

QUALIFICATION PACK – OCCUPATIONAL STANDARDS FOR AEROSPACE & AVIATION INDUSTRY



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What are Occupational Standards(OS)?

- OS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- OS 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

Qualification Pack – Technical Services Engineer

SECTOR: AEROSPACE AND AVIATION

SUB-SECTOR: Maintenance and Repair Organisation

OCCUPATION: Technical Services

REFERENCE ID: AAS/Q2101

ALIGNED TO: NCO-2015/NIL

Technical Services Engineer assists the maintenance department to perform maintenance on aircraft.

Brief Job Description: A Technical Services Engineer is responsible for assisting the Marketing Department in analysing major engineering projects for future contracts, maintenance and control of Contracted customers' Maintenance Schedules, control and distribution of all technical information received by Airline/MRO, establishing technical standards for maintenance, repair and overhaul of aircraft structures, engines and components etc.

Personal Attributes: key attributes for Technical Services Engineer would include good communication skills, excellent written communication skills and good interpersonal skills with a keen eye for details.

| | | | |
|---|---|-------------------------|-------------------|
| Qualifications Pack Code | AAS/Q2101 | | |
| Job Role | Technical Services Engineer | | |
| Credits (NSQF) | TBD | Version number | 1.0 |
| Sector | Aviation & Aerospace | Drafted on | 19/01/2017 |
| Sub-sector | Airline | Last reviewed on | 15/03/2017 |
| Occupation | Technical Services | Next review date | 15/03/2020 |
| NSQC Clearance On | NA | | |
| Job Role | Technical Services Engineer | | |
| Role Description | A Technical Services Engineer is responsible for assisting the Marketing Department in analysing major engineering projects for future contracts, maintenance and control of Contracted customers' Maintenance Schedules, control and distribution of all technical information received by Airline/MRO, establishing technical standards for maintenance, repair and overhaul of aircraft structures, engines and components etc | | |
| NSQF | 5 | | |
| Minimum Educational Qualifications | Graduate (B.E/B.Tech) or its equivalent | | |
| Maximum Educational Qualifications | Not applicable | | |
| Training (Suggested but not mandatory) | Aviation security | | |
| Minimum Job Entry Age | 21 years | | |
| Experience | Not Applicable | | |
| Applicable National Occupational Standards (NOS) | <p>Compulsory:</p> <ol style="list-style-type: none"> AAS/N0502 Follow safety and security procedures AAS/N2101 Provide technical services to the maintenance team <p>Optional: Not Applicable</p> | | |
| Performance Criteria | As described in the relevant OS units | | |

Definitions

| Keywords /Terms | Description |
|-----------------------------|---|
| Sector | Sector is a conglomeration of different business operations having similar businesses 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. |
| Function | Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS. |
| Job Role | Job role defines a unique set of functions that together form a unique employment opportunity in an organisation. |
| 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. |
| NOS | NOS are Occupational Standards which apply uniquely in the Indian context |
| Qualifications Pack Code | Qualifications Pack Code is a unique reference code that identifies a qualifications pack. |
| Qualifications Pack | Qualifications Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification 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. |
| Knowledge and Understanding | Knowledge and Understanding 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. |

National Occupational Standard



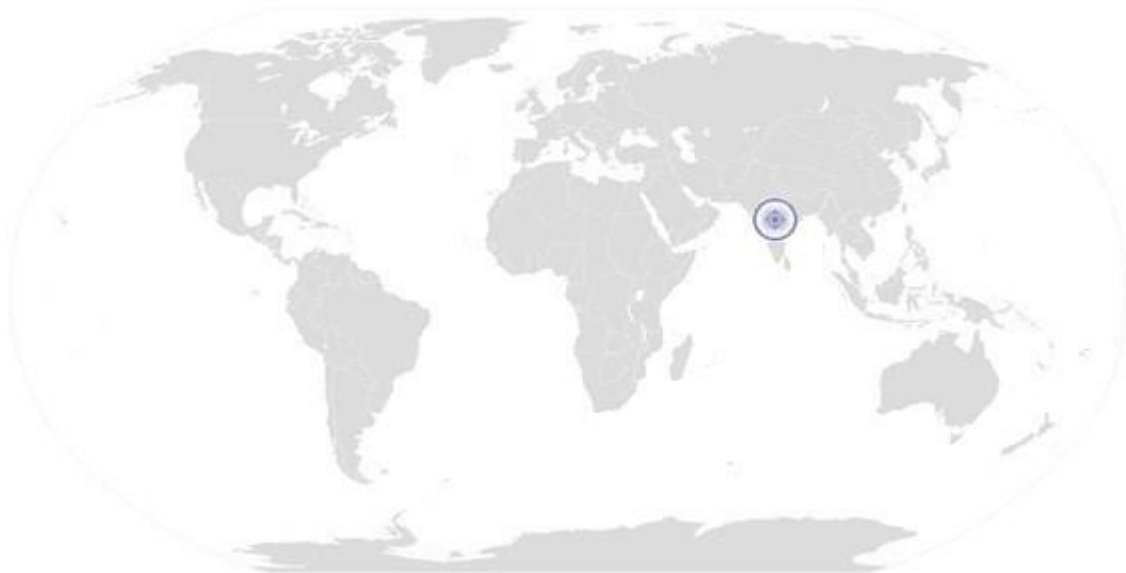
Overview

This unit is about following safety and security procedures.

| | |
|--|---|
| Unit Code | AAS/N0502 |
| Unit Title (Task) | Follow safety and security procedures |
| Description | This unit is about following safety and security procedures as defined by organisational policies and regulatory guidelines. |
| Scope | <p>This OS unit/task covers the following:</p> <ul style="list-style-type: none"> Comprehending the safety and security procedures for conduct of operations |
| Performance Criteria (PC) w.r.t. the Scope | |
| Element | Performance Criteria |
| Comprehending the safety and security procedures for conduct of operations | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. comply with the organisation's safety and security policies and procedures</p> <p>PC2. comply with the regulatory guidelines on safe conduct of operations and maintenance of conditions to thwart any acts of unlawful interference</p> <p>PC3. report any identified breaches of safety, and security policies and procedures to the designated person</p> <p>PC4. coordinate with other resources at the workplace (within and outside the organisation) to achieve safe and secure environment</p> <p>PC5. identify and mitigate any safety and security hazards like illness, accidents, fires or acts of unlawful interference if it falls within the limits of individual's authority</p> <p>PC6. report any hazards outside the individual's authority to the relevant person in line with organisational procedures and regulatory guidelines</p> <p>PC7. follow organisation's emergency procedures for accidents, fires or acts of unlawful interference</p> <p>PC8. identify and recommend opportunities for improving health, safety, and security to the designated person</p> <p>PC9. ensure all health and safety records are updates and procedures well defined</p> |
| Knowledge and Understanding (K) | |
| A. Organisational Context (Knowledge of the company / organisation and its processes) | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. hazard identification and risk management as defined within the organisational policy and procedures</p> <p>KA2. regulatory requirements and organisation's procedures for maintenance of safety and security standards and individual's role and responsibilities in relation to this</p> <p>KA3. how and when to report hazards</p> <p>KA4. the limits of responsibility for dealing with hazards</p> |

| | |
|---|---|
| | <p>KA5. the organisation’s emergency procedures for different emergency situations and the importance of following these</p> <p>KA6. importance of maintaining high standards of safety and security</p> <p>KA7. implications that any non-compliance with safety and security may have on individuals and the organization</p> |
| B. Technical Knowledge | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. different types of breaches of safety and security and how and when to report these</p> <p>KB2. evacuation procedures for workers and passengers</p> <p>KB3. how to summon medical assistance and the emergency services, where necessary</p> <p>KB4. how to use the health, safety and accident reporting procedures and the importance of these</p> <p>KB5. regulatory guidelines on dealing with safety and security emergencies</p> |
| Skills (S) | |
| A. Core Skills/ Generic Skills | Writing Skills |
| | The user/ individual on the job needs to know and understand how to: SA1. complete accurately well written report in English language detailing the situations of emergency with attention to detail |
| | Reading Skills |
| | The user/individual on the job needs to know and understand how to: SA2. read instructions/guidelines/procedures/rules |
| | Oral Communication (Listening and Speaking skills) |
| The user/individual on the job needs to know and understand how to: SA3. listen to and orally communicate information with all concerned | |
| B. Professional Skills | Decision Making |
| | The user/individual on the job needs to know and understand how to: SB1. make decisions on a suitable course of action or response if permitted by the authority matrix |
| | Plan and Organise |
| | The user/individual on the job needs to know and understand how to: SB2. monitor efficient functioning of all activities SB3. plan and organise work to achieve targets and deadlines |
| | Customer Centricity |
| The user/individual on the job needs to know and understand how to: SB4. communicate with stakeholders in a courteous manner SB5. maintain cordial working relationship | |

| | |
|--|--|
| | Problem Solving |
| | The user/individual on the job needs to know and understand how to: SB6. identify trends/common causes for errors and suggest possible solutions to the supervisor / management SB7. identify and correct errors |
| | Analytical Skills |
| | The user/individual on the job needs to know and understand how to: SB8. analyse best possible solutions (cost, time, effort, etc.) suited for operations |
| | Critical Thinking Skills |
| | The user/individual on the job needs to know and understand how to: SB9. concentrate on task at hand and complete it without errors SB10. apply balanced judgments to different situations |



NOS Version Control

| NOS Code | AAS/N0502 | | |
|---------------------|---------------------------------|------------------|------------|
| Credits(NSQF) | TBD | Version number | 1.0 |
| Industry | Aerospace and Aviation | Drafted on | 13/09/2016 |
| Industry Sub-sector | Maintenance Repair and Overhaul | Last reviewed on | 15/03/2017 |
| Occupation | Technical Services | Next review date | 15/03/2020 |

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National Occupational Standard



Overview

This unit is about the activities of technical services provided to support the maintenance team

Provide technical services to the maintenance team
National Occupational Standard

| | |
|---|--|
| Unit Code | AAS/N2101 |
| Unit Title (Task) | Provide technical services to the maintenance team |
| Description | This unit is about the services provided by a technical services engineer to the maintenance team in an organisation |
| Scope | This OS unit/task covers the following: <ul style="list-style-type: none"> • Provide technical support services for maintenance |
| Performance Criteria (PC) w.r.t. the Scope | |
| Element | Performance Criteria |
| Provide technical support services for maintenance | <p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. compile the Technical Standards of all aircraft operated by Contracted customers</p> <p>PC2. provide technical support of all aircraft being maintained by airline/MRO</p> <p>PC3. liaise with aircraft manufactures vendors, overhaul agencies and other airlines on behalf of Contracted customers and airline/MRO Departments to achieve its objective</p> <p>PC4. provide technical support to all departments in airline/MRO, and all it's Contracted customers and to design facilities, access equipment, test stands etc.</p> <p>PC5. assist the Marketing Department in analysing major engineering projects for future contracts</p> <p>PC6. Perform the maintenance and control of Contracted customers' Maintenance Schedules</p> <p>PC7. Undertake the control and distribution of all technical information received by airline/MRO</p> <p>PC8. optimise maintenance and overhaul costs of all Contracted customers, airborne equipment and servicing/ overhaul equipment whilst meeting airworthiness standard</p> <p>PC9. establish technical standards for maintenance, repair and overhaul of aircraft structures, engines and components.</p> <p>PC10. provide guidance to other airline/MRO departments on all matters relating to maintenance, repair, overhaul, replacement and modification of aircraft and equipment, including purchase of new equipment</p> <p>PC11. maintain regular contact with all Technical departments in airline/MRO, Contracted customers' flight Operations, Customer Services Departments etc.</p> <p>PC12. maintain and develop contacts with aircraft and component manufacturers and overhaul/ maintenance agencies.</p> <p>PC13. evaluate technical requirements of major projects as requested by Contracted customers</p> <p>PC14. support Contracted customers' Condition Monitoring Programme</p> <p>PC15. process all applicable technical documents and literature through the Technical Publications Systems</p> <p>PC16. support the Contracted customers maintenance programmes by attendance at various meetings</p> |

Provide technical services to the maintenance team

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|---|--|
| | <p>PC17. attend conferences, workshops etc. as necessary to remain abreast of technical advances in the aviation field with respect to Contracted customers' aircraft</p> <p>PC18. initiate modification to improve performance and reliability and reduce costs of maintenance and overhaul, without compromising airworthiness standards</p> <p>PC19. assess and evaluate manufacturers' and regulatory authorities' technical data and recommend appropriate action to meet the above objectives. Negotiating with manufacturers' as necessary, and reproducing manufacturers Service Bulletins or other technical literature as airline/MRO Documentation</p> <p>PC20. raise in-house modifications and repair schemes etc. including any specialized tools or equipment required</p> <p>PC21. assist all Contracted Customers Operations Dept. in all technical matters, including amendments to the Minimum Equipment List and the Operations Manual/ Aircraft Flight Manual. Liaise with them on changes and modifications to aircraft and procedures</p> <p>PC22. investigate incidents and accidents (ASR), initiate follow up action as required. Investigate component and system and system failure and initiate follow up remedial action as requested by QA</p> <p>PC23. approve within the scope of delegated authority or raise for approval by the regulatory authorities technical drawings of modifications and repair schemes for aircraft structures/ engines or components, design deviations on aircraft/ engines, components, parts etc., which are outside the defined manual limits but are considered safe to operate</p> |
| Knowledge and Understanding (K) | |
| <p>A. Organizational Context (Knowledge of the company / organisation and its processes)</p> | <p>The user/individual on the job needs to know and understand:</p> <p>KA1. hazard identification and risk management as defined within the organizational policy and procedures</p> <p>KA2. organisation policies and procedures regarding update process of technical manuals</p> <p>KA3. organisation quality management system</p> <p>KA4. the limits of responsibility for dealing with deviations</p> <p>KA5. the organisation's emergency procedures for different emergency situations and the importance of following these</p> <p>KA6. the importance of maintaining high standards of safety and security</p> <p>KA7. implications that any non-compliance with safety and security may have on individuals and the organisation</p> |
| <p>B. Technical Knowledge</p> | <p>The user/individual on the job needs to know and understand:</p> <p>KB1. different configuration of aircraft fleet in the organisation</p> <p>KB2. the various applicable chapters for systems in an aircraft</p> <p>KB3. how to use maintenance ERP system</p> <p>KB4. the regulatory approval process for any design/modifications on aircraft</p> <p>KB5. regulatory guidelines on dealing with safety and security emergencies</p> |

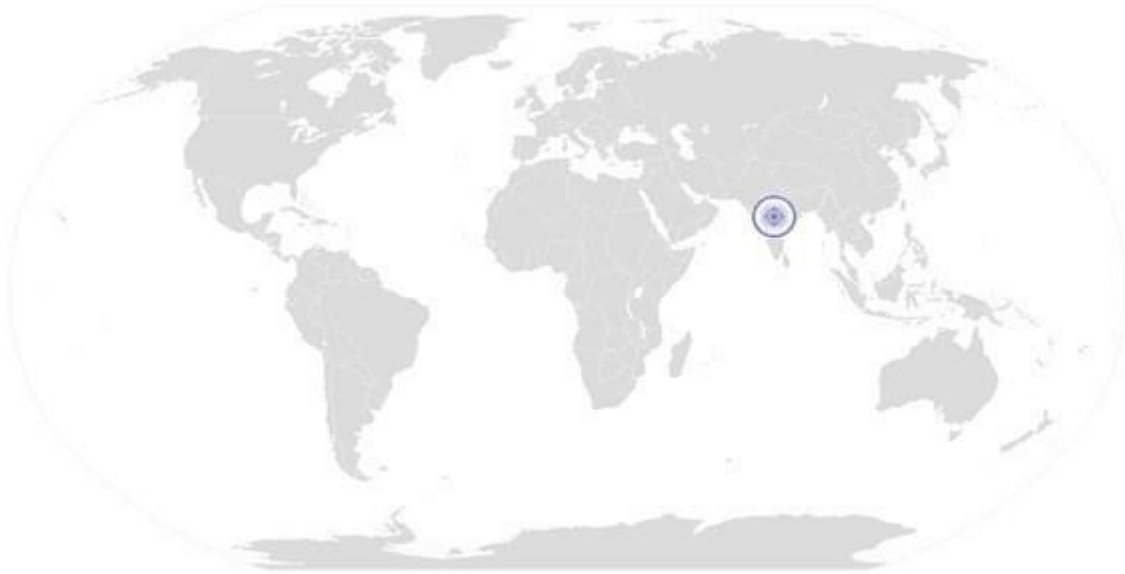
Provide technical services to the maintenance team

| Skills (S) | |
|--|--|
| A. Core Skills/ Generic Skills | Writing Skills |
| | The user/ individual on the job needs to know and understand how to: SA1. complete accurately well written report in English language detailing the situations of emergency with attention to detail |
| | Reading Skills |
| | The user/individual on the job needs to know and understand how to: SA2. read instructions/guidelines/procedures/rules |
| | Oral Communication (Listening and Speaking skills) |
| B. Professional Skills | The user/individual on the job needs to know and understand how to: SA3. listen to and orally communicate information with all concerned |
| | Decision Making |
| | The user/individual on the job needs to know and understand how to: SB1. make decisions on a suitable course of action or response if permitted by the authority matrix |
| | Plan and Organize |
| | The user/individual on the job needs to know and understand how to: SB2. monitor efficient functioning of all activities SB3. plan and organise work to achieve targets and deadlines |
| | Customer Centricity |
| | The user/individual on the job needs to know and understand how to: SB4. communicate with stakeholders in a courteous manner SB5. maintain cordial working relationship |
| | Problem Solving |
| | The user/individual on the job needs to know and understand how to: SB6. identify trends/common causes for errors and suggest possible solutions to the supervisor / management SB7. identify and correct errors |
| | Analytical Skills |
| The user/individual on the job needs to know and understand how to: SB8. analyse best possible solutions (cost, time, effort, etc.) suited for operations | |
| Critical Thinking Skills | |
| The user/individual on the job needs to know and understand how to: SB9. concentrate on task at hand and complete it without errors SB10. apply balanced judgments to different situations | |

NOS Version Control

| | | | |
|----------------------------|--|-------------------------|-------------------|
| NOS Code | AAS/N2101 | | |
| Credits(NSQF) | TBD | Version number | 1.0 |
| Industry | Aerospace and Aviation | Drafted on | 19/01/2017 |
| Industry Sub-sector | Maintenance Repair and Overhaul | Last reviewed on | 15/03/2017 |
| Occupation | Technical Services | Next review date | 15/03/2020 |

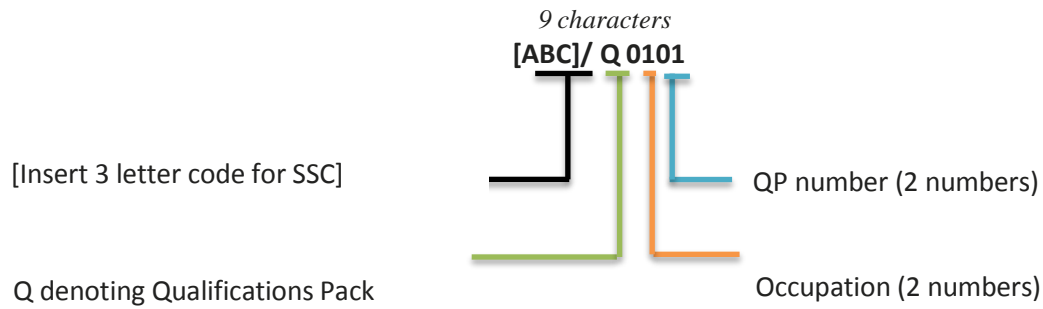
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Annexure

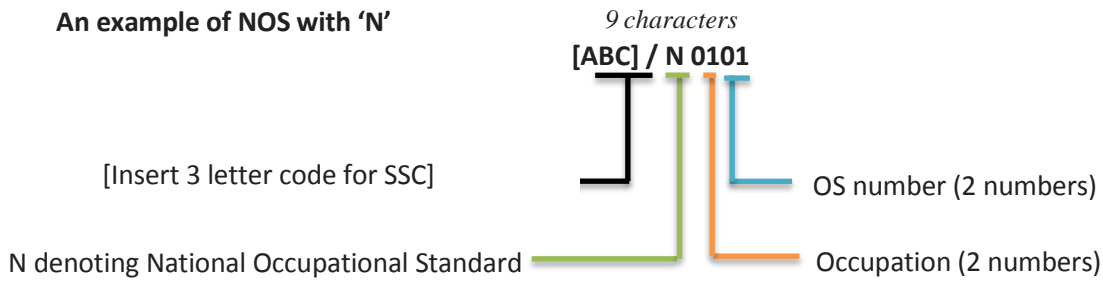
Nomenclature for QP and NOS

Qualifications Pack



Occupational Standard

An example of NOS with 'N'



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

| Sub-sector | Range of Occupation numbers |
|--|-----------------------------|
| Airline | 01-09 |
| Manufacturing & Assembly | 10-19 |
| MRO | 20-30 |
| Design and Development | 31-40 |
| Airport Operations, Air Cargo & Ground Handling | 41-50 |

| Sequence | Description | Example |
|-------------------------|-------------------|---------|
| Three letters | Industry name | AAS |
| 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: Technical Services Engineer

Qualification Pack: AAS/Q2101

Sector Skill Council: Aerospace and Aviation Sector Skill Council

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. 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 this criteria
5. To pass the Qualification Pack, every trainee should score a minimum of 70% in aggregate
6. The marks are allocated PC wise, however, every NOS will carry a weightage in the total marks allocated to the specific QP

| Assessment outcomes | Assessment Criteria for outcomes | Marks Allocation | | | |
|---|--|------------------|-----------|-----------|------------------|
| | | Total Marks | Out of | Theory | Skills Practical |
| 1. AAS/N0502 Follow safety and security procedures | PC 1. comply with the organization’s safety and security policies and procedures | 100 | 10 | 5 | 5 |
| | PC 2. comply with the regulatory guidelines on safe conduct of operations and maintenance of conditions to thwart any acts of unlawful interference | | 10 | 5 | 5 |
| | PC 3. report any identification breaches of safety, and security policies and procedures to the designated person | | 10 | 5 | 5 |
| | PC 4. coordinate with other resource at the workplace (within and outside the organization) to achieve safe and secure environment | | 20 | 10 | 10 |
| | PC 5. identify and mitigate any safety and security hazards like illness, accidents, fires or acts of unlawful interference if it falls within the limit of individual’s authority | | 10 | 5 | 5 |
| | PC 6. report any hazards outside the individual’s authority to the relevant person in line with organizational procedures and regulatory guidelines | | 20 | 10 | 10 |
| | PC 7. follow organization’s emergency procedures for accidents, fires or acts of unlawful interference | | 5 | 2 | 3 |
| | PC 8. identify and recommend opportunities for improving health, safety, and security to the designated person | | 10 | 8 | 2 |
| | PC 9. ensure all health and safety records are updated and procedures well defined | | 5 | 2 | 3 |
| | Total | 100 | 52 | 48 | |

| Assessment outcomes | Assessment Criteria for outcomes | Marks Allocation | | | |
|---------------------|---|------------------|--------|--------|------------------|
| | | Total Marks | Out of | Theory | Skills Practical |
| | PC1. compile the Technical Standards of all aircraft operated by Contracted customers | 100 | 5 | 2 | 3 |
| | PC2. Provide the technical support of all aircraft being maintained by airline/MRO | | 5 | 2 | 3 |
| | PC3. liaise with aircraft manufactures vendors, overhaul agencies and other airlines on behalf of Contracted customers and airline/MRO Departments to achieve its objective | | 5 | 2 | 3 |
| | PC4. provide technical support to all departments in airline/MRO, and all it's Contracted customers and to design facilities, access equipment, test stands etc. | | 5 | 2 | 3 |
| | PC5. assist the Marketing Department in analysing major engineering projects for future contracts | | 5 | 2 | 3 |
| | PC6. undertake the maintenance and control of Contracted customers' Maintenance Schedules | | 5 | 2 | 3 |
| | PC7. undertake the control and distribution of all technical information received by airline/MRO | | 5 | 2 | 3 |
| | PC8. optimize maintenance and overhaul costs of all Contracted customers, airborne equipment and servicing/ overhaul equipment whilst meeting airworthiness standard | | 5 | 2 | 3 |
| | PC9. establish technical standards for maintenance, repair and overhaul of aircraft structures, engines and components | | 4 | 2 | 2 |
| | PC10. provide guidance to other airline/MRO departments on all matters relating to maintenance, repair, overhaul, replacement and modification of aircraft and equipment, including purchase of new equipment | | 4 | 2 | 2 |
| | PC11. maintain regular contact with all Technical departments in airline/MRO, Contracted customers' flight Operations, Customer Services Departments etc. | | 4 | 2 | 2 |
| | PC12. maintain and develop contacts with aircraft and component manufacturers and overhaul/ maintenance agencies | | 4 | 2 | 2 |
| | PC13. evaluate technical requirements of major projects as requested by Contracted customers | | 4 | 2 | 2 |
| | PC14. support Contracted customers' Condition Monitoring Programme | | 4 | 2 | 2 |
| | PC15. process all applicable technical documents and literature through the Technical Publications Systems | | 4 | 2 | 2 |

| | | | | | |
|--|---|--------------|------------|-----------|-----------|
| | PC16. support the Contracted customers maintenance programmes by attendance at various meetings | | 4 | 2 | 2 |
| | PC17. attend conferences, workshops etc. as necessary to remain abreast of technical advances in the aviation field with respect to Contracted customers' aircraft | | 4 | 2 | 2 |
| | PC18. initiate of modification to improve performance and reliability and reduce costs of maintenance and overhaul, without compromising airworthiness standards | | 4 | 2 | 2 |
| | PC19. assess and evaluate manufacturers' and regulatory authorities' technical data and recommend appropriate action to meet the above objectives. Negotiating with manufacturers' as necessary, and reproducing manufacturers Service Bulletins or other technical literature as airline/MRO Documentation | | 4 | 2 | 2 |
| | PC20. raise in-house modifications and repair schemes etc. including any specialized tools or equipment required | | 4 | 2 | 2 |
| | PC21. assist all Contracted customers Operations Dept. in all technical matters, including amendments to the Minimum Equipment List and the Operations Manual/ Aircraft Flight Manual. Liaise with them on changes and modifications to aircraft and procedures | | 4 | 2 | 2 |
| | PC22. investigate incidents and accidents (ASR), initiate follow up action as required. Investigate component and system and system failure and initiate follow up remedial action as requested by QA | | 4 | 2 | 2 |
| | PC23. approve within the scope of delegated authority or raise for approval by the regulatory authorities technical drawings of modifications and repair schemes for aircraft structures/ engines or components, design deviations on aircraft/ engines, components, parts etc., which are outside the defined manual limits but are considered safe to operate | | 4 | 2 | 2 |
| | | Total | 100 | 46 | 54 |