

**E/CE DEPARTMENT  
THE COLLEGE OF NEW JERSEY**

**FSP164 INTRODUCTION TO AMATEUR RADIO  
FALL 2016**

**COURSE DESCRIPTION:**

This course will cover the history of communication leading to the birth of amateur radio and the historic development of this hobby. It will also cover radio amateur's contributions to the advancement of electronics technology and in public service. Special facets of the hobby such as digital communications/use of the Internet/WiFi, space communications and the search for extra terrestrial intelligence (SETI) will be discussed. The basic electronics and regulations needed for an amateur radio license will be provided. Everyone completing the course will leave with an amateur radio license. I

**Textbook:** 1. Ham Radio License Manual 3<sup>rd</sup> Addition, ARRL 2014  
2. The Victorian Internet, Tom Standage, Walker 2009  
3. 200 Meters Down, Clinton Desoto, ARRL 1985

**Instructor:** Dr. Allen Katz, [alkatz@tcnj.edu](mailto:alkatz@tcnj.edu), x2666, 149 Armstrong Hall Office Hours: Monday 3:00 to 3:30 PM, Wednesday 5:00 to 5:30 PM, Thursday 3:00 to 3:30 PM and 5:30 to 6:50 PM. (I am generally available for consultation by telephone until midnight Monday through Thursday and by email 24X7).

**Course Goals:** This course will enable you to obtain an amateur radio license. It will show why hundreds of thousands of people all around the Earth are involved in amateur radio. It will provide a global perspective of the importance of communications in our society, and of its relationship to the hobby of amateur radio. It is also a course in written and aural communications. By the course's conclusion your writing and presentation skills should have greatly improved.

**Course Requirements:** Each student will complete three combination aural/written projects that will require researching the answer to a question, presenting the answer using PowerPoint, and submitting a written report of five pages or more. Each student must pass the Technician class amateur radio license exam.

**COURSE OUTLINE**

**WEEK TOPIC**

**HOMEWORK**

1a. Introduction to amateur Radio

Read text 1 chap. 1, and the first 3<sup>rd</sup> of text 2. The 1<sup>st</sup> project will be

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|------|--|--|
| 1b.  | <b>History of communication prior to the invention of radio</b>    | assigned. Come prepared to discuss why you signed up for the course.   |
| 2a.  | <b>Radio and Electronics Intro</b>                                 | Read text 1 chap 2 & 2 <sup>nd</sup> third of text 2.  |
| 2b.  | <b>History of communication Cont'd (early wireless/spark)</b>      |  |
| 2c.  | <b>Academic integrity discussion</b>                               |  |
| 3a.  | <b>Radio and Electronics cont'd (waves, antennas &amp; propg.)</b> | Read text 1 chap 3 and the last 3 <sup>rd</sup> of text 2. Project 1 presentations begin.                                  |
| 3b.  | <b>History of communication cont'd (Syntony - CW)</b>              |  |
| 4a.  | <b>Operating station/equipment (transmitters and receivers)</b>    | Read text 1 chap. 4<br>Project 1 presentations cont'd, The 2 <sup>nd</sup> project will be assigned.<br>Ham station visit. |
| 4b.  | <b>History of communication Practice license testing</b>           |  |
| 5a.  | <b>Regulations and licensing (operating and special modes)</b>     | Read text 1 chap. 5, and the first third of text 3.  |
| 5b.  | <b>History of communication Practice license testing</b>           | Participate in public service activity (date to be determined).  |
| 6a.  | <b>Regulations and licensing (FCC, bands and privileges)</b>       | Read text 1 chap. 6, and the second 3 <sup>rd</sup> of text 3. Project 2 presentations start.                              |
| 6b.  | <b>History of communication (Origins of ham radio)</b>             | Visit to Sarnoff museum.   |
| 6c.  | <b>Practice license testing</b>                                    |  |
| 7a.  | <b>Safety (Electrical and RF) (id., interference, etc.)</b>        | Read text 1 chap. 7, and the last 3 <sup>rd</sup> of text 3. Project 2 presentations cont'd.                               |
| 7b.  | <b>LICENSE TEST</b>  |  |
| 8a.  | <b>Safety (Electrical and RF)</b>                                  | Read text 1 chap. 7. Project 3 will be assigned.   |
| 8b.  | <b>Buying equipment and</b>  |  |
| 8c.  | <b>experiencing ham radio</b>                                      | Attend radio club meeting (date TBD)   |
| 9.   | <b>Space communications and</b>                                    | Project 3 presentations start.   |
| 9b.  | <b>SETI</b>  | Moonbounce demonstration (date TBD)  |
| 10a. | <b>Internet and digital signals</b>                                | Project 3 presentations cont'd   |
| 10b. | <b>Review and presentations</b>                                    |  |
| 11a. | <b>Public service &amp; ham radio</b>                              | Project 3 presentations cont'd   |

- 11b. Review and presentations
- 12a. Working DX – global aspects of Project 3 presentations cont’d.  
Of amateur radio
- 12b. License review
- 13a. General and advanced licenses Info Age visit (date TBD) .
- 13b. Catch up and review
- 14a. Future of amateur radio Discussion assignments
- 14b. Make up license testing  
(if needed)

**FOURTH HOUR EDUCATIONAL ACTIVITIES:**

In addition to the regularly scheduled class meetings, students are required to meet in small groups to critique their research before presentation in class. There are also a number of required out of class assignments (participation in public service activity, station visit, etc.) that supplement the in class learning activities.

**COURSE GRADING POLICY:**

1. Projects (equal weight writing and aural)	70 %
2. Final Exam (license test)	30 %
Total	100 %

**COURSE OBJECTIVES\*:**

Objective 1: To introduce students to amateur radio and to provide the knowledge (including the basic principles of electronics and related systems) to enable them to pass the technician level amateur radio license exam.

Objective 2: To instill in students an appreciation of modern technology through the history of electronic communications.

Objective 3: Provide students with an appreciation of different cultures and people through the global communications of amateur radio.

**EDUCATIONAL OBJECTIVES:**

This course fulfills the following FSP learning goals:

- To foster intellectual curiosity in the students;
- To introduce students to college-level assignments and college-level expectations in terms of writing, reading, research, and oral presentations;
- To improve the students’ ability to think critically about their world, their culture, and their own beliefs;

- To foster a student culture of intellectual engagement outside the classroom,
- To provide students with a global perspective of the issues that affect their lives;WA6PY
- To encourage students to take greater responsibility for their own learning;
- To introduce students to the concept of a well-rounded education based on a breadth of knowledge that goes beyond their immediate professional or academic field; and
- To accomplish the appropriate Liberal Learning domain goals and any appropriate interdisciplinary concentration goals for the course.

## **SELECTED TCNJ POLICIES**

TCNJ's final examination policy is available on the web:

<http://www.tcnj.edu/~academic/policy/finalevaluations.htm>

### **Attendance**

Every student is expected to participate in each of his/her courses through regular attendance at lecture and laboratory sessions. It is further expected that every student will be present, on time, and prepared to participate when scheduled class sessions begin. At the first class meeting of a semester, instructors are expected to distribute in writing the attendance policies which apply to their courses. While attendance itself is not used as a criterion for academic evaluations, grading is frequently based on participation in class discussion, laboratory work, performance, studio practice, field experience, or other activities which may take place during class sessions. If these areas for evaluation make class attendance essential, the student may be penalized for failure to perform satisfactorily in the required activities. Students who must miss classes due to participation in a field trip, athletic event, or other official college function should arrange with their instructors for such class absences well in advance. The Office of Academic Affairs will verify, upon request, the dates of and participation in such college functions. In every instance, however, the student has the responsibility to initiate arrangements for make-up work.

Students are expected to attend class and complete assignments as scheduled, to avoid outside conflicts (if possible), and to enroll only in those classes that they can expect to attend on a regular basis. Absences from class are handled between students and instructors. The instructor may require documentation to substantiate the reason for the absence. The instructor should provide make-up opportunities for student absences caused by illness, injury, death in the family, observance of religious holidays, and similarly compelling personal reasons including physical disabilities. For lengthy absences, make-up opportunities might not be feasible and are at the discretion of the instructor. The Office of Academic Affairs will notify the faculty of the dates of religious holidays on which large numbers of students are likely to be absent and are, therefore, unsuitable for the scheduling of examinations. Students have the responsibility of notifying the instructors in advance of expected absences. In cases of absence for a week or more, students are to notify their instructors immediately. If they are unable to do so they may contact the Office of Records and Registration. The Office of

Records and Registration will notify the instructor of the student's absence. The notification is not an excuse but simply a service provided by the Office of Records and Registration. Notifications cannot be acted upon if received after an absence. In every instance the student has the responsibility to initiate arrangements for make-up work.

TCNJ's attendance policy is available on the web:

<http://www.tcnj.edu/~recreg/policies/attendance.html>

### **Academic Integrity Policy**

Academic dishonesty is any attempt by the student to gain academic advantage through dishonest means, to submit, as his or her own, work which has not been done by him/her or to give improper aid to another student in the completion of an assignment. Such dishonesty would include, but is not limited to: submitting as his/her own a project, paper, report, test, or speech copied from, partially copied, or paraphrased from the work of another (whether the source is printed, under copyright, or in manuscript form). Credit must be given for words quoted or paraphrased. The rules apply to any academic dishonesty, whether the work is graded or ungraded, group or individual, written or oral.

TCNJ's academic integrity policy is available on the web:

<http://www.tcnj.edu/~academic/policy/integrity.html>.

### **Americans with Disabilities Act (ADA) Policy**

Any student who has a documented disability and is in need of academic accommodations should notify the professor of this course and contact the Office of Differing Abilities Services (609-771-2571). Accommodations are individualized and in accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1992.

TCNJ's Americans with Disabilities Act (ADA) policy is available on the web:

<http://www.tcnj.edu/~affirm/ada.html>