

RARITAN VALLEY COMMUNITY COLLEGE ACADEMIC COURSE OUTLINE

CEMT 205 – Building Commissioning and Retro Commissioning

I. Basic Course Information

- A. Course Number and Title: CEMT 205 – Building Commissioning and Retro Commissioning
- B. New or Modified: Modified
- C. Date of Proposal: Fall 2017
- D. Effective Term: Fall 2018
- E. Sponsoring Departments: Business and Public Service Department
- F. Semester Credit Hours: 3
- G. Weekly Contact Hours: 3 Lecture: 3
Laboratory: 0
Out of class work per week: 6 hours
- H. Prerequisites/Corequisites: ECTC 102 – Air Conditioning Systems Design
ECTC 202 – Heating Systems Design
CEMT 201 – Energy Management & Auditing I
- I. Laboratory Fees: NA
- J. Name and Telephone Number or e-mail Address of Department Chair and Divisional Dean at time of approval: Anne Marie Anderson, AnneMarie.Anderson@raritanval.edu
Terence Lynn, Terence.Lynn@raritanval.edu

II. Catalog Description

Prerequisites: ECTC 102 – Air Conditioning Systems Design; ECTC 202 – Heating Systems Design; CEMT 201 – Energy Management & Auditing I.

This is an advanced course for students in the Commercial Energy Management Technology field. Building Commissioning and Retro Commissioning are means of ensuring that a building owner gets the quality of facility that is expected. It is a process that involves numerous activities and spans the full life of the building delivery process. “The Commissioning Process is a quality-oriented set of procedures for verifying and documenting that the performance of facilities, systems and assemblies meets defined objectives and criteria...” [ASHRAE Guideline 1.1-2007]

This accelerated course that takes students through the Commissioning (Cx) Process. Topics include the benefits of Cx and why it is important. The basics of the Cx Process will be discussed and sample documents developed by course participants. Upon completion of the course, participants will have an understanding of the Cx certifications. To be successful in this course, a prior knowledge of building mechanical systems and a good computer skillset are required (word processing, presentation software, and spreadsheets).

III. Statement of Course Need

- A. Technicians in the Commercial Energy Management Technology field have very important roles to play in society. This course is vital for all students wanting to become an energy manager, facility manager, operations and/or maintenance manager, building commissioning agent, maintenance supervisor, superintendent of building and grounds, building/plant manager, maintenance manager, maintenance director, or operations manager.
- B. No lab component
- C. This course generally transfers as a free elective, but may transfer as a program elective to Pennsylvania College of Technology for those students graduating with the AAS in Commercial Energy Management who are interested in pursuing B.S. degree at that institution.

IV. Place of Course in College Curriculum

- A. Free elective
- B. This course meets a program requirement for the A.A.S. Commercial Energy Management Technology Program, and the Commercial Energy Management Technology Certificate.
- C. Course transferability: a) for New Jersey schools, go to the NJ Transfer website, www.njtransfer.org; b) For all other colleges and universities go to their individual sites.

V. Outline of Course Content

- A. What is Commissioning
- B. The Commissioning Process
- C. The Commissioning Team
- D. Commissioning Coordination
- E. Verification and Testing
- F. Documentation
- G. Training Owner's Personnel
- H. Special Commissioning Contexts

VI. General Education and Course Learning Outcomes

A. General Education Learning Outcomes

At the completion of the course, students will be able to:

1. Discuss the Commissioning Process, list the four phases, list its types, and list its benefits. (GE - NJ 1).
2. Implement/perform the Commissioning Process on a building system. (GE - NJ 4).

B. Course Learning Outcomes

At the completion of this course, students will be able to:

1. Explain the owner project requirements (OPR).
2. Explain the basis of design (BOD).
3. Design and perform a simple functional performance test.
4. List and describe the four types of commissioning.

C. Assessment Instruments

The following assessment methods may be used:

1. Projects.
2. Exams.
3. Demonstrations.

VII. Grade Determinants

- A. Exams.
- B. Class participation.
- C. Projects.

Modes of Teaching and Learning used in the Course:

- A. Lecture/discussion.
- B. Small-group work.
- C.
- D. Student collaboration.

VIII. Text and Materials

Suggested Texts: Principles of Building Commissioning, Latest Edition, by Walter Grondzik
ISBN 978-0-470-11297-7
Introduction to HVAC Systems – a Trane Air Conditioning Clinic
TRG-TRC018-EN

Please note: The course outline is intended only as a guide to course content and resources. Do not purchase textbooks based on this outline. The RVCC Bookstore is the sole resource for the most up-to-date information about textbooks.

IX. Resources

- A. Reference books/manuals

- B. Safety equipment
- C. Testers used for HVAC troubleshooting
- D. Campus facilities used as a living lab
- E. Instructional videos/DVDs
- F. Various building commissioning tools and testers available in the lab

X. Honors Option

Not applicable