multiple mineral precipitation in 3 phases such as in mineral precipitation in anaerobic digester liquor aeration; integrated chemically and biologically processes modeling of activated sludge and anaerobic digestion; modelling acidogenic, methanogenic and sulphidogenic systems.

CIV3064Z: Urban Transitions in the Global South
This course aims to provide students with a wide-ranging introduction to the dynamics of differential urbanisation processes in the global South with an eye on understanding the role of infrastructure in advancing more sustainable urban forms and patterns. The overarching learning objectives are to understand the nature, drivers and consequences of the second urban transition from a sustainability outcomes in different contexts, settings and scales.

CIV3067Z: Advanced Infrastructure Management
The module exposes students to the concepts of municipal infrastructure management. These concepts include the context in which Infrastructure Management Planning (IMP) is done, the process of IMP and the techniques required to prepare an IMP.

CIV3072Z: Public Transport Policy and Regulation
This course aims to develop an understanding of public passenger transport system policy analysis an regulation. Topics include: legislative and planning frameworks, public transport policy, paratransit reform, public transport system regulation, design and operation of sustainable transport systems and system performance. This course aims to develop an understanding of public passenger transport system design and operations management. Topics include: public transport system concepts, public transport system design, public transport systems performance, design of public transport systems and system maintenance. The aim of the course is to offer students an opportunity to undertake a case study research project in which they are able to develop deep skills in transport policy and planning. The course would involve undertaking a critical investigation of the requirement for, the process of preparing and implementing, and the impacts and the effects of a selected transport policy, plan, strategy or project.

CIV3072Z: Integrated Urban Water Management
The aim of this course is to introduce students to integrated urban water management (IWM). This includes: social imperatives; environmental considerations; politics and water service issues; and the role of water in the City of Cape Town; servicing the informal settlements of Cape Town. Water supply: key considerations for water reutilisation systems; water supply options; household management of water; water demand management; public health considerations. Sanitation: options; managing sanitary in informal settlements. Stormwater: managing stormwater in the City of Cape Town; rehabilitation of rivers and groundwater issues; Sustainable Drainage Systems (SuDS); catchment management. Water Sensitive Urban Design (WSUD); water management systems; sustainability indicators.

CIV3082Z: Advanced Mechanics of Materials
This advanced course in the mechanics of materials aims to introduce students to the following topics: physical mechanisms of deformation of common construction materials; continuum mechanics and its main mathematical tool, tensor analysis; non-linear continuum material behaviour, including visco-elasticity, plasticity, and modeling; failure and fracture characteristics and modelling of these effects. An introduction to computational mechanics is included.

CIV3112Z: Ground Improvement Techniques
This course aims to provide an advanced understanding of laboratory and field techniques. Topics include: Laboratory methods: testing fundamentals of stress-strain, failure, deformability and, non-destructive testing; fundamentals of site investigation; results for determining engineering properties of soil for design. Field instrumentation: settlement gauges; extensometers; inclinometers; piezometers; geotechnical data correlation charts; measurements of in-situ stresses and permeability; etc. are also covered.

CIV3112Z: Laboratory and Field Techniques
This course aims to introduce students to the concepts underpinning a range of ground improvements and soil remediation techniques and an appreciation of how these techniques are applied in practice. It covers important design and construction aspects associated with ground improvement techniques; including: mechanical earthworks, compaction, explosive vibroflotation, vibroreplacement, hydraulic strategies (groundwater lowering, preloading, electro-osmosis), physical/chemical methods (admixtures, grouting, freazing), and hydraulic strategies for water in the City of Cape Town; servicing the informal settlements of Cape Town. Water supply: key considerations for water reutilisation systems; water supply options; household management of water; water demand management; public health considerations. Sanitation: options; managing sanitary in informal settlements. Stormwater: managing stormwater in the City of Cape Town; rehabilitation of rivers and groundwater issues; Sustainable Drainage Systems (SuDS); catchment management. Water Sensitive Urban Design (WSUD); water management systems; sustainability indicators.

CIV3112Z: Bridge Management and Maintenance
This course aims to introduce the principles of bridge management and maintenance. The focus is on both highway bridges and railway bridges. The course provides the basic philosophies behind bridge management systems, the structure of a bridge management system, and the implementation of bridge management system. Life cycle cost analysis of bridges are introduced. Limitations between bridge management, maintenance and rehabilitation of bridges is discussed. Key to this course are bridge inspection cases and bridge studies.

CIV3113Z: Structural Performance Assessment & Monitoring
This course aims to introduce concepts of structural health monitoring of civil engineering. The course content covers the following topics: structural, in-service performance, conditions, performance models; condition assessment; condition monitoring; condition assessment and evaluation methods, and techniques for the assessment and evaluation of urban transport proposals.

CIV3114Z: Transport Demand Analysis & Project Assessment
This course aims to develop an understanding of transport demand analysis and project assessment. Topics include: travel data collection and survey design, data processing and analysis, the link between methodological approaches to transport analysis and the analytical methods and tools needed to evaluate the environmental effects, technological of supply chain and network layouts. Engineering design: choice of pipe materials, valves and other equipment. Pipes: review of pump types and their applications, design of pumping stations, power requirements and energy consumption, auxiliary equipment. Hydraulic modelling of distribution systems.

CIV3122Z: Advanced Soil Mechanics
This course aims to provide extensive insight and depth to students’ understanding of the theoretical background involved in the design of geotechnical systems in order to facilitate critical thinking in geotechnical analyses. It covers advanced concepts and theories in soil mechanics fundamental to geotechnical engineering such as; strength of soils; stress-strain behaviour, drained and undrained shear strength, stress paths; critical state soil mechanics; failure criteria, and innovative models soil deformation analysis. Stress-strain in soil; settlement of soil; and consolidation theory.

CIV3135W: Research Project 1: Transport Planning and Engineering Methods
This course aims to offer students an opportunity to undertake a research project in which students are able to develop and enhance skills in a selected area of professional practice. The research would involve undertaking a critical investigation of the origins, rationale, and debates surrounding the particular professional practice, and the necessary activities associated with applying the practice and reflecting on how it might be improved.

Important information
Department of Civil Engineering:
http://www.civil.uct.ac.za/

Civil Engineering Postgraduate Office:
Rowen Geswindt Tel: (021) 650 3499 or email: Rowen.Geswindt@uct.ac.za

Engineering Faculty Office:
http://www.ebe.uct.ac.za/
Tel: (021) 650 9111 or email: ebe-faculty@uct.ac.za

University of Cape Town:
http://www.uct.ac.za/
Tel: 021-650 2700 or email: ebe-faculty@uct.ac.za

Postgraduate Funding:
http://www.uct.ac.za/apply/funding/postgraduate/applications Tel: 021-650 3622 or email: pgfunding@uct.ac.za

International Academic Programmes Office:
http://www.icts.uct.ac.za/about/ourprogrammes/contact/EFE Tel: 021-650 5667 or email: int-.ops@uct.ac.za

Fee Enquiries:
http://www.icts.uct.ac.za/apply/fees/
Contact Fees Office Tel: (021) 650 1740 or email: fnd-feeeng@uct.ac.za

Information and Communication Technology Services:
http://www.icts.uct.ac.za/
Tel: 021-650 4500 or email: icts-helpdesk@uct.ac.za

Student Housing:
http://www.accommodation.uct.ac.za/
Tel: 021-650 4934 or email: ocas@uct.ac.za

Jammie Shuttle:
https://www.uct.ac.za/students/services/jammieTel: 021-685 7135 or email: jshuttle@uct.ac.za

The Department of Civil Engineering offers a number of special postgraduate courses, some of which are scheduled to facilitate attendance by practising engineers from industry.

Information on the offered research programmes, course work and potential supervisors are specific to respective departmental research fields, which are:

Civil Infrastructure Management and Maintenance
Geotechnical Engineering
Structural Engineering and Materials
Urban Infrastructure Design and Management
Quality Engineering

Students can consider Masters Degree studies doing only research, doing 2/3 research and 1/3 course work or doing 1/3 research and 2/3 course work. Different courses are offered annually, biennially or triennially.

Applications and Registrations
Students may apply online (http://uct.ac.za/apply/applications/forms). In order to apply online a working email address and a South African identity number will be needed, or, in case of an international applicant, the passport number.

Students who are unable to apply online, you may submit a paper application by printing the forms from the link, and sending them to the Admissions office.

Tel: (021) 650 2128, Fax: (021) 650 5193738 or email: admissions@uct.ac.za

Students are referred to the Faculty Handbook obtainable from the Faculty Office or www.uct.ac.za/handbooks

Contact Fees Office Tel: (021) 650 1704 or email: fnd-feeeng@uct.ac.za

Contact Information Office Tel: (021) 650 3499 or email: StudentServices@uct.ac.za

Contact Fees Office Tel: (021) 650 2128, Fax: (021) 650 5193738 or email: admissions@uct.ac.za

Students are referred to the Faculty Handbook obtainable from the Faculty Office or www.uct.ac.za/handbooks
Civil Infrastructure Management and Maintenance
Convenor: Professor Hans Beushausen
Tel: 021-650 5181 / email: Hans.Beushausen@uct.ac.za

Durability & Condition Assessment of Concrete CIV5116Z 22 - 24 February and Structures
Advanced Infrastructure Management CIV5067Z 05 - 09 June
Bridge Management and Maintenance CIV5115Z tbc June
Structural Performance Assessment & Monitoring CIV5119Z tbc August

Geotechnical Engineering
Convenor: Dr Denis Kalumba
Tel: 021-650 2590/ email: Denis.Kalumba@uct.ac.za

Laboratory and Field Techniques CIV5110Z 27 Feb - 03 Mar
Ground Improvement Techniques CIV5111Z 19 - 23 June
Advanced Soil Mechanics CIV5122Z 17 - 21 July
Foundation Design CIV5114Z 28 Aug - 01 Sept

Structural Engineering and Materials
Convenor: Dr Sebastian Skatulla
Tel: 021-650 2585 / email: Sebastian.Skatulla@uct.ac.za

Contract Law for Civil Engineers CIV5025F tbc
Advanced Mechanics of Materials CIV5108Z
An Introduction to Finite Elements MEC5063Z March - July
Finite Element Analysis MEC5064Z tbc

Transport Studies
Convenor: Associate Professor Roger Behrens
Tel: 021-650 4775 / email: Roger.Behrens@uct.ac.za

Transport Modelling CIV5133Z 30 Jan - 06 Feb
Local Area Transport Planning Management CIV5036Z 06 - 13 March
Integrated Land Use - Transport Planning CIV5033Z 08 - 15 May
Transport Demand Analysis and Project Assessment CIV5132Z 05 - 12 June
Management of Transport Supply and Demand CIV5035Z 14 - 21 August
Public Transport System Design and Operations CIV5071Z 09 - 16 October
Public Transport Policy and Regulation CIV5070Z 13 - 20 November
Research Project 1: Planning and Engineering CIV5135W 05 - 09 March
Research Project 2: Policy and Planning CIV5132Z 05 - 12 June

Urban Infrastructure Design and Management
Convenor: Professor Neil Armitage
Tel: 021-650 2593 / email: Neil.Armitage@uct.ac.za

Urban Transition in the Global South CIV5064Z 13 - 17 March
Integrated Urban Water Management CIV5043Z 16 - 20 October

Waste Water Engineering
Convenor: Professor George Ekama
Tel: 021-650 2585/ email: George.Ekama@uct.ac.za

Modelling & Simulation of Wastewater CIV5046Z 20 July - 27 August
Aquatic Chemistry Part A CIV5051Z 06 Feb - 09 March
Aquatic Chemistry Part B CIV5052Z 23 March - 08 May
Advanced Chemical, Physical & Biological Processes CIV5054Z 04 Sept - 16 October

Water Distribution Systems
Convenor: Professor Kobus Van Zyl
Tel: 021-650 2325 / email: Kobus.Vanzyl@uct.ac.za

Design and Modelling of Water Distribution Systems CIV5121Z 24 - 28 July

Civil Engineering

Research Design and Methodology for Civil Engineers CIV5311Z 21 - 25 August
Research Minor Dissertation for MEng CIV5301Z 25 - 29 August
Research Minor Dissertation for MPhil CIV5307Z 25 - 29 August

Faculty of Engineering
POSTGRADUATE COURSES 2017
DEPARTMENT OF CIVIL ENGINEERING