

Oklahoma State University Institute of Technology
Face-to-Face Common Syllabus
Spring 2018

ACR 2406 Commercial Refrigeration Applications

Applies to the selection, calibration, servicing, installation, application and operation of commercial refrigeration systems and display cases. Also, included: adjustment of temperature, pressure, defrost controls, load calculations, pipe sizing and bidding procedures. Diagnosis and troubleshooting electrical and pressure operated devices are included.

Course Purpose:

The course will introduce the students to the equipment and concepts that would be found in the commercial refrigeration field.

Type of Course: Theory/Lab

Credit Hours: 6; Total clock hours of theory per semester: 60;

Total clock hours of lab per semester: 90;

Class Length: Full Semester

Class Days and Times: ACR 2406-01: 7:30-9:25 MWF Lab, 10:00-11:55 T&R Theory
ACR 2406-002:9:30-11:25 MWF Lab, 10:00-11:55 T&R Theory
ACR 2406-003: 12:30-2:25 MWF Lab, 10:00-11:55 T&R Theory
ACR 2406-004: 2:30-3:55 M-R Lab, 10:00-11:55 T&R Theory

Prerequisites: ACR 1126, ACR 1343, ACR 1344

Instructor Name: Matthew Davis

Instructor Phone: (918) 293-5318

Office: Building #315, Office #114A

Instructor Email: matthew.davis@okstate.edu

Contact: My preferred method of contact is email. Please allow 24-48 hours to return your correspondence during the normal work week.

Instructor's Office Hours: Tuesday or Thursday; 7:30-9:30 or 1:00-2:00

School Name: Construction Technologies

School Main Phone: 918-293-5304

REQUIRED TEXT, REFERENCES, AND MATERIALS

Texts: Commercial Refrigeration for Air Conditioning Technicians Third

Edition, by Dick Wirz, Cengage, ISBN #978-1-305-50643-5, \$250

References:

Commercial Refrigeration for Air Conditioning Technicians Third Edition, by Dick Wirz, Cengage, Digital version available at book store.

Materials:

Notebook, paper, writing utensils, highlighter, project supplies, tools, usb memory drive, template, colored pencils or different colored highlighters etc. \$25

Uniform/Tools: Proper work clothes, toolbox and meter (you should already have)

Estimated Cost for Materials:

\$250 hardcover/\$125 digital textbook

Estimated Cost for Uniform/Tools:

\$800 (You should already have)

Optional Resources: Sporlan Website, www.sporlanonline.com

Upon completion of the course, students should:

Course Objectives	Assessment of Objectives
* Demonstrating the ability to troubleshoot commercial electrical systems	70% on ACR 2406 Lab Manual
* Perform Commercial defrost control comparisons	70% on ACR 2406 Lab Manual
* Diagnose and evaluate EPR & CPR pressure controls	70% on ACR 2406 Lab Manual
* Perform system analysis on Commercial Rack system	70% on ACR 2406 Lab Manual
* Produce Rack system piping diagram	70% on ACR 2406 Lab Manual
* Adjust Temperature, pressure and defrost controls to industry set points	70% on ACR 2406 Lab Manual
* Produce wiring diagrams for each lab job completed	70% on ACR 2406 Lab Manual
* Produce Piping diagrams for each lab job completed	70% on ACR 2406 Lab Manual
* Complete analysis on Cascade system	70% on ACR 2406 Lab Manual

Aspects of the course objective assessments may be used in the university's assessment of student learning. If applicable, an asterisk (*) above indicates this assignment is used in the university assessment program.

COURSE ACTIVITIES

In this course students will:

- Analyze...a commercial refrigeration system
- Plan...how to repair or service system
- Apply...knowledge of system
- Demonstrate...ability to work on system
- Prepare...diagrams and lab assignments
- Utilize...time wisely
- Follow... ACR Department Dress code
- Take examinations.
- Complete reading assignments.
- May be required to do quizzes.

EVALUATION - GRADES WILL BE BASED ON THE QUALITY AND COMPLETION OF THESE TASKS:

Quizzes, Homework Projects & Exams	
	40%
Digital notebook	10%
Lab Jobs accomplished	50%
Total	100%

OSUIT Grading Scale
A = 90%-100%
B = 80%-89%
C = 70%-79%
D = 60%-69%
F = 59% & below

*The student's grade for this assignment will be used in the university's assessment of student learning. A 70% competency or higher receives a Pass rating. This Pass/Fail rating is independent of the student's course grade.

Daily and/or weekly quizzes, small weekly assignments and similar type projects: Normal return time to student by next class meeting or no later than one (1) week.

Extensive assignments, large lab projects, extensive quizzes, exams and similar type projects: Normal return time to students in one (1) to two (2) weeks.

RECOMMENDED STUDENT COMPETENCIES/SKILLS

The student should be able to interpret and reproduce electrical diagrams. The student should be able to use, Brightspace/D2L, Word, and PowerPoint.

AUTHORIZED TOOLS

Any tools that Mr. Davis authorizes to use to finish assignments, tests, or lab jobs.

LATE WORK

- Homework will be due on the date the instructor assigns.
- Late homework will be assessed a 10% off late charge per day.
- Tests will be taken on date they are given. Make up tests will have an assessed a 10% off late charge per day.
- Lab jobs will be accomplished in the manner which specified. This could also include any additional work the instructor asks the student to do in lab. Lab job grade will depend on overall number of lab job points completed by student(s).
- Lab point scale will be posted in lab; room #103
- A notebook will be needed to keep lab jobs and handouts in.

TESTING

Testing will be conducted in a quiet setting. Any questions need to address Mr. Davis not your fellow students(s). Utilization of Brightspace/D2L possibly on some of the tests.

OTHER LAB AND CLASSROOM POLICIES

Follow proper safety procedures in the Lab and classroom environment. Follow the ACR department dress code. The use of electronic devices for class room purposes is allowed. The Instructor has the right to check to see that they are being used as allowed.

SYLLABUS ATTACHMENT

View the Syllabus Attachment, which contains other important information, by visiting http://osuit.edu/center/student_syllabus_information

Course Schedule			
Course Outline Schedule	Topic	Assignment	Due Date
Week 1 1-4-18 to 1-5-18	Syllabus & lab orientation Chapter 1, Pg.1, PowerPoint	Chapter 1 Review Questions 1-18 , pages 8 & 9	1-8-18
Week 2 1-8-18 to 1-12-18	Chapter 2 Evaporators Pages 10-30 PowerPoint	Chapter 2 review Questions 1-21, pages 29 & 30 Test on Chapter 2 Work in lab on jobs	Homework and Test 1-12-18 004/1-11-18
Week 3 1-15-18 to 1-19-18	Chapter 3 Condensers Pages 31-49 PowerPoint *1-15-18/MLK Day	Chapter 3 Review Questions 1-37, pages 47-19 Test on Chapter 3 Work in lab on jobs	Homework and Test 1-19-18 004/1-18-18
Week 4 1-22-18 to 1-26-18	Chapter 4 Compressors Pages 50-81 PowerPoint	Chapter 4 Review Questions 1-39, Pages 79-81 Test on Chapter 4 Work in lab on jobs	Homework and Test 1-26-18 004/1-25-18
Week 5 1-29-18 to 2-2-18	Chapter 5 Metering Devices, Pages 82-107 PowerPoint	Chapter 5 Review Questions 1-41, pages 105-107 Test on Chapter 5 Work in lab on jobs	Homework and Test 2-2-18 004/2-1-18
Week 6 2-5-18 to 2-9-18	Chapter 6 Controls and Accessories, Pages 108-140 PowerPoint	Chapter 6 Review Questions 1-50, pages 137-140 Test on Chapter 6 Work in lab on jobs	Homework and Test 2-9-18 004/2-8-18
Week 7 2-12-18 to 2-16-18	Chapter 7 Refrigeration System Troubleshooting Pages 141-180 PowerPoint	Chapter 7 Review Questions 1-11, pages 174-180, Test on Chapter 7 Work in lab on jobs	Homework and Test 2-16-18 004/2-15-18

Week 8 2-19-18 to 2-23-18	Chapter 8 Compressor Motor and Controls Pages 181-200 PowerPoint	Chapter 8 Review Questions 1-50 , pages 197-200 Test on Chapter 8 Work in lab on jobs	Homework and Test 2-23-18 004/2-22-18
Week 9 2-26-18 to 3-2-18	Chapter 9 Retrofitting, Recovery, Evacuation and Charging Pages 201-223 PowerPoint	Chapter 9 Review Questions 1-30, pages 221-223 Test on Chapter 9 Work in lab on jobs	Homework and Test 3-2-18 004/3-1-18
Weeks 10&11 3-5-18 to 3-16-18	Chapter 10 Supermarket Refrigeration pages 224-314 PowerPoint	Chapter 10 Review Questions 1-39, pages 312- 314 Test Chapter 10 Work in lab on jobs	Homework and Test 2-16-18 004/2-15-18
Week of 3-19-23-2018	Spring Break		
Week 12 3-26-18 to 3-30-18	Chapter 11 Walk-in Refrigerators and Freezers, pages 318-339 PowerPoint	Chapter 11 Review Questions 1-27, pages 338- 339. Test on Chapter 10 Work in lab on jobs	Homework and Test 3-30-18 004/3-29-18
Week 13 4-2-18 to 4-6-18	Chapter 12 Ice Machines pages 340-351	Chapter 12 Review Questions 1-22, pages 350- 351. Test on Chapter 12 Work in lab on jobs	Homework and Test 4-6-18 004/4-5-18
Week 14 4-9-18 to 4-13-18	Chapter 13 Product Temperatures for Preservation and Health pages 352-358	Chapter 13 Review Questions 1-15, page 358 Test on Chapter 13 Work in lab on jobs	Homework and Test 4-13-18 004/4-12-18
Week 15 4-16-18 to 4-20-18	Chapter 14 Refrigeration Business Tips Pages 359-368	Chapter 14 Review Questions 1-18, page 368 Test on Chapter 14 Work in lab on jobs	Homework and Test 4-19-18

Schedule is subject to change at instructor discretion.