

About This Course and the Exam

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Welcome!

Welcome to the Sonoma County Radio Amateurs' weekend Technician Course! We're glad you're here.

Course Purpose

This course is designed to prepare you to pass the Technician Class Amateur Radio FCC examination in order to then receive your own unique call sign and authorize you to operate your own amateur radio station.

About the Exam

Federal Communications Commission (FCC) rules regarding the Amateur Radio Service requires that all control operators of such stations (you) pass a comprehensive exam in several aspects of amateur radio. Some topics include basic electronics theory and antennas, radio etiquette, safety, and rules and regulations. The test consists of 35 multiple-choice questions and will be administered by a team of volunteer examiners at the end of this course on Sunday afternoon. You pass by correctly answering at least 26 of the 35 questions.

The examination team mails the results in to be verified and the FCC then issues you a two-in-one license. The station license part is your call sign, and the operator part sets your privileges; in this case, Technician. The license is valid for 10 years and can be renewed indefinitely.

Exams for US amateur radio operators currently fall into three privilege or "license class" levels: Technician, General, and Extra. Greater privileges are granted with each successive class of license, with the Technician class being the typical entry-level class. But make no mistake; the Technician Class licensee is now granted more radio privileges than at any other time in history.

What are the Course and Exam Costs?

Course Fee: \$0

Copying costs for Video Course: \$15.00

Examination Fee: \$15.00

Re-examination Fee: \$15.00 (only if you wish to re-test after missing a few too many on the first test)

We of the Sonoma County Radio Amateurs club are donating this course to you free of charge. We want you to succeed and join us as licensed amateur radio operators. Whether or not you join the club is up to you. Of course we love to welcome new members, but we would rather welcome you to the exciting world of amateur radio as our primary goal.

What do Radios and Antennas Cost?

This is a difficult question to answer because your privileges will allow you to operate on segments of radio bands that span all but a small part of the entire radio spectrum. Many radios operate on several different bands, but all have different purposes; you are the only person who can make that choice. If you choose to operate on the most popular VHF band

for local contacts, a used radio and antenna might cost under \$150.00. If you want to operate long distances on HF, you can expect to pay \$400 for a used radio including accessories. In this case, it is best and cheapest for you to build your own wire antenna. These are just rough estimates of cost, and you can expect to pay more for new equipment. In any case, we highly recommend that you team up with someone whom has been licensed for some years and can make suggestions. You do *not* need to “go it alone.”

How is the Course Structured?

For the most part, this is a video course broken into 11 segments. The longest segment is about an hour; the shortest segment is 5 minutes. Instructors are present the entire time to administer the course, present material and answer questions. We have included time for questions, a quick quiz, and a break after *each* segment. Saturday we have a 1 hour lunch break and will host a 1-hour question and answer session at the end of the day. Sunday morning we begin with another 1-hour question and answer session, present the last four video segments, break 1 ½ hours for lunch, and then host the FCC examination session.

We start at 8:00 AM sharp each day. Saturday we end at 5:30 PM. The exam session begins at 2:00 PM Sunday and will conclude at least two hours after that, and later depending upon class size. However, you may leave whenever your test paperwork is done. The course schedule is at the end of this chapter. We will do our best to keep to this schedule to get you out on time. You must do your part by being back in class on time after each break.

Why Choose This Course Structure?

The best way to teach a course like this is over a period of several weeks with lots of time to read and absorb the information between class meetings. When in class students receive instruction at a pace that allows plenty of time for questions and answers. But most people are VERY busy and will not commit to a long class schedule.

One modern way to accomplish the task of having students pass the exam is to present all the questions that could be asked on the exam and give the correct answers. The student simply learns to choose the correct answers. This is possible because every question and all the answers to those questions to every amateur radio exam is published and available to anyone. The question pool for the Technician Class license consists of about 350 questions, out of which 35 are chosen from the various topics to create an exam. If the student can pick out the correct answer to any question then they can pass the test and receive their license without even understanding the material. Many weekend amateur radio classes are structured in this way, and they have a very high success rate of students who pass the exam.

We don't like this method for several reasons, the least of which is that it creates licensees and not operators. It is unlikely that your first radio contact will be a confident one *regardless* of the teaching method used. The difference is that the method we use will give you some background that makes sense. It acts as a foundation upon which to build more understanding and experience as you grow. The “rote memorization method” more often than not leaves the student with a license and no basis or excitement upon which to use it. For this reason, a large percentage of these students never use their license.

The alternative to this teaching dilemma is to “bombard” students with the most basic information over a very short period of time while relying on their short-term memory to consciously choose the correct answers on the test, based on *understanding* of the material.

You will miss more questions this way than by memorizing the correct answers, but you will have truly earned your license, and you will know that you will have earned it. Neither your conscience nor any other person will ever remind you that you got your license by memorizing the answers.

The weekend video course is a compromise to the ideal several-week-long course without compromising substance and content. Realize that the compromise requires much from students. The material comes quickly and there is little time to explain it. Even with the built-in breaks and question-and-answer sessions, the volume of material that will be covered will seem overwhelming. And it should. So be kind to yourself if you don't understand the material when it is first presented; it's a normal occurrence and we will be there to help as much as possible.

When is this Course?

The date depends upon availability of volunteer examiners on either of two possible weekends: November 1 and 2, or November 15 and 16. As soon as enough examiners confirm their availability one of these weekends will be chosen. We will notify you of the firm date if you have signed up for the course and left your contact information.

What Happens After This Course and After I Pass the Exam?

As soon as the FCC assigns you a call sign and enters it into their database, you can operate your station before the mail system delivers your actual license. Many new licensees begin to assemble a station so that they can get on the air when their call sign is assigned. Until this happens it is very useful to *listen* to typical radio conversations between amateur radio stations to gain experience in radio etiquette and procedures. An amateur radio mentor can help a lot. These people are "Elmers," a name adopted for ham radio operator mentors. One story suggests the term originated from a fellow whose name was Elmer who helped newcomers into amateur radio.

Ideally, you have a local friend whom is licensed and can show you their station, help you assemble a station of your own and answer your questions. If nobody you know fits this description, our club wants to help fill that need. Several members have shown an interest in helping newcomers take their first steps in amateur radio. All you need do is ask and we will work to pair you up with one of these folks to help you along! You do *not* need to join the club to take advantage of this help; of course, you are invited to join if you would like to.

If you have a computer you can learn much about what you can do with amateur radio *by* communicating, and *aside from* communicating! For instance, licensed hams are authorized and encouraged to learn about and build their own antennas, station accessories and equipment. There are so many activities and different modes of operating associated with amateur radio that it takes many years to learn about and experience most of them. Just some of these activities include the following:

- Communicating with hams in other countries and islands all over the world
- Chatting with others locally
- Communications using voice, data, teletype, code, pictures and television
- Experimenting with new modes of communication
- Contest Operating
- Operating your station in a remote or distant location
- Direction Finding

Communications using satellites or with astronauts on the International Space Station
 Public Service Communications
 Emergency Preparedness and Disaster Communications
 Message handling and delivering
 Serving a local radio club
 Local radio club activities
 Serving groups of radio clubs
 Specialty service such as Medical/amateur radio service or pilot/amateur radio service
 Building, repairing and testing antennas, radios and other equipment
 Teaching and helping others learn about ham radio
 Administering FCC amateur radio examinations

Video Course Schedule Day 1 – Saturday

Activity	Duration	Time Begin/End	
Welcome, Introductions	5	8:00	8:05
1. Class Format and Logistics	10	8:05	8:15
2. The Magic of Radio	46	8:15	9:01
Q&A	15	9:01	9:16
Break	10	9:16	9:26
Quiz (9 questions)	15	9:26	9:41
3. Types of Emissions	9	9:41	9:50
Presentation – Q signals, BW Chart	15	9:50	10:05
Q&A	15	10:05	10:20
Break	10	10:20	10:30
Quiz (11 questions)	15	10:30	10:45
4. Electrical Principles	15	10:45	11:00
Q&A	20	11:00	11:20
Quiz (9 questions)	10	11:20	11:30
LUNCH	60	11:30	12:30
5. Freq. Privileges – Presentation	10	12:30	12:40
6. Operating Considerations	15	12:40	12:55
Q&A	15	12:55	1:10
Break	10	1:10	1:20
Quiz (9 questions)	10	1:20	1:30
7. Antennas and Feed Lines	47	1:30	2:17
Q&A	15	2:17	2:32
Break	10	2:32	2:42
Quiz (9 questions)	10	2:42	2:52
8. Repeaters	19	2:52	3:11
Presentation – IRLP, Echolink	10	3:11	3:21

Q&A	15	3:21	3:36	
Break	10	3:36	3:46	
Quiz (16 questions)	25	3:46	4:11	
9. Safety Practices	17	4:11	4:28	
Q&A	15	4:28	4:43	
Break	10	4:43	4:53	
Quiz (5 questions)	10	4:53	5:03	
Q & A Session/Complete Sessions	27	5:03	5:30	End of Day 1

Video Course Schedule Day 2 – Sunday

Activity	Duration	Time Begin/End		
Q&A Session	60	8:00	9:00	
Break	10	9:00	9:10	
Quiz Freq. Privileges (8 questions)	10	9:10	9:20	
10. RF Radiation Safety	18	9:20	9:38	
Q&A	15	9:38	9:53	
Break	10	9:53	10:03	
Quiz (7 questions)	10	10:03	10:13	
11. FCC Regulations	60	10:13	11:13	
Break	15	11:13	11:28	
Q&A	15	11:28	11:43	
Quiz (24 questions)	47	11:43	12:30	End of Course
LUNCH	90	12:30	2:00	
VE Session	180?	2:00	?	End of Exam Session