



PROFESSIONAL CERTIFICATE OF COMPETENCY IN
**STRUCTURAL DESIGN
FOR NON-STRUCTURAL
ENGINEERS**



12 MODULES OVER 3 MONTHS

For upcoming start dates, please view our program schedule at:
<http://www.eit.edu.au/schedule>



Live, interactive webinars - learn from industry experts
with hands-on experience

Bring yourself up to speed in the latest trends and technologies

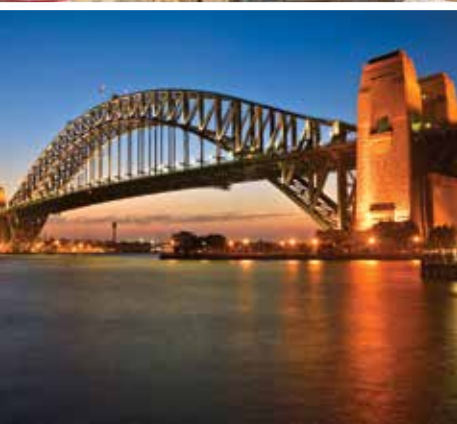
LEARN HOW TO:

- Explain the role of a structural engineer
- Predict the behavior of structural members under loading
- Apply the concept of stress functions such as tension, compression, shear and bending
- Perform a basic analysis of statically determinate and indeterminate structures
- Analyze the deformation of members under loading
- Determine the significance of material properties in design
- Undertake the basic design of Reinforced Cement Concrete (RCC) structures
- Undertake the basic design of steel structures
- Undertake the basic design of masonry structures
- Undertake the basic design of timber structural members

Presented by

**Roland
Green**

Mechanical Engineer / Estimator



SECURE YOUR PLACE NOW!

Contact enquiries@eit.edu.au for an enrolment form or more information.



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BENEFITS OF LIVE E-LEARNING

- Attend lessons in an online classroom with your lecturer and fellow students
- Upgrade your skills and refresh your knowledge without having to take valuable time away from work
- Receive information and materials in small, easy to digest sections
- Learn while you travel - all you need is an Internet connection
- Have constant support from your program lecturer and coordinator for the duration of the program
- Interact and network with participants from around the globe and gain valuable insight into international practice
- Learn from international industry experts, based around the globe
- Live interactive webinars, not just a 'book on the web'
- Receive a certificate of completion for professional development purposes

PRESENTATION FORMAT

The certificate program features real-world applications and uses a multi-pronged approach involving self-study, interactive online webinars and homework assignments with a mentor on call. The program consists of 12 modules, over a period of 3 months.

Some modules may involve a practical component or group activity. For each module there will be an initial reading assignment along with coursework or problems to be handed in and in some cases practical exercises. Participants will have ongoing support from their lecturer and program coordinator.

Program reading material will be delivered in electronic (PDF) format in advance of online presentations. Presentations and group discussions will be conducted using a live interactive software system. Assignments will be submitted electronically and wherever possible, practical exercises will be conducted using simulation software and remote labs.

LIVE WEBINARS

During the program you will participate in 6 live interactive sessions with the lecturer and other participants from around the world. Each webinar will last approximately 90 minutes, and we take student availability into consideration wherever possible before scheduling webinar times. Contact us for details of webinar session scheduling. All you need to participate is an adequate Internet connection, speakers and a microphone. The software package and setup details will be sent to you prior to the first webinar.

Please note: Webinars may last up to 2 hours depending on student interaction and level of content.

PRESENTED BY

ROLAND GREEN

Mechanical Engineer / Estimator



Roland brings more than 20 years' experience in engineering and estimating fields, gained mostly in South Africa. He has worked on many projects spanning the minerals industry, including power stations, coal stockyards and manganese. The past few years Roland has being extensively involved with major projects across Western Australia ranging from \$460 million to projects of more than a few billion dollars.

Key projects include:

- Kusile Power Station Coal Stockyard
- Kalagadi Manganese
- Medupi Power Station
- Minproc RIO TINTO Ramp Conveyor

Please note: Lecturers are subject to change.

12 MODULES OVER 3 MONTHS

OVERVIEW

Construction is the largest industry in the world. Within a Civil Engineering context, 'construction' may refer to bridges, dams, earthworks, foundations, offshore structures, pipelines, power stations, railways, retaining structures, roads, tunnels, waterways and water/wastewater infrastructures. Within a Mechanical Engineering context, on the other hand, 'construction' may refer to airframes, aircraft fuselages, boilers, pressure vessels, motor coaches, railroad carriages, cranes, elevators and ships.

Anything constructed needs to be designed first. Structural Engineering deals with the analysis and design aspects required to ensure a safe, functional and economical end product. During the design process the designer may constantly interact with specialists such as architects and operational managers. Once the design is finalized, the implementation involves people to handle aspects such as statutory approvals, planning, quality assurance and material procurement.

The entire exercise can be undertaken in a highly-coordinated way if everyone involves understands the terminology or 'project language'. To understand this language fully, it is necessary to appreciate the principles of structural analysis and design.

Participants in this program will gain a basic knowledge of structural engineering that includes the principles of analysis of structures and their application, the behaviour of materials under loading, the selection of construction materials, and the design fundamentals for Reinforced Cement Concrete (RCC) and steel structures.

The emphasis will be on the determination of the nature and quantum of stress developed under loads, and the way structures offer resistance to it. Being the most widely used construction materials, RCC and steel will be covered in detail, though masonry and timber are also introduced.

INCLUDES 4 FREE REFERENCE MANUALS

VALUED AT OVER US\$400

YOU WILL RECEIVE 4 OF OUR UP-TO-DATE TECHNICAL eBooks TO ADD TO YOUR LIBRARY.

- Structural Design for Non-Structural Engineers
- Designing, Specifying and Constructing with Modern Concrete
- From Engineer to Leader
- Practical Project Management for Engineers and Technicians

Received upon completion.

All materials required for the program will be provided electronically, in smaller, easy-to-read sections.

Please Note: eBooks are available in hard copy at 50% of the recommended retail price. Contact us for pricing details.



PROGRAM OUTLINE

MODULE 1: ANALYSIS OF STATICALLY DETERMINATE STRUCTURES I

- Classification of structures
- Types of loads
- Stress in structural members
- Types of supports in structures
- Equilibrium of bodies

MODULE 2: ANALYSIS OF STATICALLY DETERMINATE STRUCTURES II

- Bending moment and shear force
- Effect of moving loads
- Analysis of pin-jointed frames
- Influence lines

MODULE 3: PRINCIPLES OF STRENGTH OF MATERIALS I

- Mechanical properties of materials
- Development of internal stresses
- Flexural stresses in beams
- Relationship between horizontal and vertical shear

MODULE 4: PRINCIPLES OF STRENGTH OF MATERIALS II

- Determination of bending shear stress
- Deformation of beams
- Combined stresses
- Analysis of columns

MODULE 5: ANALYSIS OF STATICALLY INDETERMINATE STRUCTURES I

- Structural classification based on degree of indeterminacy
- Principle of superposition
- Analysis of statically indeterminate beams
- Multi-span or continuous beams

MODULE 6: ANALYSIS OF STATICALLY INDETERMINATE STRUCTURES II

- Slope deflection method
- Moment distribution method
- Influence line diagram for statically indeterminate structures

MODULE 7: DESIGN THEORIES AND LOADS

- Stress-strain relationship for different materials
- Design philosophies
- Combination of loads
- Theories of failure

MODULE 8: DESIGN OF STEEL STRUCTURES I

- Properties of structural steel
- Steel structural sections
- Design of steel structures
- Joints and fasteners for steel structures

MODULE 9: DESIGN OF STEEL STRUCTURES II

- Design of tension members
- Design of compression members
- Design of beams
- Design of truss and allied structures

MODULE 10: DESIGN OF RCC STRUCTURES I

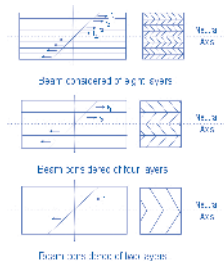
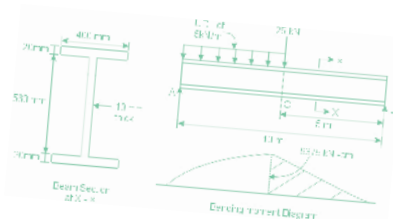
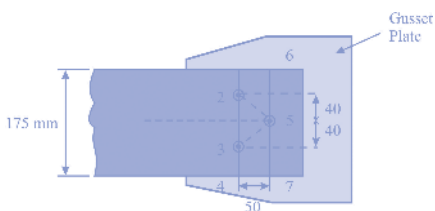
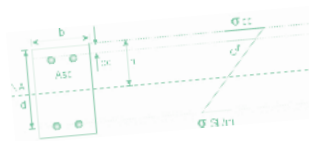
- Properties of concrete
- Principle of reinforced concrete design
- Design norms for reinforced concrete beams
- Design of reinforced concrete slabs

MODULE 11: DESIGN OF RCC STRUCTURES II

- Design of reinforced concrete foundations
- Design of axially loaded columns
- Pre-stressed concrete
- Multi-storied buildings

MODULE 12: DESIGN OF MASONRY AND TIMBER STRUCTURES

- Masonry structures
- Design of masonry structures
- Strength of timber
- Design of timber structures



HARDWARE AND SOFTWARE REQUIREMENTS

All you need to participate is an adequate Internet connection, PC, speakers and a microphone. The software package and setup details will be sent to on the program start date.

ENTRANCE REQUIREMENTS

Some practical work experience in some of these topics would obviously be advantageous.

PRACTICAL EXERCISES

Throughout the program you will participate in hands-on exercises using simulation software or remote labs, which will help you put theory to practice immediately!

CERTIFICATION

Participants completing and achieving at least 50% or more in each assignment, as well as attending 65% of the live webinars, will receive the Engineering Institute of Technology Professional Certificate of Competency in Structural Design for Non-Structural Engineers.



ON-SITE TRAINING

We can provide our training at the venue of your choice. On-site training can be customised and by bringing the trainer to site the dates can be set to suit you!

“The Customer is Always Right” – so tell us what you need and we will design a training solution at your own site.

For a FREE detailed proposal please contact Kevin Baker via email: training@idc-online.com