Radio Amateurs of/du Canada

RAC Online Basic Qualification Amateur Radio Course

Conducted by the Annapolis Valley Amateur Radio Club

Spring 2020: Course Syllabus

Radio Amateurs of Canada (RAC) is the national association for Amateur Radio in Canada.

It is a not-for-profit membership association with its headquarters in Ottawa, Ontario, Canada, representing the interests of Amateur Radio across Canada.

RAC is the Canadian voting member society of the International Amateur Radio Union (IARU). For more information visit https://www.rac.ca

The **Annapolis Valley Amateur Radio Club** (AVARC) is an informal association of Amateurs.

Although it is primarily for Amateurs in the Annapolis Valley of Nova Scotia, membership is open to anyone interested in the art, science and magic of radio.

Among other topics, we promote DX'ing, contesting, weak signal VHF, digital modes, and public service.

Education is one of our primary concerns, both to expand our own knowledge and to help those who want to become Amateurs.

We are also very conscious of the valuable role that Amateurs can play in times of emergency.

For more information visit: https://avarc.ca

Chapter 1 – Introduction to Amateur Radio

Learning Objective for this unit:

- Understanding the broad scope of the Amateur Radio hobby;
- Organization at the national and international level;
- The radio licensing process; and
- Approaches to studying for the license.

Chapter 2 – Basics

Learning Objective for this unit:

- Providing an introduction to elementary atomic theory; and
- Familiarity with basic concepts such as conductors, insulators, resistance, direct and alternating current, electromotive force, magnets, cells, batteries and schematics.

Chapter 3 – Ohm's Law and Power

Learning objectives for this chapter:

- Define Ohm's law and basic Algebra;
- Make simple calculations using Ohm's law; and
- The concept of power and the formula for its calculation.

Chapter 4 – Inductors and Capacitors

Learning objectives for this chapter:

- Define the terms inductance, capacitance, inductive and capacitive reactance and explain the factors affecting each;
- Do simple calculations involving capacitance and inductance; and
- Explain the role of the inductor and capacitor in circuits.

Chapter 5 – Waves, Wavelengths, Frequency and Bands

Learning objectives for this chapter:

- Understand the term frequency, wavelength and band;
- Conduct simple calculations involving the relationship between wavelength and frequency;
- Recognize the bands that make up the Amateur portion of the radio spectrum; and
- Understand the use of beacons, identifiers, Mode of transmission, Bandwidth, and Frequency.

We're All about Amateur Radio! Tous ensemble pur la radioamateur!

Chapter 6 Propagation

Learning objectives for this chapter:

- Understand the classification of waves as it pertains to propagation;
- Understand factors that affect propagation of radio waves; and
- Understand propagation characteristics of the different Amateur bands.

Chapters 7 – Transmission Lines

Learning objectives for this chapter:

- Understand the characteristics of different types of transmission lines;
- Recognize the types of connecters used in Amateur Radio; and
- Troubleshoot RF transmission problems.

Chapter 8 – Antennas

Learning objectives for this chapter:

- Describe the features of common antennas in Amateur Radio:
- Calculate dimensions required for various antennas; and
- Use simple antenna formulas.

Chapter 9 – Active Devices: Diodes, Transistors, Tubes

Learning objectives for this chapter:

- Understand the basic theory of semiconductor devices and tubes;
- Identify the parts of each active device;
- Compare tubes and solid state devices; and
- Troubleshoot problems with active devices.

Chapter 10 – Power Supplies

Learning objectives for this chapter:

- Understand key functions of power supplies;
- Understand voltage conversion, rectification and filtering;
- Determine reasons for voltage variation and how to resolve them; and
- Design and operation of power supplies for Amateur Radio.

Chapter 11 – Establishing & Equipping An Amateur Station

Learning objectives for this chapter:

- Identify the equipment for various modes of operation;
- Perform the basic operation of each piece of equipment; and
- Determine the accessories needed in a station and their relative position in the transmission path;

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Chapter 12 Basic Station Operation

Learning objectives for this chapter:

- Operating procedures for different modes;
- Operating with UCT (world time); and
- Q codes, abbreviations, phonetic alphabet.

Chapter 13 – Modulation And Transmitters

Learning objectives for this chapter:

- Identify different types of modulation used in Amateur Radio; and
- Identify the various components of various types of transmitters and their position relative to each other.

Chapter 14 – Receivers

Learning objectives for this chapter:

- Become familiar with the characteristics of receivers and measurements of their performance; and
- Identify the different stages of various types of receivers, their functions and location.

Chapter 15 – Radio Frequency Interference

Learning objectives for this chapter:

- Understanding the sources and type of radio interference (RFI); and
- Determine methods of eliminating RFI.

Chapter 16 – Safety

Learning objectives for this chapter:

- Identify and understand the sources of danger in Amateur Radio; and
- Understand basic safety precautions both inside the shack and when working with antennas.

Chapter 17 – Regulations & Rules

Learning objectives for this chapter:

- Understand the regulatory structure of Amateur Radio in Canada; and
- Become conversant with specific rules and regulations