Model Curriculum

QP Name: WED DEVELOPER

QP Code: SSC/Q0503

QP Version: 2.0

NSQF Level: 5

Model Curriculum Version: 1.0

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

Table of Contents

Training Parameters

Sector	IT-ITeS
Sub-Sector	IT Services
Occupation	Application Development
Country	India
NSQF Level	5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/ 2513.0101
Minimum Educational Qualification and Experience	Graduate (Graduate degree/ diploma in web design/ media design or any other related field) with 0-6 Months of experience Web designing/Development
Pre-Requisite License or Training	Relevant animation and graphics courses/ Certifications/training
Minimum Job Entry Age	18 Years
Last Reviewed On	21-05-2020
Next Review Date	21-05-2025
NSQC Approval Date	TBD
QP Version	2.0
Model Curriculum Creation Date	21-05-2020
Model Curriculum Valid Up to Date	21-05-2025
Model Curriculum Version	1.0
Minimum Duration of the Course	400
Maximum Duration of the Course	400

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	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
Module 1 (Bridge Module): IT-ITeS/Application development industry – An Introduction	02:00	02:00	00:00	00:00	04:00
SSC/N0501 Contribute to the design of software products and applications NOS Version No. 2 NSQF Level 5	**31:00**	**80:00**	**00:00**	**00:00**	**111:00**

Module 2: Programming for the Web	11:00	30:00	00:00	00:00	41:00
Module 3: Contribute to the design of software products and applications	15:00	30:00	00:00	00:00	45:00
Module 4: Technical skills for software design	05:00	20:00	00:00	00:00	25:00
SSC/N0503 Develop media content and graphic designs for software products and applications **NOS Version No. 2** **NSQF Level 5**	36:00	84:00	00:00	00:00	120:00
Module 5: Analysis and design of web based applications	11:00	29:00	00:00	00:00	40:00
Module 6: Develop media content and graphic designs for software products and applications	15:00	30:00	00:00	00:00	45:00
Module 7: Interpret design specification	10:00	25:00	00:00	00:00	35:00
SSC/N9001 Manage your work to meet requirements **NOS Version No. 2** **NSQF Level 5**	08:00	32:00	00:00	00:00	40:00
Module 8: Manage your work to meet requirements	08:00	32:00	00:00	00:00	40:00
SSC/N9002 Work effectively with colleagues **NOS Version No. 2** **NSQF Level 5**	08:00	32:00	00:00	00:00	40:00
Module 9: Work effectively with colleagues	08:00	32:00	00:00	00:00	40:00
SSC/N9003 Maintain a healthy, safe and secure working environment **NOS Version No. 2** **NSQF Level 5**	05:00	25:00	00:00	00:00	30:00
Module 10: Managing Health and Safety	05:00	25:00	00:00	00:00	30:00
SSC/N9004 Provide data/information in standard formats **NOS Version No. 2** **NSQF Level 5**	05:00	25:00	00:00	00:00	30:00
Module 11: Workplace Data Management	05:00	25:00	00:00	00:00	30:00
SSC/N9014 Implement & Improve the Gender Sensitivity, PWD (Person/People with Disability) Sensitivity and Greening **NOS Version No. 1**	05:00	20:00	00:00	00:00	25:00

NSQF Level 5					
Module 12: Inclusive and environmentally sustainable workplaces	05:00	20:00	00:00	00:00	25:00
Total Duration	100:00	300:00	00:00	00:00	400:00

Module Details

Module 1: IT-ITeS/Application Development Industry – An Introduction
Bridge Module

Terminal Outcomes:

- Comprehend various delivery models used in the IT-Application development industry.
- Examine the current growth and development standards of web development application.

Duration: *02:00*	Duration: *02:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the relevance of the IT-ITeS sector. • Identify the career path for a web developer. • List the various sub-sectors of the Application development industry.	• Conduct internet surfing to gather information, evidence, and articles regarding the IT-ITeS/Application Development industry. • Evaluate the key emerging trends in the Application Development industry basis information gathered.
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)	

Module 2: Programming for the Web
Mapped to SSC/N0501

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: *11:00*	Duration: *30:00*
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 3: Contribute to the Design of Software Products and Applications
Mapped to SSC/N0501

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*	Duration: *30:00*
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	

Terminal Outcomes:

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

Duration: *05:00*	Duration: *20:00*
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 5: Analysis and Design of Web Based Applications
Mapped to SSC/N0503

Terminal Outcomes:

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

Duration: *11:00*	**Duration**: *29:00*
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	

Module 6: Develop Media Content and Graphic Designs for Software Products and Application
Mapped to SSC/N0503

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*	**Duration**: *30:00*
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 7: Interpret Design Specification
Mapped to SSC/N0503

Terminal Outcomes:

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

Duration: 10:00	Duration: 25:00
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.	

Module 8: Manage your Work to meet Requirements
Mapped to SSC/N9001

Terminal Outcomes:

- Define the scope of work.
- Demonstrate effective work planning principles.
- Recognize the importance of using time and resources effectively.

Duration: *08:00*	**Duration:** *32:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the role, responsibilities, and limits of the responsibilities. • Discuss the importance of gathering detailed work requirements and prioritizing work areas. • Identify commonly made mistakes in the prioritized work areas. • Explain the importance of completing work accurately.	• Analyse needs, requirements and dependencies in order to meet the work requirements. • Apply resource management principles and techniques. • Demonstrate the ways to maintain an organized work area. • Apply effective time management principles.
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 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	

Module 9: Work Effectively with Colleagues
Mapped to SSC/N9002

Terminal Outcomes:

- Explain the methods and mechanisms for effective communication.
- Explain the importance of effective collaboration at workplace.

Duration: *08:00*	Duration: *32:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain the principles of clear communication. - Outline the importance of being a good listener and adhering to the commitments. - Identify challenges and pain points related to work distribution while working in a team. - Explain the importance of distributing and sharing workloads.	- Use oral, written and non-verbal communication skills in a variety of forms to construct thoughts and ideas effectively. - Demonstrate professional behaviour at workplace. - Demonstrate effective team mentorship.
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 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 Social networking tool / LMS tool to enable blog posts or discussion board, Instant messenger, chat and email tools to enable mock exercises.	

Terminal Outcomes:

- Describe how to maintain a health, safe and secure environment at workplace.

Duration: 05:00	Duration: 25:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Discuss the importance of complying with organizational health, safety and security policies and procedures. - Discuss possible roles and responsibilities that an employee can take up with respect to workplace safety management. - Evaluate sample organizational emergency procedures. - Identify mechanisms to improve workplace health, safety, and security. - Label appropriate personal protective equipment needed for a job role.	- Demonstrate the identification of possible breaches in health, safety, and security policies. - Document health, safety and security breaches. - Design a contingency plan for emergency situations like fire, short circuit, accidents, earthquake, etc. - Demonstrate the use of First Aid, CPR and safety evacuation process as part of routine operations.
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 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 A sample health and safety policy document, Emergency broadcast system and mock emergency signage in the appropriate areas of the training institute	

Module 11: Workplace Data Management
Mapped to SSC/N9004

Terminal Outcomes:

- Describe how data / information can be managed effectively.

Duration: *05:00*	Duration: *25:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss data privacy in terms of sharing and retrieving data from different sources. • Discuss the significance of providing accurate and up-to-date information on time. • Identify the database management tools and importance of CRM database.	• Apply the concepts behind information and knowledge management. • Perform rule-based analysis of data/information. • Format the data/information into required types/forms. • Demonstrate effective data management. • Use CRM databases to record and extract information.
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 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 Social networking tool / LMS tool to enable blog posts or discussion board, Instant messenger, chat and email tools to enable mock exercises.	

Module 12: Inclusive and environmentally sustainable workplaces
Mapped to SSC/N9014

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: *05:00*	Duration: *20:00*
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	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	*Specialization*	*Years*	*Specialization*	
Minimum Graduate degree/ diploma in web design/ media design or any other related field;	Preferred Master's Degree in Media Design. OR CITS + 3 years domain experience required.	Minimum 2 years' experience in the Web Development domain		1 year preferred	Minimum 2 years' experience in the Web Development domain	Certification in relevant software competencies: 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 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 QP, a trainee should score an average of 70% across generic NOS' and a minimum of 70% for each technical NOS. 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 in order 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