

COURSE SYLLABUS

LAST REVIEW	Fall 2022
COURSE TITLE	Masonry & Concrete
COURSE NUMBER	BEMT 0133
DIVISION	Career and Technical Education
DEPARTMENT	BEMT
CIP CODE	46.0401
CREDIT HOURS	2
CONTACT HOURS/WEEK	Class: .5 Lab: 3
PREREQUISITES	BEMT 0101

COURSE DESCRIPTION

This is the basic course in masonry repair. The course topics include: Environmental sustainability, concrete mix preparation, placing and finishing small jobs, edging, curing, repairing, computing volumes, and types of masonry mortars. It will also cover stone repair, bricklaying, fireplace repair and cleaning, and layout. Masonry cleaning will be covered, as will how to seal masonry and concrete

PROGRAM LEARNING OUTCOMES

Students will demonstrate an adherence to safety standards and proficiency in the installation or repair of residential electrical, plumbing, HVAC, exterior building materials, roofing, irrigation systems, landscape/hardscape, concrete placement and finish, masonry install and repair.

TEXTBOOKS

<http://kckccbookstore.com/>

METHODS 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, panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE

- I. Concrete Mix Preparation
 - A. Water to cement ratio
 - B. Too much water
 - C. Basement floor

- D. Driveways
- E. Walls
- F. Gravel
- II. Placing and Finishing Concrete
 - A. Forms
 - B. Surface preparation
 - C. Moistening surface
 - D. Tools
 - 1. Shovels
 - 2. Rakes
 - 3. Floats
 - 4. Trowels
 - 5. Edger
 - 6. Amount of help needed
- III. Edging
- IV. Curing
 - A. Surface protection
 - B. Cover material
 - C. Amount of water
 - D. Curing compound
- V. Repairing Damaged Concrete
 - A. Commercial Patching
 - 1. Latex
 - 2. Vinyl
 - 3. Epoxy
 - B. Repairs
 - 1. Loose Fragments
 - 2. Large holes
 - 3. Small cracks
- VI. Computing Volumes of Concrete
 - A. Square Feet
 - B. Desired Thickness
 - C. Volume Conversion
- VII. Masonry Mortars
 - A. Mortar formula
 - B. Tools
- VIII. Brick Laying
 - A. Tools
 - B. Techniques

- C. Materials
- D. Using the Line
- IX. Fireplace Maintenance
 - A. Cleaning New Masonry
 - B. Fireplace Structure and Remodeling
- X. Environmental Sustainability
 - A. Environmentally safe waste disposal.
 - B. Life cycle analysis.
 - C. Recycled material.
 - D. Low VOC emissions.
 - E. New "green" materials.
 - F. New "green" methods and practices.
 - G. "Low impact" designs.

COURSE LEARNING OUTCOMES AND COMPETENCIES

Upon successful completion of this course, the student will:

- A. Describe and identify concrete mix preparation.
 - 1. Understand and demonstrate the correct water to cement ratio.
 - 2. Understand and perform mixing for a floor.
 - 3. Identify and demonstrate mixing for driveways.
 - 4. Understand and demonstrate mixing for walls.
 - 5. Understand and perform a slump test.
 - 6. Identify and demonstrate the knowledge of aggregates.
- B. Describe and identify placing and finishing concrete.
 - 7. Understand and demonstrate forming techniques.
 - 8. Understand and perform surface preparation.
 - 9. Identify and demonstrate how to moisten a surface.
 - 10. Understand and demonstrate proper tool selection.
 - 11. Understand and perform floating, edging and finishing.
 - 12. Identify and demonstrate proper cleanup.
- C. Describe and identify curing.
 - 13. Understand and demonstrate proper surface protection.
 - 14. Understand and perform expansion cuts.
 - 15. Identify and demonstrate broom finishing.
 - 16. Understand and demonstrate flat finishing.
 - 17. Understand and perform sealing.
 - 18. Identify and demonstrate covering methods.
- D. Describe and identify repairing damaged concrete.
 - 19. Understand and demonstrate concrete patching.
 - 20. Understand and perform commercial patching.

21. Identify and demonstrate the uses of latex.
 22. Understand and demonstrate the uses of vinyl.
 23. Understand and perform how to fill cracks.
 24. Identify and demonstrate how to fill holes.
- E. Describe and identify computing volumes of concrete.
25. Understand and demonstrate computing square footage.
 26. Understand and perform proper measurements.
 27. Identify and demonstrate aggregate density.
 28. Understand and demonstrate the knowledge of concrete mixes available.
 29. Understand and perform the knowledge of the short load.
 30. Identify and demonstrate the knowledge of mixing times and ambient temperatures.
- F. Describe and identify masonry mortars.
31. Understand and demonstrate the types of mortar.
 32. Understand and perform a mortar mix.
 33. Identify and demonstrate proper handling of mixed mortar.
 34. Understand and demonstrate the knowledge of set up times.
 35. Understand and perform a mortar repair.
 36. Identify and demonstrate point tucking.
- G. Describe and identify brick laying.
37. Understand and demonstrate the knowledge of brick types.
 38. Understand and perform a brick laying mortar mix.
 39. Identify and demonstrate how to judge mortar stiffness.
 40. Understand and demonstrate how to butter bricks.
 41. Understand and perform setting up a story pole.
 42. Identify and demonstrate proper tool care and cleanup.

ASSESSMENT OF COURSE LEARNING OUTCOMES AND COMPETENCIES

Student progress is evaluated through both formative and summative assessment methods. Specific details may be found in the instructor's course information document.

COLLEGE POLICIES AND PROCEDURES

Student Handbook

<https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf>

College Catalog

<https://www.kckcc.edu/academics/catalog/index.html>

College Policies and Statements

<https://www.kckcc.edu/about/policies-statements/index.html>

Accessibility and Accommodations

<https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html>.