Recommended Study Resources

Free Resources

HamStudy.org [https://hamstudy.org]

- Excellent practice exams
- Flashcards
- Tracks weak areas automatically

Video Courses for Studying

Ham Radio Technician Prep Intro (2022-2026)
How To Study and Pass Your Ham Radio Exam
Dave Casler Technician License Series T01

Paid Resources

ARRL License Manuals
https://www.arrl.org/shop/Ham-Radio-License-Manual/

- Most comprehensive
- Some copies available at Lewis and Clark Public Library
- Traditional textbook approach

Gordon West Study Guides https://www.gordonwestradioschool.com/

- Conversational style
- Strong memory aids
- Good for nervous test takers

Sample Weekly Homework

Technician Example

Week 1

- Create HamStudy account
- Complete 50 practice questions
- Listen to a local repeater for 15 minutes

Week 2

- Practice phonetics
- Complete Ohm’s Law worksheet
- 50 additional practice questions

Week 3

- Identify three antenna types online
- Watch one POTA activation video
- Complete one practice exam

Week 4

- Listen to a club net
- Practice reading signal reports
- Complete two practice exams

Week 5

- Research first radio options
- Review missed questions
- Complete three practice exams

Week 6

- Complete five practice exams
- Identify weak areas
- Prepare FRN and exam materials

What to Expect on Exam Day

Before the Exam

Bring:

- FCC FRN number
- Government-issued photo ID
- Pencil and pen
- Simple calculator if desired
- Exam fee if applicable

Avoid cramming immediately before the test.

During the Exam

- 35 multiple-choice questions
- Passing score: 26 correct
- Take your time
- Skip difficult questions and return later
- Read carefully

After Passing

- Your results are submitted to the FCC
- Your call sign typically appears within several days
- You may legally transmit after your license appears in the FCC database

Technician Class Curriculum

Technician Course Overview

Technician Course Goals

By the end of the course students should:

- Pass the FCC Technician license exam
- Understand how to legally and safely operate amateur radio equipment
- Make their first contacts confidently
- Understand repeater use and basic VHF/UHF operation
- Understand basic HF concepts and what General class enables
- Know how to get involved with local club activities
- Understand basic emergency and preparedness communications
- Feel comfortable asking questions and participating in the hobby

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Technician Session 1

Introduction to Amateur Radio and FCC Rules

Learning Objectives

Students should:

- Understand what amateur radio is
- Understand why people participate in the hobby
- Learn basic FCC licensing structure
- Learn call signs and operating etiquette
- Understand station identification requirements
- Learn basic band and mode concepts

Question Pool Areas

- T1A-T1F
- T2A-T2C

Topics Covered

- What is amateur radio?
- Licensing classes
- Repeaters
- VHF/UHF vs HF
- Amateur radio activities:
    - POTA
    - SOTA

    - EmComm
    - DXing
    - Contesting
    - APRS
    - Satellite
    - Digital modes
- FCC rules and responsibilities
- Call signs
- Third-party traffic
- Control operator responsibilities
- Basic phonetics

Pre-Reading

- Read licensing overview in chosen study guide
- Create HamStudy.org account
- Complete first 25 practice questions

Hands-On Activities

1. Live HT demonstration
2. Repeater contact demonstration
3. Phonetics exercise
4. Pass around several radios:
    - HT
    - Mobile rig
    - HF rig
5. Show live waterfall display
6. Play recorded DX pileup audio

Equipment Needed

- 2-3 handheld radios
- Mobile radio
- HF radio
- External antenna or portable antenna
- Laptop with SDR waterfall
- Projector or TV
- Zoom laptop/microphone

Facilitator Notes

Common Confusions

- Difference between repeaters and simplex
- Difference between CB and ham radio
- Understanding call signs
- Fear of “doing something wrong” on-air

Talking Points

- Amateur radio is a practical skill and community
- Nobody starts knowing everything
- Emphasize experimentation and learning
- Normalize mistakes

Discussion Prompts

- “What brought you to amateur radio?”
- “What interests you most: preparedness, hiking, technology, talking worldwide?”
- “What communication systems do you already use daily?”

Suggested Guest Speaker

- Club member active in POTA/SOTA
- Club president or longtime member

Technician Session 2

Radio Fundamentals and Electronics Basics

Learning Objectives

Students should:

- Understand basic electricity concepts
- Understand frequency and wavelength
- Learn modulation basics
- Understand power, voltage, and current
- Understand basic radio components

Question Pool Areas

- T5A-T5D
- T6A-T6D
- T7A

Topics Covered

- Current, voltage, resistance
- Power calculations
- AC vs DC
- Ohm’s Law
- Frequency and wavelength
- RF basics
- Modulation:
    - FM
    - AM
    - SSB
    - Digital
- Basic electronic components
- SWR basics

Pre-Reading

- Study Ohm’s Law section
- Watch beginner electronics YouTube overview
- Complete 50 practice questions

Hands-On Activities

1. Multimeter demonstration
2. Build a simple battery/bulb circuit
3. Measure voltage on batteries
4. Compare VHF and HF antennas physically
5. Demonstrate SWR meter
6. Show coax loss examples

Equipment Needed

- Multimeter
- Batteries
- Wire

- Light bulb or LED kits
- Coax sections
- SWR meter
- Dummy load
- Assorted connectors

Facilitator Notes

Common Confusions

- Voltage vs current
- RF power vs audio power
- Frequency vs wavelength
- Why antennas matter

Demonstration Tips

Use physical objects whenever possible.

Example:

- Compare antenna lengths physically
- Show connectors students can touch
- Use whiteboard diagrams instead of dense slides

Suggested Guest Speaker

- Club electronics builder
- Repeater committee member

Technician Session 3

Antennas, Feedlines, and Propagation

Learning Objectives

Students should:

- Understand basic antenna types

- Understand feedline choices
- Learn propagation basics
- Understand line-of-sight communication
- Learn why antenna placement matters

Question Pool Areas

- T3A-T3C
- T9A-T9D

Topics Covered

- Dipoles
- Vertical antennas
- End-fed antennas
- Yagis
- Feedline types
- Coax basics
- Repeaters and elevation
- VHF/UHF propagation
- HF skip basics
- Solar cycle overview

Pre-Reading

- Antenna chapter
- Practice propagation questions
- 50 additional HamStudy questions

Hands-On Activities

1. Compare antenna types physically
2. Portable mast setup demo
3. Use NanoVNA to show resonance
4. Compare rubber duck vs external antenna
5. Outdoor simplex range demonstration
6. Show satellite pass tracking software

Equipment Needed

- Dipole antenna
- Vertical antenna

- Yagi antenna
- NanoVNA
- Coax samples
- Portable mast
- HTs
- APRS or satellite app

Facilitator Notes

High-Value Demo

Spend 20 minutes specifically comparing:

- Dipole
- Vertical
- End-fed

Show:

- Physical size
- Radiation pattern
- Ease of setup
- Use cases

Common Student Questions

- “Why does my HT not reach far?”
- “Why do antennas matter so much?”
- “Can I use a tree as support?”

Suggested Guest Speaker

- Club antenna builder
- SOTA/POTA activator

Technician Session 4

Operating Practices and Emergency Communications

Learning Objectives

Students should:

- Learn proper repeater etiquette
- Understand nets
- Understand emergency communications basics
- Learn tactical communication concepts
- Understand logging and Q-signals

Question Pool Areas

- T2A-T2C
- T8A-T8D

Topics Covered

- Repeater etiquette
- Directed vs informal nets
- Emergency traffic
- Tactical call signs
- Q-signals
- Phonetics
- Signal reports
- Basic logging
- APRS overview
- Winlink overview

Pre-Reading

- Operating procedures chapter
- Listen to local repeaters for 30 minutes

Hands-On Activities

1. Mock net exercise
2. Tactical communication exercise
3. Simulated emergency message relay
4. APRS tracking demonstration
5. Winlink email demonstration

Equipment Needed

- HTs
- Mobile radio
- APRS setup
- Winlink station
- Printed message forms
- Portable whiteboard

Facilitator Notes

Important Tone Guidance

Avoid fear-based preparedness messaging.

Frame EmComm as:

- Community service
- Resilience
- Backup capability
- Practical communication skills

Suggested Discussion Prompt

“What communication challenges exist in Montana that cell phones don’t solve well?”

Suggested Guest Speaker

- ARES member
- County emergency management partner
- Search and rescue volunteer

Technician Session 5

Station Setup, Safety, and Digital Modes

Learning Objectives

Students should:

- Understand station grounding and safety
- Learn power supply basics

- Understand batteries and portable power
- Learn digital mode basics
- Understand RF exposure and safety

Question Pool Areas

- T0A-T0C
- T4A-T4B
- T8C

Topics Covered

- Electrical safety
- RF exposure
- Lightning protection
- Portable power systems
- Power supplies
- Solar and battery concepts
- FT8 overview
- DMR overview
- EchoLink and IRLP

Pre-Reading

- Safety chapter
- Watch FT8 demo video

Hands-On Activities

1. Portable battery setup demo
2. Solar charging demo
3. FT8 live contact demonstration
4. Compare analog vs digital audio
5. Grounding examples

Equipment Needed

- Battery box
- Power supply
- Solar panel
- FT8-capable station
- Laptop
- Grounding examples
- Fuses and wiring examples

Facilitator Notes

Common Confusions

- Digital modes vs internet
- RF exposure misconceptions
- “Can I use ham radio without internet?”

Suggested Guest Speaker

- Digital mode enthusiast
- Portable operations specialist

Technician Session 6

Exam Review and First Station Guidance

Learning Objectives

Students should:

- Review weak exam areas
- Learn realistic first-station recommendations
- Understand next steps after licensing
- Build confidence for exam day

Question Pool Areas

- Full pool review

Topics Covered

- Practice exam review
- Common test traps
- Study strategy
- First HT recommendations
- Local repeater overview
- Club activities
- Field Day
- Nets
- POTA activations

- Next steps toward General class

Pre-Reading

- Complete three practice exams
- Identify weak subelements

Hands-On Activities

1. Full mock exam
2. Radio programming demonstration
3. Build a simple go-kit
4. Club station walkthrough

Equipment Needed

- Practice exams
- HT programming cable
- Go-kit examples
- Printed repeater list
- Club membership forms

Facilitator Notes

Important Goal

Reduce anxiety.

Remind students:

- They already know more than they think
- Missing questions is normal
- The club wants them to succeed

Suggested Guest Speaker

- Recent Technician graduate
- Younger operator if possible

Technician Session 7

Exam Day and Celebration

Structure

- VE testing session
- Light snacks and coffee
- Club introductions
- Membership signup table
- Mentorship signup
- Photo for club newsletter/social media

Post-Exam Immediate Actions

Every successful student should leave with:

- Club repeater list
- Net schedule
- Mentor contact
- Invitation to next club event
- Ham 101 follow-up invitation