



Official TCC Course Syllabus

Discipline Prefix: EGR	Course Number: 125	Course Title: Introduction to Engineering Methods	
	Course Section: D02B		
Credit Hours: 4	Lecture Hours: 3	Clinical Hours:	Lab Hours: 2
Contact Hours: 5	Studio Hours:	Semester: Spring 2018	
Meeting Days/Time/Location: Mondays and Wednesdays 8:30 – 10:45 AM , Room H-151			

Instructor Information

Name: Paul Gordy

Office Location: H-115, Advanced Technology Center, Virginia Beach Campus

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Course Website: www.faculty.tcc.edu/PGordy

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

Course Information

Course Description

Applies problem-solving techniques to engineering problems utilizing computer programming and algorithms in a higher level computer language such as FORTRAN, PASCAL, or C++.

Prerequisites and/or Co-requisites

Prerequisites: EGR 110 and EGR 120

Co-requisites: None

General Education Core Competencies Supported by this Course

- **Written Communication**

A competent written communicator demonstrates the ability to: understand and interpret complex materials; assimilate, organize, develop, and present an idea formally and informally; use standard English; and recognizes the role of culture in communication.

- **Critical Thinking**

A competent critical thinker evaluates evidence carefully and applies reasoning to decide what to believe and how to act. TCC graduates will demonstrate the ability to discriminate among degrees of credibility, accuracy, and reliability of inferences drawn from given data; recognize parallels, assumptions, or presuppositions in any given source of information; evaluate the strengths and relevance of arguments on a particular question or issue; weigh evidence and decide if generalizations or conclusions based on the given data are warranted; determine whether certain conclusions or consequences are supported by the information provided; and use problem solving skills.

- **Quantitative Reasoning**

A person who is competent in quantitative reasoning possesses the skills and knowledge necessary to apply the use of logic, numbers, and mathematics to deal effectively with common problems and issues. A person who is quantitatively literate can use numerical, geometric, and measurement data and concepts, mathematical skills, and principles of mathematical reasoning to draw logical conclusions and to make well-reasoned decisions. TCC graduates will demonstrate the ability to use logical and mathematical reasoning with the context of various disciplines; interpret and use mathematical formulas; interpret mathematical models such as graphs, tables and schematics and draw inferences from them; use graphical, symbolic, and numerical methods to analyze, organize, and interpret data; estimate and consider answers to mathematical problems in order to determine reasonableness; and represent mathematical information numerically, symbolically, and visually using graphs and charts.

Required Course Texts and Supplementary Materials

- Introduction to Programming with C++, 3rd Edition, by Y. Daniel Liang. Pearson, 2014. ISBN-9780133377477. This book includes a required access code for My Programming Lab. The access code can be purchased separately online.
- A file storage device such as a USB jump drive.
- A scientific calculator (see the TCC Engineering Handbook for a list of recommended calculators).

Course Learning Outcomes

- Store, edit, compile, and execute C++ programs
- Develop object-oriented C++ programs using methodologies and techniques of computer programming
- Apply computer programming techniques to the solution of technical engineering problems

Topics Covered in the Course

- Introduction, parts of a simple program
- Fundamental types, simple input/output
- Using classes
- Selection control structures
- Loop control structures
- Data files
- Functions
- One dimensional arrays, strings and vectors
- Two dimensional vector<T>
- Introduction to classes
- Classes continued, libraries, separate compilation
- Classes, operator overloading
- Inheritance
- Pointer variables, runtime allocation

Description of Assignments/Assessments

MyProgrammingLab Assignments – MyProgrammingLab is an online homework tool that will give the student practice course concepts. These exercises are generally short and fairly easy and are intended to familiarize the student with C++ instructions and concepts before using them in more extensive exercises. Grades from MyProgrammingLab will be transferred to Blackboard at the end of the semester.

An **access code** is required to use MyProgrammingLab. All students are required to use MyProgrammingLab in this course. An access code can be obtained in three ways:

- If you purchase the textbook through the TCC bookstore, it should come with an access code.
- You may be able to buy the access code separately through the bookstore
- You can purchase an access code online at www.myprogramminglab.com

MyProgrammingLab Access Code -

The Section Access Code (Course ID) for My Programming Lab is: **TIDE-32060-PYSR-35**
MyProgrammingLab Instructions for Students: <http://myprogramminglab.com>

Homework Assignments – Homework assignments consist of mainly short programming assignments along with some short answer exercises. Many of the problems will come from the textbook. Homework assignments are essential in preparing the student for tests and major programming projects. Homework assignments will be submitted during class on the assigned due dates. Homework will generally be accepted with a 10-point penalty up to 2 weeks late and a 20-point penalty if more than 2 weeks late. No assignments will be accepted after the last class meeting. Students are free to ask each other questions and work together to a limited extent on homework assignments, although the assignments should be primarily your own work. Sharing any part of the homework assignments electronically with other students is prohibited and is considered cheating. If it appears that assignments have been copied from other students, all students involved will receive a grade of 0. Repeated incidents of cheating could result in larger penalties, including receiving a grade of F for the course.

Programming Projects – Four major individual programming assignments based on comprehensive projects will be given during the semester. These assignments typically involve hundreds of lines of code and require a large time investment over a period of two or more weeks. Programming must be your own work. Working with other students on these projects is not allowed. Printed copies of the projects will be submitted during class and electronic copies will be submitted via Blackboard (more details later). Projects will generally be accepted with a 10-point penalty up to 2 weeks late and a 20-point penalty if more than 2 weeks late.

Lab Assignments – These are individual lab assignments based on short programs on recently covered topics. It is essential that you attend laboratory sessions as students will often receive assigned laboratory exercises that must be completed during the lab period. If necessary you can receive help from the instructor, and students are also encouraged to help each other to some extent. Books and notes may be used during the exercises as well. Grading is subjective and based on the observations of the instructor and on:

- 0 points – absent or did not perform the assignment
- 50 points – worked on the lab exercise, but could not get it to function properly
- 75 points – finished the lab exercise, but needed a lot of help from the instructor or other students
- 100 points – completed the lab exercise with little help from the instructor

Extra credit may be awarded for lab programs that utilize advanced features.

The lowest lab grade will be dropped.

Dates for lab assignments listed on the schedule may vary. Lab assignments might be given during any class period.

Tests – 3 tests will be given based on the text book, lecture notes, and assignments.

Grade Policy

Course grades will be computed based on the following percentages:

Tests (3@15% each)	45%
MyProgrammingLab Assignments	10%
Homework Assignments (lowest grade dropped)	14%
Lab Assignments	6%
Programming Projects	25%

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 (Tentative)

The following course schedule may change due to the progression of the course. The course schedule may change at the discretion of the instructor; however, students will be notified in writing (email) when any changes/additions are made to the schedule. (Note: **MPL – MyProgrammingLab**) **Lab assignment dates may vary without prior notice.**

Date		Lecture Topic	Reading	Assignments Due
Jan	M,8	Class cancelled (snow)		
	W,10	Introduction to Computers, Programs, & C++	Ch 1	
	M,15	Martin Luther King, Jr. Day (college closed)		
	W,17	Lab #1; Input, Variables, Assignment, Constants	Ch 2.1-7	MPL Warmup Ch 1 - MPL Lab #1?
	M,22	Data Types, Precedence, Augmented Assignment	Ch 2.8-11	
	W,24	Increment/Decrement, Type Conversion, Lab #2	Ch 2.12-13	Lab #2? Ch 2 - MPL
	M,29	bool Data Type, if, if else, nested if	Ch 3.2-5	Ch 2 - HW
	W,31	Logical Operators, switch, conditional expressions Pass out and discuss Project #1	Ch 3.10,13,14	Ch 3 - MPL
Feb	M,5	Math Functions, Char Data Type	Ch 4.2-3	
	W,7	String Type, Output Formatting; Lab #3	Ch 4.8, 4.10	Ch 3 - HW Lab #3? Ch 4 – MPL
	M,12	Loops, while, do-while	Ch 5.2-3	Ch 4 HW
	W,14	Loops, for, nested for	Ch 5.4-6	
	M,19	Test #1 (Chapters 1-4)		
	W,21	Forever Loops, Lab #4 (Submitting Projects via Bb)	Ch 5.7-9	Project #1 Ch. 5 –MPL
	M,26	Functions, Define, Call, Pass by Value Pass out and discuss Project #2	Ch 6.1-5	Ch 5 - HW
	W,28	Functions, Overloading, Prototypes, Default Value	Ch 6.6-9	Lab #5?
Mar		Spring Break – No classes March 4-11		
	M,12	Functions, variable scope, Pass by Reference	Ch 6.11-12	Ch 6 - MPL
	W,14	One-Dimensional Arrays, Arrays and Functions, Sorting	Ch 7.1-10	Ch 6 - HW
	M,19	Two-Dimensional Arrays, Multi-Dimensional Arrays, Lab #6?	Ch 8.1-3, 8.8	Ch 7 - MPL
	W,21	STL Vector Class	Ch 12.6	
	M,26	Test #2 (Chapters 5-6)		

	W,28	File Input Output, Write to File, Read from File, Formatting files for Excel. Discuss Project #3	Ch 13.1-2	Project #2 Ch 7 - HW
Apr	M,2	File Input Output, formatting, getline, testing streams	Ch 13.3-4, 13.6	Ch 8 - MPL Ch 12 – MPL Ch 8 & 12 - HW
	W,4	More examples using data files		
	M,9	C++ Strings Class	Ch. 10.1-2	Ch 13 - MPL
	W,11	C++ Strings Class. Strings and data files.	Ch. 10.1-2	Ch 13 - HW
	M,16	Introduction to Objects & Classes	Ch 9.1-2	Ch 10 - MPL
	W,18	Constructors; Discuss Project #4.	Ch 9.4	Ch 10 - HW Project #3
	M,23	Class Definition, Class Implementation files	Ch 9.6	
	W,25	Test #3 (Chapters 7-8, 10, 12-13)		Ch 9 - MPL
	M,30	Introduction to Pointers, Pointers and Arrays	Ch 11.1-8	Ch 9 - HW
May	W,2	Pointers and Dynamic Memory Allocation. Project #4 due. Last day to submit late assignments or projects.	Ch 11.9-10	Ch 11 - MPL Ch 11 HW Project #4

Blackboard and Course Communication

Students should check Blackboard and their VCCS student email accounts regularly (at least every 24 hours). The best way to reach the instructor is by email. The instructor will respond to email and voicemail with one business day, although often 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:

- The policy for late Homework and Programming Projects is stated in the Assignments/Assessments section above.
- No late assignments will be accepted after the last class meeting for the semester.
- No make-up tests are allowed. Missing a test will result in a grade of 0 for the test unless the student gets approval before the tests or notifies the instructor within 24 hours of the test in case of emergency.
- Students will not receive credit for lab assignments if they were absent when the group assignment was performed.

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. Inclement Weather/Emergent Hazardous Conditions

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 **411912** keyword: **TIDEWATER**. To cancel the service, text **TIDEWATER STOP** to **411911**.

Students should check the course Blackboard site and/or email in case of an announced closing or delayed opening for additional information specific to this course.

6. 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/> .

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.

1-24-18	Deadline to drop for tuition refund
3-23-18	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.

Student Outcomes Assessment Requirement

Work products submitted by students to fulfill course requirements may be used by the college to evaluate its academic programs and general education requirements.

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.

Educational Accessibility

Students who have documented, diagnosed disabilities, and who need special accommodations for tests, etc., are advised to see the Educational Accessibility 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 Educational Accessibility 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 Educational Accessibility Counselor/Provider or the Coordinator of Educational Accessibility Services: call 822-7752, visit Student Services/Development, or visit the Educational Accessibility 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 directed to evacuate the building or move to an internal assembly area location within the building. Evacuation routes are posted in each classroom. The map indicates the route to the nearest exit. Students should review the map to make sure that the exit routes for the building are clearly understood. The information regarding locations of the Emergency Assembly Areas and Internal Assembly Areas for all classrooms or spaces used on the various campuses is available at the following link: <http://www.tcc.edu/emergency/cemp.htm>. If you will require assistance during an evacuation, let your instructor know at the end of the first class.

Student Success Resources

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

Library

A library is located at each TCC campus and at the Visual Arts Center. These libraries are intended for research and study, and they contain materials in print and digital format to support the courses, curricula, and mission of the college. The research materials include books, newspapers, magazines, journals, DVDs, streaming media and an extensive collection of indexes, abstracts and full-text databases. Faculty members may place materials on reserve in the libraries for their students. Visit this site for more information: www.tcc.edu/library/

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 eLearning Resources for Students website for information about computer skills, technical support, library services for online students, and much more: <http://www.tcc.edu/eLearning/>

Important Websites

- College Website: www.tcc.edu
- Blackboard and Student E-mail: <https://tcc.my.vccs.edu/jsp/home.jsp>
- Student Handbook: <https://www.tcc.edu/resources/current-students/student-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>
- eLearning Resources: <http://www.tcc.edu/eLearning>
- For current financial aid information and assistance, visit <http://www.tcc.edu/students/finaid/> or <http://studentaid.ed.gov/>.