**Department of Electrical and Computer Engineering: SUMMER A 2019: FIU**

**EEL 2880 - ENGINEERING SOFTWARE TECHNIQUES: 05 02 2019-06 14 2019**

 **Classroom/Time: EC 3239: T, Th: – 10.00 AM – 13.20 PM: Subbarao V Wunnava**

Instructor : Dr. Subbarao V Wunnava Ph.D., P.E.,

 [In collaboration with Dr. Herman Watson: Course Coordinator]

Office Hours :8.30 – 10.00 AM AM ; T&R; at Temp Office EC 3113 Phone :Dept. 305.348.2807

 Email: subbarao@fiu.edu

**Catalog Description: [3 credits]**

Engineering problem solving process, overview of a generalized computing system,

software development, real-life engineering applications, Hardware and computational implications.

**Textbook:**

Deitel & Deitel C How to Program (7 ed.) ISBN 0-13-299044-X: Class Notes: Internet Access

**Course Objectives:**

Through successful completion of the course, the student will: Understand the stages of the engineering . problem solving process and their relationship to the development of software for its implementation. Learn the C programming language, as a vehicle for the solution of engineering problems; Intro to C++, and Java

**Relationship of course to program outcomes:**

a & b ) an ability to apply knowledge of mathematics, science, and engineering, and current technologies;

c &d ) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability;

e & f ) an ability to identify, formulate, and solve engineering problems;

g & h ) an ability to communicate effectively orally, through written reports, and through presentations

j & k ) an ability for broad education base necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context; and an ability to use the techniques, skills, and modern engineering tools necessary for life long engineering practices, and knowledge enhacements;

**Topics Covered:**

 Engineering problem solving; Overview of generalized computing system;

 C programs; Control Structures and Data Systems;

 Modular programming with Functions; Arrays and Matrices; Pointers & Structures;

 Machine Language and other languages; Introduction to C++ and Java;

**Tentative Course Grade based upon: [ NOTE:** There are ***no makeup exams*** offered]

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| Topic | Percentage |
| 3 Quizzes(Unannounced) | 30% |
| 2 Tests: T1: Mid Term & T2: Comprehensive Final  | 50% |
| Projects | 20% |
| Total  | 100% |

Home works will be assigned and are expected to be solved by the students, to prepare them for **Quizzes,**

**Tests**, and **Projects**; and to have them learn the material to function as software and hardware engineers.

EIC Website:**** 

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As per the IEEE and ABET and Software Systems guidelines, the grading system for 2880: Software Engg

 Dr. Subbarao V. Wunnava in collaboration with course coordinator Dr. Herman Watson:

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| **Grading Scale:** |  |
| A | >95 | "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." |
| A- |  >90 |
| B+ | >87 |
| B | >84 |
| B- | >80 |
| C+ | >77 |
| C | >74 |
| C- | >70 |
| D+ | >67 |
| D | >64 |
| D- | >60 |
| F | < 60 |

**Policies: [As per ABET (Accreditation Board for Engineering and Technology] requirements**

* **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 **subbarao@fiu.edu**
* **On Time:** As in the workplace, on time arrival and preparation are required. Two “lates” are equivalent to one absence.
* **DO NOT** send assignments or projects by email.
* Instructors reserve right to change course materials or dates as necessary.

**Dr. Subbarao Wunnava [courtesy Dr. Herman Watson: Course Coordinator]**

**Class times: T & R: Session1 10.00 - 11.30 AM; Session2 11.45 to 13.20 PM**

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| **Class** | **Date** |  **2880 Weekly Topics** | **Homework/Activity** |
| 12 | 05//07/19 T  | Introduction to Computers, Software and Hardware; IntegratedDevelopment Environment (IDE) based programming applications |  Study Chp 1 & 2; Notes Obtain Text/materials |
| 34 | 05/09/19 R  |  Structured C Programming; Control Structures  while, switch, nested if-else, and other control loops and recursions | Chps 1 & 2 HW 1 & 2  |
| 56 | 05/14/19 T  |  Expressions, statements, functions and methodologiesPractical programming examples and coding: **Project 1 Assign** | Study Chp 3&4; NotesHW 3 & 4 : Pr1 Assign |
| 78 | 05/16/19 R  | Expressions / Statements and integrating with functions**Project 1 work out time and discussions** | Study Chp 5; Notes and Chp 6HW 5 & 6 |
| 910 | 05//21/19 T  | Arrays and practical programming examples**TEST 1: MidTerm** | Notes and Hand outs**Chapters 1-6: TEST 1** |
| 1112 | 05//23/19 R  | Pointers and Memory Structure: A **Proj 1 Due**Pointers and Memory Management schemes | Notes and Hand outsChp 7 and Handouts:  |
| 1314 | 05//28/19 T  | Case studies and programming examples of Pointers:  Machine code programming concepts | Notes: Code efficiency: Security |
| 1518 | 05/30/19 R  | Introduction to Strings and software examples**: Project 2 Assign**Introduction to Structures and heterogeneous variables  | Study Chp 7 & 8 & 9HW 7 & 8 |
| 1718 | 06/04/19 T  | Software examples using strings and structures**Project 2 workout time and discussions** | Notes and Chp 7 & 8 & 10 |
| 1920 | 06/06/19 R  | Introduction to other languages; C++ enhancementsPractical programming examples Review  | Chps 15 & 18Notes; HW 9&10 |
| 2122 | 06/11/19 T  | Introduction to other languages; C++ enhancements/Intro to JavaPractical programming examples & Review: **Project 2 Due**  | Class NotesReview of course |
| 2324 | 06/13/19 R  | **TEST 2: Final [Comprehensive]** Chps 1-10, 15 & 18**Course conclusions and discussions** | Material from T1, Q1, Q2, Q3 Project 1& 2 and Handouts |

**Reading and home work material will be assigned during class discussions**

**Students are encouraged to rework the programming examples discussed in class, at home**

 **3 Un-announced quizzes will be conducted [approximately 30-40 minutes each]**

 **Scheduled Test 1 and Test 2 would be conducted [approximately 60-90 minutes each]**

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