketch pens LCD Projector and Laptop for presentations	
Tools and Other Requirements:	
Labs equipped with the following: PCs/Laptops Internet with Wi-Fi (Min 2 Mbps Dedicated) Microphone / voice system for lecture and class activities	

Module 8: Introduction to Employability Skills
Mapped to NOS 60 Hours (Version No. 1)
Key Learning Outcomes:
- Discuss the Employability Skills required for jobs in various industries
- List different learning and employability related GOI and private portals and their usage

Duration:1.5 Hours (0.5 Theory + 1 Practical)

Module 9: Constitutional values - Citizenship
Mapped to NOS 60 Hours (Version No. 1)
Key Learning Outcomes:
- Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen
- Show how to practice different environmentally sustainable practices

Duration:1.5 Hours (0.5 Theory + 1 Practical)

Module 10: Becoming a Professional in the 21st Century
Mapped to NOS 60 Hours (Version No. 1)
Key Learning Outcomes:
- Discuss importance of relevant 21st century skills.
- Exhibit 21st century skills like Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.
- Describe the benefits of continuous learning

Duration:2.5 Hours (1 Theory + 1.5 Practical)

Module 11: Basic English Skills
Mapped to NOS 60 Hours (Version No. 1)
Key Learning Outcomes:
- Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone
- Read and interpret text written in basic English
- Write a short note/paragraph / letter/e -mail using basic English

Duration: 10 Hours (4 Theory + 6 Practical)

Module 12: Career Development and Goal Setting
Mapped to NOS 60 Hours (Version No. 1)
Key Learning Outcomes:
- Create a career development plan with well-defined short- and long-term goals

Duration: 2 Hours (1 Theory + 1 Practical)

Module 13: Communication skills
Mapped to NOS 60 Hours (Version No. 1)

Key Learning Outcomes:
- Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette.
- Explain the importance of active listening for effective communication
- Discuss the significance of working collaboratively with others in a team

Duration: 5 Hours (2 Theory + 3 Practical)

Module 14: Diversity and Inclusion
Mapped to NOS 60 Hours (Version No. 1)

Key Learning Outcomes:
- Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD
- Discuss the significance of escalating sexual harassment issues as per POSH

Duration: 2.5 Hours (1 Theory+ 1.5 Practical)

Module 15: Financial and Digital Literacy
Mapped to NOS 60 Hours (Version No. 1)

Key Learning Outcomes:
- Outline the importance of selecting the right financial institution, product, and service
- Demonstrate how to carry out offline and online financial transactions, safely and securely

Duration: 5 Hours (2 Theory+ 3 Practical)

Module 16: Essential Digital Skills
Mapped to NOS 60 Hours (Version No. 1)

Key Learning Outcomes:
- Describe the role of digital technology in today's life
- Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
- Discuss the significance of displaying responsible online behaviour while browsing, using various social media platforms, e-mails, etc., safely and securely
- Create sample word documents, excel sheets and presentations using basic features
- utilize virtual collaboration tools to work effectively

Duration: 10 Hours (4 Theory+ 6 Practical)

Module 17: Entrepreneurship
Mapped to NOS 60 Hours (Version No. 1)

Key Learning Outcomes:
- Explain the types of entrepreneurship and enterprises
- Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
- Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
- Create a sample business plan, for the selected business opportunity

Duration: 7 Hours (3 Theory+ 4 Practical)

Module 18: Customer Service
Mapped to NOS 60 Hours (Version No. 1)
Key Learning Outcomes:
- Describe the significance of analysing different types and needs of customers
- Explain the significance of identifying customer needs and responding to them in a professional manner.
- Discuss the significance of maintaining hygiene and dressing appropriately

Duration: 5 Hours (2 Theory+ 3 Practical)

Module 19: Getting Ready for Apprenticeship and Jobs
Mapped to NOS 60 Hours (Version No. 1)
Key Learning Outcomes:
- Create a professional Curriculum Vitae (CV)
- Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively
- Discuss the significance of maintaining hygiene and confidence during an interview
- Perform a mock interview
- List the steps for searching and registering for apprenticeship opportunities

Duration: 8 Hours (3 Theory+ 5 Practical)

Annexure

Trainer Requirements

<table>
<tr><th colspan="6">Trainer Prerequisites</th></tr>
<tr><th rowspan="2">Minimum Educational Qualification</th><th rowspan="2">Specialization</th><th colspan="2">Relevant Industry Experience</th><th colspan="2">Training Experience</th><th rowspan="2">Remarks</th></tr>
<tr><th>Years</th><th>Specialization</th><th>Years</th><th>Specialization</th></tr>
<tr><td>Minimum Graduate</td><td>Preferred Master's Degree in Media Design. OR</td><td>Minimum 2 years' experience in the Web</td><td></td><td>1 year preferred</td><td>Minimum 2 years' experience in the Web</td><td>Certification in relevant software competencies:</td></tr>
</table>

degree/ diploma in web design/ media design or any other related field.	CITS + 3 years domain experience required.	Development domain			Development domain	Software Development Certifications in C++, Embedded, C#, C, Java etc., is an added advantage.

Trainer Certification	
Domain Certification	**Platform Certification**
Minimum accepted score in SSC Assessment is 80% per NOS being taught in "SSC/Q0503, V 2.0"	Recommended that the trainer is certified for the Job role "Trainer" mapped to the Qualification Pack "MEP/Q2601". Minimum accepted score is 80% aggregate

Assessor Requirements

Assessor Prerequisites					
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**
		Years	*Specialization*	*Years*	*Specialization*	
Graduate in any discipline		2	Experience that involves client interaction	1-2	Experience that involves client interaction	

Assessor Certification	
Domain Certification	**Platform Certification**
Not Applicable	

Assessment Strategy

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

Assessment System Overview

A uniform assessment of job candidates as per industry standards facilitates progress of the industry by filtering employable individuals while simultaneously providing candidates with an analysis of personal strengths and weaknesses.

Assessment Criteria

Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down the proportion of marks for Theory and Skills Practical for each PC.

The assessment for the theory part will be based on a knowledge bank of questions created by the SSC. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.

Guidelines for Assessment			
Testing Environment	**Tasks and Functions**	**Productivity**	**Teamwork**
• Carry out assessments under realistic work pressures that are found in the normal industry workplace (or simulated workplace). • Ensure that the range of materials, equipment, and tools that learners use are current and of the type routinely found in the normal industry workplace (or simulated workplace) environments.	• Assess that all tasks and functions are completed in a way, and to a timescale, that is acceptable in the normal industry workplace. • Assign workplace (or simulated workplace) responsibilities that enable learners to meet the requirements of the NOS.	• Productivity levels must be checked to ensure that it reflects those that are found in the work situation being replicated.	• Provide situations that allow learners to interact with the range of personnel and contractors found in the normal industry workplace (or simulated workplace).

Assessment Quality Assurance framework

NASSCOM provides two assessment frameworks NAC and NAC-Tech.

NAC (NASSCOM Assessment of Competence)

NAC follows a test matrix to assess Speaking & Listening, Analytical, Quantitative, Writing, and Keyboard skills of candidates appearing for assessment.

NAC-Tech

NAC-Tech test matrix includes assessment of Communication, Reading, Analytical, Logical Reasoning, Work Management, Computer Fundamentals, Operating Systems, RDBMS, SDLC, Algorithms & Programming Fundamentals, and System Architecture skills.

Methods of Validation

To pass a QF, a trainee should score a minimum aggregate of 70% across qualification. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack

Method of assessment documentation and access

The assessment agency will upload the result of assessment in the portal. The data will not be accessible for change by the assessment agency after the upload. The assessment data will be validated by SSC assessment team. After upload, only SSC can access this data.

References

Glossary

Term	Description
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do **upon the completion of the training**.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do **upon the completion of a module.** A set of terminal outcomes help to achieve the training outcome.
National Occupational Standard	National Occupational Standard specify the standard of performance an individual must achieve when carrying out a function in the workplace
Persons With Disability	Persons with Disability are those who have long-term physical, mental, intellectual, or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others.
Integrated Development Environment	An integrated development environment is a software application that provides comprehensive facilities to computer programmers for software development.

Acronyms and Abbreviations

Term	Description
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
SSC	Skill Sectors Councils
NASSCOM	National Association of Software & Service Companies
PwD	Persons with Disability
IDE	Integrated Development Environment