Salahaddin University - Erbil
College of engineering - Civil Department

Module Name	Concrete Technology			Code	1113
Course Status	Core	Duration:	15 week – one semester	Credit point	5
Pre-requisites	-		Total Work Load 135 hr	Class Attendence 60 hr	Self Studies 75 hr

Course Description

The course is ideal for graduates, supervisors, operational managers, consultants and suppliers to the concrete sector who need to acquire the underpinning knowledge in relation to concrete technology. Student w'll develop the work based skills and knowledge needed to become a successful concrete technologist or manager in the concrete industry. This course includes a collection of materials explaining the fundamentals of concrete materials and behavior of concrete at fresh and hardened state. While serving as a useful tool for teachers, as a valuable addition to a regular textbook, it will also help practitioners to recall their basics of concrete technology.

Course Objectives

The objective of this course for students to have a knowledge on

1. Understanding of constituent materials for properties of fresh and hardened concrete properties.
2. Basic understanding of hydration as well as important physical and chemical properties of the hydration products
3. Simple calculations of pore structure and the volume of hydration products
4. Know the different mechanisms causing volume change from fresh (plastic settlement, -shrinkage) via young (temperature, autogeneous shrinkage) to hardened concrete (drying shrinkage)
5. Proportioning of concrete with desired consistency, strength, volume stability, durability, sustainability etc.
6. Practical use of concrete under various production conditions for different purposes

Learning Outcome

Nowadays concrete became the most widely used construction material, commonly made by mixing Portland cement with sand, gravel or crushed rock, and water. Today, the rate at which concrete is used is much higher than it was 40 year ago.

The course provides the students with an excellent background to pursue graduate study or to enter directly into professional practice in concrete industry either private sector or ruled by government after graduation. There are many companies that produce concrete and concrete contributes in the construction of many kinds of structures, such as buildings, bridges, airport runways , drive ways and parking lots , water tanks, retaining walls , dams and etc.. The student will understand what is the concrete and what is the materials with their relative proportions required for making good quality concrete. Student will understand why cement will be used for making the concrete and the properties of different types of cement; in addition they will understand the benefit of using supplementary cementitious materials. They understand the role does water play in producing concrete , why concrete set and hardens, and what is the properties of good concrete during fresh and hardening state.

Students have flexibility in developing their own course program to meet their professional goals through the selection of electives in structures and materials engineering

Literature & text Books

Key references:

Properties of concrete by A.M. Neville, fourth and fifthedition (1996 , 2011)

Concrete Technology (Theory and practice) by M.S Shetty (Reprint -2011)

Type of Teaching

Theory Lectures	Tutorial	Practical
2 hr	-	2 hr

Evalution Profile

Students are required to do first midterm exam on 8 week, class room activities, quizzes, home works and final exam on week 15th. So that the final grade will be based upon the following criteria:

Course period efforts (out of 50%)	Midterm Exam (90 min written exam at week 8)	20 %
	Short exams (Quiz) at least 2 during the course period (one of them must befor week 8)	10 %
	Practical lab report	10 %
	Class Room Activities, and Seminars	10 %
Course period efforts (out of 50%)	Written exam (120 min written exam week 15)	40%
	Practical exam	10%