CNT 4155

Python Programming in ECE

Section: RVC

Internet/Fully Online

Spring Term 2026

Course Time Zone | Eastern Time (ET). Course due dates are according to this time zone.

Professor Information

Yu Du

Roles: Primary Instructor

Email: ydu@fiu.edu

Phone: 305-348-2886

Office Hours: By appointment

Office Location: EC3832

Website: yudu.fiu.edu

Department or Academic Unit: Electrical and Computer Engineering

Course Prerequisites

Course prerequisites, if any, are listed below.

Prerequisites: EEL2880 or COP 2210 or COP 2250 or equivalent or instructor permission

Course Description

This course will introduce students to the Python programming language as it applies to its interactions to sensor and IoT devices. The Python language is prominent within the IoT area for its reach libraries and ease of programming to develop sensor applications. The examples and assignments in this course will focus on the Python application and development at the hardware-level for IoT devices.
(3 credits)

Textbook and Course Materials

LEARN PYTHON PROGRAMMING (PB)

Required/Recommended: Required

Authors: ROMANO

Publisher: PACKT PUB

Publication Date: June 29, 2018

Copyright Date: June 29, 2018

ISBN 10: 1788991656

ISBN 13: 9781788991650, 9781788996662

Chapters/Pages: Chapter 1~7, 12~13

Introduction to Python for the Computer and Data Sciences

Required/Recommended: Recommended

Authors: Paul Deitel, Paul J. Deitel, Harvey Deitel

Publisher: Pearson

Publication Date: Feb-2019

Copyright Date: Feb-2019

ISBN 10: 0135404673

ISBN 13: 9780135404676

Chapters/Pages: NA

Panther Book Pack

Get all required course materials for $20.50 per undergrad credit hour through Panther Book Pack. You'll be charged automatically unless you opt out within 3 days after the add/drop deadline.

For more details, to compare costs, and to learn how to access your course materials, visit the Panther Book Pack information page on FIU OneStop.

Readings, Materials, and Open Educational Resources (OER)

Software and Hardware Requirement:
This course requires the use of at least one Python IDE. Please ensure your computer is set up with one of the following options:

1. **VirtualBox with Ubuntu and Python, or**
2. **Any Python IDEs of your choice, such as VS Code, Spyder, Jupyter Notebook, etc.**

These tools will be necessary to complete homework and projects.

Student Learning Outcomes/Objectives

- **Level I – Remembering (Knowledge): o Recall the syntax and style of Python and its built-in data types. o List Python's selection structures, iterators, and functions. o Identify key data persistence techniques such as files, network streams, and data exchange formats**

- **Level II – Understanding: o Explain the syntax and style of Python and its built-in data types. o Describe the use of selection structures, iterators, and functions for developing programming solutions. o Summarize Python's Object-Oriented programming model and rich data types. o Explain data persistence techniques and their applications in Python.**

- **Level III – Applying: o Utilize Python to develop programming solutions using selection structures, iterators, and functions. o Apply data persistence techniques to manage files, network streams, and data exchange. o Implement machine learning models using data science techniques for IoT data. o Develop Python applications with both Command Line Interface (CLI) and Graphical User Interface (GUI).**

- **Level IV – Analyzing: o Analyze the efficiency of Python code in terms of time and memory. o Compare different data persistence methods for various applications. o Assess data science techniques used to build machine learning models from IoT data.**

- **Level V – Evaluating: o Critique Python's Object-Oriented programming model for different problem-solving scenarios. o Evaluate the effectiveness of optimization techniques for improving Python code performance. o**

Assess the suitability of various data science techniques for IoT-based machine learning applications.

- **Level VI – Creating: o Design Python-based solutions that integrate selection structures, iterators, and functions. o Develop innovative Python applications using both CLI and GUI interfaces. o Create strategies for optimizing Python code for improved performance and memory management.**

Expectations of this Course

This is an online course, which means most (if not all) of the course work will be conducted online. Expectations for performance in an online course are the same as a traditional course. In fact, online courses require a degree of self-motivation, self-discipline, and technology skills which can make these courses more demanding for some students.

Students are expected to:

- Log in to the course 5 times per week
- Respond to discussion boards, blogs and journal postings within 2 days
- Respond to emails within 2 days
- Submit assignments by the corresponding deadline

The instructor will:

- Log in to the course 5 times per week
- Respond to discussion board postings within 5 business days
- Respond to emails within 5 business days
- Grade assignments within 5 business days of the assignment deadline

Course Communication

Communication in this course will take place via the Canvas Inbox. Check out the Canvas Conversations Tutorial or Canvas Guide to learn how to communicate with your instructor and peers using Announcements, Discussions, and the Inbox. I will respond to all correspondences within 72 hours.

Policies & Resources

Before starting this course, please review the Policies & Resources Page in Canvas which includes comprehensive information on various University and Course Level Policies such as:

- **University Policies**
- **Accessibility and Accommodations**
- **Online Etiquette**
- **Technical Requirements and Skills**
- **Computer & Digital Literacy Skills**
- **Course Technology Accessibility Statements and Privacy Policies**
- **Academic Integrity**
- **Copyright Statement**
- **Core Principles of This Course**
- **Nondiscrimination Statement**
- **Panthers Care & Counseling and Psychological Services (CAPS)**
- **Fair Use Policy**

Assignments & Assessments

Discussion Forums

Keep in mind that your discussion forum postings will likely be seen by other members of the course. Care should be taken when determining what to post.

General Forum

- This forum is for general conversations/questions.
- This forum is not graded.

Introduce Yourself Forum

- Please introduce yourself during the first week of class.
- Please follow the guidelines in the forum.

Module Discussion Forum

- There will be two discussion topics posted by the professor every week.
- The professor will review student discussion posts and participate to determine the amount of substantive knowledge incorporated into the post and student response post.
- Student discussion board posts will be worth 10% of the student grade.
- The approximate length of a posting should be no less than 200 words, and a student response no less than 100 words.
- In discussion forum, you need 1 primary + 2 peer reviews to qualify a full credit. Please check the discussion rubric carefully.
- Please follow the guidelines listed in the Discussion Participation Rubric posted in the course.

Programming Assignment Expectations

- Explicit instructions and grading criteria will be provided for all assignments.
- Unless specified otherwise, all assignments are to be completed by the individual student.
- 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.
- All work is to be submitted via Canvas. DO NOT send assignments by email.
- All work submitted should display Panther ID number and should be signed, as the students' own work, and that no unauthorized help was obtained.
- Assignments are due on the date specified. Assignments submitted late (within 1 week) will receive half credit.
- Students are encouraged to ask questions and to discuss course topics with the instructor and with each other via the Lab Assignment Discussion Forum.
- To get assistance try to see me by an appointment.
- The expected turn-around time for feedback or grades is 7 days.

Assessment Expectations

Self-Assessment Expectations

- Self-Assessments quizzes are worth 10% and are provided primarily for students to check comprehension of course material.

- Students may complete these assessments based on weekly content.
- Students will have 20 minutes to complete the assessment.
- The assessment will save and submit automatically when time expires.
- Once started, the assessment must be completed in one sitting.
- Students will be allowed to take assessments once.
- Self-Assessments will become available on a weekly basis.

Proctored Exams

Please note that the information contained in this section applies only if your course requires a proctored exam.

Through a careful examination of this syllabus, it is the student's responsibility to determine whether this online course requires proctored exams. Please visit our Student Proctored Exam Instructions webpage for important information concerning proctored exams, proctoring centers, and important forms.

Midterm and Final Exam Expectations

- This course consists of one midterm and one final exam, proctored using Honorlock.
- **The Midterm Exam will be available 3/8/2026**
- **The Final Exam will be available 4/18/2025**
- Students will be given one attempt for each exam.

Zoom Video Conference

Zoom is a video conference tool that you can use to interact with your professor and fellow students by sharing screens, chatting, broadcasting live video/audio, and taking part in other interactive online activities.

Zoom meetings can be accessed via the Zoom link in the course navigation menu. Once you click on the Zoom link, it will route you to join the meeting for the respective class session. You will also be able to view upcoming meetings, previous meetings that you have already joined, and meeting recordings. Before joining an actual class session:

- Reference the Zoom Student Tutorials to learn about the tool, how to access your meeting room, and share your screen.
- Access the Zoom Test Meeting Room to test out the software before joining an actual session.

If you encounter any technical difficulties, please contact the FIU Canvas Help Team. Please ensure you contact support immediately upon the issue occurring.

Grading

COURSE REQUIREMENTS	WEIGHT
Programming Assignments	20%
Discussion Posts	10%
Self-Assessment Quizzes	10%
Midterm Exam	30%
Final Exam	30%
Total	**100%**

LETTER	RANGE (%)	LETTER	RANGE (%)
A	94 or above	B	84 - 86
A-	90 - 93	B-	80 - 83
B+	87-89	C+	74 - 79

Schedule of Topics

Module 1 | Python Introduction and Built-In Data Types | 1/5-1/18

Module 2 | Basic Control Structures | 1/19 - 2/1

Module 3 | Saving Time and Memory | 2/2 - 2/15

Module 4 | OOP, Decorators, and Iterators | 2/16 - 3/8 (Spring Break 2/23~3/1, Midterm exam on 3/8)

Module 5 | Files and Data Persistence | 3/9 - 3/22

Module 6 | Data Science | 3/23-4/5

Module 7 | Data Science II | 4/6-4/18 (Final exam on 4/18)

Nondiscrimination Statement

The **Office of Civil Rights Compliance and Accessibility** (CRCA) is responsible for ensuring that FIU maintains a workplace and learning environment free from discrimination, where current and prospective faculty, staff, and students are treated equitably. If any student, employee, or applicant has a sincere and reasonable belief that they have been discriminated against or harassed based on age, color, disability, marital

status, ethnic or national origin, race, religion, retaliation, sex, or any other protected category, they can report their concerns to the CRCA team through report.fiu.edu.

Course Awards

This certification mark recognizes that this course met Quality Matters review standards.

Quality Matters

This course has been awarded the Affordability Counts Medallion. The Affordability Counts initiative at FIU seeks to make learning more affordable by reducing the cost of course materials to $60 or less. Find out more by visiting the Affordability Counts website at lowcost.fiu.edu.