



GUJARAT TECHNOLOGICAL UNIVERSITY
Syllabus for Bachelor of Vocation (B.Voc.), 2nd Semester
Branch: Software Development
OJT Elective Name: Computer Hardware Maintenance and
Networking
Subject Code: 21120208

**With effective
from academic
year 2021-22**

Teaching and Examination Scheme:

| Teaching Scheme | | | Credits | Examination Marks | | | | Total Marks |
|-----------------|---|----|------------------------|-------------------|--------------------------|------------------------------------|-----------------------------------|-------------|
| L | T | P | | C | Theory | | Practical | |
| | | | University exams (ESE) | | Internal evaluation (PA) | External Practical /viva Exam(ESE) | Internal Practical /viva Exam(PA) | |
| - | - | 15 | 15 | - | - | 100 | 100 | 200 |

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment

OJT Hands on Exercise/Training:

| Sr. No. | Training / Hands on Exercise | Hours. |
|---------|--|--------|
| 1 | <p>Advanced PC Hardware and Networking Components:</p> <p>PC1. Identify various blocks in Portable Mobile Computers, Laptops, Tablets</p> <p>PC2. Trace out mapping of Portable Mobile Computers, Tablets etc.</p> <p>PC3. Get the configurations of various models of portable computer, laptops and notebooks from the Websites (IBM.com, hp.com, dell.com etc.)</p> <p>PC4. Download all the drivers and Burn a CD for this system based on on query e.g, A customer has lost the driver CD of an IBM ThinkPad series Laptop.</p> <p>PC5. Download a latest version of the BIOS and upgradation of the BIOS of the given System for an old Laptop which doesn't support a hard disk size >10 GB.</p> <p>PC6. Select a suitable converter for a Laptop disk has to be connected to a PC IDE port.</p> <p>PC7. Connection of a PC IDE disk to a Laptop system on a USB port. Transfer files between two Laptops using Infrared port</p> <p>PC8. Communication between some model of a Nokia mobile phone, and a Laptop using suitable driver (download) and communicate using infrared ports on two systems</p> <p>PC9. Install a PCMCIA WLAN card on a laptop & establish a connection with wireless access point in the vicinity</p> <p>PC10. Connection of two Laptops in peer configuration using Radio based wireless LAN card.</p> <p>PC11. Installation of PCMCIA Ethernet card on an old laptop, which doesn't have an inbuilt Ethernet card.</p> <p>PC12. Configure wireless router/ Access point for establishing secured wireless network.</p> <p>PC13. Remotely access the wireless router for its configuration and disable the configuration through wireless access.</p> | 50 |



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|---|---|----|
| 2 | <p>Data Communication and Computer networks:</p> <p>PC1. Installation of Network card, altering MACaddress and revealing original MAC. PC2. Working with LAN connection, terminalconnection and remote LAN connection PC3. Use of various access point devices PC4. Use & Working with various types ofDNS PC5. Various types of IP's (static, dynamic,internal, public) PC6. Demonstration of threats in Bluetoothtechnology PC7. Working with IPv6 addressing Applying cryptography in networksIP configuration and IP masking Installing Wi-Fi network and Wi-Fi rangesand limitation PC8. Understanding firewall/IDS/IPS logs PC9. Working and troubleshooting Video teleconferencing devices PC10. Working and troubleshooting VOIP PC11. Implementation of security features in E -commerce/E-tendering etc.</p> | 50 |
| 3 | <p>Network Management and Administration:</p> <p>PC1. Introduction to Network Management PC2. Identify network components. PC3. Identifications of Different in Cabling And Switches And Routers PC4. Installation of desktop operating systems PC5. Linux Server Administration with Shell Scripting PC6. Working with Network Monitoring Tools. PC7. Installation of peripherals and devices PC8. Installation of Windows Server operatingsystems PC9. Installation & Configure DHCP Service On Both Server and Clint End PC10. Converting From FAT32 to NFTS PC11. Upgrading From Lower Versions toHigher Versions Of Desktops And Servers PC12. Creating enabling and monitoring Remote access on servers and desktop systems PC13. Configure wireless router/ Access point for establishing secured wireless network. PC14. Creating and configure connections like modem switches, routers, internetconnection sharing's PC15. Shell scripting network administrationsusing GNU/LINUX PC16. Creating (Manually) resource recordsDNS Configuration, Zone delegation PC17. Configuration of DHCP Server, mail&Web server PC18. Security Check by brute force attack PC19. Troubleshooting the Devices Like Physical And Software Related and Network related etc</p> | 50 |



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| | | |
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| 4 | Linux Administration: PC1. Boots And Shutdowns PC2. Management of user Accounts, Files. PC3. Install a Linux server According to given specifications PC4. Backup and Recovery Data and Network, etc. PC5. Use of Text Editor PC6. Install mail server PC7. Install a printer Local and Network making Print sever PC8. Archival and compression PC9. Creation of users on server magegroup accounts PC10. Kernel management at run time PC11. Experiments on using shell scripting PC12. Basic networking Related to LAN/MAN/WAN PC13. Use of Linux Commands like Create, delete, move and rename files and directories PC14. Combination of several simple commands in order to produce more powerful operations PC15. Compilation of simple programs underLinux | 50 |
| | Total | 200 |

Reference:

1 <https://nqr.gov.in/qualification-title?nid=3092>