Industrial Automation Specialist

QP Code: IAS/Q8005

NSQF Level: 5

Instrumentation, Automation, Surveillance & Communication Sector Skill Council || IASC SSC, 201-202, STBP NSIC Complex, Okhla Industrial Estate, New Delhi 110020

Contents

IAS/Q8005: Industrial Automation Specialist

Brief Job Description

The individual must have interdisciplinary aptitude, pay attention to details, does logical thinking and has ability to work within the factory and customer sites in a team environment and under deadlines.

Personal Attributes

Key attributes for Aircraft Powerplant Technician would include good communication skills, excellent written communication skills and good interpersonal skills with a keen eye for details.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. IAS/N2000: Design and Assemble Automation System

2. IAS/N2001: Technical Support for Installation and Commissioning of Control Panel

3. IAS/N2002: Coordination With Different Stakeholders

4. IAS/N2003: Health and Safety in Workplace

Qualification Pack (QP) Parameters

Sector	Instrumentation
Sub-Sector	Instrumentation & Automation
Occupation	Product Engineering/System Design
Country	India
NSQF Level	5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/ NIL
Minimum Educational Qualification & Experience	Graduate (Electrical, Electronics, Mechatronics, Instrumentation)
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA

Minimum Job Entry Age	21 Years
Last Reviewed On	30/07/2019
Next Review Date	30/06/2020
NSQC Approval Date	03/08/2018
Version	1.0

IAS/N2000: Design and Assemble Automation System

Description

This OS unit is about capturing user requirements, designing the system and testing it to conform to the user specifications.

Scope

The systems include components of different types: electrical components, electronic assemblies, instrumentation and sensors; electro-mechanical, pneumatic and hydraulic components, wiring, Control Panels, PLCs, SCADA, communication components and associated software.This unit/ task covers the following:1. Capturing the industry process2.Capturing user requirements and specifications3.Assist in deciding on deliverables and timelines4.Designing and developing control system application.5.Testing the system developed.6.Achieving quality and productivity standards

Elements and Performance Criteria

Capture the industry process

To be competent, the user/individual on the job must be able to:

PC1. Understand and capture the general value chain of the end user industry

PC2. Understand and capture the manufacturing process/system in the end user industry

PC3. Understand and capture the equipment used in different stages of the process

PC4. Understand and capture the critical stages in the process

PC5. Explain about the possible automation in the existing processes and global trends in automation

Capture user requirements and specifications

To be competent, the user/individual on the job must be able to:

PC6. Capture the client requirement at broad level from the proposal

PC7. Plan for a site visit to capture detailed requirements

PC8. Capture the process flow involved and the critical stages in the process during site visit

PC9. Deduce the safety aspect required in the critical stages of the process

PC10. Capture the industrial and infrastructure process involved and the integration requirement of the processes

PC11. Discuss with client and Capture the automation requirement in the control system

PC12. Capture the purpose for automation and explain to the user about the possible outcomes

PC13. Collect the details of the equipment installed or to be installed

PC14. Collect the requirement specification if already prepared by the user and clarify on technical aspects

PC15. Suggest globally practised and accepted automation systems if the user is not aware of the technical specifications

PC16. Capture the sub systems that are involved in the process

PC17. Capture sensors and actuators requirement.

PC18. Collect information on process logic

PC19. Collect information for operator station screens

PC20. Probe the user by asking multiple questions to have clarity on the user requirement

PC21. Summarize the user requirement specifications and confirm with the client on their understanding

Assist in deciding on deliverables and timelines

To be competent, the user/individual on the job must be able to:

PC22. Decide on whether the system can be developed as per the user requirement

PC23. Support the project manager in calculating the time required for each stage to ensure completion of project

PC24. Assist in preparing the work plan with deliverables and timelines

PC25. Explain the expected output to the user

Design and develop control system application

To be competent, the user/individual on the job must be able to:

PC26. Develop control system application as per user requirement by following the standard operating procedure (SOP) of the organization

PC27. Apply approved engineering concepts, processes and principles in developing the control panel application

PC28. Use organization approved software (system and application software) to develop the system

PC29. Identify the requirement of indications, switchgears and accessories

PC30. Develop the control circuit drawing

PC31. Prepare general arrangement diagram

PC32. Prepare wiring plans

PC33. Integrate the main process system with the sub-systems as per the user requirement (e.g., using communication protocol)

PC34. Ensure that safety aspect of the process is captured in the design plan

PC35. Send the designed panel diagram for review to the customer

PC36. Ensure timely resolution of issues arising during the application development process

PC37. Elevate any issues as soon as identified to reporting manager

PC38. Get concurrence on function design specifications

PC39. Program PLC as per FDF

PC40. Program SCADA Application

PC41. PLC-SCADA Communication

PC42. Complete the application development and get approval of the application developed from the customer engineer

PC43. Calculate the number of days needed for commissioning of the panel at site

PC44. Create backup copies of all designs developed for control panel and store in a secure location

PC45. Document the usage of product (product manual) and store them for future references

Test the system developed

To be competent, the user/individual on the job must be able to:

PC46. Locate field devices and their interface to PLC

PC47. Test the system in off line mode using simulator

PC48. Verify that the system conforms with all the user specifications during testing

PC49. Rework if there are any issues found and fix them

PC50. Test for integration of main system with the sub-systems (if applicable)

PC51. Send the test report for review to the customer

PC52. Perform Factory Acceptance Test (FAT)

PC53. Perform site acceptance test plan

Achieve quality and productivity standards

To be competent, the user/individual on the job must be able to:

PC54. Ensure timely delivery of the control panel design as per agreed timeline

PC55. Ensure that total cost and man hours spent is as per the budget planned

PC56. Ensure compliance with relevant regulations, standards and codes of practices

PC57. Ensure compliance of the application with manufacturing requirements and process capabilities analysis of the organization

PC58. Ensure that the design conforms with normal safety standards

PC59. Develop reliable panels so that the system does not fail during the usage

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Companys code of conduct

KU2. Organization culture

KU3. Companys reporting structure

KU4. Companys documentation policy

KU5. Companys line of business and product offerings

KU6. Companys production policy

KU7. Departments involved with production

KU8. Quality and standards system followed in the company

KU9. Electrical, electronics and instrumentation

KU10. Basics of computers and human machine interface (HMI)

KU11. Standard operating procedure (SOP) of the organization for control panel development process

KU12. Basics of machine safety (including electrical) and normal safety processes

KU13. Quality, standards and guidelines to be followed during design development

KU14. Control system module and technologies used in the automation process

KU15. PLC, DCS programming software

KU16. SCADA, HMI development software

KU17. Application software, installation and debugging

KU18. General arrangement drawing

KU19. Electrical load calculations

KU20. Piping and instrumentation diagram/drawing (P&ID)

KU21. Basics on industrial process involved (example: oil and gas, refinery, etc.) And the stages involved in the process

KU22. Basics on infrastructure process involved in the industry (example: water treatment plant, chilling units, etc.)

KU23. Safety aspects to be inbuilt in the control panel system as per the process requirement

KU24. Instrumentation used in the factory and its wiring concept

KU25. Electrical panel and wiring knowledge

KU26. Testing process and parameters involved in the testing

KU27. Electronics indicators, switchgears and panel accessories

KU28. Sources and methods for obtaining required technical information for the control panel being developed

KU29. IEC standards

KU30. Relevant regulations, standards and codes of practice and their implications on the panel

KU31. How to communicate with shop floor technicians in order to resolve any discrepancies during commissioning

KU32. Basic power systems, motor fundamentals, drive system fundamentals

KU33. Relevant documents and documentation procedures used in the process

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. Compose e mails, letters and other official documents clearly

GS2. Write user requirements

GS3. Write technical specifications

GS4. Write test reports

GS5. Write technical documentation

GS6. Write schedules and timelines

GS7. Read user requirements

GS8. Read technical specifications

GS9. Read standards and regulatory compliance documents

GS10. Read schedules and timelines

GS11. Read drawings

GS12. Question customers appropriately in order to understand the application and the requirements

GS13. Discuss task lists, schedules, and work-loads with co-workers

GS14. Give clear directions to customers

GS15. Keep customers informed about progress

GS16. Avoid using jargon, slang or acronyms when communicating with a customer

GS17. Question customers appropriately in order to understand the nature of the problem and make a diagnosis

GS18. Report issues and problems to managers in clear terms

GS19. Make decisions pertaining to the scope of work

GS20. Make decisions pertaining to the appropriate solution to customer problem

GS21. Make decisions pertaining to readiness of the system for supply

GS22. Make decisions pertaining to readiness of customer site for installation

GS23. Make decisions pertaining to work around for a problem

GS24. Plan and organize project - including requirements, design and integration, testing, installation and commissioning, Customer Acceptance Test and customer feedback

GS25. Anticipate issues and have alternate strategy

GS26. Understand real needs of the customer and suggest most appropriate solution

GS27. Support customer when they need help

GS28. Make customer happy and make them want to work with the company

GS29. Manage relationships with customers who may be stressed, frustrated, confused, or angry

GS30. Build customer relationships and rapport which promotes two way business

GS31. Think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s)

GS32. Deal with clients lacking the technical background to solve the problem on their behalf

GS33. Identify immediate or temporary solutions to resolve delays - and implement the proper solution when possible

GS34. Use the existing information to arrive at actionable decision points

GS35. Use the existing information for improving the customer satisfaction

GS36. Use the existing information to optimize solution and company business

GS37. Analyze problems and identify causes and possible solutions

GS38. Apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action

GS39. Anticipate problems, risks and opportunities and utilize these for mitigation and business optimization

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Capture the industry process	**7**	**10**	**-**	**-**
PC1. Understand and capture the general value chain of the end user industry	1	2	-	-
PC2. Understand and capture the manufacturing process/system in the end user industry	2	2	-	-
PC3. Understand and capture the equipment used in different stages of the process	1	2	-	-
PC4. Understand and capture the critical stages in the process	1	2	-	-
PC5. Explain about the possible automation in the existing processes and global trends in automation	2	2	-	-
Capture user requirements and specifications	**28**	**47**	**-**	**-**
PC6. Capture the client requirement at broad level from the proposal	2	2	-	-
PC7. Plan for a site visit to capture detailed requirements	1	2	-	-
PC8. Capture the process flow involved and the critical stages in the process during site visit	1	3	-	-
PC9. Deduce the safety aspect required in the critical stages of the process	2	2	-	-
PC10. Capture the industrial and infrastructure process involved and the integration requirement of the processes	2	2	-	-
PC11. Discuss with client and Capture the automation requirement in the control system	2	3	-	-
PC12. Capture the purpose for automation and explain to the user about the possible outcomes	2	3	-	-
PC13. Collect the details of the equipment installed or to be installed	1	3	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. Collect the requirement specification if already prepared by the user and clarify on technical aspects	1	3	-	-
PC15. Suggest globally practised and accepted automation systems if the user is not aware of the technical specifications	1	3	-	-
PC16. Capture the sub systems that are involved in the process	1	3	-	-
PC17. Capture sensors and actuators requirement.	2	3	-	-
PC18. Collect information on process logic	2	3	-	-
PC19. Collect information for operator station screens	2	3	-	-
PC20. Probe the user by asking multiple questions to have clarity on the user requirement	2	3	-	-
PC21. Summarize the user requirement specifications and confirm with the client on their understanding	4	6	-	-
Assist in deciding on deliverables and timelines	**5**	**10**	**-**	**-**
PC22. Decide on whether the system can be developed as per the user requirement	2	3	-	-
PC23. Support the project manager in calculating the time required for each stage to ensure completion of project	1	3	-	-
PC24. Assist in preparing the work plan with deliverables and timelines	1	1	-	-
PC25. Explain the expected output to the user	1	3	-	-
Design and develop control system application	**50**	**77**	**-**	**-**
PC26. Develop control system application as per user requirement by following the standard operating procedure (SOP) of the organization	2	3	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC27. Apply approved engineering concepts, processes and principles in developing the control panel application	2	3	-	-
PC28. Use organization approved software (system and application software) to develop the system	1	3	-	-
PC29. Identify the requirement of indications, switchgears and accessories	2	3	-	-
PC30. Develop the control circuit drawing	4	6	-	-
PC31. Prepare general arrangement diagram	2	3	-	-
PC32. Prepare wiring plans	2	3	-	-
PC33. Integrate the main process system with the sub-systems as per the user requirement (e.g., using communication protocol)	2	3	-	-
PC34. Ensure that safety aspect of the process is captured in the design plan	2	3	-	-
PC35. Send the designed panel diagram for review to the customer	2	2	-	-
PC36. Ensure timely resolution of issues arising during the application development process	1	3	-	-
PC37. Elevate any issues as soon as identified to reporting manager	1	2	-	-
PC38. Get concurrence on function design specifications	1	1	-	-
PC39. Program PLC as per FDF	4	6	-	-
PC40. Program SCADA Application	4	6	-	-
PC41. PLC-SCADA Communication	4	6	-	-
PC42. Complete the application development and get approval of the application developed from the customer engineer	4	6	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC43. Calculate the number of days needed for commissioning of the panel at site	4	6	-	-
PC44. Create backup copies of all designs developed for control panel and store in a secure location	4	6	-	-
PC45. Document the usage of product (product manual) and store them for future references	2	3	-	-
Test the system developed	**14**	**20**	**-**	**-**
PC46. Locate field devices and their interface to PLC	4	6	-	-
PC47. Test the system in off line mode using simulator	1	2	-	-
PC48. Verify that the system conforms with all the user specifications during testing	2	2	-	-
PC49. Rework if there are any issues found and fix them	1	2	-	-
PC50. Test for integration of main system with the sub-systems (if applicable)	1	3	-	-
PC51. Send the test report for review to the customer	1	2	-	-
PC52. Perform Factory Acceptance Test (FAT)	2	2	-	-
PC53. Perform site acceptance test plan	2	1	-	-
Achieve quality and productivity standards	**11**	**21**	**-**	**-**
PC54. Ensure timely delivery of the control panel design as per agreed timeline	1	3	-	-
PC55. Ensure that total cost and man hours spent is as per the budget planned	1	3	-	-
PC56. Ensure compliance with relevant regulations, standards and codes of practices	1	3	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC57. Ensure compliance of the application with manufacturing requirements and process capabilities analysis of the organization	4	6	-	-
PC58. Ensure that the design conforms with normal safety standards	2	3	-	-
PC59. Develop reliable panels so that the system does not fail during the usage	2	3	-	-
NOS Total	**115**	**185**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	IAS/N2000
NOS Name	Design and Assemble Automation System
Sector	Instrumentation
Sub-Sector	Instrumentation & Automation
Occupation	Product Engineering/System Design
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	30/07/2016
Next Review Date	30/07/2019
NSQC Clearance Date	03/08/2018

IAS/N2001: Technical Support for Installation and Commissioning of Control Panel

Description

This OS unit is about providing Technical Support for commissioning and installing the control panel at the project site identified and ensuring its integration with the customer system and proper operation

Scope

This unit/ task covers the following: Capturing work requirement Providing Technical Support for installation and commissioning Rectifying identified errors Achieving productivity, quality and safety standards as per company's norms

Elements and Performance Criteria

Capture work requirement

To be competent, the user/individual on the job must be able to:

PC1. Interact with the customer in order to understand and capture the site requirements, readiness and commissioning time schedule

PC2. Plan the commissioning activities in consultation with the installation and commissioning team, based on customers requirements

PC3. Understand the design drawing and clarify doubts/issues before going to the site

PC4. Use prescribed drawings, job instructions or work manuals

PC5. Check availability of panel and tools required for installation

PC6. Check availability of resources at customer site

Provide Technical Support for Installation and Commissioning

To be competent, the user/individual on the job must be able to:

PC7. Ensure adequacy of working space, access and maintenance facilities at the site

PC8. Supervise technicians to visually check the internal panel wiring and ensure that it is in accordance with the design drawing

PC9. Carry out insulation check of internal panel wiring and devices within the panel

PC10. Ensure that all devices in the panel are dirt free and the packaging has been completely removed

PC11. Check if batteries and chargers have been assembled in accordance with the manufacturers recommended procedures

PC12. Prepare the work sites test report and document for future use

PC13. Ensure required tools for technicians to carry out the commissioning process

PC14. Identify the conductors size and capacity for installation

PC15. Ensure that the panel is positioned as prescribed, following safety norms

PC16. Supervise technicians to connect with attention to socket outlets, switches and protective conductors

PC17. Perform settings as per customer requirements on the equipment in each of the panels

PC18. Test all control system interlocks

PC19. Check each digital control point by comparing the command at the control panel and status of the device that it controls

PC20. Ensure that fuses, switches and other protective devices are labelledcorrectly

PC21. Instruct to follow grounding and earthing procedures while commissioning

PC22. Instruct to put up danger and warning notices, if necessary

PC23. Ensure to follow company approved standard procedures by technicians in erection and commissioning process

PC24. Test continuity, insulation resistance, functions of all devices, etc., aftercompletion of installation

PC25. Assist technicians for commissioning control panel

PC26. Assist the customer in any tests to carry out on the installed panel

PC27. Use the wiring diagram accurately to meet the specifications

PC28. Ensure that applicable local electrical codes and standards are use

Rectify identified errors

To be competent, the user/individual on the job must be able to:

PC29. Give technical support immediately to the technicians to rectify any errors identified

PC30. Report defective material or inadequate numbers to seniors

PC31. Check the physical condition of the instruments

PC32. Report about inadequate quantity of consumables such as connectors, screws, nuts, etc.

Achieve productivity, quality and safetystandards as percompanys norms

To be competent, the user/individual on the job must be able to:

PC33. Achieve 100% work schedule as planned for the week

PC34. Meet 100% daily or monthly target

PC35. Achieve zero errors in commissioning as per company policy

PC36. Achieve zero component damage

PC37. Keep work area clean and organized

PC38. Identify problems and alert in time

PC39. Achieve 100% compliance with health and safety guidelines and rules

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Companys policies on: incentives, delivery standards and personnel management, customer management

KU2. Reporting and documentation processes

KU3. Importance of the individuals role in the workflow

KU4. Reporting structure

KU5. Electrical, electronics and instrumentation

KU6. Electro-mechanical assembly and wiring instructions

KU7. General principles of wiring and assembly

KU8. Generation, transmission and distribution principles of electricity

KU9. Automation and electro mechanical control systems

KU10. Operation of PLCs, relays, contactors, circuit breakers, solenoids, actuators, controllers etc.

KU11. Motors, generators, starters and their controls

KU12. Safety norms in handling electrical/electronic components and electrostatic discharge

KU13. Customer safety requirements and other applicable safety standards

KU14. Fundamentals of electricity such as Ohms law, difference between AC andDC, series and parallel connections

KU15. Specific safety precautions while working in an electronic assembly unit

KU16. Protective gear such as helmets, goggles, gloves, rubber shoes, etc.

KU17. Selection and maintenance of various tools used during the installation process

KU18. Frequently occurring errors, causes and preventive measures

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. Compose e mails, letters and other official documents clearly

GS2. Write site requirements

GS3. Write acceptance test reports

GS4. Write / modify technical documentation

GS5. Write schedules and timelines

GS6. Write issues, problems and resolutions

GS7. Read user requirements

GS8. Read technical specifications

GS9. Read standards and regulatory compliance documents

GS10. Read schedules and timelines

GS11. Read drawings

GS12. Question customers in order to understand the site requirements and readiness

GS13. Discuss task lists, schedules, and work-loads with co-workers

GS14. Give clear directions to customers

GS15. Keep customers informed about progress

GS16. Avoid using jargon, slang or acronyms when communicating with a customer

GS17. Question customers appropriately in order to understand the nature of the problem and make a diagnosis

GS18. Report issues and problems to managers in clear terms

GS19. Make decisions pertaining to the scope of work

GS20. Make decisions pertaining to the appropriate solution to customer problem

GS21. Make decisions pertaining to readiness of the system for supply

GS22. Make decisions pertaining to readiness of customer site for installation

GS23. Make decisions pertaining to work around for a problem

GS24. Plan and organize installation and commissioning, Customer AcceptanceTest and customer feedback

GS25. Anticipate issues and have alternate strategy

GS26. Understand real needs of the customer and suggest most appropriate solution

GS27. Support customer when they need help

GS28. Make customer happy and make them want to work with the company

GS29. Manage relationships with customers who may be stressed, frustrated, confused, or angry

GS30. Build customer relationships and rapport which promotes two way business

GS31. Think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s)

GS32. Deal with clients lacking the technical background to solve the problem on their behalf

GS33. Identify immediate or temporary solutions to resolve delays - and implement the proper solution when possible

GS34. Use the existing information to arrive at actionable decision points

GS35. Use the existing information for improving the customer satisfaction

GS36. Use the existing information to optimize solution and company business

GS37. Analyze problems and identify causes and possible solutions

GS38. Apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action

GS39. Anticipate problems, risks and opportunities and utilize these for mitigationand business optimization

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Capture work requirement	**10**	**12**	**-**	**-**
PC1. Interact with the customer in order to understand and capture the site requirements, readiness and commissioning time schedule	2	3	-	-
PC2. Plan the commissioning activities in consultation with the installation and commissioning team, based on customers requirements	2	2	-	-
PC3. Understand the design drawing and clarify doubts/issues before going to the site	2	3	-	-
PC4. Use prescribed drawings, job instructions or work manuals	2	2	-	-
PC5. Check availability of panel and tools required for installation	1	1	-	-
PC6. Check availability of resources at customer site	1	1	-	-
Provide Technical Support for Installation and Commissioning	**41**	**91**	**-**	**-**
PC7. Ensure adequacy of working space, access and maintenance facilities at the site	4	6	-	-
PC8. Supervise technicians to visually check the internal panel wiring and ensure that it is in accordance with the design drawing	1	4	-	-
PC9. Carry out insulation check of internal panel wiring and devices within the panel	1	2	-	-
PC10. Ensure that all devices in the panel are dirt free and the packaging has been completely removed	2	3	-	-
PC11. Check if batteries and chargers have been assembled in accordance with the manufacturers recommended procedures	1	4	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. Prepare the work sites test report and document for future use	1	2	-	-
PC13. Ensure required tools for technicians to carry out the commissioning process	2	3	-	-
PC14. Identify the conductors size and capacity for installation	1	1	-	-
PC15. Ensure that the panel is positioned as prescribed, following safety norms	1	3	-	-
PC16. Supervise technicians to connect with attention to socket outlets, switches and protective conductors	1	4	-	-
PC17. Perform settings as per customer requirements on the equipment in each of the panels	3	7	-	-
PC18. Test all control system interlocks	4	6	-	-
PC19. Check each digital control point by comparing the command at the control panel and status of the device that it controls	1	4	-	-
PC20. Ensure that fuses, switches and other protective devices are labelledcorrectly	1	2	-	-
PC21. Instruct to follow grounding and earthing procedures while commissioning	1	1	-	-
PC22. Instruct to put up danger and warning notices, if necessary	1	4	-	-
PC23. Ensure to follow company approved standard procedures by technicians in erection and commissioning process	3	7	-	-
PC24. Test continuity, insulation resistance, functions of all devices, etc., aftercompletion of installation	2	3	-	-
PC25. Assist technicians for commissioning control panel	3	7	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC26. Assist the customer in any tests to carry out on the installed panel	3	7	-	-
PC27. Use the wiring diagram accurately to meet the specifications	1	4	-	-
PC28. Ensure that applicable local electrical codes and standards are use	3	7	-	-
Rectify identified errors	**6**	**16**	**-**	**-**
PC29. Give technical support immediately to the technicians to rectify any errors identified	1	4	-	-
PC30. Report defective material or inadequate numbers to seniors	3	7	-	-
PC31. Check the physical condition of the instruments	1	2	-	-
PC32. Report about inadequate quantity of consumables such as connectors, screws, nuts, etc.	1	3	-	-
Achieve productivity, quality and safetystandards as percompanys norms	**8**	**16**	**-**	**-**
PC33. Achieve 100% work schedule as planned for the week	1	2	-	-
PC34. Meet 100% daily or monthly target	1	2	-	-
PC35. Achieve zero errors in commissioning as per company policy	1	4	-	-
PC36. Achieve zero component damage	1	2	-	-
PC37. Keep work area clean and organized	1	2	-	-
PC38. Identify problems and alert in time	1	2	-	-
PC39. Achieve 100% compliance with health and safety guidelines and rules	2	2	-	-
NOS Total	**65**	**135**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	IAS/N2001
NOS Name	Technical Support for Installation and Commissioning of Control Panel
Sector	Instrumentation
Sub-Sector	Instrumentation & Automation
Occupation	Product Engineering/System Design
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	30/07/2016
Next Review Date	30/07/2019
NSQC Clearance Date	03/08/2018

IAS/N2002: Coordination With Different Stakeholders

Description

This OS unit is about Coordination with stakeholders inside and outside the organization to achieve smooth work flow and customer satisfaction. The stakeholders are - client teams and vendors; and within the organization - sales, purchase, fabrication, testing, installation, support departments/groups, colleagues and seniors.

Scope

This unit/ task covers the following: Interacting with client teams to understand the needs Coordinating with the Sales team and Project Manager, if any, to have clear understanding of scope, deliverables, cost and timelines. Coordinating with other vendors involved in the client project and ensure that the scopes and interfaces match Coordinating with other teams and departments in the organization such as Purchase, Mechanical, Hydraulic, Electrical, Electronic, Assembly, Testing, Support and Software Coordinating with vendors and subcontractors selected for fulfillment of the order Communicating with colleagues and supervisor for timely and quality execution

Elements and Performance Criteria

Interact with ClientTeams

To be competent, the user/individual on the job must be able to:

PC1. Listen to client stakeholders and understand their needs. Note conflicting needs of different stakeholders, if any.

PC2. Ask questions to clarify points and make sure that there are no significant unknowns about the requirements and the application

PC3. Identify different solution options that meet client needs and present these options to the client with pros and cons.

PC4. Get client preference for the solution

PC5. Enquire about other vendors involved in the project and ensure their scope and interfaces are compatible with the proposed solution

PC6. Develop detailed design of the solution, cost and time (in consultation with internal teams) and present this to the client stakeholders

PC7. Finalize ordering in coordination with the sales team

PC8. Finalize specifications of the User Acceptance test with the client

PC9. Prepare Project Plan and share with the client

PC10. Inform client about site requirements and ensure that it is understood and accepted

PC11. Coordinate with the client about site readiness

PC12. Coordinate installation and commissioning of the solution at site

PC13. Demonstrate the system performance at the site and get client report of acceptance

PC14. Maintain communication with the client about usability and other issues and provide timely resolution. Obtain feedback and ensure positive outlook

Coordinate with SalesTeam

Qualification Pack

To be competent, the user/individual on the job must be able to:

PC15. Understand the client account, the organization goals and high level needs of the client from the frontline sales team

PC16. Identify and meet important stakeholders in the client organization

PC17. Discuss different solution options that meet client needs with pros and cons

PC18. Provide the technical specifications and the cost/time estimates to the sales team to help them make client proposal

PC19. Assist the sales team to win the order, by making presentations and with supporting data and documentation

PC20. Study the purchase order in detail and make sure that this is in line with the proposal. Point out any discrepancies and resolve

PC21. Prepare Specifications and Project Plan and share with the sales team

PC22. Keep sales team informed about system performance at the site and client report of acceptance

PC23. Share client feedback and resolve issues if any

PC24. Coordinate with the sales team about service contract and AMC

Coordinate with other Teams and Departments in the Organization

To be competent, the user/individual on the job must be able to:

PC25. Communicate and Coordinate with the Project Manager or any other manager if required, per organization structure and practices

PC26. Prepare detailed BOQ and share with the Purchase department to facilitate procurement

PC27. Coordinate with the Purchase department to finalize vendors and subcontractors

PC28. Share Project Specifications and Project Plan and with the concerned departments/ groups in the organization Purchase, Fabrication, Assembly, Software Development / Programming / Testing and Documentation etc.

PC29. Share site requirements with the Installation & Commissioning (I&C) team

PC30. Receive parts and spares from stores

PC31. Deposit unused material / faulty material / tools to stores

PC32. Coordinate with the Integration and Testing team for the factory inspection by client, if specified in the order

PC33. Coordinate factory inspection by the client, and follow up rectifications of shortcomings, if any

PC34. Coordinate installation and commissioning of the system after receipt confirmed at site.

PC35. Coordinate with I&C team for system performance test at the site.

PC36. Coordinate with I&C team for the user training.

PC37. Share client feedback with all teams and resolve issues if any

Coordinate with Vendors and Subcontractors

To be competent, the user/individual on the job must be able to:

PC38. Explain the specifications, scope and timelines of the parts/services to vendors and subcontractors and ensure that they understand and accept

PC39. Guide / assist the vendors technically as required to ensure quality and timely delivery

PC40. Inspect vendor / subcontractor facilities to ensure that they have the right expertise, infrastructure and capacity to deliver

PC41. Prepare alternate plans in consultation with procurement department for outsourced work

PC42. Perform intermediate and pre-dispatch tests at vendor premises, if required.

PC43. Support vendors to deliver quality products and services in time.

Coordinate withColleagues

To be competent, the user/individual on the job must be able to:

PC44. Have clearly defined responsibilities and backup plans for all team members

PC45. Share plans, deliverables and expectations with concerned team members

PC46. Have regular team meetings to share progress, issues and resolutions

PC47. Share and celebrate team success

PC48. Help new members to settle down and perform

PC49. Support team members in delivering performance

PC50. Resolve inter-personnel conflicts and achieve smooth workflow

PC51. Pass on customer complaints to colleagues in respective geographical area

PC52. Share knowledge and experience gained through every day work

Communicate withSupervisor / Manager

To be competent, the user/individual on the job must be able to:

PC53. Communicate and Coordinate with the Project Manager or any other manager if required, per organization structure and practices.

PC54. Report problems identified in the field

PC55. Escalate customer concerns that are not being handled properly in the field

PC56. Resolve personnel issues

PC57. Receive feedback on work standards and customer satisfaction

PC58. Communicate any potential hazards at a particular location

PC59. Deliver work of expected quality despite constraints

PC60. Provide feedback to seniors about a happy or dissatisfied customer

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Companys policies on: incentives, delivery standards, and personnel management

KU2. Importance of the individuals role in the workflow

KU3. Reporting structure

KU4. How to communicate effectively using the organization specified tools and methods

KU5. How to build team coordination for installation, commissioning and customer support

KU6. To deliver product to next work process on time

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. Compose e mails, letters, memos, reminders, schedules and other team documents clearly

GS2. Share issues, problems and resolutions

GS3. Share knowledge and information with team mates

GS4. Read mails, messages, alerts, schedules and timelines

GS5. Read pictures, drawings, notes relating to site and teamwork

GS6. Question co-workers in order to understand the needs and issues

GS7. Discuss task lists, schedules, and work-loads with co-workers

GS8. Give clear directions and solutions to co-workers

GS9. Keep co-workers informed about progress

GS10. Report issues and problems to co-workers and managers in clear terms

GS11. Make decisions pertaining to role of self and co-workers, in line with company policies

GS12. Make decisions pertaining to the appropriate solution to customer problem in discussion with co-workers

GS13. Plan and organize installation and commissioning, Customer Acceptance Test and customer feedback involving co-workers

GS14. Discuss issues and have alternate strategy with co-workers

GS15. Discuss customer needs with co-workers and identify most appropriate solution

GS16. Discuss problems with co-workers, evaluate the possible solution(s) and arrive at optimum /best possible solution(s)

GS17. Discuss immediate or temporary solutions with co-workers to resolve delays

GS18. Discuss use the available information with co-workers to arrive at actionable decision points

GS19. Analyze problems in team and identify causes and possible solutions

GS20. Collaborate with co-workers to analyses , and evaluate the information gathered from collective observation, experience, reasoning, or communication, as a guide to teamwork

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Interact with ClientTeams	**26**	**40**	-	-
PC1. Listen to client stakeholders and understand their needs. Note conflicting needs of different stakeholders, if any.	2	3	-	-
PC2. Ask questions to clarify points and make sure that there are no significant unknowns about the requirements and the application	2	3	-	-
PC3. Identify different solution options that meet client needs and present these options to the client with pros and cons.	4	4	-	-
PC4. Get client preference for the solution	1	2	-	-
PC5. Enquire about other vendors involved in the project and ensure their scope and interfaces are compatible with the proposed solution	1	2	-	-
PC6. Develop detailed design of the solution, cost and time (in consultation with internal teams) and present this to the client stakeholders	4	6	-	-
PC7. Finalize ordering in coordination with the sales team	1	2	-	-
PC8. Finalize specifications of the User Acceptance test with the client	2	3	-	-
PC9. Prepare Project Plan and share with the client	2	3	-	-
PC10. Inform client about site requirements and ensure that it is understood and accepted	1	2	-	-
PC11. Coordinate with the client about site readiness	2	3	-	-
PC12. Coordinate installation and commissioning of the solution at site	2	3	-	-
PC13. Demonstrate the system performance at the site and get client report of acceptance	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. Maintain communication with the client about usability and other issues and provide timely resolution. Obtain feedback and ensure positive outlook	1	2	-	-
Coordinate with SalesTeam	**20**	**30**	**-**	**-**
PC15. Understand the client account, the organization goals and high level needs of the client from the frontline sales team	2	3	-	-
PC16. Identify and meet important stakeholders in the client organization	1	2	-	-
PC17. Discuss different solution options that meet client needs with pros and cons	2	3	-	-
PC18. Provide the technical specifications and the cost/time estimates to the sales team to help them make client proposal	3	3	-	-
PC19. Assist the sales team to win the order, by making presentations and with supporting data and documentation	4	6	-	-
PC20. Study the purchase order in detail and make sure that this is in line with the proposal. Point out any discrepancies and resolve	2	3	-	-
PC21. Prepare Specifications and Project Plan and share with the sales team	1	2	-	-
PC22. Keep sales team informed about system performance at the site and client report of acceptance	1	2	-	-
PC23. Share client feedback and resolve issues if any	2	3	-	-
PC24. Coordinate with the sales team about service contract and AMC	2	3	-	-
Coordinate with other Teams and Departments in the Organization	**23**	**37**	**-**	**-**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC25. Communicate and Coordinate with the Project Manager or any other manager if required, per organization structure and practices	2	3	-	-
PC26. Prepare detailed BOQ and share with the Purchase department to facilitate procurement	2	3	-	-
PC27. Coordinate with the Purchase department to finalize vendors and subcontractors	2	3	-	-
PC28. Share Project Specifications and Project Plan and with the concerned departments/ groups in the organization Purchase, Fabrication, Assembly, Software Development / Programming / Testing and Documentation etc.	2	4	-	-
PC29. Share site requirements with the Installation & Commissioning (I&C) team	1	2	-	-
PC30. Receive parts and spares from stores	1	2	-	-
PC31. Deposit unused material / faulty material / tools to stores	1	2	-	-
PC32. Coordinate with the Integration and Testing team for the factory inspection by client, if specified in the order	2	3	-	-
PC33. Coordinate factory inspection by the client, and follow up rectifications of shortcomings, if any	2	3	-	-
PC34. Coordinate installation and commissioning of the system after receipt confirmed at site.	2	3	-	-
PC35. Coordinate with I&C team for system performance test at the site.	2	3	-	-
PC36. Coordinate with I&C team for the user training.	2	3	-	-
PC37. Share client feedback with all teams and resolve issues if any	2	3	-	-
Coordinate with Vendors and Subcontractors	**12**	**18**	**-**	**-**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC38. Explain the specifications, scope and timelines of the parts/services to vendors and subcontractors and ensure that they understand and accept	2	3	-	-
PC39. Guide / assist the vendors technically as required to ensure quality and timely delivery	2	3	-	-
PC40. Inspect vendor / subcontractor facilities to ensure that they have the right expertise, infrastructure and capacity to deliver	2	3	-	-
PC41. Prepare alternate plans in consultation with procurement department for outsourced work	2	3	-	-
PC42. Perform intermediate and pre-dispatch tests at vendor premises, if required.	2	3	-	-
PC43. Support vendors to deliver quality products and services in time.	2	3	-	-
Coordinate withColleagues	**15**	**24**	**-**	**-**
PC44. Have clearly defined responsibilities and backup plans for all team members	2	3	-	-
PC45. Share plans, deliverables and expectations with concerned team members	2	3	-	-
PC46. Have regular team meetings to share progress, issues and resolutions	2	3	-	-
PC47. Share and celebrate team success	1	2	-	-
PC48. Help new members to settle down and perform	2	3	-	-
PC49. Support team members in delivering performance	1	2	-	-
PC50. Resolve inter-personnel conflicts and achieve smooth workflow	2	3	-	-
PC51. Pass on customer complaints to colleagues in respective geographical area	2	3	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC52. Share knowledge and experience gained through every day work	1	2	-	-
Communicate withSupervisor / Manager	**16**	**24**	**-**	**-**
PC53. Communicate and Coordinate with the Project Manager or any other manager if required, per organization structure and practices.	2	3	-	-
PC54. Report problems identified in the field	2	3	-	-
PC55. Escalate customer concerns that are not being handled properly in the field	2	3	-	-
PC56. Resolve personnel issues	2	3	-	-
PC57. Receive feedback on work standards and customer satisfaction	2	3	-	-
PC58. Communicate any potential hazards at a particular location	2	3	-	-
PC59. Deliver work of expected quality despite constraints	2	3	-	-
PC60. Provide feedback to seniors about a happy or dissatisfied customer	2	3	-	-
NOS Total	**112**	**173**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	IAS/N2002
NOS Name	Coordination With Different Stakeholders
Sector	Instrumentation
Sub-Sector	Instrumentation & Automation
Occupation	Product Engineering/System Design
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	30/07/2016
Next Review Date	30/07/2019
NSQC Clearance Date	03/08/2018

IAS/N2003: Health and Safety in Workplace

Description

This OS unit is about following adequate safety procedures to make work environment safe and healthy.

Scope

This unit/ task covers the following: Following safety measures and standards Maintaining good health and posture

Elements and Performance Criteria

Follow safety measures and standards

To be competent, the user/individual on the job must be able to:

PC1. Comply with general and special safety procedures followed in the company
PC2. Follow specified safety procedures while handling an equipment, hazardous material or tool
PC3. Remove ties, finger rings, or any other metal objects which may interfere with the work
PC4. Use safety materials such as goggles, gloves, ear plugs, caps, ESD pins, covers, shoes, etc.
PC5. Escalate about any hazardous materials or things found in the premises
PC6. Report about any breach of safety procedure in the company
PC7. Ensure zero accidents at work
PC8. Avoid damage of components due to negligence in ESD procedures
PC9. Regularly participate in fire drills or other safety related workshops organized by the company
PC10. Ensure no loss for company due to safety negligence

Maintain good health and posture

To be competent, the user/individual on the job must be able to:

PC11. Maintain appropriate posture, especially in long hours of sitting or standing position and in handling heavy materials
PC12. Participate in company organized health sessions such as yoga, physiotherapy or games
PC13. Handle heavy and hazardous materials with care and using appropriate tools and handling equipment such as trolleys, jacks and ladders

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Companys policies on: incentives, delivery standards, and personnel management
KU2. Company occupational safety and health policies
KU3. Company emergency evacuation procedure
KU4. Companys medical policy

KU5. How to maintain the work area safe and secure

KU6. How to handle hazardous materials, tools and equipment

KU7. Emergency procedures to be followed such as fire accidents, electrocution etc

KU8. Long term value of good posture and use of appropriate handling equipment

KU9. Safety regulations and standards and how to apply these

KU10. Electrical grounding practices

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. Compose e mails, letters, memos, reminders, and other documents clearly

GS2. Share knowledge, issues, problems and resolutions relating to safety and health

GS3. Read mails, messages, alerts

GS4. Read pictures, drawings, notes relating to safety and health

GS5. Question co-workers in order to understand the safety and health issues

GS6. Inform co-workers about safety and health issues

GS7. Report issues and problems relating to safety and health to managers in clear terms

GS8. Make decisions pertaining to safety and health issues at workplace

GS9. Make decisions about escalating safety and health issues at workplace to managers

GS10. Plan and organize work conforming to the safety and health norms of the company

GS11. Discuss customer needs with co-workers and identify most appropriate solution

GS12. Discuss problems relating to the safety and health, evaluate the possible solution(s) and arrive at optimum /best possible solution(s)in consultation with concerned people

GS13. Discuss use the available information with co-workers to arrive at actionable decision points

GS14. Analyze problems in team and identify causes and possible solutions

GS15. Collaborate with co-workers to analyze, and evaluate the information gathered from collective observation, experience, reasoning, or communication, as a guide to teamwork

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Follow safety measures and standards	**14**	**24**	**-**	**-**
PC1. Comply with general and special safety procedures followed in the company	2	1	-	-
PC2. Follow specified safety procedures while handling an equipment, hazardous material or tool	1	1	-	-
PC3. Remove ties, finger rings, or any other metal objects which may interfere with the work	2	2	-	-
PC4. Use safety materials such as goggles, gloves, ear plugs, caps, ESD pins, covers, shoes, etc.	1	3	-	-
PC5. Escalate about any hazardous materials or things found in the premises	1	3	-	-
PC6. Report about any breach of safety procedure in the company	1	2	-	-
PC7. Ensure zero accidents at work	2	3	-	-
PC8. Avoid damage of components due to negligence in ESD procedures	1	3	-	-
PC9. Regularly participate in fire drills or other safety related workshops organized by the company	2	3	-	-
PC10. Ensure no loss for company due to safety negligence	1	3	-	-
Maintain good health and posture	**6**	**6**	**-**	**-**
PC11. Maintain appropriate posture, especially in long hours of sitting or standing position and in handling heavy materials	2	2	-	-
PC12. Participate in company organized health sessions such as yoga, physiotherapy or games	2	2	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. Handle heavy and hazardous materials with care and using appropriate tools and handling equipment such as trolleys, jacks and ladders	2	2	-	-
NOS Total	**20**	**30**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	IAS/N2003
NOS Name	Health and Safety in Workplace
Sector	Instrumentation
Sub-Sector	Instrumentation & Automation
Occupation	Product Engineering/System Design
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	30/07/2016
Next Review Date	30/07/2019
NSQC Clearance Date	03/08/2018

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) (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. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).

4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.

5. In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.

6. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack

Recommended Pass % : 70

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
IAS/N2000.Design and Assemble Automation System	115	185	-	-	300	35
IAS/N2001.Technical Support for Installation and Commissioning of Control Panel	65	135	-	-	200	30
IAS/N2002.Coordination With Different Stakeholders	112	173	-	-	285	30
IAS/N2003.Health and Safety in Workplace	20	30	-	-	50	5
Total	**312**	**523**	**-**	**-**	**835**	**100**

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training

Glossary

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 functions 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 (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) 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 OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
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 (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order 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.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
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.