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**REQUIRED TEXT AND MATERIALS:** Please check with the KCKCC bookstore, [http://www.kckccbookstore.com/](http://www.kckccbookstore.com/), for the required tests for your particular class.

**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.

**METHOD OF INSTRUCTION:** A variety of instructional methods may be used depending on content area. They may include but are not limited to lecture, multimedia, cooperative/collaborative learning, demonstrations, labs, on-the-job, internships, performance
tests, and other learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE:

I. MODULE 23101 - 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. MODULE 23102 – 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. MODULE 23103 – 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. MODULE 23104 – TOOLS AND EQUIPMENT
    A. Placing and finishing concrete.
    B. Power equipment.
    C. Tool use.
    D. Power equipment use.
    E. Trade terms.

V. MODULE 23105 – PREPARING FOR PLACEMENT
   A. Site layout.
   B. Building forms.
   C. Compaction activities.
   D. Where to locate joints.
   E. Reinforcements.
   F. Ordering concrete.
VI. MODULE 23106 – 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. MODULE 23107 – FINISHING, PART ONE
A. Finishing process.
B. Finishing hand tools.
C. Cut joints.
D. Broom finish.
E. Rubbing finish.
F. Trade terms.

VIII. MODULE 23108 – 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. MODULE 23109 – 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.

EXPECTED LEARNER OUTCOMES:
A. Module 23101. The student will be able to identify and describe the terms, usage, concrete construction and finishing.
B. Module 23102. The student will be able to identify and describe the safety requirements, proper handling, and PPE.
C. Module 23103. The student will be able to identify and describe the properties of concrete, quality, and testing.
D. Module 23104. The student will be able to identify and describe the tools and equipment, terms, placement and finishing.
E. Module 23105. The student will be able to identify and describe preparing for placement, layout, forms, joints, and ordering concrete.
F. Module 23106. The student will be able to identify and describe how to place concrete, tools, terms and checklists.
G. Module 23107. The student will be able to identify and describe the types of finishing, tools, and terms.
H. Module 23108. The student will be able to identify and describe curing, and how to protect concrete, and terms.
I. Module 23109. The student will be able to identify and describe troubleshooting methods, and defects.
J. The student will identify and describe sound environmental practices for concrete finishing including waste disposal, life cycle analysis, green practices and low impact

COURSE COMPETENCIES:

Module 23104. The student will be able to identify and describe the tools and equipment, terms, placement and finishing.

1. The student will be able to define terms associated with concrete construction.
2. The student will be able to identify the composition and characteristics of concrete.
3. The student will be able to identify the uses of concrete as a building material.
4. The student will be able to identify the effect of craftsmanship on finished concrete.
5. The student will be able to explain the concrete construction process.
6. The student will be able to identify site operation work requirements.
7. The student will be able to explain the career potentials in concrete construction and finishing.

Module 23102. The student will be able to identify and describe the safety requirements, proper handling, and PPE.

8. The student will be able to describe and wear different types of safety gear for the work site.
9. The student will be able to state the guidelines for dressing appropriately for concrete work.
10. The student will be able to describe how to safely handle concrete when forming, placing, curing, and finishing.
11. The student will be able to describe safety precautions to follow when working in extreme heat and cold.
12. The student will be able to describe safety precautions to follow when working with hazardous materials.
13. The student will be able to describe proper procedures for handling and maintaining concrete construction tools safely.
Module 23103. The student will be able to identify and describe the properties of concrete, quality, and testing.

14. The student will be able to describe the properties of concrete.
15. The student will be able to explain how the properties of concrete are used in construction.
16. The student will be able to determine how the ingredients of concrete influence mix, placement, finishing, durability, and performance.
17. The student will be able to describe quality-control tests on concrete ingredients, fresh concrete, and hardened concrete.
18. The student will be able to mix a test batch of concrete.
19. The student will be able to perform a slump test.

Module 23104. The student will be able to identify and describe the tools and equipment, terms, placement and finishing.

20. The student will be able to name the tools used in placing and finishing concrete.
21. The student will be able to name the power equipment used in placing and finishing concrete.
22. The student will be able to describe how each tool is used.
23. The student will be able to describe how the power equipment is used.
24. The student will be able to describe and associate trade terms with the appropriate tools and equipment.

Module 23105. The student will be able to identify and describe preparing for placement, layout, forms, joints, and ordering concrete.

25. The student will be able to describe basic site layout using levels and measuring tools.
26. The student will be able to properly locate, grade, and build forms for horizontal placement.
27. The student will be able to perform compaction activities on subgrades.
28. The student will be able to describe various joints and where to locate them.
29. The student will be able to describe various reinforcements and how to place them.
30. The student will be able to describe information needed when ordering concrete.

Module 23106. The student will be able to identify and describe how to place concrete, tools, terms and checklists.

31. The student will be able to describe how concrete is conveyed and placed.
32. The student will be able to draw up a pre-placement checklist.
33. The student will be able to demonstrate the use of equipment and tools for placing concrete.
34. The student will be able to demonstrate the process of depositing, spreading, consolidating, and striking off concrete in a form.
35. The student will be able to associate trade terms with the appropriate processes and
Module 23107. The student will be able to identify and describe the types of finishing, tools, and terms.

36. The student will be able to describe the basic finishing process.
37. The student will be able to use the following finishing hand tools: float, edger, groover, and trowel.
38. The student will be able to mark and cut joints with a saw.
39. The student will be able to apply a broom finish.
40. The student will be able to apply a rubbing finish.
41. The student will be able to describe and associate trade terms with the appropriate processes and equipment.

Module 23108. The student will be able to identify and describe curing, and how to protect concrete, and terms.

42. The student will be able to describe the process of curing concrete.
43. The student will be able to identify methods of curing concrete.
44. The student will be able to describe how each method is applied.
45. The student will be able to identify when each method is used.
46. The student will be able to identify and associate trade terms with the appropriate processes and equipment.

Module 23109. The student will be able to identify and describe troubleshooting methods, and defects.

47. The student will be able to describe a basic troubleshooting methodology that can be used to identify a variety of concrete construction problems and their causes.
48. The student will be able to identify problems with fresh concrete and describe ways to prevent them.
49. The student will be able to identify different concrete defects such as crazing, cracking, dusting, scaling, popouts, and efflorescence, and describe ways to prevent them.

The student will identify and describe sound environmental practices for concrete finishing, including waste disposal, life cycle analysis, green practices and low impact.

50. The student will describe waste disposal methods for this industry according to EPA and industry guidelines.
51. The student will describe the process of life cycle analysis in this industry based on industry guidelines.
52. The student will identify recycled materials by label and industry practice.
53. The student will define “low emission” and give two examples.
54. The student will identify new “green” materials now being introduced or currently used in this industry.
55. The student will describe new “green” practices and methods being instituted or currently
employed within this industry.
56. The student will identify and explain the term “low Impact” as it relates to the environment.

ASSESSMENT OF LEARNER OUTCOMES:
Student progress is evaluated by means that include, but not limited to, exams, written assignments, performance tests, and class participation.

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.

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 Director of the Academic Resource Center in Rm. 3354 or call (913) 288-7670.