**Title:** Level 1 Training program on Wireless Sensor Networks.

**Duration:** 5 weeks

**Eligibility**: Teachers/Students/Researchers/Network Engineers having graduation in CS/ECE.

**Course Outline(Level-1)**

* Overview : Wireless Sensor Networks
* Motivation,Applications
* Node Architectures
* Operating Systems 802.15.4 Protocol Stack and Zigbee
* Crossbow Toolkit Exploration
* Moteview,Moteconfig,Xsniffer
* Programmers Notepad
* Mote Programming
* Tiny OS Introduction
* Introduction to NesC,Programme Structure
* Lab: Practical on Basic WSN Programming on Various Platforms
* Visualization and analysis of Wireless Sensor Data
* Lab: Displaying Data on PC
* Lab: Storing Data in a Database
* Introduction to Qualnet Simulator
* Qualnet Architect
* Case Study: Data acquisition using WSN

**Title:** Level II Training program on Wireless Sensor Networks.

**Duration:** 5 weeks

**Eligibility**: Teachers/Students/Researchers/Network Engineers having graduation in CS/ECE and have attended Level-1 Program

 **Course Outline(Level-II)**

* Review of Level -1 Training
* Wireless Sensor Network simulations
* Simulation using Tossim, Tinyviz, Power tossim
* Advanced Qualnet
* Custom Protocol Developement
* Qualnet Analyzer
* Qualnet Packet Tracer
* WSN Security Introduction
* Fundamentals, Challenges, Attacks in WSN
* Elliptic Curve Cryptography
* Demonstration of ECC using MATLAB
* Hands on Code Libraries: Tiny ECC, Nano ECC, TinySEC
* Developing and Analyzing Security protocols in TinyOS
* Survey of Research Papers in WSN security

**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.



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

ISO 9001:2008 certified organization

**Department of Electronics & Information Technology (DeitY), Ministry of Communications and Information Technology, Govt. of India.**

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**Industrial Training**

**in**

 **Computer Networking**

**WINDOWS SERVER 2012**

***(Duration:3 months @ 2 hrs per day)***

**MCSA Exam 70-410 Installing & configuring Windows Server 2012**

* Install and configure Windows Server 2012
* Describe ADDS
* Manage active directory objects
* Automatic active directory administration
* Implement IPv4
* Implement DHCP
* Implement DNS
* Implement IPv6
* Implement local storage
* Implement file & print services
* Implement group policy
* Secure Windows servers by using group policy objects
* Implement server virtualization by using Hyper-V

**MCSA Exam 70-411 Administering Windows Server 2012**

* Configure & troubleshoot Domain Name System
* Maintain Active Directory Domain Services
* Manage user & service Accounts
* Implement Group policy infrastructure
* Install, Configure & troubleshoot Network Policy Server
* Implement Network Access Protection
* Implement remote access

**MCSA Exam 70-412 Configuring Advanced Windows Server 2012 Services**

* Configuring Advanced features for DHCP, DNS, IPAM with Windows Server 2012
* Configure & manage iSCSI, Branch Cache & FSRM
* Configure DAC to manage & audit access to shared files
* Plan & implement an ADDS deployment that include multiple domains & forests
* Implement & configure an Active directory certificate service (ADCS) deployment
* Implement AD RMS deployment
* Implement an ADFS deployment
* Implement a backbone & disaster recovery solution based on business & technical rqmt

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

**Training Platform:** Cisco, Microsoft,Linux,Simulators.

**Training Methodology**:

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

**Training Outline:**

**Integrated Networking Industrial Program *(Duration:6 weeks @ 3hrs per day)***

* Recognize the purpose and functions of various network devices such as Routers, Switches, Bridges and Hubs
* Describe the purpose and basic operation of the protocols in the OSI and TCP/IP models
* Describe the operation and necessity of using private and public IP addresses for IPv4 addressing, ipv4 subnetting &VLSM
* Describe basic routing concepts
* Configure and verify routing configuration for a static or default route given specific routing requirements
* Differentiate methods of routing and routing protocols
* Install and configure Windows Server 2012. Describe AD DS.
* Manage Active Directory objects.
* Implement Group Policy.
* Secure Windows servers by using Group Policy Objects (GPOs).
* Wireless LAN fundamentals
* Install a basic wireless LAN
* Install wireless clients
* Conduct basic wireless LAN troubleshooting
* Introduction to Security
	+ Meaning of Security, Attacks, Computer Crime, Methods of Defence, Encryption
* Introduction Cryptography, Substitution Ciphers, Transpositions, Encryption Algorithms,
* Symmetric Encryption
* Data Encryption Standards(DES), Advanced Encryption Standards(AES)
* Public Key Encryption, Hash Functions, Key exchange, Digital Signatures
* Introduction to socket programming
* Client/Server Communication
* Hosts Identification and Service Ports
* Sockets and Socket-based Communication
* Socket Programming and JAVA.NET Class
* TCP/IP Socket Programming
* UDP Socket Programming

**LINUX *(Duration:6 weeks @ 3hrs per day)***

* Introduction to Linux(history)
* Partitioning of hard disk
* Installation of RHEL
* Basic commands
* Structure of Linux file system
* Changing directories
* Listing directory contents
* Examine file contents
* Directory and file system permissions
* Commands and utilities likeFIND,AWKand GREP.
* Introduction to VI editor
* VI commands and there use in editing
* Practicing the commands in Vi editor

**Managing users and services**

* Creating users and groups
* Linux run levels
* Controlling boot services
* Booting process of Linux

**Installation of services and servers on Linux network**

* Installation of services like telnet, SSH and FTP.
* DHCP server installation and its working process
* DNS introduction & installation
* Introduction to NFS and its installation
* Configuration of web server(APACHE)

**Security in Linux**

* Introduction and configuration of SQUID(proxy)server
* IPTABLES (firewall) packet filtering
* NATing in Linux
* TCP wrappers