

IC (209)414            Science and Technology of Cement

3(2/2-1/3)

Abbreviation            SCIENCE TECH CEMENT

Prerequisite            IC 211

This course is opened for    MAJOR ELECTIVE COURSE

**Course Description**

History of calcareous inorganic cements, mortars and concrete, definition and classification, production of portland cement, hydration of cement, mortars, concrete, some additives in mortars and concrete, standard tests for cements, mortars and concrete, physical behavior of concrete after pouring, and reinforced concrete.

**Objectives**

1. Students will be able to understand principles and production of cements, mortars and concrete.
2. Students will be experienced with experiments involving cement processing.

**Course Content****Lecture Hours**

1. History of calcareous inorganic cements, mortars and concrete	2
2. Definition and classification	1
3. Production of portland cement	10
4. Hydration of cement	2
5. Mortars	2
6. Concrete	2
7. Some additives in mortars and concrete	1
8. Standard tests for cements, mortars and concrete	4
9. Physical behavior of concrete after pouring	3
10. Reinforced concrete	3

Total	<u>30</u>
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**Laboratory Topics****Laboratory hours**

1. Cement raw materials	3
2. Raw materials preparation	6
3. Burning and cooling of cements	9
4. Cement grinding	6
5. Cement testing	21
5.1 Fineness	
5.2 Heat of hydration	
5.3 Setting and hardening of cement	
5.4 Strength of cement	
5.5 Drying shrinkage of cement	
5.6 Thermal expansion of concrete	
5.7 Fire resistance	

Total	<u>45</u>
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