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What are National Occupational Standards(NOS)?

- NOS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- NOS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

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Introduction

Qualifications Pack – AI - Solution Architect

SECTOR: IT-ITeS

SUB-SECTOR: Future Skills

OCCUPATION: Artificial Intelligence & Big Data Analytics

REFERENCE ID: SSC/Q8108

ALIGNED TO: NCO-2015/NIL

Brief Job Role Description: A solution architect is responsible for the design of one or more applications or services for an organization. They play a significant role in determining how the application will work, what the modules will be and how they interact with each other based on the needs of the organization or the client.

Personal Attributes: A solution architect needs significant people and process skills. They often interact with the top management and can articulate complex scenarios and problems to various other stakeholders using simpler terminology.

Job Details

Qualifications Pack Code	SSC/Q8108		
Job Role	AI - Solution Architect This job role is applicable both in national and international scenarios		
Credits (NSQF)	TBD	Version number	1.0
Sector	IT-ITeS	Drafted on	29/08/2018
Sub-sector	Future Skills	Last reviewed on	17/10/2018
Occupation	Artificial Intelligence & Big Data Analytics	Next review date	31/12/2019
NSQC Clearance on	DD/MM/YYYY		

Job Role	AI - Solution Architect
Description	A solution architect is responsible for the design of one or more applications or services for an organization. They play a significant role in determining how the application will work, what the modules will be and how they interact with each other based on the needs of the organization or the client.
NSQF Level	8
Minimum Educational Qualifications* Maximum Educational Qualifications*	Bachelor's Degree in Engineering / Technology / Statistics / Mathematics / Computer Science Not Applicable
Prerequisite License or Training (Mandatory)	Not Applicable
Minimum Job Entry Age	21 years (Recommended)
Experience	5 – 10 years (Recommended)
Applicable National Occupational Standards (NOS)	**Compulsory:** 1. SSC/N8113 Design new architectures for solutions 2. SSC/N8114 Maintain existing architectures for solutions 3. SSC/N9001 Manage your work to meet requirements 4. SSC/N9002 Work effectively with colleagues 5. SSC/N9004 Provide data/information in standard formats 6. SSC/N9005 Develop your knowledge, skills and competence 7. SSC/N9006 Build and maintain relationships at the workplace 8. SSC/N9009 Empower the team 9. SSC/N9010 Convince others to take appropriate action in different situations
Performance Criteria	As described in the relevant NOS units

Definitions

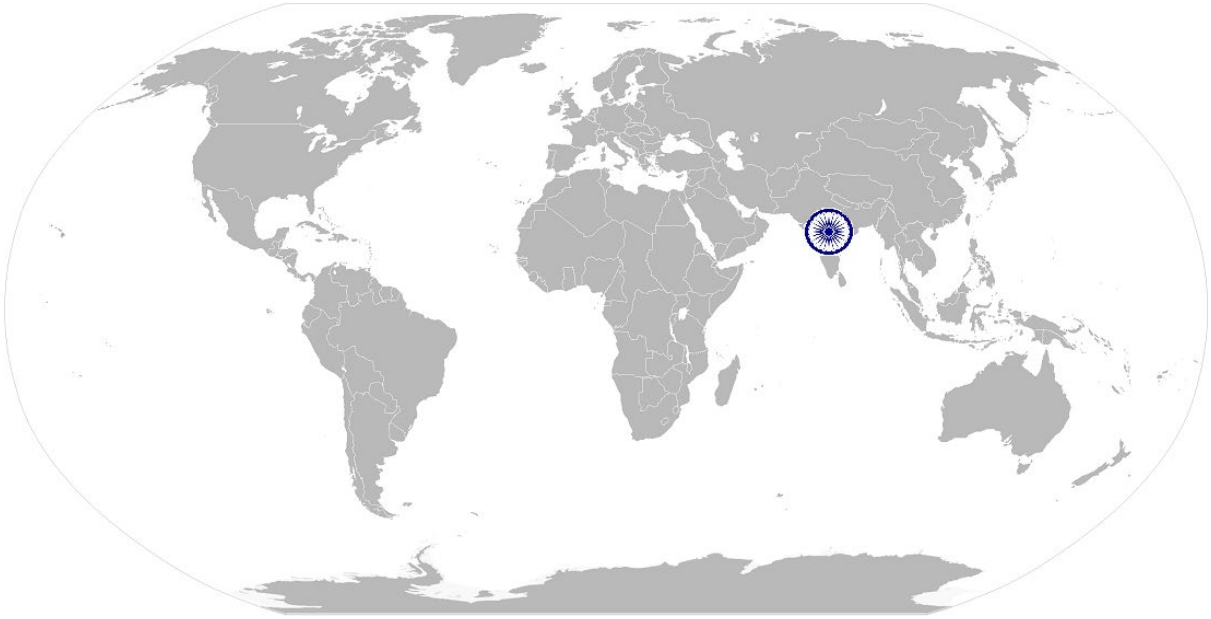
Keywords /Terms	Description
Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job Role	Job role defines a unique set of tasks that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria	Performance criteria are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OSs, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.
Knowledge and Understanding	Knowledge and understanding are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual need to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.

Acronyms

Keywords /Terms	Description
NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
IT-ITeS	Information Technology – Information Technology enabled Services
SPD	Software Product Development
ERD	Engineering and R&D
ITS	Information Technology Services
BPM	Business Process Management

SSC/N8113 **Design new solution architectures as per specifications**

National Occupational Standard



Overview

This unit is about designing new architectures for solutions for internal and external clients.

National Occupational Standard

SSC/N8113 Design new solution architectures as per specifications

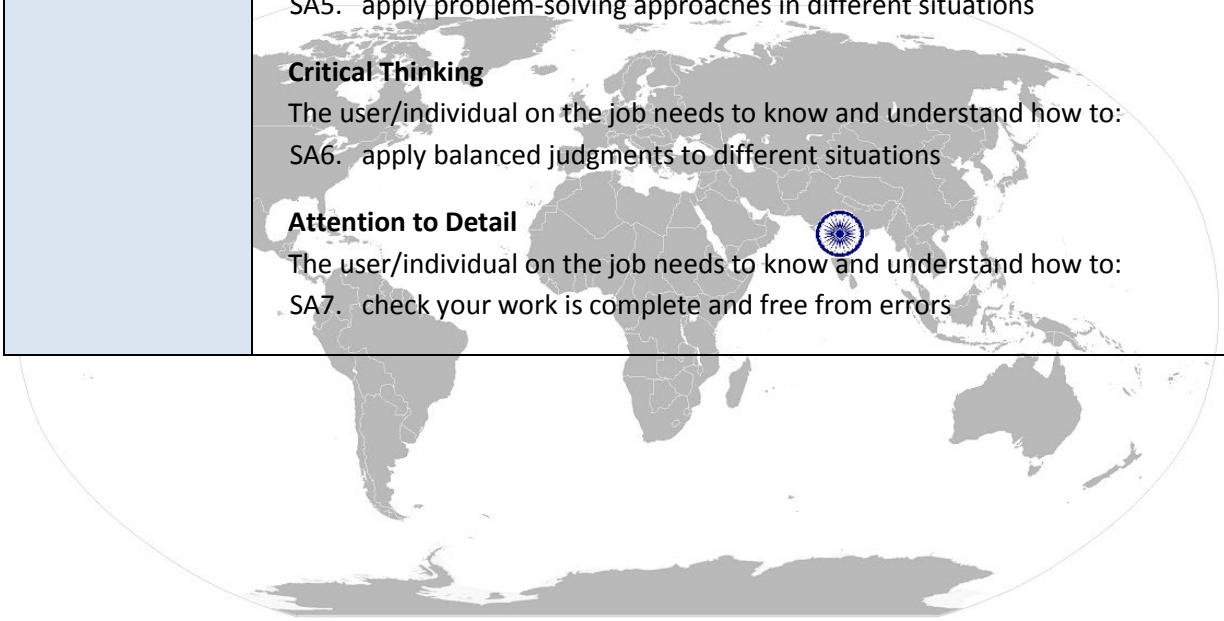
Unit Code	**SSC/N8113**
Unit Title (Task)	**Design new solution architectures as per specifications**
Description	This unit is about defining and describing an architecture of a system delivered in context of a specific solution.
NSQF Level	8
Scope	This unit/task covers the following: • Define requirements • Define platform and other component specifications • Monitor performance
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Define requirements	To be competent, the user/individual on the job must be able to: PC1. identify business requirements
Define platform and other component specifications	To be competent, the user/individual on the job must be able to: PC2. evaluate the platform on which the solution is to be built PC3. evaluate changes in cross-border data governance issues, PII (Personally Identifiable Information) regulations, GDPR (General Data Protection Regulations), global-scale, security, and monitoring PC4. select appropriate design standards, methods and tools PC5. define system level architecture for the solution PC6. design data feeds, data quality checks and components needed to configure the solution PC7. define detailed component specifications PC8. translate component specifications into detailed designs for implementation PC9. undertake impact analysis on major design options PC10. develop technical capabilities roadmap for new solution architectures PC11. create documentation on designed solution architectures for appropriate people PC12. validate solution architectures with appropriate people
Monitor performance	To be competent, the user/individual on the job must be able to : PC13. identify data quality metrics and guide processes that track and measure data quality continually PC14. troubleshoot and resolve issues with new solution architectures

SSC/N8113 **Design new solution architectures as per specifications**

	PC15. identify potential risks, and define mitigation plans and processes for appropriate people
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company/ organization and its processes)	The user/individual on the job needs to know and understand: KA1. organizational policies, procedures and guidelines which relate to designing new solution architectures KA2. organizational policies and procedures for sharing data KA3. organizational policies and procedures for documenting solution architectures KA4. who to involve when designing new solution architectures KA5. the range of standard templates and tools available and how to use them
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. different business requirements KB2. different trends and industry standards on new approaches to solution design KB3. the business and domain in which the solution is to be developed KB4. different governance issues and standards for data storage, security, privacy and monitoring KB5. different platforms such as mobile application, mobile browser, web browser KB6. different elements of solution architecture such as business architecture, information architecture, application architecture, technology architecture etc. KB7. different standards for architecture design KB8. how a technical capabilities roadmap is defined KB9. how to define components and component specifications for solutions KB10. different quality metrics to monitor performance of architecture KB11. how to scale the solution architecture KB12. different cloud or distributed computing platforms such as AWS, Azure, Hadoop, their affiliated services and how to use these KB13. different networking and hardware systems and their impact on the performance of the solution architecture KB14. how to query and write scripts to acquire and understand the data KB15. how to work on various operating systems such as linux, ubuntu, or windows

SSC/N8113 Design new solution architectures as per specifications

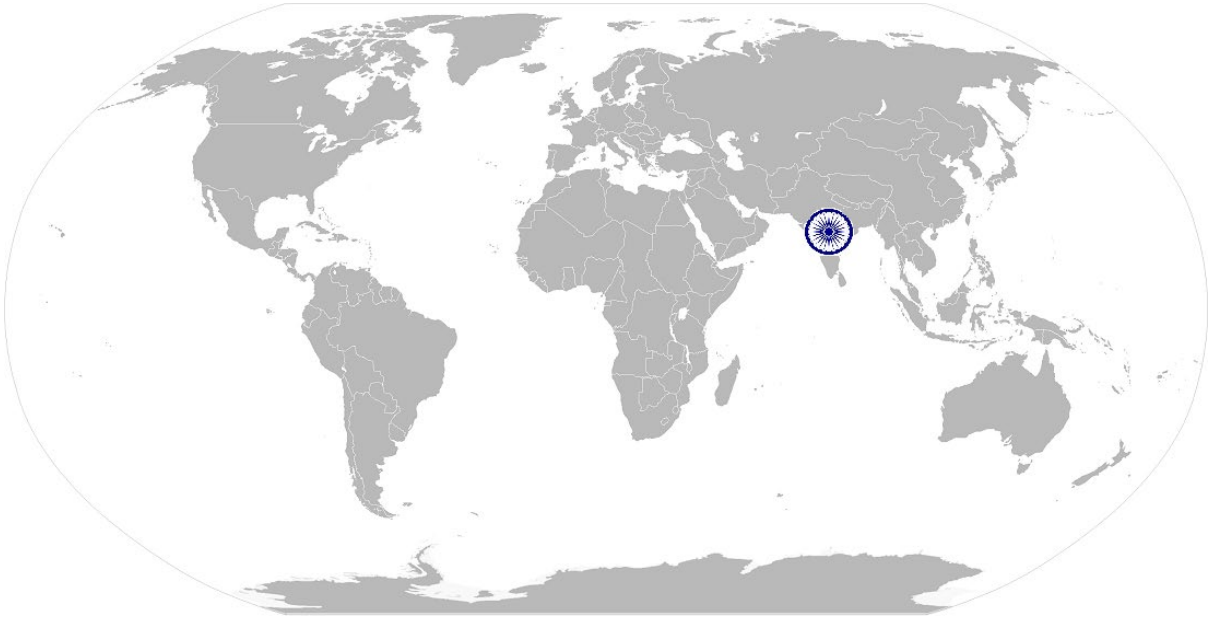
Skills (S)	
A. Core / Generic Skills	**Decision Making** The user/individual on the job needs to know and understand how to: SA1. make decisions on suitable courses SA2. follow rule based decision making processes **Analytical Thinking** The user/individual on the job needs to know and understand how to: SA3. configure data and disseminate relevant information to others SA4. analyze data and activities **Problem Solving** The user/individual on the job needs to know and understand how to: SA5. apply problem-solving approaches in different situations **Critical Thinking** The user/individual on the job needs to know and understand how to: SA6. apply balanced judgments to different situations **Attention to Detail** The user/individual on the job needs to know and understand how to: SA7. check your work is complete and free from errors



SSC/N8113 Design new solution architectures as per specifications

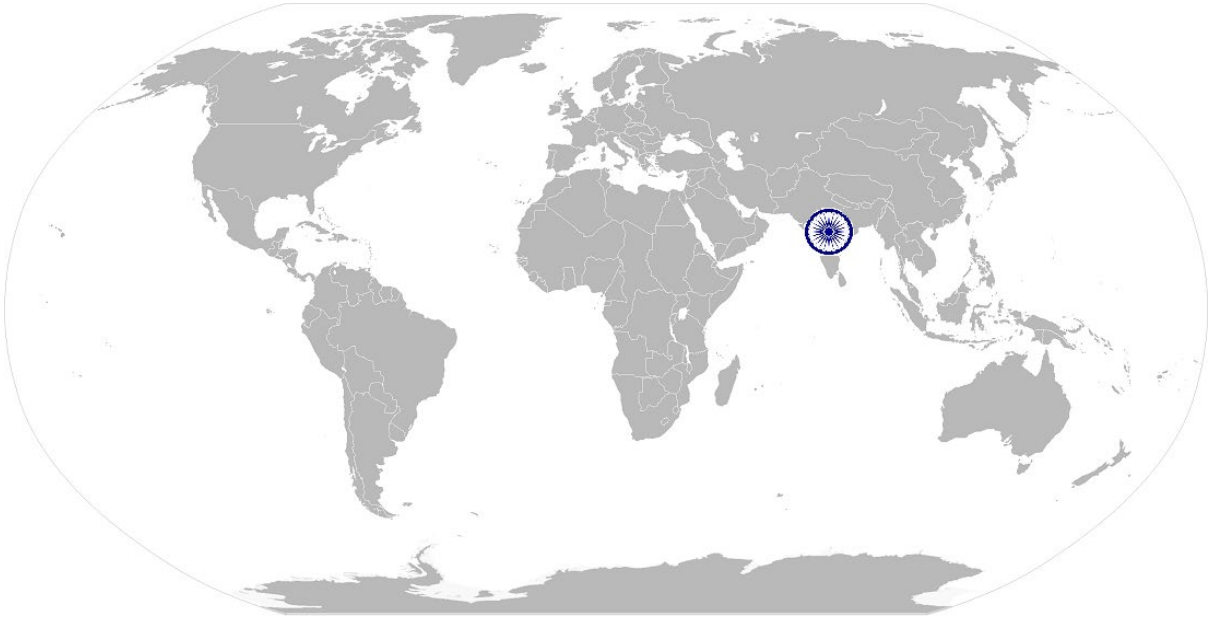
NOS Version Control

NOS Code	SSC/N8113		
Credits (NSQF)	TBD	Version number	1.0
Industry	IT-ITeS	Drafted on	29/08/2018
Industry Sub-sector	Future Skills	Last reviewed on	17/10/2018
Occupation	Artificial Intelligence & Big Data Analytics	Next review date	31/12/2019



SSC/N8114 **Maintain existing architectures for solutions**

National Occupational Standard



Overview

This unit is about maintaining existing architectures for solutions for internal and external clients.

SSC/N8114 **Maintain existing architectures for solutions**

National Occupational Standard

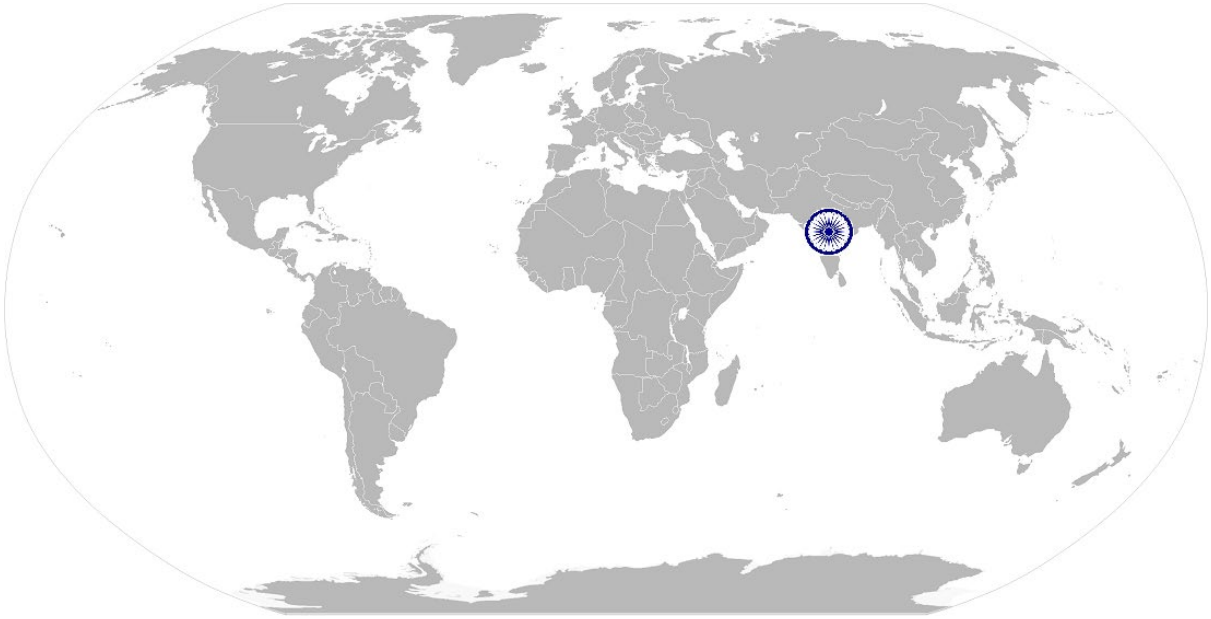
Unit Code	**SSC/N8114**
Unit Title (Task)	**Maintain existing architectures for solutions**
Description	This unit is about maintaining existing architectures for solutions for internal and external clients.
NSQF Level	7
Scope	This unit/task covers the following: • Review and optimize architecture • Monitor standards
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Review and optimize architecture	To be competent, the user/individual on the job must be able to : PC1. review existing system architecture designs to ensure balance of functional, service quality, and systems management requirements PC2. review existing system architecture designs to ensure selection of appropriate technology, efficient use of resources, and integration of multiple systems PC3. review technical capabilities roadmap for existing solution architectures
Monitor standards	To be competent, the user/individual on the job must be able to : PC4. monitor changes in solution design standards and update architecture PC5. update documentation on existing solution architectures for appropriate people
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company/ organization and its processes)	The user/individual on the job needs to know and understand : KA1. organizational policies, procedures and guidelines which relate to maintaining existing solution architectures KA2. organizational policies and procedures for sharing data KA3. organizational policies and procedures for documenting solution architectures KA4. who to involve when maintaining existing solution architectures KA5. the range of standard templates and tools available and how to use them
B. Technical Knowledge	The user/individual on the job needs to know and understand :

SSC/N8114 **Maintain existing architectures for solutions**

	KB1. different business requirements KB2. different trends and industry standards on new approaches to solution design KB3. the business and domain in which the solution is to be developed KB4. different governance issues and standards for data storage, security, privacy and monitoring KB5. different platforms such as mobile application, mobile browser, web browser KB6. different elements of solution architecture such as business architecture, information architecture, application architecture, technology architecture and their capabilities KB7. different standards for architecture design KB8. how a technical capabilities roadmap is defined KB9. how to define components and component specifications for solutions KB10. different quality metrics to monitor performance of architecture KB11. how to scale the solution architecture KB12. different cloud or distributed computing platforms such as AWS, Azure, Hadoop, their affiliated services and how to use these KB13. different networking and hardware systems and their impact on the performance of the solution architecture KB14. how to query and write scripts to acquire and understand the data KB15. how to work on various operating systems such as linux, ubuntu, or windows
Skills (S)	
A. Core / Generic Skills	**Decision Making** The user/individual on the job needs to know and understand how to: SA1. make decisions on suitable courses SA2. follow rule based decision making processes **Analytical Thinking** The user/individual on the job needs to know and understand how to: SA3. configure data and disseminate relevant information to others SA4. analyze data and activities **Problem Solving** The user/individual on the job needs to know and understand how to: SA5. apply problem-solving approaches in different situations **Critical Thinking** The user/individual on the job needs to know and understand how to:

SSC/N8114 **Maintain existing architectures for solutions**

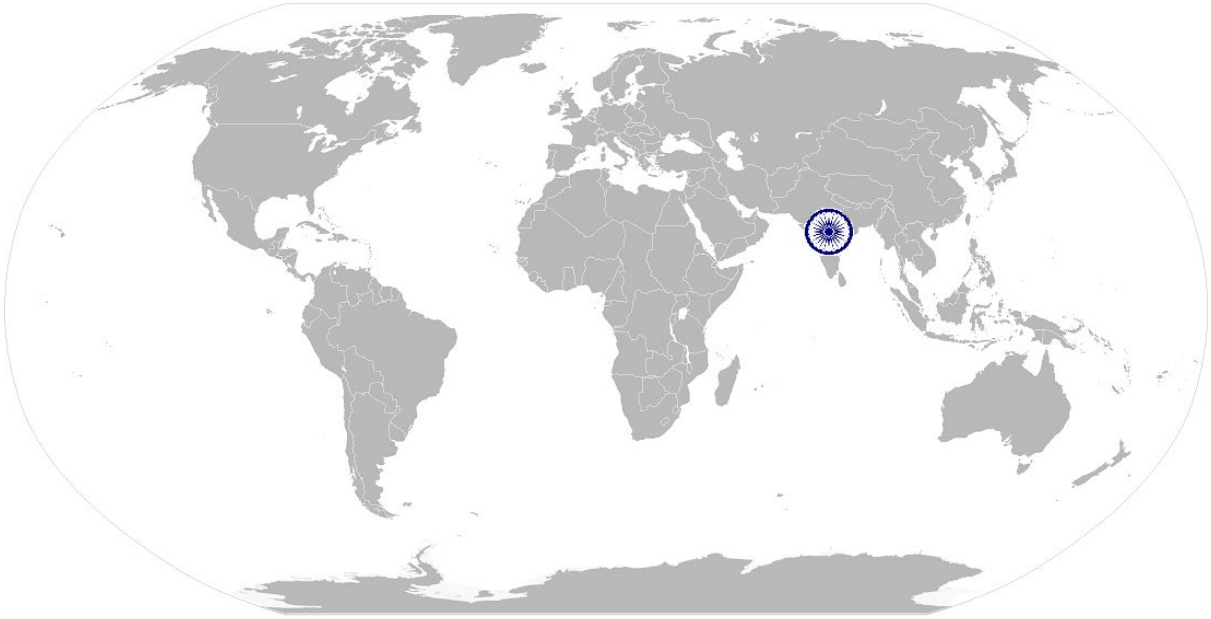
	SA6. apply balanced judgments to different situations **Attention to Detail** The user/individual on the job needs to know and understand how to: SA7. apply balanced judgments to different situations



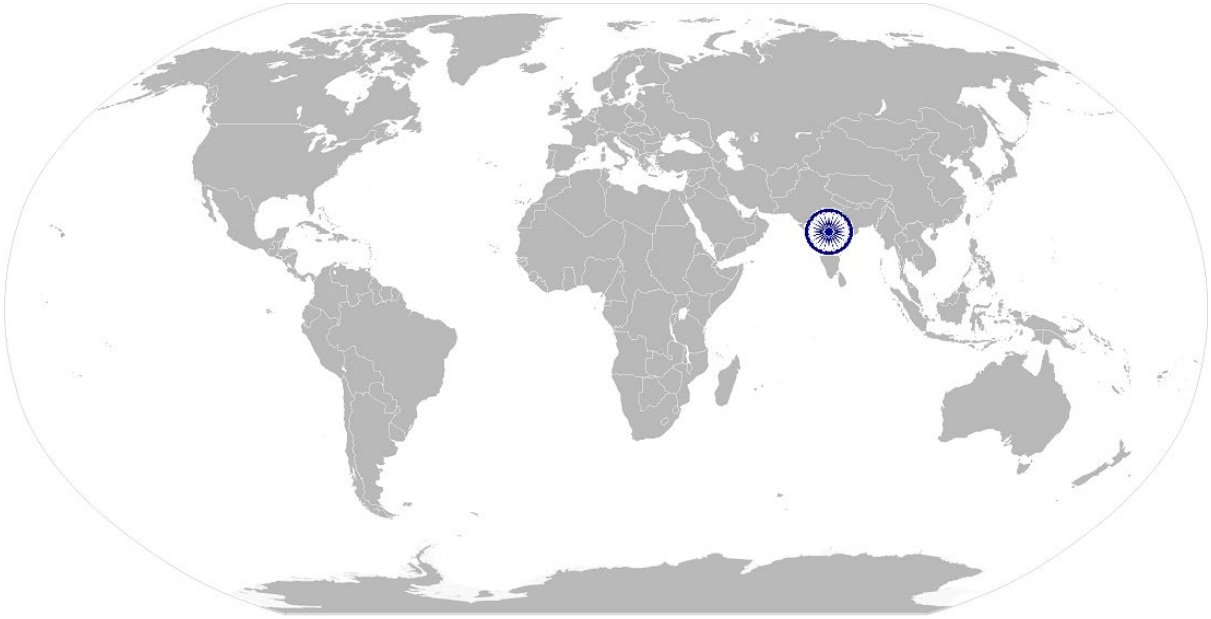
SSC/N8114 **Maintain existing architectures for solutions**

NOS Version Control

NOS Code	SSC/N8114		
Credits (NSQF)	TBD	Version number	1.0
Industry	IT-ITeS	Drafted on	29/08/2018
Industry Sub-sector	Future Skills	Last reviewed on	17/10/2018
Occupation	Artificial Intelligence & Big Data Analytics	Next review date	31/12/2019



National Occupational Standard



Overview

This unit is about planning and organizing your work in order to complete it to the required standards on time.

SSC/N9001 **Manage your work to meet requirements**

National Occupational Standard

Unit Code	**SSC/N9001**
Unit Title (Task)	**Manage your work to meet requirements**
Description	This unit is about planning and organizing your work in order to complete it to the required standards on time.
NSQF Level	6
Scope	This unit/task covers the following: • Utilize resources • Ensure compliance Work requirements: activities, deliverables, quantity, standards, timing Resources: equipment, materials, information
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Utilize resources	To be competent, the individual working on the job must be able to: PC1. establish and agree your work requirements with appropriate people PC2. keep your immediate work area clean and tidy PC3. utilize your time effectively PC4. use resources correctly and efficiently PC5. treat confidential information correctly
Ensure compliance	To be competent, the individual working on the job must be able to: PC6. work in line with your organization's policies and procedures PC7. work within the limits of your job role PC8. obtain guidance from appropriate people, where necessary PC9. ensure your work meets the agreed requirements
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company/ organization and its processes)	You need to know and understand: KA1. your organization's policies, procedures and priorities for your area of work and your role and responsibilities in carrying out your work KA2. limits of your responsibilities and when to involve others KA3. your specific work requirements and who these must be agreed with KA4. the importance of having a tidy work area and how to do this KA5. how to prioritize your workload according to urgency and importance and the benefits of this

SSC/N9001 **Manage your work to meet requirements**

	KA6. your organization's policies and procedures for dealing with confidential information and the importance of complying with these KA7. the purpose of keeping others updated with the progress of your work KA8. who to obtain guidance from and the typical circumstances when this may be required KA9. the purpose and value of being flexible and adapting work plans to reflect change
B. Technical Knowledge	You need to know and understand: KB1. the importance of completing work accurately and how to do this KB2. appropriate timescales for completing your work and the implications of not meeting these for you and the organization KB3. resources needed for your work and how to obtain and use these KB4. how to store and retrieve information KB5. how to identify and refer anomalies in data KB6. how to use information technology effectively to input and/or extract data accurately KB7. how to keep up to date with changes, procedures and practices in your role
Skills (S)	
A. Core / Generic Skills	**Writing Skills** SA1. complete accurate well written work with attention to detail **Reading Skills** SA2. follow instructions, guidelines, procedures, rules and service level agreements **Listening and Speaking Skills** SA3. ask for clarification and advice from appropriate people SA4. listen effectively and orally communicate information accurately **Decision Making** SA5. make decisions on suitable courses **Plan and Organize** SA6. plan and organize your own work to achieve targets and deadlines SA7. provide accurate reports to line managers in a timely manner as required **Customer Centricity**

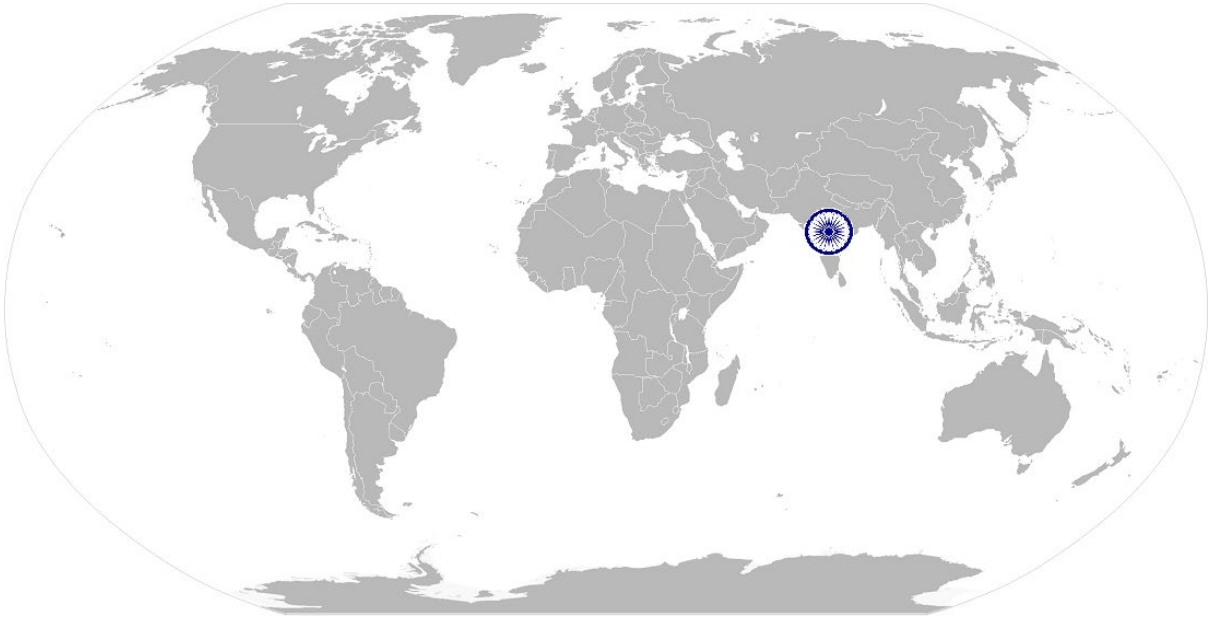
SSC/N9001 **Manage your work to meet requirements**

	SA8. check that your own and/or your peers' work meets customer requirements SA9. deliver consistent and reliable service to customers **Problem Solving** SA10. refer anomalies to the supervisor SA11. seek clarification on problems from others **Analytical Thinking** SA12. analyze data and activities SA13. pass on relevant information to others **Critical Thinking** SA14. apply balanced judgments to different situations **Attention to Detail** SA15. check your work is complete and free from errors SA16. get your work checked by others **Team Working** SA17. work effectively in a team environment

SSC/N9001 **Manage your work to meet requirements**

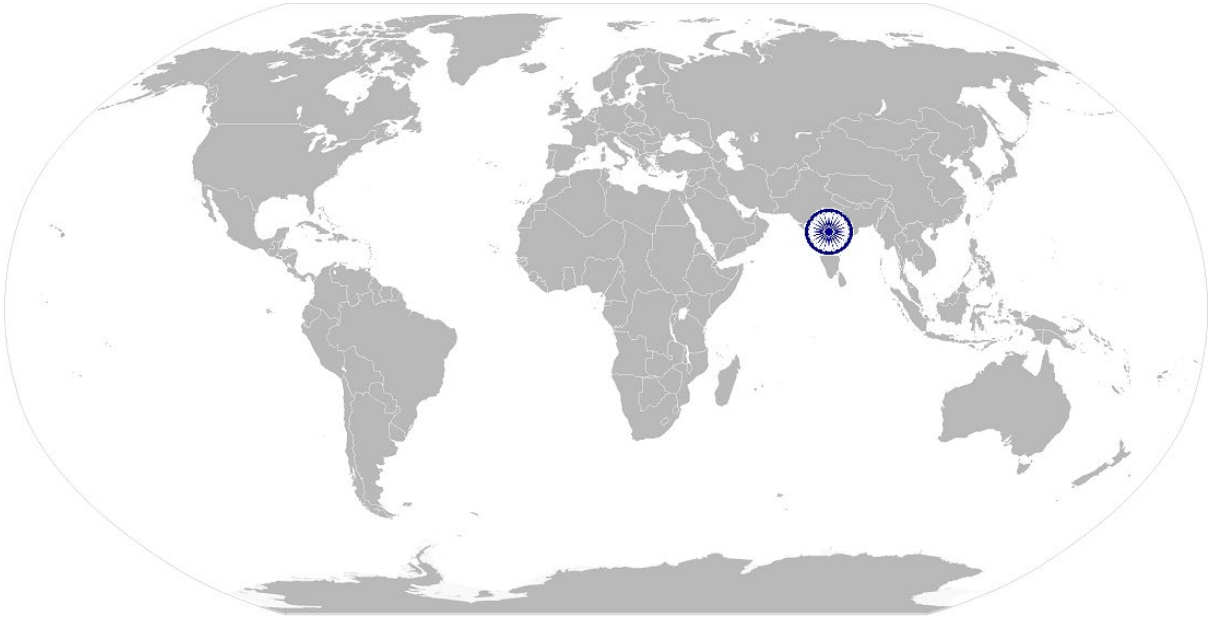
NOS Version Control

NOS Code	SSC/N9001		
Credits (NSQF)	TBD	Version number	1.0
Industry	IT-ITeS	Drafted on	29/08/2018
Industry Sub-sector	Future Skills	Last reviewed on	17/10/2018
Occupation	Artificial Intelligence & Big Data Analytics	Next review date	31/12/2019



SSC/N9002 **Work effectively with colleagues**

National Occupational Standard



Overview

This unit is about working effectively with colleagues, either in your own work group or in other work groups within your organization.

National Occupational Standard

SSC/N9002 **Work effectively with colleagues**

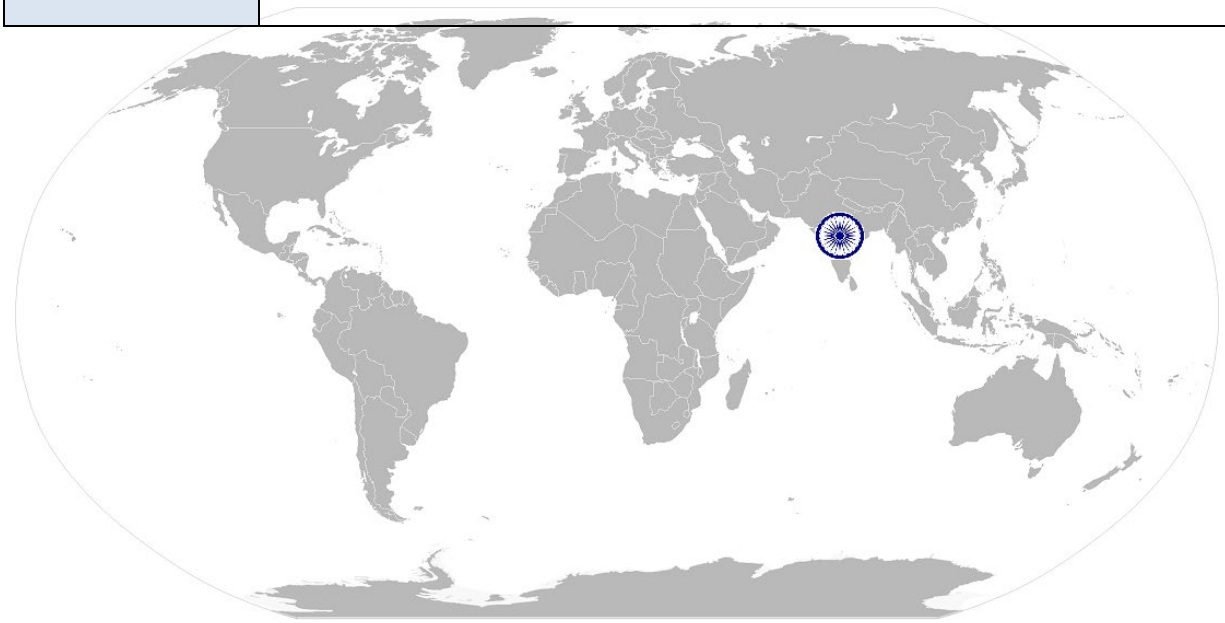
Unit Code	**SSC/N9002**
Unit Title (Task)	**Work effectively with colleagues**
Description	This unit is about working effectively with colleagues, either in your own work group or in other work groups within your organization.
NSQF Level	6
Scope	This unit/task covers the following: • Communicate with colleagues • Show respect Communicate: face-to-face, by telephone, in writing
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Communicate with colleagues	To be competent, the individual working on the job must be able to: PC1. communicate with colleagues clearly, concisely and accurately PC2. work with colleagues to integrate your work effectively with them PC3. pass on essential information to colleagues in line with organizational requirements
Show respect	To be competent, the individual working on the job must be able to: PC4. work in ways that show respect for colleagues PC5. carry out commitments you have made to colleagues PC6. let colleagues know in good time if you cannot carry out your commitments, explaining the reasons PC7. identify any problems you have working with colleagues and take the initiative to solve these problems PC8. follow the organization's policies and procedures for working with colleagues
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company/ organization and its processes)	You need to know and understand: KA1. your organization's policies and procedures for working with colleagues and your role and responsibilities in relation to this KA2. the importance of effective communication and establishing good working relationships with colleagues KA3. different methods of communication and the circumstances in which it is appropriate to use these

SSC/N9002 **Work effectively with colleagues**

	KA4. benefits of developing productive working relationships with colleagues KA5. the importance of creating an environment of trust and mutual respect in an environment where you have no authority over those you are working with KA6. where you do not meet your commitments, the implications this will have on individuals and the organization
B. Technical Knowledge	You need to know and understand: KB1. different types of information that colleagues might need and the importance of providing this information when it is required KB2. the importance of understanding problems from your colleague's perspective and how to provide support, where necessary, to resolve these KB3. how to identify and refer anomalies in data KB4. how to help reach agreements with colleagues KB5. how to keep up to date with changes, procedures and practices in your role
Skills (S)	
A. Core / Generic Skills	**Writing Skills** SA1. complete accurate well written work with attention to detail SA2. communicate effectively with colleagues in writing **Reading Skills** SA3. follow instructions, guidelines, procedures, rules and service level agreements **Listening and Speaking Skills** SA4. ask for clarification and advice from appropriate people SA5. listen effectively and orally communicate information accurately **Decision Making** SA6. make decisions on suitable courses **Plan and Organize** SA7. plan and organize your own work to achieve targets and deadlines **Customer Centricity** SA8. check that your own and/or your peers' work meets customer requirements SA9. deliver consistent and reliable service to customers

SSC/N9002 **Work effectively with colleagues**

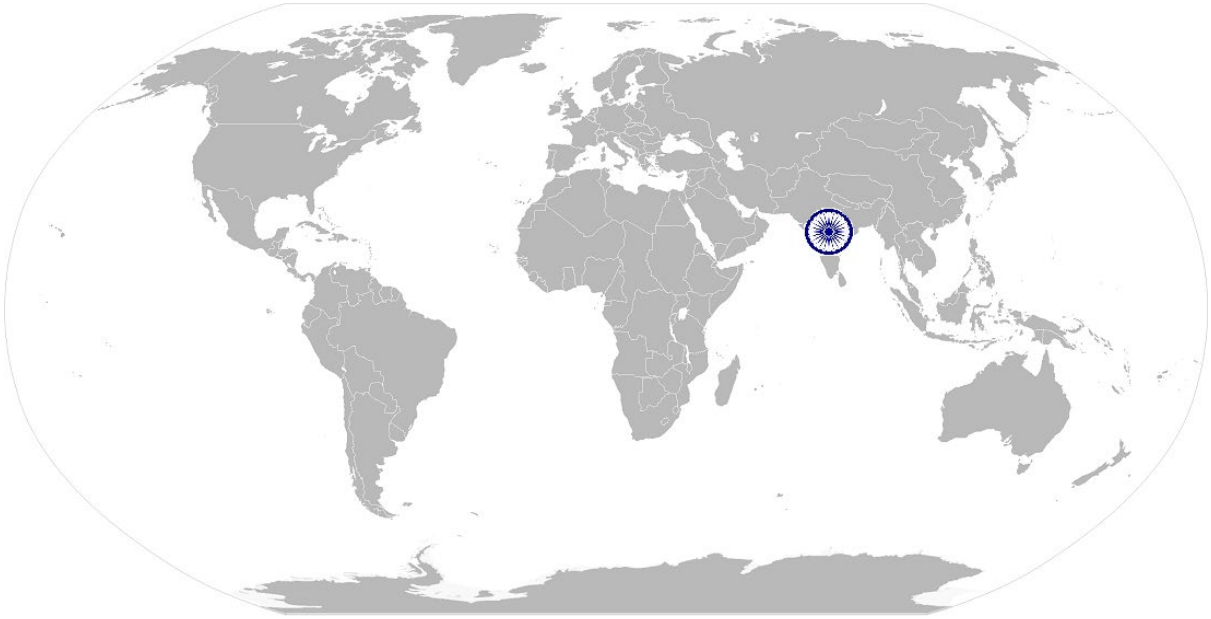
	Problem Solving SA10. apply problem solving approaches in different situations **Critical Thinking** SA11. apply balanced judgments to different situations **Attention to Detail** SA12. check your work is complete and free from errors SA13. get your work checked by others **Team Working** SA14. work effectively in a team environment SA15. work effectively with colleagues and other teams SA16. treat other cultures with respect



SSC/N9002 **Work effectively with colleagues**

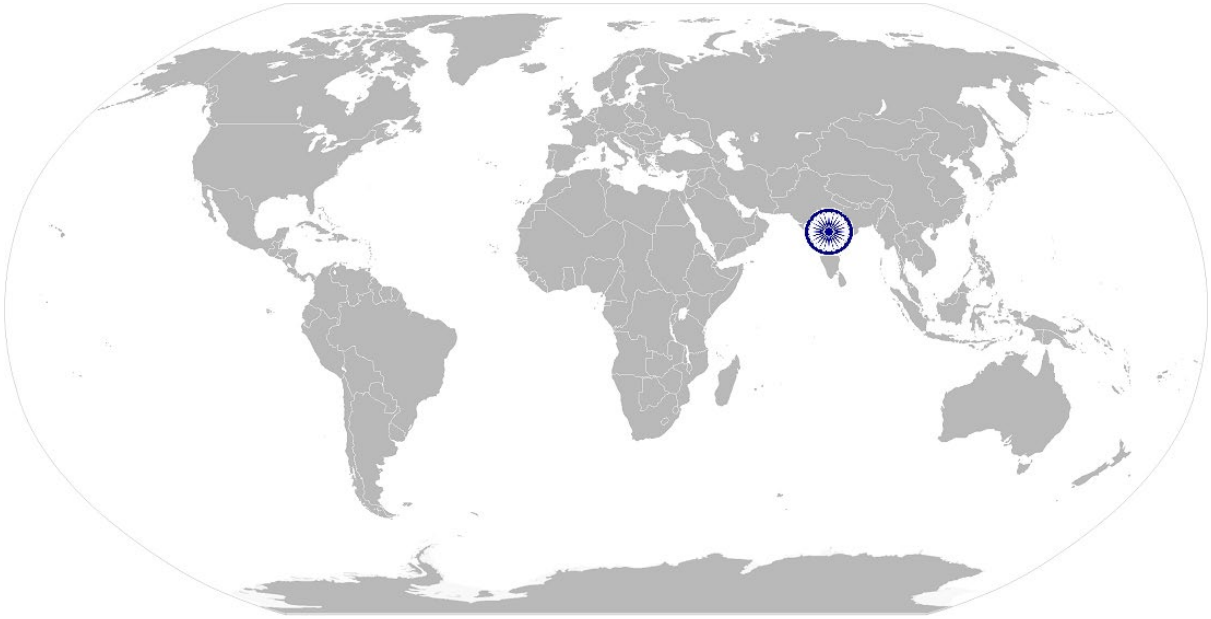
NOS Version Control

NOS Code	SSC/N9002		
Credits (NSQF)	TBD	Version number	1.0
Industry	IT-ITeS	Drafted on	29/08/2018
Industry Sub-sector	Future Skills	Last reviewed on	17/10/2018
Occupation	Artificial Intelligence & Big Data Analytics	Next review date	31/12/2019



SSC/N9004 **Provide data / information in standard formats**

National Occupational Standard



Overview

This unit is about providing specified data/information related to your work in templates or other standard formats.

SSC/N9004 **Provide data / information in standard formats**

National Occupational Standard

Unit Code	SSC/N9004
Unit Title (Task)	**Provide data/information in standard formats**
Description	This unit is about providing specified data/information related to your work in templates or other standard formats.
NSQF Level	6
Scope	This unit/task covers the following: • Obtain information • Analyze and report information Data/Information: quantitative, qualitative Sources: within your organization, outside your organization Formats: paper-based, electronic
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Obtain information	To be competent, the individual working on the job must be able to: 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 PC2. obtain the data/information from reliable sources PC3. check that the data/information is accurate, complete and up-to-date PC4. obtain advice or guidance from appropriate people where there are problems with the data/information
Analyze and report information	To be competent, the individual working on the job must be able to: PC5. carry out rule-based analysis of the data/information, if required PC6. insert the data/information into the agreed formats PC7. check the accuracy of your work, involving colleagues where required PC8. report any unresolved anomalies in the data/information to appropriate people PC9. provide complete, accurate and up-to-date data/information to the appropriate people in the required formats on time
Knowledge and Understanding (K)	
A. Organizational	You need to know and understand:

SSC/N9004 **Provide data / information in standard formats**

Context (Knowledge of the company/ organization and its processes)	KA1. your organization's procedures and guidelines for providing data/information in standard formats and your role and responsibilities in relation to this KA2. the knowledge management culture of your organization KA3. your organization's policies and procedures for recording and sharing information and the importance of complying with these KA4. the importance of validating data/information before use and how to do this KA5. procedures for updating data in appropriate formats and with proper validation KA6. the purpose of the CRM database KA7. how to use the CRM database to record and extract information KA8. the importance of having your data/information reviewed by others KA9. the scope of any data/information requirements including the level of detail required KA10. the importance of keeping within the scope of work and adhering to timescales
B. Technical Knowledge	You need to know and understand: KB1. data/information you may need to provide including the sources and how to do this KB2. templates and formats used for data/information including their purpose and how to use these KB3. different techniques used to obtain data/information and how to apply these KB4. how to carry out rule-based analysis on the data/information KB5. typical anomalies that may occur in data/information KB6. who to go to in the event of inaccurate data/information and how to report this KB7. how to use information technology effectively to input and/or extract data accurately KB8. how to validate and update data KB9. how to identify and refer anomalies in data KB10. how to store and retrieve information KB11. how to share information using standard formats and templates KB12. how to keep up to date with changes, procedures and practices in your role
Skills (S)	

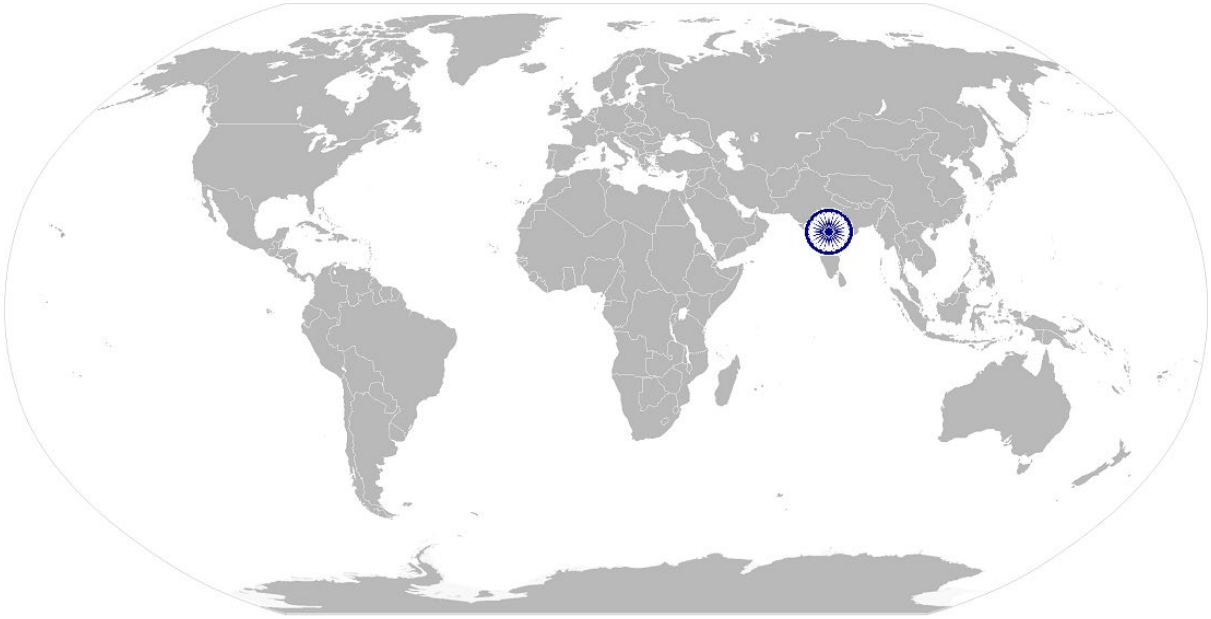
SSC/N9004 **Provide data / information in standard formats**

A. Core / Generic Skills	**Writing Skills** SA1. complete accurate well written work with attention to detail **Reading Skills** SA2. follow instructions, guidelines, procedures, rules and service level agreements **Listening and Speaking Skills** SA3. listen effectively and orally communicate information accurately **Decision Making** SA4. follow rule-based decision making processes SA5. make decisions on suitable courses **Plan and Organize** SA6. plan and organize your own work to achieve targets and deadlines **Customer Centricity** SA7. check that your own and/or your peers' work meets customer requirements SA8. meet and exceed customer expectations **Problem Solving** SA9. apply problem solving approaches in different situations **Analytical Thinking** SA10. configure data and disseminate relevant information to others **Critical Thinking** SA11. apply balanced judgments to different situations **Attention to Detail** SA12. check your work is complete and free from errors SA13. get your work checked by others **Team Working** SA14. work effectively in a team environment

SSC/N9004 **Provide data / information in standard formats**

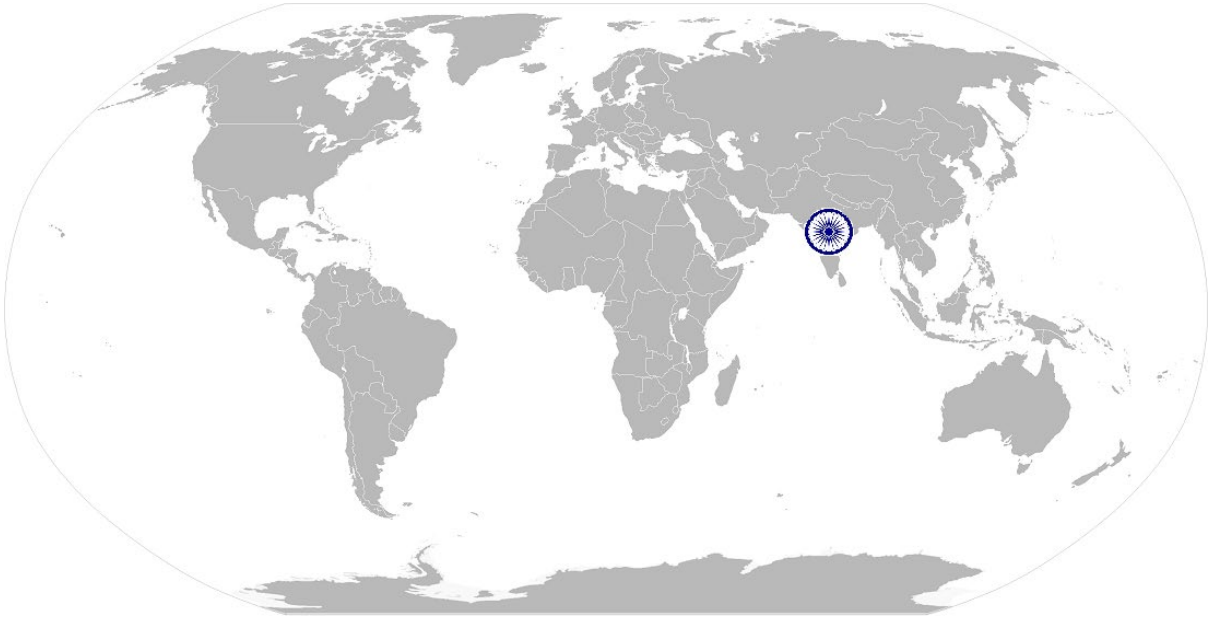
NOS Version Control

NOS Code	SSC/N9004		
Credits (NSQF)	TBD	Version number	1.0
Industry	IT-ITeS	Drafted on	29/08/2018
Industry Sub-sector	Future Skills	Last reviewed on	17/10/2018
Occupation	Artificial Intelligence & Big Data Analytics	Next review date	31/12/2019



SSC/N9005 **Develop your knowledge, skills and competence**

National Occupational Standard



Overview

This unit is about taking action to ensure you have the knowledge and skills you need to perform competently in your current job role and to take on new responsibilities, where required.

SSC/N9005 Develop your knowledge, skills and competence

National Occupational Standard

Unit Code	SSC/N9005
Unit Title (Task)	**Develop your knowledge, skills and competence**
Description	This unit is about taking action to ensure you have the knowledge and skills you need to perform competently in your current job role and to take on new responsibilities, where required. Competence is defined as: the application of knowledge and skills to perform to the standards required.
NSQF Level	6
Scope	This unit/task covers the following: • Develop knowledge • Apply knowledge Learning and Development Activities: formal education and training programs, leading to certification, non-formal activities (such as private study, learning from colleagues, project work), designed to meet learning and development objectives but without certification Appropriate Action: undertaking further learning and development activities, finding further opportunities to apply your knowledge and skills
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Develop knowledge	To be competent, the individual working on the job must be able to: PC1. obtain advice and guidance from appropriate people to develop your knowledge, skills and competence PC2. identify accurately the knowledge and skills you need for your job role PC3. identify accurately your current level of knowledge, skills and competence and any learning and development needs PC4. agree with appropriate people a plan of learning and development activities to address your learning needs PC5. undertake learning and development activities in line with your plan
Apply knowledge	To be competent, the individual working on the job must be able to: PC6. apply your new knowledge and skills in the workplace, under supervision PC7. obtain feedback from appropriate people on your knowledge and skills and how effectively you apply them

SSC/N9005 **Develop your knowledge, skills and competence**

	PC8. review your knowledge, skills and competence regularly and take appropriate action
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company/ organization and its processes)	You need to know and understand: KA1. your organization's procedures and guidelines for developing your knowledge, skills and competence and your role and responsibilities in relation to this KA2. the importance of developing your knowledge, skills and competence to you and your organization KA3. different methods used by your organization to review skills and knowledge including: □ training need analysis □ skills need analysis □ performance appraisals KA4. how to review your knowledge and skills against your job role using different methods and analysis KA5. different types of learning and development activities available for your job role and how to access these KA6. how to produce a plan to address your learning and development needs, who to agree it with and the importance of undertaking the planned activities KA7. different types of support available to help you plan and undertake learning and development activities and how to access these KA8. why it is important to maintain records of your learning and development KA9. methods of obtaining and accepting feedback from appropriate people on your knowledge skills and competence KA10. how to use feedback to develop in your job role
B. Technical Knowledge	You need to know and understand: KB1. the knowledge and skills required in your job role KB2. your current learning and development needs in relation to your job role KB3. different types of learning styles and methods including those that help you learn best KB4. the importance of taking responsibility for your own learning and development KB5. to the importance of learning and practicing new concepts, theory and how to apply these in the work environment or on samples. KB6. how to explore sample problems and apply solutions KB7. how to use information technology effectively to input and/or extract data accurately

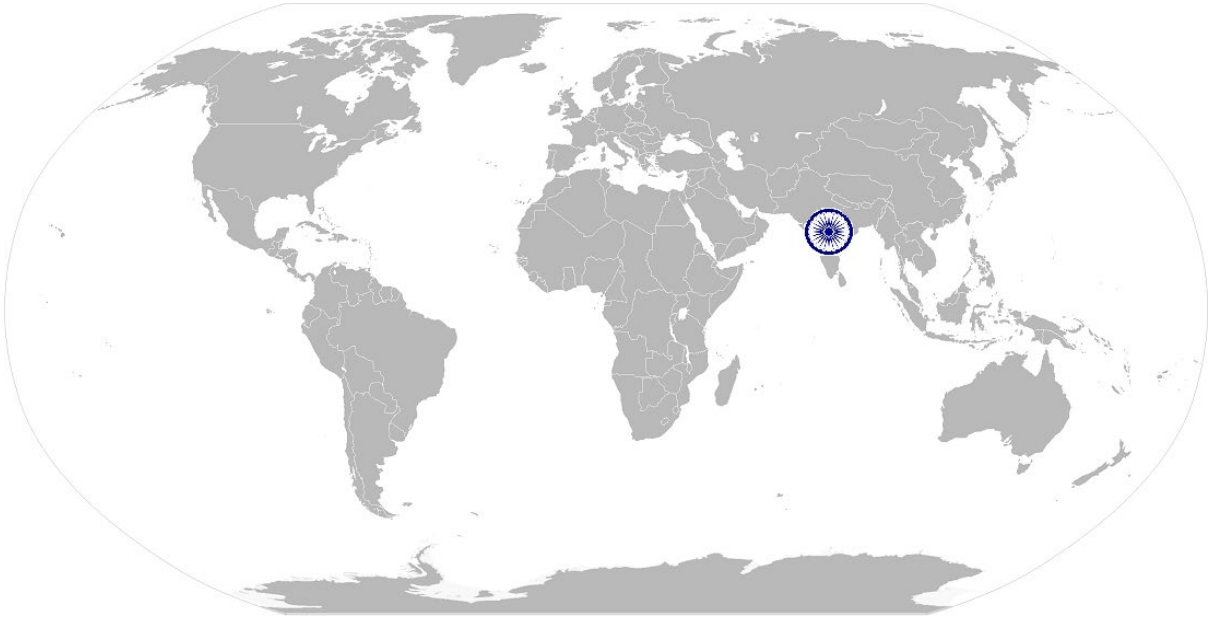
SSC/N9005 **Develop your knowledge, skills and competence**

	KB8. how to agree objectives and work requirements KB9. how to keep up to date with changes, procedures and practices in your role
Skills (S)	
A. Core / Generic Skills	**Writing Skills** SA1. complete accurate well written work with attention to detail **Reading Skills** SA2. follow instructions, guidelines, procedures, rules and service level agreements **Listening and Speaking Skills** SA3. ask for clarification and advice from line managers **Decision Making** SA4. make decisions on suitable courses **Plan and Organize** SA5. plan and organize your own work to achieve targets and deadlines **Customer Centricity** SA6. check that your own and/or your peers' work meets customer requirements **Problem Solving** SA7. refer anomalies to the line manager **Analytical Thinking** SA8. analyze data and activities **Critical Thinking** SA9. apply balanced judgments to different situations **Attention to Detail** SA10. check your work is complete and free from errors SA11. get your work checked by others **Team Working** SA12. work effectively in a team environment

SSC/N9005 **Develop your knowledge, skills and competence**

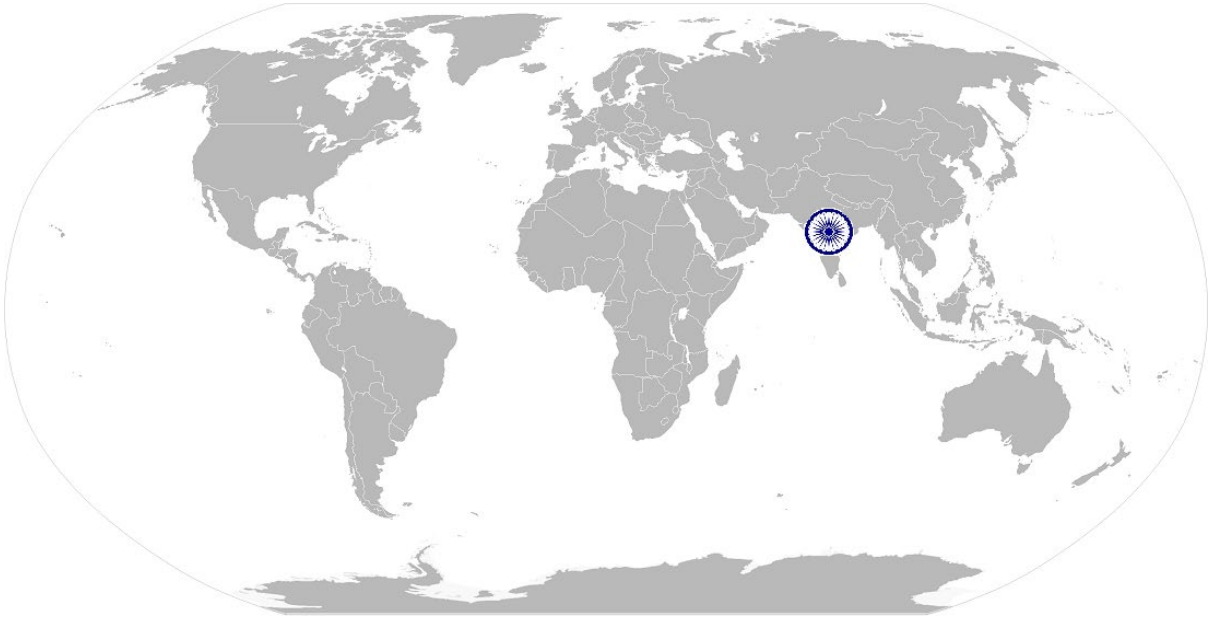
NOS Version Control

NOS Code	SSC/N9005		
Credits (NSQF)	TBD	Version number	1.0
Industry	IT-ITeS	Drafted on	29/08/2018
Industry Sub-sector	Future Skills	Last reviewed on	17/10/2018
Occupation	Artificial Intelligence & Big Data Analytics	Next review date	31/12/2019



SSC/N9006 **Build and maintain relationships at the workplace**

National Occupational Standard



Overview

This unit is about building and maintaining constructive relationships at the workplace.

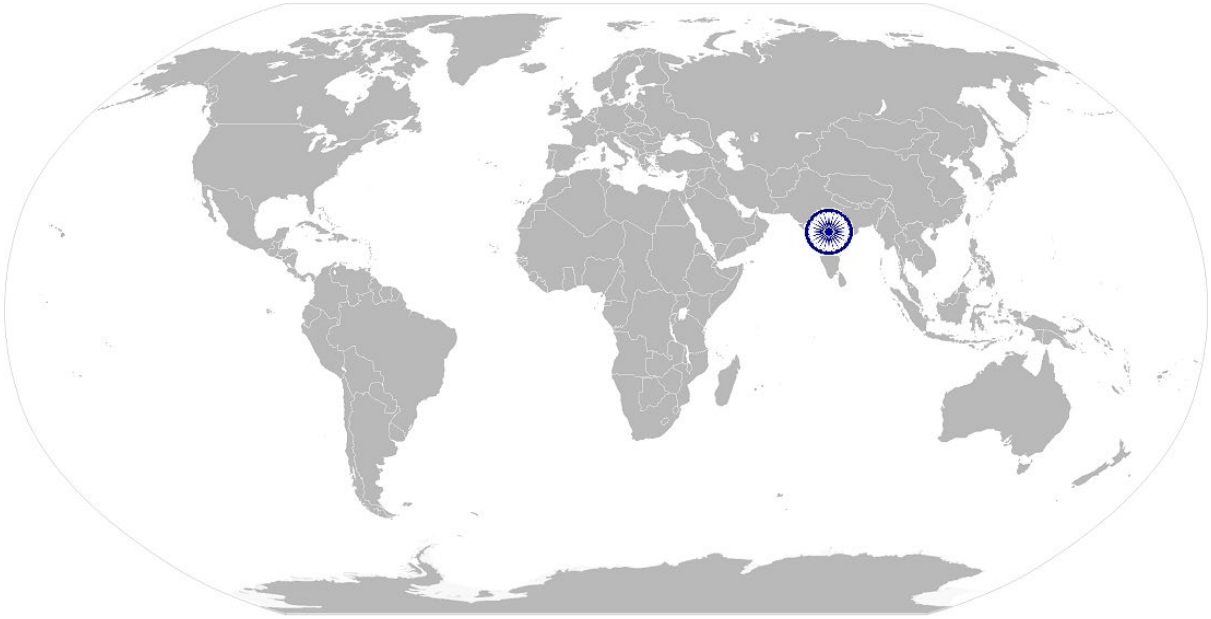
SSC/N9006 Build and maintain relationships at the workplace

National Occupational Standard

Unit Code	SSC/N9006
Unit Title (Task)	**Build and maintain relationships at the workplace**
Description	This unit is about building and maintaining constructive relationships at the workplace.
NSQF Level	6
Scope	This unit/task covers the following: • Build relationships • Maintain relationships Range: Appropriate people such as line manager, members of the team / department, members from other teams / departments
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Build relationships	To be competent, the user/individual on the job must be able to : PC1. build rapport with appropriate people at the workplace PC2. develop new professional relationships PC3. build alliances to establish mutually beneficial working arrangements PC4. foster an environment where others feel respected PC5. identify and engage a diverse range of influential contacts
Maintain relationships	To be competent, the user/individual on the job must be able to : PC6. obtain guidance from appropriate people, where necessary PC7. attentively listen to ideas and give constructive feedback PC8. promptly resolve conflicts between team members PC9. work with colleagues to deliver shared goals PC10. recognize the contributions made by your colleagues
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company/ organization and its processes)	The user/individual on the job needs to know and understand: KA1. organizational policies and procedures for building relationships and their role and responsibilities in relation to this KA2. different training programs to enable the development of relevant behavioural competencies
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. the importance of creating an environment of trust and mutual respect in the organisation

SSC/N9006 **Build and maintain relationships at the workplace**

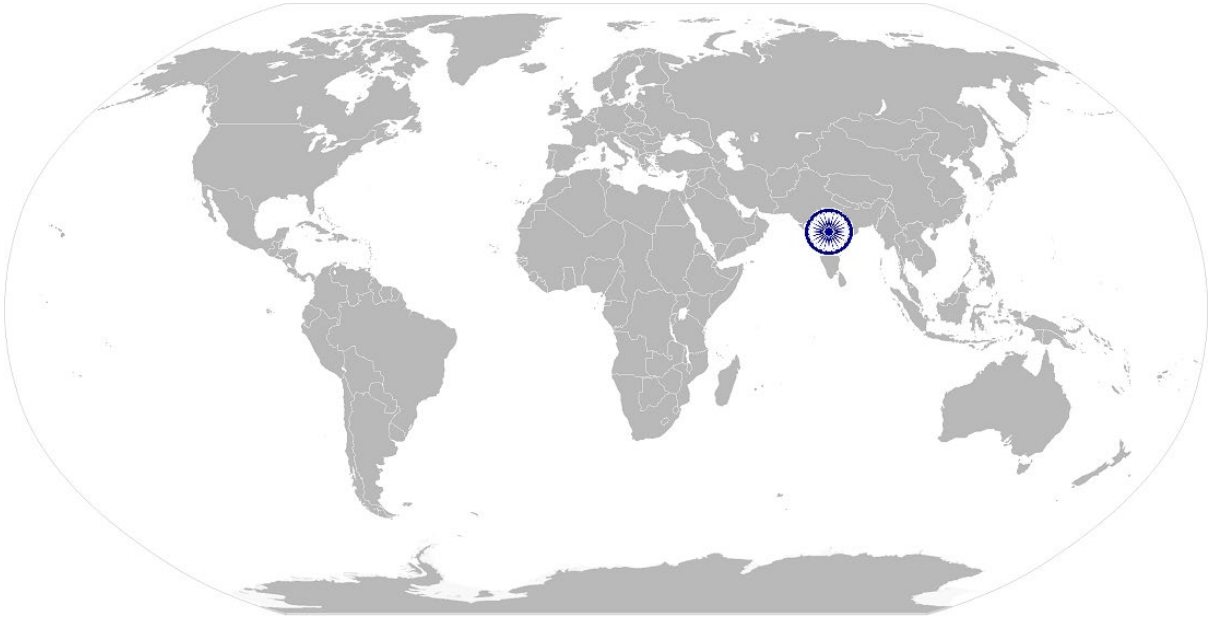
	KB2. the importance of effective communication in developing productive working relationships with colleagues KB3. different types of information that colleagues might need and the importance of providing this information when it is required
Skills (S)	
A. Core / Generic Skills	**Listening and Speaking Skills** The user/individual on the job needs to know and understand how to: SA1. ask for clarification and advice from line managers **Team Working** The user/individual on the job needs to know and understand how to: SA2. work effectively in a team environment



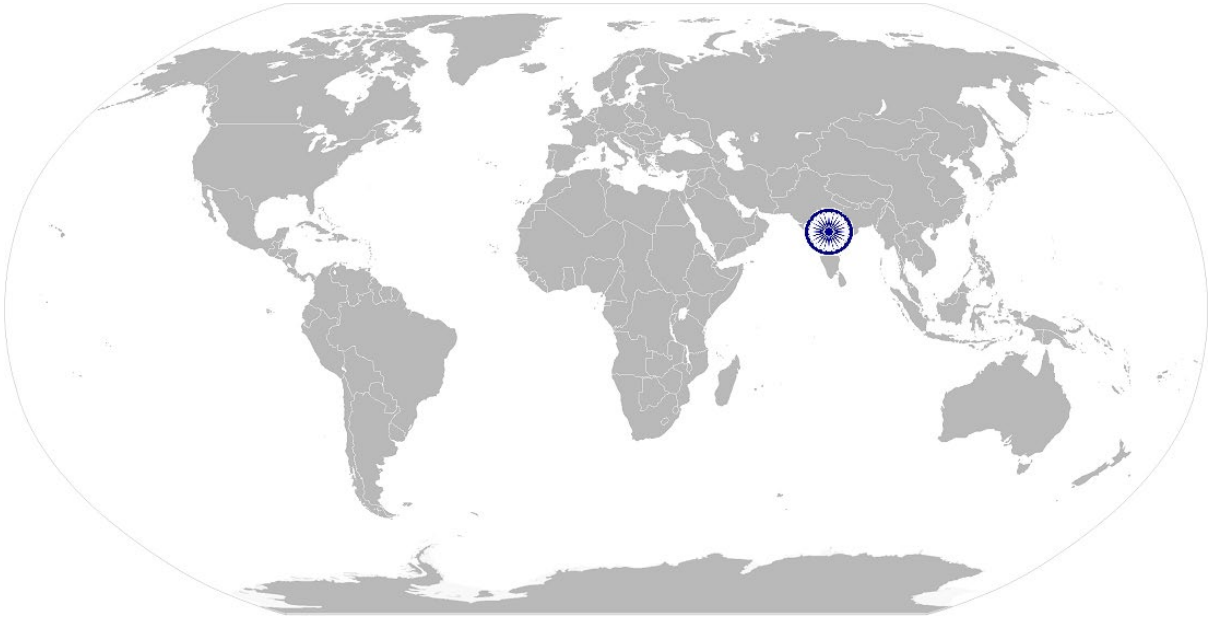
SSC/N9006 **Build and maintain relationships at the workplace**

NOS Version Control

NOS Code	SSC/N9006		
Credits (NSQF)	TBD	Version number	1.0
Industry	IT-ITeS	Drafted on	29/08/2018
Industry Sub-sector	Future Skills	Last reviewed on	17/10/2018
Occupation	Artificial Intelligence & Big Data Analytics	Next review date	31/12/2019



National Occupational Standard



Overview

This unit is about empowering the team and conveying confidence in their abilities to be successful.

SSC/N9009 **Empower the team**

National Occupational Standard

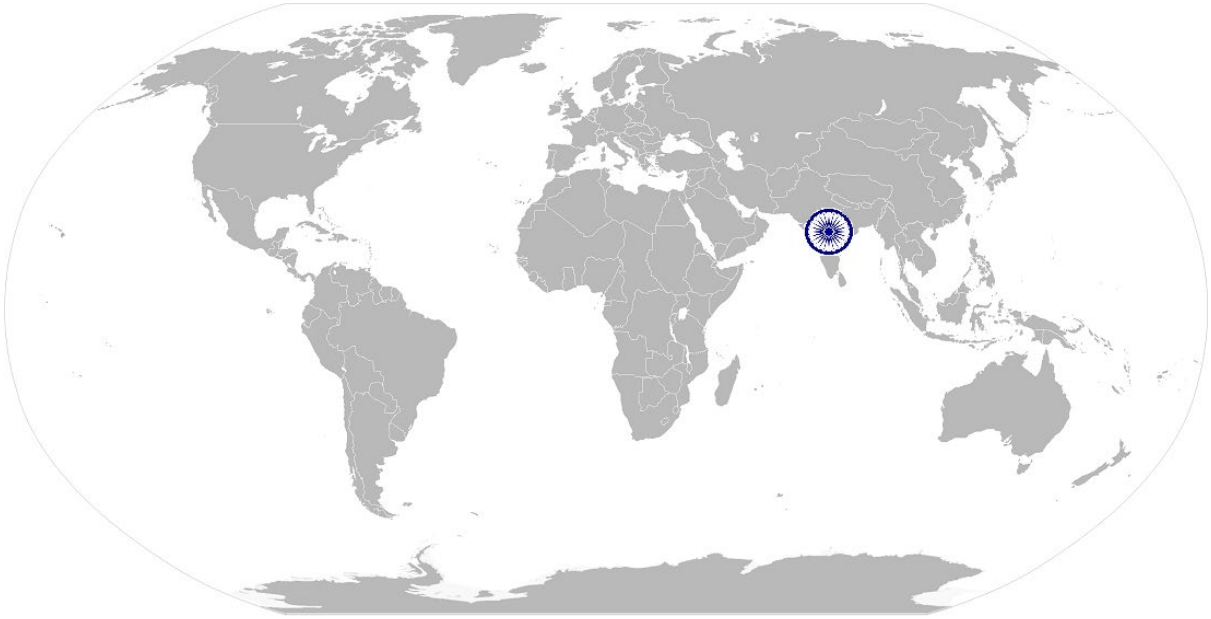
Unit Code	SSC/N9009
Unit Title (Task)	**Empower the team**
Description	This unit is about empowering the team and conveying confidence in their abilities to be successful.
NSQF Level	8
Scope	This unit/task covers the following: • Motivate team • Support team Appropriate People: members of the team / department, members from other teams / departments
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Motivate team	To be competent, the user/individual on the job must be able to : PC1. encourage teams to set goals aligned to the vision and objectives of the organization PC2. express confidence on the team's ability to accomplish certain tasks PC3. encourage team members with diverse view points to express their concerns PC4. recognise individual contributions and acknowledge team accomplishments
Support team	To be competent, the user/individual on the job must be able to: PC5. assist team members in delivery of their work PC6. support team members in taking independent action PC7. develop mechanisms to incorporate and develop ideas from the team
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company/ organization and its processes)	The user/individual on the job needs to know and understand: KA1. organizational policies and procedures for empowering the team and their role and responsibilities in relation to this
B. Technical Knowledge	The user/individual on the job needs to know and understand :

SSC/N9009 **Empower the team**

	KB1. different types of information that team members might need and the importance of providing this information when it is required KB2. the importance of understanding problems from your team's perspective and how to provide support, where necessary, to resolve these KB3. different mechanisms to incorporate and develop ideas put forward by the team
Skills (S)	
A. Core / Generic Skills	**Critical Thinking** The user/individual on the job needs to know and understand how to: SA1. apply balanced judgments to different situations **Team Working** The user/individual on the job needs to know and understand how to: SA2. work effectively in a team environment

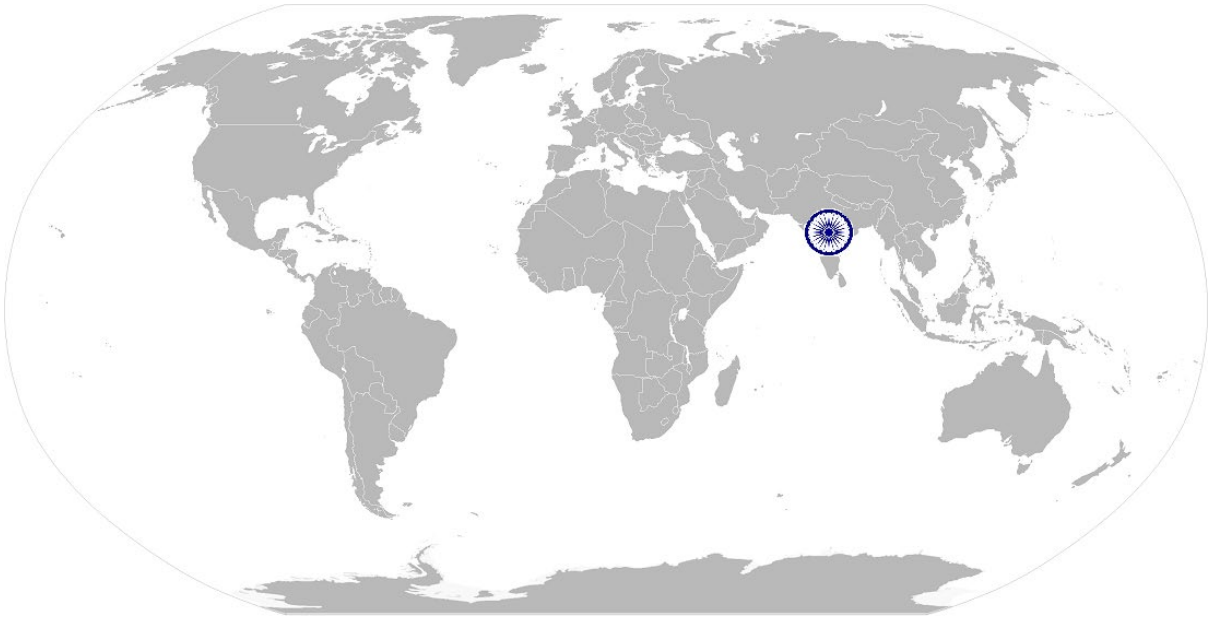
NOS Version Control

NOS Code	SSC/N9009		
Credits (NSQF)	TBD	Version number	1.0
Industry	IT-ITeS	Drafted on	29/08/2018
Industry Sub-sector	Future Skills	Last reviewed on	17/10/2018
Occupation	Artificial Intelligence & Big Data Analytics	Next review date	31/12/2019



SSC/N9010 Convince others to take appropriate action in different situations

National Occupational Standard



Overview

This unit is about convincing others to take appropriate action in different situations.

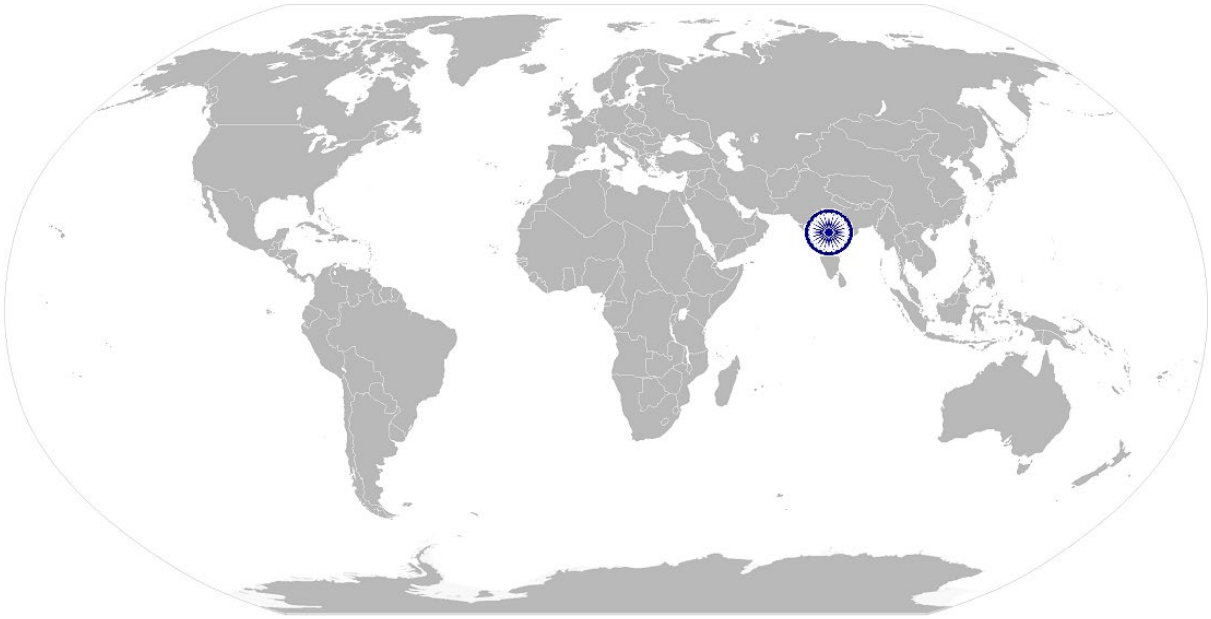
SSC/N9010 Convince others to take appropriate action in different situations

National Occupational Standard

Unit Code	SSC/N9010
Unit Title (Task)	**Convince others to take appropriate action in different situations**
Description	This unit is about convincing others to take appropriate action in different situations.
NSQF Level	6
Scope	This unit/task covers the following: • Define needs • Persuade others Range: Appropriate people such as line manager, members of the team / department, members from other teams / departments
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Define needs	To be competent, the user/individual on the job must be able to : PC1. gather needs of concerned people PC2. adapt arguments to consider diverse needs
Persuade others	To be competent, the user/individual on the job must be able to : PC3. use small wins as milestones to gain support for ideas PC4. persuade with the help of concrete examples or evidences PC5. take defined steps to reach a consensus on the course of action
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company/ organization and its processes)	The user/individual on the job needs to know and understand : KA1. organizational policies and procedures for persuading people and their role and responsibilities in relation to this
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. different types of information that people might need and the importance of providing this information when it is required KB2. different methods of communication and the circumstances in which it is appropriate to use these
Skills (S)	
A. Core / Generic	**Listening and Speaking Skills**

SSC/N9010 Convince others to take appropriate action in different situations

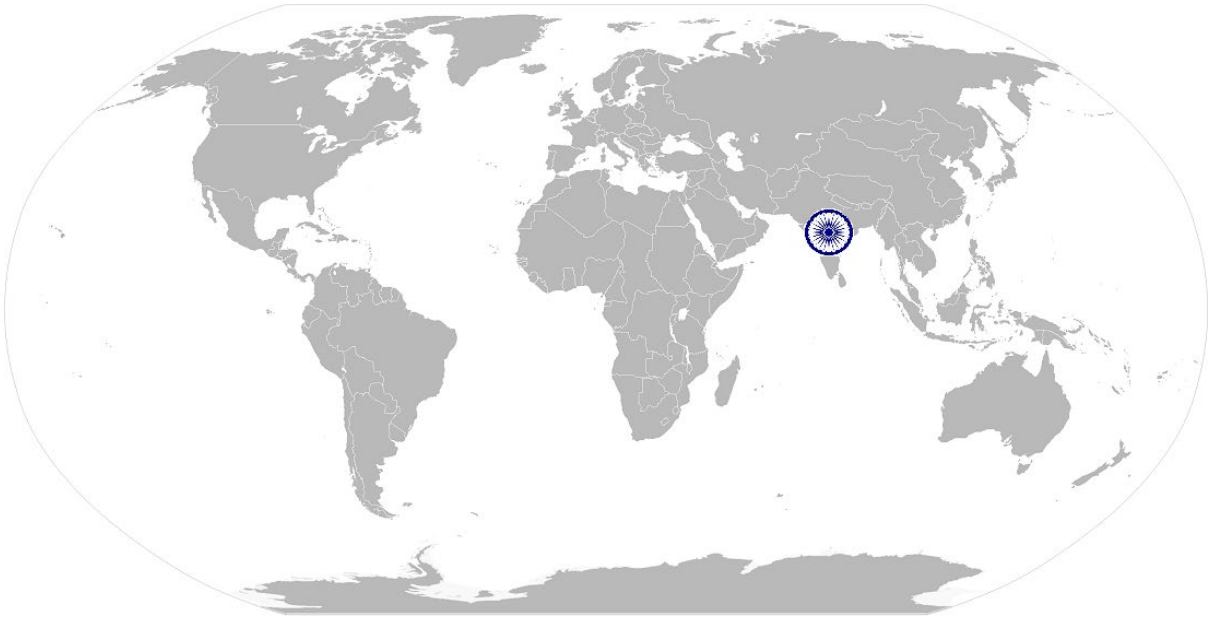
Skills	The user/individual on the job needs to know and understand how to: SA1. ask for clarification and advice from appropriate people SA2. listen effectively and orally communicate information accurately **Decision Making** The user/individual on the job needs to know and understand how to: SA3. make a decision on suitable courses **Critical Thinking** The user/individual on the job needs to know and understand how to: SA4. apply balanced judgements to different situations



SSC/N9010 Convince others to take appropriate action in different situations

NOS Version Control

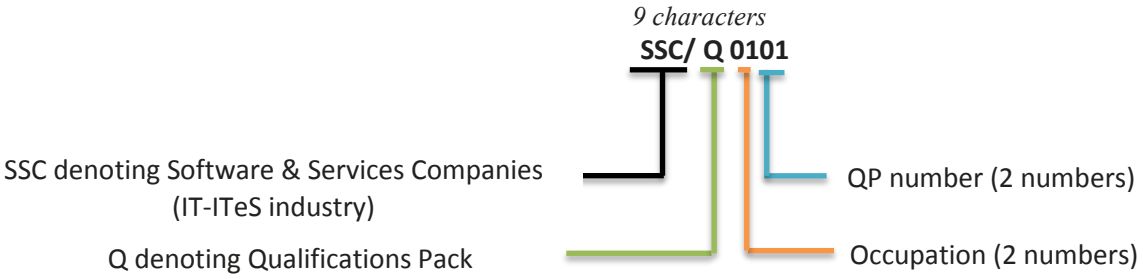
NOS Code	SSC/N9010		
Credits (NSQF)	TBD	Version number	1.0
Industry	IT-ITeS	Drafted on	29/08/2018
Industry Sub-sector	Future Skills	Last reviewed on	17/10/2018
Occupation	Artificial Intelligence & Big Data Analytics	Next review date	31/12/2019



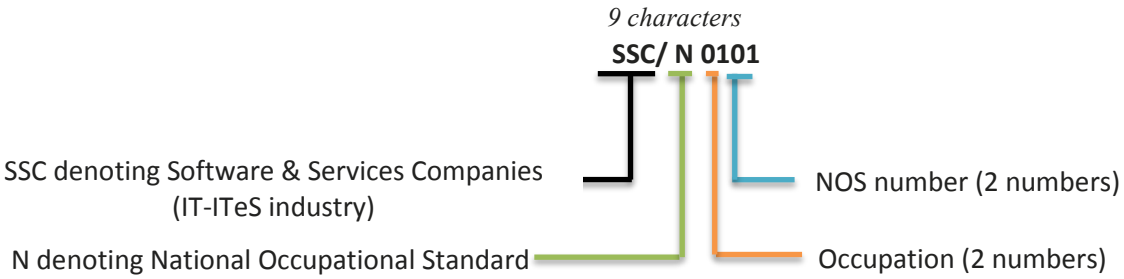
Annexure

Nomenclature for QP and NOS

Qualifications Pack



National Occupational Standard



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The following acronyms/codes have been used in the nomenclature above:

Sequence	Description	Example
Three letters	Industry name (Software & Services Companies)	SSC
Slash	/	/
Next letter	Whether QP or NOS	N
Next two numbers	Occupation code	01
Next two numbers	OS number	01

Criteria For Assessment Of Trainees

Job Role AI - Solution Architect

Qualification Pack SSC/Q8108

Sector Skill Council IT-ITeS

Guidelines for Assessment

1. 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 proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criterion.
6. To pass a QP, a trainee should score an average of 70% across generic NOS' and a minimum of 70% for each technical NOS.
7. In case of *unsuccessful completion*, the trainee may seek reassessment on the Qualification Pack.

Compulsory NOS **Total Marks: 900**				**Marks Allocation**	
Assessment outcomes	**Assessment Criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
1. SSC/N8113 Design new solution architectures as per specifications	PC1. identify the business requirements	100	5	2	3
	PC2. evaluate the platform on which the solution is to be built		7	2	5
	PC3. evaluate changes in cross-border data governance issues, PII (Personally Identifiable Information) regulations, GDPR (General Data Protection Regulations), global-scale, security, and monitoring		5	2	3
	PC4. select appropriate design standards, methods and tools		7	2	5
	PC5. define system level architecture for the solution		8	3	5
	PC6. design data feeds, data quality checks and components needed to configure the solution		10	3	7

	PC7. define detailed component specifications		5	2	3
	PC8. translate component specifications into detailed designs for implementation		5	1	4
	PC9. undertake impact analysis on major design options		8	3	5
	PC10. develop technical capabilities roadmap for new solution architectures		8	3	5
	PC11. create documentation on designed solution architectures for appropriate people		5	0	5
	PC12. validate solution architectures with appropriate people		5	0	5
	PC13. identify data quality metrics and guide processes that track and measure data quality continually		8	3	5
	PC14. troubleshoot and resolve issues with new solution architectures		7	2	5
	PC15. identify potential risks, and define mitigation plans and processes for appropriate people		7	2	5
	Total		**100**	**30**	**70**
2. SSC/N8114 Maintain existing architectures for solutions	PC1. review existing system architecture designs to ensure balance of functional, service quality, and systems management requirements	100	30	10	20
	PC2. review existing system architecture designs to ensure selection of appropriate technology, efficient use of resources, and integration of multiple systems		30	10	20
	PC3. review technical capabilities roadmap for existing solution architectures		20	5	15
	PC4. monitor changes in solution design standards and update architecture		15	5	10
	PC5. update documentation for existing solution architectures for appropriate people		5	0	5
	Total		**100**	**30**	**70**
3. SSC/N9001 Manage your work to meet requirements	PC1. establish and agree your work requirements with appropriate people	100	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
	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**
4. SSC/N9002 Work effectively with colleagues	PC1. communicate with colleagues clearly, concisely and accurately	100	20	0	20
	PC2. work with colleagues to integrate your work effectively with them		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**
5. SSC/N9004 Provide data/information in standard formats	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	100	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 data/information, if required		25	0	25
	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
	Total		**100**	**25**	**75**
6. SSC/N9005 Develop your knowledge, skills and competence	PC1. obtain advice and guidance from appropriate people to develop your knowledge, skills and competence	100	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
	Total		**100**	**20**	**80**
7. SSC/N9006 Build and maintain relationships at the workplace	PC1. build rapport with appropriate people at the workplace	100	10	3	7
	PC2. develop new professional relationships		10	3	7
	PC3. build alliances to establish mutually beneficial working arrangements		10	3	7
	PC4. foster an environment where others feel respected		10	4	6
	PC5. identify and engage a diverse range of influential contacts		10	4	6
	PC6. obtain guidance from appropriate people, wherever necessary		10	3	7
	PC7. attentively listen to ideas and give constructive feedback		10	3	7

	PC8. promptly resolve conflicts between self or others		10	2	8
	PC9. work with colleagues to deliver shared goals		10	2	8
	PC10. recognize the contributions made by your colleagues		10	3	7
	Total		**100**	**30**	**70**
8. SSC/N9009 Empower the team	PC1. encourage teams to set goals aligned to the vision and objectives of the organization	100	10	5	5
	PC2. express confidence on the team's ability to accomplish certain tasks		10	5	5
	PC3. encourage team members with diverse view points to express their concerns		10	5	5
	PC4. recognize individual contributions and acknowledge team accomplishments		20	5	15
	PC5. assist team members in delivery of their work		15	5	10
	PC6. support team members in taking independent action		15	5	10
	PC7. develop mechanisms to incorporate and develop ideas from the team		20	5	15
	Total		**100**	**35**	65
9. SSC/N9010 Convince others to take appropriate action in different situations	PC1. gather needs of concerned people	100	10	0	10
	PC2. adapt arguments to consider diverse needs		15	0	15
	PC3. use small wins as milestones to gain support for ideas		25	10	15
	PC4. persuade with the help of concrete examples or evidences		25	10	15
	PC5. take structured actions to reach consensus on the course of action		25	10	15
	Total		**100**	**30**	**70**