**Chapter 3: Analysis and Design**

*“This document is the guideline of how to complete you chapter 3 i.e., Analysis and design for HND Final Project.”*

**3.1 Introduction**

In systems engineering the analysis and design stage will entail intricate and precise examination; to investigate, study and scrutinize the VLAN architecture and its constituent components in detail; in order to facilitate a precise comprehensive comprehension of networking principals and concepts that was discussed in erstwhile chapters, hence the analysis of the functional and non-functional requirements of the prospective VLAN network will set an exceptional level of quality and distinction for the concluding design.

**3.2 Research Methodology**

In this section, you have to discuss the methodology you have chosen for project i.e., Traditional waterfall or Agile Methodology.

* Write the stages of your chosen methodology
* Give advantages and disadvantages of your chosen methodology
* Give Reasons why your chosen methodology is suitable for your project.

**3.3 Functional and non-functional requirements of your project**

Write the functional and non-functional requirements of your project

**3.4 Tools and Techniques**

Write about the tools that you are using for network design and implementation. Also give the diagram/picture showing the interface of your tool. Tools you can divide into two parts.

1. Tool you are using for designing the network diagram like draw.io
2. Tool you are using to implement the designed network i.e., Cisco packet tracer

**3.5 Analyse the Hardware and software you are using for your design**

In this section, list all the devices like routers, switches, servers you are using for network design and give the functions, versions and cost of all these devices.

For example, if you are using the print server then:

**Print server specifications**

The specifications are:-

* Chassis for 8 Hot Plug Hard Drives.
* 2x Intel Xeon Processors 2.90GHz with a 15M Cache (Turbo).
* 4x 4GB RDIMMs 1600MHz, Totaling 16GB RAM.
* VMware Embedded Image.
* RAID 5 with RAID Controller and Cache.
* Dual port 1GB Network Adapter.
* Optimized for high performance.
* Universal BIOS settings.

**The reasons for selecting the print server are:-**

It will be used for connecting the host machines to the printers on each broadcast domain and

has the ability to place printing jobs in a que.

**3.6 Give the final network design diagram**

Please give the final network design diagram here and write the analysis for it. For example:

“From a security point of view the network is well secure and guarded against hacking attacks and viruses from entering because the network firewall and layer 2 switches have been placed in strategic locations, thus packets coming in and out of the VLAN have to pass through the firewall and layer 2 switches before gaining access to the web server or leaving the network.”

**3.7 Chapter summary**

Write 1 small paragraph for analysis and design chapter summary. For example:

The conclusion of this chapter has completed the successful selection of project methodology along with identification of functional and non-functional requirements. Moreover the selection of the hardware for the network design. After the analysis of the hardware the network diagram was designed and fortunately no problems were highlighted during analysis and design stage.