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 Electrical and Computer Engineering

2. CNT | 4 | 153 | _____ | _____

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

3. **Present Course Title** IoT Applied Machine Learning

PART II. FILL OUT CHANGE INFORMATION ONLY

Change Effective 1 / 1 / 2020

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):** None

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

9. **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

10. **Does this proposed change impact the assessment process of a program or certificate?** [redacted]

PROPOSAL REQUESTED BY:

Faculty Contact Dr. Alexander Perez-Pons — 10 / 10 / 2019

(Type name) (Signature)

aperezpo@fiu.edu — 305-348-7253

(Email address) (Phone number)

Chairperson (Dept./Div.) Dr. Shekhar Bhansali — 10 / 10 / 2019

(Type name) (Signature)

Chairperson (Curr. Comm.) Dr. Wei-Chiang Lin — ___ / ___ / 20___

(Type name) (Signature)

College/School Dean Dr. John Volakis — ___ / ___ / 20___

(Type name) (Signature)

Submit one original form. [redacted]

Department of Electrical and Computer Engineering

CNT 4153 IoT Applied Machine Learning

Catalog Data: This course will focus on the application of traditional machine learning algorithms and popular framework to large sensor and IoT data sets. Students will learn to classify sensor & IoT datasets, perform regression analysis, build models using tree and ensemble methods, optimize models developed with large sensor datasets and apply clustering techniques.

Prerequisites: **None**

Corequisites: **None**

Textbooks **Hands-On Machine Learning with Scikit-Learn by Aurelien Geron, O'Reilly Media Inc**

Type: Elective for All BS students

Course Objectives:

This course will teach students about IoT Analytics, also referred as AOT – Analytics of Things, which deals with the management and analysis of sensor and IoT data. This course will teach students various IoT and sensor data analysis using basic machine learning techniques using open source and commercial libraries like ScikitLearn and MicrosftML. Students will learn about supervised and unsupervised learning and its application to large IoT and Sensor datasets. Students will learn about python packages and concepts used in large data analytics like NumPy, Pandas, Data frames and MatPlotLib. Case studies will be provided to assist students in establishing real-world scenarios for IoT data storage, analysis and visualization.

Course Learning Outcomes:

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

- Understand fundamentals of Sensor and IoT Data
- Perform preprocessing of IoT and sensor data set
- Knowledge of machine learning algorithms and applications
- Identify and apply classification algorithms for IoT and Sensors data
- Identify and apply regression algorithms for prediction
- Develop clusters using sensor data sets.
- Identify sensor data anomaly using traditional machine learning algorithms
- Able to store and analyze results in the persistent data store
- Display analytics results and reporting with IoT data visualization tools

3. Must make up the incomplete work through the instructor of the course
4. Must see the Instructor. All missed work must be finished before last two weeks of the following term.

University policies: on sexual harassment, and religious holidays, and information on services for students with disabilities
http://academic.fiu.edu/
http://drc.fiu.edu

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.