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|  |  | **tritechsc.org**  **tritech.ksd.org**  **YEAR 1** |

**TRI-TECH SKILLS CENTER CYBER SECURITY COURSE OUTLINE**

**SEMESTER 1 - YEAR 1**

**CYBER SECURITY / COMPUTER SCIENCE INTRODUCTION**

Cyber Security at Tri-Tech in an introduction to Computer Science, Networking and Electronics.

It is an introduction of how computers, networks and the Internet of Things (IOT) work.

* **SAFETY**

Computer lab safety

* **AUTHENTICATION**

Google.com, Github.com, Microsoft.com( Imagine) and Amazon.com (<https://www.awseducate.com/Registration>) Year 1 and Year 2

<https://imagine.microsoft.com/library/main/documents/microsoft%20imagine%20how%20to%20enroll%20guide%20for%20purchasing%20customers.pdf>

<https://signup.azure.com/studentverification?offerType=3>.

* **GIT AND GITHUB.COM**

Github.com basics using the web interface and git command line.

Each person in class creates a username.github.io web page.

* **VIRTUALIZATION**

Virtual Box, VMWare and KVM (Linux)

* **PYTHON PROGRAMMING**

Introduction to computer programming in Python

Using Python on a Raspberry Pi Computer.

Incorporating Python in Minecraft-PI

* **COMPUTER BASICS AND NETWORKING INTRODUCTION**

Power supply, motherboard, RAM, CPU, video, audio, inputs, USB, and Ethernet

* **COMPUTER SCIENCE MATHEMATICS (THIS UNIT EXTENDS THOUGH THE ENTIRE YEAR)**

Base conversions, logic and computer science mathematics.

* **SECURITY ETHICS, SECURITY LEVELS, SECURITY THREATS AND DEFENSIVE SECURITY**
* Introduction to ethics, security levels and defense.
* **LINUX INSTALLATION**

Debian Linux installation, configuration, directory structure and Bash. Linux users and permissions

* **LINUX COMMAND LINE**

Linux command line and introduction to BASH scripting. (BASH).

* **LINUX SERVER SERVICE INSTALLATION**

Linux server and configuration introductory level. (Apache2, VSFTPD, Samba, and SSH)

**SEMESTER 2 - YEAR 1**

* **CAREER PLANNING**
* Long term planning for a career as a Computer Scientist and Cyber Security specialist.
* **PHP AND SQL INTRODUCTION**

Introduction to Hypertext processing using the PHP programming language.

Introduction to SQL (Structured Query Language) programming language.

* **C / C++ PROGRAMMING**
* **NETWORKING HARDWARE AND PROTOCOL**

Open Systems Interconnect (OSI Model) (Ethernet, wireless)

Wired network fundamentals (IPV4, Subnetting, Routing, DHCP and Switching)

* **NETWORK MONITORING TOOLS INTRODUCTION**
* (Wireshark, Linux tools)
* **CISCO NETWORKING**

Packertracer and introductory CLI (Command Line Interface)

* **MICROSOFT**

Windows client installation and networking. (Virtual Machine and on hard drive)

* **MICRO-CONTROLLERS**

Introduction to electronic and micro-controllers (Arduino)

* **CULMINATING SMALL GROUP PROJECT**