DO NOT TYPE IN THIS BOX

Bulletin #: 6

Academic Year: 2022-23

FLORIDA INTERNATIONAL UNIVERSITY
UNIVERSITY CURRICULUM COMMITTEE
Proposal for a Course Change

PART I. FILL OUT THIS SECTION COMPLETELY

1. **School/College** College of Engineering and Computing

   Div./Dept. in Which Taught Knight Foundation School of Computing and Infc

2. | CGS | 3 | 767 | N/A | 3 |
   |---|---|---|---|---|
   | Alpha Prefix | 1st Digit | Last 3 Digits | "C"-lec-lab "L"-Lab | Cr. Hrs. |

3. **Present Course Title** Computer Operating Systems

PART II. FILL OUT CHANGE INFORMATION ONLY

Change Effective 1 / 1 / 20 24

4a. **New Course Title**

b. **New Abbreviated course Title** *(for computer class schedules, transcripts)*

LIMITED TO 25 Characters *(including spaces)*

5a.

			N/A
New Alpha Prefix	New 1st Digit	New Last 3 Digits	Change "C"-lec-lab "L"-Lab

5b. Change Credit Hours: From ____ **To** ____

6. **New Catalog Description/Major Topics** *(not to exceed 200 characters including spaces in the box below)*
   College of Medicine and College of Law: Attach description not exceeding 1,000 characters including spaces.

7. **New Prerequisite(s):** COP 2210 or COP 2250 or COP 2270

8. **New Corequisite(s):**

9. **Explain Reclassification Request:**
   Will allow students who have already completed COP 2270 to enroll in CGS 3767 and expedite their minor completion.

10. **Did you attach a copy of the course justification and course syllabus that contains the changes you are requesting?** NO ☐ YES ☑

11. **Does this proposed change impact the assessment process of a program or certificate? If yes, then send notification to assessment@fiu.edu.** NO ☑ YES ☐

PROPOSAL REQUESTED BY:

Faculty Contact Nagarajan Prabakar — Nagarajan Prabakar Digitally signed by Nagarajan Prabakar Date: 2023.03.22 23:22:58 -04'00' — 3 / 22 / 20 23
(Type name) (Signature)

prabakar@fiu.edu — 348-2033
(Email address) (Phone number)

Chairperson (Dept./Div.) Jason Liu — Jason Liu 2023.03.24 13:23:00 -04'00' — 3 / 23 / 20 23
(Type name) (Signature)

Chairperson (Curr. Comm.) Alex Afanasyev — 3 / 25 / 20 23
(Type name) (Signature)

College/School Dean John Volakis — ____ / ____ / 20 23
(Type name) (Signature)

Submit one original form. Attach one copy of the course justification and a draft of the course syllabus reflecting any changes requested in this Proposal for a Course Change. The syllabus should include the course description, objectives, learning outcomes, major topics, and textbooks. Where applicable, please ensure that the changes you are requesting are included in the syllabus and supporting documentation.

FIU Engineering & Computing
FLORIDA INTERNATIONAL UNIVERSITY

To: Mary Cossio
Faculty Senate

From: Dean or Assoc. Dean and College Curriculum Cmte. Chair

Subject: Memo in Lieu of Curriculum Chair and Dean Signatures for Bulletin #6

Date: March 25, 2023

As instructed by the Faculty Senate, this memo will serve as approval of the attached proposals for Bulletin #6 by our Curriculum Committee Chair, Alexander Afanasyev, and the Dean for College of Engineering and Computing (John L. Volakis), in lieu of physical signatures. The proposals in this Bulletin were approved by our Curriculum Committee on March 23, 2023.

Justification for the prerequisite change of

CGS 3767 Computer Operating Systems

CNT4403 requires introductory level programming knowledge.

Hence, changing the prerequisite from "COP2210 or COP2250" to "COP2210 or COP2250 or COP2270" will allow students who have already completed COP2270 to enroll in CGS3767 and expedite their minor completion.

Please note that the corequisite remains unchanged (none).

Knight Foundation School of Computing and Information Sciences

Course Title: Computer Operating Systems **Date:** 3/22/2023

Course Number: CGS 3767

Number of Credits: 3

Subject Area: System	**Subject Area Coordinator:** Deng Pan **email:** pand@fiu.edu
Catalog Description: Introduction to fundamental concepts of operating systems and their implementation in UNIX and Windows.	
Textbook: 1) Guide to Operating Systems by Tomsho Cengage 2021 (ISBN: 9780357433904) 2) The Linux Command Line by William Shotts Free Online	
References:	
Prerequisites Courses: COP 2210 or COP 2250 or COP 2270	
Corequisites Courses: None	

Type: Required (CY, IT)

Prerequisites Topics:

- Primitive data types
- Basic program control structures
- Familiarity with methods or functions

Course Outcomes:

1. Describe hardware and software concepts [Understanding]
2. Explain OS functions and management [Understanding]
3. Interpret management of file systems [Understanding]
4. Demonstrate the use of text editors [Understanding]
5. Perform basic command line with security functions [Applying]
6. Create simple shell scripts with security features [Creating]
7. Use Linux and Windows operating systems [Applying]

Knight Foundation School of Computing and Information Sciences
CGS 3767
Computer Operating Systems

Association between Student Outcomes and Course Outcomes

BS in Computing: Student Outcomes	Course Outcomes
1) Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.	1, 2, 7
2) Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.	3, 4
3) Communicate effectively in a variety of professional contexts.	
4) Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.	
5) Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.	

Program Specific Student Outcomes

6) Apply computer science theory and software development fundamentals to produce computing-based solutions. [CS]	N/A
6) Apply security principles and practices to maintain operations in the presence of risks and threats. [CY]	5, 6
6) Use systemic approaches to select, develop, apply, integrate, and administer secure computing technologies to accomplish user goals. [IT]	5, 6

Assessment Plan for the Course and how Data in the Course are used to assess Student Outcomes

Student and Instructor Course Outcome Surveys are administered at the conclusion of each offering, and are evaluated as described in the School's Assessment Plan: https://abet.cis.fiu.edu/

Knight Foundation School of Computing and Information Sciences
CGS 3767
Computer Operating Systems

Outline

Topic	Number of Lecture Hours	Outcome
• Hardware o Hardware and peripherals o Maintenance and testing o Anti-tamper physical security technologies	3	1
• Software o Virtual machines o Software components o Functions of an operating system o Interaction between OS and hardware o Common OS o Common utilities and applications o Software updates to fix security vulnerabilities	3	1,2
• File Systems o Characteristics of file systems o Creating and managing file systems o Directory commands o Files and file attributes o File and directory permissions	6	2,3
• Text Editors o Windows editors o Unix editors	6	4
• Command Line o File and directory commands o Utility commands o Command files (scripts) o Connection security (ping, ipconfig, traceroute, netstat)	3	2,5
• GUI o Windows o KDE o GNOME	3	2,6
• OS Management o Administrative activities o User policies o Authentication (multifactor, password, passphrase) o Authorization (access control)	3	2
• Shell programming o File processing tools o Variables: configuration/environment/shell o Operators: defining/evaluating/arithmetic o Logic: sequential/decision/loop/case o Debugging scripts o String tests, integer tests, Boolean conditions o Script development cycle	13	2, 7

Knight Foundation School of Computing and Information Sciences
CGS 3767
Computer Operating Systems

Course Outcomes Emphasized in Laboratory Projects / Assignments

	Outcome	Number of Weeks
1	Hardware, software Outcomes: 1,2	2
2	File system, command line, editor Outcomes: 3,4,5	2
3	System management Outcomes: 2,6	2
4	Shell script with security features Outcomes: 7	2

Grading Category Weights

30% quizzes

35% assignments/projects

15% midterm exam

15% final exam

5% class discussion/participation

Grading Scale

Letter	Range%	Letter	Range%	Letter	Range%
A	93 or above	B	83 - 86	C	70 - 76
A-	90 - 92	B-	80 - 82	D	60 - 69
B+	87 - 89	C+	77 - 79	F	59 or less

Problem Analysis Experiences

Solution Design Experiences

1. Design of simple bash and PowerShell scripts

Knight Foundation School of Computing and Information Sciences
CGS 3767
Computer Operating Systems

Week	Topics
wk1	Operating Systems Fundamentals
wk2	History of operating systems such as Unix, Windows and Mac OS
wk2	Introduction to Virtual Lab
wk3	Intro to Linux Command Line
wk3	Virtualization and Cloud Computing Fundamentals
wk4	Modern Client and Server Operating Systems
wk5	The Central Processing Unit (CPU)
wk6	File Systems
wk7	**Mid-term exam**
wk8	Installing and Upgrading Operating Systems
wk9	Linux Shell Scripts
wk10	Configuring Input and Output Devices
wk11	Configuring a Network Connection
wk12	Sharing Resources and Working with Accounts
wk13	PowerShell basics
wk14	Operating Systems Management and Maintenance
wk15	**Final exam**