Concrete Technology For Contractors , Consultants Engineers, Masterclass - 2022

CASI Construction Academy

2 CPD POINTS

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.

CASI
Construction Academy

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

2022

CASI

Please register by completing the delegates' details and fax/email back to: register@casits.co.za Telephone No +27877005633 Fax:+27 85 524 601 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

Delegate Fees

☐ R9 999 excl VAT Per Delegate

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

Select Session Schedule :

- ☐ 28th to 29st April 2022
- ☐ 19th to 20th May 2022
- ☐ 20th to 21st June 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: _____
Regular Vegetarian Halal

Company Details

Invoice Contact Person

Attention Name :_____
Position:_____

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

I hereby acknowledge that I have read an 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

No seats will be reserved, unless Casi receives a signed registration form with payment . The signed registration form is a legally binding contract. **Casi Pty Ltd does not provide refunds for cancellations** however you may provide substitute delegates at any time. For cancellations received in writing more than seven(7) days prior to the conference you will receive 100% credit, subject to a 10% administration fee, to be used at another Casi conference for up to one year from the date of issue. For cancellations received seven(7) days or less prior to an event (including day 7), no credit will be issued. In the event that Casi Training Solutions Pty Ltd cancels an event, delegate payment at the date of cancellation will be credited to one future Casi This credit will be available for up to one year from the date of issue**. All participants must pay the registration fee prior to arrival at the conference venue.** In the event that Casi postpones an event, delegate payments at the postponement date will be credited towards the rescheduled date. If the delegate is unable to attend the rescheduled event, the delegate will receive 100% credit representing payments made towards one future CASI. This credit will be available for up to one year from the date of issue. No refunds will be available for cancellations or postponements. We reserve the right to postpone a seminar due to low enrolment. CASI reserve the right to amend any part of the Conference programme if necessary at any time. *Casi will not be held liable for travel and accommodation costs. The conference fee includes: conference material, lunches and refreshments, but excludes travel & accommodation.* ***CASI has a strict no cash Refund Policy*** . Casi is not responsible for any loss or damage as a result of a substitution, alteration or cancellation/ postponement of an event. CasiLtd shall assume no liability whatsoever in the event this conference is cancelled ,rescheduled or postponed due to a fortuitous event, act of God, unforeseen occurrence or any other event that renders performance of this conference impracticable or impossible. For purposes of this clause, a fortuitous event shall include, but not be limited to: war, fire, labour strike, extreme weather or other emergencies. Alterations to the program will be communicated to the fully registered delegates . **Please go to www.casits.co.za for full set of terms and conditions . Please note: Upon receiving the registration form, an invoice will be issued electronically. When payments are made, please supply the bank with your Invoice number as reference. Fees include lunch, refreshments and conference documentation. The organisers reserve the right to make necessary changes to the programmes, speakers, venue or the dates should the need arise.**