



	<h2>Python Immersive Syllabus</h2> <p>Total in-class: 35hrs</p>
Monday 10.00am- 5.00pm	<ul style="list-style-type: none">• Terminal commands• Jupyter Notebook• Variables• Built-in functions in Python• Data types: strings, integers, floats, lists• Definite loops: For loops• Practical Exercises
Tuesday 10.00am- 5.00pm	<ul style="list-style-type: none">• How to create functions in Python• The behavior of data structures• Data types: tuples• If, Elif, Else statements• Indefinite loops: While loops• Indexing and slicing• Practical Exercises
Wednesday 10.00am- 5.00pm	<ul style="list-style-type: none">• Data types: dictionaries• Reading from a text file• Writing to a text file• Appending to a text file• Analyzing a text file's content• Practical Exercises
Thursday 10.00am- 5.00pm	<ul style="list-style-type: none">• Big-O notation• Binary search• Bubble Sort• Insertion sort• How to write efficient code• Practical Exercises
Friday 10.00am- 5.00pm	<ul style="list-style-type: none">• Review and Q&A• Intro to Object Oriented Programming• Working on a project• Git and GitHub

Python Immersive Curriculum

Key objective: Students will develop technical software skills to construct automated business solutions to once manual tasks in the Python programming language. By developing logical theory and application exercise, students will be able to create algorithms to everyday problems. These computer science concepts are deemed fit for the computer science industry as both relevant and in demand.

Topic	Learning objectives	CDOS standards
Python software environment	<p>Students will identify and apply Linux terminal commands to create the environment for Python code</p> <p>Students will list and explain the various data types in Python. These are the fundamental elements of Python code.</p> <p>Algorithmic thinking: Students will be given scenarios to solve and return certain values by coding simple solutions to exercise problems.</p>	<p>Standard 3a - Foundational skills</p> <p>Standard 3b / Standard 2- Career majors / Integrated learning</p> <p>Standard 2 - Integrated learning</p>
Logical programming	<p>Students assess the inner workings of functional interpretive programming</p> <p>Students apply interpretive coding principles to boolean logic</p> <p>Students solve algorithms applying code optimization strategies utilizing built in Python loops</p>	<p>Standard 3a - Integrated learning</p> <p>Standard 2 - Integrated learning</p> <p>Standard 2 - Integrated learning</p>
Python built in programming	<p>Students investigate built in Python programming features to develop rich applications</p> <p>Students create practical Python programs to analyze external files</p>	<p>Standard 3a - Universal foundation skills</p> <p>Standard 3b - Career majors</p>
Computer science fundamentals	<p>Students define the purpose and nature of space time complexity in computing</p> <p>Students analyze the various sorting algorithms that computers perform to assort information</p>	<p>Standard 3a - Universal foundation skills</p> <p>Standard 2 - Integrated learning</p>
Application development - Project based assessment	<p>Students will develop a project based learning assignment to assess their conceptual understanding of computer science fundamentals by developing an application in the Python programming language</p>	<p>Standard 2 - Integrated learning</p>