ZSYS H1201: Operating Systems

Module Title:	Operating Systems
Credits:	10
NFQ Level:	6
Module Delivered In	1 programme(s)
Teaching & Learning Strategies:	Learning is divided into a one hour lecture and three hour practical session over thirty weeks. The practical sessions will provide students with hands on experience in installing, using, configuring and managing operating systems. It will also provide the opportunity to implement and reinforce some of the material presented in the lectures and to learn by doing.
Module Aim:	To provide students with practical skills and working knowledge of industry standard operating systems.

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Demonstrate practical skills in the operation and management of contemporary operating systems.
LO2	Explain the operation of the file manager and processor manager components of an operating system.
LO3	Install and configure Windows and Linux operating systems with appropriate security considerations.
LO4	Automate simple tasks by using system commands to write and execute scripts.
LO5	Differentiate between paging, segmentation and virtual memory in terms of memory management.
LO6	Describe the architecture and operation the input/output subsystem.

Pre-requisite learning
Module Recommendations *This is prior learning (or a practical skill) that is recommended before enrolment in this module.*
No recommendations listed
Incompatible Modules *These are modules which have learning outcomes that are too similar to the learning outcomes of this module.*
No incompatible modules listed
Co-requisite Modules
No Co-requisite modules listed
Requirements *This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.*
No requirements listed

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Module Content & Assessment

Indicative Content
Familiarisation with Windows and Linux environments: Use of GUI and CLI interfaces, customizing the desktop, passwords; Use of operating system utilities for example: disk defragmentation programs, file compression/decompression programs.
System Software (OS) Bootstrapping and the boot process, dual booting; application software versus system software; OS architecture, types of operating systems and categories of OS, examples of OS.
Files and File Management: File and directory management, file types, access and storage; File systems; for example NTFS, exFAT, ext4
Installation: Getting ready for installation, disk partitioning, dual boot, installing via the internet or CD, creating a boot disk.
Configuration of the OS: Mounting and unmounting file systems, plug and play features, device drives, loading operating system components, installing and configuring application software, troubleshooting.
OS Commands: For example; input and output redirection commands and file and directory management commands, writing batch files/shell scripts to automate tasks.
Basic Computer Security: Viruses and firewalls, basic system administration; add users, changing access rights.
Process Management: Process control blocks, process states and the process life cycles, process scheduling policies.
Memory Management: Memory hierarchy, paging, segmentation and virtual memory; Demand paging, page replacement policies. Windows (pagefile.sys) versus Linux swap space.
Choosing an OS: Hardware considerations, ease of use, cost, file portability, applications available for use, comparing the different versions of Linux and Windows operating systems on the market.

Assessment Breakdown	%
Continuous Assessment	100.00%

Continuous Assessment

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Multiple Choice Questions	Early Diagnostic	2	10.00	Week 8
Examination	Written Theory Exam (Jan and End April)	2,5,6	40.00	n/a
Practical/Skills Evaluation	Practical Lab Exam (Dec and Start April)	1,3,4	30.00	n/a
Practical/Skills Evaluation	Group Script Assignment and Lab Demo	4	10.00	Week 20
Other	Lab Completion and Participation	1,3,4	10.00	Every Week

No Project

No Practical

No End of Module Formal Examination

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

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Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
Lecture	30 Weeks per Stage	1.00
Laboratory	30 Weeks per Stage	3.00
Estimated Learner Hours	30 Weeks per Stage	2.67
	Total Hours	200.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_KWCAP_C	Higher Certificate in Computing	1	Mandatory