



# Programming in Python

## CSE 4256

**Credit Hours:**

1.00

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**Course Levels:**

Undergraduate (1000-5000 level)

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**Course Components:**

Lab

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**Course Description:**

Python programming for students well-versed in programming with another imperative language.

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**Prerequisites and Co-requisites:**

Prereq: 2122, 2123, or 2231; and 2321; and enrollment in CSE, CIS, ECE, Engr Physics, or Data Analytics major, or CIS minor.

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**Course Goals / Objectives:**

- Master the use of Python programming language constructs for control flow, literals, expressions, function invocation, and package import
  - Master the use of Python's built-in types, including lists, tuples, strings, sets, dictionaries, and deques
  - Master the use of Python features such as slices, list comprehensions and generators
  - Be competent with functional programming in Python
  - Be competent with object oriented programming in Python
  - Be competent with design patterns in Python
  - Be competent in implementing graph theory data structures and algorithms in Python
  - Be competent with regular expressions in Python
  - Be familiar with a Python library/toolkit such as Numpy, NLTK or NetworkX
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**Course Topics:**

- Overview of the course and the Python language
  - Fundamental Python classes and functions
  - Object-oriented programming in Python
  - Applications of graph theory
  - Design Patterns
  - Text processing and regular expressions
  - Functional programming
  - A Python library such as Numpy, NLTK, or NetworkX
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**Designation:**

Elective