Robotics Curriculum Module 2.3

*Practical Python Programming 1 - Web Programming*

***Introduction***

Module 3 will be the start of some smaller, more practical examples of how to write programs with python. The first of these is writing web applications using python and a framework called “Flask”. This unit will hopefully show you how to write an HTML document, and how to host a webpage using flask.

***Timeframe***

Similar to the last module, module 3 will not have a strictly enforced timeframe. While each “lesson” is expected to take roughly an hour, students can spend more time / less time on topics as necessary. In addition, this module will have advanced topics. In addition, the module will only have 2 large lessons which can be stretched over 2 weeks a piece.

***The Online Textbook***

This course will be provided with access to a free online textbook, “How to Think Like a Computer Scientist”. You can access the book through this link:

<https://runestone.academy/runestone/books/published/thinkcspy/index.html>

The book has built-in runners for python code, has exercises, and great examples in the reading. This online textbook is great for coming up with additional learning exercises and freshening up on python material if you haven’t programmed in a while. You may need to make an account to access the book, but the book *is free*, so don’t pay for anything!

***Discord Channel***

There is currently a Discord channel for Innovate-IT and the robotics venue. Please email lfoster1@iastate.edu for an invite link.

***Workflow***

The curriculum has pages available with teaching information and recommended materials to cover. These materials are just a suggestion, and merely a place to start when teaching students the material covered. Generally, every week should follow the same format:

1. Read the learning materials provided.
2. Watch any videos (if linked).
3. Ensure that you can answer all of the “learning outcomes” questions presented that week.
4. Work on the technical task for the remainder of free time.

***Extra Materials***

Module 3’s extra materials (python technical challenge solutions) can be found at the following box address:

<https://iastate.box.com/s/oo31hatg05vb5u7t6q3iqm2wwcow88zr>

The solutions are in the format M2\_W(lesson number).py

Don’t look unless you want the challenge spoiled!

***Lesson 1: HTML***

Lesson one is dedicated to showing you how to create an HTML document, which is a document that can be viewed with any web browser. This lesson will be short, but important in the sequence of this module.

***Reading Materials***

*For learning HTML and CSS, we will be deviating from the python textbook and towards another online tutorial website.*

[*https://www.tutorialspoint.com/html/index.htm*](https://www.tutorialspoint.com/html/index.htm)

Tutorialspoint:

HTML - Home

HTML - Overview

HTML - Elements

HTML - Attributes

HTML - Formatting

***Learning Outcomes for Lesson 1:***

* What is HTML?
* How can I display an HTML page?
* What are elements and attributes?
* How can I format a webpage to have headers, and tags?
* What are attributes?
* How can I make text bold? Italic?