

Technical College of the Lowcountry
921 Ribaut Rd.
Beaufort, SC 29901

Hadi Hamid
Industrial Technology Division
Building 16, Room 101
Phone: 843.525.8291
hhamid@tcl.edu



**IMT104
SCHEMATICS**

COURSE DESCRIPTION

This course covers the use of hand and power tools, measuring, and prints associated with an assembly project.

2 Credits (2 lect/pres, 0 lab, 0 other)

COURSE FOCUS

Upon completion of the course a student will be able to:

1. Understand Schematic symbols
2. Figure out meaning of a symbol on an schematic
3. Learn electrical symbols
4. Understand electrical diagrams
5. Recognize piping symbols
6. Read piping diagrams
7. Identify hydraulic and pneumatic symbols
8. Describe hydraulic and pneumatic diagrams
9. Recognize symbols used in air conditioning and refrigeration systems
10. Understand welding and joining symbols

TEXT AND REFERENCES

102 - Reading Schematics and Symbols. Published By TPC Training Systems, 2009

COURSE GOALS

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

1. Define Schematic
2. List characteristics of schematics
3. Identify schematic among other drawings and diagrams

4. Indicate flow on an schematic
5. Identify types of lines
6. Differentiate between electrical, fluid-power, and piping schematics
7. Understand use of legends and tables
8. Describe troubleshooting approach using schematics
9. Identify symbols in electrical schematics
10. Differentiate between a fuse and a circuit breaker
11. Explain tracing of electrical circuits
12. Explain difference in series and parallel circuits
13. Explain the purpose of wiring diagram
14. Reading electrical schematics
15. Identify symbols on industrial schematics
16. Explain valve in piping system
17. Name ways of joining pipe
18. Identify symbols for fittings
19. Explain functions of fittings
20. Understand difference between check and cock valves
21. Determine pipe sizes from diagram
22. Describe fluid-power systems
23. List components of hydraulic system
24. Recognize components of pneumatic systems
25. Describe composite symbol
26. Differentiate between closed and open hydraulic or pneumatic systems
27. Identify actuators and cylinders in hydraulic and pneumatic systems
28. Explain symbols of HVAC components
29. Explain operation of HVAC system
30. Identify welding symbols

STUDENT CONTRIBUTION

Each student will spend at least 3 hours per week preparing for class. Attendance is critical in this class.

COURSE EVALUATION

Your final grade will be an average of midterm 25%, assignments and class projects 50%, and final/project 25%.

The grading scale is as follows:

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

COURSE SCHEDULE

This is an online class taught via Blackboard. Course content will be taught in the order that the content goals are presented in the syllabus.

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.
- 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, WWVW 106.9, WLOW 107.9, WGZR 104.9, WFXH 1130 AM, WLVH 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 cancelations 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 TextAlert at TCL” and fill out the form or go to www.tcl.edu/textalert.asp

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
9. Wait for the "All Clear" before leaving