






Certificate in Unix (188) – Overview of Operating Systems

Prerequisites: Knowledge in Windows operating system.	Corequisites: A pass or higher in Certificate in Networking or equivalence.
<p>Aim: This course explores the design and implementation of operating systems. Among the topics covered will be process management (creation, synchronization, and communication); processor scheduling; deadlock prevention, avoidance, and recovery; main-memory management; virtual memory management (swapping, paging, segmentation and page-replacement algorithms); control of disks and other input/output devices; file-system structure and implementation; and protection and security.</p> <p>Most people seem not to understand the importance of operating system and ask questions such as "what's the point of this course? What are the candidates supposed to get out of it? An operating system course isn't just about operating systems and its purpose goes well beyond giving ammunition to the UNIX / Windows / Mac operating system partisans. A well-taught OS course gives candidates skills and ways to think about computer systems that are broadly applicable even if you never touch a line of kernel code. On completion of the course, candidates will understand: (i) Concurrency – concepts of concurrent code is not easy, especially using threads with shared memory and locks. (ii) Resource Management - the strategies used to give multiple users access to a dedicated physical resource are fundamental and are also used in many user-level programs. (iii) Performance Analysis and Contention Resolution - when resources are shared, contention typically follows. Contention can be resolved in many ways, for example using queuing, fair sharing, or prioritization. (iv) Interfaces and Hiding Complexity - a well-designed interface is a beautiful thing. It is even more beautiful to fully appreciate what it takes to transform a nasty, low-level interface (a modem or NE2000 card) into a usable and efficient high-level abstraction (a stream socket). (v) When things go wrong - from user mode, it's easy to view the OS as a magical force that is both good — giving us smooth multitasking, efficient storage management, etc. — and evil — giving us blue screens, thrashing, security problems, and scheduling anomalies. (vi) Computer System Design - designing any engineered system, including a software system, is an exercise in compromise. How much emphasis is placed on reliability? Performance? Cost? Maintainability? Since operating systems are large, performance-critical programs that tend to last for decades, they are a great place to learn about these kinds of tradeoffs. Candidates who develop a sharp eye for finding an appropriate design point are incredibly useful in industry.</p>	
Required Materials: Recommended Learning Resources.	Supplementary Materials: Lecture notes and tutor extra reading recommendations.
Special Requirements: The course requires a combination of lectures, demonstrations, discussions, and hands-on labs.	
<p>Major Learning Outcomes:</p> <ol style="list-style-type: none"> 1. Outline the different types of operating systems and explore the fundamental Operating System concepts. 2. Describe the importance of understanding network security threats and how implement them effectively. 3. Demonstrate how Desktop Virtualization products help companies adapt to emerging technologies and business needs. 	<p>Assessment Criteria:</p> <ol style="list-style-type: none"> 1.1 Identify components of a microcomputer 1.2 Outline the different types of microcomputers 1.3 Outline the functions of operating systems 1.4 Describe different types of operating systems 1.5 Explain Windows file systems 1.6 Explain Mac operating system 1.7 Explain Linux operating system 2.1 Identify threats to computers and users 2.2 Outline the processes to combat computers and users threats 2.3 Discuss how to troubleshoot basic security problems 3.1 Define virtualisation 3.2 Outline desktop virtualisation tools

4. Outline the history of MS-DOS and demonstrate the commands.	4.1 Analyse the different versions of DOS 4.2 Analyse DOS commands 4.3 Describe the DOS boot-up process 4.4 Be able to troubleshoot DOS problems
5. Describe the different versions of Windows Operating System.	5.1 Identify the different versions of Windows operating system 5.2 Be able to install Windows operating system 5.3 Create a partition on a Windows system 5.4 Install/remove applications 5.5 Install a printer 5.6 Outline file management processes in Windows 5.7 Be able to secure a Windows system 5.8 Apply security to files, folders and printers 5.9 Be able to troubleshoot Windows problems
6. Describe the standard file systems used with Windows versions, symbolic links and transitioning of file operations.	6.1 Identify how the registry works 6.2 Explore the Windows startup process 6.3 Be able to manage and install device drivers 6.4 Be able to troubleshoot startup problems
7. Outline Linux history, features and operating system characteristics.	7.1 Outline Linux system kernel 7.2 Install Linux operating system 7.3 Analyse Linux commands 7.4 Identify Linux directory structure 7.5 Be able to troubleshoot Linux problems
8. Outline the components that exist on the client, the files related to client side networking, and the tools available.	8.1 Outline TCP/IP utilities 8.2 Understand internet connection process 8.3 Identify different browser software 8.4 Understand file and hardware sharing 8.5 Be able to troubleshoot client network problems

Methods of Evaluation: A 2-hour written examination paper with Section A and Section B. Section A has 40 multiple choice questions. Section B has three essay questions, each carrying 20 marks. Candidates are required to answer all questions. Candidates also undertake project/coursework in Overview of Operating Systems with a weighting of 100%.

Recommended Learning Resources: Overview of Operating Systems

Text Books	<ul style="list-style-type: none"> Operating Systems: Incorporating Unix and Windows by Colin Ritchie ISBN-10: 0826464165 Computer Systems and Networks by Barry G. Blundell, Nawaz Khan, Aboubaker Lasebae and Muthana Jabbar ISBN-10: 1844806391 Operating Systems by John O'Gorman ISBN-10: 0333802888
Study Manuals 	BCE produced study packs
CD ROM 	Power-point slides
Software 	Windows and Unix Operating Systems

Tel: 0044 7423211037

Email: info@londoncomputercollege.co.uk Website: www.londoncomputercollege.co.uk

Registered No: 3267009 (England)