

(Updated Spring 2016)

**UK LEVEL 4
UK CREDITS:15**

PREREQUISITES:	ITC1070 LE Information Technology Fundamentals or CS1070 Introduction to Information Systems ITC 2188 Introduction to Programming							
CATALOG DESCRIPTION:	Operating system structures; functions and techniques; Performance; avoidance of deadlock and security issues. Management of Operating System resources and processes.							
RATIONALE:	The course provides a clear understanding of the fundamental concepts underlying an operating system and relates these to its function, design and evolution. It describes different operating system structural components and demonstrates how they interact to provide a range of user services and resource management.							
LEARNING OUTCOMES:	As a result of taking this course, the student should be able to: 1. Demonstrate understanding of major operating system components and designs. 2. Utilize an operating system to perform computer management tasks and functions. 3. Explain the main principles and techniques used to manage processes and threads as well as the different algorithms for process scheduling and synchronization mechanisms. 4. Identify security risks in operating systems and the role of operating systems in establishing security.							
METHOD OF TEACHING AND LEARNING:	In congruence with the teaching and learning strategy of the college, the following tools are used: <ul style="list-style-type: none">• Classroom lectures, discussions, laboratory practical sessions.• Office hours: Students are encouraged to make full use of the office hours of their instructor, where they can ask questions and go over lecture material.• Use of the Blackboard Learning platform, where instructors post lecture notes, assignment instructions, timely announcements, as well as additional resources.							
ASSESSMENT:	Summative: <table><tr><td>Coursework: case problems</td><td>40%</td></tr><tr><td>Final Examination (2-hour comprehensive): combination of short essay questions and case problems</td><td>60%</td></tr></table> Formative: <table><tr><td>In-class, 1-hour, "diagnostic" test: short answers to essay questions</td><td>0</td></tr></table> The formative assessment aim to shape teaching along the semester and prepare students for the summative assessments. The coursework tests Learning Outcomes 1, 2 The final examination tests Learning Outcomes 1, 3, 4 (Guidelines and assessment rubrics are distributed on the first day of classes along with the course outline.)		Coursework: case problems	40%	Final Examination (2-hour comprehensive): combination of short essay questions and case problems	60%	In-class, 1-hour, "diagnostic" test: short answers to essay questions	0
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In-class, 1-hour, "diagnostic" test: short answers to essay questions	0							

INDICATIVE READING:	REQUIRED READING: Silberschatz A., Galvin P., Gagne G. (2014). <i>Operating System Concepts</i> , (9 th edition), Wiley Instructor's notes RECOMMENDED READING: Doeppner T. W. (2010). <i>Operating Systems In Depth: Design and Programming</i> , (1 st ed.), Wiley Elmasri R. (2010). <i>Operating Systems: A Spiral Approach</i> , (1 st ed.), McGraw-Hill McHoes A. et al. (2010). <i>Understanding Operating Systems</i> , 6 th ed., Course Technology. Stallings W. (2008). <i>Operating Systems: Internals and Design Principles</i> , (6 th ed.), Prentice Hall. Stuart B. (2008). <i>Principles of Operating Systems: Design and Applications</i> , 1 st ed., Course Technology. Tanenbaum A. S. (2007). <i>Modern Operating Systems</i> , 3 rd ed., Prentice Hall.
COMMUNICATION REQUIREMENTS:	Daily access to the course's site on the College's Blackboard CMS. Effective presentation skills using proper written and oral English. Communicate and coordinate during team activities.
SOFTWARE REQUIREMENTS:	A POSIX-UNIX or Linux Server and MS-Windows. Java 1.5 JVM, GNU C.
WWW RESOURCES:	OS white papers http://whitepapers.businessweek.com/rlist/term/type/white+paper/Operating-Systems.html , http://www.bitpipe.com/tlist/Linux.html http://www.itbusinessedge.com/research-center?assettype=whitepapers Linux (http://www.linux.org/info/) Windows 10 http://www.microsoft.com/en-us/windows/features Mac OS X (http://www.apple.com/osx/)
INDICATIVE CONTENT:	<ol style="list-style-type: none"> 1. Operating Systems basics 2. Operating Systems Structures 3. Process Management 4. Thread Management 5. CPU Scheduling 6. Process Synchronization 7. Memory Management 8. Virtual Memory 9. File System Interface 10. File System Implementation 11. Mass-storage Organization 12. Device Management 13. Protection 14. Security