



Technical College of the Lowcountry
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EGT210
Engineering Graphics III

Course Description

This advanced course in engineering graphics science covers the production of technical working drawings.
4 Cr (4 lect. /pres., 0 labs, 0 other)

Course Focus

Upon completion of this course, the student will be able to create working drawings for mechanical components, weld systems, gears, belts drives, sprocket and chain, piping, structural, civil, HVAC, Electrical and Electronic schematics.

Text and References

Check with TCL bookstore before purchasing this textbook for the latest version.

Engineering Drawing and Design, Sixth Ed., David A. Madsen, David P. Madsen, and J. Lee Turpin, Cengage Learning, 2016., ISBN 978-1-305-65972-8

Course Goals

The following list of course goals will be addressed in the course. These goals are directly related to the performance objectives.

1. draw working drawing sets
2. prepare purchase part specification
3. identify numbering system
4. group assembly drawing information
5. explain engineering change process
6. prepare engineering changes
7. draw linkage diagrams
8. create cam displacement diagrams
9. design cam profile drawings
10. make detail gear drawings
11. establish gear train unknown data
12. calculate bearing information
13. design complete gear reducer
14. design belt drive systems
15. design chain drive system
16. draw sprocket chain design
17. identify welding process
18. draw welding representation
19. provide proper welding symbols
20. draw sketched weldments
21. draw industrial layout weldments
22. describe pipe kinds

23. describe pipe uses
24. define pipe connection methods
25. define pipe connection application
26. identify pipe fittings
27. identify pipe valves
28. draw single line piping drawings
29. draw double line piping drawings
30. construct isometric spool plans
31. calculate linear dimensioned piping drawing
32. Identify commercial construction methods
33. prepare complete set structural drawings
34. draw drawing revisions
35. draw commercial structures
36. calculate unknown bearings slope curve
37. draw roadway layout transit lines
38. reproduce field notes survey information
39. prepare site plans
40. discuss HVAC system purpose
41. prepare HVAC drawings
42. draw sheet metal patterns
43. calculate bend allowances
44. draw electrical diagrams
45. draw cable assembly
46. draw electrical power system
47. draw industrial electrical schematics
48. prepare sketches drawings
49. draw electronic block
50. create logic diagrams
51. prepare printed circuit board layout
52. complete marking drilling drawings
53. create electronic pictorial drawings
54. make drawings electronic sketches
55. describe design process
56. describe changing factors design process
57. explain creativity importance
58. describe problem solving steps
59. explain concurrent engineering
60. define engineering design model
61. explain design review process
62. describe design deliverables
63. explain team development concept
64. explain design process innovation

Student Contributions

Each student will spend approximately 8 hours per week preparing for class and completing assignments to turn in on time. This is a hybrid class with half of it being covered via online. Each week students will turn in projects as specified on Blackboard. See the details of each assignment on the Blackboard.

Student Attendance Policy: See student handbook within the TCL Catalog.

ADA Statement

The Technical College of the Lowcountry provides access, equal opportunity and reasonable accommodation in its services, programs, activities, education and employment for individuals with disabilities. To request disability accommodation, contact the counselor for students with disabilities at (843) 525-8228 during the first ten business days

of the academic term.

Academic Misconduct

There is no tolerance at TCL for academic dishonesty and misconduct. The College expects all students to conduct themselves with dignity and to maintain high standards of responsible citizenship.

It is the student's responsibility to address any questions regarding what might constitute academic misconduct to the course instructor for further clarification.

The College adheres to the Student Code for the South Carolina Technical College System. Copies of the Student Code and Grievance Procedure are provided in the *TCL Student Handbook*, the Division Office, and the Learning Resources Center.

Attendance

The College's statement of policy indicates that students must attend ninety percent of total class hours or they will be in violation of the attendance policy.

- Students not physically attending class during the first ten calendar days from the start of the semester must be dropped from the class for NOT ATTENDING. Reinstatement requires the signature of the division dean.
- Students taking an online/internet class must sign in **and** communicate with the instructor within the first ten calendar days from the start of the semester to indicate attendance in the class. Students not attending class during the first ten calendar days from the start of the semester must be dropped from the class for NOT ATTENDING. Reinstatement requires the signature of the division dean.
- In the event it becomes necessary for a student to withdraw from the course **OR if a student stops attending class, it is the student's responsibility to initiate and complete the necessary paperwork.** Withdrawing from class may have consequences associated with financial aid and time to completion.
- When a student exceeds the allowed absences, the student is in violation of the attendance policy. The instructor **MUST** withdraw the student with a grade of "W", "WP", or "WF" depending on the date the student exceeded the allowed absences and the student's progress up to the last date of attendance
Or
Under extenuating circumstances and at the discretion of the faculty member teaching the class, allow the student to continue in the class and make-up the work. This exception must be documented at the time the allowed absences are exceeded.
- Absences are counted from the first day of class. There are no "excused" absences. All absences are counted, regardless of the reason for the absence.
- A student must take the final exam or be excused from the final exam in order to earn a non-withdrawal grade.
- A copy of TCL's STATEMENT OF POLICY NUMBER: 3-1-307 CLASS ATTENDANCE (WITHDRAWAL) is on file in the Division Office and in the Learning Resources Center.

Hazardous Weather

In case weather conditions are so severe that operation of the College may clearly pose a hardship on students and staff traveling to the College, notification of closing will be made through the following radio and television stations: WYKZ 98.7, WGCO 98.3, WGZO 103.1, WFXH 106.1, WWVV 106.9, WLOW 107.9, WGZR 104.9, WFXH 1130 AM, WLVA 101.1, WSOK 1230 AM, WAEV 97.3, WTOC TV, WTGS TV, WJWJ TV, and WSAV TV. Students, faculty and staff are highly encouraged to opt in to the Emergency Text Message Alert System. www.tcl.edu/textalert.asp

Emergency Text Message Alert

Students, faculty and staff are highly encouraged to opt in to the Emergency Text Message Alert System. Participants receive immediate notification of emergency events and weather cancellations via text messaging on their cell phones. Participants can also opt in to receive non-emergency news and announcements. Go to www.tcl.edu. On the homepage, click on "emergency Text Alert at TCL" and fill out the form or go to www.tcl.edu/textalert.asp

Course Evaluation:

The following is the grading scale: Mid-term 25%, Class Assignments 50%, and Final Exam 25%.

The grading scale is as follows:

| | | | | |
|------------|---|----------|---|---|
| 90 - 100 = | A | 60 - 69 | = | D |
| 80 - 89 = | B | Below 60 | = | F |
| 70 - 79 = | C | | | |

Course Schedule

Course content will be taught in the order that the content goals are presented in the syllabus

Syllabus Safety Addendum

Purpose

The purpose of this safety addendum is to provide each student with safety guidelines during an incident, emergency, or disaster at TCL. In addition, it provides students guidelines for lockdown procedures, evacuation procedures, and active shooter.

Definition

An incident is any event, potential or actual, that may impact normal operations but has no immediate health or life threatening consideration or serious effect on the overall functional capacity of the College. An event of this nature should be reported to the Office of the Vice President for Administrative Services. Also notify the off-site campus administrator if applicable.

An emergency is any incident, potential or actual, which may endanger life or health or which affects an entire building or buildings, and will disrupt the overall operations of the College. Outside emergency services will probably be required, as well as major efforts from campus support services. Major policy considerations and decisions will usually be required from the college administration during times of crises. An emergency should be reported immediately by directly using **911** if life or health/injury considerations exist and then to the Office of the President or Vice President for Administrative Services as quickly as possible. Also notify the off-site campus administrator if applicable.

A disaster is any event or occurrence that has taken place and has seriously impaired or halted the operations of the College. In some cases, mass personnel casualties and severe property damage may be sustained. A coordinated effort of all campus-wide resources is required to effectively control the situation. Outside emergency services will be essential. In all cases of disaster, an Emergency Control Center will be activated, and the appropriate support and operational plans will be executed. The disaster should be immediately reported, first by calling **911** and then to the Office of the President or Vice President for Administrative Services. Also notify the off-site campus administrator if applicable.

Types of Emergencies

- Hurricane
- Tornado
- Fire
- Biochemical or Radiation Spill
- Explosion/Bomb
- Downed Aircraft (crash which directly impacts campus operations)
- Utility Failures
- Violent or criminal behavior
- Psychological Crisis

Procedures

Active Shooter

Run/hide/fight (<http://www.fbi.gov/about-us/cirg/active-shooter-and-mass-casualty-incidents/run-hide-fight-video>)

Building Evacuation

1. Building evacuations occur when an alarm sounds and/or upon notification by Security or the Emergency Director.
2. When the building evacuation alarm is activated during an emergency, individuals should exit according to the building evacuation plan and alert others to do the same.
3. Once outside, individuals should proceed to a clear area that is at least 500 feet away from the affected building. Streets, fire lanes, hydrant areas and walkways should be kept clear for emergency vehicles and personnel.
4. Individuals should not return to an evacuated building unless told to do so by Security or the Emergency Director.
5. Individuals should assist persons with disabilities in exiting the building. Elevators are reserved for disabled persons

Campus Evacuation

1. A uniformed Security Guard, the Emergency Director, or an Emergency Resource Team member will announce evacuation of all or part of the campus grounds.
2. All persons (students and staff) are to immediately vacate the campus, or in the case of a partial evacuation relocate to another part of the campus grounds as directed.

Lockdown

1. Clear the halls
2. Report to the nearest classroom/office
3. Assist those needing special assistance
4. Ensure classroom/office doors are closed and locked
5. Turn off lights
6. Stay away from doors and windows (out of the line of sight)
7. BE QUIET and follow instructor's directions
8. Silence cell phones

Wait for the "All Clear" before leaving

Developed/Revised: June 2017