* Configure and verify spanning tree with other LAN switching technologies
* Describe chassis virtualization and aggregation technologies

**Infrastructure Security and Services**

### Configure and verify switch security features

### Describe device security using Cisco IOS AAA with TACACS+ and RADIUS

### Configure and verify first-hop redundancy protocols

* **TShoot**
* **Network Principles**
* Use Cisco IOS troubleshooting tools
* Apply troubleshooting methodologies

### Layer 2 and Layer3 Technologies

### Troubleshoot switch administration with Layer 2 protocols

### Troubleshoot VLANs, trunking, Ether Channels and spanning tree

### Troubleshoot other LAN switching, chassis virtualization and aggregation technologies

### Troubleshoot IPv4 and IPv6 addressing and subnetting

### Troubleshoot static routing and default routing

### Troubleshoot between any routing protocols or routing sources

### Troubleshoot manual and autosummarization with any routing protocol

### Troubleshoot policy-based routing

### Troubleshoot EIGPR and OSPF operations

### Troubleshoot BGP peer relationships and authentication

### Troubleshoot eBGP

### VPN Technologies

### Troubleshoot GRE

### Infrastructure Security and Services

### Troubleshoot IOS AAA using local database

### Troubleshoot device access control

### Troubleshoot router security features

### Troubleshoot device management

### Troubleshoot SNMP, logging, Network Time Protocol(NTP) and IPv4 and IPv6 DHCP

### Troubleshoot IPv4 Network Address Translation (NAT)

### Troubleshoot SLA architecture and tracking objects



**National Institute of Electronics and Information Technology   
(J&K)**

ISO 9001:2008 certified organization

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**National Institute of Electronics & Information Technology** (NIELIT),(erstwhile  DOEACC) was set up to carry out HRD-IT and related activities in the area of Information, Electronics & Communications Technology (IECT). NIELIT is engaged both in Formal & Non-Formal Education in the area of IECT besides development of industry oriented quality education and training programmes in the state-of-the-art areas. NIELIT has endeavoured to establish standards to be the country’s premier institution for Examination and Certification in the field of IECT. It is also one of the National Examination Body, which accredits institutes/organizations for conducting courses in IT in the non-formal sector.

NIELIT has thirty one (31) offices located, with a strong network of over 800 accredited institutes and over 6000 facilitation centres.

**About NIELIT Srinagar/Jammu**

* NIELIT J&K is functioning from Srinagar, Jammu & Leh.
* **Srinagar Centre is located in the SIDCO Electronics Complex, Rangreth on a 7.5 acres Campus with a built-up area of 33,000 sq.ft.**
* The Jammu Centre is located on the New Campus of the University of Jammu with a built-up area of 22,000 sqft.
* Sub-Centre Leh is located at Skalzangling, Airport Road, Leh.
* **Long Term Courses:** 
  + MCA in affiliation with University of Kashmir.
  + PGDCA in affiliation with University of Jammu.
  + Software/Hardware courses like ‘O’, ‘A’ & ‘B’ level.
* **Short Term Courses in:**
* **Computer Networking**
* CCNA,CCNP
* MCSA(Windows Server 2012)
* Linux Networking
* Integrated Networking Industrial Program.
* WSN (Wireless Sensor Networks)
* **Ethical Hacking and Cyber Forensics**
* Information Security, Ethical Hacking and Cyber Forensics
* **Programming courses**
* Android Programming
* .Net Technologies
* Programming in Java
* Embedded Systems Programming
* MATLAB
* Programming in C/C++
* **Open Source Technologies**
* PHP and MySQL
* Python
* **Database**
* Oracle SQL Dev,Oracle PL/SQL Dev,Oracle App Dev
* **Computer Aided Design**
* VLSI Designing
* AutoCAD
* **Basic Literacy Programs**
* DOEACC “CCC” Course
* Basic Computer Applications.
* **Others**
* Repair of Mobile Phones.
* PC Assembling and Testing
* Web Design
* Diploma in operation and Maintenance of Bio Med equ.

**Industrial Training**

**in**

**Computer Networking**

**(Cisco Platform)**

### Layer 2 and Layer 3 Technologies

### Configure and verify PPP and Explain Frame Relay

### Identify IPv4 and IPv6 addressing and subnetting

### Configuration, and verification of IPv4 addressing

### Configure and verify static routing and default routing

### Evaluate routing protocol types

### Configure and verify redistribution between any routing protocols or routing sources

### Configure and verify policy-based routing

### Describe RIPng

### Describe EIGRP, OSPF packet types

### Configure and verify EIGRP, OSPF for IPv6

### Configure and verify EIGRP, OSPF operations

### Describe, configure, and verify BGP peer relationships and authentication

### Configure and verify eBGP (IPv4 and IPv6 address families)

### Explain BGP attributes and best-path selection

### VPN Technologies

### Configure and verify GRE

### Describe DMVPN (single hub)

### Describe Easy Virtual Networking (EVN)

### Infrastructure Security and Services

* Describe IOS AAA using local database
* Describe device security using IOS AAA with TACACS+ and RADIUS
* Configure and verify router security features
* Configure and verify device management and SNMP
* Configure and verify Network Time Protocol (NTP)
* Configure and verify IPv4 Network Address Translation and Describe IPv6 NAT
* Configure and verify IP SLA
* Configure and verify Cisco NetFlow

**CCNP (R&S) Switch**

**Layer 2 Technologies**

* Configure and verify switch administration with Configuration and verification of Layer 2 protocols
* Configure and verify VLANs, trunking and Ether Channels
* Identify basic switching concepts
* Configure & verify VLANs
* Configure & verify inter VLAN routing (Router on a stick)
* Configure & verify trunking on Cisco switches

**IP Services & Network device security**

* Describes the types, features & applications of ACLs
* Identify the basic operation of NAT
* Recognize the high availability
* Configure & verify switch port security
* Configure & verify on ACLs to limit telnet & SSH access to the router

**WAN Technologies & troubleshooting**

* Identify different WAN technologies
* Configure & verify a basic WAN serial connection
* Implement & troubleshoot of PPPoE
* Troubleshoot & correct common problem associate with IP addressing & host configurations
* Troubleshoot & resolve VLAN problems
* Troubleshoot & resolve routing issues
* Troubleshoot & resolve WAN implementation issues
* Monitor Net flow statistics

**CCNP (Route):**

**Network Principles**

* Identify Cisco Express Forwarding concepts
* Describe IP operations
* Explain TCP operations and Describe UDP operations
* Recognize proposed changes to the network

**Objective:** To train students in the area of Network Installation, Configuration & Management.

**Duration:**

**CCNA:**2 Months @ 2hrs per day

**CCNA:**3 Months @ 2hrs per day

**Training Platform:** Cisco Router, Switches, Wireless Access points,Simulators.

**Training Methodology**:

* Classroom Lectures
* PPT Presentations
* Hands on practice in well equipped labs

**Training Outline:**

**CCNA:**

**Operation of IP Data Networks and IP addressing (IPv4/IPv6)**

* Recognise the purpose of various network devices such as Routers, Switches, Bridges & Hubs
* Describe the purpose & basic operation of the protocols in the OSI & TCP/IP models
* Describe the purpose & necessity of using private & public IP addresses for IPv4 addressing, subnetting & VLSM
* Identify the appropriate IPv6 addressing scheme to satisfy addressing requirement in a LAN/WAN
* Describe IPv6 addresses global Unicast, multicast link local, unique local EUI 64, auto-configuration

**IP Routing technologies & LAN Switching technologies**

* Describe basic routing concept
* Configure & verify routing configuration for a static or default route given specific routing requirement
* Differentiate methods of routing & routing protocols
* Manage Cisco IOS files