COP2273 - Python Programming for Engineers
Section 21872
Class Periods: Online
Location: Classroom location
Academic Term: Fall 2025

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Introduction for those who have little experience in programming and have been looking to obtain hands-on learning experience in the Python programming language. This course encourages developing problem-solving and computational thinking skills in engineering fields and emphasizes a reasonably high degree of mathematics. (3 credits)
Pre-requisites:
MAC 2311 - Analytic Geometry and Calculus 1 with a C grade or better

The main objective of this course is to provide a foundation in programming for engineering problem-solving using Python. Students will develop the skills to implement computational solutions to a wide range of engineering problems. Furthermore, students will be able to apply these skill sets to other programming languages.

Materials and Supply Fees
Required: Codio - 1 Semester Subscription, ISBN: 978-1-7331872-5-1 (See https://docs.codio.com/students/accessing-codio/paying.html#redeeming-code-from-campus-bookstore)

Recommended: Murach's Python Programming, by Michael Urban & Joel Murach (2021, 2nd ed), ISBN: 978-1943872749
Think Like a Programmer: An Introduction to Creative Problem Solving, Anton Spraul, ISBN: 978-1593274245

Relation to Program Outcomes (ABET):

Outcome	Coverage*
1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	Medium

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	High
3. An ability to communicate effectively with a range of audiences	
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	Medium
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative environment, establish goals, plan tasks, and meet objectives	
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	Medium

*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not covered or assessed in the course.

Required Computer

Recommended Computer Specifications: https://it.ufl.edu/get-help/student-computer-recommendations/
HWCOE Computer Requirements: https://www.eng.ufl.edu/students/advising/fall-semester-checklist/computer-requirements/

Course Schedule

Week	**Topic**	**Module name**
Week 1-2	Orientation	Orientation Module Demos
	Orientation	Orientation Module Lab
	Orientation	Orientation Module Quiz
Week 3	Python basics	Module 1 Demos
	Python basics	Module 1 Lab
	Python basics	Module 1 Quiz
Week 4	Data types and program control I	Module 2 Demos
	Data types and program control I	Module 2 Lab
	Data types and program control I	Module 2 Quiz
Week 5	Data types and program control II	Module 3 Demos
	Data types and program control II	Module 3 Lab
	Data types and program control II	Module 3 Quiz
Week 6	Functions and modules	Module 4 Demos
	Functions and modules	Module 4 Lab
	Functions and modules	Module 4 Quiz
Week 7		Project 1
Week 8		Exam 1
Week 9	Dictionaries	Module 5 Demos

	Dictionaries	Module 5 Lab
	Dictionaries	Module 5 Quiz
Week 10	File IO	Module 6 Demos
	File IO	Module 6 Lab
	File IO	Module 6 Quiz
Week 11	Exceptions and debugging	Module 7 Demos
	Exceptions and debugging	Module 7 Lab
	Exceptions and debugging	Module 7 Quiz
Week 12	Classes	Module 8 Demos
	Classes	Module 8 Lab
	Classes	Module 8 Quiz
Week 13	Libraries	Module 9 Demos
	Libraries	Module 9 Lab
	Libraries	Module 9 Quiz
Week 14		Exam 2
Week 15		Thanksgiving
Week 16		Project 2

Grading Scheme:

Assignment	Total Points	Percentage of Final Grade
Demos (~9)	40	4%
Labs (~9)	225	22.5%
Quizzes (~9)	135	13.5%
Exams (2)	300	30%
Projects (2)	300	30%
	1000	100%

At the end of the semester, your final grade percentage is the result of this formula:

The following is given as an example only.

Percent	Grade	Grade Points
93.4 - 100	A	4.00
90.0 - 93.3	A-	3.67
86.7 - 89.9	B+	3.33
83.4 - 86.6	B	3.00
80.0 - 83.3	B-	2.67
76.7 - 79.9	C+	2.33
73.4 - 76.6	C	2.00
70.0 - 73.3	C-	1.67
66.7 - 69.9	D+	1.33
63.4 - 66.6	D	1.00
60.0 - 63.3	D-	0.67
0 - 59.9	E	0.00

Academic Policies & Resources

To support consistent and accessible communication of university-wide student resources, instructors must include this link to academic policies and campus resources: https://go.ufl.edu/syllabuspolicies. Instructor-specific guidelines for courses must accommodate these policies.

Commitment to a Positive Learning Environment

The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University's core values.

If you feel like your performance in class is being impacted, please contact your instructor or any of the following:

- Your academic advisor or Undergraduate Coordinator
- HWCOE Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
- Pam Dickrell, Associate Dean of Student Affairs, 352-392-2177, pld@ufl.edu