

Revised Application Documentation: Version 4 /22 April, 2015

## **QUALIFICATION FILE – CONTACT DETAILS OF SUBMITTING BODY**

### **Name and address of submitting body:**

IT-ITeS Sector Skills Council NASSCOM (SSC NASSCOM)

4E, Vandhana Building (4th Floor)

11, Tolstoy Marg, Connaught Place, New Delhi - 110001

### **Name and contact details of individual dealing with the submission**

**Name:** Dr. Sandhya Chintala

**Position in the organisation** CEO

**Address if different from above**NA

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### **List of documents submitted in support of the Qualifications File**

1. [Functional Map for the job role](#)
2. [Occupational Analysis for ITS Sub-sector](#)
3. [Qualification Pack](#)
4. [Career Map for the job role / occupation: vertical and horizontal mobility](#)
5. [Test Matrix Template](#)
6. [Talent Demand Supply Analysis Report](#)

## QUALIFICATION FILE SUMMARY

<b>Qualification Title</b>	Junior Software Developer		
<b>Body/bodies which will assess candidates</b>	IT-ITeS Sector Skills Council NASSCOM (SSC NASSCOM)		
<b>Body/bodies which will award the certificate for the qualification.</b>	SSC NASSCOM		
<b>Body which will accredit providers to offer the qualification.</b>	SSC NASSCOM Presently, Accreditation is not prescribed; affiliation is one of the models.		
<b>Occupation(s) to which the qualification gives access</b>	Application Development		
<b>Proposed level of the qualification in the NSQF.</b>	4		
<b>Notional Learning Hours</b>	400 hours approx. (customisable as per learner background)		
<b>Entry requirements / recommendations.</b>	12th pass with good aptitude		
<b>Progression from the qualification.</b>	As shown in the career map (attachment sl.no. 4)  As this qualification was added last year based on urgent industry demand, occupational career maps were not updated to include the specific job role. The same are scheduled for update in the next cycle of review and revision of occupational analysis		
<b>Planned arrangements for RPL.</b>	<ul style="list-style-type: none"> <li>- Response to market forces for RPL</li> <li>- RPL assessments will be the same as our normal assessments.</li> <li>- MOUs / Agreement in place for institutions, Retail is work in progress</li> </ul>		
<b>Formal structure of the qualification</b>			
<b>Title of unit or other component</b> (include any identification code used)	<b>Mandatory/ Optional</b>	<b>Estimated size (learning hours)</b>	<b>Level</b>
SSC/ N 0506 (Assist in performing software construction and software testing entry-level tasks in the IT Services industry)	Mandatory	200	<b>4</b>
SSC/N9001 (Manage your work to meet requirements)	Mandatory	50	
SSC/N9002 (Work effectively with colleagues )	Mandatory	50	
SSC/N9003 (Maintain a healthy, safe and secure working environment)	Mandatory	25	
SSC/N9004 (Provide data/information in standard formats)	Mandatory	50	
SSC/N9005 (Develop your knowledge, skills and competence)	Mandatory	25	

Please attach any document giving further detail about the structure of the qualification – eg a Curriculum or Qualification Pack. Give details of the document here: Qualification Pack (attachment Sl no. 3)

## **SECTION 1**

### **ASSESSMENT**

#### **Name of assessment body:**

If there will be more than one assessment body for this qualification, give details.

- SSC NASSCOM is the assessment body, which affiliates assessment providers.

#### **Will the assessment body be responsible for RPL assessment?**

Give details of how RPL assessment for the qualification will be carried out and quality assured.

- Yes.
- It is online, objective evaluation in a highly secure and proctored environment.
- RPL assessments will be the same as our normal assessments.
- All procedures followed will be similar to the normal assessment methodology.
- Issuance of the qualification will be through the centralise SDMS (NSDC).
- Quality assurance – By equating performance amongst the multiple affiliated assessment provider (AAP) and periodic analytical review and sensitivity analysis for the reliability and validity of all aspects of assessments. AAP only refers to agency/organisation.

**Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, consistent and fair and show that these are in line with the requirements of the NSQF:**

- SSC NAASCOM carries out online assessments through very robust platforms and proctoring methodology.
- AAP affiliated to SSC NASSCOM come with strong industry references and long experience and analytical ability in assessment methodologies.
- Periodic workshops are held with the vendors to bring them to a common understanding of the job role, its NSQF level, difficulty level as well as format and sample of assessment items.
- Internal moderations further ensure the validity and reliability of the assessments and consistency of difficulty levels of the test questions across AAPs.
- AAPs work with hirers on similar job roles, they use SMEs from their network to get industry relevant scenarios and assessment items aligned to the expected outcomes of the job role/QP.
- Curriculum and real time scenarios facilitate further understanding the scope of the QP with reference to process knowledge and skills.
- In addition, we conduct workshops with AAPs w.r.t. beta testing, review of the assessment analytics, performance of the test platform, moderation of NSQF levels, deployment and invigilation patterns and infrastructure requirements including malpractice avoidance.
- Inferences from benchmarking and analytics patterns are taken into consideration in the development and revision of the assessment criteria and format of assessment items.
- Reliability and validity of assessment items is standardised among AAPs.
- Difficulty level of test items with reference to NSQF levels are ensured, so that the outcomes with reference to performance criteria of the constituent NOSs are in line with the NSQF level descriptors. This is achieved through the detailed test matrix design.

Please attach any documents giving further information about assessment and/or RPL.

Give details of the document(s) here:

A detailed Test Matrix is used to design each assessment before it is launched for public view. Template for detailed test matrix is attached.

Public view of the assessment criteria is included in the qualification pack.

## ASSESSMENT EVIDENCE

Complete the following grid for each grouping of NOS, assessment unit or other component as listed in the entry on the structure of the qualification on page 1.

**Job Role** Junior Software Developer

**Qualification Pack** SSC/Q0508

**Sector Skill Council** IT-ITeS

### Guidelines for Assessment:

1. Criteria for assessment for each Qualification Pack (QP) will be created by the Sector Skill Council (SSC). Each performance criteria (PC) will be assigned Theory and Skill/Practical marks proportional to its importance in NOS.
2. The assessment will be conducted online through assessment providers authorised by SSC.
3. Format of questions will include a variety of styles suitable to the PC being tested such as multiple choice questions, fill in the blanks, situational judgment test, simulation and programming test.
4. To pass a QP, a trainee should pass each individual NOS. Standard passing criteria for each NOS is 70%.
5. For latest details on the assessment criteria, please visit [www.sscnasscom.com](http://www.sscnasscom.com).

### Title of NOS/Unit/Component:

Assessable Outcomes	Assessment criteria for the outcome	Total Mark	Out of	Theory	Skills Practical
<b>1.SSC/N0506 (Assist in performing software construction and software testing entry-level tasks in the IT Services Industry)</b>	PC 1. demonstrate basic computer and internet literacy including operating a computer, describing its major components and how they work, using Windows and Linux OS, operating a browser, searching the internet, managing mails and using social internet media.	<b>100</b>	10	0	10
	PC 2. demonstrate aptitude for analyzing information and making logical conclusions.		25	10	15
	PC 3. demonstrate knowledge of the foundational mathematical concepts in computing.		20	5	15
	PC 4. design algorithms to solve problems and convert them into code using the appropriate programming language constructs.		30	10	20
	PC 5. read and execute a test case and record the outcome in the appropriate template.		10	5	5
	PC 6. be able to communicate effectively with appropriate people w.r.t. assigned roles in simple English – both oral and written.		5	0	5
	<b>Total</b>		<b>100</b>	<b>30</b>	<b>70</b>
<b>3.NOS/N9001 (Manage your work to meet requirements)</b>	PC1. establish and agree your work requirements with appropriate people	<b>100</b>	6.25	0	6.25
	PC2. keep your immediate work area clean and tidy		12.5	6.25	6.25
	PC3. utilize your time effectively		12.5	6.25	6.25
	PC4. use resources correctly and efficiently		18.75	6.25	12.5
	PC5. treat confidential information correctly		6.25	0	6.25
	PC6. work in line with your organization's policies and procedures		12.5	0	12.5
	PC7. work within the limits of your job role		6.25	0	6.25

Assessable Outcomes	Assessment criteria for the outcome	Total Mark	Out of	Theory	Skills Practical
	PC8. obtain guidance from appropriate people, where necessary		6.25	0	6.25
	PC9. ensure your work meets the agreed requirements		18.75	6.25	12.5
		<b>Total</b>	<b>100</b>	<b>25</b>	<b>75</b>
<b>4.SSC/N9002 (Work effectively with colleagues)</b>	PC1. communicate with colleagues clearly, concisely and accurately	<b>100</b>	20	0	20
	PC2. work with colleagues to integrate your work effectively with theirs		10	0	10
	PC3. pass on essential information to colleagues in line with organizational requirements		10	10	0
	PC4. work in ways that show respect for colleagues		20	0	20
	PC5. carry out commitments you have made to colleagues		10	0	10
	PC6. let colleagues know in good time if you cannot carry out your commitments, explaining the reasons		10	10	0
	PC7. identify any problems you have working with colleagues and take the initiative to solve these problems		10	0	10
	PC8. follow the organization's policies and procedures for working with colleagues		10	0	10
		<b>Total</b>	<b>100</b>	<b>20</b>	<b>80</b>
<b>5.SSC/N9003 (Maintain a healthy, safe and secure working environment)</b>	PC1. comply with your organization's current health, safety and security policies and procedures	<b>100</b>	20	10	10
	PC2. report any identified breaches in health, safety, and security policies and procedures to the designated person		10	0	10
	PC3. identify and correct any hazards that you can deal with safely, competently and within the limits of your authority		20	10	10
	PC4. report any hazards that you are not competent to deal with to the relevant person in line with organizational procedures and warn other people who may be affected		10	0	10
	PC5. follow your organization's emergency procedures promptly, calmly, and efficiently		20	10	10
	PC6. identify and recommend opportunities for improving health, safety, and security to the designated person		10	0	10
	PC7. complete any health and safety records legibly and accurately		10	0	10
				<b>Total</b>	<b>100</b>
<b>6.SSC/N9004 (Provide data/information in standard formats)</b>	PC1. establish and agree with appropriate people the data/information you need to provide, the formats in which you need to provide it, and when you need to provide it	<b>100</b>	12.5	12.5	0
	PC2. obtain the data/information from reliable sources		12.5	0	12.5
	PC3. check that the data/information is accurate, complete and up-to-date		12.5	6.25	6.25
	PC4. obtain advice or guidance from appropriate people where there are problems with the data/information		6.25	0	6.25
	PC5. carry out rule-based analysis of the		25	0	25

Assessable Outcomes	Assessment criteria for the outcome	Total Mark	Out of	Theory	Skills Practical
	data/information, if required				
	PC6. insert the data/information into the agreed formats		12.5	0	12.5
	PC7. check the accuracy of your work, involving colleagues where required		6.25	0	6.25
	PC8. report any unresolved anomalies in the data/information to appropriate people		6.25	6.25	0
	PC9. provide complete, accurate and up-to-date data/information to the appropriate people in the required formats on time		6.25	0	6.25
		<b>Total</b>	<b>100</b>	<b>25</b>	<b>75</b>
<b>7.SSC/N9005 (Develop your knowledge, skills and competence)</b>	PC1. obtain advice and guidance from appropriate people to develop your knowledge, skills and competence	<b>100</b>	10	0	10
	PC2. identify accurately the knowledge and skills you need for your job role		10	0	10
	PC3. identify accurately your current level of knowledge, skills and competence and any learning and development needs		20	10	10
	PC4. agree with appropriate people a plan of learning and development activities to address your learning needs		10	0	10
	PC5. undertake learning and development activities in line with your plan		20	10	10
	PC6. apply your new knowledge and skills in the workplace, under supervision		10	0	10
	PC7. obtain feedback from appropriate people on your knowledge and skills and how effectively you apply them		10	0	10
	PC8. review your knowledge, skills and competence regularly and take appropriate action		10	0	10
	<b>Total</b>	<b>100</b>	<b>20</b>	<b>80</b>	

#### Means of assessment 1

Proctored online assessments (LAN and Web based), carried out using a variety of question formats applicable for linear / adaptive methodologies; performance criteria being assessed via situation judgement tests, simulations, code writing, psychometrics and multiple choice questions etc.

#### Means of assessment 2

Presently not considered.

## SECTION 2

### EVIDENCE OF NEED

#### **What evidence is there that the qualification is needed?**

Sector wise occupational analysis lends weight to the need of the qualification prescribed. The research documents pertaining to this sub-sector are attached as per sl. Nos 2 and 6 respectively (Occupational Analysis report for the sub-sector” and “Talent Demand Supply Analysis Report”).

#### **What is the estimated uptake of this qualification and what is the basis of this estimate?**

Overview of the occupational demand, that includes ‘Junior Software Developer’, is available in the talent demand supply document. NASSCOM’s Strategic Review, 2015 articulates 2.30 lakh as new hires for the IT-BPM industry in FY 2014-15. In that, IT exports (includes ITS, ERD, SPD segment) covers 1.4 lakh, BPM – 40,000 and IT domestic (all inclusive) is 50,000.

In current FY 15-16, the expected net employment addition is going to be between 2 lakhs to 2.30 lakhs.

Through training providers’ the requirement is estimated as 96750 for the FY 15-16.

Further research is being undertaken to predict the qualification need for individual job roles.

#### **What steps were taken to ensure that the qualification(s) does/do not duplicate already existing or planned qualifications in the NSQF?**

Cleared by QRC at NSDC. It is available on public view for more than a year and has not been contested till date.

\* As the understanding and adoption models of QPs evolve in the industry and across its sub-sectors, we foresee consolidation of qualification packs as a natural progression.

#### **What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated?**

- Monitoring and review of the qualifications is a project executed every two years. Presently, the research project is scheduled to take off.
- While adoption by industry and academia is one good indicator for the usefulness of a qualification pack, we adopt multiple approaches for periodic review and maintenance of the qualifications.
  1. Sub-sector wise Industry council, headed by council chair is a formal part of our governing structure. The council participates and steers the qualifications creation and upkeep. This council is a body elected by over 1800 member companies of NASSCOM.
  2. Special interest groups are formed for a more focused and detailed review of the qualifications in the light of emerging knowledge and skill areas.
  3. Events and workshops are conducted periodically to validate, monitor and review the qualification.
  4. As a part of due diligence process for affiliating Training providers, we do ask them for validation from their hirers – thus covering even medium, small and micro segment of the hiring companies.
  5. Any institution / individual is welcome to send feedback, which is recorded and considered during next review cycle.

The above data is used to update the Qualification and this revision is published annually. Nonetheless, if a major feedback is received prior to the planned review period, the change is considered in consultation with the industry council.

Please attach any documents giving further information about any of the topics above.

Give details of the document(s) here: Occupation analysis report for ITS Sub-sector (attachment sl no. 2)

### SECTION 3

#### SUMMARY EVIDENCE OF LEVEL

Level of qualification: 4

Summary of Direct Evidence:

Justify the NSQF level allocated to the QP by building upon the five descriptors of NSQF. Explain the reasons for allocating the level to the QP.

Generic NOS is/are linked to the overall authority attached to the job role.

Junior Software Developer - SSC/Q0508					
Process required	Professional knowledge	Professional skill	Core skill	Responsibility	Level
<p>Individual in this job needs to design algorithms to solve problems and convert them into code using the appropriate programming language constructs. Also, he/she needs to read and execute a test case and record the outcome in the appropriate template.</p> <p>The above mentioned algorithm based tasks are highly process oriented in nature &amp; he/she has to <b>work in familiar &amp; predictable situations</b>, but leading to <b>clear logical choices</b>.</p>	<p>Individual in this job needs to have <b>factual knowledge</b> required to design algorithms to solve problems and convert them into code using the appropriate programming language constructs.</p> <p>He/she needs to have the <b>knowledge of the field</b> of application development, such as programming language fundamentals, implementation of algorithms, data base skills including DBMS, data design, and querying table structures for specific data,</p>	<p>Individual in this job needs to <b>recall and demonstrate practical skills</b> related to basic computer and internet literacy including operating a computer, describing its major components and how they work, using Windows and Linux OS, operating a browser, searching the internet, managing mails and using social internet media.</p> <p>He/she needs to read and execute test cases in <b>routine and repeat them in the narrow</b></p>	<p>The individual should possess good <b>written language &amp; communication skills, with the required clarity</b>, to be able to communicate effectively with appropriate people w.r.t. assigned roles in – both oral and in written mediums.</p> <p>He/she needs to have <b>skill to basic arithmetic and algebraic principles</b>, to demonstrate knowledge of the foundational mathematical concepts in computing.</p> <p>He/she also needs to</p>	<p>Individuals in this job are assigned one of the many entry level roles in the software industry including support and help desk, testing, user interaction design, maintenance, enhancement, development and documentation. They are responsible for assisting in performing the key activities and tasks involved in the assigned role.</p> <p>These tasks will require the individual to take <b>responsibility for own work and learning</b>.</p> <p>Since the individual is not working under supervision (as needed at Level 3) &amp; is responsible for his/her own work &amp; learning, and not for others as needed at Level 5, this QP is justified to</p>	<p><b>4</b></p>

	software engineering approaches to develop applications and the key processes used for developing application software.	<p><b>range of applications</b> until required outcomes are met.</p> <p>The outcomes of these test cases are recorded <b>using appropriate rules, tools &amp; using quality concepts</b> through appropriate templates.</p>	<p>demonstrate aptitude for analysing information and making logical conclusions.</p> <p>The core &amp; generic job skills that an individual should have, will help him/her <b>understand</b> &amp; manage assigned works in the context of <b>the social environment</b> of the customer.</p>	be pegged at Level 4.	
<b>Level 4</b>	<b>Level 4</b>	<b>Level 4</b>	<b>Level 4</b>	<b>Level 4</b>	

Summary of other evidence (if used):

- Validated by Industry council through various workshops and through training provider stake holders

## **SECTION 4**

### **EVIDENCE OF RECOGNITION OR PROGRESSION**

**What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?**

This qualification has been through workshops and consultations.  
Adequate NOSs / performance criteria have been added to ensure progression to related path ways identified as per the occupational career map.

Please attach any documents giving further information about any of the topics above.

Give details of the document(s) here:

NA

## **SECTION 5**

### **EVIDENCE OF INTERNATIONAL COMPARABILITY**

**List any comparisons which have been established.**

Benchmarked with Service Skills Australia (Code: ICA40111). Our standards follow the IT-ITeS industry requirements which caters to global markets.