



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

John A. Chemsak
Industrial Technology Division
Building 15, Room 126
843.525.8289
JChemsak@tcl.edu

ACR 131 COMMERCIAL REFRIGERATION

Course Description

This course is a study of commercial refrigeration equipment. Includes advanced theory, servicing and troubleshooting of refrigeration equipment.

4 Cr (4 lect/pres, 0 lab, 0 other)

Course Focus

This course will start with theory and then move on to the application stage. The course outline will be chapters 25, 26, 27 and 29

Text and References

Refrigeration and Air Conditioning Technology 7th. Edition, Whitman, Tomczyk, Johnson & Silberstein.

Refrigeration and Air Conditioning Technology Lab Manual 7th. Edition, Whitman, Tomczyk, Johnson & Silberstein.

Publisher: Delmar Cengage Learning, Clifton Park, N.Y.

Book:

Published: 2012

ISBN: 1111644470

Lab Manual:

Published: 2012

ISBN: 111164489

Course Goals

The following list of course goals will be addressed in the course. These goals are directly related to the performance objectives. (*designates a CRUCIAL goal)

1. discuss environmental safety
2. discuss work habits
3. demonstrate safety equipment
4. communicate safe handling refrigerants
5. show lockout/tagout procedures
6. show service valves
7. test a GFCI
8. use safety equipment
9. wear appropriate clothing
10. adjust epr valve

11. balance head pressure control
12. check a txv
13. check automatic expansion valve
14. comprehend capacity controls
15. define electronic expansion valve
16. categorize vibration eliminators
17. analyze defrost cycle
18. identify finned evaporators
19. understand control transducers
20. understand electronic thermistors
21. wash refrigerant coils
22. analyze system pressures
23. *balance refrigerant charge
24. describe heat transfer
25. establish proper air flow
26. establish proper water flow
27. explain importance of superheat/subcooling
28. explain the effects of subcooling
29. explain the effects of superheating
30. measure refrigerant pressure
31. measure box temperature
32. classify hermetic compressors
33. breakdown semi hermetic compressor
34. compute compressor ratio
35. identify electrical loads
36. interpret wiring schematics
37. verify ac current
38. perform continuity test
39. measure resistance with ohmmeter
40. read ac voltage
41. wire electrical circuits
42. practice using digital thermometers
43. record condenser performance
44. perform pumpdown procedure
45. perform nitrogen pressure test
46. evacuate refrigerant systems
47. search refrigerant leak
48. use vacuum gauge
49. weigh refrigerant charge
50. test run/start capacitors
51. troubleshoot cscr motors
52. troubleshoot csir motors
53. *test ecm motors
54. service three phase motors
55. replace fan motor
56. install motor starting components
57. service medium temperature cooler
58. verify freezer operation

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, WWVV 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 Text Alert at TCL” and fill out the form or go to www.tcl.edu/textalert.asp