4/16/2015	DATE	Technology	DIVISION
X	REQUIRED COURSE		NEW COURSE
	ELECTIVE COURSE	X	REVISION

LAKE LAND COLLEGE
Course Information Form

COURSE NUMBER CET056 **TITLE** Portland Cement Concrete Theory and Design

SEM CR HRS 2 **LT HRS** 1 **LAB HRS** 2 **SOE HRS** _____ **ECH** _____

COURSE PCS# _____ (Assigned by Administration)

Prerequisites: **CET054 – Soils and Aggregates or BCT 050**

Catalog Description (40 Word Limit):

Discussion of concrete through all stages of design, mix, delivery, placement, and curing with special emphasis on design, proportioning, and field testing.

List the Major Course Segments (Units)	Lt Hrs	Lab Hrs
Terminology for Portland Cement Concrete	8	
Design and Proportioning of Mixes	3	3
Mixing, Testing, and Curing of Concrete	4	27

EVALUATION:

Quizzes		Exams	X	Oral Pres		Papers	X
Lab Work	X	Projects		Comp Final	X	Other	

Textbook:

Title: **Basic Construction Materials**

Author: **Marotta**

Publisher: **Prentice Hall**

Volume/Edition: **8th Edition**

Copyright Date: **2010**

Major Course Segment	Hours	Learning Outcomes
		Student should be able to:
Four Components of Concrete	1	List materials and history of Portland Cement
Manufacturing of Cement	1	List steps in manufacturing process and chemical make-up
Types of Portland Cement	1	Characterize of each type
Aggregates for Portland Cement Concrete	1	List types and characteristics
Transporting and Placing Portland Cement Concrete	1	Understand the means of transport and methods of placement
Finishing and Curing Portland Cement Concrete	1	List the methods of finishing and curing
Admixtures for Portland Cement Concrete	1	List the types and purpose of admixtures
Inspector Responsibilities	1	Identify the duties and qualifications of concrete inspections
Mix Design	3	Demonstrate the ACI method of concrete design
Proportioning of a Mix	3	Demonstrate the IDOT method of re-proportioning a mix based on field conditions
Mixing and Testing an Actual Student Designed and Proportioned Concrete Mix	6	Perform mixing procedures using industry approved method
Slump	5	Perform a slump test
Air Test	5	Perform an air test
Yield Test	5	Perform a yield test
Strength Test	6	Perform a compressive test

Course Outcomes: at the successful completion of this course, students will be able to:
• Illustrate the process of cement production
• Outline the five types of cement and their uses
• Design a concrete mix to meet specific criteria
• Perform a slump, air, yield, and compressive strength test on concrete

Learning Outcome Method :
1. 70% of the class will score an 80% or higher on an embedded question on a test. (Test 1, question no. 4)
2. 70% of the class will score an 80% or higher on an embedded question on a test. (Test 1, question no. 3)
3. 70% of the class will score an 80% or higher on an embedded question on a test. (Test 2, questions no. 1 & 2)
4. 70% of the class will score 80% or better on a lab report in which they will list the purpose of the tests, equipment needed, and procedures for slump, air, yield, and compressive strength of concrete, as performed in the laboratory.