SU DEPARTMENT OF COMPUTER SCIENCE SYLLABUS

COSC350 System Software

Prerequisite: Computer Science II (COSC 220) and Microcomputer Organization (COSC 250) with grades of C or better.

Description: To help students deepen their understanding of C programming and program development in a Linux environment, and develop familiarity with the Linux operating system and script programming. Three hours lecture and two hours lab per week.

Reference:

- "Advanced Programming in the UNIX Environment," by W. Richard Stevens Addison Wesley 3rd edition, 2013
- "Beginning Linux Programming," by Matthew and Stones; Wiley Publishing, Inc, 4thedition**,** 2008

Topics:

- ***The UNIX/Linux Operating System Basics***
  UNIX/Linux basic commands, login scripts and environment set up, C programming environment, introduction to basic shell scripts
- ***Working with files***
  File and directory structure, low-level file access, standard I/O library, formatted input and output.
- ***Process***
  Basic concepts of Linux process and process attributes, process control using fork, exec and wait, process relationship.
- ***Signals***
  Concept of signals, usage of signal between processes, process functions
- ***Threads***
  Thread concepts, thread creation, termination, synchronization, thread control, thread attributes
- ***Inter-process Communication***
  Basic concepts of inter-process communication using Signals, PIPE, FIFO, message queue, Shared Memory, Semaphores, Mutex, Conditional Variable and so on.
- ***Socket Programming***
  Basic concepts of socket communication, network information and multiple clients

Grade: Test 1: 20 %, Test 2: 20 %, Final: 30 %, Lab/Mini Test – 15/15 %. Your final grade will be based on the standard formula

- **A:** 90 $\leq$ Total_Average_score
- **B:** 80 $\leq$ Total_Average_score < 90
- **C:** 70 $\leq$ Total_Average_score < 80

- **D:** 60 $\leq$ Total_Average_score < 70
- **F:** Total_Average_score < 60

Exam Policy:

- There will be an announcement one week before each exam (midterm, mini-test or final exam).
- There will be no make-ups or rescheduling of exams for individual cases (except emergency cases with evidence).

Lab policy:

- Lab material will be provided at the beginning of each lab class.
- Each student is required to attend a lab session each week and start working on new lab. Each lab must be done by the beginning of the next lab class. Instructor will check and collect the copy of each student's works during the lab hour. Each student must be ready to show his/her works at the beginning of each lab class.
- Students are expected to work independently on each lab. I have no problem with students discussing assignments to help understand a problem, learn how to use language features, or debug a program. However, copying code is strictly prohibited. Copying code from another student or any other source (e.g., a web site) is considered plagiarism and will be prosecuted under the Code of Student Conduct at Salisbury University. If two students have identical or similar work, both will be given a failing grade.
- Late lab work will not be accepted without special permission.

Attendance: Each student is expected to be present each lecture. Attendance will be checked for each class. If a student misses lectures more than 6 times (2 weeks) without any reason with evidence, he/she will lose 3% from the total average score. If a class must be missed, however, students are responsible for all material, assignments, and announcements made during class.