

QUALIFICATION FILE: PG Diploma in Cloud Computing (Level 8)

NSDA REFERENCE

To be added by NSDA

QUALIFICATION FILE – CONTACT DETAILS OF SUBMITTING BODY

Name and address of submitting body:

NATIONAL INSTITUTE OF ELECTRONICS AND INFORMATION TECHNOLOGY
(NIELIT), NIT CAMPUS POST,
CALICUT, KERALA.
PIN – 673601.

Name and contact details of individual dealing with the submission

Name: Shri. Munivel E
Designation: Scientist/engineer 'C'
Mobile: +91 9400055757
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List of documents submitted in support of the Qualifications File

- a) Annexure I– Course Curriculum
- b) Annexure II– Candidates Trained
- c) Annexure III– Placement Details
- d) Annexure IV – Industry Validations
- e) Annexure V – Evidence of job market / Industry requirement

Mapping: Since the proposed jobrole has not been identified by SSC, the industry mapping will be as per progression pathways as indicated in the QF

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SUMMARY

Qualification Title:	Post Graduate Diploma in Cloud Computing
Qualification Code	
Nature and purpose of the qualification:	1. This Qualification is aligned to Level 8 (PG Diploma course). 2. The purpose of this qualification is to train the students to be ready for Cloud Engineer Job.
Body /bodies which will award the qualification:	National Institute of Electronics and Information Technology 6–CGO Complex, Electronics Niketan Lodhi Road, New Delhi. 110003.
Body which will accredit providers to offer courses leading to the qualification:	National Institute of Electronics and Information Technology 6–CGO Complex, Electronics Niketan Lodhi Road, New Delhi. 110003.
Body /bodies which will Be responsible for assessment:	Examination Cell, National Institute of Electronics and Information Technology 6–CGO Complex, Electronics Niketan Lodhi Road, New Delhi. 110003.
Occupation(s) to which the qualification gives access:	Cloud Engineer
Licensing Requirements	N/A
Proposed level of the qualification in the NSQF	Level 8
Anticipated volume of training/learning required to complete the qualification	840 Hours
Entry requirements/ Recommendations	BE / BTech, BCA, BSc (IT / Computer Science / Electronics) or equivalent of any of these.

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Progression from the Qualification	Academic: Amazon web service (AWS) certification Professional: Cloud Engineer → Senior Cloud Engineer → Cloud Architect
Planned arrangements for RPL.	1. Presently only candidates who undergo training shall be assessed. 2. It will be incorporated once RPL strategy is finalized
International Compatibility where Known.	NA
Date of Planned review of the Qualification	After Every 2 Years

Formal Structure of the Qualification			
Title of Component and Identification Code	Mandatory/ Optional	Estimated Size (Learning hours)	Level
Introduction to Network Management	Mandatory	70	8
Introduction to Windows & Linux Server	Mandatory	105	8
Scripting	Mandatory	105	8

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Virtualization	Mandatory	105	8
Cloud Computing	Mandatory	70	8
Cloud Infrastructure	Mandatory	105	8
Cloud Security	Mandatory	70	8
Project	Mandatory	210	8

Detailed Curriculum attached as – **Annexure I**

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SECTION -1

ASSESSMENT

Name of Assessment body:

Examination Cell,
National Institute of Electronics and Information Technology
6-CGO Complex, Electronics Niketan
Lodhi Road, New Delhi. 110003.

Name of body checking or verifying Assessments:

Examination Cell,
National Institute of Electronics and Information Technology
6-CGO Complex, Electronics Niketan
Lodhi Road, New Delhi. 110003.

Name of Qualification Awarding body:

National Institute of Electronics and Information Technology.

Will the assessment body be responsible for the RPL assessment?

RPL Policy will be described as and when available

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 NSQF:

This course would lay more emphasis on developing the practical skills of the student. Students overall knowledge shall be tested based on a comprehensive written assessment, their practical skills shall be equally measured with a detailed practical assessment. The communication/technical skills of the student and his ability to express himself shall be tested in Viva Voce Assessment. Each assessment shall define an OUTCOME and marked separately. Student shall be required to pass in all OUTCOMES individually and marks shall be allotted for each OUTCOME along with final aggregate marks in course.

Following assessment methodologies may be used:

A. Written Assessment

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B. Practical Assessment

C. Viva Voce Assessment

Supporting evidences for Assessment

The assessment results are backed by following evidences.

1. The assessor collects a copy of the attendance for the training done under the scheme. The attendance sheets are signed and stamped by the In charge / Head of the Training Centre.
2. The assessor verifies the authenticity of the candidate by checking the photo ID card issued by the institute as well as any one Photo ID card issued by the Government of India. The same is mentioned in the attendance sheet.

ASSESSMENT EVIDENCE

Job Role: Cloud Engineer

Title of Unit/Component: PG Diploma in Cloud Computing (Level 8)

Outcomes to be assessed	Assessment Criteria for the outcome	Means of Assessment			
		Total Marks	Written	Practical	Viva
Managing computer networks	1. Explaining Networking Fundamental analysis using Wireshark 2. Explain method of network cabling and testing	50	25	20	5
<u>Module-II:</u> How to managing Operating System Administration in Windows Server and Linux	1. Follow configuration reviews of Windows Server administration 2. Use configuration reviews of Linux Server administration	50	25	20	5

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	and testing commands				
<u>Module-III:</u> Scripting and Use of bash and python scripting to manage operating system and networking services	1. Testing Bash scripting to control Linux server administration 2. Testing Python Scripting to control system and networking services	50	25	20	5
<u>Module-IV:</u> Contribution of managing virtualization servers	1. Execute configuration reviews for full Virtualization server deployment 2. Execute configuration reviews for Para Virtualization server deployment 3. Testing of Dockers and Containers	50	25	20	5
<u>Module-V:</u> Deploy different types of SaaS and PaaS cloud servers	1. Carry out understanding of Cloud Types 2. configuration reviews of SaaS Deployment 3. configuration reviews and testing of PaaS Deployment	50	25	20	5
<u>Module-VI:</u> Deploy different types of IaaS cloud servers	1. Explain types of IaaS cloud 2. Testing of XenServer Deployment	50	25	20	5

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	3. Testing of vSphere Deployment 4. Testing of AWS Deployment				
<u>Module-VII:</u> information security to cloud servers Concepts	1. Learn and implementation of Information Security Concepts and 2. Testing of Cloud Server Monitoring 3. Testing of Cloud Server Auditing	100	50	40	10
<u>Module-VIII:</u> Project Develop knowledge, skills and competence of cloud server deployment	1. Apply Cloud server using different tools. Preparing presentation and thesis submission.	200	NA	175	25
	Total Marks	600	200	335	65

Pass/Fail

Following Grading Scheme (on the basis of total marks) will be followed:

Grade	S	A	B	C	D	E	Fail
Marks Range (in %)	≥90%	80%-89%	70%-79%	60%-69%	50%-59%	40-49%	<40%

SECTION 2

EVIDENCE OF LEVEL

Level of Qualification: 8

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Title : Post Graduate Diploma in Cloud Computing			Level : 8
NSQF Domain	Outcomes of the Qualification/Component	How the job role relates to the NSQF Level Descriptors	NSQF Level
Process required	<p>Individuals at this job role are responsible for developing cloud computing deployment strategy, this includes cloud adoption or deployment plans, cloud application design, and cloud management and monitoring based on the requirement of the organization.</p> <p>He/she needs to have comprehensive, cognitive, theoretical knowledge and practical skills to deploy different types of cloud servers. Tasks also include creating technical documents such as installation manual, technical report and status monitoring and auditing reports.</p> <p>He/she should undertake self-study, demonstrate intellectual independence, analytical rigor and good communication, to liaise</p>	<p>Individuals at this job are responsible for Network Analysis and Management, Windows and Linux Server Administration, Bash and Python programming, Virtualization concepts, Deploying SaaS, PaaS and different IaaS Private Cloud and working with AWS public Cloud. Deploying different security servers in virtual environment, auditing and monitoring the servers and networking devices using virtual appliances. In addition a 240</p>	8
Professional knowledge			
Professional skill			

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	<p>with management and technical staff; and work within the internal processes, guidelines and framework of the cloud deployment. The job also involves going through many reports, analysing and interpreting data, creating reports and manuals.</p> <p>He/she should have the knowledge of the company/organization and its processes. He should know & understand:</p> <ul style="list-style-type: none"> • who to involve when carrying out cloud deployment and how to contact them • organization's policies and procedures for recording information, maintaining information security and protecting data and the importance of complying with these • the range of standard tools and templates available and how to use them • the purpose and scope of the work to be carried out and the importance of keeping within these boundaries 	<p>hours duration project work which will enable the candidate to employment Private Cloud server with multiple cloud platforms with security to become cloud architect.</p>	
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	<ul style="list-style-type: none"> • intended audiences for deployment documents • the work element for documents created • how to convert work element to meaningful documents by proper abstraction & categories suited to standard templates 		
Core skill	<p>Individuals at this job role are responsible for developing cloud computing deployment strategy, this includes cloud adoption or deployment plans, cloud application design, and cloud management and monitoring based on the requirement of the organization.</p>	<p>The individual should be a problem solver in Operating Systems and Networking technologies and different cloud servers and security server deployments using open source tools.</p> <p>The individual should be a problem solver and have the ability to undertake independent work and He/she is responsible for his/her own work, learning & development & also for others.</p>	8
Responsibility	<p>They need to liaise with management and technical staff; and work within the internal processes, guidelines and framework of the cloud deployment. The job also involves going through many reports, analysing and interpreting data, creating reports and manuals.</p> <p>Individual should have advanced knowledge and expertise in cloud computing area with good</p>		

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	<p>understanding of and commitment to the service environment.</p> <p>The individual should be a problem solver and have the ability to undertake independent work.</p> <p>He/she needs to exercise management skills and supervision in the context of cloud deployment having unpredictable changes</p> <p>These tasks will require the individual to take responsibility of his/her own work, learning & development and full responsibility other's work, learning & development.</p> <p>Individual at this job often is in the middle management roles & does not work under supervision. He/she will need to hold supervisory responsibilities with teams to ensure high quality deliverables as per schedules &exercise management skillsand supervision to be prepared for unpredictable changes. He/she is responsible for his/her own work, learning & development & also for others.</p> <p>He/she is fully responsible</p>		
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	for the output of the group/team.		
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SECTION 3

EVIDENCE OF NEED

What evidence is there that the qualification is needed?

This course has been designed meet the increasing manpower requirements in Cloud Computing industry after analysing with IT industry requirement with reference to following evidences.

- "Cloud Computing – A Small Business Guide", www.businessnewsdaily.com
- "Cloud Computing Country Case Study",
http://trade.gov/topmarkets/pdf/Cloud_Computing_India.pdf
- "The roles of cloud computing in the IoT revolution",
<http://www.businessinsider.com/internet-of-things-cloud-computing-2016-10?IR=T>
- Cloud Computing in India

 **THE FINANCIAL EXPRESS**



Home / Industry / Tech / What the future holds for India in cloud computing

What the future holds for India in cloud computing

Skill formation for handling complex cloud computing tasks is important. We have to evolve courses to cater to this and popularise them from the school level itself

By: [Asoke K Laha](#) | Updated: July 27, 2015 1:04 PM

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

Estimated uptake is 25 students / Batch with 2 Batches / Year and on the basis of Facilities and Infrastructure in NIELIT Calicut.

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

The Qualification does not exist as per the information available in public domain.

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?

Based on feedback by participants, employers and based on market survey the qualification will be reviewed in every 2 years.

SECTION 4

EVIDENCE OF 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 course structure is designed in such a way that, the qualification acquired will meet the prerequisites of higher level courses in Cloud Computing and its allied area like AWS Cloud Certification or other Cloud Computing certifications.

SECTION 5

EVIDENCE OF INTERNATIONAL COMPARABILITY

List any Comparisons which have been established – NIL