ETHIOPIAN CUSTOMS COMMISSION COMPETENCY-BASED TRAINING SYLLABUS

Competency Domain: ICT Competencies
Competency Area: Systems Administration
Competency Code: LSCC5191-LSCC5194
Module objectives:

- The module introduces learners with the basic concepts of System Administration in workplace.
- Key resources such as users, security, protection of hardware and software, computer network and servers will be discussed at greater depth.
- Stand alone and server operating systems, virtualization, TCP/IP network addressing, and network architecture are the topics for learners of the module.

Competency Area	Proficiency Level	Competency Level Description	Learning outcome	Contents	Time	Training Methodologies/Strategies	Training resources	Assessment Technique
System Administration	**I (Awareness)**	This competency level introduces trainees with basic of system administration in an organization.	1. Develop understanding of what system administration is. 2. Awareness of common IT terminology (e.g., server, network, security). 3. Familiarity	**1. Introduction** o What is system administration? o Why does it matter? o Who is a system administrator? **2. Commonly Used Terminologies in System Administration** o Security o User Management o Resource	**12hrs**	● Interactive ppts and animation. ● Short Videos ● Discussion forum in the LMS ● Demonstration ● Cases	● Slides and handouts. ● Video tutorials. ● Short videos ● Self-paced learning in the LMS	● Short quizzes (MCQs or true/false). ● Reflection questions. ● Quizzes and Exams ● Descriptive Questions.

			with the basic role of system administrators (e.g., maintaining system uptime, user and system management). 4. Develop working knowledge of general IT policies and procedures (e.g., password policies, acceptable use policies).	Management o Server (Hardware and Software) o Computer Network **3. IT Policies and Procedure (Brief discussion on)** o user access control o data backup o security protocols o system updates o incident response o change management o ensuring consistent operations and minimizing risks				
	II (Trained)	This level introduces trainees the concepts of users and devices management,	1. Create user accounts and permissions. 2. Understanding of fundamental networking	1. **Users and Devices Management** o Managing users and devices centrally using server operating systems.	**16hrs**	● Interactive ppts and animation. ● Short Videos ● Discussion forum in the LMS ● Demonstration ● Cases	● Slides and handouts. ● Video tutorials. ● Short videos ● Self-paced	● Short quizzes (MCQs or true/false). ● Reflection questions.

		working with operating systems (UNIX and Windows), IP addressing (Static vs dynamic), IP forwarding, basic maintenance routine, and system security.	concepts (e.g., IP addressing, DNS). 3. Install and Configure operating system e.g., Windows, Linux). 4. Ability to perform routine maintenance tasks (e.g., applying patches, backups). 5. Understanding of basic security practices (e.g., antivirus, firewalls).	○ Defining polices to be applied on users and devices **2. Operating Systems Installation** ○ Dual Boot Installation. ○ Formatting Storage Devices ○ Partitioning Storage Devices **3. IP Addressing of Devices** ○ Static vs Dynamic IP Address Management ○ DHCP and DNS Concepts ○ IPV6 vs IPV4 ○ Logically Dividing the Network (VLAN, Subnetting) **4. Maintaining and Securing System.** ○ Antivirus ○ Firewall (Hardware and Software) ○ Back up and restore			learning in the LMS ● Software (Server and Operating Systems)	● Quizzes and Exams ● Descriptive Questions. ● Laboratory exams

				○ Patches ○ Basic hardware overhauling.				
	III (Experienced)	This level focuses on an in-depth discussion of Server Management, Computer Networking, Virtualization and automation of routine tasks, system security as well as compliance.	1. Proficiency in server management 2. Strong understanding of networking 3. Capability to automate routine tasks using scripting (e.g., PowerShell, Bash). 4. Understanding of virtualization technologies. 5. Ability to troubleshoot and resolve system issues effectively. 6. Familiarity with security best practices and	1. **Server Management:** ○ Server Installation and Management (UNIX and Windows). ○ Configuration of servers ○ Monitoring Server performances 2. **Computer Networking:** ○ VLANs. ○ VPNs ○ Routing ○ VPNs 3. **Virtualization and automation of routine tasks** ○ VMware ○ Hyper-V ○ PowerShell and Bash to write script 4. **System Security and Compliance Requirements** ○ Access control, password	**24 hours**	● Hands-on exercises. ● Demonstration ● Cases ● LMS ● Server (Software and Hardware)	● Power point slides. ● Case studies and industry examples. ● Worksheets and practice ● scenarios ● Modules ● Online Videos	● Individual assignments. ● Interactive quizzes (objective or subjective questions) ● Quizzes and Exams ● Lab Exams ● Capstone Project.

			compliance requirements.	management, encryption, vulnerability scanning, patch management, incident response procedures, malware protection, data protection, security policies, logging and monitoring, user awareness training, cloud security best practices, and compliance regulations.				
	IV (Expert)	This is competency level gives the knowledge, skills and attitudes to design network architecture and system integration,	1. Develop network architecture and system integration. 2. Planning high-availability systems and disaster recovery. **3.** Work on	1. **Network Architecture and System Integration.** ○ Topology, Protocols, Network Security, Routing and Switching Mechanisms ○ Data Integration ○ Enterprise application	**32hours**	● Hands-on exercises. ● Demonstration ● Cases ● LMS	● Power point slides. ● Case studies and industry examples. ● Worksheets and practice ● scenarios	● Individual assignments. ● Interactive quizzes (objective or subjective questions) ● Quizzes

		disaster recovery, cloud services and infrastructure, and IT policies and strategic planning.	cloud services and infrastructure 4. Develop IT policies and strategic planning.	integration (EAI)-ERP, SCM, and CRM Integration o Understanding of APIs o Integration patterns (Message Queuing, Even-Driven Architecture, and Web Services) o Legacy System Integration. 2. **High-availability systems and disaster recovery.:** o Processes, steps and considerations. o Importance of Data Protection Strategy o Redundancy, Load-balancing, etc. o Off-site backups, data replication, recovery time objective(RTO),			● Modules ● Cloud Services.	and Exams ● Capstone Project.

				etc. **3. Cloud Services and Infrastructures-** o Cloud Computing, Cloud Infrastructure Fundamental, Cloud Service Models, Cloud Provider Services, AWS, MS Azure and Google Cloud Platform (GCP) **4. IT Policies and Strategic Planning** o Organizational IT Vision and Mission o Aligning IT Goals with Business Goal, etc				
Total time					**86hrs**			