Model Curriculum

Infrastructure Engineer

Infrastructure Engineer

SECTOR: IT-ITeS
SUB-SECTOR: IT Services

OCCUPATION: Infrastructure Management Services (IMS)

REFERENCE ID: SSC/Q0801

NSQF LEVEL: 5





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Infrastructure Engineer

Curriculum / Syllabus

This program is aimed at training candidates for the job of a **Infrastructure Engineer** in the **IT-ITeS** Sector/Industry and aims at building the following key competencies amongst the learner.

Program Name	Infrastructure Engineer	Infrastructure Engineer					
Qualification Pack Name & Reference ID.	Infrastructure Engineer SSC/Q0801						
Version No.	1.0	Version Update Date	31/01/2015				
Pre-requisites to Training	3 years technical Diplom	a or any UG Degree					
Training Outcomes	After completing this programme, participants will be able to: Deal remotely with basic IT service requests/incidents Deal directly with IT service requests/incidents Carry out installation/configuration of infrastructure applications Manage your work to meet requirements Work effectively with colleagues Maintain a healthy, safe and secure working environment Provide data/information in standard formats Develop your knowledge, skills and competence						

This course encompasses all <u>Eight</u> National Occupational Standards (NOS) of **Infrastructure Engineer** Qualification Pack issued by **IT-ITES Sector Skills Council NASSCOM**.

Sr. No.	Module	Theory Duration (hh:mm)	Practical Duration (hh:mm)	Key Learning Outcomes	Corresponding NOS Code	Equipmen t Required
1.	Deal remotely with basic IT service requests/inciden ts	15:00	35:00	Candidates will be able to: • confirm to customers that you have received the service requests/incidents • express your concern for any difficulties caused and your commitment to resolving them • obtain sufficient information from customers to understand the nature of the problems and perform initial diagnosis • record and categorize service requests/incidents accurately using your organization's incident management tool • support customers remotely to test potential solutions • prioritize service requests/incidents according to organizational guidelines • provide customers with a justifiable estimate of resolution	SSC/N0101	Refer to Unique Equipment Required

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Sr. No.	Module	Theory Duration (hh:mm)	Practical Duration (hh:mm)	Key Learning Outcomes	Corresponding NOS Code	Equipmen t Required
2.	Deal directly with IT service requests/inciden ts	12:00	38:00	time, where an immediate solution cannot be found refer problems to appropriate people, where the problems cannot be resolved by the helpdesk obtain advice and guidance from appropriate people where problems are outside your area of competence monitor problems to keep customers informed about progress and any delays in resolving problems obtain confirmation from customers that problems have been resolved record the resolution of problems accurately using your organization's incident management tool comply with relevant standards, policies, procedures and guidelines when dealing with basic IT service requests/incidents Candidates will be able to: monitor systems to identify promptly automated alerts and customer service requests validate automated alerts to ensure they are genuine incidents record and acknowledge service requests/incidents using your organization's tools and procedures obtain sufficient information from customers to accurately identify the nature of service requests analyze automated alerts to accurately identify the nature of service requests analyze automated alerts to accurately identify the nature of service requests analyze automated alerts to accurately identify the nature of service requests access your organization's knowledge base to identify solutions/workarounds for service requests/incidents evaluate the suitability of solutions/workarounds, where available use your organization's guidelines and standard scripts to resolve	SSC/N0202	

Sr. No.	Module	Theory Duration (hh:mm)	Practical Duration (hh:mm)	Key Learning Outcomes	Corresponding NOS Code	Equipmen t Required
				service requests/incidents within your level of competence and authority • refer service requests/incidents outside your level of competence and authority to appropriate people • obtain help or advice from appropriate people, where necessary • obtain confirmation from customers that service requests/incidents have been resolved • record the resolution of service requests/incidents accurately using your organization's tools and procedures • comply with relevant standards, policies, procedures, guidelines and service level agreements (SLAs) when dealing directly with		
3.	Carry out installation/confi guration of infrastructure applications	30:00	70:00	IT service requests/incidents. Candidates will be able to: record and acknowledge service requests for installation/ configuration of basic applications using your organization's tools and procedures obtain sufficient information from customers to accurately identify the nature of service requests access your organization's knowledge base to identify procedures/guidelines/ checklists for installation/configuration of basic applications use your organization's procedures/guidelines/checklists to install/configure applications within your level of competence and authority refer service requests for installation/configuration outside your level of competence and authority to appropriate people obtain help or advice from appropriate people, where necessary obtain confirmation from customers that service requests have been fulfilled to their satisfaction record the completion of service requests accurately using your	SSC/N0305	





Sr. No.	Module	Theory Duration (hh:mm)	Practical Duration (hh:mm)	Key Learning Outcomes	Corresponding NOS Code	Equipmen t Required
				organization's tools and procedures • comply with relevant standards, policies, procedures, guidelines and service level agreements (SLAs) when carrying out basic application installation/		
4.	Manage your work to meet requirements	12:00	38:00	configuration Candidates will be able to: establish and agree your work requirements with appropriate people keep your immediate work area clean and tidy utilize your time effectively use resources correctly and efficiently treat confidential information correctly work in line with your organization's policies and procedures work within the limits of your job role obtain guidance from appropriate people, where necessary ensure your work meets the agreed requirements	SSC/N9001	
5.	Work effectively with colleagues	10:00	40:00	Candidates will be able to: communicate with colleagues clearly, concisely and accurately work with colleagues to integrate your work effectively with theirs pass on essential information to colleagues in line with organizational requirements work in ways that show respect for colleagues carry out commitments you have made to colleagues let colleagues know in good time if you cannot carry out your commitments, explaining the reasons identify any problems you have working with colleagues and take the initiative to solve these problems	SSC/N9002	

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Sr. No.	Module	Theory Duration (hh:mm)	Practical Duration (hh:mm)	Key Learning Outcomes	Corresponding NOS Code	Equipmen t Required
				follow the organization's policies and procedures for working with		
				colleagues		-
6.	Maintain a healthy, safe and secure working environment	7:00	18:00	Candidates will be able to: comply with your organization's current health, safety and security policies and procedures report any identified breaches in health, safety, and security policies and procedures to the designated person identify and correct any hazards that you can deal with safely, competently and within the limits of your authority 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 follow your organization's emergency procedures promptly, calmly, and efficiently identify and recommend opportunities for improving health, safety, and security to the designated person complete any health and safety records legibly and accurately	SSC/N9003	
7.	Provide data/information in standard formats	12:00	38:00	Candidates will be able to: 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 obtain the data/information from reliable sources check that the data/information is accurate, complete and up-to-date obtain advice or guidance from appropriate people where there are problems with the data/information carry out rule-based analysis of the data/information, if required insert the data/information into the agreed formats check the accuracy of your work, involving colleagues where	SSC/N9004	





Sr. No.	Module	Theory Duration (hh:mm)	Practical Duration (hh:mm)	Key Learning Outcomes	Corresponding NOS Code	Equipmen t Required
8.	Develop your knowledge, skills	5:00	20:00	 report any unresolved anomalies in the data/information to appropriate people provide complete, accurate and up-to-date data/information to the appropriate people in the required formats on time Candidates will be able to: obtain advice and guidance from 	SSC/N9005	
	and competence			appropriate people to develop your knowledge, skills and competence identify accurately the knowledge and skills you need for your job role identify accurately your current level of knowledge, skills and competence and any learning and development needs agree with appropriate people a plan of learning and development activities to address your learning needs undertake learning and development activities in line with your plan apply your new knowledge and skills in the workplace, under supervision obtain feedback from appropriate people on your knowledge and skills and how effectively you apply them review your knowledge, skills and competence regularly and take appropriate action		
	Total Duration:	<u>103:00</u>	Training room should be fully furnished with the following equipment / tools / accessories. Additional / specific resources, wherever applicable (e.g. Hardware, software) are indicated in the main text corresponding to relevant learning outcome.			
				 Domain NOS requirements MS Office, Server connected in a network Common requirements Comfortable seats with adequate lighting, controlled temperature and acoustics for training and learning 		

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Sr. No.	Module	Theory Duration (hh:mm)	Practical Duration (hh:mm)	Key Learning Outcomes	Corresponding NOS Code	Equipmen t Required	
				White Board, Markers and Erase	er		
				Projector with screen			
				Flip chart with markers			
				 Faculty's PC/Laptop with latest of connection 	configuration and	internet	
				 Supporting software / application recording, 	ons for projecting a	audio, video,	
				 Presentation Tools to support learning activities: Intranet Email IMs Learning management system e.g. Moodle, Blackboard to enable blended learning 			
				Microphone / voice system for le	ecture and class a	ctivities	
				Handy Camera			
				 Stationery kit – Staples, Glue, Ch Box, Scale, A4 Sheets 	nart Paper, Sketch	Pens, Paint	
				 For IT Lab sessions: 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. Assessment and Test Tools for day to day online Tests and Assessments For team discussions: Adequate seating arrangement in full / 			
				 half circle format for one or mor composition. Reading Resources: Access to reand learning forums to enable see each training session. 	elevant sample do	cuments	

Grand Total Course Duration: 400 Hours 0 Minutes

(This syllabus/ curriculum has been approved IT-ITeS Sector Skills Council NASSCOM.)

Notes from IT-ITeS Sector Skills Council NASSCOM

- 1. This document outlines the broad scope of coverage. This should be linked with OBF and training delivery plan. OBF (Outcome based framework) reflects the pedagogy used to ensure an expected outcome. Training delivery plan focuses on the sequence of delivery.
- 2. Though many NOSs have some seemingly common outcomes, notably core/generic, professional and technical skills, it is imperative to understand the contextual difference between them. Training providers are advised to,
 - a. Embed such skills development in the learning pedagogy for each expected outcome
 - b. Prepare a detailed session plan for training delivery with focus on sequence and duration of training
- 3. Run a diagnostic test to assess prior learning of students and help trainers / students identify the need for gap training and suitable training methodology. Accordingly, more introductory level sessions may be included in guided or self-paced mode of learning. E.g. adding some sessions on Functional English or Use of Internet and MS Office.

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Annexure1: Assessment Criteria

Assessment Criteria for <qp name=""></qp>	
Job Role	Infrastructure Engineer
Qualification Pack	SSC/Q0801
Sector Skill Council	IT-ITeS

Sr. No.	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 <u>www.sscnasscom.com</u> .

Assessable outcomes	Assessment criteria for the outcome	Total Mark	Out of	Theory	Skills Practical
1.SSC/N0101 (Deal	PC1. confirm to customers that you have received	100	5	5	0
remotely with basic IT	the service requests/incidents	100]	3	U
service	PC2. express your concern for any difficulties caused		10	0	10
requests/incident)			10	0	10
requests/incluent/	and your commitment to resolving them		_	_	
	PC3. obtain sufficient information from customers to		5	5	0
	understand the nature of the problems and perform initial diagnosis				
	PC4. record and categorize service		10	0	10
	requests/incidents accurately using your		10		
	organization's incident management tool				
	PC5. support customers remotely to test potential		10	0	10
	solutions				
	PC6. prioritize service requests/incidents according		10	0	10
	to organizational guidelines				
	PC7. provide customers with a justifiable estimate of		5	5	0
	resolution time, where an immediate solution				
	cannot be found				
	PC8. refer problems to appropriate people, where		5	5	0
	the problems cannot be resolved by the helpdesk				
	PC9. obtain advice and guidance from appropriate		5	5	0
	people where problems are outside your area of				
	competence				
	PC10. monitor problems to keep customers	1	10	0	10
	informed about progress and any delays in resolving				
	problems				
	PC11. obtain confirmation from customers that		5	5	0
	problems have been resolved				
	PC12. record the resolution of problems accurately]	10	0	10
	using your organization's incident management tool				

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Assessable outcomes	Assessment criteria for the outcome	Total	Out of	Theory	Skills
	PC13. comply with relevant standards, policies,	Mark	10	0	Practical 10
	procedures and guidelines when dealing with basic				10
	IT service requests/incidents				
		Total	100	30	70
2. SSC/N0202 (Deal	PC1. monitor systems to identify promptly	100	5	5	0
directly with IT service	automated alerts and customer service requests				
requests/incidents)	PC2. validate automated alerts to ensure they are		5	5	0
	genuine incidents				
	PC3. record and acknowledge service		10	0	10
	requests/incidents using your organization's tools				
	and procedures				
	PC4. obtain sufficient information from customers to		10	0	10
	accurately identify the nature of service requests				
	PC5. analyze automated alerts to accurately identify		5	0	5
	the nature of incidents				
	PC6. access your organization's knowledge base to		10	0	10
	identify solutions/workarounds for service				
	requests/incidents				
	PC7. evaluate the suitability of		10	0	10
	solutions/workarounds, where available				
	PC8. use your organization's guidelines and standard		10	0	10
	scripts to resolve service requests/incidents within				
	your level of competence and authority				
	PC9. refer service requests/incidents outside your		5	5	0
	level of competence and authority to appropriate				
	people				
	PC10. obtain help or advice from appropriate people,		5	5	0
	where necessary				
	PC11. obtain confirmation from customers that		5	5	0
	service requests/incidents have been resolved		10		10
	PC12. record the resolution of service		10	0	10
	requests/incidents accurately using your				
	organization's tools and procedures		10		10
	PC13. comply with relevant standards, policies,		10	0	10
	procedures, guidelines and service level agreements				
	(SLAs) when dealing directly with IT service				
	requests/incidents.	Total	100	25	75
3.SSC/N0305 (Carry out	DC1 record and acknowledge comics requests for	Total 100	100 15	25 0	75 15
installation/configuratio	PC1. record and acknowledge service requests for installation/ configuration of basic applications using	100	13	0	13
n of applications)	your organization's tools and procedures				
ii oi applications;	PC2. obtain sufficient information from customers to		10	10	0
	accurately identify the nature of service requests		10	10	0
	PC3. access your organization's knowledge base to	1	15	0	15
	identify procedures/guidelines/ checklists for				13
	installation/configuration of basic applications				
	PC4. use your organization's	1	15	0	15
	procedures/guidelines/checklists to				
	install/configure applications within your level of				
	competence and authority				
	PC5. refer service requests for	1	10	10	0
	installation/configuration outside your level of				
	competence and authority to appropriate people				
	PC6. obtain help or advice from appropriate people,	1	5	5	0
	where necessary				





Assessable outcomes	Assessment criteria for the outcome	Total Mark	Out of	Theory	Skills Practical
	PC7. obtain confirmation from customers that service requests have been fulfilled to their	15		5	0
	PC8. record the completion of service requests accurately using your organization's tools and procedures			0	15
	PC9. comply with relevant standards, policies, procedures, guidelines and service level agreements (SLAs) when carrying out basic application installation/ configuration		10	0	10
		Total	100	30	70
4.SSC/N9001 (Manage your work to meet	PC1. establish and agree your work requirements with appropriate people	100	6.25	0	6.25
requirements)	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
	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
		Total	100	25	75
5.SSC/N9002 (Work effectively with	PC1. communicate with colleagues clearly, concisely and accurately	100	20	0	20
colleagues)	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
		Total	100	20	80
6.SSC/N9003 (Maintain a healthy, safe and secure	PC1. comply with your organization's current health, safety and security policies and procedures	100	20	10	10
working environment)	PC2. report any identified breaches in health, safety, and security policies and procedures to the designated person		10	0	10

Assessable outcomes	Assessment criteria for the outcome	Total Mark	Out of	Theory	Skills Practical
	PC3. identify and correct any hazards that you can	1010111	20	10	10
	deal with safely, competently and within the limits of				
	your authority				
	PC4. report any hazards that you are not competent		10	0	10
	to deal with to the relevant person in line with				
	organizational procedures and warn other people				
	who may be affected				
	PC5. follow your organization's emergency procedures promptly, calmly, and efficiently		20	10	10
	PC6. identify and recommend opportunities for		10	0	10
	improving health, safety, and security to the designated person				
	PC7. complete any health and safety records legibly		10	0	10
	and accurately		10		
		Total	100	30	70
7.SSC/N9004 (Provide	PC1. establish and agree with appropriate people the	100	12.5	12.5	0
data/information in	data/information you need to provide, the formats				
standard formats)	in which you need to provide it, and when you need				
	to provide it				
	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		6.25	0	6.25
	people where there are problems with the		0.23		0.23
	data/information				
	PC5. carry out rule-based analysis of the		25	0	25
	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		6.25	0	6.25
	colleagues where required		C 25	C 25	0
	PC8. report any unresolved anomalies in the		6.25	6.25	0
	PC9. provide complete, accurate and up-to-date		6.25	0	6.25
	data/information to the appropriate people in the		0.23		0.23
	required formats on time				
		Total	100	25	75
8.SSC/N9005 (Develop	PC1. obtain advice and guidance from appropriate	100	10	0	10
your knowledge, skills	people to develop your knowledge, skills and				
and competence)	competence				
	PC2. identify accurately the knowledge and skills you		10	0	10
	need for your job role		20	4.0	40
	PC3. identify accurately your current level of		20	10	10
	knowledge, skills and competence and any learning and development needs				
	PC4. agree with appropriate people a plan of		10	0	10
	learning and development activities to address your				
	learning needs				
	PC5. undertake learning and development activities		20	10	10
	in line with your plan				
	PC6. apply your new knowledge and skills in the		10	0	10
	workplace, under supervision				





Assessable outcomes	Assessment criteria for the outcome	Total	Out of	Theory	Skills
		Mark			Practical
	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
		Total	100	20	80

Annexure2: Trainer Prerequisites for Job role: Infrastructure Engineer mapped to Qualification Pack: SSC/Q0801

Sr. No.	Area	Details
1	Job Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack SSC/Q0801.
2	Personal Attributes	Aptitude to conduct training, and pre/ post work to ensure competent, employable candidates at the end of the training. Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well-organised and focused, eager to learn and keep oneself updated with the latest in the mentioned field. The individual should know about delivering quality services and proactive approaches to continual improvement of infrastructure and systems.
3	Minimum Educational Qualifications	3 years technical Diploma or any UG Degree
4a	Domain Certification	Minimum accepted score in SSC Assessment is 90% per NOS being taught in SSC/Q0801. Additional certification in infrastructure standards, ITIL (or similar) and relevant certifications in one or more of the following areas: Storage, Server, Database.
4b	Platform Certification	Recommended that the Trainer is certified for the Job Role: "Trainer" mapped to the Qualification Pack: "SSC/Q1402". Minimum accepted score is 70% per NOS.
5	Experience	Field experience: Minimum 2 years' experience in the same domain Training experience: 1 year preferred





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