

COURSE SYLLABUS

LAST REVIEW	Fall 2022
COURSE TITLE	Concrete Finishing (Level 1)
COURSE NUMBER	CONS 0110
DIVISION	Career and Technical Education
DEPARTMENT	CONS
CIP CODE	46.0201
CREDIT HOURS	3
CONTACT HOURS/WEEK	Class: 1 Lab: 4 Clinical:
PREREQUISITES	KBOR approved Core Curriculum. OSHA 10, Math Level 3 Recommended

COURSE DESCRIPTION

This is the basic concrete finishing course. It is in alignment with NCCER (selected modules) and the Kansas Board of Regents. The course topics include: Environmental sustainability, Introduction to Concrete Construction and Finishing, Safety Requirements, Properties of Concrete, Tools and Equipment, Preparing for Placement, Placing Concrete, Finishing, Part One, Curing and Protecting Concrete, and Introduction to Troubleshooting.

PROGRAM LEARNING OUTCOMES

1. Demonstrate appropriate safety practices and procedures.
2. Demonstrate proper methods for completion of interior finishes.
3. Demonstrate proper methods for mechanical installation

TEXTBOOKS

<http://kckccb bookstore.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. Introduction to Concrete Construction and Finishing
 - A. Concrete terms.
 - B. Composition of concrete.
 - C. Uses of concrete.
 - D. Craftsmanship on concrete.
 - E. Concrete construction.
 - F. Site operation requirements.
 - G. Career potential.

II. Safety Requirements

- A. Safety gear.
- B. Dressing appropriately.
- C. Safely handling concrete.
- D. Safety precautions.
- E. Safety precautions and hazardous materials.
- F. Handling concrete tools.

III. Properties of Concrete

- A. Properties of concrete.
- B. How properties are used.
- C. Ingredients of concrete.
- D. Quality-control tests.
- E. Test batch.
- F. Slump test.

IV. Tools and Equipment

- A. Placing and finishing concrete.
- B. Power equipment.
- C. Tool use.
- D. Power equipment use.
- E. Trade terms.

V. Preparing for Placement

- A. Site layout.
- B. Building forms.
- C. Compaction activities.
- D. Where to locate joints.
- E. Reinforcements.
- F. Ordering concrete.

VI. Placing Concrete

- A. How concrete is conveyed and placed.
- B. Pre-placement checklist.
- C. Use of equipment and tools.
- D. Depositing, spreading, consolidating, and striking off.
- E. Trade terms.

VII. Finishing, Part One

- A. Finishing process.
- B. Finishing hand tools.
- C. Cut joints.
- D. Broom finish.
- E. Rubbing finish.
- F. Trade terms.

VIII. Curing and Protecting Concrete

- A. Curing concrete.
 - B. Methods of curing concrete.
 - C. How each method is applied.
 - D. When each method is used.
 - E. Trade terms.
- IX. Introduction to Troubleshooting
- A. Troubleshooting methodology.
 - B. Fresh concrete.
 - C. Concrete defects.
- 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. Identify and describe the tools and equipment, terms, placement and finishing.
 - 1. Define terms associated with concrete construction.
 - 2. Identify the composition and characteristics of concrete.
 - 3. Identify the uses of concrete as a building material.
 - 4. Identify the effect of craftsmanship on finished concrete.
 - 5. Explain the concrete construction process.
 - 6. Identify site operation work requirements.
 - 7. Explain the career potentials in concrete construction and finishing.
- B. Identify and describe the safety requirements, proper handling, and PPE.
 - 8. Describe and wear different types of safety gear for the work site.
 - 9. State the guidelines for dressing appropriately for concrete work.
 - 10. Describe how to safely handle concrete when forming, placing, curing, and finishing.
 - 11. Describe safety precautions to follow when working in extreme heat and cold.
 - 12. Describe safety precautions to follow when working with hazardous materials.
 - 13. Describe proper procedures for handling and maintaining concrete construction tools safely.
- C. Identify and describe the properties of concrete, quality, and testing.
 - 14. Describe the properties of concrete.
 - 15. Explain how the properties of concrete are used in construction.
 - 16. Determine how the ingredients of concrete influence mix, placement, finishing, durability, and performance.

17. describe quality-control tests on concrete ingredients, fresh concrete, and hardened concrete.
 18. mix a test batch of concrete.
 19. perform a slump test.
- D. Identify and describe the tools and equipment, terms, placement and finishing.
20. Name the tools used in placing and finishing concrete.
 21. Name the power equipment used in placing and finishing concrete.
 22. Describe how each tool is used.
 23. Describe how the power equipment is used.
 24. Describe and associate trade terms with the appropriate tools and equipment.
- E. Identify and describe preparing for placement, layout, forms, joints, and ordering concrete.
25. Describe basic site layout using levels and measuring tools.
 26. Properly locate, grade, and build forms for horizontal placement.
 27. Perform compaction activities on subgrades.
 28. Describe various joints and where to locate them.
 29. Describe various reinforcements and how to place them.
 30. Describe information needed when ordering concrete.
- F. Identify and describe how to place concrete, tools, terms and checklists.
31. Describe how concrete is conveyed and placed.
 32. Draw up a pre-placement checklist.
 33. Demonstrate the use of equipment and tools for placing concrete.
 34. Demonstrate the process of depositing, spreading, consolidating, and striking off concrete in a form.
 35. Associate trade terms with the appropriate processes and equipment.
- G. Identify and describe the types of finishing, tools, and terms.
36. Describe the basic finishing process.
 37. Use the following finishing hand tools: float, edger, groover, and trowel.
 38. Mark and cut joints with a saw.
 39. Apply a broom finish.
 40. Apply a rubbing finish.
 41. Describe and associate trade terms with the appropriate processes and equipment.
- H. Identify and describe curing, and how to protect concrete, and terms.
42. Describe the process of curing concrete.
 43. Identify methods of curing concrete.
 44. Describe how each method is applied.
 45. Identify when each method is used.
 46. Identify and associate trade terms with the appropriate processes and equipment.
- I. Identify and describe troubleshooting methods, and defects.
47. Describe a basic troubleshooting methodology that can be used to identify a variety of concrete construction problems and their causes.
 48. Identify problems with fresh concrete and describe ways to prevent them.

49. Identify different concrete defects such as crazing, cracking, dusting, scaling, popouts, and efflorescence, and describe ways to prevent them.
- J. Identify and describe sound environmental practices for concrete finishing, including waste disposal, life cycle analysis, green practices and low impact.
50. Describe waste disposal methods for this industry according to EPA and industry guidelines.
51. Describe the process of life cycle analysis in this industry based on industry guidelines.
52. Identify recycled materials by label and industry practice.
53. Define “low emission” and give two examples.
54. Identify new “green” materials now being introduced or currently used in this industry.
55. Describe new “green” practices and methods being instituted or currently employed within this industry.
56. Identify and explain the term “low Impact” as it relates to the environment.

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>.