

# Wireless Training at Tehri, Uttarakhand

## About the Workshop and Training:

The workshop and training aims to provide primary and secondary knowledge, skills and training on wireless technology, its usefulness, deployment, and operation of wireless networks. It aims to train community youths in the deployment and operation of such networks.

Digital Empowerment Foundation is a networking partner with Hevalvani Community Radio Station at Tehri, Uttarakhand, and both the organization have shared good collaborative works and initiated many development based project in areas of Skill development, ICT literacy for youths, women, children and adults through DEF's various projects like gyanpedia, engo and epanchayat. The Wireless Connectivity for Community Empowerment workshop cum training is another training programme which seeks to provides capacity building for Hevalvani Community Radio executives and train them to manage their own wireless connectivity.

## Objective:

The objective of the training is to give the trainee a basic understanding of networking and specifically wireless network, configuration of Radio device as Access Point and as a client. It aims to train trainees how to manage, maintain and monitor a small wireless ISP with following features:

- Broadcast a network of internet and create a environment of better security (WEP/WPA, MAC authentication)
- Create different kind of user according to rate, time and volume
- Secure the network from different kind of malicious virus
- Monitor and maintain the traffic accordingly

## Workshop Brief

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|-----------------------------|---|
| ▪ Workshop & Training Name: | Wireless Connectivity Training                |
| ▪ Venue:                    | Havelvani Community Radio, Tehri, Uttarakhand |
| ▪ Date / Duration:          | 20th May - 24th May'2011 / 5 Days Training    |
| ▪ Number of Trainees:       | 12 attended                                   |
| ▪ Duration of hours:        | 35 hours                                      |
| ▪ Trainer:                  | Shahid Ahmad                                  |
| ▪ Registration fee:         | None  |
| ▪ Nature of Training:       | Train the Trainees Certification Programme    |

## Trainees:

1. Aarti Negi
2. Ravi Gusain
3. Kuldeep Singh
4. Pritam Kaintura

5. Rajendra Singh Negi
6. Anjali Makhloga
7. Neeta Nakoti
8. Pooja Uniyal
9. Poonam Kunwar
10. Pradeep Kothari
11. Sheetal Bisht

### **Training Imparted:**

The five days programme imparted the following wireless knowledge with theory and practice and live demonstration:

- a) Internetworking basic
- b) Basic network topologies
- c) The OSI Reference models
- d) Ethernet networking
- e) Ethernet cabling
- f) TCP/IP Protocols
- g) IP Addressing
- h) Subnetting, Variable Length Subnet Masks (VLSMs), and Troubleshooting TCP/IP
- i) IP Routing
- j) Wireless Standard
- k) Radio Physics
- l) Radio Link
- m) Radio device configuration
- n) User account creation
- o) Security (WEP/WPA, MAC authentication)
- p) Troubleshooting wireless network

### **General Feedback:**

The general feedback session was conducted on the last day for assessment of the training workshop from the participants. The idea was to collect information from the participants to know how they benefit from the wireless training, what is their overall outlook from such unique training.

- i. Many participants in general said that such training was very effective, they felt their knowledge on hardware and networking was better emphasized with such advance training.
- ii. Participants felt they needed such training very often in order to keep their learning intact.
- iii. Many of them also enquired if there are more above level advance training would be provided to them in future through workshop and training programmes by DEF.
- iv. Participants acknowledge the content of the training programmes were well versed and the tutor interactivity and delivery of content was very satisfying.
- v. Participants were pleased with the overall training aspects of the workshop.

### **Estimated Feedback:**

- |      |                             |   |               |            |
|------|-----------------------------|---|---------------|------------|
| i.   | About venue:                | Excellent (0%)  | Average (70%) | Poor (30%) |
| ii.  | Communication Skills:       | Excellent (60%)   | Average (40%) | Poor (0%)  |
| iii. | About Personal Qualities:   | Excellent (60%)   | Average (40%) | Poor (0%)  |
| iv.  | About Content:              | Excellent (70%)   | Average (30%) | Poor (0%)  |
| v.   | About Training Method:      | Excellent (70%)   | Average (30%) | Poor (0%)  |
| vi.  | About Duration of Training: | Most of the Participants voiced as such training are very effective for community to educate themselves in Internet knowledge by knowing to create infrastructure for the same. |               |            |

### **Workshop Outcome:**

The Workshop and Training were able to trained 11 participants successfully in deploying the wireless set-up for internet connectivity at rural post. The participants of the workshop was able set up temporary mesh wireless network, with testing and live demonstration with all essential wireless equipments within a range of 5 KM with one relay station and two nodes.

The following outcomes are visualized from this workshop & training:

- a. Trainees build skills to configure the radio (Mikrotik and Engenus) as Access Point, Client and as Mesh through the Tutor's training.
- b. Trainees were able to configure the Mikrotik router as DHCP Server, Router, and Hotspot server creating the user profile of different varieties and connect the client with Security (WPA/WEP) and Mac authentication.
- c. Trainees were capable to configure the Engenus radio as Access Point, Client and as Mesh network and know the concept of how to do same in Mikrotik and Have knowledge of configuring Mikrotik router as above mentioned.
- d. Trainees were able to make all kind of cabling like state cabling, cross cabling etc. and make link analysis between two nodes.
- e. Trainees gained knowledge to configure radio (Mikrotik and Engenus) as Access Point, Client and as Mesh

### **Limitations and Challenges:**

- i. The workshop could gather only 11 participants for the training, which could have enhanced.
- ii. The background of the participants were not mainly from the Networking and Hardware, therefore led to lesser comprehensive training, however the communication was well versed as the trainer spoke in the local language.
- iii. The training venue faced low access and speed of internet throughout the training period which hampered the effectiveness of practical training
- iv. The training venue was small in accommodating the minimal space for practical sessions.
- v. 60% of the trainees performed excellent in the practical sessions and the rest 40% perform averagely and poorly in the practical session.