

## COURSE SYLLABUS

<b>COURSE TITLE:</b>	<u>Aircraft Navigation Systems</u>	<b>PREFIX &amp; NUMBER:</b>	<u>AVT 150</u>
<b>LECTURE HOURS:</b>	<u>2.0</u>	<b>LAB HOURS:</b>	<u>3.0</u>
<b>CONTACT HOURS:</b>	<u>5.0</u>	<b>CREDIT HOURS:</b>	<u>3.0</u>

### CATALOG DESCRIPTION:

This course covers the theory and maintenance of airborne Very High Frequency (VHF) navigation equipment, including VHF Omni-directional Range (VOR) receivers, Instrument Landing System (ILS) equipment, long-range navigation systems, inertial navigation systems and Global Positioning Systems.

### TEXTBOOKS AND OTHER REQUIRED MATERIALS:

Principles of Electronic Communication Systems; Frenzel; 4th ed. (2016); ISBN-13: 978-0073373850

Avionics Training: Systems, Installation, and Troubleshooting; Buckwalter; 2nd ed. (2010); ISBN-13: 978-1885544216

GROL + Radar; West; 1st ed. (2009); ISBN-13: 9780945053613

Scientific Calculator

Student Hand Tools (See listing provided by Instructor)

### OPTIONAL MATERIALS:

None

### COURSE OBJECTIVES:

Upon successful completion of this course, the student should be able to complete the following tasks:

1. Identify and describe the basic function, principles of operation, and interrelationships of the basic units of an aircraft navigation system.
2. Demonstrate safety in handling sensitive test equipment, navigation system components and sophisticated aircraft.
3. Demonstrate proper techniques for basic defect isolation, repair, calibrations and return to service of aircraft navigation systems.
4. Analyze basic and advanced aircraft navigation systems circuit diagrams, isolate faults in the system and use proper test equipment.

**GRADING SYSTEM AND POLICY:**

<p><b>Final grades will be awarded according to the following grading scale.</b></p> <p>91 - 100 = A  81 - 90 = B  71 - 80 = C  65 - 70 = D  Below 65 = F</p>	<p><b>METHOD OF EVALUATION:</b></p> <p>Lab Assignments ..... 50%  Exam I ..... 10%  Exam II ..... 10%  Exam III ..... 10%  Practical I ..... 10%*  Practical II ..... 10%*</p> <p>* Practical(s) must be passed for course completion.</p>
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**MAKE-UP TEST POLICY:** Test make-ups require the student to document a serious reason for having missed the examination. A doctor's note or other letter explaining the absence will be required. If the conditions are not met, the student will receive a zero for the exam. Only one makeup exam is allowed per class. All makeup exams must be taken within 1 week of the student's return to class. There will be no make-ups on Lab Practical Exams missed due to absences or tardiness.

The grade of Incomplete (I) represents incomplete work and is a temporary grade that must be approved by the instructor. In the rare instances where an Incomplete grade is given, (2) conditions must be met.

1. Documented evidence of medical or family emergency that prevented the student from meeting their course requirements must be presented to the instructor prior to the end of the course.
2. The student must have a passing grade in the course.

Upon the assignment of an incomplete grade, the student must satisfactorily complete all course requirements by the following semesters midterm date or the grade will be changed to an F.

**ACADEMIC HONESTY:** "Plagiarism" is defined as the appropriation of any other person's work and the unacknowledged or improper incorporation of that work into one's own work offered for credit. All forms of academic dishonesty, including but not limited to cheating on tests, plagiarism, collusion, and falsification of information, will call for discipline. It is the student's responsibility to understand what constitutes dishonesty and the College's disciplinary policy toward academic dishonesty.

**LECTURE PREPARATION:** Specific key concepts are provided at the beginning of each chapter. These concepts serve as an instructional guide to the material in the chapter. Tentative lecture and lab schedules will be provided as a supplement to this syllabus. Assigned readings should be completed **PRIOR** to attending lecture or lab. The student is expected to come to both lecture and lab prepared (having read the assigned material) to discuss lecture material and also prepared to perform lab work.

**LABORATORY PROCEDURES:** The laboratory is an integral part of the course. Students are expected to prepare for lab by reading the scheduled exercise. Data is usually collected and logged on forms included in the lab manual. Therefore it is imperative that you bring your lab manual and calculator to every session. Proper care of equipment is essential in the Department of Avionics Maintenance Technology. The equipment may be expensive or difficult to replace. Students who fail to take care of equipment may be subject to disciplinary action and/or be barred from participation in the laboratory.

**SAFETY:** For your safety, if you have a medical condition that results in seizures, blackouts, etc. (e.g. from epilepsy, diabetes) please inform your instructor. This information will be kept confidential. If you wish to seek accommodations due to a disability, please contact Services for Students with Disabilities, Building 410, Room 210.

**ACCOMMODATIONS FOR STUDENTS WITH SPECIAL NEEDS:** The College will make reasonable accommodations for persons with documented disabilities. Students should notify the Counselor for Students with Disabilities (located in Counseling and Career Development, Building 410, Room 210) and their instructors of any special needs. Instructors should be notified on the first day of classes.

**ACCESS TO COMPUTERS FOR ACADEMIC COURSES:** The College has computer labs available for student use on all three campuses. Students who experience problems with home computers should plan to accomplish their assignments at the College.

**ELECTRONIC COMMUNICATION DEVICES IN CLASSROOMS:** To minimize classroom disruptions and protect the integrity of test-taking situations, activated electronic communication devices such as pagers and cell phones are generally not permitted in classrooms at Trident Technical College. The only exception to this policy will be for on-call emergency personnel (police, fire, EMS), who will be required to notify their classroom instructor of their need for such devices and provide documentation verifying their occupation. However, on-call emergency personnel may not leave a testing situation, communicate by electronic means and return to complete an examination. In these cases, instructors should make arrangements for re-testing. Smart phones, laptops and tablet technology may be used in the classroom for instructional purposes as allowed by the instructor.

**CLASSROOM CIVILITY:** Student learning is a top priority. Students are expected to come to class prepared and attentive. To ensure a productive learning environment, students must show courtesy and respect to their instructors and fellow students. Instructors will not tolerate uncivil or disruptive behavior. The instructor may dismiss a disruptive student from the class for the remainder of the class period. If inappropriate behavior persists, the instructor may refer the student to the Vice President for Student Services for disciplinary evaluation.

**ATTENDANCE POLICY:** Before attending classes, students must meet all prerequisites and officially register for all courses. Prompt and regular attendance is your responsibility. You are responsible for all material covered and all assignments made in class. Any time you are absent from a class, laboratory or other scheduled events, it is your responsibility to make satisfactory arrangements for any make-up work permitted by the instructor. A student absence of more than 20% class time will result in a grade of F.

An absence is defined as nonattendance for any reason, including illness, emergency or official leave. If you *arrive late or leave before* the instructor dismisses class, you *may also be considered absent*. All class sessions are important. Any time you miss a class you increase your risk of making a failing grade.

If you quit coming or participating in the course and do not officially withdraw by the withdrawal date for each semester, you will receive a grade of F or U. *Your instructor cannot assign a grade of W*. If you receive financial aid or veterans' aid, your aid may be revised as a result of any changes in your course schedule.

**FACULTY AVAILABILITY:** Your instructor is available to you outside of class for academic assistance. Full-time faculty maintains and post regularly scheduled office hours. Adjunct faculty do not have offices on campus. To contact an adjunct faculty by phone, students may call the Avionics Maintenance Technology Program Coordinator at 843-574-6965 or the Aeronautical Studies Division office at 843-323-3503. The message will be forwarded to the adjunct and he/she will call you at the phone number you specify.

**THIS SYLLABUS IS SUBJECT TO CHANGE BY INSTRUCTOR**

<b>LAB/SHOP SAFETY RULES</b>
<p>In order to promote the health and well-being of students, faculty, staff and visitors, the following <b>MINIMUM</b> rules and procedures have been developed. Additional rules and procedures that apply to individual programs of study must also be followed. Faculty members will ensure that students are informed in writing of the specifics that apply to their program. In addition, it is recommended that the safety presentation be shown during the initial class period for all new students. Faculty and staff are charged with the responsibility to see that these rules are complied with. Violation of published rules and procedures may be grounds for dismissing a student from a program of study.</p>
<p><b>SAFETY GLASSES:</b> All persons present in a lab/shop are required under South Carolina Law 59-1-390 to wear safety glasses. This includes visitors, staff, students and faculty. Failure to comply may result in <b>CRIMINAL PROSECUTION!</b></p>
<p><b>PROPER ATTIRE:</b> Students are expected to be properly clothed and to wear safety equipment appropriate to the lab/shop activity that they are engaged in. Sandals, open-toed shoes and tennis shoes do not provide adequate protection from dropped objects or other hazards. Shorts and tank tops are also inappropriate for an industrial environment since they do not provide adequate protection from burns, abrasions or flying objects.</p>
<p><b>INDUSTRIAL HOUSEKEEPING:</b> Under OSHA standards, work places shall be kept clean and in an orderly and sanitary condition. Since janitorial services are only conducted at night, it is the responsibility of the instructor to maintain the shop area in a safe condition. Spilled liquids must be removed at once, using whatever means are required. Since labs/shops may be used by several programs in the course of the day, each instructor must ensure that the lab/shop his/her class uses is left in a clean and orderly condition at the end of the period.</p>
<p><b>STUDENT BEHAVIOR:</b> Horseplay, practical jokes and similar activities are not only inappropriate, but are the frequent cause of accidents resulting in injury or death, as well as the destruction of equipment and materials. Students will behave in an orderly and safe manner.</p>
<p><b>ACCIDENTS OR ILLNESS:</b> In the event that a student is injured or becomes ill, the instructor must be notified immediately. The faculty member will notify Public Safety, and will fill out Trident form 3000.GDA (Report of Student Injuries). Within 24 hours, the instructor will file a written report describing the events which led to the injury to his/her immediate supervisor. Accidents that occur without injuries but have the potential for injury must also be reported.</p>
<p><b>DEFECTIVE OR INOPERATIVE EQUIPMENT/SAFETY HAZARDS:</b> Safety problems that come to the attention of the instructor should be handled in one of the following ways.</p> <ol style="list-style-type: none"> <li>1. Corrected immediately if within the faculty member's capability.</li> <li>2. Reported in writing to the Campus Director with a copy to the immediate supervisor. Action will be taken as required to correct the problem.</li> </ol>
<p>For your safety, if you have a medical condition that results in seizures, blackouts, etc. (e.g., from epilepsy, diabetes) please inform your instructor. This information will be kept confidential. If you wish to seek accommodations due to a disability, please contact someone at the Student Success Center.</p>
<p>These rules are not all-inclusive, but rather are the minimum consistent with the goals of maintaining the health and safety of the College community. The faculty member is the expert in his/her chosen field or occupational area and is expected to be knowledgeable about and to enforce the specific safety rules for the activity in which his/her students are engaged.</p>