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. | EEL | 4 | 804 | | 3 |
   |---|---|---|---|---|
   | Alpha Prefix | 1st Digit | Last 3 Digits | "C"-lec-lab "L"-Lab | Cr. Hrs. |

3. **Present Course Title** Introduction Malware Reverse Engineering

PART II. FILL OUT CHANGE INFORMATION ONLY

Change Effective 1 / 1 / 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):** EEL 2880 or equivalent or instructor permission or CNT 4403

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

9. **Explain Reclassification Request:**
   The prerequisite change would expand the students population that will be available to take the course to include students from various academic units.

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 Dr. Alexander Perez-Pons _____ 10 / 15 / 20 19
(Type name) (Signature)

aperezpo@fiu.edu 305-348-7253
(Email address) (Phone number)

Chairperson (Dept./Div.) Dr. Shekhar Bhansali _____ ____ / ____ / 20____
(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. Attach one copy of the Course Justification and Course Syllabus: Course Description, Objectives, Learning Outcomes, Major Topics and textbooks.

Department of Electrical and Computer Engineering

EEL 4804 Introduction to Malware & Reverse Engineering

Catalog Data: This course is to familiarize students with the practice of performing reverse engineering on suspicious files and firmware by utilizing static and dynamic techniques and procedures.

Prerequisites: **EEL 2880 or equivalent or instructor permission or CNT 4403**

Corequisites: **None**

Practical Malware Analysis: The Hands-On Guide to Dissecting Malicious Software by Michael Sikorski and Adrew Honig (Feb, 2012), ISBN: 1593272901

Type: Elective for All BS students

Course Objectives: The objective of this course is to familiarize students with the practice of performing reverse engineering on suspicious files and firmware by utilizing static and dynamic techniques and procedures. The student will gain an understanding of how firmware is compromised and how to validate and restore its integrity. Analytical information such as environment changes (file, system, network, and process), communication with the rest of the network and the malware's impact on mobile devices will be closely observed and analyzed for actionable information.

Course Learning Outcomes:

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

- To give the student an understanding of Malware Reverse Engineering approaches.
- To give the students a hands-on exposure to the latest tools and techniques to find, extract, and analyze malicious code from various types of hardware.
- To provide analysis on the way the malware interacts with any associated networks, identifying the type of information being targeted.

Topics Covered:

- Ethical Issues in Security
- Extraction and Analysis of Malware from various devices ranging from computers to Smartphones.
- Sandboxing executable and extracting information by performing runtime analysis.
- Static /dynamic analysis of malware.
- Packers, Compression and Obfuscation techniques
- Analysis malware using IDA Pro Disassembler
- Analyzing malicious browser based exploits.

Group Research Paper

1. The course includes a substantial group project requiring the review of academic papers in writing an IEEE formatted course paper.
2. The group contains 3-4 students working together throughout the semester.
3. In must be in IEEE format, consist of at least 5 pages, single-spaced, 10pnts, roman times, two columns and with at least 10 references of which 7 must be academic references.
4. An electronic copy needs to be uploaded to Blackboard and a paper copy submitted.
5. Students will give a recorded oral presentation of their paper lasting not less than 15 mins and not longer than 20 mins. The presentation must be included in a USB device attached to the hardcopy of the paper.

University's Code of Academic Integrity

Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas, and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly to demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational Mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the Student Handbook.
More information can be found at http://academic.fiu.edu/academic_misconduct.html

Department Regulations Concerning Incomplete Grades

To qualify for an Incomplete, a student:

1. Must contact (e.g., phone, email, etc.) the instructor or secretary before or during missed portion of class.
2. Must be passing the course prior to that part of the course that is not completed
3. Must make up the incomplete work through the instructor of the course
4. Must see Instructor. All missed work must be finished before last two weeks of the next term

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

Course Policies

- **Attendance:** Attendance in the course is **mandatory** and student is not allowed to miss any class during the semester. There will be a **penalty** for missing classes and it may affect your final grade.
- **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.

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.