SYLLABUS

DATE OF LAST REVIEW: 5/2018

CIP CODE: 43.0205, 43.0202, 43.0203

SEMESTER: Departmental Syllabus

COURSE NAME: Building Construction for the Fire Service

COURSE NUMBER: FRSC-0113

CREDIT HOURS: 3

INSTRUCTOR: Departmental Syllabus

OFFICE LOCATION: Departmental Syllabus

OFFICE HOURS: Departmental Syllabus

TELEPHONE: Departmental Syllabus

EMAIL: KCKCC issued email accounts are the official means for electronically communicating with our students.

PREREQUISITE(S): None

REQUIRED TEXT AND MATERIALS:
Please check with the KCKCC bookstore, http://www.kckccbookstorecom/, for the required texts for your particular class.

DESCRIPTION OF COURSE:
An update of policies in the construction industry, this course includes a current review of local and state codes as they apply to fire protection. Students will learn the relationships of construction materials and fire damage to a building.

METHOD OF INSTRUCTION:
A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, and panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE:
The course outline is indicated below and is subject to change as course development dictates.
I. Introduction to Building Fires
   A. Potentials of a building fire
   B. Five reasons for building
   C. Structural fire elements
   D. Fire resistance
   E. Surface finishes
   F. Fire spread via windows
   G. Air conditioning
   H. Building elements
   I. Membrane fire proofing
   J. Classification of structures
   K. Nonstructural elements

II. Construction Principles
   A. Fire safety in buildings
   B. Loads
   C. Imposition of loads
   D. Building classification fallacies
   E. Characteristics of materials
   F. Structural elements
   G. Beams
   H. The truss
   I. Columns
   J. Walls
   K. Arches
   L. Shells and domes
   M. Transmission of loads
   N. Connections

III. Wood construction
   A. Types of building construction
   B. Fire stopping
   C. Wood shingles
   D. Row frame buildings
   E. Heavy loads
   F. Imitation timber
   G. Wood suspended ceilings
   H. Wood trusses
   I. Strength of wood

IV. Ordinary Construction
   A. Terms
   B. Stability of masonry walls
   C. Openings in walls
   D. Cast iron walls
   E. Building alterations
   F. Fire barriers
   G. Protection from explosives
H. Party walls
I. Partition walls
J. Void spaces
K. Deficiencies of building materials
L. Interior support systems
M. Fire extension through a building
N. Roof and attic structures

V. Mill Construction
   A. Features of mill construction
   B. Fire protection features

VI. 19th Century Fireproof Buildings
   A. Tile arch floors
   B. Columns
   C. Preplanning for fires

VII. Fire Resistance
   A. Standards for fire resistance
   B. Combustibility and fire resistance
   C. Fire intensity
   D. Theory vs. Reality

VIII. Concrete in Buildings
   A. Columns
   B. Beams and girders
   C. Concrete floors
   D. Precast concrete
   E. Prestressed concrete
   F. Reinforced masonry
   G. Concrete construction
   H. Collapse during construction
   I. Fire problems during construction

IX. Steel Construction
   A. Walls of steel-framed buildings
   B. Steel framing
   C. Temperatures and steel
   D. Expansion of steel
   E. Failure of steel
   F. Calculated risks
   G. Protection of steel
   H. Fireproofing of steel
   I. Conductivity of steel
   J. Insulated metal decks
   K. Fire walls

Expected Learner Outcomes:
A. The learner will be able to describe how fire reacts to various building materials.
B. The learner will outline various building construction techniques.
C. The learner will analyze fire spread in buildings made of wood construction.
D. The learner will analyze fire spread in buildings made of ordinary construction.
E. The learner will be able to describe fire protection features of mill construction.
F. The learner will be able to identify 19th century fire proof buildings.
G. The learner will be able to determine what is meant by “fire resistant” construction.
H. The learner will be able to discuss the use of concrete in buildings.
I. The learner will be able to discuss the use of steal construction in buildings.

**COURSE COMPETENCIES:**
The course content may vary, however, it may include such objectives as:

*The learner will be able to describe how fire reacts to various building materials.*
1. The student will be able to differentiate among basic structural building elements.
2. The student will be able to judge the comparative safety of structures.
3. The student will be able to distinguish hidden problems in old and new buildings.
4. The student will be able to explain what conditions to look for in all building types, for fire hazards and safety hazards.
5. Each student will demonstrate the ability to recognize and identify the different structural elements for the major types of construction.

*The learner will outline various building construction techniques.*
6. The student will be able to understand weight loads and how they are affected by fire.
7. The student will be able to explain characteristics of truss roofs and how fire affects them.
8. The student will be able to explain how various building materials are affected by fire.

*The learner will analyze fire spread in buildings made of wood construction.*
9. The student will identify various types of wood construction.
10. The student will be able to explain how fire stops in wood construction work.
11. The student will discuss the use of wood shingles and imitation timber.

*The learner will analyze fire spread in buildings made of ordinary construction.*
12. The student will demonstrate an understanding of the terms related to ordinary construction.
13. The student will compare masonry and cast iron wall construction.
14. The student will discuss building alterations in regard to fire spread.
15. The student will compare party walls to partition walls.
16. The student will explain deficiencies in building materials and fire spread.

*The learner will be able to describe fire protection features of mill construction.*
17. The learner will explain the fire protection features of mill construction.

*The learner will be able to identify 19th century fire proof buildings.*
18. The student will identify an understanding of tile arch floors.
19. The student will demonstrate the ability to preplan structures for fire fighting operations.
The learner will be able to determine what is meant by “fire resistant” construction.
20. The student will identify the various types of fire resistance for structures.
21. The student will compare reality vs. theory of fire resistant design.

The learner will be able to discuss the use of concrete in buildings.
22. The student will be able to identify concrete columns, beams, and girders.
23. The student will discuss problems such as a concrete collapse during fire operations.

The learner will be able to discuss the use of steel construction in buildings.
24. The student will identify temperatures at which steel expands and fails.
25. The student will be able to calculate the risks of firefighting in steel structures.
26. The student will explain the conductivity of heat through steel.

ASSESSMENT OF LEARNER OUTCOMES:
Assessment methods may include, but are not limited to, the following: Homework, Assignments, Quizzes, Class Participation, Chapter Tests, and Final Exam. The grading scale and the process for calculating the course grades are to be determined by the individual instructors. This information will be included in each instructor’s syllabus.

SPECIAL NOTES:
This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student’s progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.

All enrolled students at Kansas City Kansas Community College are subject to follow all rules, conditions, policies, and procedures as described in both the Student Code of Conduct as well as the Student Handbook. All students are expected to review both of these documents and to understand their responsibilities with regard to academic conduct and policies. The Student Code of Conduct and Student Handbook can be found on the KCKCC website.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

Kansas City Kansas Community College offers equal educational opportunity to all students as well as serving as an equal opportunity employer for all personnel. Various laws, including Title IX of the Educational Amendments of 1972, require the college’s policy on non-discrimination be administered without regard to race, color, age, sex, religion, national origin, physical handicap, or veteran status and that such policy be made known.

Kansas City Kansas Community College complies with the Americans with Disabilities Act. If you need accommodations due to a documented disability, please contact the disabilities services office.
at (913)-288-7664.