



Department of Civil Engineering | Postgraduate Programme

Transport Studies

2018/19



UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

SPES BONA

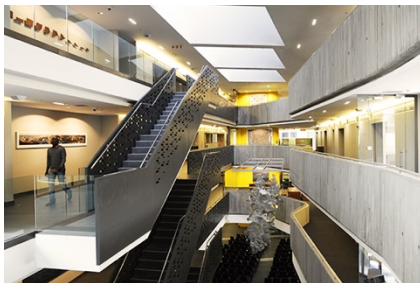
Introduction



The legislative and policy environment established in the 1990s by the first democratically elected government of South Africa represented a watershed in the development of the Republic's transport policy. Perhaps the most notable and important policy change was an explicit prioritisation of public transportation, and the needs of those travellers dependent upon these and associated modes, particularly walking.

This watershed necessitated the development of new, and in some instances different, competencies in the field of transport system planning and management. In particular, the transport sector needs professionals equipped to respond to those policy directives deemed necessary to prioritise and improve public transport, e.g. the integration of land use and transport systems, road space management and mode integration. It was this policy backdrop, and its implications for transport planning and engineering practices, that motivated the establishment of the Transport Studies Programme within the Faculty of Engineering and the Built Environment in 2002.

Why study Transport Studies at UCT?



The programme offers degrees specialising in transport studies, with a specific focus on the planning and management of urban passenger transport systems. The primary aim is to produce graduates from a range of undergraduate disciplines with the necessary knowledge and skills to engage effectively with the challenge of creating affordable, efficient, sustainable, safe, equitable and environmentally sound urban transport systems, and to contribute to the implementation of contemporary policy directives. Curriculum content is cross-disciplinary in orientation and exposes students to a broad range of the analytical, evaluative, planning and management issues they are likely to encounter in the field.

Study options

The following coursework-based postgraduate qualifications are offered:





- **Master of Transport Studies / ProfM**
- **Master of Engineering / MEng** specialising in Transport Studies
- **Master of Philosophy / MPhil** specialising in Transport Studies

In addition to PhD degrees, the following dissertation-based postgraduate qualifications are offered:

- **Master of Science in Engineering / MScEng**
- **Master of Philosophy / MPhil** specialising in Transport Studies

Curriculum requirements

Course Outline

| |  Master of Science: MScEng |  Master of Engineering: MEng |  Master: ProfM |  Master of Philosophy: MPhil |
|--|--|--|--|--|
| | Dissertation [120/180] | Minor Diss. [60] | Research 1+2 [50+50] | Diss. [60/120/180] |
| | Transport Demand Analysis and Project Assessment [20] | | | |
| | Management of Transport Supply and Demand [20] | | | |
| | Integrated Land Use and Transport Planning [20] | | | |
| | Transport Modelling [20] | | | |
| | Public Transport System Design and Operations Management [20] | | | |
| | Discrete choice modelling and stated choice survey design [20] | | | |
| | Public Transport Policy and Regulation [20] | | | |
| | Local Area Transport Planning Management and Design [20] | | | |
| | Non-Motorised Transportation [20] | | | |
| <ul style="list-style-type: none"> Core course Elective course CPD course [5] points <p>Total of [180] credits minimum required for all degrees. For course details, please refer to our website.</p> | | | | |

Each course comprises four phases totalling approximately 200 hours of study:

- a pre-contact period of five weeks, involving some 30 hours of preparatory reading and assignments;
- a week of intensive contact time at UCT, comprising 40-50 hours of formal lectures and class assignments;
- a two-hour course test (on the Monday following the contact week), intended to evaluate students' understanding of selected aspects of the material they have been exposed to during the contact week, and
- a post-contact period of seven weeks, involving an assignment or assignments requiring about 100 hours of work.

Master of Science in Engineering (MscEng)

The Master of Science in Engineering degree (EM024CIV01 or EM023CIV01) is available to candidates with undergraduate degrees in engineering. It requires the completion of three courses totalling 60 credits, the selection of which requires the approval of the responsible supervisor, and a 120-credit part dissertation (CIV5000Z). Alternatively, the degree can be undertaken as a full 180-credit dissertation (CIV5000W) without any coursework.

Master of Engineering Specialising in Transport Studies (MEng)

The Master of Engineering specialising in Transport Studies degree (EM017CIV06) is available to candidates with undergraduate degrees in engineering. It requires the completion of three core courses totalling 60 credits, approved elective (engineering-focussed) courses totalling a minimum of 60 credits, and an approved 60-credit (engineering-focussed) minor dissertation (CIV5017Z). Progression to the minor dissertation is conditional on the candidate attaining a weighted mean mark of 55% in core coursework.

Students can motivate elective courses to suit their chosen area of specialisation. Students are therefore permitted to undertake suitable (engineering-focussed) elective courses in other Programmes, or at other universities, to supplement the elective courses offered. This enables study in transport engineering fields not covered at UCT.

Master of Transport Studies (ProfM)

The taught Master of Transport Studies (EM029CIV06) requires the completion of three core courses totalling 60 credits, two core research project courses totalling 50 credits, and approved elective courses totalling a minimum of 80 credits.

Master of Philosophy Specialising in Transport Studies (MPhil)

The taught Master of Philosophy specialising in Transport Studies (EM027CIV06) requires the completion of three core courses totalling 60 credits, approved elective courses totalling a minimum of 60 credits, and an approved 60-credit minor dissertation (CIV5037Z). Progression to the research project is conditional on the candidate attaining a weighted mean mark of 55% in core coursework.

Elective courses can be chosen to suit students' area of specialisation.

It is also possible to undertake the Master of Philosophy specialising in Transport Studies as a research degree (EM026CIV06), either requiring the completion of three courses totalling 60 credits (the selection of which will require the approval of the responsible supervisor) and a 120-credit part dissertation (CIV5041W), or a full 180-credit dissertation (CIV5040W) without any coursework.

Course descriptions

MSc M ProfM MPhil Core courses per degree MSc M ProfM MPhil Elective courses per degree CPD CPD courses



Transport demand analysis and project assessment (CIV5132Z)

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 questions raised by different policy environments, theoretical and philosophical backgrounds of assessment and evaluation methods, and techniques for the assessment and evaluation of urban transport proposals. **Convenor:** A/Prof Marianne Vanderschuren

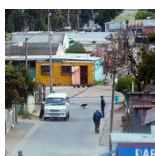
MSc ProfM MPhil M MSc CPD



Management of transport supply and demand (CIV5035Z)

This course aims to develop an advanced understanding of transport systems management. Topics include: the rationale for the management of transport systems through alternatives to large scale infrastructure provision, transport impact assessment and access management as a means of managing the impacts of new land use development on transport systems, road space management as a means of prioritising public transport vehicles, 'transport system management' as a means of managing transport supply; 'travel demand management' as a means of managing travel behaviour; and the use of 'intelligent transport systems' in supply and demand management. **Convenor:** A/Prof Roger Behrens

ProfM MPhil M CPD



Integrated land use and transport planning (CIV5038)

This course aims to develop an advanced understanding of the integration of land use planning and transport planning process. Topics include: theoretical perspectives on the relationship between transport systems and urban activity systems, co-evolution of transport systems and urban form, sustainable transport and the problem of 'automobile dependent' cities, planning paradigms and rationales for public intervention into land use and transport systems, legislative, institutional and financial frameworks for land use and transport planning in South Africa, conceptual framing and practical application of approaches to integrated land use-transport planning in the South African context and local and international case studies and experiences. **Convenor:** A/Prof Roger Behrens

ProfM MPhil M CPD



Transport modelling (CIV5133Z)

This course aims to develop an advanced understanding of principles and skills in working with these models. Topics include: transport modelling types and scales, theory of travel demand modelling, including the four-step transport model (i.e. trip generation, trip distribution, mode choice and traffic assignment), output analysis, land use – transport interaction models, as well as theory of traffic flow dynamics, including capacity assessment, LOS assessment, shockwave analysis, dynamic traffic management and elementary traffic control design. The course ends with a discussion about the link between models and the analytical questions raised by different policy environments. **Convenor:** A/Prof Mark Zuidgeest

M ProfM MPhil CPD



Discrete choice modelling and stated choice survey design (CIV5127Z)

This course studies the specification, estimation and application of discrete choice models as well as the design of stated choice experiments. Introduction to choice modelling and multi-nomial logit, data and estimation, analysis of results and specification testing, estimation of logit models. Nested logit and other GEV models, estimation of GEV models, latent class, mixed logit and simulation-based estimation, estimation of latent class and mixed logit. Model applications: sampling, forecasting and appraisal, model fitting, alternative models and examples, case studies in South Africa. Stated choice surveys, generating a design, drawbacks of orthogonal designs. Efficient designs, generating efficient designs, case studies in South Africa. **Convenor:** A/Prof Mark Zuidgeest

M ProfM MPhil CPD



Public transport system design and operations management (CIV5071Z)

This course aims to develop an advanced understanding of public passenger transport system design and operations management. Topics include: public transport system concepts, public transport system design, public transport system operations management, integrated fare structures and system maintenance. **Convenor:** A/Prof Mark Zuidgeest

M ProfM MPhil CPD



Public transport policy and regulation (CIV5070Z)

This course aims to develop an advanced understanding of public passenger transport system policy analysis and regulation. Topics include: legislative and planning frameworks, public transport policy, paratransit reform, public transport system regulation and competition and quality of service. **Convenor:** A/Prof Roger Behrens

M ProfM MPhil CPD



Local area transport planning, management and design (CIV5036Z)

This course in local area transport planning, management and design includes: the planning and implementation of transport improvements at a local area (as opposed to citywide) scale; urban design, landscaping and geometric design of streets; the design and management of local area movement networks; and accommodating pedestrians, bicycles and persons with movement disabilities in local area movement networks. **Convenor:** A/Prof Roger Behrens

M ProfM MPhil CPD



Non-motorised transportation (CIV5039Z)

This course aims to develop an advanced understanding of planning and design of non-motorised transportation infrastructure. Topics include: current SA realities and the importance of NMT travel modes; planning frameworks for NMT infrastructure improvements and network management; methods of site and network analysis, and approaches to modelling and simulation; footway and pathway design; the design of pedestrian precincts, low cost bicycle supply and promotion; cycleway and bicycle parking design and pedestrian and bicycle crossing facilities. **Convenor:** A/Prof Marianne Vanderschuren

M ProfM MPhil CPD

Entry requirements and admission

The selection of applicants for degree programmes is based on an applicant's academic record and experience, as well as the capacity of staff to provide dissertation supervision.

Application forms are completed on-line. Student applications should be submitted before 31 October. Students wishing to change degree registration from the Master of Transport Studies to a 60-, 120- or 180-dissertation degree should apply for a change of degree registration before 31 October.

New student applications and degree change applications are considered by the Transport Studies Programme Convenor in November, and thereafter applicants are notified of the outcome of their applications by the EBE Faculty Office.

Any queries regarding applications should be directed to Ms Rowén Geswindt, PG Administrative Officer on (021) 650 3499 or rowen.geswindt@uct.ac.za

Entry requirements per degree

| | MScEng | MEng | MTS | MPhil |
|---|--------|------|-----|-------|
| BHons / 4yr bachelor ¹ OR BTech / 3yr bachelor ² | | | x | x |
| BEng ³ OR BTech / 3yr bachelor ² | x | x | x | |
| Research topic AND supervisor ⁴ | x | | | (x)* |

*applies to dissertation-based MPhil only

1: Applicants with a university honours or four-year bachelor degree, and a suitable level of numeracy and writing skills have a good chance of acceptance onto the programme. Satisfactory numeracy is deemed to be a first year (one semester) university course in mathematics (pure or applied) or statistics, or mathematics at Senior Certificate level with a mark of 50% or higher. Applicants without the required level of numeracy specified above will be required to demonstrate a satisfactory level of numeracy in a test.

2: Applicants with a three-year Bachelor degree from a university or a Bachelor of Technology (BTech) degree from a university of technology need to demonstrate five years of relevant senior work experience post-qualification, and satisfactory academic performance (typically deemed to be a >60% mean course mark for the entire qualification or in the final year of study), in order to be considered.

3: Applicants with a university bachelor degree in engineering (BEng) have a good chance of acceptance.

4: Research topic and supervisor: Applicants for degrees by research should approach members of academic staff associated with the Centre for Transport Studies (CfTS) in order to explore potential research topics and supervision. Only applicants with a viable research topic and a willing supervisor

will be considered for admission. (For an indication of the research fields of potential supervisors, see the research interests and staff profile pages of the CfTS website <http://www.cfts.uct.ac.za>)

Overview

| | |
|-----------------------|--|
| Programme | Transport Studies |
| Qualifications | MTS, MPhil, MEng, MScEng |
| Delivery mode | All courses will be run on a block release basis, which usually entails a week of lectures, a course test and assignments. |
| Admission | For entry requirements, visit the CfTS website http://www.cfts.uct.ac.za/cfts/study_options/admission |
| Application | For online applications, visit the UCT website http://www.students.uct.ac.za/students/applications/apply/postgraduates/apply-register International students should ensure that the application and issue of a valid study permit is completed well in advance of course commencement. |
| Fees | As per UCT prescribed fee schedule http://www.uct.ac.za/apply/fees/ |

For more information, please visit the Centre for Transport Studies website www.cfts.uct.ac.za or simply scan the QR code below to be directed to the page.

