



CIQS Syllabus		Original:	May 17, 1993
Course No:	A102	Rev. No:	4
Course Title:	Construction Technology I	Rev. Date:	March 31, 2012

Course Description:

This course introduces the student to the materials and methods used in construction associated with excavation and earth works, concrete works including reinforcing steel, masonry and metals. The purpose being to acquaint the student with the manufacturing process of various materials and the way in which the materials and methods are implemented in a construction project. The contents of this subject cover Divisions 2, 3, 4, 5, 31, 32 & 33 of the MasterFormat 2010.

Suggested Prerequisites: None

Learning Outcomes:

The candidate will be able to:

1. Demonstrate the basic knowledge of the composition and possible use of the materials studied.
2. Demonstrate knowledge of the manufacturing process for the various types of materials.
3. Demonstrate knowledge of the appropriate processes given a defined circumstance.
4. Demonstrate knowledge of the conditions under which the various processes could be applied.

Course Content:

1. General requirements including materials evaluation, construction specifications, referenced standards, testing laboratories, etc.
2. Site works including site plans, earth work, environmental concerns, soil classifications, soil behaviour, soil investigation, soil modification, foundations and piles, paving and surfacing materials.
3. Concrete including materials in concrete, strength of concrete, mixed design, delivery of concrete, placing of concrete, reinforcing steel, precast concrete and pre-stressed concrete.
4. Masonry including mortar, brick, manufacture of brick, brick work, structural play tile, concrete block, masonry panels, glass block, stone, stone masonry and masonry restoration.
5. Metals including classifications of metals and metal manufacturing, steel pipe tubing and wire, steel castings, classification of steels, steel construction, fire protective methods for exposed steel, steel fasteners, steel floor and roof framing, aluminum and aluminum alloys, aluminum products, lead, zinc and zinc coatings, copper and copper alloys, nickel, chromium, cadmium and titanium, combined metals and galvanic action.

Required Textbooks and Materials:

1. Construction Materials, Methods & Techniques, Building for a Sustainable Future, 3rd Edition, by William P. Spence & Eva Kultermann.

Additional Reference Materials:

1. Canadian Wood-Frame House Construction, 3rd Edition published by Canada Mortgage and Housing Corporation.
2. Design & Control of Concrete Mixtures, 7th Canadian Edition By Steven H. Kosmatka, Beatrix Kerkhoff, William C. Panarese, Norman F. MacLeod and Richard J. McGrath.

Testing:

Emphasis in testing will be on the problem solving abilities of the student and:

1. The manufacture of the types of materials,
2. The proper application of the process,
3. The appropriate use of the various materials.