

OTTAWA VALLEY MOBILE RADIO COURSE PLANNED INSTRUCTION SCHEDULE FOR 2019

SUBJECT TO CHANGE DEPENDING ON PROGRESS THROUGH TOPICS

(Note: under References column, "Book Chapters" refers to Canadian Amateur Radio Basic Qualification Study Guide by Coax Publications Inc.)

Date		<i>References</i>		References
Sept 16	Registration		Introduction Session—about Amateur Radio & Frequency Allocations	
Monday Sept 23	<p>Regulations & Policies 001-</p> <ol style="list-style-type: none"> 1. radio authorizations, applicability, eligibility 2. authorization fee, term, posting requirements, change of address 3. suspension or revocation, powers of radio inspectors, offences and punishments 4. operator certificates, applicability, eligibility, equivalents, reciprocal recognition 5. operation, repair and maintenance of radio apparatus on behalf of other persons 6. operation of radio apparatus, terms of authorization, applicable standards, exempt apparatus 7. content restrictions, non-superfluous, profanity, secret code, music, non-commercial 	<p><i>RBR-4, RIC-3, RadioCom Act, RadioCom Regs</i></p>	<p>Regulations & Policies 001-</p> <ol style="list-style-type: none"> 8. installations and operating restrictions, number of stations, repeaters, home-built, club stations 9. participation in communications by visitors, use of stations by others 10. interference, determination, protection from interference 11. emergency communications, (real & simulated) communications with non-amateur stations 12. non-remuneration, privacy of communications 13. station identification, call signs, prefixes 14. foreign amateur operation in Canada, banned countries, third-party messages 15. frequency bands and qualification requirements 16. maximum bandwidth by frequency bands 17. restrictions on capacity and power output by qualifications 	<p><i>RBR-4, RIC-3, RadioCom Act, RadioCom Regs</i></p>

Monday Sept 30	<u>Regulations & Policies (continued) 001-</u> 18. unmodulated carriers, retransmission 19. amplitude modulation, frequency stability, measurements 20. International Telecommunications Union (ITU) Radio Regulations, applicability 21. operation outside Canada, ITU regions, reciprocal privileges, international licences 22. examinations - Department's fee. accredited examinations, fees, disabled accommodation 23. antenna structure approvals, requirement for public consultation 24. radio frequency electromagnetic field limits 25. criteria for resolution of radio frequency interference	RBR-4, RIC- 3, RadioCom Act, RadioCom Regs, EMCAB 2, CPC-02-0-03, SC 6	<u>Operating & Procedures 002-</u> 1. voice operating procedures for channelized VHF/UHF repeater operation 2. phonetic alphabet 3. voice operating procedures, HF and non-repeater operation 4. tune-ups and testing, use of dummy load 5. Morse code (CW) operating procedures and procedural signs 6. RST system and use of "S" meter 7. Q signals 8. emergency operating procedures 9. record keeping, confirmation practices, maps/charts and antenna orientation	Book Chapter 12 12.5 12.5.1 12.4 12.6.1 12.2
Monday Oct 7	<u>Basic Electronics DC 005-</u> 1. metric prefixes: pico, micro, milli, centi, kilo, mega, giga, tera 2. concepts of atomic theory, electron flow, current, voltage, conductors, insulators and resistance, conductance, sources of DC, batteries 3. concepts of energy and power, open and short circuits 4. Ohm's Law - single resistors 5. resistors in series and parallel 6. power law, resistor power dissipation	Book Chapters A1.5.2 Chapter 2 2.14 Chapter 3 3.8	<u>Basic Theory AC 005-</u> 7. Magnetics, AC, AC generation, sinewave, frequency, frequency units, RMS units, AC vs DC 8. ratios, logarithms, decibels 9. intro to inductance and capacitance 10. intro to reactance and impedance 11. intro to magnetics and transformers 12. intro to resonance and tuned circuits 13. introduction to meters and measurements	Book Chapters 2.11 2.17,18,19 A1.6, A1.7 4.11,12,13 4.14 4.6 4.15,16
Monday Oct 14	<u>Thanksgiving Holiday Monday</u> <u>No Class</u>			

Monday Oct 21	<u>Circuit components 004-</u> <ol style="list-style-type: none"> 1. amplifier fundamentals 2. diode fundamentals 3. bipolar transistor fundamentals 4. field-effect transistor fundamentals 5. triode vacuum tubes fundamentals 6. resistor colour codes, tolerances, temperature coefficient 7. piezo-electric crystals for RF oscillators 	Book Chapters 9.2 9.3 9.4 9.8 – 9.9 2.8.4	<u>Radio Modulation Modes 3-11 to 3-15 inclusive 003</u> <ul style="list-style-type: none"> • Continuous Wave (CW) • Amplitude Modulation (AM) • Double Sideband (DSB) and Single Sideband (SSB), LSB, USB • Frequency Modulation (FM), deviation, required bandwidth, modulation index • Digital Modes, Baudot code and RTTY, ASCII code, Varicode and PSK31, AX-25 packet, APRS, JT- 65 & JT-9, WSPR, digital voice • Amateur TV, slow scan, NTSC fast scan, digital TV 	Book Chapters 14 12.7
Monday Oct 28	<u>Block Diagrams 003-</u> <ol style="list-style-type: none"> 1. functional layout of HF stations and components 2. functional layout of FM transmitters 3. functional layout of FM receivers 4. functional layout of CW transmitters 5. functional layout of SSB/CW receivers 6. functional layout of SSB transmitters 7. functional layout of digital radio systems 8. functional layout of regulated power supplies and fundamentals of operation functional layout of Yagi-Uda (beam) antenna. 	Book Chapters 13.11 13.11 13.9 14.9 13.12 11.4 Chapter 10 8.10.1	<u>The Superheterodyne Receiver (receiver fundamentals)</u> <ul style="list-style-type: none"> • RF amplifier and Sensitivity • dynamic range • single conversion • Intermediate Frequency • Filters and Selectivity • image rejection • double conversion vs single conversion • detector types, FM, AM, CW, SSB, Data • RF & AF gain controls • AGC, decay time constants • Noise Blankers • "S" meter 	Book Chapter 14 14.11

Monday Nov 4	<u>CW/SSB HF Transmitter / Transceiver Basics</u> <ul style="list-style-type: none"> • Microphone • Microphone (audio) gain • Audio Equalization • Audio Compression • Push to Talk (PTT) • Voice Operated Transmit (VOX) • VOX Anti-trip • RF power control • Linearity • Automatic Level Control (ALE) • Metering • Data input • External Rig control • CW keying features 	Book Chapters 13	<u>Stations Accessories 003-14</u> <ul style="list-style-type: none"> • Crystal Calibrator • Antenna Analyser • Modulation Meter • SWR and RF power meter • Dummy Load Resistor • Antenna Tuner • Antenna Switch 	Book Chapter Pg 7-15 11.6.2 11.6.5 11.6.3 11.6.4
Monday Nov 11	<u>Feed Lines 006-</u> <ol style="list-style-type: none"> 1. feed line characteristics, characteristic impedance 2. balanced and unbalanced feed lines and baluns 3. popular antenna feed line and coaxial connector types 4. line losses by feed line type, length and frequency 5. standing waves, standing wave ratio, SWR meters 6. Concept of impedance matching 	Book Chapters Chapter 7 7.3, 7.4 7.7 7.5 7.6 7.8 7.8	<u>Antenna System 006-</u> <ol style="list-style-type: none"> 7. isotropic source radiator, polarization via element orientation 8. wavelength vs physical length 9. antenna gain, directivity, radiation pattern, antenna bandwidth 10. vertical antennas - types, dimensions, characteristics 11. Yagi-Uda antennas - types, dimensions, characteristics (also see syllabus 3-9) 12. wire antennas - types, dimensions, characteristics 13. quad/loop antennas - types, dimensions, characteristics 	Chapter 8

Monday Nov 18	<u>Radio Wave Propagation</u> 1. line of sight, ground wave, ionospheric wave 2. ionosphere, ionospheric layers 3. propagation hops, skip zone, skip distance 4. ionospheric absorption, causes and variation, fading, phase shift, Faraday rotation 5. solar activity, sunspots, sunspot cycle 6. MF and HF, critical and maximum useable frequencies, solar flux 7. VHF and UHF, sporadic-E, aurora, ducting 8. scatter HF, VHF and UHF	Book Chapters 6.3 6.6 6.8 6.10 6.5	Demonstration of HF Equipment Operation. If time permits, General Q & A	
Monday Nov 25	Safety 003-16 to 003-21 inclusive <ul style="list-style-type: none"> • Battery Safety, charging, hydrogen explosion • Electrical Safety • Explanation of Residential Power Distribution • Ground fault interrupter (GFI) • Grounding of Radio Station Equipment • Fusing and circuit protection • Charged Capacitor hazards • Antenna and Tower Safety, Climbing • Lightning protection • Exposure of human body to RF, safety precautions, Safety Code 6 	Book Chapter 16 16.4 16.1 16.2 16.7 16.9	<u>Interference and Suppression 008</u> 1. front-end overload, cross-modulation 2. audio rectification, bypass capacitors, ferrites chokes 3. intermodulation, spurious emissions, key-clicks 4. harmonics, splatter, transmitter adjustments 5. use of filters: low-pass, high-pass, band-pass, band-reject	Book Chapter -15
Monday Dec 2	Review of Rules and Regulations pertaining to acquired operational and technical knowledge.		General Review – Any Topic	
Monday Dec 9	First Group Examination Session for students that are ready and confident, For others, review will be conducted for rest.			
Monday Dec 16	Second Group Examination Session for folks that not able to write on Dec 10 or are trying again for better score. Any subsequent examination of candidates will be made individually with examiner. If sufficient numbers, another group session may be scheduled.			

<p>Dates 2019-20</p>	<p>General Meeting Schedule – Studio 6 Room of Science and Technology Museum- <u>3rd Wednesday</u> every month expect December</p> <p>Everybody is Welcome – Meetings Agenda and Feature Presentations posted in monthly Newsletter at https://www.ovmrc.on.ca/newsletter/</p> <div data-bbox="302 272 646 402" style="text-align: center;">  </div> <p style="text-align: center;">FOR AUTOMATIC NOTIFICATION</p>
<p>Sept 18</p>	
<p>Oct 16</p>	
<p>Nov 20</p>	
<p>Dec TBD</p>	<p>No General Meeting, Club Holiday Dinner gathering to be scheduled</p>
<p>Jan 15</p>	
<p>Feb 19</p>	
<p>Mar 18</p>	
<p>Apr 15</p>	
<p>May 20</p>	
<p>June 17</p>	<p>OVMRC Annual General Meeting</p>
<p>June 20-21</p>	<p>Annual ARRL Field Day Contest Exercise setup on the grounds of the Aviation and Space Museum</p>