DO NOT TYPE IN THIS BOX

Bulletin #: _____

Academic Year: _____

FLORIDA INTERNATIONAL UNIVERSITY
UNIVERSITY CURRICULUM COMMITTEE
Proposal for a Course Change

PART I. FILL OUT THIS SECTION COMPLETELY

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

   Div./Dept. in Which Taught School of Computing and Information Sciences

2. | Alpha Prefix | 1st Digit | Last 3 Digits | "C"-lec-lab "L"-Lab | Cr. Hrs. |
   |---|---|---|---|---|
   | CEN | 4 | 083 | | 3 |

3. **Present Course Title** Introduction to Cloud Computing

PART II. FILL OUT CHANGE INFORMATION ONLY

Change Effective 8 / 24 / 20 20

4a. **New Course Title** _____

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

LIMITED TO 25 Characters *(including spaces)*

5a.

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)*
   College of Medicine and College of Law: Attach description not exceeding 1,000 characters including spaces.

7. **New Prerequisite(s):** (CNT-4713 and (CDA-3102 or CDA-4101)) or permission of the instructor

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

9. **Explain Reclassification Request:**

   New course CDA-3102 (as part of CS restructuring in Spring 2020) will be equivalent to CDA-4101. For students passing either of these courses to enroll in CEN-4083, this pre-req change is proposed.

10. **Does this proposed change impact the assessment process of a program or certificate? If yes, then send notification to assessment@fiu.edu.**

PROPOSAL REQUESTED BY:

Faculty Contact Nagarajan Prabakar _____ / _____ / 20 19
(Type name) (Signature)

prabakar@cis.fiu.edu 305-348-2033
(Email address) (Phone number)

Chairperson (Dept./Div.) S.S. Iyengar _____ / _____ / 20 19
(Type name) (Signature)

Chairperson (Curr. Comm.) Wei-Chiang Lin _____ / _____ / 20 19
(Type name) (Signature)

College/School Dean John Volakis _____ / _____ / 20 19
(Type name) (Signature)

Submit one original form. Attach one copy of the Course Justification and Course Syllabus: Course Description, Objectives, Learning Outcomes, Major Topics and textbooks.

CEN-4083 Introduction to Cloud Computing

Course Change Justification

During the CS curriculum restructuring process in March 2019, two architecture specific required courses (CDA-3103 and CDA-4101) have been replaced with one new course (CDA-3102) effective from Spring 2020. However, SCIS will also offer CDA-4101 in 2020 for students who are admitted prior to 2020.

In Fall 2020, we will have students completed either CDA-4101 or CDA-3102, and would like to enroll in CEN-4083. Hence, this course change proposal to replace
the current prerequisite "(CNT-4713 and CDA-4101) or permission of the instructor"
with "(CNT-4713 and (CDA-3102 or CDA-4101)) or permission of the instructor",
is essential to permit both stream of students to enroll in CEN-4083.

School of Computing and Information Sciences

Course Title: Introduction to Cloud Computing **Date:** 9/30/19

Course Number: CEN-4083

Number of Credits: 3

Subject Area: Computer Systems	**Subject Area Coordinator:** Jason Liu **email:** liux@cs.fiu.edu
Catalog Description: Topics include the concepts and principles of cloud computing and the techniques of using cloud systems and developing cloud applications.	
Textbook: None.	
References:	
Prerequisites Courses: (CNT-4713 and (CDA-3102 or CDA-4101)) or permission of the instructor	
Corequisites Courses:	

Type: CS Elective

Prerequisites Topics:

- Knowledge of computer organization and computer networks
- Experience in network programming

Course Outcomes:

1. Master the concepts and principles of cloud computing
2. Be familiar with the concepts and principles of virtualization
3. Master the techniques of using Infrastructure-as-a-Service, Platform-as-a-Service and big data systems
4. Master the techniques of developing, deploying, and managing cloud applications

School of Computing and Information Sciences
CEN-4083
Introduction to Cloud Computing

Outline

Topic	Lecture Hours	Outcome

• Introduction
  • Background and history of cloud computing
  • Cloud computing models
	3	1

• Virtualization
  • Background and history of virtualization
  • Virtual machines, virtual networks, virtual storage
	3	2

• Infrastructure as a Service (IaaS)
  • IaaS system architecture
  • IaaS programming
	10	3,4

• Platform as a Service (PaaS)
  • PaaS system architecture
  • PaaS programming
	10	3,4

• Big data
  • Big data system architecture
  • Big data programming
	10	3,4

School of Computing and Information Sciences
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Introduction to Cloud Computing

Course Outcomes Emphasized in Laboratory Projects / Assignments

	Outcome	Number of Weeks
1	Create a cloud virtual machine Outcomes: 1,2	2
2	Manage a cloud virtual machine through both user interface and programming interface Outcomes: 2,3	3
3	Create a PaaS program Outcomes: 3,4	3
4	Create a big data program Outcomes: 3,4	3

Oral and Written Communication: No significant coverage

Social and Ethical Implications of Computing Topics: No significant coverage

Theoretical Contents

1.	Cloud computing models and systems architecture
2.	Virtualization
3.	IaaS system architecture
4.	PaaS system architecture
5.	Big data system architecture

Problem Analysis Experiences

1.	Cloud programming (3 assignments)

Solution Design Experiences

1.	Design and implementation of a PaaS program
2.	Design and implementation of a big data program

School of Computing and Information Sciences
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Introduction to Cloud Computing

The Coverage of Knowledge Units within Computer Science Body of Knowledge[1]

Knowledge Unit	Topic	Lecture Hours
AL11	Big data algorithms	5

[1]See *Computing Curricula 2001 Computer Science*, by the Joint Task Force on Computing Curricula IEEE Computer Society Association for Computing Machinery; cf. Computer Science Body of Knowledge, page 17. Available at: http://www.computer.org/portal/c/document_library/get_file?p_l_id=2814020&folderId=3111026&name=DLFE-57603.pdf