

Rubric for Program Outcome**6. Use industry standard tools to analyze, design, develop and test computer-based systems containing both hardware and software components**

Assessment will be based on a lab test where the student will be required to use laboratory routers and switches to implement, configure, and test an IP network . Individual assignments may be used to verify the use of NAT and WAN configuration.

| Student: | | | | |
|--|--|---|---|--------------|
| Evaluation Measures | Inadequate | Marginal | Adequate | |
| Scale | 0 | 1 | 2 | Score |
| Physical implementation of the network | Improper cable or equipment selection. | Initial incorrect port selection or incorrect cable type, causing significant delays in implementation. | selection of correct equipment and cable types. Correct network connections. | 2 |
| Configuration of routers and switches | Inability to configure basic interfaces and passwords. | Basic interfaces correctly configured. Routing difficulties in the network. | Network configured correctly. Routing functional. Login, telnet, and console passwords correct. | 2 |
| Use debugging and network monitoring tools to correct problems in a network. | Inability to demonstrate basic functionality of network. | Demonstrated use of only the most basic tools such as ping. | Use of debugging tools to demonstrate functionality of the WAN connection, NAT translation and routing protocols. | 2 |
| Use of NAT translation to provide a local network. | Unable to configure NAT functionality. | NAT configuration of correct form, but private network cannot reach public addresses. | NAT translation fully functional. | 2 |
| Use of routing protocol such as OSPF for single area network. | Unable to provide any OSPF functionality. | Some OSPF functionality, but routing difficulties to some parts of the network. Improper or unnecessary network commands in OSPF configuration. | Full OSPF functionality, proper OSPF configuration. | 2 |
| WAN connections. | WAN connections are not functional. | WAN connection established, but trouble reaching all destinations. | Full network connectivity established. | 2 |

Total **12**