Teaching the Radio Course at the OVMRC

By Norm Rashleigh
VE3LC November 2016

We are the only Amateur Radio Course in Town

1. The OVMRC has been active providing an Amateur Radio Course for a few decades.

2. The Club produced a comprehensive training manual in the early 1990's – but parts now obsolete.

3. Ernie Jury, VE3EJJ had led the course for 2 decades with several topic teachers.

4. Ernie wanted to pass the torch and after nobody was coming forward. I decided to take it over as solo instructor in September 2014.

5. I set a course schedule over 13 weeks ending mid December with the exams.

6. The cost was reduced to $150 from $275

7. To insure the course material focused on what is needed to answer the questions on the exam, I decided to develop my own instruction material based on RIC-3 Syllabus content and Exam questions to ensure candidates can answer all questions in the IC Question Bank.

What the Basic Examination is all about ?

- 100 question multiple choice exam taken from the 950 questions in the IC Exam Bank.

- 70 % required to pass but privileges limited to VHF and above.

- 80 % required to pass with Honours giving candidate all band operating privileges.

- Code is a separate “Optional” test at 5 WPM.

What the Advanced Examination is all about ?

- 50 question multiple choice exam taken from the 450 questions in the IC Exam Bank

- 70 % required to pass

- Technical topics exam only, no rules or operating procedures.

- We don’t provide at the present time instruction on Advanced Exam topics at the OVMRC

Seems Like a Lot of Interest in Ottawa Area

2014 –

17 registered, 13 got ticket, 6 with Basic, 6 with Basic + Honours , 1 B + H + Advanced.

2015 –

34 registered, 20 got ticket, 3 Basic, 17 Basic + Honours, and 3 with B + H + Advanced

2016 –

35 registered (so far), no exams yet.

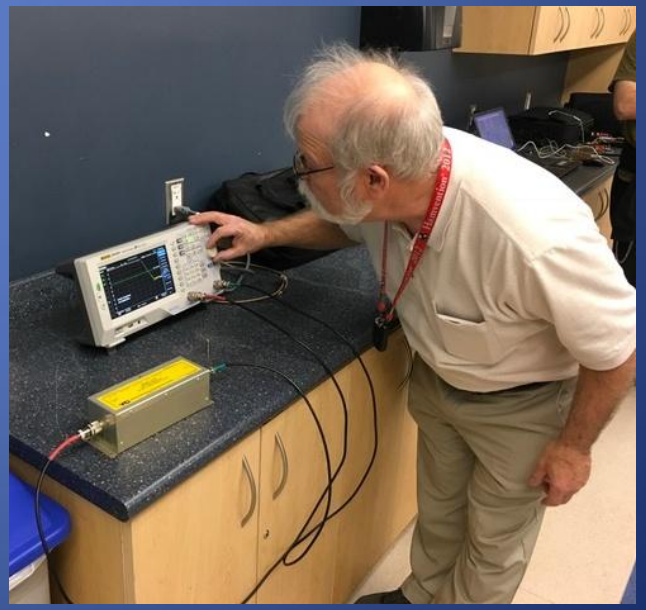
We Provide Candidates with a Schedule of Course Delivery

We also provide the Candidates with:

- **Canadian Amateur Radio Basic Qualification Study Guide**
- **Membership in OVMRC**
- **All Lecture Presentations Notes**
- **All relevant ISED-C (IC) Documents**
- **All Department Links to do with Amateur Radio Service**
- **Surplus Issues of TCA magazine**
- **Workshop Sessions with actual Equipment Demonstration**

Barry, VE3NJK shows the group his Elecraft KX3 station equipment complete with matching Spectrum Panadapter, and 100 watt RF Power Amplifier.

Norm, VE3LC shows the class the frequency response of a Low Pass Filter using his Spectrum Analyser / Tracking Generator.



INSTRUCTION TOPICS

Regulations and Policies – 001

Operating and Procedures – 002

Station Assembly, Practice and Safety – 003

Circuit Components – 004

Basic Electronics and Theory – 005

Feedlines and Antenna Systems – 006

Radio Wave Propagation – 007

Interference and Suppression - 008

Regulations and Policies – 001

1-1 radio licences, applicability, eligibility of licence holder
1-2 licence fee, term, posting requirements, change of address
1-3 licence suspension or revocation, powers of radio inspectors, offences and punishments
1-4 operator certificates, applicability, eligibility, equivalents, reciprocal recognition
1-5 operation, repair and maintenance of radio apparatus on behalf of other persons
1-6 operation of radio apparatus, terms of licence, applicable standards, exempt apparatus
1-7 content restrictions - non-superfluous, profanity, secret code, music, non-commercial

Regulations and Policies - 001

1-8 installation and operating restrictions - number of stations, repeaters, home-built, club stations
1-9 participation in communications by visitors, use of station by others
1-10 interference, determination, protection from interference
1-11 emergency communications (real or simulated), communication with non-amateur stations
1-12 non-remuneration, privacy of communications
1-13 station identification, call signs, prefixes
1-14 foreign amateur operation in Canada, banned countries, third-party messages
1-15 frequency bands and qualification requirements
1-16 maximum bandwidth by frequency bands

Regulations and Policies – 001

1-17 restrictions on capacity and power output by qualifications
1-18 unmodulated carriers, retransmission
1-19 amplitude modulation, frequency stability, measurements
1-20 International Telecommunication Union (ITU) *Radio Regulations*, applicability
1-21 operation outside Canada, ITU regions, reciprocal privileges, international licences
1-22 examinations - Department's fees, delegated examinations, fees, disabled accommodation
1-23 antenna structure approval, neighbour and land-use authority consultation
1-24 radio frequency electromagnetic field limits
1-25 criteria for resolution of radio frequency interference complaints

Operating and Procedures – 002

2-1 voice operating procedures - channelized VHF/UHF repeater
2-2 phonetic alphabet
2-3 voice operating procedures - simplex VHF/UHF and HF
2-4 tuneups and testing, use of dummy load, courteous operation
2-5 Morse code (CW) operating procedures, procedural signs
2-6 RST system of signal reporting, use of S meter
2-7 Q signals
2-8 emergency operating procedures
2-9 record keeping, confirmation practices, maps/charts, antenna orientation

Station Assembly, Practice and Safety – 003

3-1 functional layout of HF stations
3-2 functional layout of FM transmitters
3-3 functional layout of FM receivers
3-4 functional layout of CW transmitters
3-5 functional layout of SSB/CW receivers
3-6 functional layout of SSB transmitters
3-7 functional layout of digital systems
3-8 functional layout of regulated power supplies
3-9 functional layout of Yagi-Uda antennas
3-10 receiver fundamentals
3-11 transmitter, carrier, keying, and amplitude modulation fundamentals

Station Assembly, Practice and Safety – 003

3-12 carrier suppression, SSB fundamentals
3-13 frequency and phase modulation fundamentals
3-14 station accessories for telegraphy, radiotelephony, digital modes
3-15 digital mode fundamentals (RTTY, ASCII, AMTOR, packet)
3-16 cells and batteries, types, ratings, charging
3-17 power supply fundamentals
3-18 electrical hazards, electrical safety, security
3-19 electrical safety ground, capacitor discharge, fuse replacement
3-20 antenna and tower safety, lightning protection
3-21 exposure of human body to RF, safety precautions

Circuit Components – 004

4-1 amplifier fundamentals

4-2 diode fundamentals

4-3 bipolar transistor fundamentals

4-4 field-effect transistor fundamentals

4-5 triode vacuum tube fundamentals

4-6 resistor colour codes, tolerances, temperature coefficient

Basic Electronics and Theory – 005

5-1 metric prefixes - pico, micro, milli, centi, kilo, mega, giga

5-2 concepts of current, voltage, conductor, insulator, resistance

5-3 concepts of energy and power, open and short circuits

5-4 Ohm's law - single resistors

5-5 series and parallel resistors

5-6 power law, resistor power dissipation

Basic Electronics and Theory – 005

5-7 AC, sinewave, frequency, frequency units

5-8 ratios, logarithms, decibels

5-9 introduction to inductance, capacitance

5-10 introduction to reactance, impedance

5-11 introduction to magnetics, transformers

5-12 introduction to resonance, tuned circuits

5-13 introduction to meters and measurements

Feedlines and Antenna Systems – 006

6-1 feed line characteristics, characteristic impedance

6-2 balanced and unbalanced feed lines, baluns

6-3 popular antenna feed line and coaxial connector types

6-4 line losses by line type, length and frequency

6-5 standing waves, standing wave ratio, SWR meter

6-6 concept of impedance matching

Feedlines and Antenna Systems – 006

6-7 isotropic source, polarization via element orientation

6-8 wavelength vs physical length

6-9 gain, directivity, radiation pattern, antenna bandwidth

6-10 vertical antennas - types, dimensions, characteristics

6-11 Yagi antennas - types, dimensions, characteristics

6-12 wire antennas - types, dimensions, characteristics

6-13 quad/loop antennas - types, dimensions, characteristics

Radio Wave Propagation – 007

7-1 line of sight, ground wave, ionospheric wave (sky wave)

7-2 ionosphere, ionospheric regions (layers)

7-3 propagation hops, skip zone, skip distance

7-4 ionospheric absorption, causes and variation, fading, phase shift, Faraday rotation

7-5 solar activity, sunspots, sunspot cycle

7-6 MF and HF, critical and maximum useable frequencies, solar flux

7-7 VHF and UHF, sporadic-E, aurora, ducting

7-8 scatter - HF, VHF, UHF

Interference and Suppression – 008

8-1 front-end overload, cross-modulation

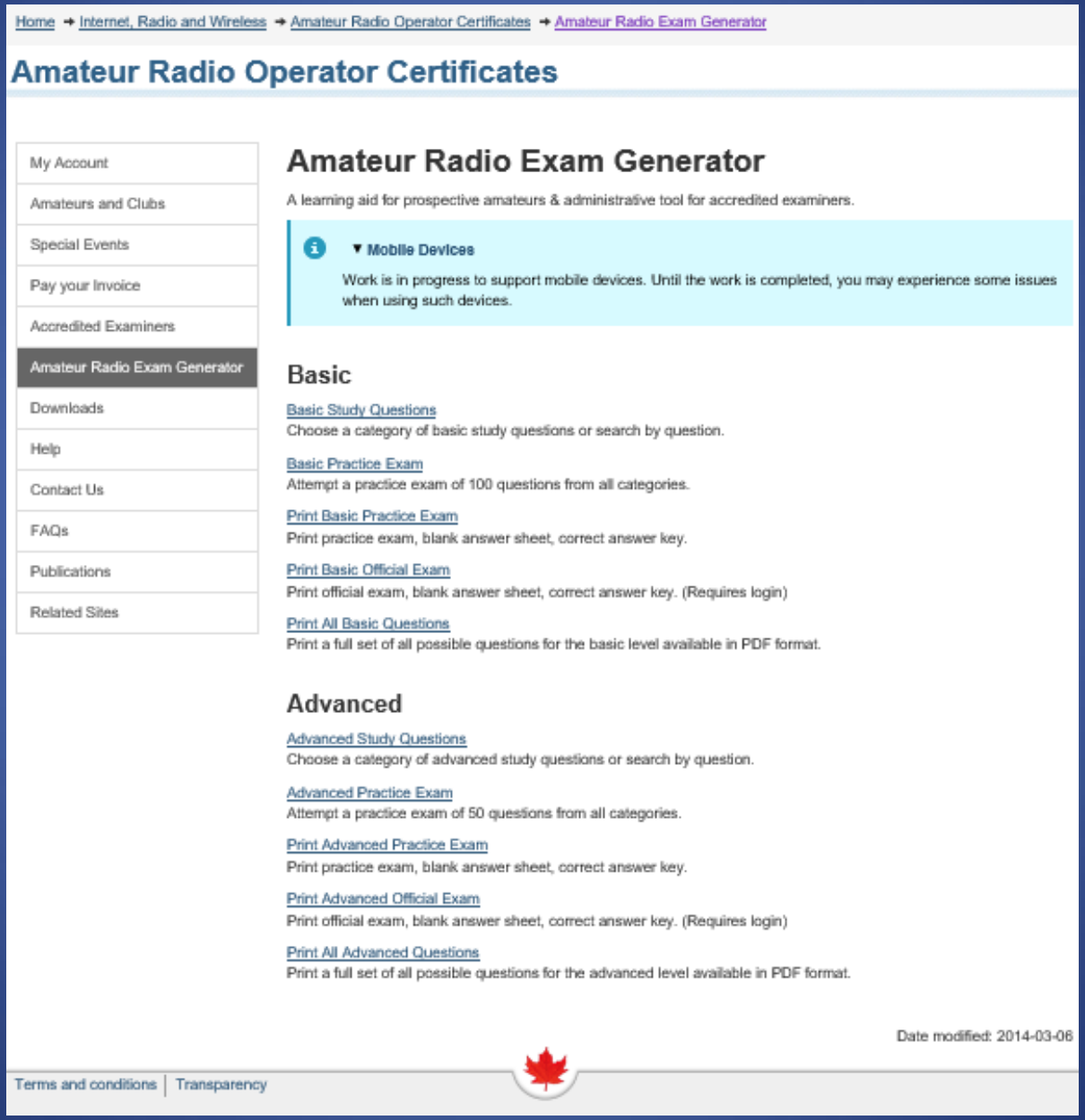
8-2 audio rectification, bypass capacitors, ferrites

8-3 intermodulation, spurious, key-clicks

8-4 harmonics, splatter, transmitter adjustments

8-5 use of filters: low-pass, high-pass, band-pass, band-reject

Exam, where to find it: Google "IC Exam Generator"



Home → Internet, Radio and Wireless → Amateur Radio Operator Certificates → Amateur Radio Exam Generator

Amateur Radio Operator Certificates

- My Account
- Amateurs and Clubs
- Special Events
- Pay your Invoice
- Accredited Examiners
- Amateur Radio Exam Generator
- Downloads
- Help
- Contact Us
- FAQs
- Publications
- Related Sites

Amateur Radio Exam Generator

A learning aid for prospective amateurs & administrative tool for accredited examiners.

▼ Mobile Devices

Work is in progress to support mobile devices. Until the work is completed, you may experience some issues when using such devices.

Basic

Basic Study Questions
Choose a category of basic study questions or search by question.

Basic Practice Exam
Attempt a practice exam of 100 questions from all categories.

Print Basic Practice Exam
Print practice exam, blank answer sheet, correct answer key.

Print Basic Official Exam
Print official exam, blank answer sheet, correct answer key. (Requires login)

Print All Basic Questions
Print a full set of all possible questions for the basic level available in PDF format.

Advanced

Advanced Study Questions
Choose a category of advanced study questions or search by question.

Advanced Practice Exam
Attempt a practice exam of 50 questions from all categories.

Print Advanced Practice Exam
Print practice exam, blank answer sheet, correct answer key.

Print Advanced Official Exam
Print official exam, blank answer sheet, correct answer key. (Requires login)

Print All Advanced Questions
Print a full set of all possible questions for the advanced level available in PDF format.

Date modified: 2014-03-06

Terms and conditions | Transparency

Amateur Radio Exam Generator

Basic

Basic Study Questions

Choose a category of basic study questions or search by question.

Basic Practice Exam

Attempt a practice exam of 100 questions from all categories.

Print Basic Practice Exam

Print practice exam, blank answer sheet, correct answer key.

Print Basic Official Exam

Print official exam, blank answer sheet, correct answer key. (Requires login)

Print All Basic Questions

Print a full set of all possible questions for the basic level available in PDF format.

Block Diagrams and HamPuzzle App

ExHaminer

Industry Canada Amateur Docs

Click

Industry Canada links

Presentation and Study Notes

TCA Articles, SC-6 and EMCAB-2


2014_Canadian_Radio_Spectrum_Chart
amateur_basic_questions_en
Canadian Table of Frequency Allocatio...
CPC-2-0-03, Issue 5
EMCAB-2
Index of Industry Canada Documents
ITUregionchart
Radiocommunications Act of Canada
Radiocommunications Regulatio...
rbr3e
RBR-4
Readme
RIC-1
RIC-3
RIC-9
Safety Code 6 Health Canada's...
Safety Code 6
Industry Canada Docs

001 - Rules and Regs - Part 1

001 - Rules and Regs - Part 2

002 - Operating & Procedures

003 - Part 1 - Modulation Modes

003 - Part 2 - Communications Su...

003 - Part 3 - Block Diagrams

003 - Part 4 - Tranceiver transmit functions ...

003 - Part 5 - Batteries - Safety - RF exposure

004 - Circuit Components

005 - Basic Electronics and Theory

006 - Feed Lines and Antenna Systems

007 - Radio Wave Propagation

008 - Interference and Supression

RADIO COURSE KICK OFF PRESENT...

Presentation Notes

Puzzle

THE END

Q & A