



**FLORIDA INTERNATIONAL UNIVERSITY
UNIVERSITY CURRICULUM COMMITTEE**
Proposal for a Course Change

DO NOT TYPE IN THIS BOX	
Bulletin #:	_____
Academic Year:	_____

PART I. FILL OUT THIS SECTION COMPLETELY

- School/College Engineering and Computing
Div./Dept. in Which Taught Electrical and Computer Engineering
- | | | | | |
|--------------|-----------|---------------|------------------------|----------|
| CNT | 4 | 147 | | 3 |
| Alpha Prefix | 1st Digit | Last 3 Digits | "C"-lec-lab
"L"-Lab | Cr. Hrs. |
- Present Course Title IoT & Sensor Big Data Analytics

PART II. FILL OUT CHANGE INFORMATION ONLY

Change Effective 1 / 1 / 2020

- New Course Title _____
- New Abbreviated course Title *(for computer class schedules, transcripts)*
LIMITED TO 25 Characters (including spaces)

- | | | | | |
|------------------|---------------|-------------------|-------------------------------|--|
| _____ | _____ | _____ | _____ | 5b. Change Credit Hours: From _____ To _____ |
| New Alpha Prefix | New 1st Digit | New Last 3 Digits | Change "C"-lec-lab
"L"-Lab | |

- 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.



- New Prerequisite(s): None
- New Corequisite(s): _____

- Explain Reclassification Request:**

The course has been structured in a manner that prerequisite are not required, as the course provides all of the required knowledge for students to comprehend the course concepts.

- Does this proposed change impact the assessment process of a program or certificate?

PROPOSAL REQUESTED BY:

Faculty Contact	<u>Dr. Aleander Perez-Pons</u>		<u>10</u> / <u>10</u> / 20 <u>19</u>
	(Type name)	(Signature)	
	<u>aperezpo@fiu.edu</u>	305-348-7253	
	(Email address)	(Phone number)	
Chairperson (Dept./Div.)	<u>Dr. Shekhar Bhansali</u>		<u>10</u> / <u>10</u> / 20 <u>19</u>
	(Type name)	(Signature)	
Chairperson (Curr. Comm.)	<u>Dr. Wei-Chiang Lin</u>		_____ / _____ / 20_____
	(Type name)	(Signature)	
College/School Dean	<u>Dr. John Volakis</u>		_____ / _____ / 20_____
	(Type name)	(Signature)	

Submit one original form.

Department of Electrical and Computer Engineering
CNT 4147 IoT & Sensor Big Data Analytics

Catalog Data: This course examines the ingestion, storage, analysis and reporting of massive quantities of IoT and sensor data collected from distributed data sources (IoT devices & sensors) and processing using streaming and big data technologies.

Prerequisites: None

Corequisites: None

Textbooks **Making Sense of NoSQL , By Dan McCreary and Ann Kelly
Manning Publications**

Type: Elective for All BS students

Course Objectives: This course will focus on big data technologies and its application to Sensor and IoT Data. Students will be exposed to Hadoop ecosystem with focus on Sensor and IoT data storage and processing. Students will learn about sensor & IoT data structures – structured, semi-structured and unstructured data, Kafka message broker to import sensor/IoT data, storage using Hadoop Distributed File System (HDFS) and No SQL database like Cassandra, sensor data stream / batch processing with in memory analytics using Spark.

Course Learning Outcomes:

At the end of this course, the students will be able to:

- Understand fundamentals of Sensor and IoT analytics
- Knowledge of IoT data architecture
- Identify and apply Big Data platforms for IoT and Sensors
- Apply NoSQL database for IoT and sensor data storage
- Compare traditional and big data storage for large sensor data processing
- Apply Batch processing of large IoT dataset
- Apply Stream IoT data processing and perform analysis
- Understand Machine Learning Libraries and its application to IoT Data

Topics Covered:

- IoT and Sensor Data Concepts
- Sensor & IoT Data Architecture
- IoT on Big data platform
- IoT and Sensor data storage
- Batch and Stream Processing for IoT Data
- Sensor & IoT Data Ingestion with Message Broker
- NoSQL- Cassandra / DocumentDB for IoT
- Hadoop/Spark/Kafka Ecosystem for IoT

Policies:

- **Academic Misconduct:** For work submitted, it is expected that each student will submit their own original work. Any evidence of duplication, cheating or plagiarism will result at least a failing grade for the course.
- **Unexcused Absences:** Two unexcused absences are permitted during the term. More than two will result in the loss of points from your final grade. (**1 point** per absence above two, **3 points** per absence above 5).
- **Excused Absences:** Only emergency medical situations or extenuating circumstances are excused with proper documentation. After reviewing documentation you are **required to email** a description of the excuse and absence dates as a written record to apons@fiu.edu.
- **On Time:** As in the workplace, on time arrival and preparation are required. Two “lates” are equivalent to one absence. (Leaving class early is counted the same as tardy.)
- **Deadlines:** Assignments are due at the beginning of the class period on the date specified. Assignments submitted late (within 1 week) will receive **half credit**.
- **DO NOT** send assignments by email.
- Instructor reserves right to change course materials or dates as necessary.

The prerequisite of the course have been re-evaluated and modified accordingly to reflect the background expectation required for student success. The prerequisite modification will provide a greater opportunity for students to enroll in the courses, since adequate background information is now covered in the course.