

6. Perform concrete test.

7. Prepare for ready-mix concrete and mixing concrete work

8. Match tools to specific job on flat concrete work

3. Maximum size of aggregate
4. Air content
5. Slump test
6. Trial mix methods

F. Sampling and testing concrete mix

1. Casting concrete
2. Slump test
3. Ball penetration test
4. Comprehensive strength test

G. Concrete mixes

1. Ready-mix
2. Mechanical mix
3. Manual mix

H. Basic hand tools

1. Strike-off board – leveling concrete surface
2. Darby – darbying concrete surface
3. Float – floating concrete surface
4. Edger and jointer – edging joining
5. Trowel – final finishing
6. Water hose – curing concrete

VII. MATERIALS AND EQUIPMENT:

1. Cone cylinder and rod
2. Comprehensive test cylinder
3. shovels
4. Trowels
5. Cement
6. Aggregate
7. Water
8. Wheelbarrow
9. Hose
10. Darby
11. Edger and jointer

TASK LISTING SHEET

MS110 SELECTION AND DESIGN OF CONCRETE MIXTURE

Credit:

<u>1</u>	<u>2</u>	<u>96</u>
Lecture	lab	Total Lab Hrs.

TASK

TIME

SLO #1:

6 hrs.

1. Illustrate setting and hardening of cement
2. Interpret manufacturing process
3. Pack and store cement

SLO #2

6 hrs.

1. Select type of mixing water for good concrete
2. Measure the affect of impurities in the mixing water used in making concrete
3. Measure the correct amount of water-cement ratio
4. Mix concrete using seawater

SLO #3

6 hrs.

1. Test quality of aggregate
2. Grade aggregate into various sizes
3. Calculate the maximum size of aggregate for a given job
4. Handling and storing aggregate

SLO #4

6hrs.

1. Match correct amount of entrained air to different sizes of aggregate
2. Determine factors affecting air content

SLO #5

8 hrs.

1. Select mix characteristics
2. Design concrete mix based on trial method
3. Calculate the amount of materials for each batch

SLO #6

16 hrs.

1. Take sample of fresh concrete from stationary mixer, revolving truck mixer, and open top mixer
2. Take slump test using cone cylinder and ball penetration test on fresh concrete
3. Rod concrete specimen in the cone cylinder
4. Rod concrete specimen in the cylinder for compressive strength test
5. Test hardened concrete using concrete tester

VIII. TEXT AND REFERENCES:

1. Text: Instructor's made hand outs
2. References:
 - a. Kicklighter, Clois E. *Modern Masonry*. South Holland, Ill: The Goodheart- Wilcox, 1991.
 - b. Curriculum and Instructional Materials Center. Brick and Block Masonry. Stillwater, OK: Oklahoma Department of Vocational and Technical Education, 1999.

IX. METHOD OF INSTRUCTION:

1. Lecture
2. Discussion
3. Demonstration
4. Laboratory work
5. Field trip (Site preparation)

X. METHOD OF EVALUATION:

Lecture presentation is tested on written test. Lab evaluation is based on skill development and knowledge acquisition.

Four criteria is used in evaluating projects and operation performance are:

1. Accuracy
2. Techniques
3. Appearance
4. Completion

The components used in the computation of the final grade are:

1. Participation.....	25%
2. Quizzes/Homework.....	10%
3. Mid – Term and Final Test.....	25%
4. Projects.....	40%
Total.....	100%

The transmutation of percent to letter grade are:

90 – 100.....	A
80 – 89.....	B
70 – 79.....	C
65 – 69.....	D
0 – 64.....	F

SLO #7**24 hrs.**

1. Prepare for ready- mixed concrete delivery to the job site
2. Set the order of procedures involved in placing and finishing flat concrete work
3. Discharge concrete from ready- mixed truck mixer into the form
4. Mix concrete on the job site
5. Take a slump test on freshly mix concrete
6. Mix concrete using
7. Measure wetness and dryness of sand
8. Consolidate concrete in the form

SLO #8**24 hrs.**

1. Select tools for a given job
2. Place concrete using appropriate tools and equipment
3. Float surface of flat concrete work
4. Cut edges and form control joints
5. Trowel and finish surface of flat concrete work
6. Cure concrete using water, atmospheric condition and waterproofing materials

TOTAL**96 hrs.**

**Course Level Achievement
Form A**
(Used for shop courses as well as other program courses)
MS 110 SELECTION AND DESIGN OF CONCRETE MIXTURE

Student's Name (print): _____

Semester/Year: _____

Instructor's Name (Print): _____

This record is intended to serve as a method of evaluating student achievement of the competencies in the construction technology program.

Directions: Evaluate the student using the rating scale below and encircle the appropriate number to indicate the degree of competency. The numerical ratings of 5, 4, 3, 2, and 1 are not intended to represent the traditional school grading system of A, B, C, D, and F. the descriptions opposite the numbers will determine the level of student performance for each of the competencies listed bellow.

- Rating Scale: 5 Excellent
4 Above average
3 Average
2 Below average
1 Unacceptable

COMPETENCY	RATING
1. Select appropriate ingredient for various concrete mixtures	5 4 3 2 1
2. Conduct concrete test	5 4 3 2 1
3. Prepare for various concrete mixing works	5 4 3 2 1
4. Prepare for various concrete finishing works	5 4 3 2 1

I certify that the student has completed all the competencies in this program and has achieved ratings as shown under each respective competency.

Instructor's signature

Date

COMPETENCY#1 Select appropriate ingredient for various concrete mixtures

5. Demonstrate ability to perform required skills including selection of cement, water, and aggregate for various concrete mix according to specifications and plan with 90 – 100% accuracy.
4. Demonstrate ability to perform required skills including selection of cement, water, and aggregate for various concrete mix according to specifications and plan with 80 – 89% accuracy.
3. Demonstrate ability to perform required skills including selection of cement, water, and aggregate for various concrete mix according to specifications and plan with 70 – 79% accuracy.
2. Demonstrate ability to perform required skills including selection of cement, water, and aggregate for various concrete mix according to specifications and plan with 65 – 69% accuracy.
1. Demonstrate ability to perform required skills including selection of cement, water, and aggregate for various concrete mix according to specifications and plan with below 65% accuracy.

COMPETENCY #2 Conduct concrete test

5. Demonstrate ability to perform required skills including sampling and testing, casting concrete, slump testing, ball penetrating testing, comprehensive concrete testing according to specification and plan with 90 – 100% accuracy.
4. Demonstrate ability to perform required skills including sampling and testing, casting concrete, slump testing, ball penetrating testing, comprehensive concrete testing according to specification and plan with 80 – 89% accuracy.
3. Demonstrate ability to perform required skills including sampling and testing, casting concrete, slump testing, ball penetrating testing, comprehensive concrete testing according to specification and plan with 70 – 79% accuracy.
2. Demonstrate ability to perform required skills including sampling and testing, casting concrete, slump testing, ball penetrating testing, comprehensive concrete testing according to specification and plan with 65 – 69% accuracy.
1. Demonstrate ability to perform required skills including sampling and testing, casting concrete, slump testing, ball penetrating testing, comprehensive concrete testing according to specification and plan with below 65% accuracy.

COMPETENCY #3 Prepare for various concrete mixing works

5. Demonstrate ability to perform required skills including the selection of tools and materials, preparation strategy planning, set-up and prepare for ready-mix, mechanical mix, and manual mixing of concrete according to specification and plan with 90 – 100% accuracy.
4. Demonstrate ability to perform required skills including the selection of tools and materials, preparation strategy planning, set-up and prepare for ready-mix, mechanical mix, and manual mixing of concrete according to specification and plan with 80 – 89% accuracy.
3. Demonstrate ability to perform required skills including the selection of tools and materials, preparation strategy planning, set-up and prepare for ready-mix, mechanical mix, and manual mixing of concrete according to specification and plan with 70 – 79% accuracy.
2. Demonstrate ability to perform required skills including the selection of tools and materials, preparation strategy planning, set-up and prepare for ready-mix, mechanical mix, and manual mixing of concrete according to specification and plan with 65 – 69% accuracy.
1. Demonstrate ability to perform required skills including the selection of tools and materials, preparation strategy planning, set-up and prepare for ready-mix, mechanical mix, and manual mixing of concrete according to specification and plan with below 65% accuracy.

COMPETENCY #4 Prepare for various concrete finishing works

5. Demonstrate ability to perform required skills including selection of tools, materials, and finishing methods and applications on rough and smooth surface according to specification and plan with 90 – 100% accuracy.
4. Demonstrate ability to perform required skills including selection of tools, materials, and finishing methods and applications on rough and smooth surface according to specification and plan with 80 – 89% accuracy.
3. Demonstrate ability to perform required skills including selection of tools, materials, and finishing methods and applications on rough and smooth surface according to specification and plan with 70 – 79% accuracy.
2. Demonstrate ability to perform required skills including selection of tools, materials, and finishing methods and applications on rough and smooth surface according to specification and plan with 65 – 69% accuracy.
1. Demonstrate ability to perform required skills including selection of tools, materials, and finishing methods and applications on rough and smooth surface according to specification and plan with below 65% accuracy.