
Model Curriculum

Propeller Technician

SECTOR: AEROSPACE AND AVIATION
SUB-SECTOR: MAINTENANCE REPAIR & OVERHAULING
OCCUPATION: BASE MAINTENANCE
REF ID: AAS/Q2006
NSQF LEVEL: 4



Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

AEROSPACE & AVIATION SECTOR SKILL COUNCIL (AASSC)

for the

MODEL CURRICULUM

Complying to National Occupational Standards of

Job Role/Qualification Pack : **'Propeller Technician' QP No. 'AAS/Q2006' NSQF level 4'**

Date of issuance : 01 September 2017
Valid up to : 31 August 2018
* Valid up to the next review date of the Qualification Pack



(Authorised signatory)
Aerospace & Aviation Sector Skill Council (AASSC)

TABLE OF CONTENTS

1. Curriculum	4
2. Trainer Prerequisites	10
3. Annexure: Assessment Criteria	11

Propeller Technician

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Propeller Technician”, in the “Aerospace & Aviation” Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Propeller Technician		
Qualification Pack Name & Reference ID.	AAS/Q2006		
Version No.	1.0	Version Update Date	15 – 03 - 2017
Pre-requisites to Training	Class XII (Science)		
Training Outcomes	<p>After completing this programme, participants will be able to;</p> <ul style="list-style-type: none"> • Responsibly assemble propeller modules, complete Propeller, Propeller accessories & LRU's. • Identify and use basic tools, equipment & materials; Understanding of carrying out tool box, machinery equipment for its operation. • Acquire basic communication skills and good inter-personal skills. • Stand and walk for long periods of time consistent kneeling, squatting and reaching above the head with caution to avoid accidents. • Work under pressure and to deadlines. • Take clear-cut decisions, have good mathematical ability, and will be able to work well in a team. 		

This course encompasses 6 out of 6 National Occupational Standards (NOS) of “Propeller Technician” Qualification Pack issued by “Aerospace & Aviation Sector Skill Council (AASCC)”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<p>Follow safety and security procedures Theory Duration (hh:mm) 25:00 Practical Duration (hh:mm) 23:00 Corresponding NOS Code AAS/N0502</p>	<p>Candidates will be able to;</p> <ul style="list-style-type: none"> • comprehend the organisation’s safety and security policies and procedures • comprehend the regulatory guidelines on safe conduct of operations and maintenance of conditions to thwart any acts of unlawful interference • report any identified breaches of safety, and security policies and procedures to the designated person • coordinate with other resources at the workplace (within and outside the organization) to achieve safe and secure environment • 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 • report any hazards outside the individual’s authority to the relevant person in line with organisational procedures and regulatory guidelines • follow organisation’s emergency procedures for accidents, fires or acts of unlawful interference • identify and recommend opportunities for improving health, safety, and security to the designated person • complete all health and safety records are updates and procedures well defined 	<p>White/Black board, Markers, computer and projector, trainer’s guide, student handbook,</p>
2	<p>Understanding the process of propeller assembly/disassembly Theory Duration (hh:mm) 58:00 Practical Duration (hh:mm) 32:00 Corresponding NOS Code AAS/N2011</p>	<p>Candidates will be able to;</p> <ul style="list-style-type: none"> • ensure understanding of all types of drawings, sketches and work instructions at the beginning of the assembly/disassembly • ensure understanding of of geometric dimensions and tolerances • ensure understanding of the gauges, standard tools, torque wrenches etc. • ensure understanding of the basics of propeller and its parts • ensure understanding of the various materials, parts and consumables used during assembly/disassembly process • ensure understanding of the criticality of sub-assemblies during assembly/disassembly of propeller • ensure understanding of the right assembly/disassembly methodology and various process parameters like 	<p>White/Black board/ Chart paper, Markers/Computer and projector, trainer’s guide, student handbook</p>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		torque application, fitting tolerances, bolting and fastening as mentioned in relevant manuals	
3	<p>Preparing the workplace and performing propeller assembly Theory Duration (hh:mm) 44:00 Practical Duration (hh:mm) 47:00 Corresponding NOS Code AAS/N2012</p>	<p>Candidates will be able to;</p> <ul style="list-style-type: none"> ensure understanding of the requirements for the sub-assembly/assembly of the propeller as per the process sheet/drawing ensure understanding of the propeller operation as per the relevant manual ensure proper oil is used; proper oil cleanliness is maintained in the workplace ensure that the routine maintenance of the tools/equipment is done as per check list provided by maintenance team ensure the calibration of tools and measuring instruments are completed ensure the availability of lifting tools like crane, hoists etc. near the workplace, if required ensure the observed problems are highlighted to concerned supervisor for on time resolution inspect the propeller blades and other areas of the propeller to ensure there are no unacceptable defects on the parts inspect the accessories and LRUs to ensure airworthiness perform propeller sub-assembly/assembly as per the procedures mentioned in the relevant manual perform the installation of propeller accessories and LRUs as per the relevant manual perform testing of the propeller post assembly and installation to ensure the operations of the propeller are in accordance to the requirements 	<p>White/Black board, Markers, computer and projector, trainer's guide, student handbook,</p>
4	<p>Preparing the workplace and performing propeller disassembly Theory Duration (hh:mm) 44:00 Practical Duration (hh:mm) 47:00 Corresponding NOS Code AAS/N2013</p>	<p>Candidates will be able to;</p> <ul style="list-style-type: none"> ensure understanding of the requirements for the disassembly of the propeller as per the process sheet/drawing ensure understanding of the propeller operation as per the relevant manual ensure proper oil is used; proper oil cleanliness is maintained in the workplace ensure that the routine maintenance of the tools/equipment is done as per 	<p>White/Black board/ Chart paper, Markers/Computer and projector, trainer's guide, student handbook, video film demonstrating typical questioning techniques</p>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<p>check list provided by maintenance team</p> <ul style="list-style-type: none"> ensure the calibration of tools and measuring instruments are completed ensure the availability of lifting tools like crane, hoists etc. near the workplace, if required ensure the observed problems are highlighted to concerned supervisor for on time resolution inspect the propeller blades and other areas of the propeller to identify the defects on the parts inspect the accessories and LRUs and identify the defects perform propeller disassembly as per the procedures mentioned in the relevant manual Tag the subassembly parts, accessories and LRUs as per regulatory and organisation procedures prepare the propeller parts, accessories and LRUs for dispatch to relevant workshops for maintenance 	
5	<p>Prevention of FOD during propeller assembly Theory Duration (hh:mm) 17:00 Practical Duration (hh:mm) 15:00 Corresponding NOS Code AAS/N2014</p>	<p>Candidates will be able to;</p> <ul style="list-style-type: none"> ensure the availability of blanking, cover etc. at the work place ensure that no FOD is available near the assembly area ensure proper availability of tools, fixtures and parts ensure proper accounting of material and tools used during assembly ensure all the open cavities are properly blanked/ covered after the completion of work 	<p>White/Black board, Markers, computer and projector, trainer's guide, student handbook,</p>
6	<p>Maintain 5S at the work premises Theory Duration (hh:mm) 06:00 Practical Duration (hh:mm) 26:00 Corresponding NOS Code ASC/N0021</p>	<p>Candidates will be able to;</p> <ul style="list-style-type: none"> follow the sorting process and check that the tools, fixtures & jigs that are lying on workstations are the ones in use and un-necessary items are not cluttering the workbenches or work surfaces. ensure segregation of waste in hazardous/ non Hazardous waste as per the sorting work instructions follow the technique of waste disposal and waste storage in the proper bins as per SOP segregate the items which are labeled as red tag items for the process area and keep them in the correct places sort the tools/ equipment/ fasteners/ 	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<p>spare parts as per specifications/ utility into proper trays, cabinets, lockers as mentioned in the 5S guidelines/ work instructions</p> <ul style="list-style-type: none"> • ensure that areas of material storage areas are not overflowing • properly stack the various types of boxes and containers as per the size/ utility to avoid any fall of items/ breakage and also enable easy sorting when required • return the extra material and tools to the designated sections and make sure that no additional material/ tool is lying near the work area • follow the floor markings/ area markings used for demarcating the various sections in the plant as per the prescribed instructions and standards • follow the proper labeling mechanism of instruments/ boxes/ containers and maintaining reference files/ documents with the codes and the lists • check that the items in the respective areas have been identified as broken or damaged • follow the given instructions and check for labeling of fluids, oils, lubricants, solvents, chemicals etc. and proper storage of the same to avoid spillage, leakage, fire etc. • make sure that all material and tools are stored in the designated places and in the manner indicated in the 5S instructions • check whether safety glasses are clean and in good condition • keep all outside surfaces of recycling containers are clean • ensure that the area has floors swept, machinery clean and generally clean. In case of cleaning, ensure that proper displays are maintained on the floor which indicate potential safety hazards • check whether all hoses, cabling & wires are clean, in good condition and clamped to avoid any mishap or mix up • ensure workbenches and work surfaces are clean and in good condition • follow the cleaning schedule for the lighting system to ensure proper illumination 	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> • store the cleaning material and equipment in the correct location and in good condition • ensure self-cleanliness - clean uniform, clean shoes, clean gloves, clean helmets, personal hygiene • follow the daily cleaning standards and schedules to create a clean working environment • attend all training programs for employees on 5S • support the team during the audit of 5 S • participate actively in employee work groups on 5S and encourage team members for active participation • follow the guidelines for What to do and What not to do to build sustainability in 5S as mentioned in the 5S check lists/ work instructions 	
	<p>Total Duration</p> <p>Theory Duration (hh:mm) 194:00</p> <p>Practical Duration (hh:mm) 190:00</p>	<p>Unique equipment used;</p> <ul style="list-style-type: none"> • demo model of a typical aircraft propeller assembly • Hoist • Ground Power Unit (GPU) • Video/2D or 3D software based audio-visual training package • Common & special tool kits • Common & special gauges and testers • Common & special cranes • Fork lift, special high lift equipment • Compressor for compressed air • personal protective equipment (PPE) (consisting of safety jacket, safety goggles, ear plugs, gloves, safety shoes & safety helmet) 	

*Grand Total Course Duration: **384 Hours, 0 Minutes***

*(This syllabus/ curriculum has been approved by **SSC: Aerospace & Aviation**)*

Trainer Prerequisites for Job role: “Propeller Technician” mapped to Qualification Pack: “AAS/Q2006”

Sl. No.	Area	Details
1	Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “AAS/Q2006”.
2	Personal Attributes	Aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training. Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well- organised and focused, eager to learn and keep oneself updated with the latest in the mentioned field.
3	Minimum Educational Qualifications	Graduate (with Class XII in Science)
4a	Domain Certification	Statutory Certificate from Aerospace & Aviation Sector Skill Council (AASSC) for Job Role: “Propeller Technician” mapped to QP: “AAS/Q2006”. Minimum accepted score for domain certification will be 80%.
4b	Platform Certification	Recommended that the Trainer is certified for the job role “Trainer” mapped to the Qualification Pack : “MEP/Q 0102”. Minimum accepted percentage as per respective SSC guidelines is 80%.
5	Experience	2-3 years of experience

Annexure: Assessment Criteria

Job Role : Propeller Technician
Qualification Pack : AAS/Q2006
Sector Skill Council : Aerospace & Aviation

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. complete all health and safety records are updates 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
2. AAS/N2011 Understanding the process of propeller assembly/disassembly	PC1. understand all types of drawings, sketches and work instructions at the beginning of the assembly/disassembly	100	15	10	5
	PC2. understand of geometric dimensions and tolerances		15	10	5
	PC3. understand the gauges, standard tools, torque wrenches etc.		14	9	5
	PC4. understand the basics of propeller and its parts		14	9	5
	PC5. understand the various materials, parts and consumables used during assembly/disassembly process		14	9	5

	PC6. understand the criticality of sub-assemblies during assembly/disassembly of propeller		14	9	5
	PC7. understand the right assembly/disassembly methodology and various process parameters like torque application, fitting tolerances, bolting and fastening as mentioned in relevant manuals		14	9	5
		Total	100	65	35

Marks Allocation					
Assessment outcomes	Assessment Criteria for outcomes	Total Marks	Out of	Theory	Skills Practical
3. AAS/N2012 Preparing the work place and performing propeller assembly	PC1. understand the requirements for the sub-assembly/assembly of the propeller as per the process sheet/drawing		9	4	5
	PC2. understand the propeller operation as per the relevant manual		9	4	5
	PC3. ensure proper oil is used; proper oil cleanliness is maintained in the workplace		9	4	5
	PC4. ensure that the routine maintenance of the tools/equipment is done as per check list provided by maintenance team		9	4	5
	PC5. ensure the calibration of tools and measuring instruments are completed		8	4	4
	PC6. ensure the availability of lifting tools like crane, hoists etc. near the workplace, if required		8	4	4
	PC7. ensure the observed problems are highlighted to concerned supervisor for on time resolution		8	4	4
	PC8. inspect the propeller blades and other areas of the propeller to ensure there are no unacceptable defects on the parts		8	4	4
	PC9. inspect the accessories and LRUs to ensure airworthiness		8	4	4
	PC10. perform propeller sub-assembly/assembly as per the procedures mentioned in the relevant manual		8	4	4
	PC11. perform the installation of propeller accessories and LRUs as per the relevant manual		8	4	4
	PC12. perform testing of the propeller post assembly and installation to ensure the operations of the propeller are in accordance to the requirements		8	4	4
		Total	100	48	52

Marks Allocation					
Assessment outcomes	Assessment Criteria for outcomes	Total Marks	Out of	Theory	Skills Practical



4. AAS/N2013 Preparing the workplace and performing propeller disassembly	PC1. understand the requirements for the disassembly of the propeller as per the process sheet/drawing	100	9	4	5
	PC2. understand the propeller operation as per the relevant manual		9	4	5
	PC3. ensure proper oil is used; proper oil cleanliness is maintained in the workplace		9	4	5
	PC4. ensure that the routine maintenance of the tools/equipment is done as per check list provided by maintenance team		9	4	5
	PC5. ensure the calibration of tools and measuring instruments are completed		8	4	4
	PC6. ensure the availability of lifting tools like crane, hoists etc. near the workplace, if required		8	4	4
	PC7. ensure the observed problems are highlighted to concerned supervisor for on time resolution		8	4	4
	PC8. inspect the propeller blades and other areas of the propeller to identify the defects on the parts		8	4	4
	PC9. inspect the accessories and LRUs and identify the defects		8	4	4
	PC10. perform propeller disassembly as per the procedures mentioned in the relevant manual		8	4	4
	PC11. tag the subassembly parts, accessories and LRUs as per regulatory and organisation procedures		8	4	4
	PC12. prepare the propeller parts, accessories and LRUs for dispatch to relevant workshops for maintenance		8	4	4
Total		100	48	52	

Marks Allocation					
Assessment outcomes	Assessment Criteria for outcomes	Total Marks	Out of	Theory	Skills Practical
5. AAS/N2014 Prevention of FOD during propeller assembly	PC1. ensure the availability of blanking, cover etc. at the work place	100	20	9	11
	PC2. ensure that no FOD is available near the assembly area		20	9	11
	PC3. ensure proper availability of tools, fixtures and parts		20	9	11
	PC4. ensure proper accounting of material and tools used during assembly		20	9	11

	PC5. ensure all the open cavities are properly blanked/ covered after the completion of work		20	9	11
		Total	100	52	48

		Marks Allocation			
Assessment outcomes	Assessment Criteria for outcomes	Total Marks	Out of	Theory	Skills Practical
6. ASC/N0021 Maintain 5s at the work premises	PC1. follow the sorting process and check that the tools, fixtures & jigs that are lying on workstations are the ones in use and unnecessary items are not cluttering the workbenches or work surfaces	170	30	10	20
	PC2. ensure segregation of waste in hazardous/ non Hazardous waste as per the sorting work instructions				
	PC3. follow the technique of waste disposal and waste storage in the proper bins as per SOP				
	PC4. segregate the items which are labeled as red tag items for the process area and keep them in the correct places				
	PC5. sort the tools/ equipment/ fasteners/ spare parts as per specifications/ utility into proper trays, cabinets, lockers as mentioned in the 5S guidelines/ work instructions		30	10	20
	PC6. ensure that areas of material storage areas are not overflowing				
	PC7. properly stack the various types of boxes and containers as per the size/ utility to avoid any fall of items/ breakage and also enable easy sorting when required				
	PC8. return the extra material and tools to the designated sections and make sure that no additional material/ tool is lying near the work area				
	PC9. follow the floor markings/ area markings used for demarcating the various sections in the plant as per the prescribed instructions and standards				
	PC10. follow the proper labeling mechanism of instruments/ boxes/ containers and maintaining reference files/ documents with the codes and the lists				
	PC11. check that the items in the respective areas have been identified as broken or damaged				

PC12. follow the given instructions and check for labeling of fluids, oils, lubricants, solvents, chemicals etc. and proper storage of the same to avoid spillage, leakage, fire etc.	30	10	20
PC13. make sure that all material and tools are stored in the designated places and in the manner indicated in the 5S instructions			
PC14. check whether safety glasses are clean and in good condition	50	10	40
PC15. keep all outside surfaces of recycling containers are clean			
PC16. ensure that the area has floors swept, machinery clean and generally clean. In case of cleaning, ensure that proper displays are maintained on the floor which indicate potential safety hazards			
PC17. check whether all hoses, cabling & wires are clean, in good condition and clamped to avoid any mishap or mix up			
PC18. ensure workbenches and work surfaces are clean and in good condition			
PC19. follow the cleaning schedule for the lighting system to ensure proper illumination			
PC20. store the cleaning material and equipment in the correct location and in good condition			
PC21. ensure self-cleanliness - clean uniform, clean shoes, clean gloves, clean helmets, personal hygiene			
PC22. follow the daily cleaning standards and schedules to create a clean working environment			
PC23. attend all training programs for employees on 5S			
PC24. support the team during the audit of 5S			
PC25. participate actively in employee work groups on 5S and encourage team members for active participation	30	10	20
PC26. follow the guidelines for What to do and What not to do to build sustainability in 5S as mentioned in the 5S check lists/ work			



	Total		170	50	120
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