
Model Curriculum

Aerospace Software Testing Engineer

SECTOR: AEROSPACE AND AVIATION
SUB-SECTOR: DESIGN AND DEVELOPMENT
OCCUPATION: AEROSPACE TESTING, VERIFICATION AND VALIDATION
REF ID: AAS/Q3207, V1.0
NSQF LEVEL: 6



Certificate

**CURRICULUM COMPLIANCE TO
QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS**
is hereby issued by the

AEROSPACE & AVIATION SECTOR SKILL COUNCIL (AASCC)

for the

MODEL CURRICULUM

Complying to National Occupational Standards of

Job Role/Qualification Pack : **'Aerospace Software Testing Engineer'** QP No. **'AAS/Q3207' NSQF level 6'**

Date of issuance : 22 December 2017
Valid up to : 21 December 2018
** Valid up to the next review date of the Qualification Pack*



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

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Aerospace Software Testing Engineer

CURRICULUM / SYLLABUS

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

Program Name	Aerospace Software Testing Engineer		
Qualification Pack Name & Reference ID.	AAS/Q3207		
Version No.	1.0	Version Update Date	10 – 11 - 2017
Pre-requisites to Training	Pursuing final year Bachelor’s degree (for training purpose) Bachelor’s Degree in Software Engineering/Electronics & Communication/Embedded systems/ Mechanical/ Aerospace and allied engineering branches(for Job entry)		
Training Outcomes	<p>After completing this programme, participants will be able to</p> <ul style="list-style-type: none"> • Carry out testing of aerospace software • Develop test plans, procedures and test reports in order to ensure company products and services comply with <ul style="list-style-type: none"> • customer • regulatory and • company requirements. • Achieve basic communication skills and good inter-personal skills. • Work well in a team 		

This course encompasses 4 out of 4 National Occupational Standards (NOS) of “Aerospace Software Testing Engineer” Qualification Pack issued by “Aerospace and Aviation Sector Skill Council (AASCC)”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<p>Create documents for knowledge sharing Theory Duration (hh:mm) 12:00 Practical Duration (hh:mm) 36:00 Corresponding NOS Code SSC/N0703</p>	<p>Candidates will be able to</p> <ul style="list-style-type: none"> • establish with appropriate people the purpose, scope, formats and target audience for the documents • access existing documents, language standards, templates and documentation tools from the organization’s knowledge base • liaise with appropriate people to obtain and verify the information required for the documents • confirm the content and structure of the documents with appropriate people • create documents using standard templates and agreed language standards • review documents with appropriate people and incorporate their inputs • submit documents for approval by appropriate people • publish documents in agreed formats • update the organization’s knowledge base with the documents • comply with the organization’s policies, procedures and guidelines when • creating documents for knowledge sharing 	<p>White/Black board/ Chart paper, Markers/Computer and projector, trainer’s guide, student handbook</p>
2	<p>Perform software testing and validation Theory Duration (hh:mm) 197:00 Practical Duration (hh:mm) 251:00 Corresponding NOS Code AAS/N3207</p>	<p>Candidates will be able to</p> <ul style="list-style-type: none"> • analyse specifications to prepare the test plans, cases, procedures and conformity to regulatory requirements • periodically validate various aerospace software components and generate exhaustive reports • create and review the CAD drawings of the test article and the test systems • create and develop test framework • prepare test plan for graphic user interface (GUI) modules, components and applications • perform special test procedures as required to support failure investigation • consider the relative costs and benefits of potential actions to choose the most appropriate software • coordinate with the team for validation of software to set specifications • manage test suites including source 	<p>White/Black board/ Chart paper, Markers/Computer and projector, trainer’s guide, student handbook</p>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<p>codes control and integration with test cases</p> <ul style="list-style-type: none"> • maintain equipment logs that record performance problems, repairs, calibrations, or tests. • conduct reallocation, disposition or refurbishment of test assets • interface with internal contacts, decompose information from requirements and Statements of Work (SOW) to formulate basic test approaches • review standards and regulations to assess the impact on the test plan • gathers information from applicable sources to define test requirements, facilities and test environments for simple tests • review test data for accuracy, quality and/or fidelity prior to delivery to customer and take appropriate action based upon test data results • prepare test and configuration documentation • preserve and monitor test hardware • participate in test readiness reviews, safety reviews, test plan reviews and test case reviews • configure software for data acquisition and analysis • prepare daily execution plans for effective use of all test resources • prepare test reports and provide inputs based on lessons learned and performance metrics to improve future testing • archive data and reports as required 	
3	<p>Work Effectively in a Team Theory Duration (hh:mm) 14:00 Practical Duration (hh:mm) 18:00 Corresponding NOS Code AAS/N0503</p>	<p>Candidates will be able to</p> <ul style="list-style-type: none"> • display courteous and helpful behaviour at all times • take opportunities to enhance the level of assistance offered to colleagues • meet all reasonable requests for assistance within acceptable workplace timeframes • complete allocated tasks as required • seek assistance when difficulties arise • use questioning techniques to clarify instructions or responsibilities • identify and display a non - discriminatory attitude in all contacts with customers and other staff members • observe appropriate dress code and presentation as required by the 	<p>White/Black board/ Chart paper, Markers/Computer and projector, trainer's guide, student handbook</p>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<p>workplace, job role and level of customer contact</p> <ul style="list-style-type: none"> follow personal hygiene procedures according to organisational policy and relevant legislation interpret, confirm and act on workplace information, instructions and procedures relevant to the particular task interpret, confirm and act on legal requirements in regard to anti-discrimination, sexual harassment and bullying ask questions to seek and clarify workplace information plan and organise daily work routine within the scope of the job role prioritise and complete tasks according to required timeframes identify work and personal priorities and achieve a balance between competing priorities 	
4	<p>Maintain organisational safety and information security Theory Duration (hh:mm) 24:00 Practical Duration (hh:mm) 24:00 Corresponding NOS Code AAS/N3201</p>	<p>Candidates will be able to:</p> <ul style="list-style-type: none"> comply with the organization's IT policies and procedures for safety of data and information adhere to the organisation's policies pertaining to accesses granted, usage, modification of any information or recording or destruction of information report any identified breaches of data or information in any form to the authority as described by the organization report any theft of intellectual property according to the organisation policy record, control the document version and take appropriate approvals for the documents, plans or drawings according to organisational hierarchy follow your organization's safety procedures at workplace and act promptly, calmly, and efficiently in case of disruption recommend improvement related to safety and security at the workplace comply to any health and safety requirements set by an organisation 	<p>White/Black board/ Chart paper, Markers/Computer and projector, trainer's guide, student handbook, Charts regarding health & hygiene, fire-fighting, first aid</p>
	<p>Total Duration (hh:mm) 576:00 Theory Duration (hh:mm) 247:00 Practical Duration (hh:mm) 329:00</p>	<p>Unique equipment used</p> <ul style="list-style-type: none"> Computer Aided Design tools Autocode generator Simulation tools Avionics/Other software testing tools 	

Grand Total Course Duration: 576 Hours, 0 Minutes

(This syllabus/ curriculum has been approved by [Aerospace and Aviation Sector Skill Council](#))

Trainer Prerequisites for Job role: “Aerospace Software Testing Engineer” mapped to Qualification Pack: “AAS/Q3207”

Sl. No.	Area	Details
1	Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “AAS/Q3207”.
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	Diploma/Bachelor’s degree Mechanical / Aeronautical / Electrical / Electronics and allied engineering branches.
4a	Domain Certification	Statutory Certificate from Aerospace and Aviation Sector Skill Council (AASSC) for Job Role: “ <u>Aerospace Software Testing Engineer</u> ” mapped to QP: “AAS/Q3207”. 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	10 yrs for Diploma/5 yrs for Bachelor degree holder.

Annexure : Assessment Criteria

Job Role : Aerospace Software Testing Engineer

Qualification Pack : AAS/Q3207

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. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criterion.
6. To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Compulsory NOS Total Marks: 100		Marks Allocation			
Assessment outcomes	Assessment Criteria for outcomes	Total Marks	Out of	Theory	Skills Practical
1. SSC/N0703 Create documents for knowledge sharing	PC1. establish with appropriate people the purpose, scope, formats and target audience for the documents	100	5	5	0
	PC2. access existing documents, language standards, templates and documentation tools from your organization's knowledge base		15	0	15
	PC3. liaise with appropriate people to obtain and verify the information required for the documents		5	5	0
	PC4. confirm the content and structure of the documents with appropriate people		10	0	10
	PC5. create documents using standard templates and agreed language standards		25	0	25
	PC6. review documents with appropriate people and incorporate their inputs		10	0	10
	PC7. submit documents for approval by appropriate people		5	5	0
	PC8. publish documents in agreed formats		5	5	0

	PC9. update your organization's knowledge base with the documents		5	5	0
	PC10. comply with your organization's policies, procedures and guidelines when creating documents for knowledge sharing		15	0	15
	Total		100	25	75

Compulsory NOS Total Marks: 100		Marks Allocation			
Assessment outcomes	Assessment Criteria for outcomes	Total Marks	Out of	Theory	Skills Practical
2. AAS/N3207 Perform software testing and validation	PC1. analyse specifications to prepare the test plans, cases, procedures and conformity to regulatory	100	4	2	2
	PC2. understand the system for which the software is being used and tested & write and review software test cases & test plans		4	2	2
	PC3. validate various aerospace software components and generate exhaustive reports for effective testing purposes		4	2	2
	PC4. create and review the CAD drawings of the test article and the test systems		4	2	2
	PC5. create and develop test framework		4	2	2
	PC6. prepare test plan for graphic user interface (GUI) modules, components and applications		4	2	2
	PC7. perform special test procedures as required to support failure investigation		4	2	2
	PC8. consider the relative costs and benefits of potential actions to		4	2	2
	PC9. coordinate with the team for validation of software to specifications		4	2	2
	PC10. manage test suites for source codes control and integration with test cases		4	2	2
	PC11. maintain equipment logs that record performance problems, repairs, calibrations, or tests		4	2	2

PC12. interact with relevant agencies/authorities for conducting reallocation, disposition or refurbishment of test assets	4	2	2
PC13. interface with internal contacts, decompose information from requirements and Statements of Work (SOW) to formulate basic test approaches	4	2	2
PC14. review standards and regulations to assess the impact on the test plan	3	1	2
PC15. gathers information from applicable sources to define test requirements, facilities and test environments for simple tests	3	1	2
PC16. review and share test data for accuracy, quality and/or fidelity prior to delivery to customer and take appropriate action based upon test data results	3	1	2
PC17. prepare test and configuration documentation	3	1	2
PC18. preserve and monitor test hardware	3	1	2
PC19. participate in test readiness reviews, safety reviews, test plan reviews and	3	1	2
PC20. configure software for data acquisition and analysis	3	1	2
PC21. configure software for data acquisition and analysis	3	1	2
PC22. prepare test reports and provide inputs based on lessons learned and performance metrics to improve future testing	3	1	2
PC23. archive data and reports as required	3	1	2
PC24. use initiative to find things out independently, question assumptions and challenge results	3	1	2
PC25. write and review precise requirements using language and testability principles.	2	1	1
PC26. execute tests on embedded hardware applying DO-178C processes, supporting tool	2	1	1
PC27. work with development team to increase automation and tool support	2	1	1

	PC28. conduct software verification and testing, troubleshooting and functional analysis		3	1	2
	PC29. prepare test automation scripts for frequently run tests and execute them to speed up test completion		2	1	1
	PC30. ensure test coverage is achieved through static code analysis and the tests are run on a continuous basis as a part of DevOps - Continuous Integration/ build pipeline		2	1	1
	PC31. collaborate in a cross functional and multi-disciplined team of engineers on various testing projects.		2	1	1
		Total	100	42	58

Compulsory NOS Total Marks: 100		Marks Allocation			
Assessment outcomes	Assessment Criteria for outcomes	Total Marks	Out of	Theory	Skills Practical
3. AAS/N0503 Work effectively in a team	PC1. display courteous and helpful behaviour at all times	100	6	3	3
	PC2. take opportunities to enhance the level of assistance offered to colleagues		7	3	4
	PC3. meet all reasonable requests for assistance within acceptable workplace timeframes		6	3	3
	PC4. complete allocated tasks as required		6	3	3
	PC5. seek assistance when difficulties arise		7	3	4
	PC6. use questioning techniques to clarify instructions or responsibilities		6	3	3
	PC7. identify and display a non-discriminatory attitude in all contacts with customers and other staff members		6	3	3
	PC8. observe appropriate dress code and presentation as required by the workplace, job role and level of customer contact		7	3	4
	PC9. follow personal hygiene procedures according to organisational policy and relevant legislation		7	3	4
	PC10. interpret, confirm and act on workplace information, instructions and procedures relevant to the particular task		7	3	4
	PC11. interpret, confirm and act on legal requirements with regards to anti-discrimination, sexual harassment and bullying		7	3	4

	PC12. ask questions to seek and clarify workplace information		7	3	4
	PC13. plan and organise daily work routine within the scope of the job role		7	3	4
	PC14. prioritise and complete tasks according to required timeframes		7	3	4
	PC15. identify work and personal priorities and achieve a balance between competing priorities		7	3	4
	Total		100	45	55

Compulsory NOS Total Marks: 100		Marks Allocation			
Assessment outcomes	Assessment Criteria for outcomes	Total Marks	Out of	Theory	Skills Practical
4. AAS/N3201 Maintain organisational safety and information security	PC1. comply with your organisation's IT policies and procedures for safety of data and information	100	10	5	5
	PC2. adhere to the organisation's policies pertaining to accesses granted, usage, modification of any information or recording or destruction of information		10	5	5
	PC3. report any identified breaches of data or information in any form to the authority as described by the organisation.		10	5	5
	PC4. report any theft of intellectual property according to the organisation policy		20	10	10
	PC5. record, control the document version and take appropriate approvals for the documents, plans or drawings according to organisational hierarchy		10	5	5
	PC6. follow your organisation's safety procedures at workplace and act promptly, calmly, and efficiently in case of disruption		20	10	10
	PC7. recommend improvement related to safety and security at the workplace		10	5	5
	PC8. comply to any health and safety requirements set by the organisation		10	5	5
	Total		100	50	50