Republic of Rwanda
Ministry of Education

RTB | RWANDA TVET BOARD

INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

CCMCS402

Apply Computer Skills

Competence

RQF Level: 4

Learning Hours
30

Credits: 3

Sector: All

Trade: All

Module Type: Complementary Module

CURRICULUM: All

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<table>
<tr><td>Purpose statement</td><td colspan="5">This module describes knowledge skills and attitudes required to apply computer skills. At the end of this module, learners will be able to describe the operating system; Customize the computer features and protect the computer.</td></tr>
<tr><td rowspan="6">Delivery modality</td><td colspan="2">Training delivery</td><td>100%</td><td colspan="2">Assessment</td><td>Total 100%</td></tr>
<tr><td colspan="2">Theoretical content</td><td>30%</td><td rowspan="4">Formative assessment</td><td>30%</td><td rowspan="4">100%</td></tr>
<tr><td colspan="2">Practical work:</td><td rowspan="3">70%</td><td rowspan="3">70%</td></tr>
<tr><td>• Group Work and presentation</td><td>20%</td></tr>
<tr><td>• Individual Work</td><td>50%</td></tr>
<tr><td colspan="3"></td><td colspan="2">Summative Assessment</td><td>N/A</td></tr>
</table>

Elements of Competency and Performance Criteria

Elements of competency	Performance criteria
1. Describe the operating system	**1.1** Operating system is properly described according to its activities
	1.2 Main Operating system components are properly described according to their services
	1.3 Operating system types are properly described according to the particular task
	1.4. Operating system file system is properly described according to their types
2.Customize the computer features	**2.1.** Customer requirements are properly identified for an operating system according to their needs
	2.2. Minimum Hardware Requirements are properly identified for an operating system to be used
	2.3. Operating system is properly customized according to the perspective steps
3. Protect computer system	**3.1.** Software utilities are properly installed according to the manufacturer specifications
	3.2. Computer is regularly scanned according to the elimination of virus as per safety standards
	3.3. Computer data are accurate backed up and restored based on OS installation

Course content

Learning outcomes	At the end of the module the learner will be able to: 1. Describe the operating system 2. Customize the computer features 3. Protect computer system
Learning outcome 1: Describe the operating system	Learning hours: **15**

Indicative content

- **Description of operating system**
  - ✓ Definition of operating system
  - ✓ Features of operating system
  - ✓ Functions of operating system
    - Memory management
    - Processor management
    - Device management
    - File management
    - Security management
    - Coordination other software and users
    - Error detecting aids
    - Job accounting
- **Description of the main components of operating system**
  - ✓ User interface
    - Graphical user interface (**GUI**)
    - Command Line Interface (**CLI**)
  - ✓ Kernel
    - Monolithic kernel
    - Microkernel
  - ✓ File management system
    - Select group of Adjacent files or directories
    - Select group of Non adjacent files or directories
    - Duplicate files /folder
    - Move /delete files and folders
    - Downloading files/folders
- **Description of the types of operating system**
  - ✓ Batch operating system
  - ✓ Distributed operating system
  - ✓ Real Time Operating System
    - Hard real time operating system
    - Soft real time operating system
  - ✓ Network operating system
  - ✓ Time –sharing operating system

- ✓ Mobile operating system
- ✓ Embedded operating system

- **Description of the operating system file system**
  - ✓ File system role
  - ✓ Major types of file systems in Microsoft windows
    - File Allocation Table (FAT12, FAT16, FAT32)
    - New Technology File System (NTFS)

Resources required for the learning outcome	
Equipment	• Computer , Projector, whiteboard
Materials	• Marker, Flipchart
Tools	• CD , DVD, flash driver, Reference books
Facilitation techniques	• Individual and group work • Individualized • Trainer guided • Group discussion
Formative assessment methods	• Written assessment • Oral presentation • Performance assessment

Learning outcome 2: Customize the computer features	Learning hours: 10

Indicative content

- **Identification of the customer requirements for an operating system**
  - ✓ Requirements to be considered
    - Budget constraints
    - Compatibility with current hardware
    - Compatibility with new hardware
    - How the computers will be used?
    - Compatibility with existing applications
    - Types of new applications to be used
- **Identification of the minimum hardware requirements for an operating system**
  - ✓ Basic requirements for installing windows 10 on PC
    - RAM capacity:1Gigabyte (1GB) for 32-bits or 2 Gigabytes (2GB) for 64-bits
    - Hard drive size:16 GB for 32-bits or 32 GB for 64-bits OS
    - Graphics card: DirectX or later with WDDM 1.0 driver
    - Processor: 1GHZ or faster processor or System on a Chip
    - Display: 800 x 600
  - ✓ Common hardware upgrades
- **Customization of the operating system**
  - ✓ Windows settings
    - Creating a user account
    - Manage user account

- Window Personalization

✓ Disk management
- Disk partitioning
- Disk formatting
- Disk clean up

✓ Windows administrative tools
- Task scheduler
- Event viewer

✓ Control panel settings

Resources required for the indicative content	
Equipment	• Computer, Projector, whiteboard
Materials	• Marker, Flipchart
Tools	• CD, DVD, flash driver, Reference books
Facilitation techniques	• Demonstration and simulation • Individual and group work • Practical exercise • Individualized • Trainer guided • Group discussion
• Formative assessment methods	• Written assessment • Oral presentation • Performance assessment

Learning outcome 3: Protect computer system	Learning hours: 5

Indicative content

- **Installation of software utilities**
  - ✓ Description of software tools \utilities
    - Anti-virus
    - Anti-malware
    - Anti-spyware
    - Backup software
    - Backup media
  - ✓ Installation of software tools\utilities
    - Anti-virus
    - Anti-malware
    - Anti-spyware

- **Scanning and Eliminating virus**
  - ✓ Description of scan types
  - ✓ Description of scan mode
  - ✓ Virus elimination

- Elimination by neutralization
- Elimination by deleting
- Elimination by quarantine

- **Backing up and restoring of computer data**
  - ✓ Description of backup types
    - Full backup
    - Differential backup
    - Incremental backup
    - Copy backup
    - Mirror backup
    - Daily backup
  - ✓ Selection of common backup devices
    - Tape drive
    - Optical Discs
    - USB flash drivers
    - SD card
    - HDD/SSD
  - ✓ Selection of common restore devices
    - HDD/SSD
    - USB flash Drivers
    - Tape drive
    - SD Card and Optical drives

Resources required for the indicative content	
Equipment	• Computer, Projector, whiteboard
Materials	• Markers, Flipchart
Tools	• USB/ Flash Driver, HDD, SD Card, Tape drives, reference books
Facilitation techniques	• Demonstration and simulation • Individual and group work • Practical exercise • Individualized • Trainer guided • Group discussion
Formative assessment methods	• Written assessment • Oral presentation • Performance assessment

References:

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5. https://www.techtarget.com/searchdatabackup/feature/Full-incremental-or-differential-How-to-choose-the-correct-backup-type
6. https://www.indeed.com/career-advice/career-development/types-of-operating-systems
7. https://www.langmeier-software.com/en/seiten/news/die-vor-und-nachteile-der-verschiedenen-windows-dateisysteme