

Official TCC Course Syllabus

Discipline Prefix: EGR	Course Number: 262	Course Title: Fundamental Circuits Lab	
	Course Section: D02B		
Credit Hours: 2	Lecture Hours: 1	Clinical Hours:	Lab Hours: 2
Contact Hours: 3	Studio Hours:	Semester: Spring 2014	
Meeting Days/Time/Location: Mondays 1:00 – 4:00pm, Room H-273, Advanced Technology Center			

Instructor Information

Name: Paul E. Gordy, PE

Office Location: H-115, Advanced Technology Center

Office Hours: As posted on office door and on course Blackboard site

Contact Information: 757-822-7175

Course Website (optional): www.faculty.tcc.edu/PGordy

Blackboard site: <http://learn.vccs.edu>

Instructor email address (college or VCCS): PGordy@tcc.edu

Course Information

Course Description

Covers topics including microprocessor hardware and programming, lab test equipment, lab safety, technical report writing, and using a microprocessor, such as the MicroStamp 11, to control basic electric circuits. Experiments include topics such as resistive circuits, analog-to-digital and digital-to-analog conversion, pulse width modulation, and the design of power supplies.

Prerequisites and/or Co-requisites

Prerequisites: EGR 125 and (EGR 271 or EGR 260)

Co-requisites: None

Required Course Texts and Supplementary Materials

1. Lecture Notes – The instructor will provide PowerPoint presentations for each lab as well as other useful materials for the course.
2. The textbook used in EGR 271-272 will serve as a reference: J. W. Nilsson, *Electric Circuits*, 9th Edition, Pearson Prentice Hall, 2008 (ISBN: 013139214X)

Course Learning Outcomes

- Demonstrate a familiarity with the architecture of the microprocessor used in lab
- Program microprocessors to control basic electric circuits
- Collect and analyze experimental data and produce lab reports according to specified standards
- Demonstrate proficiency in the use of various types of lab equipment.
- Demonstrate proper safety precautions in working with lab equipment
- Analyze a variety of circuits, including basic resistive circuits, analog-to-digital and digital-to-analog conversion, pulse width modulation, and the design of power supplies

Topics Covered in the Course

Lab 1 Breadboarding Circuits

- Lab 2 Introduction to the Arduino UNO
- Lab 3 7-segment displays
- Lab 4 Lights and Switches – Real time
- Lab 5 Digital-to-Analog Conversion
- Lab 6 Analog-to-Digital conversion
- Lab 7 Using Analog Inputs and Outputs on the Arduino
- Lab 8 Pulse Width Modulation
- Lab 9 To Be Determined (TBD)
- Lab 10 To Be Determined (TBD)
- Lab 11 To Be Determined (TBD)
- Lab 12 Power Supply Design

Description of Assignments/Assessments

This is a lab course. Twelve laboratory experiments will be completed as part of the course. Each lab will have the following components:

- **Pre-Lab Work** – Specific tasks will be assigned to be completed before each lab.
- **In-Lab Work** – Specific tasks must be completed during each lab and proper circuit operation demonstrated to the instructor.
- **Post-Lab Tasks** - Specific tasks will be assigned to be completed before each lab.
- **Lab Report** – A report must be turned in to the instructor for each lab. The report consists of the Pre-Lab, In-Lab, and Post-Lab components described above. Lab reports will not be accepted unless until proper circuit operation has been demonstrated.

Grade Policy

Course grades will be based on lab report grades. The course grade will be the average of the 12 lab report grades.

Grading Scale:

Grades will be based on the following scale:

A (90% – 100%), B (80% – 89%), C (70% – 79%), D (60% – 69%), F (0% – 59%)

Final grades are made available to each student within the Student Information System (SIS) now web delivered via MyTCC or SIS.

Based on the progression of the course, the grade distribution for each assignment may change. However, if changes are made, I will notify students in a timely manner and in writing.

Course Schedule

The course schedule is tentative and may change at the discretion of the instructor; however, students will be notified in writing when any changes/additions are made to the schedule.

Week	Topics
M, Jan 13	Introduction
M, Jan 20	TCC Closed (Martin Luther King, Jr. Day)
M, Jan 27	Lab 1 Breadboarding circuits
M, Feb 3	Lab 2 Introduction to the Arduino UNO
M, Feb 10	Lab 3 7-segment displays
M, Feb 17	Lab 4 Lights and Switches – Real time
M, Feb 24	Lab 5 Digital-to-Analog Conversion

M, Mar 1	Lab 6 Analog-to-Digital conversion
Mar 10-15	No classes. Spring break.
M, Mar 17	Lab 7 Using Analog Inputs and Outputs on the Arduino
M, Mar 24	Lab 8 Pulse Width Modulation
M, Mar 31	Lab 9 To Be Determined (TBD)
M, Apr 7	Lab 10 To Be Determined (TBD)
M, Apr 14	Lab 11 To Be Determined (TBD)
M, Apr 21	Lab 12 Power Supply Design
M, Apr 28	Make-up lab week (if necessary)
M, May 5	Make-up lab week (if necessary) - No Final Exam.

Blackboard and Course Communication

Students should check Blackboard and their VCCS student email accounts regularly at least every 72 hours. The best way to reach the instructor is by email. The instructor will respond within 72 hours, although generally much sooner.

Course Policies

- 1. Attendance Policy:** All students are expected to be present and on time at all scheduled class and laboratory meetings. Instructors are not required to admit a student who arrives late to the classroom. A student who adds a class or registers after the first day of classes is counted absent from all class meetings missed.

If a student is absent more than 15 percent of scheduled instructional time, attendance may be defined as unsatisfactory. This calculation includes absences occurring during the add/drop period. See also the Withdrawal Policy in this syllabus for more information. Per the college's attendance policy, faculty has the right to develop a more stringent policy as well. Students who do not attend or participate in class by the deadline to drop for tuition refund may be deleted from the course.

- 2. Late Work/Make-up Exam Policy:**

- Lab reports will not be accepted until all required circuits and programs have been properly demonstrated.
- A 10-point penalty will be deducted from late lab reports.

- 3. Statement on Classroom Behavior:** TCC is committed to maintaining a social and physical environment conducive to carrying out its education mission. Therefore, all members of the TCC community are expected to demonstrate standards for civility.

- Be moderate in speaking. Loud, obscene, argumentative, or threatening speech is disruptive to teaching and learning and is offensive to others. It has no place in an academic setting.
- Resolve any disagreements in a positive, non-combative manner. Request the assistance of college authorities if needed.
- Show respect for the comfort of others in an educational setting by observing acceptable standards for personal cleanliness and dress.

- 4. Electronic Devices Policy:** Cell phones, pagers, and other communication devices are prohibited from use in classrooms, laboratories, and libraries, unless authorized by the appropriate faculty or staff. Although soundless communication devices such as cell phones and pagers are permissible in classrooms, college offices, and/or meeting rooms, they must not be answered during class.]

5. Disposition of Classes for Emergency Shutdown of the College:

In the event of an emergency shutdown of the college, the president and her executive staff may elect to conclude the term in session if eighty-five percent or more of that term has been completed. If the term in session is concluded, faculty shall compute final grades of students based on coursework completed at that point.

Academic Policies

Students are responsible for being aware of the policies, procedures, and student responsibilities contained within the current edition of the *TCC Catalog* and *Student Handbook*. Students should familiarize themselves with the college's policies regarding misconduct and inclement weather found in the *Student Handbook*.

Withdrawal Policy

Students who wish to withdraw without academic penalty should contact a counselor to determine the appropriate procedure. Withdrawals through completion of 60 percent of a session will result in a **W** grade. After 60 percent of a session is completed, a withdrawal will result in a grade of **F** in a credit course or a grade of **U** in a developmental course, except under mitigating circumstances that must be documented by the instructor and approved by the academic dean. Dynamic session classes have unique refund and withdrawal dates. Contact a campus Enrollment Services Office for more information, or visit <http://www.tcc.edu/students/calendar/academic/Dynamic.htm>.

A student who drops after the last day to withdraw does not receive a "W." He/she receives an "F," in which case there is both an academic and financial penalty. A student who withdraws by the deadline faces a financial penalty, but not an academic penalty.

January 30, 2014	Deadline to drop for tuition refund
March 27, 2014	Deadline to withdraw without academic penalty and to receive a grade of W for the course

Academic Integrity

TCC will expect students to demonstrate personal and academic integrity, to be open to new ideas, and to share in a community where individuals from diverse backgrounds and cultures help one another grow intellectually, socially, and personally.

TCC expects students to achieve, not just to get by. And while many caring and talented faculty and staff are here to help, students must take responsibility for their own learning. Students should strive for a high level of academic performance and to be responsible, contributing citizens within the college and in outside communities. Above all, TCC wants students to develop a love of learning that will last a lifetime, along with a life-long interest in maintaining emotional and physical wellness.

Statement on Plagiarism and Academic Misconduct

Academic misconduct includes, but is not limited to, the following actions: cheating on an examination or quiz—either giving or receiving information; copying information from another person for graded assignments; using unauthorized materials during tests; collaboration during examinations; buying, selling or stealing examinations; arranging a substitute for oneself during examinations; substituting for another person, or arranging such a substitution; plagiarism—the intentional or accidental presentation of another's words or ideas; collusion with another person or persons in submitting work for credit in class or lab, unless such collaboration is approved in advance by the instructor.

Faculty members who have reliable evidence of academic misconduct will (1) investigate the matter, and (2) review the facts of the matter and the proposed penalty with the appropriate academic dean. They may then take one or more of the following actions:

- Require the work to be accomplished again
- Give no credit for the test, paper, or exercise
- Assign a grade of **F**, **U**, or **W** for the course
- Refer the matter to the campus Dean for Student Services or designee for possible disciplinary sanction through the college's disciplinary procedure

If the faculty member chooses to refer the matter to the campus Dean for Student Services or designee for disposition, the Plenary Disciplinary Procedure shall be followed, and the student's dismissal from the college is a possibility.

Disability Services

Students who have documented, diagnosed disabilities, and who need special accommodations for tests, etc., are advised to see the Disabilities Services staff in Student Services so that the instructor may be notified of what accommodations are appropriate in each case. Requests for accommodations should be made to the designated campus disability services counselor at least 45 days before classes begin. Documentation must be provided to support the need for accommodations.

For assistance with disabilities, contact the campus Disabilities Counselor/Provider or the Coordinator of Learning Disabilities Services: call 822-1213, visit Student Services/Development, or visit the Disability Services webpage at <http://www.tcc.edu/students/specialized/disabilityservices/index.htm>

Emergency Procedures

In the event of a bomb threat, tornado, or fire, students and staff may be asked to evacuate the building or move to a secure location within the building. Evacuation routes for movement to an external location or to a shelter within the building are posted at the front of the room. Students should review the maps and make sure that the exit route and assembly location for the building are clearly understood. If assistance is required during an evacuation, please let the instructor know at the end of the first class.

Tidewater Community College uses TCC Alerts to immediately contact and inform faculty, staff and students of a major crisis or emergency. TCC Alerts delivers important emergency alerts, notifications, and updates via:

- Email account (work, home, other)
- Cell phone
- Pager
- Smartphone/PDA (BlackBerry, Treo & other handhelds)

When an incident or emergency occurs, authorized senders will be instantly notified via TCC Alerts. TCC Alerts is a personal connection to real-time updates, instructions on where to go, what to do, or what not to do, who to contact, and other important information. New users may also register by sending a text message to **411911** keyword: **TIDEWATER**.

Student Success Resources

The following resources are available to TCC students. See the *Student Handbook* or visit <http://www.tcc.edu/forms/handbook/> for more information about student services and locations.

Learning Resource Centers

Each campus houses a library and media resources in a Learning Resources Center (LRC). A separate slide and print library is located at the Visual Arts Center. The Learning Resources Centers contain research materials in both print and electronic format to support the courses, curricula, and mission of the college. Library materials include books, newspapers, magazines, journals and an extensive collection of indexes, abstracts and full text databases. Media resources include videotapes, audiotapes, films, CD-ROM/DVD, computer files, and other audiovisual materials. Visit this site for more information: www.tcc.edu/lrc/

Academic Support Services

Each campus provides various kinds of academic assistance. One-on-one tutoring, math and computer labs, and other forms of individual and group assistance may be available. Students can also find free help for writing, from short questions about commas and comma splices to a comprehensive review of research papers in progress, in the Writing Centers.

Online Help Desk

Visit the following Distance Learning Resources for Students website for information about computer skills, technical support, library services for online students, and much more: <http://www.tcc.edu/students/dtls/>

Important Websites

- College Website: www.tcc.edu
 - Blackboard and Student E-mail: <https://tcc.my.vccs.edu/jsp/home.jsp>
 - Student Handbook: <http://www.tcc.edu/forms/handbook/>
 - TCC *Catalog*: <http://www.tcc.edu/forms/catalog/>
 - Class Schedule: <http://www.tcc.edu/schedule/> (or log-in to SIS for current course offerings)
 - Academic Calendar: <http://www.tcc.edu/students/calendar/academic/index.htm>
 - Distance Learning Resources: <http://www.tcc.edu/students/dtls/>
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