

Amateur Radio and Scouting  
Philmont Training Center  
July 10-16, 2022

### **Sunday**

Conferees will check in and meet the faculty

### **Monday**

Participants greet and make introductions including their backgrounds in amateur radio.

What is amateur radio (AR) and why should we be interested in integrating AR in Scouting? Think of AR as a skill useful throughout Scouting. Why is it important to be licensed?

Jim Wilson, K5ND and lead author of the Radio Merit Badge presents on the history of AR and Scouting.

Those needing to study for the Technician exam are excused to study. Any missed topics are caught up by faculty in the evenings.

***We strongly urge all participants to study for and pass the FCC exam for the Technician license or higher before coming to PTC. Please note the FCC question pool changes July 1, just before our PTC course. Even if you are not able to schedule an exam, any prior study time will be beneficial. Those without an amateur radio license will breakaway to study for the Technician license on Monday at PTC. The FCC examination will be Monday evening. We have a study technique that has a 90 percent pass rate over many years. Any prior study will increase the odds of passing. Those that pass the exam will likely have their licenses the next day.***

The major topics of the Radio Merit Badge are discussed along with resources for both ham and non-ham requirements. The PTC course stresses AR experiences and the benefits of being licensed for both youth and adults.

Basic operating procedures are covered for all modes of operating.

Denny Johnson, K5DCC, discusses AR smart-phone apps and youth groups for young hams.

Philmont staff covering health, safety and fire cover the radio infrastructure for keeping Philmont running safely. Discussion includes the technology of emergency communication.

What is the history of Morse Code and why should we learn it?

How do we know when an antenna is tuned? The inexpensive NANOVNA and its use in AR is presented.

### **Evenings**

Monday evening those studying for their licenses will take the exam. Evenings, in general, will be a time to operate on the multiple radios we will have available to use. Participants will propose informal discussion topics.

### **Tuesday**

What are the myriad of antenna designs used in AR? Why are there so many? What can you do if you live in an area governed by a dreaded Homeowners Association with antenna prohibitions?

John Portune, W6NBC, has published many antenna designs in QST magazine, a publication of the American Radio Relay League. He just helped a group of Canadian college students design a UHF antenna for their experimental rocket that will broadcast telemetry data back to earth as the rocket climbs as high as 10,000 feet and returns to earth. One of those construction techniques we will use at PTC to construct a UHF antenna on a window of our classroom. Portune presents theory of slot antennas and supervises us as we build one, tune it up and put it on the air.

Construction begins on a tape-measure antenna that will be used later in the week for a Fox hunt. Materials will be provided for all participants to build this antenna from plans in the Radio Merit Badge Book. It is easily disassembled for travel.

Theory and construction of a lamp cord antenna is discussed and making one that is incredibly easy for a Scout to build. No coax is required. What? No coax? How is that possible?

What is the most inexpensive way for a Scout to have radio communication worldwide?

What is a hotspot and how is one constructed? What software drives it and how is it used? What are available commercial hotspots?

How can one do shortwave listening or high frequency operating with no radio or antenna? We will explore the world of remote operating, including the FCC rules for such operating.

### **Wednesday**

What are efficient methods of field operations? What equipment is used? What is a Parks-On-The-Air (POTA) activation and why do so many hams do it? Are you in Philmont trek shape? If so, you might want to learn about Summits-On-The-Air (SOTA) or IOTA (guess what that is).

Now you know what to do, let's do it. We will take a field trip to a meadow near Urraca Mesa for field operations, including a field lunch. The scenery is gorgeous, and the electrons will be flowing.

Wednesday Afternoon is a free afternoon for those with family members. Others can optionally do a POTA activation.

### **Thursday**

David Spoelstra, N9KT, discusses satellite communication. What equipment is useful? What antennas are used? How can one talk to astronauts on the International Space Station?

What is a Fox hunt? How do you build an economical Fox transmitter? Where do you find software that works?

How are your orienteering skills? You will find out. A Fox hunt merges radio direction finding skill with your newly made measuring-tape antenna and map skill with a compass. Now find the Fox! Just to make it interesting, there might be more than one Fox.

What are the ways AR is used in public service? What are emergency communication needs and how does AR fit into potential Scout service projects?

What is the process of setting up a special event station? How does contesting and working toward awards contribute to technical proficiency?

What are the various digital modes? What are their histories and how can one cross-communication between modes?

### **Friday**

What works in teaching the Radio Merit Badge? How can AR be incorporated into other Scouting ventures?

The Raspberry Pi has found so many uses in so many areas. Hams have adopted it too. What are AR uses?

How are inexpensive software-defined radios used with a computer for short-wave listening and other AR uses?

How are Winlink and APRS used and what are they anyway?

Youth Protection Training and AR is discussed with participants.

Our system for communication after PTC is discussed with a method for distributing best practices for incorporating AR in units back home.

On to graduation and talking to the world!