Entry Requirements

Candidates should possess either a recognised degree in Civil Engineering (or equivalent); or Associate Membership of a recognised professional Engineering Institute with a minimum of one year's relevant industrial experience.

Eligible candidates will be selected through an interview.

Course Fees

Tuition fees for local students (Rs.)		
MSc in Structural Engineering		600,000.00
Tuition fee for foreign students (USD)		
MSc in Structural Engineering		2,500.00
Registration fee:	Rs.	2,000.00
Non-refundable library deposit	Rs.	2,000.00
Refundable library deposit (per book)	Rs.	2,500.00
Exam fees:	Rs.	500.00

(all fees should be paid during registration)

Course Duration and Conduct

Duration: 24 months (Part-time)
All lectures, assignments, seminars and viva will usually be conducted on Fridays and Saturdays from 8.00 a.m. to 5.00 p.m. in hybrid mode.
All written exams will be conducted physically at the University of Moratuwa.

Applications and Enquiries

Application forms can be downloaded from
https://uom.lk/civil/divisions/structural/pg-info

For further details, contact:

Course Assistant: Mrs. Amila Perera
Tel: 011-2650301 Ext. 2025
Email: **structuralpg.uom@gmail.com**

Course Coordinator: Dr. H. M. S. T. Herath
Email: **cc-msc-se@uom.lk**

Please e-mail the completed application form and the relevant supportive documents to structuralpg.uom@gmail.com and submit the hard copy via registered post to

Dr. H. M. S. T. Herath, The Course Coordinator,
M.Sc. Degree in Structural Engineering – 2026/2027,
Department of Civil Engineering, University of Moratuwa.

Closing date: **21st August 2026**

Resource Personnel

Professors

Prof. M.T.R. Jayasinghe
BSc Eng (Moratuwa), PhD (Cambridge), CEng, MIE (SL), MSSE (SL)

Prof. (Mrs.) C. Jayasinghe
BSc Eng Hons (Moratuwa), MEng (Moratuwa), PhD (Moratuwa), CEng, MIE (SL), MSSE (SL)

Prof. C.S. Lewangamage
BSc Eng (Moratuwa), MEng (Tokyo), PhD (Tokyo), CEng, MIE (SL), MSSE (SL)

Prof. L.I.N. De Silva
BSc Eng (Moratuwa), MEng (Tokyo), PhD (Tokyo), CEng, MIE (SL)

Prof. H.M.Y.C. Mallikarachchi
BSc Eng (Moratuwa), PhD (Cambridge), CEng, MIE (SL), MAIAA, MSSE (SL)

Senior Lecturers

Dr. K. Baskaran
BSc Eng (Peradeniya), PhD (Cambridge)

Dr. H.G.H. Damruwan
BSc Eng (Moratuwa), PhD (QUT), AMIE (SL)

Dr. T.G.P.L. Weerasinghe
BSc Eng (Moratuwa), MSc (Moratuwa), PhD (Melbourne), AMIE (SL)

Dr. H.M.S.T. Herath
BSc Eng (Moratuwa), PhD (Cambridge), AMIE (SL)

Dr. P.L.N. Fernando
BSc Eng (Moratuwa), MSc (Moratuwa), PhD (Sydney), AMIE (SL)

Dr. R.M.C.M. Rajapakse
BSc Eng (Peradeniya), MPhil (Peradeniya), PhD (Liege-Hasselt), AMIE (SL)

Dr. E.R.K. Chandrathilaka
BSc Eng (Moratuwa), MSc (Moratuwa), PhD (Melbourne), AMIE (SL)

Dr. K.H.S.M. Sampath
BSc Eng (Moratuwa), MSc (Moratuwa), PhD (Melbourne), AMIE (SL)

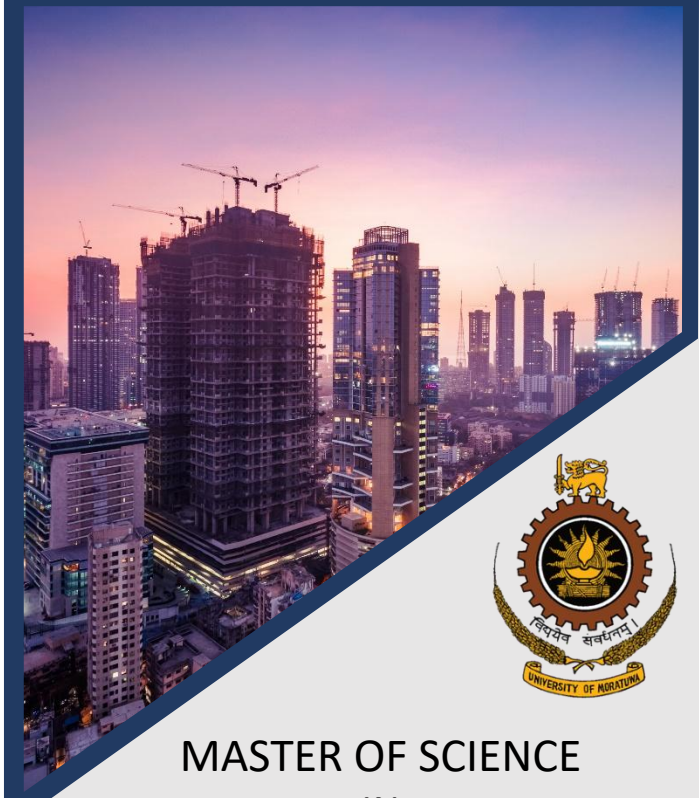
Visiting Lecturers

Prof. W.P.S. Dias
BSc Eng (SL), PhD (Lond), DIC, CEng, FIE (SL), MIStructE, FSSE (SL)

Prof. S.M.A. Nanayakkara
BSc Eng (Moratuwa), MEng (Tokyo), DEng (Tokyo), CEng, MIE (SL)

Prof. I.R.A. Weerasekara
BSc Eng (Moratuwa), PhD (Calgary), CEng, MIE (SL), FSSE (SL)

Dr. (Mrs.) M.T.P. Hettiarachchi
BSc Eng (Moratuwa), MSc (Lond), DIC, PhD (Lond), MSSE (SL)



MASTER OF SCIENCE IN STRUCTURAL ENGINEERING

2026/2027

Department of Civil Engineering
University of Moratuwa

MSc in Structural Engineering

The Structural Engineer, with a knowledge and understanding of material behaviour and structural actions, can design with economy and elegance structures that fulfil their intended purpose while safely resisting the forces to which they may be subjected. However, with rapid advances in materials technology, digitalised engineering, and advanced computational techniques, the successful structural engineer must continuously update his/her knowledge and keep abreast of recent developments in structural engineering. Increasingly, engineers are also expected to utilise data-driven engineering, machine learning, and artificial intelligence to support structural analysis, design optimisation, and infrastructure management.

The Department of Civil Engineering at the University of Moratuwa aims to fulfil the need for Continuing Professional Development (CPD) by conducting a Postgraduate Degree in Structural Engineering on a part-time basis for practising engineers. The programme is designed to provide participants with advanced knowledge in structural analysis and design while exposing them to emerging technologies and modern engineering practices. This course is conducted by the Division of Building and Structural Engineering of the Department. This division comprises experts in many aspects of modern structural engineering design. They have established a close relationship with industry through consultancy and contract research in such areas as concrete technology, fibre composites, structural dynamics, computational modelling, forensic engineering, and data-driven structural engineering. Research in design methodology, tall buildings, shell and space structures, structural optimisation, machine learning for structural applications, and the behaviour of structures subjected to extreme loading conditions such as earthquakes, wind, and fire is also being carried out.

Course Structure and Modules

The following modules are offered in three semesters with physically conducted written examinations at the end of each semester.

CORE MODULES

CE 5102 – Computer Analysis of Structures

Structural idealization and modelling; review of basic concepts in structural analysis; computer analysis of framed structures; implementation of computer analysis; plastic analysis of plane frames; and analyses of members with variable cross-sections and members with curved axis.

Continuous Assessments: 30 % Final Exam: 70%

CE 5155 – Design Project

Structural forms and materials; loading on structures; failure modes and preliminary sizing of elements; selection of alternatives.

Continuous Assessments: 100%

CE 5104 – Design of Pre-stressed Concrete Structures

Behaviour of pre-stressed concrete members in flexure; pre-stress losses; shear and torsion; design of end block and transmission zone; composite construction; design of continuous beams; pre-stressed concrete slabs and axially loaded members; applications of pre-stressed concrete.

Continuous Assessment: 30% Final Exam: 70%

CE 5105 – Design of Reinforced Concrete Structures

Structural idealization; design of beams and columns; design of solid, flat and waffle slabs; design of foundations with inverted T-beams, raft foundations and pile foundations; design of walls, basements, deep beams, silos and box culverts.

Continuous Assessment: 30% Final Exam: 70%

CE 5106 – Design of Steel Structures

Steel as a construction material; corrosion and fire protection; review of design of steel structural elements; design of connections, plate and crane girders, simply supported composite beams and steel buildings; types and design concepts for steel bridges and towers; fabrication and erection, and costing of steel work.

Continuous Assessment: 30% Final Exam: 70%

ELECTIVE MODULES

CE 5141 – Advanced Structural Analysis

Influence lines for beams, frames grids, arches and trusses; effect of large axial forces, method of finite differences, analysis of shear wall structures; geometric non-linearity and material non-linearity, Analysis of structures exposed to fire

Continuous Assessment: 30% Final Exam: 70%

CE 5142 – Bridge Engineering

Bridge loading, investigations for bridges; analysis and design of pre-stressed concrete, steel, composite and arch bridges; suspension bridges and cable stayed bridges; design of substructure and foundation; maintenance of bridges.

Continuous Assessment: 30% Final Exam: 70%

CE 5143 – Design Methodology

Theories and approaches to design; conceptual design and preliminary design; learning from structural failures; optimization techniques; design office practice.

Continuous Assessment: 30% Final Exam: 70%

CE 5144 – Design of Water Retaining Structures

Introduction to concepts; design of water retaining structures based on relevant standards; construction aspects of water retaining structures; application for elevated tanks and ground reservoirs.

Continuous Assessment: 30% Final Exam: 70%

CE 5145 – Design with Fibre Composites

Introduction to fibre composites; stress-strain relationship of continuous fibre reinforced lamina; effective moduli and strength of a continuous fibre-reinforced lamina; analysis of laminates; application of fibre composites in retrofitting concrete, steel, masonry and timber structures.

Continuous Assessment: 30% Final Exam: 70%

CE 5146 – Geo-techniques in Structural Engineering

Fundamental concepts in geotechnical engineering; site investigation; shallow and deep foundations; testing of piles; earth retaining structures.

Continuous Assessment: 30% Final Exam: 70%

CE 5147 – Finite Element Analysis

Review of basic concepts; isoparametric formulations; formulation of 2D and 3D elements; triangular elements; numerical integration; introduction to hybrid finite elements and soil structure interaction.

Continuous Assessment: 30% Final Exam: 70%

CE 5148 – Masonry Design

Advantages and development of load bearing masonry; structural forms and design considerations; materials and material properties of structural masonry; design for compression and lateral loading; foundations; design for accidental damage/overall structural stability; movements, defects repair and maintenance.

Continuous Assessment: 30% Final Exam: 70%

CE 5149 – Structural Dynamics and Control

Theory on structural dynamics; mode shapes; vibration control; application to buildings and bridges; modelling buildings with base isolations and tuned mass damping systems; quasi static, response spectrum and time history analysis for earthquakes; detailing of reinforced concrete, pre-stressed concrete and steel structural elements for disaster resistance.

Continuous Assessment: 30% Final Exam: 70%

CE 5150 – Sustainable Design and Development

Concept of sustainable engineering and rating tools; alternative building materials, design principles, structural forms and construction methods; rehabilitation techniques for existing structures; special features associated with building energy and water efficiency; indoor environmental quality; role of the structural engineer.

Continuous Assessment: 30% Final Exam: 70%

CE 5151 – Tall Buildings and Services

Structural forms for tall buildings, services and integration, selection of strong elements; behaviour under wind and earthquake loads; design methods and special design aspects for tall buildings, Façade design

Continuous Assessment: 30% Final Exam: 70%

CE 5152 – Timber Design

Timber as a sustainable construction material; Timber properties and their structural engineering importance; Structural design of members and connections of timber constructions.

Continuous Assessment: 30% Final Exam: 70%

CE 5153 – Extreme Loading on Structures

Introduction to extreme and dynamic loading on structures; structural idealization and modelling of structures subjected to extreme loading; Improving the resistance and robustness of structures in the presence of extreme loads.

Continuous Assessment: 30% Final Exam: 70%

CE 5154 – Concrete Technology

Introduction to concrete; concrete at early age; the structure, strength, dimensional stability and durability of concrete; advances in concrete technology .

Continuous Assessment: 30% Final Exam: 70%