**Pycademy of Zimbabwe**

**COURSE TITLE: Python Programming language**

**COURSE OUTLINE (software development)**

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**OFFICE: …**

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**Career: software developers, robot developers, enterprenuers,teachers**

**PREAMBLE**

Programming is basically giving instruction to a computer for a computer to execute. Many languages have been used over the years but some languages are more useful than others. Examples of programming languages include python, c#, c++, javascript, HTML, css, wordpress, php etc. Python programming language is one of the most powerful programming tools and is an open source language which means it is free to be used by anyone in the world. Python programming language is useful in the digital world, it enable programming of web applications, android applications, data analysis software and also robotics .Hence the need to learn and understand the use of python programming language.

**LEARNING OUTCOMES**

Students will be equipped with basic python programming language skills and will be able to apply them to solve problems using digital skills. They will be able to build a fully functional web application and also android application depending on their choice or selection.

**OBJECTIVES**

At the end of this course, the student must be able to:

* to develop a python code and debug it.
* Use python code to solve problems
* Develop a web application using django frame work
* to use git hub at a professional level
* to deploy the web application on the internet for public viewing.

**METHODOLOGY**

The course content shall be issued to students in the form of lectures and handouts. Tutorials shall also be conducted to increase understanding. Contact and non- contact hours are broken down as follows:

|  |  |
| --- | --- |
| Teaching | 20hrs |
| Tutoring | 4hrs |
| Development tests | 12hrs |
| Assessments | 3hrs |
| Individual projects | 1 months |

**Assessment** shall be broken down as follows:

1. Development tests 10%
2. Assessments 20%
3. Final project 70%

**COURSE CONTENT**

|  |  |  |  |
| --- | --- | --- | --- |
| INTRODUCTION | What is programming, importance of programming, what is python programming language, what is open source, How to solve problems using programming, common languages, career opportunities in programming. Installation of software. launching the software ,how the internet works ,introduction to command line, introduction to code editor. | **4 Hours** |  |
| Introduction to python programming language | Python prompt, write first code, strings, Errors, Variables, print function ,lists, Dictionaries, comapre things, Boolean,save it,if…elif….else, functions,loops, | **6 Hours** |  |
| Python applications and frame works | What is django?, what is flask?, What is QT? , what is a framework? ,How to develop a framework. | **4 Hours** | **Assessment 1** |
| Django framework | How servers communicate, django installation, virtual environment,first django project | **4 Hours** | **Dev Test 1** |
| Getting started with django | Changing settings, database setup ,django models, create a blog post, django admin, | **6 Hours** | **Assessment 2** |
| Git hub and deployment to the internet | Getting started with git hub, python anywhere,how to deploy to the internet,what is hosting,How it works. | **4 Hours** |  |
| Development fo application | Urls,Regex, first URL,Views | **2 Hours** | **Assessment 3** |
| HTML basics | What is html,how to use it,templates,head and body,customize templates,Django ORMs, | **4 Hours** |  |
| CSS | Introduction to CSS,introduction to bootstrap,write css code,css font,extend templates,extend application | **4 Hours** | **Assessment 4** |
| Django forms and project | Make forms,security,how to come up with a project,how to identify a problem,how to solve it,how to turn the solution into python code,develop the solution in python code.  Develop a project | **4 Hours** | **Dev Test 2** |

REFERENCES

Pycon conferences

Lesson notes

Github cheat sheet