COLLEGE OF THE DESERT

Course Code ACR-378E

Course Outline of Record

1. Course Code: ACR-378E
2. a. Long Course Title: Study of Air Properties and Human Comfort
   b. Short Course Title: STUD AIR & HUMN CMFT
3. a. Catalog Course Description:
   The course is designed to teach students how to understand air properties and how they affect human comfort. Students will learn how to work with and understand the process of plotting a psychrometric diagram and use it in system charging and economizer setup.
   b. Class Schedule Course Description:
   This course is the introduction to air property basics.
   c. Semester Cycle (*if applicable*): *N/A*
   d. Name of Approved Program(s):
   - NEW CERTIFICATE IN PROGRESS Certificate of Completion
4. Total Units: 0 Total Semester Hrs: 18.00
   Lecture Units: 0 Semester Lecture Hrs: 9.00
   Lab Units: 0 Semester Lab Hrs: 9.00
   Class Size Maximum: 25 Allow Audit: No
   Repeatability Noncredit - Unlimited
   Justification 0
5. Prerequisite or Corequisite Courses or Advisories:
   Course with requisite(s) and/or advisory is required to complete Content Review Matrix (CCForm1-A)
   Prerequisite: ACR 378A
6. Textbooks, Required Reading or Software: *(List in APA or MLA format.)*
   a. Randy F. Petit, Sr. Turner L. Collins, Earl Delatte & Erik Rasmussen (2012). *System Performance* (2/e). Mount Prospect, IL ESCO PRESS. ISBN: 1-930044-31-3
   College Level: Yes
   Flesch-Kincaid reading level: 12.3
7. Entrance Skills: *Before entering the course students must be able:*
   a.
   Describe ozone depletion and global warming
   - ACR 378A - Describe ozone depletion and global warming

   b.
   Discuss the effects of CFC's on the ozone layer
   - ACR 378A - Discuss the effects of CFC's on the ozone layer

8. Course Content and Scope:

Lecture:

1. Comfort and the four things that define it.
2. Eight properties of air
3. Ploting a psychrometrics diagram

Lab: *(if the "Lab Hours" is greater than zero this is required)*

Plotting Psychrometric Diagram using conditions based on running air conditioning or refrigeration system,.

9. Course Student Learning Outcomes:
   1.
   Demonstrate the ability to plot any two basic on the psychrometric chart and evaluate the data.

   2.
   Demonstrate an understanding of the 8 processes of air conditioning and how to plot each.

10. Course Objectives: *Upon completion of this course, students will be able to:*
    a. Define Psychrometric Fundamentals
    b. discuss the thermodynamics of air and water vapor
    c. discuss air volume and density.
    d. discuss the comfort zone and the effect different temperatures and relative humidity has on human comfort.

11. Methods of Instruction: *(Integration: Elements should validate parallel course outline elements)*
    a. Activity
    b. Collaborative/Team
    c. Demonstration, Repetition/Practice
    d. Discussion
    e. Participation
    f. Technology-based instruction

12. Assignments: *(List samples of specific activities/assignments students are expected to complete both in and outside of class.)*
    In Class Hours: 18.00
    Outside Class Hours: 18.00
    a. In-class Assignments
       - Reading assignments
       - Lab projects
         - Learn the 8 processes of air conditining.
         - plot any 2 of the 8 points on a Psychrometric Diagram
         - Define the other 6 processes related to the points plotted.

    b. Out-of-class Assignments
       - Complete assignments by plotting varius points on a Psychrometric Diagram
       - Read text and answer review questions.

13. Methods of Evaluating Student Progress: *The student will demonstrate proficiency by:*
    - True/false/multiple choice examinations
    - Student participation/contribution
    - Student preparation
    - Organizational/timelines assessment

14. Methods of Evaluating: Additional Assessment Information:

15. Need/Purpose/Rationale -- *All courses must meet one or more CCC missions.*
    PO - Career and Technical Education
    Fulfill the requirements for an entry- level position in their field.

Display the skills and aptitude necessary to pass certification exams in their field.

IO - Personal and Professional Development

Self-evaluate knowledge, skills, and abilities.

Develop realistic goals.

16. Comparable Transfer Course

University System	Campus	Course Number	Course Title	Catalog Year

17. Special Materials and/or Equipment Required of Students:

18. Materials Fees: ☐ Required Material?

Material or Item	Cost Per Unit	Total Cost

19. Provide Reasons for the Substantial Modifications or New Course:

The CEC has mandated that all commercial HVAC Package units 5 ton's and larger must be equiped with economizers. This course is necessary for the introduction to the proper understanding of air properties necessary for setting up the controls on an economizer. This course is a fundamentals course that focuses on human comfort and psychrometrics.

20. a. Cross-Listed Course *(Enter Course Code)*: *N/A*
    b. Replacement Course *(Enter original Course Code)*: *N/A*

21. Grading Method *(choose one)*: Pass/No Pass Only

22. MIS Course Data Elements
    a. Course Control Number [CB00]: CCC000580601
    b. T.O.P. Code [CB03]: 94600.00 - Environmental Control Tec
    c. Credit Status [CB04]: N - Noncredit
    d. Course Transfer Status [CB05]: C = Non-Transferable
    e. Basic Skills Status [CB08]: 2N = Not basic skills course
    f. Vocational Status [CB09]: Clearly Occupational
    g. Course Classification [CB11]: J - Workforce Preparation Enhanced Funding
    h. Special Class Status [CB13]: N - Not Special
    i. Course CAN Code [CB14]: *N/A*
    j. Course Prior to College Level [CB21]: Y = Not Applicable
    k. Course Noncredit Category [CB22]: J - Workforce Preparation
    l. Funding Agency Category [CB23]: Y = Not Applicable
    m. Program Status [CB24]: 1 = Program Applicable

    Name of Approved Program *(if program-applicable)*: NEW CERTIFICATE IN PROGRESS

    Attach listings of Degree and/or Certificate Programs showing this course as a required or a restricted elective.)

23. Enrollment - Estimate Enrollment
    First Year: 20
    Third Year: 25

24. Resources - Faculty - Discipline and Other Qualifications:
    a. Sufficient Faculty Resources: Yes
    b. If No, list number of FTE needed to offer this course: *N/A*

25. Additional Equipment and/or Supplies Needed and Source of Funding.

N/A

26. Additional Construction or Modification of Existing Classroom Space Needed. *(Explain:)*

N/A

27. FOR NEW OR SUBSTANTIALLY MODIFIED COURSES
    Library and/or Learning Resources Present in the Collection are Sufficient to Meet the Need of the Students Enrolled in the Course: Yes
28. Originator George Brown Origination Date 10/07/16