

Functional Area: Network Infrastructure & Operation (Implementation)

1. Title	Perform network stress test	
2. Code	ITCSNO415A	
3. Range	An essential requirement of a network is its availability meeting the users' expectation. The service provided must ensure that their network can operate under normal conditions as well as beyond normal conditions. A network will be put through various planned stress tests to understand the behaviours and areas of unreliability that may exist. The underlying networks may be of different technologies such as ATM, IP, or TDM. On the other hand, the physical networks can be copper, radio/microwave, optical fibre or even satellite. This UoC concerns performing network stress tests to determine the reliability and stability of the network.	
4. Level	4	
5. Credit	3	
6. Competency	<p>6.1 Possess the knowledge in the subject area</p> <p>6.2 Perform network stress test</p>	<p><u>Performance Requirement</u></p> <ul style="list-style-type: none"> • Knowledgeable of the differences of stress testing, load testing vs. performance test and the techniques to perform different types of tests • Possess extensive network testing planning skills, analysis skills, testing techniques, with detailed knowledge on networks • Experienced with various protocols standards, network technologies, such as ATM, IP, GSM, LTE, NGN, MPLS, etc • Interpret test plans, network infrastructure diagrams and device configuration settings • Extensively experienced in performing unit, system, integration and systems tests • Extensively experienced with using testing tools and setting up of test environment with or without writing scripts for test tools • Possess knowledge of health and safety rules and hazards related to the equipment and/or tools being used during testing <p>Be able to:</p> <ul style="list-style-type: none"> • Work with colleagues to determine the objectives of performing the stress test i.e. to understand where bottlenecks will exist, to understand routing behaviours when certain parts of network is down, etc • Plan when and how the test can be performed, what monitoring and recording methods to use, how to control the generation of mass amount of required traffics, what results to expect, etc • Prepare each test scenario by setting up the test environment, the simulation equipment, monitoring equipment, etc • Perform the tests. More than one cycle may be required. Before performing the tests, coordination with other departments may be necessary e.g. to request for their cooperation. Other status or information should also be provided such as stating the tests duration, and effects it may have on the network • Analyse the test results and ensure the tests were completed satisfactorily as required by the test plan • Document the testing details and package the test results to formulate a test report to relevant stakeholders (supervisor, network designer, etc.). The report should clearly indicate what parameters that will cause the network to behave abnormally and provide corrective recommendations, if possible

	<p>6.3 Exhibit professionalism</p> <ul style="list-style-type: none"> • Perform all tests as required by the test plan and suggest improvements to supervisors or test designers • Always balance the interests of all stakeholders while working with external personnel
7. Assessment Criteria	<p>The integrated outcome requirements of this UoC are the abilities to:</p> <ol style="list-style-type: none"> i. work with stakeholders to determine what the stress test is needed to show ii. design the stress plan and procedure that can perform the stress tests iii. prepare test environments that can generate traffics with the right parameters and with the correct measuring tools to record test results iv. coordinate with all relevant parties and provide sufficient information related to the tests v. execute the tests and document the testing details and results that conform to the organisation standards vi. package the testing report in preparation for submission to appropriate stakeholders
Remark	<p>Often simulation tools are used to generate traffics for the tests. The right combination and variety of the simulation will affect the result.</p>