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# Practical Python Programming

Prerequisites: *Basic Computer knowledge. Understanding of how computer works. Some hands-on programming knowledge will be very helpful.*

Length: 8 *Weeks (40 hours).*

## Course Outline:

### Week 1: Python Language Basics

a) Why Python? The landscape. Of Application/System programming languages.
b) Setup the development environment.
c) “Hello World!” of Python.
d) Comments And Pound Characters.
e) Numbers And Math.
f) Variables And Names.
g) More Variables And Printing.
h) Strings And Text
i) More Printing
j) What Was That?

### Week 2: Python Programming – Logic, List and more

a) Memorizing Logic
b) Boolean Practice
c) What If
d) Else And If
e) Making Decisions
f) Loops And Lists
g) While Loops
h) Accessing Elements Of Lists
i) Branches and Functions
j) Designing and Debugging
k) Symbol Review
l) Doing Things To Lists

m) Dictionaries, Oh Lovely Dictionaries

## Week 3: Python Programming - Interactive and I/O

n) Asking Questions.
o) Prompting People.
p) Parameters, Unpacking, Variables.
q) Prompting And Passing.
r) Reading Files.
s) Reading And Writing Files.
t) More Files.
u) Names, Variables, Code, Functions.
v) Functions And Variables.
w) Functions And Files.
x) Functions Can Return Something.
y) Take home test.

## Week 4: Python Programming – Modules, Classes and Objects

a) Modules, Classes, And Objects.
b) Learning To Speak Object Oriented.
c) Is-A, Has-A, Objects, and Classes.
d) Inheritance Vs. Composition.
e) A Project Skeleton.
f) Automated Testing.
g) Advanced User Input.
h) A Practical Example.
i) Another Practical Example.

## Week 5: Error Handling, Debugging, Logging and Testing

a) Python Error Handling
b) Exceptions.
c) Debugging.
d) Logging.
e) Testing

## Week 6: Using Python Packages and Tools

a) Basic Libraries that comes with Python install
b) Math, Date/Time, Systems and other useful Packages
c) SQLite
d) asyncio

## Week 7: Databases Programming

a) More SQLite
b) SQLAlchemy
c) MongoDB

## Week 8: Data Analytic and Cloud Computing

a) BeautifulSoup 4
b) Pandas/NumPy
c) Amazon Cloud

## Week 9: Web Development in Python

a) Django/Flask Intro
b) From code to website

## Week 10: More Web Development in Python

a) Styling
b) Data Visualization with Bokeh