COLLEGE OF THE DESERT

Course Code FIRE-004

Course Outline of Record

1. Course Code: FIRE-004
2. a. Long Course Title: Building Construction For Fire Protection
   b. Short Course Title: BLDG CONSTR/FIREPROT
3. a. Catalog Course Description:
   This course provides the components of building construction related to firefighter and life safety. The elements of construction and design of structures are shown to be key factors when inspecting buildings, preplanning fire operations, and operating at emergencies. This course is designated as Fire 4 by the California State Board of Fire Services and the State Fire Marshal as part of the core curriculum. This course meets the Fire and Emergency Service Higher Education (FESHE) model curriculum for an Associate Degree as recognized by the National Fire Academy.
   (C-ID FIRE 130X)
   b. Class Schedule Course Description:
   This course provides the components of building construction related to firefighter and life safety. The elements of construction and design of structures are shown to be key factors when inspecting buildings, preplanning fire operations, and operating at emergencies.
   c. Semester Cycle (*if applicable*): n/a
   d. Name of Approved Program(s):
      - FIRE TECHNOLOGY AS Degree and Transfer Preparation
      - FIRE TECHNOLOGY Certificate of Achievement
      - FIRE TECHNOLOGY AS Degree for Employment Preparation
4. Total Units: 3.00 Total Semester Hrs: 54.00
   Lecture Units: 3 Semester Lecture Hrs: 54.00
   Lab Units: 0 Semester Lab Hrs: 0
   Class Size Maximum: 30 Allow Audit: No
   Repeatability No Repeats Allowed
   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)
   Advisory: ENG 061
6. Textbooks, Required Reading or Software: *(List in APA or MLA format.)*
   a. Corbett, G., Brannigan F. (2015). *Brannigan's Building Construction for the Fire Service* (5th/e). Jones & Bartlett Learning. ISBN: 9781449688943
   College Level: Yes
   Flesch-Kincaid reading level: *N/A*
7. Entrance Skills: *Before entering the course students must be able:*
   Advisory Skills:

   a.
   Write organized summaries and responses to readings.

   - ENG 061 - Use theses to organize paragraphs into coherent analyses.
   - ENG 061 - Demonstrate the ability to think critically and express ideas using various patterns of development.
   - ENG 061 - Recognize features of style such as purpose, audience and tone integrate these elements into academic and professional writing.

- ENG 061 - Demonstrate the ability to use research skills including library resources such as books, periodicals, electronic databases and online resources such as the internet.
- ENG 061 - Demonstrate the ability to read and respond in writing beyond the literal interpretation of the text.
- ENG 061 - Utilize a handbook to properly cite and document source material in MLA format.

8. Course Content and Scope:

Lecture:

1. Introduction
    1. History of Building Construction
    2. Governmental Functions, Building and Fire Codes
    3. Fire Risks and Fire Protection
    4. Fire Loss Management and Life Safety
    5. Pre-fire Planning and Fire Suppression Strategies
2. Principles of Construction
    1. Terminology and Definitions
    2. Building and Occupancy Classifications
    3. Characteristics of Building Materials
    4. Types and Characteristics of Fire Loads
    5. Effects of Energy Conservation
3. Building Construction
    1. Structural Members
        1. Definitions, Descriptions and Carrying Capacities
        2. Effects of Loads
    2. Structural Design and Construction Methods
    3. System Failures
4. Principles of Fire Resistance
    1. Standards of Construction
    2. Fire Intensity and Duration
    3. Theory versus Reality
5. Fire Behavior versus Building Construction
    1. Flame Spread
    2. Smoke and Fire Containment
        1. Construction and Suppression Systems
        2. HVAC Systems
        3. Rack Storage
        4. Combustible
6. Wood Construction
    1. Definition and Elements of Construction
    2. Types of Construction
    3. Fire Stopping and Fire Retardants
    4. Modifications/Code Compliance
7. Ordinary Construction
    1. Definitions and Elements of Construction
    2. Structural Stability and Fire Barriers
    3. Modifications/Code Compliance
8. Collapse
9. Ventilation
10. Non-Combustible
11. Steel Construction
    1. Definitions and Elements of Construction
    2. Structural Stability, Fire Resistance and Fire Protection of Elements
    3. Modifications/Code Compliance
12. Concrete Construction
    1. Definitions and Elements of Construction
    2. Structural Stability and Fire Resistance
    3. Modifications/Code Compliance
13. High Rise Construction
    1. Early versus Modern Construction

2. Vertical and Horizontal Extension of Fire and Smoke
3. Fire Protection and Suppression
4. Elevators
5. Atriums/Lobbies
6. Modifications/Code Compliance

14. Collapse

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

9. Course Student Learning Outcomes:
   1.
   Identify the various classifications of building construction.

   2.
   Describe fundamentals of building design and construction with emphasis on fire protection features including building equipment, facilities, fire resistant materials and high rise.

   3.
   Describe theoretical concepts of how fire impacts major types of building construction.

10. Course Objectives: *Upon completion of this course, students will be able to:*
    a. Describe building construction as it relates to firefighter safety, buildings codes, fire prevention, code inspection, firefighting strategy, and tactics.
    b. Classify major types of building construction in accordance with a local/model building code.
    c. Analyze the hazards and tactical considerations associated with the various types of building construction.
    d. Explain the different loads and stresses that are placed on a building and their interrelationships.
    e. Identify the function of each principle structural component in typical building design.
    f. Differentiate between fire resistance, flame spread, and describe the testing procedures used to establish ratings for each.
    g. Classify occupancy designations of the building code.
    h. Analyze the effect of fire on specific construction types.
    i. Identify the indicators of potential structural failure as they relate to firefighter safety.
    j. Identify the role of GIS as it relates to building construction.

11. Methods of Instruction: *(Integration: Elements should validate parallel course outline elements)*
    a. Demonstration, Repetition/Practice
    b. Distance Education
    c. Individualized Study
    d. Lecture
    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: 54.00
    Outside Class Hours: 108.00
    a. Out-of-class Assignments
       1. Read text and handouts
       2. Library assignments for research
       3. Prepare oral/video presentation of projects
       4. Prepare term project
    b. In-class Assignments

1. Participation
2. Observation
3. Group discussion/required online postings
4. Practice skills
5. Reading of handouts and student manual

13. Methods of Evaluating Student Progress: *The student will demonstrate proficiency by:*
    - College level or pre-collegiate essays
      Research paper
    - Written homework
    - Term or research papers
    - Self-paced testing
    - Presentations/student demonstration observations
      Student based peer assessments from discussion postings
    - Self/peer assessment and portfolio evaluation
    - True/false/multiple choice examinations
    - Mid-term and final evaluations
    - Student participation/contribution
    - Oral and practical examination

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.
    Apply critical thinking skills to execute daily duties in their area of employment.
    Apply critical thinking skills to research, evaluate, analyze, and synthesize information.
    Display the skills and aptitude necessary to pass certification exams in their field.
    Exhibit effective written, oral communication and interpersonal skills.
    Transfer to a higher level learning institution
    IO - Personal and Professional Development
    Self-evaluate knowledge, skills, and abilities.

16. Comparable Transfer Course

University System	Campus	Course Number	Course Title	Catalog Year
CSU	CSU Los Angeles		Building Construction for Fire Protection	2013-14

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:

    Changing English advisory

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

21. Grading Method *(choose one)*: Letter Grade Only

22. MIS Course Data Elements
    a. Course Control Number [CB00]: CCC000247298
    b. T.O.P. Code [CB03]: 213300.00 - Fire Technology
    c. Credit Status [CB04]: D - Credit - Degree Applicable
    d. Course Transfer Status [CB05]: B = Transfer CSU
    e. Basic Skills Status [CB08]: 2N = Not basic skills course
    f. Vocational Status [CB09]: Possibly Occupational
    g. Course Classification [CB11]: Y - Credit Course
    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]: Y - Not Applicable
    l. Funding Agency Category [CB23]: Y = Not Applicable
    m. Program Status [CB24]: 1 = Program Applicable

    Name of Approved Program *(if program-applicable)*: FIRE TECHNOLOGY,FIRE TECHNOLOGY,FIRE TECHNOLOGY

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

23. Enrollment - Estimate Enrollment
    First Year: 0
    Third Year: 0

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 Allen Scott Ventura Origination Date 10/19/17