

Ham Radio Extra License Course Outline

Tri-Lakes Monument Radio Association WØTLM

Oct 2023 Rev 1

Instructors:

Bob Witte, KØNR

email: bob@k0nr.com

phone: 719-659-3727

Stu Turner, WØSTU

email: stu.turner@comcast.net

phone: 719-337-1720

Chip Fleming, KØCHP

email: chipfle@aol.com

phone: 719-440-0277

Course Objective:

This course has two objectives:

1. The student will be able to pass the FCC Extra License Exam (Element 4), qualifying for the top level FCC Amateur Radio License.
2. The student will have sufficient knowledge to operate an amateur radio station on the Extra Class frequency allocations above 1.8 MHz, with particular focus on HF single sideband operations.

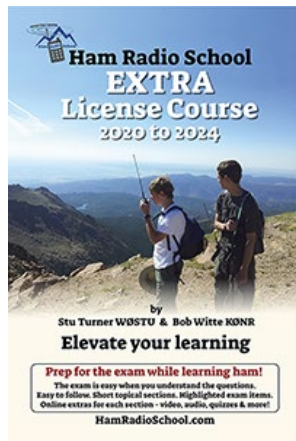
Philosophy:

This is a highly-compressed course that depends on the focus and motivation of the student. Reading assignments must be done in advance of the classroom sessions. The classroom sessions are fast-paced, covering a wide variety of material in a short time. The use of practice exams is very important for evaluating topic areas that need attention.

Registration Cost:

At the time of registration, we require a **nonrefundable** payment of \$40 (\$30 for under 18). Payment is made via Paypal, which also accepts major debit/credit cards. *Note that this payment will not be refunded and may not be credited to future class offerings, so make sure of your plans before registering.*

Reading Material:



Required: *HamRadioSchool.com Extra License Course 2020-2024*

by Stu Turner, WØSTU and Bob Witte, KØNR. (\$29.95 direct from Ham Radio School)

Available from:

HamRadioSchool.com [direct to [book page](#)]

Or Amazon.com (\$32.95)

Practice Exams

These online practice quizzes and exams are extremely helpful for testing your knowledge:

- <https://www.hamradioschool.com/extra-quizzes> (primary)
- <http://www.qrz.com/hamtest/>
- <http://www.eham.net/exams/>

Session 1: Saturday October 21, 2023, Chapters 1-5 In-person Meeting

Palmer Lake Town Hall, 42 Valley Crescent St, Palmer Lake, CO 80133 <[map link](#)> 8:00 am to 5:00 PM

Preparation: Read Chapters 0-5 (pages 1 – 130) of the Ham Radio School *Extra License Course 2020-2024* book & complete each [section quiz](#) after reading each section. Optionally examine [Extra Learning Supplements](#) items.

Note: Specific section instructor may vary, and start/end times are estimates.

We recommend you bring a sack lunch to class so we can have some discussion during the lunch break.

Chapter	Topics	Instructor	Pages	Start Time	End Time
	Class Intro & Overview	Bob		8:00	8:20
0	Before We Begin... (review)	Stu	1-11	8:20	8:40
1	Operating Your Station	Stu	12-31	8:40	9:25
	Break			9:25	9:35
2	Rules & Regs	Bob	33-49	9:35	10:25
	Break			10:25	10:35
3	Propagation	Stu & Bob	51-65	10:35	11:25
	Lunch Break			11:25	12:05
4	Digital Modes I (4.1-4.2)	Stu & Chip	67-78	12:05	12:45
	Break			12:45	12:55
	Digital Modes II (4.3-4.5)	Chip & Stu	79-97	12:55	2:30
	Break			2:30	2:40
5	Electrical Principles I (5.1)	Stu	99-115	2:40	3:30
	Break			3:30	3:40
	Electrical Principles II (5.2-5.3)	Bob	117-129	3:40	4:20
	Break			4:20	4:30
	Q&A Review	All		4:30	4:55
	Session I Wrap Up	All		4:55	5:00

Session 2: Self-paced, October 22-27, 2023, Chapter 6 Video Lessons

Complete the viewing of these video lessons prior to Oct 28.

Preparation: Read pages 131-172 of the *HamRadioSchool.com Extra License Course 2020-2024* book & take each [section quiz](#) after reading each section. View each video lesson after reading the associated book section. Optionally examine associated [Learning Supplements](#) online.

Section	Topic: Hamtronics I Components	Instructor	Pages	Video Duration
6.1	Inductors & Cores	Stu	131-138	~20 min
6.2	Semiconductor Components	Stu	139-154	~40 min
6.3	VHF+ Component Packaging	Stu	155-158	~25 min
6.4	Photovoltaics & Optoelectronics	Stu	159-164	~15 min
6.5	Digital Logic Devices	Bob	165-172	~40 min

Session 3: Saturday October 28, 2023, Chapter 7 Zoom Meeting (9:00 – 11:30 am)

Remote meeting online via Zoom. Zoom meeting info to be distributed before meeting.

Preparation: Read pages 173-205 of the *HamRadioSchool.com Extra License Course 2020-2024* book & take each [section quiz](#) after reading each section. Optionally examine associated [Learning Supplements](#) online.

Section	Topic: Hamtronics II Analog Circuits	Instructor	Pages	Start Time	End Time
7.1	Amplifiers	Bob	173-187	9:00	
7.2	Filters & Matching Networks	Bob	188-194		
7.3	Power Regulators & Supplies	Stu	195-199		
7.4	Oscillators & Signal Generators	Bob	200-206		11:30

Session 4: Saturday November 4, 2023, Chapters 8-10 In-person Meeting

Palmer Lake Town Hall, 42 Valley Crescent St, Palmer Lake, CO 80133 [<map link>](#) 8:00 am to 5:00 PM

Preparation: Read Chapters 8 - 10 (pages 207-317) of the *Ham Radio School Extra License Course 2020-2024* book & complete each [section quiz](#) after reading each section. Optionally examine [Extra Learning Supplements](#) items.

Note: Specific section instructor may vary, and start/end times are estimates.

We recommend you bring a sack lunch to class so we can have some discussion during the lunch break.

Chapter	Topics	Instructor	Pages	Start Time	End Time
	How's it going; Q&A	Bob		8:00	8:15
8	Processing Signals I (8.1-8.2)	Stu & Bob	207 - 232	8:15	9:40
	Break			9:40	9:50
	Processing Signals II (8.3)	Chip	233-244	9:50	11:00
	Lunch Break			11:00	11:40
9	Station Performance Measures	Chip & Bob	245-264	11:40	1:10
	Break			1:10	1:20
10	Antennas I (10.1-10.2)	Stu	265-283	1:20	2:30
	Break			2:30	2:40
	Antennas II (10.3-10.4)	Bob	284-302	2:40	3:40
	Break			3:40	3:50
	Antennas III (10.5-10.6)	Bob & Stu	303-317	3:50	4:45
	Session 4 Wrap Up	All		4:45	5:00

Session 5: Self-paced, November 5-10, 2023, Chapter 11 Video Lesson

Complete the viewing of this video lessons prior to November 11.

Preparation: Read pages 318-328 of the *HamRadioSchool.com Extra License Course 2020-2024* book & take the [section quiz](#) after reading the chapter. View the video lesson after reading the chapter. Optionally examine associated [Learning Supplements](#) online.

Chapter	Topic	Instructor	Pages	Video Duration
11	Safety	Stu	318-328	~15 min

Session 6: Thursday November 9, 2023, Q&A Review Zoom Meeting (7:00 – 8:00 pm)

Remote meeting online via Zoom. Zoom meeting info to be distributed before meeting.

Preparation: Take multiple [50-question practice exams](#), noting missed items. Prepare questions on specific topics or missed question pool items for instructor elaboration or review during this session.

This session is optional but strongly encouraged.

Session 7: Saturday November 11, 2023, Exam Session, In Person Meeting

Woodmoor Barn, 1691 Woodmoor Drive, Monument, CO 80132 [<map link>](#) 1:30-3:00 pm

Preparation: Take multiple 50-question practice exams. Taking all 18 of the [Ham Radio School practice exams](#) reviews all 621 question pool items. Repeat practice exams as necessary to ensure consistent performance of 85% or better (43 out of 50 correct answers or better).

NOTE: Students must [register in advance with WØTLM for this exam session.](https://w0t1m.com/exam-team) (<https://w0t1m.com/exam-team>)

Students may attend any VE session to take the examination. Sessions are offered regularly in the Colorado Springs area (1-2 per month), and additional sessions are held in Franktown, Woodland Park, and Denver.

A conventional calculator with the memory erased is allowed (no cell phone use permitted).

You may not bring any written notes or calculations into the exam session.

A pencil or two is recommended.

Direct any questions to the instructors listed at the beginning of this course outline.