**Course Title:**  **Software Testing and Quality Assurance – Level II**

**Semester:** Spring, 2015

**Instructor Name:** David F Wagoner

**Course Description:**

This course provides a practical, in-depth understanding of test automation using Selenium and the Python programming language. Gain a practical understanding of web site test automation using the Selenium Web Driver automation suite and Python programming language. This course covers moving from simple macro-based scripting using the IDE to designing and deploying repeatable test automation to reduce cost and effort while increasing the quality of deployed systems, resulting in higher return on investment from web site projects and increasing your value to employers. Design Selenium test cases and suites using Python to orchestrate client side tests driven by Selenium WebDriver. Learn the basics of web site security testing and implementing effective automated test suites to rigorously exercise web site functions and interfaces. Students will learn how to use the Selenium WebDriver integrated with Python to design and develop automated testing suites using the Python programming language and bindings to implement enhanced control, management and execution of suites.

For tab:

Gain a practical understanding of web site test automation using the Selenium WebDriver automation suite and Python programming language. This course covers moving from simple macro-based scripting using the IDE to designing and deploying repeatable test automation to reduce cost and effort while increasing the quality of deployed systems, resulting in higher return on investment from web site projects and increasing your value to employers. Design Selenium test cases and suites using Python to orchestrate client side tests driven by Selenium WebDriver. Learn the basics of web site security testing and implementing effective automated test suites to rigorously exercise web site functions and interfaces. Students will learn how to use the Selenium WebDriver integrated with Python to design and develop automated testing suites using the Python programming language and bindings to implement enhanced control, management and execution of suites. Prerequisites: **Software Testing and Quality Assurance – Level I and Python Programming**

**Course Objectives:**

Students will learn the following topics: a) set up Python Bindings to Selenium, b) automated test script/suite development, c) single server test script orchestration using Python, d) elements of security testing, e) Selenium WebDriver.

**Software/hardware requirements:**

PC with Firefox

Storage for student solutions files/downloads and to host some pages to use in exercises

[Selenium plug-in for Firefox](http://release.seleniumhq.org/selenium-ide/2.6.0/selenium-ide-2.6.0.xpi)

[Selenium WebDriver](http://release.seleniumhq.org/selenium-ide/2.6.0/selenium-ide-2.6.0.xpi)

[Selenium Python Bindings](http://pypi.python.org/pypi/selenium)

[Python Language version 3.x or higher](https://www.python.org/downloads/)

Example web page input template with forms (to be developed) for student testing

**Textbook**: [Software Testing (2nd Edition); Paperback; Patton, Ron; 2006](http://www.amazon.com/Software-Testing-2nd-Edition-Patton/dp/0672327988/ref=cm_sw_em_r_dp_DaM9tb10K45F9_lm) Cost ~ $30.00 Amazon

**Prerequisites**

Course 1 – Software QA and Testing with Automation using Selenium IDE

Elements of programming or Introductory Python programming

**Lesson Topics**

| **Date** | **Topic** | **Chapters** |
| --- | --- | --- |
| 3/23/15 | Application of Testing Fundamentals and Introduction to the Selenium WebDriver  Using Selenium Python Bindings | 8 – 12, supplemental Slides |
|  | Selenium Script Orchestration using Python  Elements of web site security testing | 13, Supplemental Slides and test web page input template |
| 3/30/15 | Selenium Script Orchestration using Python Exercises | Supplemental Slides and test web page input template |
|  | Testing Data Development  Selenium Testing of Form Fields - data validation and boundary coverage | Supplemental Slides and test web page input template |
| 4/4/15 | Enhancing Selenium Functionality; Test Execution – add-ons and plug-ins | Supplemental Slides and download |

**CC10**

This continuing education course is designed for entry level programmers/software developers and software analysts and provides instruction on software testing using the Selenium WebDriver automation suite and Python programming language. Topics include how to design Selenium test cases and suites using Python to orchestrate client side tests driven by Selenium WebDriver. Topics also include the basics of web site security testing and implementing effective automated test suites to rigorously exercise web site functions and interfaces.

Objectives:

Prepare Set up Python Bindings to Selenium

Perform automated test script/suite development

Perform single server test script orchestration using Python

Identify elements of security testing

Utilize Selenium WebDriver.