Department: Electrical and Computer Engineering

**EEL 4887 — Computer Languages in CpE**

**Curriculum Designation:** Elective for EE majors. Selective elective for CpE majors.

**Course (Catalog) Description:** In this course, computer programming is used to improve quantitative problem-solving skills through analysis of strength and weaknesses of common computer languages.

**Prerequisite:** C/C++ Programming

**Text and/or other recommended material:** No required textbook; Handouts are provided

- Recommended texts:
  - Tony Gaddis Starting out with Python, Pearson,
  - MATLAB & Simulink Student Version Release

**Course Objectives:**

1. Demonstrate a basic understanding of Verilog language.
2. Solve system design tasks using Verilog.
3. Demonstrate a basic understanding of Python language.
4. Design TK interfaces and WWW data access using Python.
5. Demonstrate a basic understanding of MATLAB language.
6. Design, implement, test, and debug audio, image, and video data processing using MATLAB.
7. Consider, compare, and evaluate code segments of PYTHON, Verilog, and MATLAB
8. Analyze contemporary programming languages in a major programming project.

**Topics covered:**

1. Lexical elements, data types, and operators in Verilog
2. Combinational and sequential circuits in Verilog
3. Hierarchy, Test benches and coding for synthesis
4. Project 1: Concept and Research
5. Project 1: Implementation
6. Tools, lexical elements, data types, and operators in Python
7. Control constructs, hierarchy, and I/O in Python
8. OOP, TK interface and Web data access using Python
9. Project 2: Concept and Research
10. Project 2: Implementation
11. Lexical elements, data types, and operators in MATLAB
12. Control constructs, hierarchy, and I/O in MATLAB
13. Audio, Image and Video processing using MATLAB
14. Project 3: Concept and Research
15. Project 3: Implementation

Class Schedule: Three 50 minute or two 75 minute lectures per week (3 credit hours).

Subject Area: Engineering

Significant Design: No

Relationship to Assessed ABET Student Outcomes: None

Last Updated by: R.J. Perry  Date: 4/30/2021