



AIRC 1040 Electric Motors

COURSE SYLLABUS

Fall Semester 2017

COURSE INFORMATION

Credit Hours/Minutes: 4/ 4500

Class Location: Room # 423

Class Meets: M/T/W/R 10:45 am -12:00 pm

CRN:20391

INSTRUCTOR CONTACT INFORMATION

Instructor Name: Vince Scott

Office Location: Room 426

Office Hours: M/T/W/R 4:00-5:00 pm

Email Address: vscott@southeasterntech.edu

Phone: (912)538-3146

Fax Number: (912)538-3156

Tutoring Hours: By Appointment

REQUIRED TEXT

Fundamentals of HVACR 3rd Edition by Carter Stanfield and David Skaves, Pearson Publisher ISBN: 0-13-401616

REQUIRED SUPPLIES & SOFTWARE

Safety glasses, notebook for taking notes, 3 ring binder for hand-outs, and pen or pencil to use in class every day. A Digital Volt, Ohm meter with a clamp-on AMP meter.

NOTE: You must have textbook and notebook with pen or pencil with you each day for class !

COURSE DESCRIPTION

This course provides an introduction to fundamental electrical concepts and theories as applied to the air conditioning industry.

MAJOR COURSE COMPETENCIES

1. Safety
2. Diagnostic techniques,
3. Capacitors
4. Installation procedures
5. Types of electric motors
6. Overload devices
7. Magnetic starters
8. Electric motor servicing

PREREQUISITE(S)

AIRC 1030 or Provisional Admission

COURSE OUTLINE

This course provides an introduction to fundamental electrical concepts and theories as applied to the air conditioning industry.

GENERAL EDUCATION CORE COMPETENCIES

STC has identified the following general education core competencies that graduates will attain:

1. The ability to utilize standard written English.
2. The ability to solve practical mathematical problems.
3. The ability to read, analyze, and interpret information.

STUDENT REQUIREMENTS

Students are expected to complete all tests and comprehensive problems by the due dates. A ten point penalty will be assessed for each day a comprehensive problem is late. There are no makeup tests. Tests are made available for several days; therefore, there are no makeup tests. Students who miss a test will be assigned a grade of zero. Students are responsible for policies and procedures included in the *STC E-Catalog*.

ATTENDANCE GUIDELINES

Class attendance is a very important aspect of a student's success. Being absent from class prevents students from receiving the full benefit of a course and also interrupts the learning process. Southeastern Technical College considers both tardiness and leaving early as types of absenteeism. Responsibility for class attendance rests with the student. Regular and punctual attendance at all scheduled classes is required for student success. Students will be expected to complete all work required by the instructor as described in the individual course syllabus.

Instructors have the right to give unannounced quizzes/assignments. Students who miss an unannounced quiz or assignment will receive a grade of 0. Students who stop attending class, but do not formally withdraw, may receive a grade of F and face financial aid repercussions in upcoming semesters.

Instructors are responsible for determining whether missed work may be made up and the content and dates for makeup work is at the discretion of the instructor.

Students will not be withdrawn by an instructor for attendance; however, all instructors will keep records of graded assignments and student participation in course activities. The completion dates of these activities will be used to determine a student's last date of attendance in the event a student withdraws, stops attending, or receives an F in a course.

SPECIAL NEEDS

Students with disabilities who believe that they may need accommodations in this class based on the impact of a disability are encouraged to contact Helen Thomas, 912-538-3126, hthomas@southeasterntech.edu, to coordinate reasonable accommodations.

SPECIFIC ABSENCES

Provisions for Instructional Time missed because of documented absences due to jury duty, military duty, court duty, or required job training will be made at the discretion of the instructor.

PREGNANCY

Southeastern Technical College does not discriminate on the basis of pregnancy. However, we can offer accommodations to students who are pregnant that need special consideration to successfully complete the course. If you think you will need accommodations due to pregnancy, please advise me and make appropriate arrangements with Helen Thomas, 912-538-3126, hthomas@southeasterntech.edu.

WITHDRAWAL PROCEDURE

Students wishing to officially withdraw from a course(s) or all courses after the drop/add period and prior to the 65% portion of the semester (date will be posted on the school calendar) must speak with a Career Counselor in Student Affairs and complete a Student Withdrawal Form. A grade of "W" is assigned when the student completes the withdrawal form from the course.

Students who are dropped from courses due to attendance (see your course syllabus for attendance policy) after drop/add until the 65% point of the semester will receive a "W" for the course. Abandoning a course(s) instead of following official withdrawal procedures may result in a grade of 'F' being assigned.

After the 65% portion of the semester, the student will receive a grade for the course. (Please note: A zero will be given for all missed assignments.)

There is no refund for partial reduction of hours. Withdrawals may affect students' eligibility for financial aid for the current semester and in the future, so a student must also speak with a representative of the Financial Aid Office to determine any financial penalties that may be assessed due to the withdrawal. All grades, including grades of 'W', will count in attempted hour calculations for the purpose of Financial Aid.

Remember - Informing your instructor that you will not return to his/her course does not satisfy the approved withdrawal procedure outlined above.

WORK ETHICS

The Technical College System of Georgia instructs and evaluates students on work ethics in all programs of study. Ten work ethics traits have been identified and defined as essential for student success: appearance, attendance, attitude, character, communication, cooperation, organizational skills, productivity, respect, and teamwork. Students will be required to take a work ethics exam as marked in the lesson plan. A grade of 70 or better is required to complete the work ethics requirements for this class.

MAKEUP GUIDELINES (TESTS, QUIZZES, HOMEWORK, PROJECTS, ETC...)

(Tests, quizzes, homework, projects, etc...): If a student misses a test, a grade of zero will be assigned. **Only students with extenuating circumstances (who contact the instructor on the day of the test regarding their absence) will be allowed to take a makeup test, which will replace the zero.** Extenuating circumstances are determined at the instructor's discretion. Unless otherwise scheduled with the instructor, it is expected that the test will be taken the next day, scheduled outside of regular class time. Failure to follow this procedure will result in a grade of zero.

ACADEMIC DISHONESTY POLICY

The STC Academic Dishonesty Policy states All forms of academic dishonesty, including but not limited to cheating on tests, plagiarism, collusion, and falsification of information, will call for discipline. The policy can also be found in the STC Catalog and Student Handbook.

PROCEDURE FOR ACADEMIC MISCONDUCT

The procedure for dealing with academic misconduct and dishonesty is as follows:

1. First Offense

Student will be assigned a grade of "0" for the test or assignment. Instructor keeps a record in course/program files and notes as first offense. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus. The Registrar will input the incident into Banner for tracking purposes.

2. Second Offense

Student is given a grade of "WF" for the course in which offense occurs. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus indicating a "WF" has been issued as a result of second offense. The Registrar will input the incident into Banner for tracking purposes.

3. Third Offense

Student is given a grade of "WF" for the course in which the offense occurs. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus indicating a "WF" has been issued as a result of third offense. The Vice President for Student Affairs, or designee, will notify the student of suspension from college for a specified period of time. The Registrar will input the incident into Banner for tracking purposes.

STATEMENT OF NON-DISCRIMINATION

The Technical College System of Georgia and its constituent Technical Colleges do not discriminate on the basis of race, color, creed, national or ethnic origin, sex, religion, disability, age, political affiliation or belief, genetic information, disabled veteran, veteran of the Vietnam Era, spouse of military member or citizenship status (except in those special circumstances permitted or mandated by law). This school is in compliance with Title VI of the Civil Rights Act of 1964, which prohibits discrimination on the basis of race, color, or national origin; with the provisions of Title IX of the Educational Amendments of 1972, which prohibits discrimination on the basis of gender; with the provisions of Section 504 of the Rehabilitation Act of 1973, which prohibits discrimination on the basis of handicap; and with the American with Disabilities Act (ADA).

The following individuals have been designated to handle inquiries regarding the nondiscrimination policies:

ADA/Section 504 - Equity- Title IX (Students) - OCR Compliance Officer	Title VI - Title IX (Employees) - EEOC Officer
Helen Thomas, Special Needs Specialist Vidalia Campus 3001 East 1 st Street, Vidalia Office 108 Phone: 912-538-3126 hthomas@southeasterntech.edu	Blythe Wilcox, Director of Human Resources Vidalia Campus 3001 East 1 st Street, Vidalia Office 138B Phone: 912-538-3147 bwilcox@southeasterntech.edu

GRIEVANCE PROCEDURES

Grievance procedures can be found in the Catalog and Handbook located on STC's website.

ACCESS TO TECHNOLOGY

For information regarding Blackboard, the Information Delivery System (IDS), Student Owl Mail, and Banner Web, please see the IT Department link on STC's website at www.southeasterntech.edu

TCSG GUARANTEE/WARRANTY STATEMENT

The Technical College System of Georgia guarantees employers that graduates of State Technical Colleges shall possess skills and knowledge as prescribed by State Curriculum Standards. Should any graduate employee within two years of graduation be deemed lacking in said skills, that student shall be retrained in any State Technical College at no charge for instructional costs to either the student or the employer.

GRADING POLICY

Assessment/Assignment	Percentage
Written Test	30 %
Lab Test	15 %
Work Ethics	5 %
Lab Assignments	50%

GRADING SCALE

Letter Grade	Range
A	90-100
B	80-89
C	70-79
D	60-69
F	0-59

AIRC 1040 Electric Motors
Summer Semester 2018 lesson plan

Date/Week	Unit	Content	Assignments & Tests Due Dates	Competency Area
Aug 14,15	Chapter 3	Safety Safety hazards	Discuss the safety hazards found in working with electric motors and their components Safety Test	1 , a, c
Aug 21,22	Chapter 35	Diagnostic Techniques Applications for belts, pulleys, and motors	Discuss the four types of belt and pulley drives Inspect the belt guards on lab equipment Remove and/or install belts Adjust belt tension on V-belts or drive belts Discuss safety concerns found in working with motors, pulleys, and drive belts	1,2 a, c
Aug 28,29	Chapter 37	Capacitors Theory	Define a capacitor Define the term microfarad	1,2 a, c
Sept 4,5	Chapter 37	Applications	Observe the use of capacitors on lab equipment Properly test various capacitors with volt-ohm millimeter (VOM) and capacitor tester. Demonstrate how to properly discharge a capacitor	1,2 a, c

Date/Week	Unit	Content	Assignments & Tests Due Dates	Competency Area
Sept 11,12	Chapter 37	Installation Procedures Application	Properly install a condenser fan motor Properly install an evaporator fan motor	1,3, a, c
Sept 18,19	Chapter 35	Types of Electric Motors Theory	Explain the principles of three-phase motor operation Explain the principles of shaded motor operation Explain the principles of split-phase motor operation Explain the principles of capacitor start motor operation	1,2,3 a, c
Sept 25,26	Chapter 35	Theory	Explain the principles of PSC motor operation Explain the principles of CSR motor operation Explain the principles of ECM motor operation Explain the operation of single-phase motor starting components	1,2,3 a, c
Oct 2,3	Chapter 35	Types and applications	Classify motors used in the HVAC industry Discuss the various motor applications Describe methods of starting and protecting electrical motors	1,2,3,4 a, c

Date/Week	Unit	Content	Assignments & Tests Due Dates	Competency Area
Oct 9,10	Chapter 37	Types and applications	Differentiate between motor windings in both single and three-phase motors Properly connect a single-phase motor to include all starting components	1,2,3,4 a, c
Oct 16,17	Chapter 36	Overload Devices Theory and application	Discuss the difference between a thermal overload and a magnetic overload Replace a thermal overload on an air conditioning compressor Check for continuity in thermal overloads	1,2,3,4 a, c
Oct 23,24	Chapter 36	Magnetic Starters Theory and application	Discuss the differences between a magnetic starter and contractor Replace a magnetic starter on a compressor Test a magnetic starter with a VOM	1,3,4,5 a, c
Nov 30,31	Chapter 37	Service and troubleshooting	Discuss the installation of bearings on shafts Remove or install fans or blowers Reverse motor current rotation Measure motor current draw	1-8, a, c
Nov 6,7	Chapter 37	Service and troubleshooting	Test motor running or starter windings Test motor running or starter windings Test starting or running capacitors Wire in a motor to the power source	1-8, a, c

Date/Week	Unit	Content	Assignments & Tests Due Dates	Competency Area
Nov 13,14 Nov 20,21	Chapter 37	Service and troubleshooting Review for Finals	Lab work Review for Finals Homework Due	
Nov 22,23		HOLIDAY	HOLIDAY	
Nov 27-30		FINALS	Final Exam for AIRC 1040	