2309 CS340/CO003 (D1 and D2) Course Outline

Subject Code : **CS340/CO003**
Subject Title : **Operating Systems**
Level : 3
Credits : 3
Teaching Activity : Lecture 33 hours
: Tutorial 12 hours
Prior Knowledge* : CS110 Computer Programming

- C Programming
- Function calls
- Pointers

CS121 Data Structures

- Linked list
- FIFO Queue
- Stack

CS230 Computer Organization

- Computer organization
- Computer architecture

Class Schedule :

Class	Week	Time	Classroom	Date
CO003 D1	FRI	09:00-11:50	B401	2023/09/04-2023/12/17
CO003 D2	FRI	15:30-18:20	B401	2023/09/04-2023/12/17
CS340 D1	FRI	15:30-18:20	B401	2023/09/04-2023/12/17
CS340 D2	FRI	09:00-11:50	B401	2023/09/04-2023/12/17

Instructor : Subrota Kumar Mondal
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Office : A322
Office Hour : Monday: 15:00-17:00 Tuesday: 16:00-19:00
Wednesday: 14:30 - 17:30 Friday: 13:00 - 15:00

Course Description

This subject aims to introduce the concepts and principles of operating systems. It covers process/thread and process management, concurrency and scheduling, memory management, I/O management and disk scheduling, file Management, etc. Some internal principles of Windows and UNIX/Linux will also be presented. The students are requested to understand the concepts and principles of operating systems.

TEXTBOOK

Andrew S. Tanenbaum and Herbert Bos, “Modern Operating Systems”, (4th Edition) Prentice Hall, 2014

Reference book

Abraham Silberschatz, Greg Gagne and Peter Baer Galvin, “Operating System Concepts”, (10th Edition) John Wiley & Sons, 2018

INTENDED LEARNING OUTCOMES

Upon successful completion of this subject, students will be able to:

1. Understand various motivations and ways for operating systems
2. Evaluate the impacts of operating systems
3. Analyze different approaches in operating systems
4. Ability to conduct a literature survey on operating systems
5. Ability to appreciate the relevant literature in association with operating systems
6. Ability to generate solutions to solve the problems in operating systems
7. Simulate some components in operating systems

Weekly Schedule

Week	Contents	Hours	Teaching Method
1	Introduction to Operating systems	3	Lecture/Lab
2	Process and Process Management	3	Lecture/Lab
3	Process and Kernel	3	Lecture/Tutorial/Lab
4 - 5	Process Organization and Scheduling	4	Lecture/Lab
6 - 7	Inter-Process Communication and Process Synchronization	6	Lecture/Tutorial/Lab
7 - 8	Light-Weight Processes (Threads), Deadlock	3	Lecture/ Tutorial/Lab
9	User-Space Memory Management	3	Lecture/Tutorial/Lab
10 - 11	Main Memory	5	Lecture/Lab
12 - 13	Virtual Memory	4	Lecture/Tutorial/Lab
13	Introduction to File Systems	1	Lecture
13 - 14	File System Layout	4	Lecture
14	Details of Ext2/3	3	Lecture/Tutorial
15	Review	3	Lecture//Tutorial/Lab

TEACHING AND LEARNING APPROACH

The teaching and learning approach of this subject is to help students in understanding the principles of operating systems. Students are expected to play an active role in class discussion for analyzing the significance and implications of various strategic and operational decisions for the success of operating systems.

Class discussions are conducted in a combination of lecture, in-class (lab) exercise, and case study. Audio and visual aids such as Flashes will be used to expand students' understanding on relevant topics.

Exercise, lab experiments, and discussion are used to promote interaction among students for encouraging intellectual thinking, application of analytical skills and generating critical feedback in case study and analysing problems under specific situations.

ASSESSMENT APPROACH

Assessment method (Tentative)	% Weight
1. Class Participation	**10%**
2. In-Class Exercises	**10%**
3. Assignments	**10%**
4. Midterm	**20%**
5. Final Exam	**50%**
Total	**100 %**

Guideline for Letter Grade:

Marks	Grade
93 - 100	A+
88 - 92	A
83 - 87	A-
78 - 82	B+
72 - 77	B
68 - 71	B-
63 - 67	C+
59 - 62	C
56 - 58	C-
53 - 55	D+
50 - 52	D
49 -	F

Notes:

Students will be assessed on several assessment items (i.e., attendance, class participation, in-class (lab) exercises, assignments, midterm, and the final exam.).

Class participation involves and evaluates the student's participation in the class discussions.

In-class exercises are used to evaluate the student's ability to solve problems instantly and make learning lively.

The assignments, midterm, and final exam evaluate the students' understanding of the concepts of Operating Systems.

Late Policy:

1. Submission: 1st day 90%, 2nd day 80%, 3rd day 60%, 0 after three days.
2. Presentation: Each minute late will be deducted 1.