



**Saturdays: HF Operation Demo & Introduction:** Join Carl (N2VQO) in the Radio Room for a demonstration and hands-on instruction of HF operation using the ICOM 7300. The session is geared towards Technicians upgrading to General Operations but is open to all interested in HF operation. Check the calendar to confirm Carl's availability.

**Third Saturday of the Month 12pm: License Testing:** It's easy to get started in Amateur Radio! A straightforward multiple-choice exam will test your basic understanding of the fundamentals of radio and FCC rules! Preregister with David Morrill. VE Coordinator Phone: 623-680-5011 cell or email: [N7TWT@cox.net](mailto:N7TWT@cox.net)

**NEW!! SUNDAY Feb 15 Noon: Winlink:** Learn how you can use Winlink to send and receive emails including attachments using ham radio frequencies (UHF, VHF, or HF). It can function with or without internet and is particularly helpful during disasters when conventional communication lines fail.

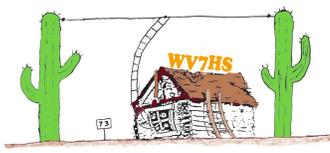
**CLASS FULL!! NEW ! Feb 16 Noon: Workshop - NanoVNA Practical Testing:** This class is a continuation of the NanoVNA-101 class lecture and is intended for those who have attended the NanoVNA-101 class or have experience with the NanoVNA. This is a practical hands-on class where participants will perform the following, using the NanoVNA:

- **Antennas:** Perform an antenna sweep and align to a specific frequency. Impedance, Resonant Frequency, SWR and return loss will be measured, documented and interpreted.
- **Coax:** Coax will be swept to determine length, impedance, Loss will be measured. Documented results will be evaluated for serviceability.
- **Baluns:** Perform a BALUN sweep to determine impedance and SWR. Documented results will be evaluated for serviceability.
- **Filter Sweep:** A bandpass filter will be swept to check alignment (Pass Frequency), Impedance, SWR, Insertion Loss and Out of Band Rejection. Documented results will be evaluated for filter performance.
- **Manual Tuner:** A manual tuner will be used to achieve resonance and low SWR on an external antenna. Impedance, Resonant Frequency, SWR and Return Loss will be measured, documented and interpreted.

**Prerequisite – NanoVNA-101 or NanoVNA Proficiency. Class is 3 hours. Please bring your NanoVNA. Limit of 4 Students – sign up early!. (Observers welcome)**

**2 Spots Left!! NEW ! SUNDAY Feb 22 Noon: How to Get Started in 3D Printing:** Ever wanted to dive into 3D printing? Learn the essentials of 3D printing in this beginner-friendly course. Students explore how 3D printers work and how to prepare digital models for printing. This class will show you a printer and basic parts you need to complete a project. We'll talk about how to get started designing and printing your own projects!

**CLASS FULL! NEW ! Monday Feb 23 Noon: Test and Measurement 101 - Multimeters & Voltmeters:** Exploring the use of multimeters and voltmeters to measure various components and simple circuits, the group will measure continuity, resistance, voltage, and current. We also take a brief look at capacitors, diodes, and transistors. Along the way we will discuss math formulas (mainly related to Ohms Law) to help determine expected results of measurements. The math involves simple algebra concepts. Measurement exercises include measuring and calculating component values for series and parallel circuits and determining power requirements. Limit 5 Students.



## WVHS Events

**Monday March 2 Noon: General Class Electrical Principles (G5):** This class covers Sub-element G5, (40 pool questions). Three of the questions will appear on the 35-question General Class test. Topics include resistors, capacitors, and inductors in series and parallel; transformer basics; decibels, power, PEP and RMS values; resonance and impedance. Estimate this to be a 3-hour session. Some math is required. If you are interested, please use the Contact Us button below. First class in April 2024. Limited to 8 students.

**NEW ! Monday March 9 Noon: Introduction to Antenna Modeling & Design:** With the advent of free software and applications nowadays, DIYers and hobbyists can design and model complex antennas. No complex math is necessary. One only needs to have a basic understanding of how antennas work and some introductory terminology. This class will cover these areas and then we will model two antennas: a simple dipole antenna for 10-meters and a 3-element Yagi-Uda antenna for the 70-cm band. Along the way we will learn about the effects of antenna height, antenna efficiency, Standing Wave Ratio (SWR), impedance, radiation patterns, optimization, and a few other topics. This will all be performed using the free Windows application called 4NEC2.

**Sunday March 15 Noon: Soldering:** Learn by "hands on" use of soldering iron with point-to-point and circuit board soldering practice, a basic class for beginners. Limit 6 Students. Soldering irons are available for use.

**Monday Mar 16 Noon: NanoVNA 101:** The objective of this class is to familiarize the participant with the basic functions of the Nano Vector Network Analyzer (NanoVNA). Some of the topics include navigating the VNA menu, calibration, setting the measurement range and setting up sweeps to perform reflective (S11) and thru S21 Tests. Knowledge of these VNA functions will allow the user to make basic measurements such as Standing Wave Ratio (SWR), Return Loss in dB's, Line Loss in Coax, Length of Coax, Frequency Range of an Antenna and Resonate Frequency. If you have a NanoVNA, please bring it! 3 hr class.

**ONLINE or IN-PERSON! Monday Mar 23 Noon: What is GMRS & Why You Should Use It:** Learn about the fast-growing General Mobile Radio Service, a segment of the UHF band. Frank K7SD/WRVG584 explains licensing procedures, practical uses, and gives a lay of the land for GMRS in Phoenix, and beyond. See why GMRS is a must for your radio toolbox!

**Monday Mar 30 Noon: Discovering your Technician Privileges:** Now that you have your Technician license do you know what you can do with it? You can still talk all over the country, or even all over the world with the right gear and tools. In this class, we will help you get the most out of your technician license. This class is perfect for new Hams or even hams who have had their technician license for years but haven't ventured out beyond the local repeater.

**CLASS FULL!! Monday Apr 13 Noon: Workshop - NanoVNA Practical Testing:** This class is a continuation of the NanoVNA-101 class lecture and is intended for those who have attended the NanoVNA-101 class or have experience with the NanoVNA. This is a practical hands-on class where participants will perform the following, using the NanoVNA:

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