

Concrete Technology For Contractors , Consultants Engineers, Masterclass - 2022



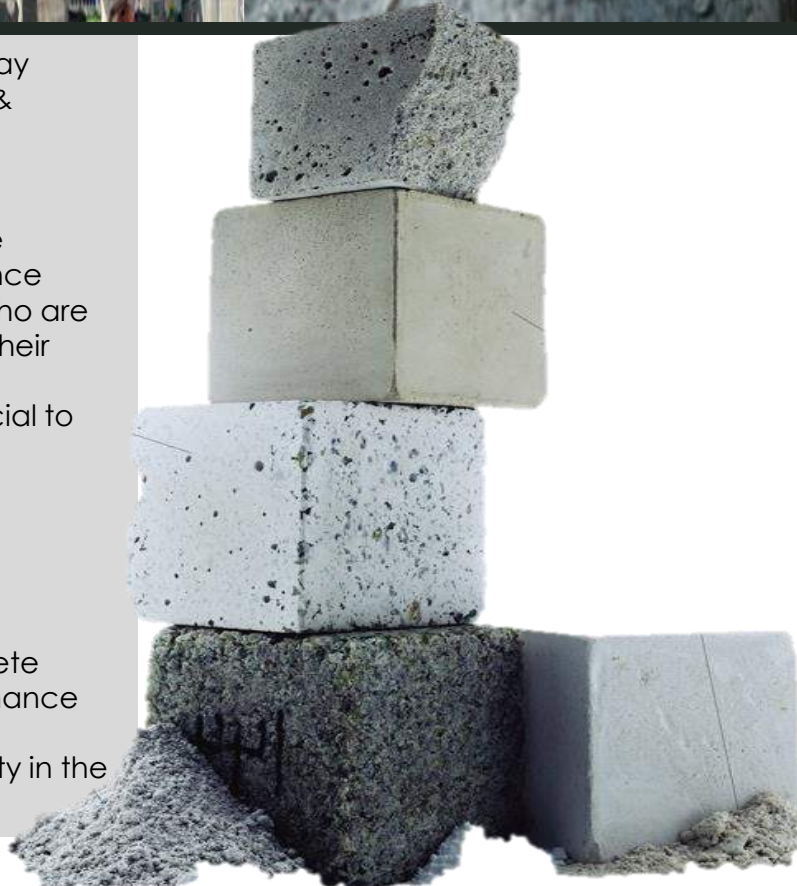
CASI Construction Academy Presents a 2 day
Advanced Workshop In Concrete Materials &
Technology

WHO SHOULD ATTEND

Client bodies that want reinforced concrete structures that will not incur huge maintenance costs in future, designers and constructors who are serious about quality in the best interests of their clients.

Attendance of the course would be beneficial to practitioners representing road authorities

- ✓ Consulting engineers
- ✓ Technicians
- ✓ Contractors
- ✓ Foreman involved in the production and construction of concrete
- ✓ Client bodies that want reinforced concrete structures that will not incur huge maintenance costs in future
- ✓ Constructors, who are serious about quality in the best interests of their clients.



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AIM OF THE COURSE

Concrete is a highly variable material and its properties can be modified to suit the individual requirements of a structure or an environment. Decisions regarding the selection of concrete component materials are frequently left to the contractor, and the resulting concrete properties may result in excessive shrinkage and cracking, for example, even if the concrete satisfies a rudimentary specification.

BASIS OF THE COURSE CONTENT

In a very tight curriculum, a tertiary institution is unable to give future designers or constructors of reinforced concrete structures a thorough understanding of materials science. The course will ensure a better understanding of what can be achieved with concrete, and how it can accommodate the needs of a specific structure.

SUBJECT MATTER THAT WILL BE COVERED

- ✓ The subject matter is a practical guide to the selection and placement of concrete materials.
- ✓ Relationships between parties to a civil engineering contract
- ✓ The three states of concrete with measurable properties and operations undertaken, to satisfy the needs of different types of specification
- ✓ Formwork and falsework used to support and mould fresh concrete, the materials used for formwork, their advantages and disadvantages
- ✓ Common defects that occur in concrete and their avoidance
- ✓ Case studies workshop where special structures will be discussed and the required concrete properties identified, classified and specified

Course Facilitator

Bruce Raath PrEng, CEng, FSAICE , MICT , AMIStructE, AAARB is a retired civil engineer who has specialised in construction materials, particularly concrete. He has set up a consulting practice BA Raath and Associates to provide technical information to designers and constructors in the civil engineering and building industries. Bruce Raath is an experienced lecturer and has written and **received CPD accreditation** for a series of one day courses on the essential theory and practical application of concrete technology.

Bruce Raath is a CEO for B A Raath & Associate and a member of the Association of Arbitrators and has assisted as an expert witness in the settlement of disputes for ECSA and the Insurance Industry.

Bruce has an in-depth knowledge of Concrete Technology and is regarded as an expert in the field. He is an excellent trainer and presenter. He holds a diploma in Advanced Concrete Technology awarded by the University of London and is registered as a Professional Engineer in South Africa and a Chartered Engineer in the United Kingdom.



Course Content

Session 1

CONCRETE MATERIALS

- a. Cementitious materials
 - Portland cements
 - Cement extenders, uses, properties
- Importance`.
- b. Aggregates, Mixing water, Chemical Admixtures
- Uses and effects on concrete

Session 2

PROPERTIES OF FRESH CONCRETE

- a. Stiffening and early hardening
- b. Workability
 - Consistence, Cohesion, Compatibility
 - Assessing workability
- c. Bleeding
 - What, where, how
 - Importance for the site engineer
 - Controlling
- d. Plastic cracking Plastic shrinkage and Plastic

Session 3

PROPERTIES OF HARDENED CONCRETE

- a. Properties
- b. Factors that influence the strength of concrete
 - factors
 - Extrinsic factors
- c. Methods of measuring the strength
 - Manufacturing and handling of concrete on site

Session 4

SITE PROCEDURES

- Batching
- Mixing
- Transporting
- Placing and Compaction and Finishing
- Curing procedures on site
- Mix design fundamentals.
- Concreting in cold and hot weather

Session 5

TESTING PROCEDURES

- a. Testing procedures of fresh concrete and hardened concrete
- b. Acceptance criteria fresh and hardened concrete

Session 6

Basic introduction to concrete properties:

Aspects such as-

- Water to cement ratio effects
- Workability and stiffness
- Air content
- Heat of hydration
- Setting time
- Shrinkage
- Strength development as a function of time
- (concrete maturity)
- Temperature
- Bleeding
- Permeability
- Porosity

Session 7

The basic introduction to steel reinforcement properties

- Yield
- Bond and anchorage
- Bars vs mesh
- Metal vs plastic
- Plastic and steel fibres

Session 8

CONCRETE FOR INDUSTRIAL APPLICATIONS

This session deals with topics such as high strength and high performance

- Performance concrete
- Formwork finishes and colour control
- Formwork systems in high rise construction
- Rendering high strength concrete

Session 9

DURABILITY & CRACKS IN CONCRETE

- Carbonation, chloride penetration,
- concrete cancer, exposure
- Environment, freeze-thaw conditions, salt attack

Session 10

The second session addresses cracks in concrete. Aspects such as:

- Hot weather concreting
- Plastic shrinkage
- Plastic settlement
- Thermal cracking
- Building restraint
- Inadequate reinforcement

Session 11

Methods of crack identification and minimisation of cracking such as:

- Curing compounds
- Use of fibres (polypropylene and steel) and calculation of bleed water evaporation rates from concrete surfaces
- Joint design including the various types of dowels used in the marketplace
- Round vs square
- Flat vs diamond.



Delegate Registration Form-Mk

Please register by completing the delegates' details and fax/email back to: Contact :MK Telephone No +27 11 075 3461/3 Fax:+27 85 524 601 email : register@casits.co.za NOTE: Please provide information as you wish it to appear on your name badge and on the official participant database

Event Name : Concrete Technology For Contractors , Consultants Engineers, Masterclass - 2022

Select Session Schedule :

Delegate Fees

R9 999 excl VAT Per Delegate

- * Only Includes Course Fees, Lunch, Learning Materials
- * Does not include accommodation & transport

- 24th to 25th January 2022
- 14th to 15th February 2022
- 30th to 31st March 2022

Delegate Details : In CAPS

Full name: _____
 ID Number : _____
 Job Title: _____
 Email: _____
 Cell Number: _____
 Regular Vegetarian Halal

Full name: _____
 ID Number : _____
 Job Title: _____
 Email: _____
 Cell Number: _____
 Regular Vegetarian Halal

Full name: _____
 ID Number : _____
 Job Title: _____
 Email: _____
 Cell Number: _____
 Regular Vegetarian Halal

Full name: _____
 ID Number : _____
 Job Title: _____
 Email: _____
 Cell Number: _____
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Company Details

Invoice Contact Person

Attention Name : _____
 Position: _____

Department : _____
 Email : _____
 Tel Number : _____
 Cell Number : _____

I hereby acknowledge that I have read and understood all the terms and conditions of registration and have the authority to approve the registration on behalf of the company

Name _____ Position _____
 Approving Managers Signature : _____ Date: _____ email: _____
 Direct line: _____ Company Name: _____
 Type of Business: _____ Company Registration# _____
 Tel : _____ Fax: _____ VAT Number _____
 Address: _____
 P.O.BOX : _____

Terms and Conditions

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