



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



Credits: 3

Sector: All

Trade: All

Module Type: Complementary Module

CURRICULUM: All

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1200

Issue Date: May 2023

<b>Purpose statement</b>	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.				
<b>Delivery modality</b>	<b>Training delivery</b>	<b>100%</b>	<b>Assessment</b>	<b>Total 100%</b>	
	Theoretical content	30%	Formative assessment	100%	
	Practical work:	70%			70%
	<ul style="list-style-type: none"> <li>Group Work and presentation 20%</li> <li>Individual Work 50%</li> </ul>				
				Summative Assessment	N/A

## Elements of Competency and Performance Criteria

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

# Course content

<b>Learning outcomes</b>	<b>At the end of the module the learner will be able to:</b> <ol style="list-style-type: none"><li>1. Describe the operating system</li><li>2. Customize the computer features</li><li>3. Protect computer system</li></ol>
Learning outcome 1: Describe the operating system	Learning hours: 15
<b>Indicative content</b>	
<ul style="list-style-type: none"><li>• <b>Description of operating system</b><ul style="list-style-type: none"><li>✓ Definition of operating system</li><li>✓ Features of operating system</li><li>✓ Functions of operating system<ul style="list-style-type: none"><li>+ Memory management</li><li>+ Processor management</li><li>+ Device management</li><li>+ File management</li><li>+ Security management</li><li>+ Coordination other software and users</li><li>+ Error detecting aids</li><li>+ Job accounting</li></ul></li></ul></li><li>• <b>Description of the main components of operating system</b><ul style="list-style-type: none"><li>✓ User interface<ul style="list-style-type: none"><li>+ Graphical user interface (GUI)</li><li>+ Command Line Interface (CLI)</li></ul></li><li>✓ Kernel<ul style="list-style-type: none"><li>+ Monolithic kernel</li><li>+ Microkernel</li></ul></li><li>✓ File management system<ul style="list-style-type: none"><li>+ Select group of Adjacent files or directories</li><li>+ Select group of Non adjacent files or directories</li><li>+ Duplicate files /folder</li><li>+ Move /delete files and folders</li><li>+ Downloading files/folders</li></ul></li></ul></li><li>• <b>Description of the types of operating system</b><ul style="list-style-type: none"><li>✓ Batch operating system</li><li>✓ Distributed operating system</li><li>✓ Real Time Operating System<ul style="list-style-type: none"><li>+ Hard real time operating system</li><li>+ Soft real time operating system</li></ul></li><li>✓ Network operating system</li><li>✓ Time –sharing operating system</li></ul></li></ul>	

<ul style="list-style-type: none"> <li>✓ Mobile operating system</li> <li>✓ Embedded operating system</li> <li>• <b>Description of the operating system file system</b></li> <li>✓ File system role</li> <li>✓ Major types of file systems in Microsoft windows <ul style="list-style-type: none"> <li>✚ File Allocation Table (FAT12, FAT16, FAT32)</li> <li>✚ New Technology File System (NTFS)</li> </ul> </li> </ul>
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**Resources required for the learning outcome**

Equipment	<ul style="list-style-type: none"> <li>• Computer , Projector, whiteboard</li> </ul>
Materials	<ul style="list-style-type: none"> <li>• Marker, Flipchart</li> </ul>
Tools	<ul style="list-style-type: none"> <li>• CD , DVD, flash driver, Reference books</li> </ul>
Facilitation techniques	<ul style="list-style-type: none"> <li>• Individual and group work</li> <li>• Individualized</li> <li>• Trainer guided</li> <li>• Group discussion</li> </ul>
Formative assessment methods	<ul style="list-style-type: none"> <li>• Written assessment</li> <li>• Oral presentation</li> <li>• Performance assessment</li> </ul>

<b>Learning outcome 2: Customize the computer features</b>	<b>Learning hours: 10</b>
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**Indicative content**

<ul style="list-style-type: none"> <li>• <b>Identification of the customer requirements for an operating system</b></li> <li>✓ Requirements to be considered <ul style="list-style-type: none"> <li>✚ Budget constraints</li> <li>✚ Compatibility with current hardware</li> <li>✚ Compatibility with new hardware</li> <li>✚ How the computers will be used?</li> <li>✚ Compatibility with existing applications</li> <li>✚ Types of new applications to be used</li> </ul> </li> <li>• <b>Identification of the minimum hardware requirements for an operating system</b></li> <li>✓ Basic requirements for installing windows 10 on PC <ul style="list-style-type: none"> <li>✚ RAM capacity:1Gigabyte (1GB) for 32-bits or 2 Gigabytes (2GB) for 64-bits</li> <li>✚ Hard drive size:16 GB for 32-bits or 32 GB for 64-bits OS</li> <li>✚ Graphics card: DirectX or later with WDDM 1.0 driver</li> <li>✚ Processor: 1GHZ or faster processor or System on a Chip</li> <li>✚ Display: 800 x 600</li> </ul> </li> <li>✓ Common hardware upgrades</li> <li>• <b>Customization of the operating system</b></li> <li>✓ Windows settings <ul style="list-style-type: none"> <li>✚ Creating a user account</li> <li>✚ Manage user account</li> </ul> </li> </ul>
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<ul style="list-style-type: none"> <li> Window Personalization</li> <li>✓ Disk management <ul style="list-style-type: none"> <li> Disk partitioning</li> <li> Disk formatting</li> <li> Disk clean up</li> </ul> </li> <li>✓ Windows administrative tools <ul style="list-style-type: none"> <li> Task scheduler</li> <li> Event viewer</li> </ul> </li> <li>✓ Control panel settings</li> </ul>
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**Resources required for the indicative content**

Equipment	<ul style="list-style-type: none"> <li>• Computer, Projector, whiteboard</li> </ul>
Materials	<ul style="list-style-type: none"> <li>• Marker, Flipchart</li> </ul>
Tools	<ul style="list-style-type: none"> <li>• CD, DVD, flash driver, Reference books</li> </ul>
Facilitation techniques	<ul style="list-style-type: none"> <li>• Demonstration and simulation</li> <li>• Individual and group work</li> <li>• Practical exercise</li> <li>• Individualized</li> <li>• Trainer guided</li> <li>• Group discussion</li> </ul>
<ul style="list-style-type: none"> <li>• Formative assessment methods</li> </ul>	<ul style="list-style-type: none"> <li>• Written assessment</li> <li>• Oral presentation</li> <li>• Performance assessment</li> </ul>

<b>Learning outcome 3: Protect computer system</b>	<b>Learning hours: 5</b>
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**Indicative content**

<ul style="list-style-type: none"> <li>• <b>Installation of software utilities</b> <ul style="list-style-type: none"> <li>✓ Description of software tools \utilities <ul style="list-style-type: none"> <li> Anti-virus</li> <li> Anti-malware</li> <li> Anti-spyware</li> <li> Backup software</li> <li> Backup media</li> </ul> </li> <li>✓ Installation of software tools\utilities <ul style="list-style-type: none"> <li> Anti-virus</li> <li> Anti-malware</li> <li> Anti-spyware</li> </ul> </li> </ul> </li> <li>• <b>Scanning and Eliminating virus</b> <ul style="list-style-type: none"> <li>✓ Description of scan types</li> <li>✓ Description of scan mode</li> <li>✓ Virus elimination</li> </ul> </li> </ul>
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- ✚ 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	<ul style="list-style-type: none"> <li>• Computer, Projector, whiteboard</li> </ul>
Materials	<ul style="list-style-type: none"> <li>• Markers, Flipchart</li> </ul>
Tools	<ul style="list-style-type: none"> <li>• USB/ Flash Driver, HDD, SD Card, Tape drives, reference books</li> </ul>
Facilitation techniques	<ul style="list-style-type: none"> <li>• Demonstration and simulation</li> <li>• Individual and group work</li> <li>• Practical exercise</li> <li>• Individualized</li> <li>• Trainer guided</li> <li>• Group discussion</li> </ul>
Formative assessment methods	<ul style="list-style-type: none"> <li>• Written assessment</li> <li>• Oral presentation</li> <li>• Performance assessment</li> </ul>

**References:**

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2. <https://www.ukessays.com/essays/computer-science/classification-of-operating-systems-ii-computer-science-essay.php>

3. <https://support.microsoft.com/en-us/windows/backup-and-restore-in-windows-352091d2-bb9d-3ea3-ed18-52ef2b88cbef>
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