

CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE

Name and address of submitting body:

Haryana State Electronics Development Corporation Ltd. (HARTRON)
SCO 111-113, Sector – 17/B, Chandigarh-160017

Name and contact details of individual dealing with the submission

Name: Rajesh Deswal
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List of documents submitted in support of the Qualifications File

1. About Hartron (Annexure-1)
2. Curriculum (Annexure-2)
3. Industry Validation (Annexure-3)

NSQF QUALIFICATION FILEApproved in 23rd NSQC, Dated: 22nd August, 2019**SUMMARY**

1	Qualification Titles	Post Graduate Diploma in Computer Application
2	Qualification Code, if any	HAR/SD-1/PGDCA
3	NCO code and occupation	2512.0204 Software Developer- Application Developer 2513.0101 Web Developer
4	Nature and purpose of the qualification (Please specify whether qualification is short term or long term)	Post Graduate Diploma course, designed to impart comprehensive knowledge and practical skills covering all aspects of computer uses in business, industries and service sectors.
5	Body/bodies which will award the qualification	Hartron
6	Body which will accredit providers to offer courses leading to the qualification	Hartron
7	Whether accreditation/affiliation norms are already in place or not , if applicable (if yes, attach a copy)	The courses are being run by Hartron through HARTRON Skill Centres (HSC) located throughout Haryana under the aegis of HARTRON.
8	Occupation(s) to which the qualification gives access	The qualification has a wide scope of employability ranging from self or contractual employment to education sector. After successful completion of the qualification the candidates shall be employed in the industries for following occupations: <ul style="list-style-type: none">• Software Developer• Web Developer• IT Faculty
9	Job description of the occupation	Individual is responsible to develop & implement new software & database and to maintain & update existing software & database to improve the performance
10	Licensing requirements	N/A

NSQF QUALIFICATION FILE

Approved in 23rd NSQC, Dated: 22nd August, 2019

11	Statutory and Regulatory requirement of the relevant sector (documentary evidence to be provided)	N/A
12	Level of the qualification in the NSQF	5
13	Anticipated volume of training/learning required to complete the qualification	576 hrs. of classroom / lab learning
14	Indicative list of training tools required to deliver this qualification	Mentioned in curriculum
15	Entry requirements and/or recommendations and minimum age	Graduation
16	Progression from the qualification (Please show Professional and academic progression)	In Academic, student can go for higher Degree courses. In Professional Initially candidate can work as a software developer or IT Faculty.
17	Arrangements for the Recognition of Prior learning (RPL)	N/A
18	International comparability Where known (research evidence to be provided)	N/A

19	Date of planned review of the qualification.	5 years after approval of the qualification	
20	Formal structure of the qualification		
	Mandatory components		
	Title of component and identification Code/NOSs/Learning outcomes	Estimated size (learning hours)	Level
(i)	Computer fundamentals & Operating system	30	5
(ii)	Office Automation Package	96	5

NSQF QUALIFICATION FILEApproved in 23rd NSQC, Dated: 22nd August, 2019

(iii)	Internet and its Applications	30	5
(iv)	Using Smartphone	4	5
(v)	Basics of Computer Organization	30	5
(vi)	Concepts of RDBMS with MS Access & SQL Server Basics	80	5
(vii)	Concepts of OOPs with C++ & Core Java	130	5
(viii)	Data Communications and Networking Concepts	24	5
(ix)	Web Technologies	72	5
(x)	Fundamental of Software Engineering and Project Management	24	5
(xi)	Communication & Employability Skills	16	5
(xii)	Project	40	5
(xiii)	Sub Total(A)	576	5
(xiv)	Optional components N/A (all component are compulsory)		
	Title of component and identification code/NOSs/ Learning outcomes	Estimated size (learning hours)	Level
	Sub Total(B)		
Total (A+B)		576	

**SECTION 1
ASSESSMENT**

NSQF QUALIFICATION FILE

Approved in 23rd NSQC, Dated: 22nd August, 2019

21	<p>Body/Bodies which will carry out assessment:</p> <p>Haryana State Electronics Development Corporation Ltd. (HARTRON) SCO 111-113, Sector – 17/B, Chandigarh-160017</p>
22	<p>How will RPL assessment be managed and who will carry it out?</p> <p>It will be finalized when the national RPL policy will be finalized</p>
23	<p>Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, reliable and fair and show that these are in line with the requirements of the NSQF.</p> <p>The assessment process under HARTRON aims to test and certify the skills & knowledge based on the performance of the students. Overall Assessment is broadly divided into two stages.</p> <ol style="list-style-type: none">1. Internal Evaluation: - This is done through continuous assessment by respective HSC as per the Hartron guidelines. Marks are allotted according to their attendance, class performance and Practical assignment.2. External Evaluation: - This includes a written exam followed by viva voce at the end of the course. The test is conducted at respective HSC with the overall supervision of officers/officials of examination cell. For this, minimum two examiners are deputed at HSC to conduct the exam. Each and every student mark their attendance through biometric device as well as on the attendance sheet provided by examiners. Exams are being conducted by examiners under CCTV surveillance students are allowed in the examination hall only after producing Id Proof <p>The current pattern of the exam comprises objective and subjective type questions, which is prepared by vocation expert in the field.</p> <p>Viva Voce is taken to make sure that the student has acquired sufficient knowledge of the subject during the course.</p> <p>The marking pattern and distribution of marks for the qualification are as under:</p>

NSQF QUALIFICATION FILE

Approved in 23rd NSQC, Dated: 22nd August, 2019

Sr.No.	Assessment Method	Maximum marks
1	Internal Evaluation <ul style="list-style-type: none">• Attendance• Class performance• Practical Assignment	15 15 30
2	External Evaluation <ul style="list-style-type: none">• Written Exam• Project & Viva	180 60
Total		300

Qualifying Criteria

Candidate shall be considered to have qualified the course if he/she obtains 35% marks in written examination and 50% marks in the aggregate of internal and external evaluation.

The marks will be translated into grades as below:-

Marks Scored	Grade to be awarded
80% or above	A +
70% to less than 80%	A
60% to less than 70%	B
50% to less than 60%	C
Less than 50%	Fail

Please attach most relevant and recent documents giving further information about assessment and/or RPL.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

ASSESSMENT EVIDENCE

Complete a grid for each component as listed in “Formal structure of the qualification” in the Summary.

NSQF QUALIFICATION FILE

Approved in 23rd NSQC, Dated: 22nd August, 2019

NOTE: this grid can be replaced by any part of the qualification documentation which shows the same information – ie Learning Outcomes to be assessed, assessment criteria and the means of assessment.

24. Assessment evidences

Title of Component:

Outcomes to be assessed/NOSs to be assessed	Assessment criteria for the outcome
Computer Fundamentals & Operating System	<ul style="list-style-type: none">• Understanding the concept of input and output devices of Computers and how computer works.• Learn the basic concepts of operating system.• Understand the settings and working of Windows.• Identify and fix peripherals mishaps and malfunctions
Office Automation Package.	<ul style="list-style-type: none">• Learn to create and manipulate document.• Learn to apply formula and functions in spreadsheet.• Using various tools of word processor and spreadsheet.• Know to present information visually & effectively using digital presentation
Internet and its applications	<ul style="list-style-type: none">• Learn basic concepts of network and internet skills.• Learn communication over Internet.• Recognize the various security and privacy issues on internet and safety measures• Understand cloud and cloud storage services over internet• Recognize e-Governance & Digital Financial services.
Using Smartphone	<ul style="list-style-type: none">• Understand the user interface and basic application of smart phone.• Learn to use various useful apps on smartphone like news, weather, GPS, e-mail, social media etc.

NSQF QUALIFICATION FILE

Approved in 23rd NSQC, Dated: 22nd August, 2019

Basics of Computer Organization	<ul style="list-style-type: none">• Understand the concept of information representation and number system.• Learn binary logic & Boolean algebra• Learn Digital logic and combinational circuits.
Concepts of RDBMS with MS Access & SQL Server Basics	<ul style="list-style-type: none">• Understand fundamental concepts of the relational database model.• Identify functional dependencies and apply normal forms to evaluate the quality of a relational database design.• Learn to write SQL queries for database definition and manipulation.• Learn to design interface for data manipulation using MS Access.• Learn joining tables, creating stored procedures and triggers in SQL Server
Concepts of OOPs with C++ & Core Java	<ul style="list-style-type: none">• Learn to apply the major object-oriented programming concepts like encapsulation, inheritance and polymorphism etc. in C++ and Java.• Learn to implementation linear and nonlinear data structures such as stacks, queues, lists, trees and graphs.• Understand the structure and model of Java programming language.
Data Communication and Networking Concepts	<ul style="list-style-type: none">• Understand basic concepts of data communications and transmission modes & methods.• Understand various terms related to networking, reference models with layers, protocols and interface.
Fundamental of Software Engineering & Project Management	<ul style="list-style-type: none">• Understand the concepts of software and software development life cycle.• Understand the project planning and planning process.
Communication & Employability Skills	<ul style="list-style-type: none">• Know the importance of effective communication.• Learn the basic communication skills to enhance competencies

NSQF QUALIFICATION FILE

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Project	<ul style="list-style-type: none">• Apply the knowledge and programming skills gained from learning various programming languages.
Means of assessment 1 Assessment will be evidence based comprising the following : <ul style="list-style-type: none">• Attendance and punctuality• Class performance and Tests• Practical Assignments	
Means of assessment 2 Assessment will be evidence based comprising the following : <ul style="list-style-type: none">• Answer sheets of the written assessment• Project & Viva voce	
Pass/Fail The minimum pass percentage is 35 % for written examination and 50% marks in the aggregate of internal and external evaluation.	

NSQF QUALIFICATION FILE

Approved in 23rd NSQC, Dated: 22nd August, 2019

SECTION 2

25. EVIDENCE OF LEVEL

OPTION A

Title/ Name of qualification/ Component: Post Graduate Diploma in Computer Application			Level: 5
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
Process	Candidate is required to design, test, and develop application using appropriate programming language to meet the required need of the job. He/she needs to carry out tests and technical procedures to resolve routine issues arise in the system, network and operating system etc. All these work job requires well developed skill with clear choice of procedures in familiar context.	Job that requires well developed skill, with clear choice of procedures in familiar context.	5
Professional knowledge	Candidate needs to have knowledge of operating computer properly, internet and web page designing concepts, relational database concepts, and practical implementation of programming language in a field of work or study.	Knowledge of facts, principles, processes and general concepts, in a field of work or study.	5
Professional skill	The candidate is capable of applying practical skills required in solving problems related to computer hardware, maintenance and	A range of cognitive and practical skills required to accomplish tasks and solve problems by	5

NSQF QUALIFICATION FILE

Approved in 23rd NSQC, Dated: 22nd August, 2019

	networking, understand the designing, installation, testing and maintenance of software systems by selecting and applying basic methods, tools, materials and information.	selecting and applying basic methods, tools, materials and information.	
Core skill	The candidate needs to have desired mathematical skill needed for applying the knowledge and skill learned. He/she needs to have good communication skills both verbal and written and must be competent in finding out the client's needs and able to make independent decision involved in providing solution.	Desired mathematical skill; understanding of social, political; and some skill of collecting and organising information, communication.	5
Responsibility	Candidate is required to lead a team as well as work in a team and is responsible for the work. He/she is required to improve his/her learning based on their experience.	Responsibility for own work and learning and some responsibility for others' works and learning.	5

NSQF QUALIFICATION FILEApproved in 23rd NSQC, Dated: 22nd August, 2019**SECTION 3****EVIDENCE OF NEED**

26	What evidence is there that the qualification is needed? What is the estimated uptake of this qualification and what is the basis of this estimate?	
	Basis	In case of other Awarding Bodies (Institutes under Central Ministries and states departments)
	Need of the qualification	The course is running successfully from number of years and is also considered for the recruitment in public and private sectors (copy of advertisement for recruitment is attached as supporting document)
	Industry Relevance	Hartron started imparting computer education from 1994 with twin objective of providing necessary manpower to the IT sector for its growth and to improve the employability of the youth. Since the job roles defined for the qualification is also as per the national qualification occupation 2015 which are developed by Employment Directorate under the ministry of Labour and Employment. Also during the industrial survey – cum-validation of curriculum, it has been found that there is a huge demand for skilful IT candidates in all spheres of industry, academia, administration and governance (Industrial validation from various industries is attached as a supporting document).
	Usage of the qualification	This qualification in IT helps candidate to learn a range of computer application/packages, enhances programming skills etc. After completing the course a candidate can have a number of career prospects in all sectors. The course is very popular among and about 1000 students get enrolled in this course carrier per year.
	Estimated uptake	Based on the response of student towards Hartron courses, it is expected that number of enrolment will definitely increase

27	Recommendation from the concerned Line Ministry of the Government/Regulatory Body. To be supported by documentary evidences	
	N/A	

NSQF QUALIFICATION FILE

Approved in 23rd NSQC, Dated: 22nd August, 2019

28	<p>What steps were taken to ensure that the qualification(s) does (do) not duplicate already existing or planned qualifications in the NSQF? Give justification for presenting a duplicate qualification</p> <p>The qualification is originally designed by academic professionals in HARTRON and is approved by state government.</p> <p>A desk search was conducted and the qualification packs were also referred for the mapping curriculum. As per the search it is found that no such identical qualification is available in public domain.</p>
29	<p>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? Specify the review process here</p> <p>Feedback would be taken from students and teachers regarding the course content, structure and timeline of the programme. Feedback will also be taken from the HSC conducting the course. Demand for courses based on enquiries handled at the HSC were also considered. In certain interval of time market survey is also done by the HARTRON Officials to know the current trend of courses in demand. Changes suggested will be assessed by the State Government before incorporating them in the curriculum.</p>

Please attach most relevant and recent documents giving further information about any of the topics above.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

SECTION 4

EVIDENCE OF PROGRESSION

NSQF QUALIFICATION FILE

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30	<p>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? <i>Show the career map here to reflect the clear progression</i></p> <p>The course is designed in such a way that it will provide core concepts of It Skills and leading programming technologies. The candidate can choose a field of his interest and proceed further to pursue advance courses in the related sector and may have the following career options:</p> <ul style="list-style-type: none">➤ IT Faculty➤ Technical Support Manager➤ Software Engineer➤ Networking Assistant➤ Cloud Engineer➤ Database Administrator➤ System Analyst➤ IT Consultant
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