# BCCM 2050

**Division:** Career and Technical Education
**Department:** Construction Technology
**Course:** BCCM 2050
**Title:** Building Layout and Concrete Construction
**Catalog Description:**

Instruction covers zoning, ordinance, code permit, grade, and property line requirements needed to place a building on a lot. Instruction also includes principles of quality conrete with construction of footings, foundation walls, flatwork, and steps.

**General Education Requirements:** N/A
**Semesters Offered:** Spring
**Credit/Time Requirement:** Credit: 4; Lecture: 3; Lab: 2
**Clock/Hour Requirements:** 75
**Offered for Non-Credit:** Yes
**Prerequisites:** N/A

**Corequisites:** N/A

**Justification:**

Students will use zoning knowledge and layout skills for his/her career in construction, not only in locating a building on the property, but throughout the rest of construction phases. Concrete work is the most important part of a building. Once built, little can be done to make alterations, therefore; skills learned in this course are quite important. This course can prepare students for a beginning position as a concrete mason.

**Student Learning Outcomes:**

Upon successful completion of this course, students will:

- learn sources available to obtain information on zoning, building codes, and city restrictions on placing a building on a lot
- learn about building permits, utility hookups, zoning, and city requirements
- establish grades and building lines for building on a lot
- set up batter boards and stake out a building on a lot
- become acquainted with Federal Housing Administration--Minimum Property Standards and International Building codes books used in the building industry
- study ingredients of quality concrete
- do form work of footings, wall, flat work, and steps
- place concrete and cure concrete to insure a good product

- understand the uses of some admixtures and coloring
- learn the effects of weather on concrete and ways to handle concrete in hot and cold conditions.

**Content:**

This course will include:

- zoning and building codes
    - zoning
    - restrictions and ordinances
    - land development process
- building permits and city requirements
    - permit requirements
    - utility requirements and costs
    - city regulations
- building layout
    - plot plan
    - transit use
    - establish grades and elevations
    - building site and building boundaries
- soils and understanding their effect
- principles of quality concrete
    - material of concrete
        - cement
        - aggregates
        - water
        - mixing concrete
    - concrete forming
        - footings
            - calculating and estimating
            - preparations and construction of forms
        - foundation walls
            - calculating and estimating
            - different forming systems and methods
        - flat work
            - basement floors
            - sidewalks
            - driveways
    - concrete steps
        - theory of stair layout
        - forming for stairs
    - transporting, placing, and curing of concrete
        - transporting
        - handling of concrete
        -
            - spreading and screeding

        - floating
        - final finish
- curing of concrete
    - water
    - curing agents
    - cold and hot weather concreting
        - weather protection and preparation
        - additives
    - decorative concrete
        - coloring
        - exposed aggregate
        - patterns
    - admixtures
        - water reducing agents
        - accelerating agents
        - retarding agents
        - air entraining agents.

**General Education Outcomes:**

6) Apply computational skills to a variety of contexts.

Students will learn how to estimate concrete and other materials needed to construct footings, foundation walls, and retaining walls and flatwork for residential applications.

**Applied Education Outcomes:**

1) Students will acquire entry-level skills specific to and appropriate for employment in their chosen field of study.

Students will each know the basic skills for being able to lay out a building and also the basic skills for pouring concrete using knowledge both for flatwork, steps and footing and foundations.

2) Students will become aware of industry specific certification and develop skills sufficient to acquire the same.

All students will be aware of job possibilities in the community that include working with concrete in a variety of forms.

3) Students will demonstrate safe practices and awareness of potential hazards in their field of expertise.

Students will know that safely working with concrete is very important. They will also know how to safely use all tools and equipment that are used while placing conrete.

**Key Performance Indicators:**

Student Learning Outcomes will be assessed by one or more of the following Key Performance Indicators:

- exams/quizzes (witten or oral)
- attendance
- attitude
- performance on project.

**Representative Text and/or Supplies:**

- Lewis and Vogt, *Carpentry,* current edition, Delmar Thompson Learning.
- Kicjket and Vogt, *Carpentry Workbook,* current edition, Delmar Thompson Learning.
- George R. White, *Concrete Technology,* current edition, Delmar Publishers Inc. Albany, New York.

**Optimum Class Size:** 10
**Maximum Class Size:** 15

**Signatures:**

I hereby submit this course syllabus:

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Marlin Christensen, M. Ed., Instructor

I hereby find this course consistent with the goals and resources of the Construction Technology Department:

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Marlin Christensen, M. Ed., Instructor, Chair

I hereby find this course consistent with the goals and resources of the Career and Technical Education Division:

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Michael P. Medley, MBA, Assistant Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

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Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

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Michelle Olsen, MLS, Campus Librarian (Richfield Campus)