

Submit original with signatures + 1 copy + electronic copy to Faculty Senate (Box 7500).  
 See <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures/> for  
 a complete description of the rules governing curriculum & course changes.

**TRIAL COURSE OR NEW COURSE PROPOSAL**

**SUBMITTED BY:**

<b>Department</b>	Aviation Maintenance AFPM	<b>College/School</b>	UAF / Community and Technical College
<b>Prepared by</b>	Roger Weggel	<b>Phone</b>	907-455-2847
<b>Email Contact</b>	<a href="mailto:rfweggel@alaska.edu">rfweggel@alaska.edu</a>	<b>Faculty Contact</b>	Roger Weggel

**1. ACTION DESIRED**

<input type="checkbox"/> Trial Course	<input checked="" type="checkbox"/> New Course
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**2. COURSE IDENTIFICATION:** Dept  Course #  No. of Credits

Justify upper/lower division status & number of credits:

**Lower Division (200) Course with 100 level course prerequisites**

**3. PROPOSED COURSE TITLE:**

**Advanced FCC Amateur and General Radiotelephone Operator (GROL) Licensing**

**4. To be CROSS LISTED?**  
YES/NO

If yes, Dept:  Course #

(Requires approval of both departments and deans involved. Add lines at end of form for such signatures.)

**5. To be STACKED?**  
YES/NO

If yes, Dept.  Course #

**6. FREQUENCY OF OFFERING:**

**Spring or as Demand Warrants**

*distribution, cross-listings and/or stacking (50 words or less if possible):*

ELT F211	Advanced FCC Amateur and General Radiotelephone Operator (GROL) Licensing
3 Credits	Offered Spring or As Demand Warrants

**RESTRICTIONS ON ENROLLMENT (if any)**

ELT F111 or equivalent, DEVM F 105, and one of the following, a position in a technical, electrical, or broadcast media fields; or

These will be required before the student is allowed to enroll in the course.

**15. SPECIAL RESTRICTIONS,  
CONDITIONS**

**Must be able to physically work in areas of radio frequency and magnet field emissions.**

\$70.00 the special fee applied to all EDM courses. This

**Aviation Maintenance, allowing for expanded career opportunities in the avionics and flight control systems field, and extend the course options who are interested in electronics technology. The FCC licenses increase the employability of the students.**

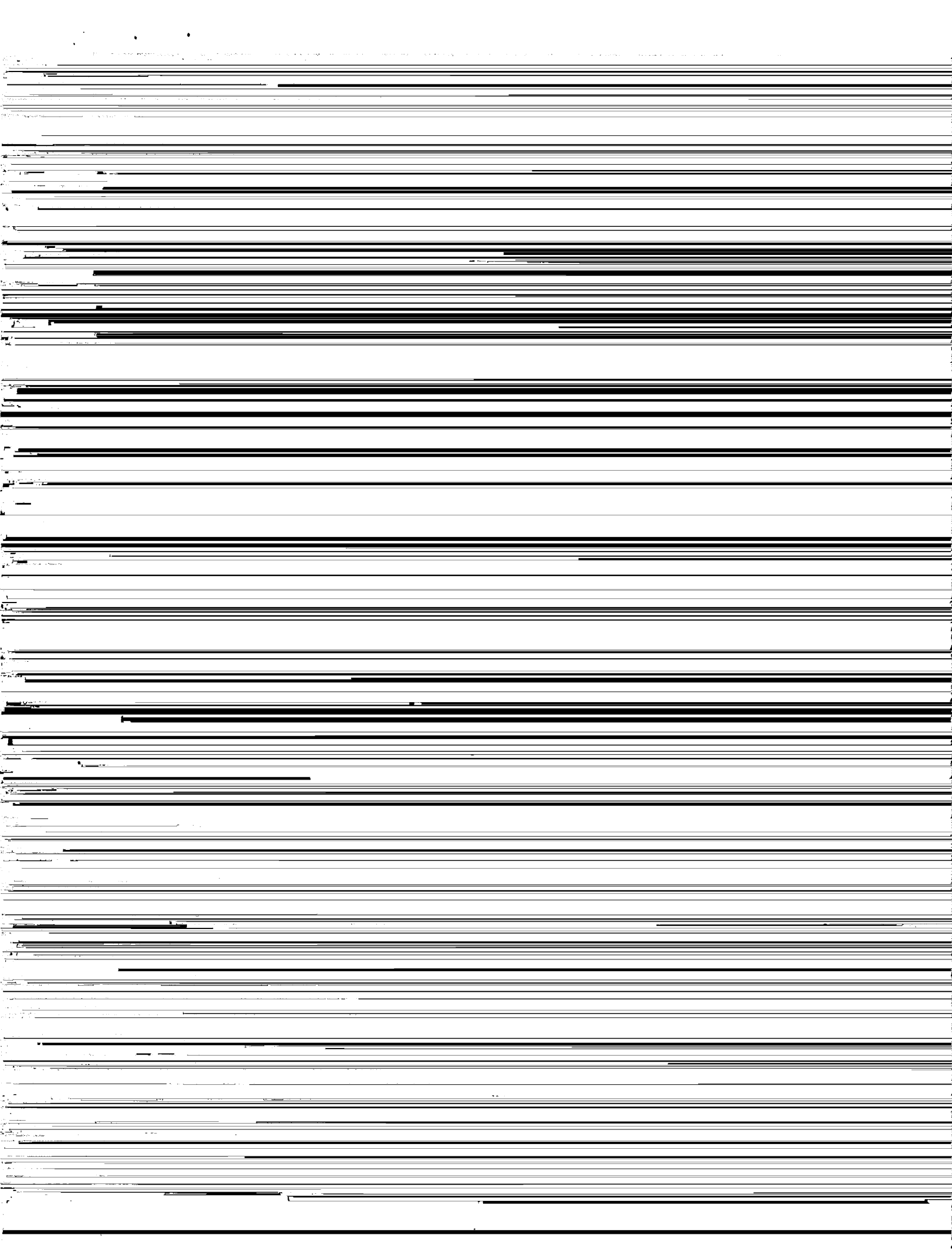
**JUSTIFICATION FOR ACTION REQUESTED**

The purpose of the department and campus wide curriculum committee is to

scrutinize course change and new course applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-evaluatory.

Use as much space as needed to fully justify the proposed course.

**This course was initiated by the Aviation Maintenance facility and contract employees**



ATTACH COMPLETE SYLLABUS (as part of this application). Note: The guidelines are online:  
[http://www.uaf.edu/education/faculty\\_senate/curriculum/courses.htm](http://www.uaf.edu/education/faculty_senate/curriculum/courses.htm)

The Faculty Senate curriculum committees will review the syllabus to ensure that each of the items listed below are included. If items are missing or unclear, the proposed course (or changes to it) may be denied.

**SYLLABUS CHECKLIST FOR ALL UAF COURSES**

During the first week of class, instructors will distribute a course syllabus. Although modifications may be made throughout the semester, this document will contain the following information (as applicable to the discipline):

**1. Course information:**

Title,  number,  credits,  prerequisites,  location,  meeting time (make sure that contact hours are in line with credits).

**2. Instructor (and if applicable, Teaching Assistant) information:**

Name,  office location,  office hours,  telephone,  email address.

**3. Course readings/materials:**

Course textbook title,  author,  edition/publisher.

Supplementary readings (indicate whether  required or  recommended) and  any supplies required.

**4. Course description:**

Content of the course and how it fits into the broader curriculum;

Expected proficiencies required to undertake the course, if applicable.

Inclusion of catalog description is *strongly* recommended, and

Course Syllabus  
University of Alaska Fairbanks Campus

Term: Spring 2013

Course Title: Advanced FCC Amateur and General Radiotelephone Operator (GRO) Licensing

**Course Goals:**

1. Upon successful completion of the course the student should have the theoretical knowledge to pass the FCC General Radiotelephone Operator Test with the Radar

Endorsement or an Amateur Extra Class License

2. Understand and follow RF safety procedures and regulations
3. Design RF filtering systems
4. Design transmission lines
5. Design antennas for specific frequencies and directions

7. Design and calculate AC circuits
8. Operate test equipment designed for radio work.
9. Install, operate, and trouble shoot radio systems.



**Course Calendar:**

**Week 1:** FCC Commercial and Amateur License Overview

1. Grading policy for obtaining licenses
2. Introduction to ARRL Handbook, GROL Plus textbook, and other study materials.
3. Overview of Student / Class project

4. Radio Frequency safety and regulations
5. FAA and FCC Regulations

**Week 2:** Review of Electronics

1. Ohm's Law DC and AC
2. Voltage, Current, Conductance, Susceptance, Admittance

3. Basic and advanced test equipment
4. Schematics

**Week 3:** AC and RF Electronics

1. AC Theory - Circuit

2. Transformers
3. RF Safety and Interference Issues

**Week 4:** Advanced Electrical Math

1. Pythagorean Theorem
2. The Imaginary Number and Complex Systems
3. Trigonometry and Advanced Programmable Calculating

Week 7. Receiver and Transmitter Sections

1. Tuners
2. RF Amplifier
3. Mixers
4. Oscillators
5. IF Filter
6. IF Amplifier
7. Demodulator

8. AF Amplifier
9. Amplitude Modulator
10. RF Oscillator
11. RF Output Amplifier

Week 9. Transmission Systems

1. Transmission line types
2. Transmission line losses
3. Transmission line design
4. Transmission line connections and testing

Week 10. Antenna Systems

1. Antenna types
2. Antenna gain and loss
3. Antenna modeling
4. Antenna trouble shooting
5. Antenna radiation patterns

Week 11. Radar Theory and Practices

1. Pulse, Continuous – Wave, and Doppler Radar operation
2. Radar safety and installation requirements
3. Radar frequency transmission lines and design

Week 12. Technical Writing

1. Writing for amateur publications
2. Writing for professional publications
3. Legal and quality control reports

Week 13. Student Project Presentations

Field Day. Field Operation

1. Transmitting and Receiving equipment installation 2 hrs.
2. Antenna Installation 1 hr.

Note: Travel not included in class time, students are responsible for their own travel.

Aviation student's independent homework: Review maintenance, repair, alteration, and record keeping requirements for aircraft of the current Title 14 Code of Federal Regulations.

**Course Policies:**

1. Students are required to follow the University's Code of Conduct and Student Behavior Standards in

accordance with the board of regent's policies. See the ILAF 2011-2012 Catalog pages 50 and 51. or

## UAF Disability Services for Distance Students

- a. UAF has a Disability Services office that operates in conjunction with the College of Rural and Community Development campuses and UAF's Center for Distance Education (CDE). Disability Services, a part of UAF's Center for Health and Counseling, provides academic accommodations to enrolled students who are identified as being eligible for these services.