UNDERSTAND OPERATING SYSTEMS

UNIT CODE: ICT/OS/CS/CR/02/6/A

UNIT DESCRIPTION

This unit covers the competencies required to understand operating systems. It involves understanding fundamentals of operating systems, understanding process management, understanding memory management, understanding input-output management and understanding file management.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicised terms are elaborated in the Range)*
1. Understand fundamentals of operating systems	1.1 Computer Software is explained 1.2 Operating system is explained 1.3 *Structures of operating systems* are described. 1.4 *Types of operating systems* are explained. 1.5 Installation requirements for Windows are outline 1.6 Installation of Windows is demonstrated
2. Understand process management	2.1 Process management is explained 2.2 Manage **computer resources** 2.3 Process states and transitions are explained 2.4 Process scheduling is explained 2.5 Use of the Task Manager is demonstrated 2.6 Use of performance monitor tool is demonstrated
3. Understand memory management	3.1 Memory management is explained. 3.2 *Memory management techniques* are explained. 3.3 Virtual memory management settings are demonstrated
4. Understand input and output management	4.1 Input - output management is explained 4.2 Disk operations are explained 4.3 Computer clock system is explained 4.4 Virtual Input Output is explained 4.5 Disk selection criteria are outlined 4.6 Verification of disk properties is demonstrated 4.7 *Disk storage management operations* are demonstrated 4.8 *Device management operations* are demonstrated

ELEMENT	PERFORMANCE CRITERIA *(Bold and italicised terms are elaborated in the Range)*
5. Understand file management and local policy settings	5.1 File management is explained. 5.2 *File access methods* are explained. 5.3 File allocation techniques are explained. 5.4 File protection and security are explained. 5.5 *File and directory operations* are demonstrated 5.6 *Local policy settings* are demonstrated

RANGE

Variable	Range
1. Structures of operating system may include but is not limited to:	• Monolithic • Layered • Virtual • Client server model
2. Types of operating system may include but is not limited to:	• Real time • Normal • Batch • Time sharing
3. Computer Resources may include but is not limited to:	• Processor • Storage space
4. Memory management techniques may include but is not limited to:	• Partitions • Virtual
5. Disk storage management operations may include but is not limited to:	• Shrinking volume • Extending volume • Formatting volume • Partitioning volume • Disk Optimization and defragmentation
6. Device Management Operations may include but is not limited to:	• Driver Installation • Resolving driver conflicts

Variable	Range
7. File access methods may include but is not limited to:	• Sequential • Random • Indexed sequential
8. File and directory operations may include but is not limited to:	• Setting attributes • Share settings • Security settings • Customization of files and folders
9. Local policy settings may include but is not limited to:	• Password policy • Account lockout policy • Audit policy • Security options

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required skills

The individual needs to demonstrate the following skills:

- Communications (verbal and written);
- Time management;
- Problem solving;
- Planning;
- Decision Making;
- Research;

Required knowledge

The individual needs to demonstrate knowledge of:

- Concepts of operating systems
- Process management
- Memory management
- Input/output management
- File management and local security policy settings

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and understanding and range.

1.	Critical Aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Identified types of operating systems 1.2 Explained structures of operating systems 1.3 Explained functions of operating systems 1.4 Installed Windows operating system 1.5 Explained process scheduling 1.6 Demonstrated process management using the task manager 1.7 Demonstrated resource allocation using performance monitor tool 1.8 Explained memory management techniques 1.9 Demonstrated disk storage management operations 1.10 Demonstrated device management using the Device Manager 1.11 Demonstrated file and directory operations 1.12 Configured local policy security settings

2.	Resource Implications	The following resources should be provided:
		   2.1 Access to relevant workplace where assessment can take place
		   2.2 Appropriately simulated environment where assessment can take place

3.	Methods of Assessment	**Competency may be assessed through:** 3.1 Oral test 3.2 Observation 3.3 Practical demonstration 3.4 Written tests

4.	Context of Assessment	Competency may be assessed
		   4.1 Off the job
		   4.2 on the job
		   4.3 During industrial attachment

5.	Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.