



COMPUTER SYSTEMS SERVICING

TECHNICAL-PROFESSIONAL

Grade 12

**Three-Term Budget Of Work (BOW)
for Learning Competencies**

**TECHNICAL-PROFESSIONAL
ICT SUPPORT AND COMPUTER PROGRAMMING TECHNOLOGIES
Grade 12**

**Three-Term Budget Of Work
For Learning Competencies**

Please note that each Tech-Pro elective is completed within one term if delivered at Grade 12.

Elective	Computer Systems Servicing	
Prerequisite	None	
Performance Standard	The learners create logo designs and print media design using appropriate software, tools, and materials based on industry standards.	
Content Standard	The learners demonstrate understanding of fundamental principles and trends of visual graphic design needed in creating logo designs and print media design using appropriate software, tools, and materials based on industry standards.	
Week	Learning Competency	Suggested Activities
1	Discuss fundamental concepts of computer systems servicing.	Tech Garage: Build, Budget, and Operate! - o Apply fundamental concepts, OHS standards, tools usage, trends, and business costing in planning a computer servicing enterprise. - o Design a mini computer servicing shop plan that includes tools and materials list, 5S/OHS layout, service pricing, and identified career/business opportunities, then present

Week	Learning Competency	Suggested Activities
		your operational plan. From Technician to TechPreneur Challenge - o Integrate computer servicing skills, safety standards, industry trends, and entrepreneurship concepts into a real-world service proposal. - o Create a service proposal portfolio that includes a repair service menu, costing computation, tools and equipment checklist, safety compliance plan, and a short career pathway reflection.
	• Discuss elements of computer systems	Build Your Dream PC Ecosystem - o Integrate knowledge of computer parts, software, peopleware, and dataware to design a complete computer system. - o Create a detailed diagram or model of a computer system showing all hardware components, software types, and the roles of peopleware and procedures, labeling each part and explaining its function. Software & Hardware Detective Challenge - o Identify and differentiate system and application software while linking them to the correct hardware components.

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		Analyze given scenarios or case studies, match each software type to its function and corresponding hardware, and suggest how procedures and dataware support system operation.
	Perform disassembly and assembly of computer hardware	PC Puzzle Challenge - Demonstrate hands-on skills in disassembling and assembling computer components safely and correctly. - Disassemble a computer system step by step, identify and label each component, then reassemble it following proper procedure and OHS standards. Troubleshoot & Rebuild Race" - Apply assembly knowledge and problem-solving skills to restore a malfunctioning computer system. - In groups, identify deliberately "misplaced or disconnected" parts in a computer setup, fix the issues, and successfully reassemble the system within the time limit.
	Create portable bootable device	ISO Master: Build Your Bootable Toolkit Apply software preparation skills to create a functional ISO image and bootable device.

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		- Using a third-party application or DOS commands, create an ISO image from given software and make a bootable USB drive ready for installation or troubleshooting. Boot & Deploy Challenge - Demonstrate the ability to prepare and deploy system and application software using multiple methods. Prepare a bootable device by first creating an ISO image, then use either DOS commands or third-party tools to make it bootable, and document each step in a workflow diagram.
2	Perform installation of system software and application software	OS Setup Showdown - Apply BIOS/UEFI configuration, disk management, and driver installation to set up a fully functional system. - Configure BIOS/UEFI settings, install an operating system, manage disk partitions, and install all necessary system and device drivers on a computer. Software Deployment Sprint - Demonstrate proper installation and configuration of application software following a complete system setup.

Week	Learning Competency	Suggested Activities
		o After setting up the operating system, install essential application software, verify functionality, and document each installation step for future reference.
	• Perform computer testing and documentation	Stress Test Showdown - o Apply stress testing techniques to evaluate system performance and stability. - o Perform a stress or burning test on a computer system, record the results, and analyze any issues observed during testing. Tech Doc Challenge - o Demonstrate proper reporting and documentation of computer servicing procedures. - o Create a comprehensive test report and documentation for the computer system, including observed performance, errors, solutions applied, and recommendations for future maintenance.
Suggested Performance Tasks	• Individual Performance Task: Build, Boot & Benchmark: The Solo System Builder Challenge - o Demonstrate end-to-end computer system servicing skills by assembling a computer unit, preparing a bootable installer, installing software, and completing testing with proper documentation. - o Briefly explain CSS fundamentals and computer system elements, disassemble and	

Week	Learning Competency	Suggested Activities
	reassemble a computer unit, create a portable bootable device for OS installation, install system and application software, perform functional testing, and complete a service documentation report. • Group Performance Task: TechLab Simulation: The Complete Service Center Challenge - o Collaboratively simulate a computer service center by performing hardware servicing, OS deployment, system testing, and technical documentation. - o In groups of 3–5, assign roles (hardware technician, software installer, QA tester, documentation officer), discuss CSS concepts and system components, disassemble and assemble hardware, create a bootable installer, install required software, conduct system testing, and submit a complete service report with findings and recommendations.	
Performance Standard	The learners perform installation, configuration and testing of computer networks, adhering to occupational health and safety standards.	
Content Standard	The learners demonstrate an understanding of the principles of setting up a computer network	
3	• Discuss the concepts of computer network	Network Builder Challenge - o Apply knowledge of network types, topologies, and architecture to design an efficient network. How: In groups, design a network layout showing the topology, select appropriate network devices, assign IP addresses (IPv4 or IPv6), and justify your choices based on advantages and disadvantages. Peer-to-Peer vs Client-Server Showdown - o Compare and apply network models by

Week	Learning Competency	Suggested Activities
		simulating real-world connections. o Create two small network simulations—one peer-to-peer and one client-server—assign IP addresses, configure devices, and present the benefits and limitations of each setup.
	• Perform setting up of computer network	From Cable to Connection Challenge - o Demonstrate end-to-end network setup skills from cable creation to device configuration. - o Create and terminate an Ethernet cable, test it, install and manage the cabling on a rack or cabinet, and configure a router or access point to establish a working network. Network Mapping & Deployment Mission - o Apply network planning and implementation skills using proper tools, devices, and cable management techniques. - o Design a network map, select appropriate cable types and switches (managed/unmanaged), perform cable installation and management, then configure networking devices to match the planned layout.
	• Perform network testing and documentation	Ping It to Prove It! o Apply connectivity testing methods to verify network functionality and performance.

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		How: Perform connectivity tests (e.g., ping, network tools), identify issues if present, and record results for evaluation. Network Audit Report Challenge ○ Demonstrate professional documentation of network testing procedures and findings. ○ Create a structured network testing report that includes connectivity results, identified problems, solutions applied, and recommendations for network improvement.
Suggested Performance Tasks	• Individual Performance Task: Connect & Confirm: The Solo Network Builder Challenge ○ Apply networking concepts by setting up a functional small network and validating connectivity through testing and documentation. ○ Explain basic networking concepts (LAN, IP addressing, topology), set up a small wired or wireless network, configure basic network settings, perform connectivity testing (ping, file sharing, internet access), and submit a simple network documentation sheet with diagram and results. • Group Performance Task: “Mini Network Deployment: The Campus IT Challenge” ○ Collaboratively design, deploy, and test a working computer network while applying networking concepts and proper documentation. ○ In groups of 3–5, assign roles (network planner, installer, configurator, tester, documenter), discuss networking concepts, design a simple network layout, set up the network (router/switch configuration and connections), conduct connectivity tests, and present a network diagram with test results and recommendations.	

Week	Learning Competency	Suggested Activities
Performance Standard	The learners perform the setting up of a computer server.	
Content Standard	The learners demonstrate an understanding of the principles of setting up a computer network	
3	• Discuss the concepts of server management	Connectivity Checkpoint Challenge - o Apply connectivity testing techniques to verify network performance and reliability. - o Conduct connectivity tests using network tools, analyze results, and identify any connection issues encountered. Document Like a Network Pro - o Demonstrate professional reporting of network testing procedures and outcomes. - o Prepare a structured documentation report detailing connectivity test results, issues found, corrective actions, and recommendations.
4	• Perform server installation	Server Setup Mission Control - o Apply server installation and configuration skills to deploy a functional network operating system. - o Install a network operating system, explore Server Manager interface, and perform initial configurations including basic server roles setup. Build Your First Enterprise Server

Week	Learning Competency	Suggested Activities
		- o Demonstrate understanding of server roles and management through hands-on deployment. - o Install and configure a server using Server Manager, assign appropriate roles and features, and document the setup process and purpose of each configuration.
	Perform installation of Active Directory Domain Services (ADDS)	Domain Architect Challenge - o Apply ADDS concepts by organizing directory objects into a structured domain environment. - o Install ADDS, create Organizational Units (OUs), and organize users and groups based on a given organizational structure. Build Your Digital Organization" - o Demonstrate practical ADDS deployment through user and group management. - o Set up a domain environment by creating OUs, adding user accounts, assigning groups, and documenting the purpose of each object and attribute.
5	• Perform installation of Domain Name System (DNS) services	DNS Builder Quest o Apply DNS concepts by installing and configuring name resolution services.

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		- o Install DNS services on a server and configure forward and reverse lookup zones based on a given network scenario. Name Resolution Detective - o Demonstrate understanding of DNS functionality through configuration and testing. - o Set up DNS, create forward and reverse zones, then test name-to-IP and IP-to-name resolution and document the results.
	• Perform installation and configuration of Dynamic Host Configuration Protocol (DHCP) services	IP Auto-Assign Lab - o Apply DHCP concepts by installing and configuring automated IP address distribution. - o Install DHCP services and configure a working scope including IP range, subnet mask, exclusions, and lease duration for a sample network. DHCP Deployment Challenge - o Demonstrate hands-on DHCP setup and configuration for efficient network management. - o Set up and configure a DHCP server, define scope settings, test client IP assignment, and

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		document the configuration process and results.
6	Perform installation and configuration of File and Storage Services	Centralized Storage Setup Challenge - o Apply file and storage service concepts by deploying a centralized file server. - o Install File and Storage Services, configure File Server Resource Manager, and set up shared folders with folder redirection and network drive mapping. Enterprise File Server Build-Off - o Demonstrate practical configuration of file storage management in a network environment. - o Install and configure a file server, apply storage management policies using File Server Resource Manager, implement folder redirection, and map network drives for client access.
7	Perform installation and configuration of web servers Internet Information Services (IIS).	IIS Server Setup Sprint - o Apply web server concepts by installing and configuring Internet Information Services. - o Install IIS on a server, explore its architecture and core components, and enable key

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		features for basic web hosting. Host Your First Website Challenge - o Demonstrate practical IIS configuration for web service deployment. - o Configure IIS to host a simple website, document the use of core components, and highlight enabled features that support web services.
8	• Perform installation of print and document services	Printer Setup Challenge - o Apply printer deployment concepts by configuring printers for network or local use. - o Install and deploy a printer on a network or workstation, configure settings, and perform a test print to verify functionality. Document Delivery Lab - o Demonstrate practical printer deployment and document management skills. - o Set up multiple printers, assign shared access to users, manage printer properties, and document the deployment process for future reference
	• Perform installation of remote desktop services	Remote Access Lab o Apply Remote Desktop Services concepts by installing and configuring a functional remote

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		access system. - o Install Remote Desktop Services, set up a Remote Desktop Session Host, and connect a client to verify remote access functionality. Gateway to the Cloud Challenge - o Demonstrate understanding of different RDS types and their deployment scenarios. - o Configure Remote Desktop Web Access and Remote Desktop Gateway, test access from a remote client, and document the setup and differences between the RDS types.
Suggested Performance Tasks	• Individual Performance Task: Enterprise Server Build: The One-Admin Deployment Challenge - o Demonstrate comprehensive server management skills by deploying and configuring a fully functional Windows Server environment with core network services. - o Explain key server management concepts, install a Windows Server OS (physical or virtual), configure Active Directory Domain Services (ADDS), install and configure DNS and DHCP, set up File and Storage Services with shared folders, deploy IIS web server, install Print and Document Services, enable Remote Desktop Services, then document the configuration process and test results. • Group Performance Task: Corporate IT Simulation: Full Network Infrastructure Deployment - o Collaboratively design, install, and configure a complete enterprise server infrastructure following proper server management principles.	

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	In groups of 4–6, assign roles (Server Administrator, ADDS/DNS Specialist, DHCP & File Services Manager, Web & IIS Administrator, Security & RDS Officer, Documentation Lead), discuss server management concepts, install and configure Windows Server and required roles (ADDS, DNS, DHCP, File Services, IIS, Print Services, RDS), conduct functionality testing (domain join, IP assignment, file sharing, web access, remote login), and submit a complete infrastructure documentation report with diagrams and service validation results.	
Performance Standard	The learners perform the process of troubleshooting, repairing and maintaining computer systems, networks and servers.	
Content Standard	The learners demonstrate an understanding of the principles of troubleshooting, repairing and maintaining computer systems, network and servers	
9	Perform troubleshooting and repairs of computer network	PC & Laptop Doctor Challenge - Apply troubleshooting techniques to identify and resolve hardware and software issues. - Diagnose a malfunctioning computer or laptop, identify hardware/software problems (compatibility, display, power, overheating, performance, hard drive), and perform the necessary repairs or replacements. Upgrade & Fix Lab - Demonstrate hands-on repair and upgrade skills for laptops and desktops.

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		o Perform laptop hardware replacements/upgrades (LCD, keyboard, RAM, hard drive, battery), resolve software issues (OS, drivers, applications, viruses/malware), and document all troubleshooting steps.
	• Perform troubleshooting and repairs of computer network	Network Detective Challenge - o Apply troubleshooting techniques to identify and resolve common network problems. - o Investigate a simulated network with issues like no internet, slow connection, or Wi-Fi failure, use commands like Ping, IP Config, Traceroute, Netstat, and NSlookup to diagnose, and document the findings. Connectivity Rescue Lab - o Demonstrate hands-on network repair and analysis skills using command-line tools. - o Perform network connectivity checks, identify causes of network issues, apply corrective actions, and create a report showing the troubleshooting process and resolution steps.
10	• Perform troubleshooting and repairs of computer server	Server Crisis Simulation - o Apply troubleshooting techniques to diagnose and resolve server-related problems. - o Investigate a simulated server experiencing

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		network outages, DNS issues, high traffic, NOS errors, or application errors, identify the root causes, and implement corrective actions. Secure & Stabilize Lab - o Demonstrate practical server repair while addressing performance and security concerns. - o Analyze a server environment for performance bottlenecks and security vulnerabilities, apply troubleshooting steps to fix errors, optimize operations, and document the process
	• Perform maintenance of computer systems	Total System Tune-Up Challenge - o Apply comprehensive maintenance techniques to keep a computer system healthy and optimized. - o Perform hardware cleaning and checks, update the operating system and software, uninstall unused programs, and optimize system performance using startup management and resource monitoring. Data & Security Rescue Lab

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		- o Demonstrate practical maintenance of data integrity and system security. - o Conduct data maintenance tasks such as backups, disk cleanup, defragmentation, and check disk; update antivirus software, change passwords, and document all steps taken.
	• Perform maintenance of computer networks	Network Health Check Challenge" - o Apply network monitoring and optimization techniques to maintain peak network performance. - o Continuously monitor a network, analyze performance data, identify bottlenecks, and implement optimization strategies while documenting the results. Network Care & Security Lab - o Demonstrate hands-on network maintenance including hardware, software, and security management. - o Inspect and clean network hardware, update firmware and software, perform necessary hardware upgrades, ensure security measures are active, and record all maintenance actions.
	• Perform maintenance of computer servers	Server Performance Watch o Apply server monitoring and optimization

Week	Learning Competency	Suggested Activities
		techniques to ensure efficient operations. - o Monitor server performance using available tools, analyze usage trends, identify bottlenecks, and implement performance optimization measures while documenting the results. Secure & Backup Lab - o Demonstrate comprehensive server maintenance including hardware, software, security, and data protection. - o Inspect and maintain server hardware, update server software, implement security measures, perform backups, and record all maintenance procedures for future reference.
11	• Prepare documentation and reporting on maintenance of computer systems, servers, and networks.	Service Order Detective - o Apply documentation skills by accurately completing job service order forms. - o Fill out job service order forms or checklists for simulated computer servicing tasks, ensuring all relevant details are recorded correctly. Job Report Challenge - o Demonstrate proper reporting of computer servicing activities and service types. - o Prepare a comprehensive report summarizing

Week	Learning Competency	Suggested Activities
		the types of job orders completed, the services performed, and observations or recommendations for each task.
	• Develop a business plan proposal	Market Explorer Challenge - o Apply market analysis techniques to identify business opportunities in computer system servicing. - o Conduct a market analysis for a proposed computer servicing business, identify target customers, competitors, and demand trends, and present your findings. SWOT & Feasibility Lab - o Demonstrate strategic planning by analyzing strengths, weaknesses, opportunities, and threats, and assessing feasibility. - o Create a SWOT analysis and feasibility study for your proposed computer servicing business, including financial, technical, and operational considerations, and document your recommendations.
Suggested Performance Task	• Individual Performance Task: Fix, Maintain & Monetize: The Solo IT Service Pro Challenge	

	- o Demonstrate advanced CSS competence by diagnosing, repairing, maintaining computer systems, networks, and servers, documenting findings, and proposing a simple IT service business plan. - o Diagnose and troubleshoot assigned computer, network, and server issues; perform necessary repairs and preventive maintenance; complete a detailed service and maintenance report (problems, solutions, tools used, recommendations); then develop a short business plan proposal outlining services offered, target clients, pricing strategy, and projected income. • Group Performance Task: TechCare Solutions: Full-Service IT Business Simulation - o Collaboratively simulate an IT service company that performs troubleshooting, maintenance, documentation, and business planning for clients. - o In groups of 4–6, assign roles (Hardware Technician, Network Specialist, Server Administrator, Maintenance Officer, Documentation Specialist, Business Manager), troubleshoot and repair given system/network/server scenarios, conduct preventive maintenance procedures, prepare a consolidated technical service report, and develop a professional IT service business plan including market analysis, service packages, pricing, and sustainability strategy, then present to the class as a client pitch.
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