The University of Georgia
Department of Computer Science

Course Information Sheet
CSCI 4730
Operating Systems

Brief Course Description
(50-words or less)

Coverage of the key concepts in modern operating systems. Specific topics include process management, synchronization mechanisms, scheduling strategies, deadlock detection/avoidance, memory management, file systems, protection and security, and distributed systems. Concepts will be reinforced through programming projects using a realistic operating system.

Extended Course Description / Comments

Pre-Requisites and/or Co-Requisites

CSCI 4720
Computer Architecture and Organization

Approved Textbooks
(if more than one listed, the textbook used is up to the instructor's discretion)

Recommended Textbooks:
Authors: Abraham Silberschatz, Bell Laboratories
Peter Baer Galvin, Corporate Technologies
Greg Gagne, Westminster College
Title: Operating System Concepts:
Edition: 8th or later
ISBN-13: 978-1118112731

Authors: Andrew S Tanenbaum and Albert S Woodhull
Title: Operating Systems Design and Implementation
Edition: 3rd or later
ISBN-13: 978-0131429383

Specific Learning Outcomes (Performance Indicators)

At the completion of this course students should be able to do the following:
1. Describe components of an Operating System and how they interact.
2. Describe and evaluate policies for scheduling, deadlock, memory management, synchronization, system calls and file systems.
3. Design, construct and evaluate OS software components such as: system calls, scheduler, memory management systems and file systems.

Relationship Between Student Outcomes and Learning Outcomes

		Student Outcomes									
		a	b	c	d	e	f	g	h	i	j	k
Learning Outcomes	1	•								•	•	•
	2									•	•	•
	3	•	•	•						•	•	•

Student Outcomes

a. An ability to apply knowledge of computing and mathematics appropriate to the discipline.
b. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
c. An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.

d. An ability to function effectively on teams to accomplish a common goal.
e. An understanding of professional, ethical, legal, security and social issues and responsibilities.
f. An ability to communicate effectively with a range of audiences.
g. An ability to analyze the local and global impact of computing on individuals, organizations, and society.
h. Recognition of the need for and an ability to engage in continuing professional development.
i. An ability to use current techniques, skills, and tools necessary for computing practice.
j. An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
k. An ability to apply design and development principles in the construction of software systems of varying complexity.

Major Topics Covered (Approximate Course Hours) 3 credit hours = 37.5 contact hours 4 credit hours = 50 contact hours Note: Exams count as a major topic covered	• Operating System Structure (5 hours) • Processes (6 hours) • Threads (4 hours) • Scheduling (5 hours) • Synchronization (6 hours) • Deadlock (4 hours) • Memory (6 hours) • File System (6 hours) • Advanced Concepts, such as Protection & Security, Concurrency, I/O Subsystem, Mass Storage, Time Management in Distributed Systems (6 hours)
Assessment Plan for this Course	Each time this course is offered, the class is initially informed of the Course Outcomes listed in this document, and they are included in the syllabus. At the end of the semester, an anonymous survey is administered to the class where each student is asked to rate how well the outcome was achieved. The choices provided use a 5-point Likert scale containing the following options: Strongly agree, Agree, Neither agree or disagree, disagree, and strongly disagree. The results of the anonymous survey are tabulated and results returned to the instructor of the course. The course instructor takes the results of the survey, combined with sample student responses to homework and final exam questions corresponding to course outcomes, and reports these results to the ABET committee. If necessary, the instructor also writes a recommendation to the ABET committee for better achieving the course outcomes the next time the course is offered.
How Data is Used to Assess Program Outcomes	Each course Learning Outcome, listed above, directly supports one or more of the Student Outcomes, as is listed in "Relationships between Learning Outcomes and Student Outcomes". Specifically, the outcomes of (a), (b), (c), (i), (j), and (k) are supported
Course Master	Dr. Maria Hybinette

Course History

01/2003   Course Information Uploaded to CAPA
02/2012   Course Information Sheet Updated