

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	INFRASTRUCTURE SUPPORT								
Job Area	COMPUTER SYSTEM OPERATION								
Competency Unit Title	COMPUTER SYSTEM SET-UP								
Learning Outcome	<p>The person who is competent in this CU shall be able to assemble computer hardware, computer peripheral and installs the software and make the computer ready to be used. Upon completion of this competency unit, trainees will be able to: -</p> <ul style="list-style-type: none"> • Analyse job request/change order • Prepare computer set-up tools, computer hardware parts and computer software • Set-up computer hardware • Carry out computer software installation • Set-up computer peripherals • Carry out unit functionality test • Prepare computer system set-up report 								
Competency Unit ID	1	Competency Type	Core	Level	3	Training Duration	300 Hours	Credit Hours	30
Work Activities	Related Knowledge	Related Skills		Attitude / Safety / Environmental		Training Hours	Delivery Mode	Assessment Criteria	
1. Analyse job order / change request	i. Types of computer, such as: <ul style="list-style-type: none"> • Desktop • Laptop <ul style="list-style-type: none"> - ultra book - net book • Thin client 					9 hours	Lecture	i. Types of computer, peripheral and its software identified ii. Computer system work function defined	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> ii. Computer system software <ul style="list-style-type: none"> • Computer software <ul style="list-style-type: none"> - Operating system <ul style="list-style-type: none"> ○ Licensed ○ Open source - Productivity suite: <ul style="list-style-type: none"> ○ Licensed ○ Open source - Application: <ul style="list-style-type: none"> ○ Licensed ○ Open source iii. Computer peripherals, such as: <ul style="list-style-type: none"> • Input: Keyboard, mouse, Scanner • Output: Monitor, Printer, speaker iv. Computer system work function <ul style="list-style-type: none"> • administrative works, • multimedia, • engineering works, • sales, v. Mobility requirement: 					

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> • mobile • in-house vi. user's venue <ul style="list-style-type: none"> • internal • external 					
		i. Identify types of computer, peripheral and software ii. Define computer system work function	<u>Attitude:</u> i. Detail and precise in interpreting computer system software and peripheral ii. Analytical mind in identifying user's needs and requirements	21 hours	Demonstration, and practical	
2. Prepare computer set-up tools, computer hardware parts and com-	i. Computer hardware compatibility check-up, such as: <ul style="list-style-type: none"> • Computer components specification: 			13 hours	Lecture	i. Computer hardware compatibility determined

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
puter software	<ul style="list-style-type: none"> - Processor - RAM - Motherboard - Hard disk <ul style="list-style-type: none"> • Power supply specification: <ul style="list-style-type: none"> - 110V - 240V <p>ii. Computer Operating system and software information, such as:</p> <ul style="list-style-type: none"> • Software Version • Chips Architecture <ul style="list-style-type: none"> - 32 bit - 64 bit <p>iii. Types of computer cable connector, such as:</p> <ul style="list-style-type: none"> • Network connector RJ45 • Phone connector RJ11 <p>iv. Connector orientation, such as:</p> <ul style="list-style-type: none"> • Power cable • USB (1.1, 2.0, 3.0) • Monitor cable • Network cable (RJ45) 					<p>ii. Computer Operating System and software information defined</p> <p>iii. Computer cable connector prepared</p> <p>iv. Connector orientation, computer monitor connector and plug layout determined</p> <p>v. Computer system set-up tool prepared.</p> <p>vi. Electrical safety requirements adhered</p> <p>vii. Work area cleanliness and hygiene up-kept</p>

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<p>v. Types of computer monitor connector, such as</p> <ul style="list-style-type: none"> • VGA, • DVI, • HDMI <p>vi. Plug layout</p> <ul style="list-style-type: none"> • Three pins • Two pins • International adaptor <p>vii. Electrical safety requirements</p> <ul style="list-style-type: none"> • electrostatic precaution <p>viii. Computer system set-up tools:</p> <ul style="list-style-type: none"> • screw driver, • multi meter • anti-electrostatic wristband • Vacuum cleaner <p>ix. Computer hardware components arrangement concept:</p> <ul style="list-style-type: none"> • Last In First Out (LIFO). • First In First Out (FIFO) • Last In Last Out <p>x. Work area cleanliness</p>					

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	and hygiene	<ul style="list-style-type: none"> i. Determine computer hardware compatibility: <ul style="list-style-type: none"> • Computer components specification • Power supply specification ii. Define computer operating system and software information iii. Prepare computer cable connector iv. Determine connector orientation, computer monitor connector type and plug layout type v. Prepare computer system set-up tools. vi. Adhere electrical safety requirements vii. Upkeep work area cleanliness and hygiene 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Thorough in determining computer hardware compatibility ii. Cautious in preparing hardware, software and set-up tools 	32 hours	Demonstration and practical	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			<u>Safety/Environment.</u> i. Adhere to work area safety requirement			
3. Set-up computer hardware	i. Computer hardware components installation <ul style="list-style-type: none"> • Processor • Mother board • Network card • Memory module • Graphic card • Sound card • Power supply • Cooling Fan • Hard disk • Storage media • Optical drive • Casing • Heat sink • Thermal paste ii. Types of Computer casing, such as: <ul style="list-style-type: none"> • Mini tower • Medium tower • Desktop casing • Full tower iii. Types of computer casing/cover installation			27 hours	Lecture	i. Computer hardware components installed ii. Computer casing installed iii. Computer warning alarm interpreted iv. Power On Self Test (POST) messages defined

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> • Plug and play casing • Customised casing, such as: <ul style="list-style-type: none"> - Cooling system: <ul style="list-style-type: none"> ○ System Fan: 2 fans, 6 fans ○ Air-condition - Hard disk bays: <ul style="list-style-type: none"> ○ 2 bays, ○ 6 bays, ○ 8 bays <p>iv. Types of computer warning alarm, such as:</p> <ul style="list-style-type: none"> • Long beep • Short beep <p>v. Types of power on self test (POST) messages, such as</p> <ul style="list-style-type: none"> • Keyboard not connected • BIOS date • Processor bus speed error • Memory module incorrect configuration <p>vi. Manufacturer instruction manual</p>					
		i. Install computer hardware components		63 hours	Demonstration and practical	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> • Processor • Mother board • Network card • Memory module • Graphic card • Sound card • Power supply • Cooling Fan • Hard disk • Storage media • Optical drive • Casing • Heat sink • Thermal paste <p>ii. Install computer casing/cover</p> <p>iii. Interpret computer warning alarm</p> <p>iv. Define power on self test (POST) messages</p>	<p><u>Attitude:</u></p> <p>i. Detail and systematic in installing computer hardware components and computer casing</p> <p>ii. Thorough and details in defining computer warning alarm and Power On Self tTst</p>			

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			(POST) messages <u>Safety/Environment:</u> i. Adhere to work area safety requirements ii. Adhere to manufacturer instruction manual			
4. Carry out computer software installation	i. Computer Operating system installation <ul style="list-style-type: none"> • Types of Operating system and its version <ul style="list-style-type: none"> - Licensed - Open source • Operating System Licensing <ul style="list-style-type: none"> - Open source - Licensed products ii. Types of computer devices driver, such as: <ul style="list-style-type: none"> • Graphic driver • Sound card driver • Chipset driver • Network driver • Monitor driver 			18 hours	Lecture	i. Computer Operating system installed ii. Computer devices driver installation carried out iii. Software application installation executed iv. Computer system software update performed v. Computer security verified

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> iii. Software application installation: <ul style="list-style-type: none"> • Minimum installation requirement <ul style="list-style-type: none"> - Hard disk space - Memory - Processor - Optical drive • Installation license key iv. Software update v. Computer security verification,,: <ul style="list-style-type: none"> • Anti-virus • Firewall policy • Internet browser security setting • User Credential <ul style="list-style-type: none"> - User account information - Network configuration - Email account vi. Software back-up <ul style="list-style-type: none"> • Types of software back-up <ul style="list-style-type: none"> - System setting back-up - OS restore back-up 					<ul style="list-style-type: none"> vi. Software back-up performed

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> i. Install computer operating system ii. Execute computer devices driver installation iii. Perform software application installation iv. Carry out computer system software update v. Verify computer security verification, vi. Perform software back-up 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Accurate and systematic in installing computer operating system and devices driver ii. Cautious in carrying computer software installation and software back-up <p><u>Safety/Environment:</u></p> <ul style="list-style-type: none"> i. Adhere to work area safety requirement ii. Adhere to manufacturer instruction manual 	42 hours	Demonstration and practical	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
5. Set-up computer peripherals	i. Types of peripherals, such as: <ul style="list-style-type: none"> • Printer • Scanner • Multi function • Uninterrupted Power Supply (UPS) ii. Types of computer peripheral cables, such as: <ul style="list-style-type: none"> • USB cable: 1.1, 2.0, 3.0 • Parallel cable • Serial cable • Scsi cable • Firewire (IEEE 1394) • Thunder bolt iii. Peripheral driver compatibility <ul style="list-style-type: none"> • OS version 			9 hours	Lecture	i. Types of computer peripheral and cables determined ii. Peripheral driver compatibility checked iii. Computer peripherals connection carried out
		i. Determine types of computer peripheral cables ii. Check peripheral driver compatibility iii. Carry out computer peripherals connection <ul style="list-style-type: none"> • Printer • Scanner • Multi function • Uninterrupted Power 		21 hours	Demonstration and practical	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		Supply (UPS)	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Accurate and cautious in carrying out computer peripheral connection ii. Detail in checking peripheral driver compatibility <p><u>Safety/Environment:</u></p> <ul style="list-style-type: none"> i. Adhere to work area safety requirement ii. Adhere to manufacturer instruction manual 			
6. Carry out unit functionality test	<ul style="list-style-type: none"> i. Types of computer unit test <ul style="list-style-type: none"> • System process cycle • Continuity Test ii. Types of computer performance test <ul style="list-style-type: none"> • CPU Test • Graphic Test 			9 hours	Lecture	<ul style="list-style-type: none"> i. Computer unit test executed ii. Computer performance test carried out

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> • Sound Test • Hard disk Test • Memory Test <p>iii. Computer peripherals functionality test</p> <p>iv. Preparation of computer and peripherals handing over to the end-user</p> <ul style="list-style-type: none"> • Asset tagging • Labelling • Packing list • Logistic arrangement <ul style="list-style-type: none"> - Packing - transportation arrangement <p>v. User Acceptance Test (UAT) verification</p>					<p>iii. Computer peripherals functionality test performed</p> <p>iv. Handing over of computer and peripherals to the end-user prepared</p> <p>v. User Acceptance Test (UAT) carried out</p>
		<p>i. Execute computer unit test</p> <ul style="list-style-type: none"> • System process cycle • Continuity Test <p>ii. Carry out computer performance test</p> <ul style="list-style-type: none"> • CPU Test • Graphic Test 		21 hours	Demonstration and practical	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> • Sound Test • Hard disk Test • Memory Test <p>iii. Perform computer peripherals functionality test</p> <p>iv. Prepare for the handing over of computer and peripherals to the end-user</p> <p>v. Perform User Acceptance Test (UAT)</p>	<p><u>Attitude:</u></p> <p>i. Precise, analytical mind, details and accurate in carrying out computer and peripheral testing</p> <p>ii. Detail and thorough in preparing the handing over of computer and peripherals to the end-user</p> <p><u>Safety/Environment:</u></p> <p>iii. Adhere to work area safety requirement</p> <p>iv. Adhere to</p>			

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			manufacturer instruction manual			
7. Prepare computer system set-up report	i. Company asset documentation: <ul style="list-style-type: none"> • Types of asset: <ul style="list-style-type: none"> - Operating system, - software, - drivers - Data backup - Warranty cards ii. User Acceptance Test report iii. Final as-built diagram iv. Electrical schematic diagram v. Computer set-up checklist vi. Computer set-up job order / change request report			5 hours	Lecture	i. Company asset documentation carried out ii. User Acceptance Test report prepared iii. Final as-built diagram created iv. Electrical schematic diagram produced v. Computer set-up checklist recorded
		i. Carry out company asset documentation ii. Produce User Acceptance Test report iii. Create final as-built		10 hours	Demonstration and case study	vi. Computer set-up job order / change request report prepared

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		diagram iv. Produce electrical schematic diagram v. Record computer set-up checklist vi. Prepare computer set-up job order / change request report	<p><u>Attitude:</u></p> 1. Transparent and detail in preparing computer system set-up report			
			<p><u>Safety/Environment:</u></p> i. Adhere to company confidentiality policy			

Core Abilities	Social Skills
<p>01.01 Identify and gather information.</p> <p>01.02 Document information procedures or processes.</p> <p>01.03 Utilize basic IT applications.</p> <p>02.01 Interpret and follow manuals, instructions and SOP's.</p> <p>02.03 Communicate clearly.</p> <p>02.04 Prepare brief reports and checklist using standard forms.</p> <p>03.01 Apply cultural requirement to the workplace.</p> <p>03.02 Demonstrate integrity and apply practical practices.</p> <p>03.03 Accept responsibility for own work and work area.</p> <p>03.05 Demonstrate safety skills.</p> <p>03.06 Respond appropriately to people and situations.</p> <p>03.07 Resolve interpersonal conflicts.</p> <p>06.01 Understand systems.</p> <p>06.02 Comply with and follow chain of command.</p> <p>06.03 Identify and highlight problems.</p> <p>06.04 Adapt competencies to new situations/systems.</p> <p>01.04 Analyse information.</p> <p>01.05 Utilize the Internet to locate and gather information.</p> <p>03.08 Develop and maintain a cooperation within work group.</p> <p>04.01 Organize own work activities.</p> <p>04.02 Set and revise own objectives and goals.</p> <p>04.03 Organize and maintain own workplace.</p> <p>04.04 Apply problem solving strategies.</p> <p>04.05 Demonstrate initiative and flexibility.</p> <p>06.05 Analyse technical systems.</p> <p>06.06 Monitor and correct performance of systems.</p> <p>01.11 Apply thinking skills and creativity.</p> <p>02.10 Prepare reports and instructions.</p> <p>02.11 Convey information and ideas to people.</p> <p>03.13 Develop and maintain team harmony and resolve conflicts.</p> <p>03.14 Facilitate and coordinate teams and ideas.</p> <p>03.15 Liaise to achieve identified outcomes.</p> <p>03.16 Identify and assess client/customer needs.</p>	<ol style="list-style-type: none"> 1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Leadership skills 5. Learning skills 6. Multitasking and prioritizing 7. Self-discipline 8. Teamwork

<ul style="list-style-type: none"> • Network connector RJ45 • Phone connector RJ11 	
7) Connector orientation: <ul style="list-style-type: none"> • Power cable • USB (1.1, 2.0, 3.0) • Monitor cable • Network cable (RJ45) 	1:5
8) Computer monitor connector, such as <ul style="list-style-type: none"> • VGA, • DVI, • HDMI 	1:5
9) Plug layout <ul style="list-style-type: none"> • Three pins • Two pins • International adaptor 	1:5
10) Electrostatic precaution	1:5
11) Computer system set-up tools: <ul style="list-style-type: none"> • screw driver, • multi meter • anti-electrostatic wristband • Vacuum cleaner 	1:5
12) Sample of User Acceptance Test report	1;1
13) Sample of as-built diagram	1;1
14) Sample of Electrical schematic diagram	1;1
15) Sample of Computer set-up checklist	1;1
16) Sample of Computer set-up job order / change request report	1;1

REFERENCES

1. [Books, Hephaestus](#) (2011) . *Computer Peripherals, Including: Computer Monitor, Fax, Hard Disk Drive, Stored Energy Printer, Peripheral, Plug and Play, Auto-Configuration, Game Port, Hot Swapping, Autodetection, Surge Protector, Remote Terminal Unit,.* Western Digital Media Center. Hephaestus Books, Lightning Source Uk Ltd. ISBN-13: 978-1-242-97956-9
2. [Jyoti Snehi](#). (2006). *Computer Peripherals and Interfacing*. Firewall Media. ISBN-13: 978-81-7008-929-2
3. [R.A. Penfold](#). (2005). *How to Set Up Your New Computer*. Bernard Babani Publishing
ISBN-13: 978-0-85934-559-0
4. [Robert B J Warnar](#) (2012). *Computer Peripheral Memory System Forecast (Volume 500-545)*. General Books. ISBN-13: 978-1-235-71266-1

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	INFRASTRUCTURE SUPPORT								
Job Area	COMPUTER SYSTEM OPERATION								
Competency Unit Title	COMPUTER SYSTEM MAINTENANCE								
Learning Outcome	<p>The person who is competent in this CU shall be able to execute preventive and corrective maintenance of the computer hardware, software and peripheral and to ensure excellent condition of computer system functionality in accordance with computer systems technical support requirements. Upon completion of this competency unit, trainees will be able to: -</p> <ul style="list-style-type: none"> • Identify computer maintenance requirements • Carry out computer scheduled preventive maintenance • Carry out computer corrective maintenance • Prepare computer maintenance report 								
Competency Unit ID	2	Competency Type	Core	Level	3	Training Duration	120 Hours	Credit Hours	12
Work Activities	Related Knowledge	Related Skills		Attitude / Safety / Environmental		Training Hours	Delivery Mode	Assessment Criteria	
1. Identify computer maintenance requirements	i. Types of computer maintenance <ul style="list-style-type: none"> • Preventive • Corrective ii. Information on previous maintenance report: <ul style="list-style-type: none"> • Fault history • Corrective history • User history iii. Maintenance tools <ul style="list-style-type: none"> • Cutter 					5 hours	Lecture	i. Types of computer maintenance identified ii. Previous maintenance report assessed iii. Maintenance tools determined	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> • Pliers • Crimping tools • Screw driver • Vacuum cleaner • Thermal paste 					
		<ol style="list-style-type: none"> i. Identify types of computer maintenance ii. Assess previous maintenance report <ul style="list-style-type: none"> • Fault history • Corrective history • User history iii. Determine maintenance tools 	<p><u>Attitude:</u></p> <ol style="list-style-type: none"> i. Detail and precise in assessing previous maintenance report ii. Meticulous in identifying types of maintenance to be performed 	13 hours	Demonstration and case study	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
2. Carry out computer preventive maintenance	i. Task of computer preventive maintenance <ul style="list-style-type: none"> • workplace and workstation area check-up: <ul style="list-style-type: none"> - cable management - cleanliness - Temperature and humidity - Connectivity contact - Power stability 			14 hours	Lecture	i. Workstation area cleaned-up ii. Computer firmware and hardware rectified iii. Computer hardware and peripheral cable connectivity diagnosed and fixed

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> • Computer firmware and hardware maintenance, <ul style="list-style-type: none"> - BIOS - Hardware operational status <ul style="list-style-type: none"> ○ UPS ○ Fan ○ Optical drive ○ Input and output devices ○ Battery for desktop and laptop ○ External hard disk • Software patches installation and updating <ul style="list-style-type: none"> - Operating system patch update - Application update - Device driver update - BIOS update • Computer storage device maintenance <ul style="list-style-type: none"> - Disk space utilisation status 					<ul style="list-style-type: none"> iv. Software patches are installed and updated v. Computer storage device maintenance conducted vi. Computer security maintenance performed vii. Disk defragmentation executed viii. Computer performance optimisation assessed ix. Computer data backup carried out

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> - Disk check -up - Disk defragmentation - Disk clean up - Error check up • Computer security checking and updating: <ul style="list-style-type: none"> - Antivirus pattern up date - Threat scanning and eliminating - firewall configuration check-up - Internet configuration check-up • Computer data backup <ul style="list-style-type: none"> - User data backup (documents) - Email data • Computer performance optimisation evaluation <ul style="list-style-type: none"> - Advance system care 					

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> i. Clean-up workstation area ii. Rectify computer firm-ware and hardware iii. Diagnose and fix com-puter hardware and peripheral cable con-nectivity iv. Install and update soft-ware patches v. Conduct computer stor-age device mainten-ance vi. Perform computer se-curity maintenance vii. Execute disk defrag-mentation viii. Asses computer per-formance optimisation ix. Carry out computer data backup 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Analytical mind and precise in rectifying com-puter workstation area, firmware, computer hard-ware and, peri-pherals 	34 hours	Demonstration practical	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			ii. Care and cautious in installing and updating software patches and conducting security maintenance and disk defragmentation <u>Safety/Environment.</u> i. Adhere to work area safety requirement ii. Adhere to company confidentiality policy when conducting data back-up			
3. Perform computer corrective maintenance	i. Previous maintenance report analysis <ul style="list-style-type: none"> • Previous maintenance activities • Fault history • Corrective history • User history ii. Types of warning alarm, such as: <ul style="list-style-type: none"> • Long beep 			14 hours	Lecture	i. Previous maintenance report assessed and interpreted ii. Computer system status diagnosed iii. Warning alarm interpreted

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> • Short beep <p>iii. Types of Power On Self Test (POST) messages, such as</p> <ul style="list-style-type: none"> • Keyboard not connected • BIOS date • Memory module incorrect configuration • Processor bus speed error <p>iv. Back up data retrieval</p> <ul style="list-style-type: none"> • Data retrieval procedure • Data back up <p>v. Types of corrective action</p> <ul style="list-style-type: none"> • interruptive action: • non-interruptive action <p>vi. Types of restore:</p> <ul style="list-style-type: none"> • Software restore • application restoration • data restore • configuration restore <p>vii. Computer system restoration:</p>					<p>iv. Power On Self Test (POST) messages defined</p> <p>v. Data back-up carried out</p> <p>vi. Types of corrective action determined</p> <p>vii. Faulty components determined</p> <p>viii. Maintenance cost estimated</p> <p>ix. Computer repair job performed and faulty parts replaced</p> <p>x. Software, application, data and configuration restored</p> <p>xi. Computer system functionality</p>

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> • Types of software • Types of data • Restoration method <p>viii. Costing</p> <ul style="list-style-type: none"> • Computer part cost • Service/ labour cost <p>ix. Computer part disposal procedure</p>					<p>test carried out</p> <p>xii. Faulty part in disposed in accordance with disposal procedure</p>
		<p>i. Assess and interpret previous preventive maintenance report</p> <p>ii. Diagnose and analyse computer system status</p> <p>iii. Interpret warning alarm</p> <p>iv. Define Power On Self Test (POST) messages</p> <p>v. Carry out data back-up</p> <p>vi. Determine types of corrective action</p> <p>vii. Identify faulty components</p> <p>viii. Estimate maintenance cost</p> <p>ix. Report corrective action requirement to supervisor and user</p> <p>x. Perform repair job and replace faulty parts</p> <p>xi. Restore software, ap-</p>		34 hours	Demonstration practical	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<p>plication, data and configuration</p> <p>xii. Carry out computer system functionality test in accordance to manufacturer operating manuals</p> <p>xiii. Apply computer part disposal procedure to disposed faulty part</p>	<p><i>Attitude:</i></p> <p>i. Detail and systematic in diagnosing computer system status</p> <p>ii. Thorough and details in defining types of computer warning alarm and types of power on self test (POST) messages</p> <p><i>Safety/Environment:</i></p> <p>i. Adhere to work area safety requirement</p> <p>ii. Adhere to manufacturer instruction</p>			

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			manual iii. Adhere to computer part disposal procedure			
4. Prepare computer maintenance report	i. Computer maintenance documentation <ul style="list-style-type: none"> • Maintenance checklist • Maintenance record • Record management procedure <ul style="list-style-type: none"> - Data compilation - Filing ii. Reporting procedure			2 hours	Lecture	i. Computer maintenance checklist recorded and compiled ii. Computer maintenance record updated iii. Computer maintenance job order / change request report prepared
		i. Record computer maintenance checklist ii. Update computer maintenance record iii. Prepare computer maintenance job order / change request report	<i>Attitude:</i> i. Transparent and detail in preparing computer system maintenance report <i>Safety/Environment:</i>	4 hours	Demonstration and case study	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			i. Adhere to company confidentiality policy and record management procedure			

Employability Skills

Core Abilities	Social Skills
01.01 Identify and gather information. 01.02 Document information procedures or processes. 01.03 Utilize basic IT applications. 02.01 Interpret and follow manuals, instructions and SOP's. 02.03 Communicate clearly. 02.04 Prepare brief reports and checklist using standard forms. 03.01 Apply cultural requirement to the workplace. 03.02 Demonstrate integrity and apply practical practices. 03.03 Accept responsibility for own work and work area. 03.05 Demonstrate safety skills. 03.06 Respond appropriately to people and situations. 03.07 Resolve interpersonal conflicts. 06.01 Understand systems. 06.02 Comply with and follow chain of command. 06.03 Identify and highlight problems. 06.04 Adapt competencies to new situations/systems. 01.04 Analyse information. 01.05 Utilize the Internet to locate and gather information. 03.08 Develop and maintain a cooperation within work group. 04.01 Organize own work activities. 04.02 Set and revise own objectives and goals. 04.03 Organize and maintain own workplace. 04.04 Apply problem solving strategies.	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Leadership skills 5. Learning skills 6. Multitasking and prioritizing 7. Self-discipline 8. Teamwork

Core Abilities	Social Skills
04.05 Demonstrate initiative and flexibility. 06.05 Analyse technical systems. 06.06 Monitor and correct performance of systems. 01.11 Apply thinking skills and creativity. 02.10 Prepare reports and instructions. 02.11 Convey information and ideas to people. 03.13 Develop and maintain team harmony and resolve conflicts. 03.14 Facilitate and coordinate teams and ideas. 03.15 Liaise to achieve identified outcomes. 03.16 Identify and assess client/customer needs. 04.07 Negotiate acceptance and support for objectives and strategies. 05.01 Implement project/work plans.	

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1) LCD Projector 2) Laptop/PC 3) Computer hardware components <ul style="list-style-type: none"> • Processor • Mother board • Network card • Memory module • Graphic card • Sound card • Power supply • Cooling Fan • Hard disk • Storage media 	1:25 1:25 1:25

<ul style="list-style-type: none"> • Optical drive • Casing • Heat sink • Thermal paste 	
4) Computer casing: <ul style="list-style-type: none"> • Mini tower • Medium tower • Desktop casing 	1:25
5) Computer Operating system and software	1:25
6) Types of computer cable connector, such as: <ul style="list-style-type: none"> • Network connector RJ45 • Phone connector RJ11 	1:25 1:25
7) Connector orientation: <ul style="list-style-type: none"> • Power cable • USB (1.1, 2.0, 3.0) • Monitor cable • Network cable (RJ45) 	1:5
8) Computer monitor connector, such as <ul style="list-style-type: none"> • VGA, • DVI, • HDMI 	
9) Plug layout <ul style="list-style-type: none"> • Three pins • Two pins • International adaptor 	1:5 1:5 1:5
10) Electrostatic precaution	
11) Computer system set-up tools: <ul style="list-style-type: none"> • screw driver, • multi meter • anti-electrostatic wristband • Vacuum cleaner 	1;1 1;1
12) Sample of computer maintenance report	1:1
13) Sample of maintenance checklist	1;1
14) Sample of job order / change request	

15) Sample of job order / change request report	
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REFERENCES

1. [Books, Hephaestus](#) (2011) . *Computer Peripherals, Including: Computer Monitor, Fax, Hard Disk Drive, Stored Energy Printer, Peripheral, Plug and Play, Auto-Configuration, Game Port, Hot Swapping, Autodetection, Surge Protector, Remote Terminal Unit,.* Western Digital Media Center. Hephaestus Books, Lightning Source Uk Ltd. ISBN-13: 978-1-242-97956-9
2. [Jyoti Snehi](#). (2006). *Computer Peripherals and Interfacing*. Firewall Media. ISBN-13: 978-81-7008-929-2
3. [R.A. Penfold](#). (2005). *How to Set Up Your New Computer*. Bernard Babani Publishing
ISBN-13: 978-0-85934-559-0
4. [Robert B J Warnar](#) (2012). *Computer Peripheral Memory System Forecast (Volume 500-545)*. General Books. ISBN-13: 978-1-235-71266-1

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	INFRASTRUCTURE SUPPORT								
Job Area	COMPUTER SYSTEM OPERATION								
Competency Unit Title	COMPUTER SYSTEM REPAIR								
Learning Outcome	<p>The person who is competent in this CU shall be able to diagnose computer problem, conduct remote assistance, carry out troubleshooting, repair computer part and restore software, applications, data and configurations restored in accordance with company procedure and manufacturer manual. Upon completion of this competency unit, trainees will be able to: -</p> <ul style="list-style-type: none"> • Assess computer repair job order/ change request • Carry out online computer trouble shooting • Perform on-site computer repair • Prepare computer status report 								
Competency Unit ID	3	Competency Type	Core	Level	3	Training Duration	180 Hours	Credit Hours	12
Work Activities	Related Knowledge	Related Skills		Attitude / Safety / Environmental		Training Hours	Delivery Mode	Assessment Criteria	
1. Assess computer repair job order/ change request	i. Type of equipment <ul style="list-style-type: none"> • PC/laptop • Printer • Scanner • peripherals ii. Previous computer maintenance report <ul style="list-style-type: none"> • Faulty history • Corrective history • User history 					5 hours	Lecture	i. Types of computer system / peripheral to be repaired identified. ii. Previous computer maintenance report analysed	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	iii. Computer problem symptom <ul style="list-style-type: none"> • POST (power on self test) • LED status indicator • Beep sound • Blue screen iv. Computer system set-up tools: <ul style="list-style-type: none"> • screw driver, • multi meter • anti-electrostatic wristband • Vacuum cleaner 					iii. Computer problem symptom diagnosed <ul style="list-style-type: none"> • POST checked • LED status indicator identified • Beep sound identified • Blue screen checked iv. Computer repair tools and material prepared
		i. Identify types of computer system /peripheral. ii. Analyse previous computer maintenance report iii. Diagnose computer problem symptom <ul style="list-style-type: none"> • Check POST (power on self test) • Identify LED (Light Emission Diode) status indicator • Identify beep sound • Check blue screen iv. Prepared tools and material		13 hours	Demonstration, practical and case study	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			<p><u>Attitude:</u></p> <p>i. Detail and precise in identifying types of computer system / peripheral.</p> <p>ii. Analytical mind and thorough in analysing previous maintenance report</p>			
<p>2. Carry out on-line computer trouble shooting</p>	<p>i. Computer problems / issues:</p> <ul style="list-style-type: none"> • Hard disk crash • Memory (fatal error) • Power supply • motherboard <p>ii. Corrective troubleshooting:</p> <ul style="list-style-type: none"> - Remote troubleshoot - Phone instruction <p>iii. Hardware replacement</p> <ul style="list-style-type: none"> • Memory • CPU • Hard disk 			<p>16 hours</p>	<p>Lecture</p>	<p>i. Computer problem/ issues identified and analysed</p> <p>ii. Computer problem rectified through remote access</p> <p>iii. Computer problem identified through phone instruction</p>

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> • Optical drive 	<ul style="list-style-type: none"> i. Identify and analyse computer problem/ issues ii. Troubleshoot problem through remote access iii. Rectify problem through telephone instruction iv. Notify unsolved problem to supervisor for on-site repair 	<p><i>Attitude:</i></p> <ul style="list-style-type: none"> i. Detail and precise in identifying computer system and peripheral problem / issue ii. Meticulous in rectifying computer problem through remote access and telephone instruction. <p><i>Safety/Environment:</i></p> <ul style="list-style-type: none"> i . Adhere to work area safety requirement 	38 hours	Demonstration and practical	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
<p>3. Perform on-site computer repair</p>	<p>i. Tasks of computer repair:</p> <ul style="list-style-type: none"> • Data backup <ul style="list-style-type: none"> - operating system - software - applications - drivers - data - configurations • Computer diagnose • Problem identification • Procurement of computer part • Part fixing • Testing <ul style="list-style-type: none"> - computer unit test - operational test - functionality test <p>ii. Computer repair costing</p> <p>iii. Computer repair safety precaution</p> <ul style="list-style-type: none"> • Electrical Hazards <p>iv. Computer part disposal procedure</p>			27 hours	Lecture	<p>i. Computer and peripheral diagnosed to identify problem according to manufacturer instruction manual</p> <p>ii. Repair cost estimated</p> <p>iii. Computer part procurement carried out</p> <p>iv. Data back-up executed</p> <p>v. Computer repair job carried out</p> <p>vi. Computer unit test, operational test and functionality test carried out</p> <p>vii. Computer part</p>

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> i. Diagnose computer and peripheral to identify problem according to manufacturer instruction manual ii. Estimate repair cost iii. Procure computer / peripheral part iv. Carry out data backup v. Fix computer / peripheral part vi. Perform computer unit test, operational test and functionality test vii. Apply computer part disposal procedure to dispose faulty part 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Meticulous in carrying out data back-up ii. Cost conscious in Carrying out procurement iii. Detail and precise in fixing computer/ peripheral part <p><u>Safety/Environment:</u></p> <ul style="list-style-type: none"> i. Adhere to electrical 	63 hours	Demonstration and practical	disposal procedure applied to dispose faulty part

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			hazards ii. Adhere to company confidentiality policy when carrying out data back-up			
4. Prepare computer status report	i. Computer status report: <ul style="list-style-type: none"> • Report format • Report content: <ul style="list-style-type: none"> - Client information - Problem/issues - Action taken: <ul style="list-style-type: none"> o troubleshoot o repair • Reporting procedure 		viii. Computer repair status reported	6 hours	Lecture	i. Computer repair details recorded and status is updated for future reference ii. Computer repair checklist recorded
		i. Record computer repair details and update computer status for future reference ii. Record computer repair checklist and submit to superior iii. Record computer repair job order		12 hours	Demonstration, practical and case study	iii. Computer repair job order recorded

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			<u>Attitude:</u> i. Accurate in recording check-list ii. Detail in recording repair job <u>Safety/Environment:</u> i. Adhere to company policy			

Employability Skills

Core Abilities	Social Skills
01.01 Identify and gather information. 01.03 Utilize basic IT applications. 02.01 Interpret and follow manuals, instructions and SOP's. 02.03 Communicate clearly. 02.04 Prepare brief reports and checklist using standard forms. 03.01 Apply cultural requirement to the workplace. 03.02 Demonstrate integrity and apply practical practices. 03.03 Accept responsibility for own work and work area. 03.05 Demonstrate safety skills. 03.06 Respond appropriately to people and situations.	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Leadership skills 5. Learning skills 6. Multitasking and prioritizing 7. Self-discipline 8. Teamwork

Core Abilities	Social Skills
<p>06.01 Understand systems. 06.02 Comply with and follow chain of command. 06.03 Identify and highlight problems. 06.04 Adapt competencies to new situations/systems. 01.04 Analyse information. 03.08 Develop and maintain a cooperation within work group. 04.01 Organize own work activities. 04.02 Set and revise own objectives and goals. 04.03 Organize and maintain own workplace. 04.04 Apply problem solving strategies. 04.05 Demonstrate initiative and flexibility. 06.05 Analyse technical systems. 06.06 Monitor and correct performance of systems. 01.11 Apply thinking skills and creativity. 02.10 Prepare reports and instructions. 02.11 Convey information and ideas to people. 03.14 Facilitate and coordinate teams and ideas. 03.15 Liaise to achieve identified outcomes. 03.16 Identify and assess client/customer needs. 05.01 Implement project/work plans.</p>	

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1) LCD Projector	1:25
2) Laptop/PC	1:25
3) Computer hardware components <ul style="list-style-type: none"> • Processor • Mother board • Network card • Memory module • Graphic card • Sound card • Power supply • Cooling Fan • Hard disk • Storage media • Optical drive • Casing • Heat sink • Thermal paste 	1:25
4) Computer casing: <ul style="list-style-type: none"> • Mini tower • Medium tower • Desktop casing 	1:25
5) Computer Operating system and software	1:25
6) Types of computer cable connector, such as: <ul style="list-style-type: none"> • Network connector RJ45 • Phone connector RJ11 	1:5
7) Connector orientation: <ul style="list-style-type: none"> • Power cable • USB (1.1, 2.0, 3.0) • Monitor cable • Network cable (RJ45) 	1:5

8) Computer monitor connector, such as <ul style="list-style-type: none"> • VGA, • DVI, • HDMI 	1:5
9) Plug layout <ul style="list-style-type: none"> • Three pins • Two pins • International adaptor 	1:5
10) electrostatic precaution	1:5
11) Computer system set-up tools: <ul style="list-style-type: none"> • screw driver, • multi meter • anti-electrostatic wristband • Vacuum cleaner 	1:5
12) Sample of computer maintenance report	1;1
13) Sample of computer repair checklist	1:1
14) Sample of computer repair job order	1;1

REFERENCES

1. [Books, Hephaestus](#) (2011) . *Computer Peripherals, Including: Computer Monitor, Fax, Hard Disk Drive, Stored Energy Printer, Peripheral, Plug and Play, Auto-Configuration, Game Port, Hot Swapping, Auto detection, Surge Protector, Remote Terminal Unit,.* Western Digital Media Center. Hephaestus Books, Lightning Source Uk Ltd. ISBN-13: 978-1-242-97956-9
2. [Fred Beisse](#). (2009). *A Guide to Computer User Support for Help Desk & Support Specialists* (4th Edition). Course Technology Ptr. ISBN-13: 978-0-495-80649-3
3. [Jyoti Snehi](#). (2006). *Computer Peripherals and Interfacing*. Firewall Media. ISBN-13: 978-81-7008-929-2
4. [Neal Allen](#) (2009). *Network Maintenance and Troubleshooting Guide: Field Tested Solutions for Everyday Problems (2nd Edition)*. Addison-Wesley Professional. ISBN-13: 978-0-321-64741-2
5. [R.A. Penfold](#). (2005). *How to Set Up Your New Computer*. Bernard Babani Publishing. ISBN-13: 978-0-85934-559-0
6. [Richard M. Roberts](#). (2008). *Computer Service and Repair: A Guide to Upgrading, Configuring, Troubleshooting, and Networking Personal Computers* (3rd). Goodheart-Willcox C. ISBN-13: 978-1-59070-857-6
7. [Robert B J Warnar](#) (2012). *Computer Peripheral Memory System Forecast (Volume 500-545)*. General Books. ISBN-13: 978-1-235-71266-1

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	INFRASTRUCTURE SUPPORT								
Job Area	COMPUTER SYSTEM OPERATION								
Competency Unit Title	SERVER INSTALLATION								
Learning Outcome	<p>The person who is competent in this CU shall be able to assemble server hardware and peripheral and install the software in accordance with server installation procedure. Upon completion of this competency unit, trainees will be able to: -</p> <ul style="list-style-type: none"> • Analyse job order / change request • Execute hardware installation • Carry out software installation • Perform server functionality test • Prepare server installation set-up report 								
Competency Unit ID	4	Competency Type	Core	Level	3	Training Duration	240 Hours	Credit Hours	24
Work Activities	Related Knowledge	Related Skills		Attitude / Safety / Environmental		Training Hours	Delivery Mode	Assessment Criteria	
1. Analyse job order / change request	i. Type of server: <ul style="list-style-type: none"> • Database server • File server • Mail server • Print server • Web server ii. Type of server Operating system: <ul style="list-style-type: none"> • Licensed • Open source 					11 hours	Lecture	i. Types of server to be set-up, operating system and software identified ii. Server configuration setting interpreted	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	iii. Server configuration details : <ul style="list-style-type: none"> • Server host name • Network address configuration (IP address, DNS, Gateway, subnet mask) • Security configuration (firewall setting, administrator privilege) iv. Types of server software <ul style="list-style-type: none"> • Anti-virus • Hardware drivers v. Server peripherals <ul style="list-style-type: none"> • Monitor • Key board vi. Tools and materials					vii. Server peripheral identified iii. Tools and materials prepared
		i. Identify types of server to be set-up, operating system and software ii. Define server configuration setting iii. Identify server peripherals iv. Prepare tools and material		25 hours	Demonstration, practical and case study	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			<u>Attitude:</u> i. Detail and precise in identifying server operating system, server configuration detail and server peripherals <u>Safety/Environment:</u> i. Adhere to company security policy			
2. Execute hardware installation	i. Types of server form factor <ul style="list-style-type: none"> • tower unit, • rack mount unit, • blade unit ii. Server handling procedure according to types of server <ul style="list-style-type: none"> • tower unit, • rack mount unit, • blade unit iii. Server components iv. Server hardware components compatibility.			29 hours	Lecture	i. Types of server hardware identified ii. Server hardware component compatibility checked iii. Server hardware components installed iv. Server power initialisation carried out v. Server handling procedure

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> • Minimum OS requirement • Server hardware specification <p>v. Hardware installation</p> <ul style="list-style-type: none"> • Cable connectivity <ul style="list-style-type: none"> - power, - display, - network, - keyboard, - mouse) • Rack mount 					<p>applied when unpack and arrange server components</p>
		<ol style="list-style-type: none"> i. Identify types of server hardware ii. Unpack and arrange server hardware components iii. Check server hardware components compatibility iv. Install server hardware components v. Carry out server power initialisation vi. Apply server handling procedure when unpack and arrange server components 		67 hours	Demonstration and practical	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			<u>Attitude:</u> i. Thorough in checking hardware component compatibility <u>Safety/Environment:</u> i. Adhere to server handling procedure ii. Handle server with care during server unpack			
3. Carry out software installation	i. Operating system installation ii. Installation, configuration and testing of device drivers <ul style="list-style-type: none"> • Version • Compatibility • firmware iii. Configuration of server parameter: <ul style="list-style-type: none"> • Server host name • Network address configuration <ul style="list-style-type: none"> - IP address - DNS 			22 hours	Lecture	i. Server Operating system installation performed ii. Device drivers installed, configured and tested iii. Server parameters configuration setting carried out iv. operating system patches installed and

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> - Gateway - subnet mask • Security configuration - firewall setting - administrator - privilege <p>iv. Operating system patches installation and testing</p> <ul style="list-style-type: none"> • Security bulletin <p>v. Server security configuration</p> <ul style="list-style-type: none"> • Firewall configuration • User access control • Admin privilege <p>vi. Server initialisation</p> <p>vii. Operation status inspection</p>					<p>tested</p> <p>v. Server security configuration carried out</p> <p>vi. Server initialisation performed</p> <p>vii. Server operation status inspected</p>
		<p>i. Perform server operating system installation</p> <p>ii. Install, configure and test device drivers</p> <p>iii. Carry out server parameters configuration setting</p> <p>iv. Install and test oper-</p>		50 hours	Demonstration and practical	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		ating system patches v. Carry out server security configuration vi. Perform server initialisation vii. Inspect server operation status	<u>Attitude:</u> i. Meticulous and accurate in carrying out installation and configuration <u>Safety/Environment:</u> i. Handle server with care during software installation			
4. Perform server functionality test	i. Server status verification: <ul style="list-style-type: none"> • Power boot cycle status • Anti-virus protection status • Network connectivity status 			7 hours	Lecture	i. Server status verified <ul style="list-style-type: none"> • Power boot cycle • Anti-virus protection status
		i. Verify server status		17 hours	Demonstration	<ul style="list-style-type: none"> • Network connectivity

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> • Power boot cycle status • Anti-virus protection status • Network connectivity status 	<p><u>Attitude:</u></p> <p>i. Thorough in conducting server status verification</p> <p><u>Safety/Environment:</u></p> <p>i. Adhere to manufacturer instruction</p>		and practical	status
5. Prepare server installation set-up report	<p>i. Documentation of server configuration information</p> <ul style="list-style-type: none"> • Server network configuration detail • Admin information <p>ii. Company asset documentation:</p> <ul style="list-style-type: none"> • Types of asset: <ul style="list-style-type: none"> - Operating system - software, - drivers - Data backup - Warranty cards <p>iii. Final as-built diagram</p>			4 hours	Lecture	<p>i. Company asset listed out and documented</p> <p>ii. Final as-built diagram prepared</p> <p>iii. Electrical schematic diagram prepared</p> <p>iv. Computer set-up checklist</p>

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	iv. Electrical schematic diagram v. Server installation job order / change request report					recorded v. Inventory record updated vi. Server installation job order / change request produced.
		i. Carry out company asset documentation ii. Prepare final as-built diagram iii. Prepare electrical schematic diagram iv. Record computer set-up checklist v. Update Inventory record vi. Produce server installation job order / change request report.	<u>Attitude:</u> i. Precise in updating inventory record ii. Accurate in preparing final as-build diagram <u>Safety/Environment:</u> i. Adhere to company policy	8 hours	Demonstration and case study	

Employability Skills

Core Abilities	Social Skills
<p>01.01 Identify and gather information. 01.02 Document information procedures or processes. 01.03 Utilize basic IT applications. 02.01 Interpret and follow manuals, instructions and SOP's. 02.03 Communicate clearly. 02.04 Prepare brief reports and checklist using standard forms. 03.01 Apply cultural requirement to the workplace. 03.02 Demonstrate integrity and apply practical practices. 03.03 Accept responsibility for own work and work area. 03.05 Demonstrate safety skills. 03.06 Respond appropriately to people and situations. 03.07 Resolve interpersonal conflicts. 06.01 Understand systems. 06.02 Comply with and follow chain of command. 06.03 Identify and highlight problems. 06.04 Adapt competencies to new situations/systems. 01.04 Analyse information. 01.05 Utilize the Internet to locate and gather information. 01.06 Utilize word processor to process information. 03.08 Develop and maintain a cooperation within work group. 04.01 Organize own work activities. 04.02 Set and revise own objectives and goals. 04.03 Organize and maintain own workplace. 04.04 Apply problem solving strategies. 04.05 Demonstrate initiative and flexibility. 06.05 Analyse technical systems. 06.06 Monitor and correct performance of systems. 01.11 Apply thinking skills and creativity. 02.10 Prepare reports and instructions. 02.11 Convey information and ideas to people. 03.13 Develop and maintain team harmony and resolve conflicts. 03.14 Facilitate and coordinate teams and ideas. 03.15 Liaise to achieve identified outcomes. 03.16 Identify and assess client/customer needs.</p>	<ol style="list-style-type: none"> 1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Leadership skills 5. Learning skills 6. Multitasking and prioritizing 7. Self-discipline 8. Teamwork

<ul style="list-style-type: none"> • USB (1.1, 2.0, 3.0) • Monitor cable • Network cable (RJ45) 	1:5
7) Electrostatic precaution	1:5
8) Server system set-up tools: <ul style="list-style-type: none"> • screw driver, • multi meter • anti-electrostatic wristband • Vacuum cleaner 	1;1
9) Sample of as-built diagram	1;1
10) Sample of electrical schematic diagram	1;1
11) Sample of computer set-up checklist	1;1
12) Sample of inventory record	1;1
13) Sample of server installation job order /change request	1;1

REFERENCES

1. [Books, Hephaestus](#) (2011) . [Computer Peripherals, Including: Computer Monitor, Fax, Hard Disk Drive, Stored Energy Printer, Peripheral, Plug and Play, Auto-Configuration, Game Port, Hot Swapping, Autodetection, Surge Protector, Remote Terminal Unit..](#) Western Digital Media Center. Hephaestus Books, Lightning Source Uk Ltd. ISBN-13: 978-1-242-97956-9
2. [Jyoti Snehi](#). (2006). [Computer Peripherals and Interfacing](#). Firewall Media. ISBN-13: 978-81-7008-929-2
3. [R.A. Penfold](#). (2005). [How to Set Up Your New Computer](#). Bernard Babani Publishing. ISBN-13: 978-0-85934-559-0
4. [Robert B J Warnar](#) (2012). [Computer Peripheral Memory System Forecast \(Volume 500-545\)](#). General Books. ISBN-13: 978-1-235-71266-1

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	INFRASTRUCTURE SUPPORT								
Job Area	COMPUTER SYSTEM OPERATION								
Competency Unit Title	SERVER MAINTENANCE								
Learning Outcome	<p>The person who is competent in this CU shall be able to inspect server operating environment, inspect server utilisation status, conduct server data back-up, inspect server systems logs, and inspect server Antivirus software logs in accordance with company policy. Upon completion of this competency unit, trainees will be able to: -</p> <ul style="list-style-type: none"> • Analyse server maintenance job order • Carry out hardware maintenance • Perform server Operating System maintenance • Prepare server maintenance report 								
Competency Unit ID	5	Competency Type	Core	Level	3	Training Duration	180 Hours	Credit Hours	18
Work Activities	Related Knowledge	Related Skills			Attitude / Safety / Environmental		Training Hours	Delivery Mode	Assessment Criteria
1. Analyse server maintenance job order	i. Server information <ul style="list-style-type: none"> • server TAG/ID • server Specification • Operating System • Server Warranty information • Server maintenance contract status • Server operating and service manual • Server peripheral 						8 hours	Lecture	i. Server information assessed ii. Types of maintenance identified iii. Server security procedure interpreted

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	ii. Types of maintenance: <ul style="list-style-type: none"> • Preventive • Corrective iii. Server security procedure <ul style="list-style-type: none"> • Server access pass • server user ID • Password iv. Server maintenance tools <ul style="list-style-type: none"> • Vacuum cleaner • Cable tie, • Screw drivers 					
		i. Asses Server information <ul style="list-style-type: none"> • server TAG/ID • server Specification • Operating System • Server Warranty information • Server maintenance contract status • Server operating and service manual • Server peripheral ii. Identify types of server maintenance iii. Interpret server se-		19 hours	Demonstration, practical and case study	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		curity procedure iv. Prepare server maintenance tools	<u>Attitude:</u> i. Detail and thorough in assessing server information ii. Analytical mind when interpreting server maintenance procedure <u>Safety/Environment</u> i. Adhere to company server security procedure			
2. Carry out hardware maintenance	i. Server room requirement <ul style="list-style-type: none"> • Room temperature • Humidity <ul style="list-style-type: none"> - Dry - sign of water drop - water leak • Physical safety and security <ul style="list-style-type: none"> - Access door lock - server rack door 			24 hours	Lecture	i. server environment maintained <ul style="list-style-type: none"> • Room temperature • Humidity • Physical safety and security • Cables ar-

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<p style="text-align: center;">lock</p> <ul style="list-style-type: none"> • Cables arrangement and connection • Cleanliness <p>ii. Inspection of server peripheral</p> <ul style="list-style-type: none"> • Uninterrupted Power Supply-UPS • Storage Area Network –SAN • Backup Device <p>iii. Server Light Emitting Diode (LED) status indicator</p> <ul style="list-style-type: none"> • Power ON/OFF indicator • HDD activity indicator • Fault indicator • RAID status indicator • Network connectivity indicator • LED indicator blinking pattern • LED indicator colour <ul style="list-style-type: none"> - Green, - Amber, - Yellow, - Red, - Blue 					<ul style="list-style-type: none"> • Cables arrangement and connection • Server cables connection • Cleanliness <p>ii. Server peripheral inspected</p> <p>iii. Server Light Emitting Diode (LED) status indicator inspected</p> <p>iv. Server cleaning tools and material identified</p>

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	iv. Server cleaning tools and material: <ul style="list-style-type: none"> • Vacuum cleaner • Cloth v. Safety procedure vi. Manufacturer's operating manual					
		i. Maintain server environment <ul style="list-style-type: none"> • Room temperature • Humidity • Physical safety and security • Cables arrangement and connection • Server cables connection • Cleanliness ii. Check server peripheral iii. Inspect Server Light Emitting Diode (LED) status indicator <ul style="list-style-type: none"> • Power ON/OFF indicator • HDD activity indicator • Fault indicator • RAID status indicator 		57 hours	Demonstration and practical	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> • Network connectivity indicator • LED indicator blinking pattern • LED indicator colour (Green, Amber, Yellow, Red, Blue) • Manufacturer's operating manual <p>iv. Identify server cleaning tools and material</p>	<p><u>Attitude:</u></p> <ol style="list-style-type: none"> i. Care to server room environment ii. Thorough when inspecting LED status indicator <p><u>Safety/Environment</u></p> <ol style="list-style-type: none"> i. Adhere to company server security procedure ii. Adhere to Manufacturer operating manual 			
3. Perform server	i. Server utilisation status			16 hours	Lecture	i. Server utilisation status in-

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
Operating System maintenance	<ul style="list-style-type: none"> • Hard disk space utilization <ul style="list-style-type: none"> - Used, - Free - Total size • Memory usage <ul style="list-style-type: none"> - Physical RAM, - Virtual, - Shared memory • Central Processing Unit (CPU) usage • Network usage <p>ii. Server data back-up</p> <ul style="list-style-type: none"> • Type of backup <ul style="list-style-type: none"> - Full back-up - Incremental back-up • Backup media/devices <ul style="list-style-type: none"> - internal storage - external media • Backup software <p>iii. Server backup status verification</p> <ul style="list-style-type: none"> • Task completion status • Location, date and backup name • Backup logs file 					<p>terpreted</p> <p>ii. Server operating system error rectified</p> <p>iii. Server data back-up performed</p> <p>iv. Server system logs assessed</p> <p>v. Server system status indicator (LEDs) interpreted</p> <p>vi. Critical error/alert from server system logs inspected</p> <p>vii. Critical Operating System patches availability assessed</p> <p>viii. Server Antivirus software logs checked</p> <p>ix. Server hardware</p>

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> iv. Types of Server system logs <ul style="list-style-type: none"> • Security Log • Application Log • System Log • Log level differences <ul style="list-style-type: none"> - Information - Warning - Alert • Log files location base on OS type v. Server system status indicator (LEDs) <ul style="list-style-type: none"> • LED indicator <ul style="list-style-type: none"> - blinking pattern • LED indicator colour <ul style="list-style-type: none"> - Green - Amber, - Yellow, - Red, - Blue vi. Types of server system log critical error/alert <ul style="list-style-type: none"> • System error <ul style="list-style-type: none"> - hardware failure, - OS vulnerability alert, - OS service fail- 					<p>error/faulty rectified</p> <p>x. Server maintenance cost estimated</p>

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<p>ure</p> <ul style="list-style-type: none"> • Security alert <ul style="list-style-type: none"> - antivirus pattern outdated - security threats - password expiry <p>vii. Critical Operating System patches availability</p> <ul style="list-style-type: none"> • OS patch • security bulletin information <p>viii. Types of Server Antivirus software logs</p> <ul style="list-style-type: none"> • Antivirus update log • Antivirus scan log • Threat log • Product/license expiry date <p>ix. Server hardware error/faulty:</p> <ul style="list-style-type: none"> • Server TAG number • List of errors • Warranty status <p>x. Information on server Operating System error</p> <ul style="list-style-type: none"> • Server TAG number • List of errors 					

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> • Warranty status xi. Server maintenance costing					
		i. Interpret and record server utilisation status ii. Rectify server Operating System error iii. Perform server data back-up iv. Asses server system logs v. Interpret server system status indicator (LEDs) vi. Inspect critical error/alert from server system logs vii. Asses critical operating system patches availability viii. Check server antivirus software logs ix. Identify server hardware error/faulty x. Estimate server maintenance cost	<i>Attitude:</i> i. Detail and through in assessing server system logs ii. Accurate in	38 hours	Demonstration and practical	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			rectifying server hardware faulty iii. Thorough when interpret LED status indicator iv. Cost conscious when estimated maintenance cost <u>Safety/Environment</u> i. Adhere to company server security procedure ii. Adhere to Manufacturer operating manual			
4. Prepare server maintenance report	i. Types of Server Maintenance Record: <ul style="list-style-type: none"> • Server utilisation status record • Critical error/alert from server system logs Record • Critical error/alert from server system logs Record • Server hardware error/faulty • Server Operating System error 			5 hours	Lecture	i. Server maintenance record updated <ul style="list-style-type: none"> • Server utilisation status • Critical error/alert from server system logs • Critical error/alert from server system logs • Server hard-

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		i. Update Server maintenance record <ul style="list-style-type: none"> • Server utilisation status • Critical error/alert from server system logs • Critical error/alert from server system logs • Server hardware error/faulty • Server Operating System error 	<p><u>Attitude:</u></p> i. Transparent and detail in updating server maintenance record	57 hours	Demonstration and case study	ware error/faulty <ul style="list-style-type: none"> • Server Operating System error

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria

Employability Skills

Core Abilities	Social Skills
01.01 Identify and gather information. 01.02 Document information procedures or processes. 02.01 Interpret and follow manuals, instructions and SOP's. 02.03 Communicate clearly. 02.04 Prepare brief reports and checklist using standard forms. 03.01 Apply cultural requirement to the workplace. 03.02 Demonstrate integrity and apply practical practices. 03.03 Accept responsibility for own work and work area. 03.05 Demonstrate safety skills. 03.06 Respond appropriately to people and situations. 03.07 Resolve interpersonal conflicts. 06.01 Understand systems. 06.02 Comply with and follow chain of command. 06.03 Identify and highlight problems. 06.04 Adapt competencies to new situations/systems. 01.04 Analyse information. 01.05 Utilize the Internet to locate and gather information. 03.08 Develop and maintain a cooperation within work group. 04.01 Organize own work activities. 04.02 Set and revise own objectives and goals. 04.03 Organize and maintain own workplace. 04.04 Apply problem solving strategies. 04.05 Demonstrate initiative and flexibility.	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Leadership skills 5. Learning skills 6. Multitasking and prioritizing 7. Self-discipline 8. Teamwork

Core Abilities	Social Skills
06.05 Analyse technical systems. 06.06 Monitor and correct performance of systems. 01.11 Apply thinking skills and creativity. 02.10 Prepare reports and instructions. 02.11 Convey information and ideas to people. 03.13 Develop and maintain team harmony and resolve conflicts. 03.14 Facilitate and coordinate teams and ideas. 03.15 Liaise to achieve identified outcomes. 03.16 Identify and assess client/customer needs. 04.07 Negotiate acceptance and support for objectives and strategies. 05.01 Implement project/work plans.	

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1) LCD Projector 2) Laptop/PC 3) Server hardware components <ul style="list-style-type: none"> • Processor • Mother board • Network card • Memory module • Graphic card • Power supply • Hard disk • Storage media • Optical drive 	1:25 1:25 1:25

<ul style="list-style-type: none"> • Casing • Heat sink • Thermal paste 	
4) Server Operating system and software driver	1:25
5) Electrostatic precaution	1:5
6) Server system set-up tools:	1:5
<ul style="list-style-type: none"> • screw driver, • multi meter • Vacuum cleaner 	
7) Sample of SLA	1;1
8) Sample of server security procedure	1:1
9) Sample of Manufacturer Instruction Manual	1:1
10) Sample of server maintenance checklist	1;1

REFERENCES	
1.	Joseph L Jorden (2010). <i>Microsoft SQL Server 2005 Implementation and Maintenance</i> . John Wiley & Sons. ISBN-13: 978-0-470-76754-2
2.	Rabah, Kefa (2012). <i>Red Hat Enterprise Linux (Rhel) 6 Server nstallation & Administration</i> . Lap Lambert Academic Publishing, ISBN-13: 978-3-8465-1118-3
3.	Sharon Crawford, Charlie Russel (2008). <i>Windows Server 2008</i> . Microsoft Press. ISBN-13: 978-0-7356-2505-1
4.	Steve Silva (2008). <i>Web Server Administration</i> (1st Edition). Course Technology Ptr. ISBN-13: 978-1-4239-0323-9
5.	Tim Parks (2012). <i>Server</i> . Harvill Secker. ISBN-13: 978-1-84655-577-0

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	INFRASTRUCTURE SUPPORT								
Job Area	COMPUTER SYSTEM OPERATION								
Competency Unit Title	COMPUTER NETWORK CONNECTIVITY SET-UP								
Learning Outcome	<p>The person who is competent in this CU shall be able to set connectivity among computers and devices so that they could link and communicate each other for information sharing and workplace operation. Upon completion of this competency unit, trainees will be able to: -</p> <ul style="list-style-type: none"> • Analyse computer network connectivity configuration specification • Carry out computer network connectivity configuration • Perform computer network connectivity test • Carry out computer network connectivity troubleshoot • Prepare computer network connectivity report 								
Competency Unit ID	6	Competency Type	Core	Level	3	Training Duration	120 Hours	Credit Hours	12
Work Activities	Related Knowledge	Related Skills		Attitude / Safety / Environmental		Training Hours	Delivery Mode	Assessment Criteria	
1. Analyse computer network configuration specification	i. Types of computer network connectivity: <ul style="list-style-type: none"> • LAN • WAN • MAN ii. Wireless technology <ul style="list-style-type: none"> • WIFI • WIMAX • Mobile 					7 hours	Lecture	i. Types of computer network connectivity identified ii. Wireless technology defined iii. Types of computer peripheral and its	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	iii. Types of computer peripheral <ul style="list-style-type: none"> • Network Interface Card (NIC) • Scanner • Server • Printer / multifunction • Computer / PC • Wireless devices iv. Computer peripheral drivers v. Network installation equipment <ul style="list-style-type: none"> • Equipment • Main distribution frame <ul style="list-style-type: none"> - Switch - Router - Access Point • Patch panel • Patch cord • RJ 45 Faceplate 					driver identified iv. Network installation equipment prepared
		i. Identify types of computer network connectivity to ii. Identify wireless technology iii. Identify types of computer peripheral and its		17 hours	Demonstration, practical and case study	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		driver iv. Prepare network installation equipment	<u>Attitude:</u> i. Precise and thorough in identifying network connectivity ii. Meticulous in identifying computer system peripherals <u>Safety/Environment</u> i. Adhere to company policy			
2. Carry out computer network configuration	i. IP address <ul style="list-style-type: none"> • Subnet Mask • Gateway • Domain Name Server (DNS) ii. Network Interface Card (NIC) installation and connection <ul style="list-style-type: none"> • Computer / PC • Server • Scanner • Printer / multifunction 			9 hours	Lecture	i. Network Interface Card (NIC) installation carried out ii. RJ 45 cable connected into NIC iii. NIC driver installed into computer and peripherals iv. IP addresses

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		i. Carry out Network Interface Card (NIC) installation ii. Connect RJ 45 cable into NIC iii. Install NIC driver into computer and peripherals iv. Configure IP addresses	<u>Attitude:</u> i. Meticulous in connecting RJ cable and installing NIC ii. Accurate in carrying out IP configuration <u>Safety/Environment</u> i. Adhere to company security policy	21 hours	Demonstration and practical	configured
3. Perform computer network connectivity test	i. Computer network connectivity test <ul style="list-style-type: none"> • Ping test • Tracert test • Internet browser application test • Print-out test • Scanning test • Wireless Authentication test 			7 hours	Lecture	i. Network testing carried out: <ul style="list-style-type: none"> • Ping test • Tracert test • Internet browser application test • Print-out test

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> • wireless connectivity test <p>ii. User Acceptance Test (UAT)</p>					<ul style="list-style-type: none"> • Scanning test • Wireless Authentication test • wireless connectivity test
		<p>i. Carry out network testing:</p> <ul style="list-style-type: none"> • Ping test • Tracert test • Internet browser application test • Print-out test • Scanning test • Wireless Authentication test • wireless connectivity test <p>ii. Execute UAT</p>	<p><u>Attitude:</u></p> <p>i. Precise and systematic in performing computer network connectivity test</p> <p><u>Safety/Environment</u></p> <p>i. Adhere to</p>	17 hours	Demonstration and practical	ii. UAT executed

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
			company policy			
4. Carry out computer network troubleshoot	i. NIC Light Emitting Diode (LED) indicator <ul style="list-style-type: none"> • No light • Light ii. Symptom/ problem <ul style="list-style-type: none"> • Crimping failure • NIC Driver wrongly installed • Cable failure • OS compatibility • Hardware compatibility 			9 hours	Lecture	i. NIC Light Emitting Diode (LED) indicator interpreted ii. Network connectivity symptom/ problem diagnosed <ul style="list-style-type: none"> • Crimping failure • NIC Driver • Cable failure • OS compatibility • Hardware compatibility
		i. Interpret NIC Light Emitting Diode (LED) indicator ii. Diagnose network connectivity symptom/ problem <ul style="list-style-type: none"> • Crimping failure • NIC Driver • Cable failure • OS compatibility • Hardware compatibility 		21 hours	Demonstration and practical	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		ility	<u>Attitude:</u> i. Detail and thorough when diagnose network connectivity symptom <u>Safety/Environment</u> i. Adhere to company policy			
5. Prepare computer network connectivity report	i. Network connectivity testing report iii. UAT status report ii. Network connectivity set-up documentation <ul style="list-style-type: none"> • Configuration • Drivers • Compatibility 			4 hours	Lecture	i. Network connectivity testing report prepared ii. UAT status report prepared iii. Network connectivity set-up documentation carried out
		i. Produce network connectivity testing report ii. Prepare UAT status report iii. Carry out network connectivity set-up documentation <ul style="list-style-type: none"> • Prepare network configuration manual 		8 hours	Demonstration and case study	<ul style="list-style-type: none"> • Network configuration manual prepared • Drivers labelled and recorded • compatibility

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> Record and label drivers Prepare compatibility record 	<p><u>Attitude:</u></p> <ol style="list-style-type: none"> Transparent and detail in preparing computer system maintenance report <p><u>Safety/Environment:</u></p> <ol style="list-style-type: none"> Adhere to company confidentiality policy and record management procedure 			recorded

Employability Skills

Core Abilities	Social Skills
01.01 Identify and gather information. 01.02 Document information procedures or processes. 02.01 Interpret and follow manuals, instructions and SOP's. 02.03 Communicate clearly. 02.04 Prepare brief reports and checklist using standard forms.	<ol style="list-style-type: none"> Communication skills Conceptual skills Interpersonal skills Leadership skills

Core Abilities	Social Skills
<p>03.01 Apply cultural requirement to the workplace. 03.02 Demonstrate integrity and apply practical practices. 03.03 Accept responsibility for own work and work area. 03.05 Demonstrate safety skills. 03.06 Respond appropriately to people and situations. 03.07 Resolve interpersonal conflicts. 06.01 Understand systems. 06.02 Comply with and follow chain of command. 06.03 Identify and highlight problems. 06.04 Adapt competencies to new situations/systems. 01.04 Analyse information. 01.05 Utilize the Internet to locate and gather information. 03.08 Develop and maintain a cooperation within work group. 04.01 Organize own work activities. 04.02 Set and revise own objectives and goals. 04.03 Organize and maintain own workplace. 04.04 Apply problem solving strategies. 04.05 Demonstrate initiative and flexibility. 06.05 Analyse technical systems. 06.06 Monitor and correct performance of systems. 01.11 Apply thinking skills and creativity. 02.10 Prepare reports and instructions. 02.11 Convey information and ideas to people. 03.13 Develop and maintain team harmony and resolve conflicts. 03.14 Facilitate and coordinate teams and ideas.</p> <p>03.15 Liaise to achieve identified outcomes. 03.16 Identify and assess client/customer needs. 04.07 Negotiate acceptance and support for objectives and strategies. 05.01 Implement project/work plans.</p>	<p>5. Learning skills 6. Multitasking and prioritizing 7. Self-discipline 8. Teamwork</p>

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1) LCD Projector	1:25
2) Laptop/PC	1:25
3) Computer peripheral <ul style="list-style-type: none"> • Network Interface Card (NIC) • Scanner • Printer / multifunction • Computer / PC • Server • Wireless devices 	1:5
4) Computer peripheral drivers	1:5
5) Switch	1:25
6) Router	1:25
7) Access Point	1:25
8) Patch panel	1:5
9) Patch cord	1:5
10) RJ 45 Faceplate	1:5
11) Sample of network connectivity testing report	1;1
12) Sample of UAT status report	1;1
13) Sample of Network connectivity set-up documentation	1;1
14) Sample of Network configuration manual	1;1
15) Sample of compatibility record	1;1

REFERENCES

1. [Books, Hephaestus](#) (2011) . *Computer Peripherals, Including: Computer Monitor, Fax, Hard Disk Drive, Stored Energy Printer, Peripheral, Plug and Play, Auto-Configuration, Game Port, Hot Swapping, Autodetection, Surge Protector, Remote Terminal Unit,.* Western Digital Media Center. Hephaestus Books, Lightning Source Uk Ltd. ISBN-13: 978-1-242-97956-9
2. [Jyoti Snehi](#). (2006). *Computer Peripherals and Interfacing*. Firewall Media. ISBN-13: 978-81-7008-929-2
3. [R.A. Penfold](#). (2005). *How to Set Up Your New Computer*. Bernard Babani Publishing
ISBN-13: 978-0-85934-559-0
4. [Robert B J Warnar](#) (2012). *Computer Peripheral Memory System Forecast (Volume 500-545)*. General Books. ISBN-13: 978-1-235-71266-1

CURRICULUM of COMPETENCY UNIT (CoCU)

Sub Sector	INFRASTRUCTURE SUPPORT								
Job Area	COMPUTER SYSTEM OPERATION								
Competency Unit Title	MOBILE DEVICE CONFIGURATION								
Learning Outcome	<p>The person who is competent in this CU shall be able to configure and troubleshoots mobile computer and its devices and prepare safe and sound environment for mobile device to connect with computer system network in accordance with company SOP. Upon completion of this competency unit, trainees will be able to: -</p> <ul style="list-style-type: none"> • Analyse job order/ change request • Carry out mobile device configuration • Perform out mobile device troubleshoot • Carry out mobile device commissioning 								
Competency Unit ID	7	Competency Type	Core	Level	3	Training Duration	60 Hours	Credit Hours	6
Work Activities	Related Knowledge	Related Skills		Attitude / Safety / Environmental		Training Hours	Delivery Mode	Assessment Criteria	
1. Analyse job order/ change request	i. Network accessibility needs <ul style="list-style-type: none"> • Type of connection <ul style="list-style-type: none"> - WiFi, - Cellular, - Bluetooth, - NFC Near Field Communication - Infrared, - USB • Duration <ul style="list-style-type: none"> - on-demand - frequent • Location 					5 hours	Lecture	i. Network accessibility needs assessed ii. Network accessibility purpose identified iii. Mobile device specification assessed	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> - local, - remote area - overseas <p>ii. Network accessibility purpose</p> <ul style="list-style-type: none"> • Email & messaging • Web browsing • Voice-Over IP • Tele-conference • Access company resources (server, printer) • Document collaboration • File sharing • Tele-marketing • Remote support • Navigation <p>iii. Types of mobile device and device specification</p> <ul style="list-style-type: none"> • Device Type <ul style="list-style-type: none"> - Mobile phone (Smartphone) - Tablet - PDA (Personal Digital Assistant) - Pager - Navigation device • Device Specification <ul style="list-style-type: none"> - Device maker / brand / model - RAM capacity 					<p>iv. Mobile application software evaluated</p> <p>v. Mobile application compatibility assessed</p>

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> - Storage size - Screen display type - Input method - Connectivity - OS and OS version <p>iv. The required mobile application information</p> <ul style="list-style-type: none"> • Type of application and software • Software licenses • Software version <p>v. Mobile application compatibility</p> <ul style="list-style-type: none"> • Minimum device hardware & software installation requirement • OS and software version • Security setting requirement • Network availability / coverage 					
		<ul style="list-style-type: none"> i. Assess network accessibility needs ii. Identify network accessibility purpose iii. Asses mobile device specification iv. Evaluate mobile device software and application 		11 hours	Lecture	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		v. Asses mobile application compatibility	<u>Attitude:</u> i. Detail in assessing network accessibility needs and mobile device specification ii. Thorough in evaluating mobile application compatibility <u>Safety/Environment</u> i. Adhere to company procedure			
2. Carry out mobile device configuration	i. Mobile device configuration setting <ul style="list-style-type: none"> • Device setting menu • Network configuration <ul style="list-style-type: none"> - IP address - Authentication • Network testing and troubleshooting ii. Mobile application installation and configuration procedure iii. Mobile device configura-			6 hours	Lecture	i. Mobile device setting configuration carried out ii. Mobile application installed and configured iii. Mobile device security setting configured iv. Mobile device

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	tion testing <ul style="list-style-type: none"> • Authentication test • Network accessibility and communication test • Application test iv. Security setting configuration <ul style="list-style-type: none"> • Device OS security • User's account security • Network/access security v. Company security policy					configuration testing carried out
		i. Carry out mobile device setting configuration ii. Install and configure mobile application iii. Configure mobile device security setting <ul style="list-style-type: none"> • Device OS security • User's account security • Network/access security iv. Carry out mobile device configuration test <ul style="list-style-type: none"> • Authentication test • Network accessibil- 		15 hours	Demonstration and practical	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		ity and communication test <ul style="list-style-type: none"> • Application test 	<u>Attitude:</u> <ol style="list-style-type: none"> i. Detail and thorough when configure mobile device setting ii. Analytical mind and accurate when conducting configuration test <u>Safety/Environment</u> <ol style="list-style-type: none"> i. Adhere to company security procedure 			
3. Perform mobile device troubleshoot	<ol style="list-style-type: none"> i. Types of Mobile device problems <ul style="list-style-type: none"> • Symptom, error messages and logs • Device functionality test ii. Troubleshoot action requirement <ul style="list-style-type: none"> • Device warranty information • Authorize service centre • User schedule • Troubleshoot 			5 hours	Lecture	<ol style="list-style-type: none"> i. Diagnose mobile device problem ii. User's data retrieval and back-up performed iii. Mobile device troubleshoot executed iv. Device's

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<p>guideline and procedure</p> <ul style="list-style-type: none"> • Data backup <p>iii. User's data retrieval and back-up</p> <ul style="list-style-type: none"> • Type of data <ul style="list-style-type: none"> - Personal - Official • Backup method • Backup location <p>iv. Mobile device troubleshoot action</p> <ul style="list-style-type: none"> • Hardware functionality test • Software removal, re-installation and re-configuration procedure <p>v. Restoration of device's software, application and user's data</p> <p>vi. Mobile device operation testing</p> <ul style="list-style-type: none"> • Hardware functionality test • Cellular/network access and communication test • Software and application test 					<p>software, application and user's data restored</p> <p>v. Mobile device operation testing carried out</p>

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
		<ul style="list-style-type: none"> i. Diagnose mobile device problem ii. Perform user's data retrieval and back-up iii. Execute mobile device troubleshoot iv. Restore device's software, application and user's data v. Carry out mobile device operation testing 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Detail and thorough when diagnose mobile device problem ii. Analytical mind and accurate when performing mobile device troubleshoot <p><u>Safety/Environment</u></p> <ul style="list-style-type: none"> i. Adhere to company security procedure 	13 hours	Demonstration and practical	

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
4. Carry out mobile device commissioning	<ul style="list-style-type: none"> i. Handing over of Mobile device and gadget to end-user <ul style="list-style-type: none"> • Device packing • Device handling procedure ii. User Acceptance test <ul style="list-style-type: none"> • Network and communication access test • software and application installation • Security and safety advice iii. Mobile device set-up documentation <ul style="list-style-type: none"> • User's information <ul style="list-style-type: none"> - name, - location, - department • Device information <ul style="list-style-type: none"> - IP address - User ID • Company resources accessed by the device <ul style="list-style-type: none"> - server, - printer, - application iv. Asset record 			2 hours	Lecture	<ul style="list-style-type: none"> i. User Acceptance Test performed ii. Mobile device documentation carried out iii. Company inventory updated iv. Job order / change request report produced

Work Activities	Related Knowledge	Related Skills	Attitude / Safety / Environmental	Training Hours	Delivery Mode	Assessment Criteria
	<ul style="list-style-type: none"> • Company inventory update 					
		<ul style="list-style-type: none"> i. Perform User Acceptance Test ii. Carry out mobile computer documentation iii. Update company inventory iv. Produce Job order / change request report 	<p><u>Attitude:</u></p> <ul style="list-style-type: none"> i. Transparent and detail in preparing mobile devices set-up report ii. Accountable in updating company inventory <p><u>Safety/Environment:</u></p> <ul style="list-style-type: none"> i. Adhere to company confidentiality policy 	4 hours	Demonstration and practical	

Employability Skills

Core Abilities	Social Skills
<p>01.01 Identify and gather information. 01.02 Document information procedures or processes. 02.01 Interpret and follow manuals, instructions and SOP's. 02.02 Follow telephone/telecommunication procedures. 02.03 Communicate clearly. 02.04 Prepare brief reports and checklist using standard forms. 03.01 Apply cultural requirement to the workplace. 03.02 Demonstrate integrity and apply practical practices. 03.03 Accept responsibility for own work and work area. 03.05 Demonstrate safety skills. 03.06 Respond appropriately to people and situations. 03.07 Resolve interpersonal conflicts. 06.01 Understand systems. 06.02 Comply with and follow chain of command. 06.03 Identify and highlight problems. 06.04 Adapt competencies to new situations/systems. 01.04 Analyse information. 01.05 Utilize the Internet to locate and gather information. 02.07 Utilize Local Area Network (LAN)/Intranet to exchange information. 02.08 Prepare pictorial and graphic information. 03.08 Develop and maintain a cooperation within work group. 04.01 Organize own work activities. 04.02 Set and revise own objectives and goals. 04.03 Organize and maintain own workplace. 04.04 Apply problem solving strategies. 04.05 Demonstrate initiative and flexibility. 06.05 Analyse technical systems. 06.06 Monitor and correct performance of systems. 01.11 Apply thinking skills and creativity. 02.10 Prepare reports and instructions. 02.11 Convey information and ideas to people. 03.13 Develop and maintain team harmony and resolve conflicts.</p>	<ol style="list-style-type: none"> 1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Leadership skills 5. Learning skills 6. Multitasking and prioritizing 7. Self-discipline 8. Teamwork

Core Abilities	Social Skills
03.14 Facilitate and coordinate teams and ideas. 03.15 Liaise to achieve identified outcomes. 03.16 Identify and assess client/customer needs. 04.07 Negotiate acceptance and support for objectives and strategies. 05.01 Implement project/work plans.	

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1) LCD Projector 2) Laptop/PC 3) Mobile device <ul style="list-style-type: none"> • Mobile phone (Smartphone) • Tablet • PDA (Personal Digital Assistant) • Pager 4) Mobile devices Operating System and software 5) Sample of manufacturer instruction manual 6) Sample of company inventory report 7) Sample of job order / change request report	1:25 1:25 1:15 1:15 1:1 1:1 1;1

REFERENCES

1. [Amjad Umar](#) (2004). *Mobile Computing And Wireless Communications*. Nge Solutions ISBN-13: 978-0-9759182-0-3
2. [Chander Dhawan](#) (1997). *Mobile Computing: A Systems Integrator's Handbook (1st)*. Mcgraw-Hill Companies. ISBN-13: 978-0-07-016769-8
3. [Lynn Wright \(editor\)](#) (2011). *Laptops and Mobile Devices Made Easy*. Books. SBN-13: 978-1-84490-117-3
4. [Raj Kamal](#) (2008). *Mobile Computing*. Oxford University Press, USA. ISBN-13: 978-0-19-568677-7
5. [Tilmann Bollmann](#) (2010). *Mobile Computing* (1st Edition). W3I. ISBN-13: 978-3-86834-005-1