



# PYTHON BOOTCAMP @ ISE

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## Purpose of the Course

The main goal of this course is to create a solid foundation of Python which will allow the students to create/append Python scripts to help automate common procedures. We want to create a new automation culture within ISE. With the new knowledge learned in this course, ISE will be better equipped to master automation.

## Class Structure

This will be a weekly course where every 2-4 weeks we will tackle a different subject which will include projects for each. Each class will be broken into two parts, a beginning 15 minute lecture followed by 45 minutes of lab time.

## Expected Knowledge

The following are several elements of Python that the students should be familiar with coming into this course:

<ul style="list-style-type: none"><li>• Containers<ul style="list-style-type: none"><li>○ Lists</li><li>○ Dictionaries</li><li>○ Tuples</li><li>○ Sets</li></ul></li><li>• Functions/Methods<ul style="list-style-type: none"><li>○ Parameters/Arguments</li><li>○ Return statements</li><li>○ Variable Scoping</li></ul></li><li>• Built-in Functions<ul style="list-style-type: none"><li>○ len(), str(), int()</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Conditionals/loops<ul style="list-style-type: none"><li>○ if/else</li><li>○ while loops</li><li>○ for loops</li></ul></li><li>• Built-in Types<ul style="list-style-type: none"><li>○ Strings</li><li>○ Ints</li><li>○ Objects</li><li>○ Booleans</li></ul></li><li>• Built-in Operations<ul style="list-style-type: none"><li>○ -, +, and, or, ==, is, is not, !=</li></ul></li></ul>
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## Schedule of Topics

<b>Week 1</b>	<b>File Manipulation</b>
<b>Week 2</b>	<b>File Manipulation</b>
<b>Week 3</b>	<b>Database Manipulation</b>
<b>Week 4</b>	<b>Database Manipulation</b>
<b>Week 5</b>	<b>Database Manipulation</b>
<b>Week 6</b>	<b>Executing System Commands</b>
<b>Week 7</b>	<b>Executing System Commands</b>
<b>Week 8-?</b>	<b>TBD</b>

## **File Manipulation**

With the power of File Manipulation, students will be able to automate the procedure of opening, changing and reading files. Performing verification on file contents as well as automating changes within files will make these procedures much less error prone and efficient.

## **Database Manipulation**

By scripting Database Manipulation, students will be able to automate common database lookups. By using Python data structures in conjunction with Python's Database modules, querying multiple tables becomes much more manageable.

## **Executing System Commands**

By learning how to execute system commands using Python, students will be able to automate common system command procedures. With the ease of Python, users will be able to create dynamic scripts that a shell script would never be able to handle.