Department of Electrical and Computer Engineering

EEL 2880 – C Programming for Embedded Systems
Spring 2025

Instructor	:	Dr. Herman Watson
Office Hours	:	by appointment with Zoom meeting
Office	:	EC – 3910
Sec. Phone	:	305.348.2807
Email	:	watsonh_fiu@yahoo.com (Note underscore) <<<email for best response
Class	:	available through FIU Canvas
Web Page	:	http://web.eng.fiu.edu/watsonh/

Catalog Description:
Engineering problem solving process, overview of a generalized computing system, software development, real-life engineering applications, computational implications. (3 Credits)

Reference Textbook: Open source materials are used as instruction materials
Deitel & Deitel
C How to Program
ISBN 0-13-299044-X

Course Objectives:
Through successful completion of the course, the student will:

1. Recognize the stages of the engineering problem solving process and their relationship to the development of software for its implementation.
2. Utilize an Integrated Development Environment for programming
3. Interpret how C Programming is implemented
4. Explain the steps for Programming in C Language
5. Utilize the C programming language, as a vehicle for the solution of engineering problems.

Relationship of course to program outcomes:
1) an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2) an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
4) an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
6) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7) an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Grading Scale:		
A	92-100	"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-	90-92	
B+	88-90	
B	82-88	
B-	80-82	
C+	78-80	
C	70-78	
D	60-70	
F	< 60	

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 the Instructor. All missed work must be finished before last two weeks of the following term.

Policies:

1. **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.
2. Absences: Resolution of absences and materials missed are student responsibility
   a) **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).
   b) **Excused Absences:** Only emergency medical situations or extenuating circumstances are excused with proper documentation.
      - 1. Request Mitigating Circumstances form
      - 2. Complete and submit form for review
3. **On Time:** As in the workplace, on time arrival, preparation, and submissions are required.
4. **Deadlines: Work is due before midnight on the date specified.** Late submissions within one week will receive up to half credit. After one week, **late work will not be accepted.** Late submissions are graded after the final exam. If you get a low score correct and resubmit your work before the deadline.
   Participation deadlines are absolute – no late completions or makeups
5. **Submissions: This class is paperless**. Submissions are made using the web form listed on the class Modules. See the class web site for instructions. All submissions must have
   a) Captures of work must be whole screen images (include time and calendar)
   b) Everything placed in a single word or pdf document stored on your own cloud storage
   c) Contain your name, date, and time of completion within the document
   d) Permission: accessible by anyone with link and readable with a browser
   e) Use a single URL link to view the document
6. **DO NOT** submit work by email.
7. Instructor reserves right to change course materials or dates as necessary.

Grading Scale: NOTE: There are ***no makeup exams*** offered

Topic	Percentage
Exam 1 ***no makeup***	20%
Exam 2 ***no makeup***	25%
Exam 3 ***no makeup***	25%
Project – Exercises	15%
Homework	10%
Participation & Quiz	5%
Attendance	Unexcused absence penalty based on in class policy

Class Schedule:

Mod	Date (Mon)	2880 Weekly Topic Spring 2024 Tuesday/Thursday topics	Homework: Due
01	01/06	Introduction, Flow Charts V1 – Dennis Richie, V2 - SFC	HW01 Flow Chart 01/14
02	01/13	Integrated Development Environments V3- Install C::B, V4 – IDE's (MLK Holiday 01/15)	HW02 Install IDE 01/21
03	01/20	Objects /Expressions V5 - Data Types, ForIf, V6 - Scopes	HW03 Operators Quiz1 01/28
04	01/27	Expressions /Statements – Print Pi & Burglar Alarm V7 - PrintPi , V8 – Burglar Alarm (bitwise operators)	HW04 Binary Print 02/04
05	02/03	Statements – Switch/While, For Loop Examples V9 – McDucks , V10 – For Examples	Review Quiz2 02/11
06	02/10	Tuesday 2/11 Review V11 / **Thursday 2/13 Exam 1**	
07	02/17	Arrays & Strings **Project Assigned** V12 -Hist, Project V13 - Array, String, Tires/Apples	HW05 03/04
	02/24	Spring Break	
08	03/03	**Pointers** Deck – V14, Card functions - V15	HW06 Shuffle Deck 03/11
09	03/10	Functions **Exercise 1 (Due 03/18)** V16 - APF Summary, Hist ptr/value V17- BBB, Deck solution	HW07 Play 2 Hands Quiz3 03/18
10	03/17	Tuesday 03/18 Review / **Thursday 03/20 Exam 2** V18 Quiz 3 Review (03/17 Last Drop Day)	
11	03/24	Structures V19 – Structures, New, List V20 – Stdio.h, Text file I/O	HW08 Structures 04/01
12	03/31	Structures, File I/O / **Exercise 2 (Due 04/08)** V21 – Binary I/O, Hex Dump, Text EOL	HW09 File I/O 04/08
13	04/07	Structures, File I/O / Other Languages V23 – Alice Plumbing HW **Exercise 3 Project Due 04/15**	HW10 Plumbing Quiz4 - review only 04/15
14	04/14	Tuesday Review Quiz4 & File I/O V24 **Thursday 04/17 Exam 3** Senior Design Day 04/17	
15	04/21	**Finals week (no final for this course)**	