

# VIP110-24 Network Design, Installation & Troubleshooting

EION Certified Wireless Engineer Course

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## Course Code:

ECT 210

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## Prerequisites:

ETC 100 RF and Wireless Fundamentals

ECT 110 RF Planning, Network Design, and Implementation

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## Who Should Attend:

This course is designed for engineers who are deploying wireless networks using VIP 110-24 either in Point to Point mode or Point to Anypoint mode. This course will be extremely useful and informative for engineers currently involved in the design, deployment, and maintenance of fixed wireless systems using VIP 110-24.

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## Course Outline:

### Product Description

- Radio Components
- Radio Connectors
- Outdoor Interconnect Cable

### VINE Network Topology & Operation

- Topology & Antenna Ports
- New Node Attachment and
- RF Link Parameters
- Channel Assignments
- Point-to-point
- Point-to-Multipoint
- Root-Repeater-Leaf
- Small VINE network with up to three repeaters
- Generic VINE network with multiple repeaters
- Ethernet Bridging

### Antennas, Site Selection, Path Analysis

- Selecting Antenna Type
- Directionality
- Gain
- Polarization
- Site Selection
- Line-of-Sight Path
- Radio Horizon (Maximum Line-of-Sight Range)
- Point-to-Point Path Analysis
- Antenna Orientation

### Cable Loss (Attenuation)

- Connector Loss
- Other Considerations – Antenna Grounding

### Installation and Setup

- Bench Check out
- Field Installation
- Antenna Installation and Alignment
- Spectrum Analysis and channel selection
- Output Power Limits (FCC) & (CE)
- Maximum Permissible Exposure (MPE) Limitations

### Upgrading the Firmware

- Installing new firmware through the Ethernet port
- Installing new firmware using Telnet
- Installing new firmware using the RS-232 serial port
- Feature upgrades

### Network Management

- TELNET
- SNMP

### Troubleshooting Examples

- Preventative Maintenance
- Troubleshooting Areas
- Troubleshooting Chart



This course contains practical lab components

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## About EION Wireless:

EION's Broadband Wireless portfolio delivers last-mile wireless and WiMAX solutions for enterprises, service providers, defense agencies, security agencies, and remote communities. A wide range of point-to-point and point-to-multipoint radio systems, coupled with robust and scalable broadband gateways enable multiple applications to be supported and deployed.

EION's combination of carrier class IP experience, wireless networking skills, and security expertise bring highly reliable and secure communications solutions to its clients. From isolated and inaccessible villages to congested and challenging urban environments, EION builds the equipment and designs the solutions that make it all possible - a powerful combination of wireless broadband and scalable wireless communications systems.

## About the Instructors:



**Dr. Waleed Hosny** is a Research Analyst in Computing and Systems Technologies at the Electronics Research Institute of Cairo, Egypt. Waleed's research areas are in Wireless Communications and IP Mobility. He holds B.Sc., M.Sc., and PhD in Communications Engineering from Cairo University of Egypt.

Waleed is an active member of the IEEE (Institute of Electrical and Electronics Engineers) Association since 1999 and published many papers in international journals and magazines. He has been involved with Telecommunications and Information Technology since 1994. Waleed has held several senior management positions and Consultancy roles for many major private and public sector corporations and to many USAID projects in Egypt in the areas of data and voice networks, and Internet/ Intranet. Waleed has several years of project management experience working with diversified, cross functional teams.



**Dr. Anand Srinivasan** is the Vice President Technology & Product Development at EION Wireless. With over 15 years of experience in system design and network planning for large scale wired and wireless networks Dr. Srinivasan is the principal architect developing EION's innovative mobile Ad Hoc networking technology, wireless back haul systems and award winning WiMAX product line.

Dr. Srinivasan holds a Ph.D and M.Sc. in computer science from the University of Victoria, British Columbia, Canada. He has published over fifty papers in the areas of operating systems, distributed systems, fault-tolerance, wireless networks and optimization and holds four patents.

## Testimonials:



"The WiMAX training was very well done, especially the instructor. We were given information of WiMAX Fundamentals and experienced thorough practice work. We are really thankful and appreciate the time it took to teach us."

- **Ahmad Wali Khan**, Noc Manager, Afghan Telecom Ltd. & MCIT

"I loved it... I am looking forward to know more about your products... we want to develop this relationship and partnership in Africa."

- **Sales Manager**, NetvSat Communications

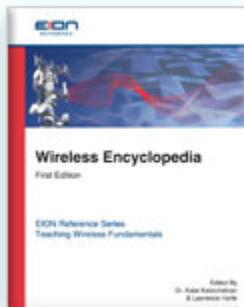
"Excellent, informative, good level of details, good demos, labs, and overall interaction. The experiments with the management tool were excellent and beneficial!"

- **Kassem M. Adballah**, BroadBand Wireless Access Support Manager, DU

"The course content has been instructive, informative and it is more interesting with the practical underground presentation of the course. The instructor has been very good and has presented the course excellently. The environment is excellent for the course and the logistics are good."

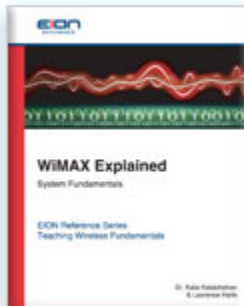
- **Raphael Faseun**, Network Engineer, DCC Satellite and Networks

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## Wireless Encyclopedia

EION collaborated with 12 wireless, voice, data and video experts; each with specific knowledge of wireless telecom technologies and business practices to produce this Wireless Encyclopedia. This team together with input from over 1,025 other contributors gathered, added, and edited what are now the latest wireless, telecom, data network terms in use today.



## WiMAX Explained

Come and explore WiMAX from the inside out. This book examines the inner workings of WiMAX as well as the myriad of business applications available. *WiMAX Explained* is the perfect companion for the businessperson, engineer or layperson looking for a basic introduction to WiMAX and the 802.16 standard.

**From wireless technology basics to complex marketplace analysis, everything is explained in these illustrated texts. Make informed decisions by learning from the experience of seasoned professionals in the wireless industry.**



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