Faculty of Engineering & the Built Environment

DEAN’S REPORT

Research and innovation remains one of the key pillars of the faculty strategy and we continue to build and strengthen work undertaken in these areas. Research education is fundamental to the faculty and underpins everything we do.

I am pleased to report that our academic staff continues to be recognised for their research work and have received a number of prestigious awards, fellowships, and memberships to international associations and science academies. In 2011, the number of NRF-rated researchers increased to 37. A total of 63 academics participated in the activities of the Emerging Researcher Programme to develop their research skills in order to obtain NRF rating.

2011 saw 1 096 postgraduate students registered in the faculty and 15 doctoral, 209 master’s, and 122 honours degree students graduate at the two graduation ceremonies.

Through strategic partnerships and ongoing facilitation with government, the private sector, and industry, the number of research contracts has increased steadily over the years, and in 2011, the faculty was awarded 299 contracts, to the value of R94,18 million. The Faculty Research Committee continues to develop a strategy to increase research output and I am pleased to note that there has been a steady increase in the number of publications in peer-reviewed, accredited journals from 71.36 in 2005 to 94.68 in 2010.

Funding has been secured from industry for three research chairs in the fields of transport, energy efficiency and materials science. The Department of Mechanical Engineering’s research capabilities were extended into the area of computational fluid dynamics, with the appointment of Associate Professor Arnaud Malan, an internationally recognised leader in this field.

This year saw the introduction of the new master’s degree programme in radar and the faculty is in the process of finalising the curriculum and governance structure for a master’s degree in Education for Sustainable Development. The South African Minerals to Metals Research Institute was created as a partnership between government, industry and academia, to promote the development of research needed by the mineral processing industry in South Africa, and to increase the number of postgraduate students entering the mineral processing industry.

Faculty highlights

Professor Alphose Zingoni, head of the Department of Civil Engineering, was the first South African to be made a fellow of the International Association for Bridge and Structural Engineering.

Associate Professor Genevieve Langdon from the Department of Mechanical Engineering was selected as a founding member of the South African Young Academy of Science.

Professor Vanessa Watson was elected as a fellow of the university in recognition of her work in the field of planning.

Professor Daya Reddy, director of CERECAM, had his DST/NRF SARChI Chair in Computational Mechanics renewed after the first cycle review.

Associate Professor Francis Carter and Emeritus Professor Dave Dewar received honourable mentions for the papers that they submitted to the first international competition for research papers in Architecture and Urban Design.

Associate Professor Kobus van Zyl in the Department of Civil Engineering was appointed to the board of the Urban Water Journal.

Dr Dyllon Randall, a research officer in the Department of Chemical Engineering, was awarded second place at the 2011 Young Persons’ World Lecture competition.

Dr George Vicatos, of the Department of Mechanical Engineering, was named South Africa’s Inventor of the Year by Popular Mechanics, for his development of a versatile and potentially life-changing facial reconstruction system.

Professors Alison Lewis, Dave Deglon and Eric van Steen were elected as fellows of the South African Academy of Engineering.
Professor Rob Knutsen, from the Centre for Materials Engineering, was successful in his bid to obtain funding from the NRF for the purchase of a state-of-the-art thermo-mechanical process simulator (Gleeble 3800) for hot deformation processing of metal alloys.

Professor Alison Lewis, Dr Dyllon Randall and Jeeten Nathoo from the Department of Chemical Engineering, jointly won the Research Paper of the Year (2011) at the South African Institution of Chemical Engineers Chemical Technology Awards, based on a paper that was published in *Desalination*.

The Women in Informal Employment: Globalising and Organising (WIEGO) Research Conference on the Informal Economy was hosted by the African Centre for Cities (ACC). More than 60 participants from 16 different countries attended the conference. The ACC published the first edition of *CityScapes*, a high-quality illustrated magazine devoted to broadening the urban research agenda set by the global South. The ACC also hosted the second South African Cities Conference over two days in September, at which more than 120 academics, students, and practitioners presented papers. The centre continued to develop collaborative research partnerships in and beyond South Africa, partly under the auspices of the State of Cities in Africa programme. The ACC secured US$ 850,000 in funding for 2011 to 2013 from the Rockefeller Foundation, to pursue the Revitalising Planning Education agenda, and to implement a collaborative partnership forged with Shack/Slum Dwellers International.

Dr Olaf Conrad was appointed as Programme Director for Hydrogen Economy South Africa (HySA)/Catalysis. During 2011, the student training contribution of HySA/Catalysis grew to 17 postgraduate students and two postdoctoral fellows. Since August 2011, HySA/Catalysis has been able to produce industry-standard fuel cell electrocatalysts at a commercially relevant scale, and this capability will make HySA a credible participant in the fuel cell research and development industry globally. Substantial progress was made in the establishment of an international high-
profile collaboration network, with regular mutual visits to Imperial College London, the Paul Scherrer Institute in Switzerland and the Centre for Fuel Cell Technology (ZBT), in Germany. During 2011, student visits took place to each of these institutions.

Sustainable energy, innovation and challenges was the theme of the South African Universities’ Power Engineering Conference, which was hosted by the Department of Electrical Engineering, the Institution of Engineering Technology (UK), and IEEE Power and Energy Society.

The faculty has appointed three senior scholars to assist in the mentoring of younger staff, and also to contribute to the research agenda of the faculty. Furthermore, three to four postdoctoral fellowships (per annum) have been made available to increase the number of postdoctoral fellows in the faculty. We believe that the role of postdoctoral fellows is critical in promoting research performance. In order to enhance the quality of research theses and dissertations, but also to develop appropriate capacity in the faculty, young academics will co-supervise research projects with senior, more experienced supervisors.

One of the key strategies in the faculty is to develop a critical mass of research excellence through its research chairs. The faculty has embarked on an exercise of increasing the number of dedicated research chairs and building a core of postgraduate students, postdoctoral fellows, and other researchers with sustainable funding around them. Incentive funding has been earmarked to be utilised strategically to ensure that active researchers have more productive time to conduct research.

With the Faculty Research Committee’s firm commitment to implementing its key research and innovation objectives, a strong and exciting foundation has been laid to promote and enhance research and innovation into the future.

DOCTORAL GRADUATIONS

T.H. BECKER (MECHANICAL ENGINEERING)
Understanding and modelling damage and fracture in nuclear grade graphite.
Supervised by Professor B. Tait

O.M. BELLO (ELECTRICAL ENGINEERING)
Multi-layer traffic engineering framework for interworking multi-hop wireless networks.
Supervised by Professor H.A. Chan, Dr A. Bagula and Dr O.E. Falowo

E.A. BEUKES (CIVIL ENGINEERING)
Context sensitive road planning for developing countries.
Supervised by Associate Professor M. Vanderschuren

N. FISCHER (CHEMICAL ENGINEERING)
Preparation of nano and Ångstrøm sized cobalt ensembles and their performance in the Fischer-Tropsch synthesis.
Supervised by Professor M. Ciaeys and Professor E. van Steen

R.A. GOVENDER (MECHANICAL ENGINEERING)
Characterisation of glass fibre polypropylene and GFPP-based fibre metal laminates at high strain rates.
Supervised by Professor G. Nurick and Associate Professor G.S. Langdon

M.J. GRIFFITHS (CHEMICAL ENGINEERING)
Optimising microalgal lipid productivity for biodiesel production.
Supervised by Professor S.T.L. Harrison and Dr R. van Hille

D.S. IKUMI (CIVIL ENGINEERING)
The development of a three-phase plantwide mathematical model for sewage treatment.
Supervised by Professor G.A. Ekama

K.I. JACOBS (MECHANICAL ENGINEERING)
A new product development practices model for small and medium engineering enterprises.
Supervised by Professor J. Gryzagoridis

B.C. KLOOT (CHEMICAL ENGINEERING)
A Bourdieuan analysis of foundation programmes within the field of engineering education: Two South African case studies.
Supervised by Associate Professor J. Case and Professor D. Marshall

L. KOTTA (CHEMICAL ENGINEERING)
Structural conditioning and mediation by student agency: A case study of success in chemical engineering design.
Supervised by Associate Professor J. Case
G. LUSILAO-ZODI (ELECTRICAL ENGINEERING)
Real-time data flow models and congestion management for wire and wireless IP networks.
Supervised by Associate Professor M.E. Dlodlo, Professor G. de Jager and Professor J.F. Ferguson

S.H. MORAR (CHEMICAL ENGINEERING)
The use of machine vision to describe and evaluate froth phase behaviour and performance in mineral flotation systems.
Supervised by Associate Professor D. Bradshaw and M. Harris

T.J. NDWE (ELECTRICAL ENGINEERING)
Usability engineering of interactive voice response (IVR) systems in oral users of Southern Africa.
Supervised by Associate Professor M.E. Dlodlo and Associate Professor D. Mashao

R.G. STEPHEN (ELECTRICAL ENGINEERING)
Objective determination of optimal power line designs.
Supervised by Professor C.T. Gaunt

A.J.D. VAN GRAAN (SCHOOL OF ARCHITECTURE AND PLANNING)
Supervised by Associate Professor I. Low

PATENTS

FILED APPLICATIONS

BACON, T. AND MCNAUGHT, A.M.

BÖHRINGER, W., FLETCHER, J.C.Q. AND TOMA, V.N.

BOONZAIER, J.A., HENDRICKS, M.R. AND VICATOS, G.

CLAEYS, M. AND FISCHER, N.F.

CLAEYS, M. AND FISCHER, N.F.

CLAEYS, M., VAN DE LOODSDRECHT, J., VAN STEEN, E.W.J. AND VISAGIE, J.L.

CLAEYS, M., VAN DE LOODSDRECHT, J., VAN STEEN, E.W.J. AND VISAGIE, J.L.

CLAEYS, M., VAN DE LOODSDRECHT, J., VAN STEEN, E.W.J. AND VISAGIE, J.L.

GINSBERG, S.I.

GINSBERG, S.I.

GINSBERG, S.I., PARSONS, A.T. AND VICATOS, G.

LEWIS, A.E. AND NATHOO, J.A.
LEWIS, A.E. AND NATHOO, J.A.

LEWIS, A.E. AND NATHOO, J.A.

LEWIS, A.E. AND NATHOO, J.A.

LUSILAO-ZODI, G.-A. AND MORRISON, N.

GRANTED

CLAEYS, M., RAUSCH, A., RÖSSNER, F. AND VAN STEEN, E.W.J.

CLAEYS, M., RAUSCH, A., RÖSSNER, F. AND VAN STEEN, E.W.J.

CLAEYS, M., VAN DE LOODSDRECHT, J. AND VAN STEEN, E.W.J., VISAGIE, J.L.

DANN, M. AND PETERSEN, J.

LEWIS, A.E. AND NATHOO, J. A.

RESEARCH CONTRACTS
299

VALUE OF RESEARCH CONTRACTS
R94,18 million

NRF-RATED RESEARCHERS
37

SARCHI RESEARCH CHAIRS
5

ACCREDITED RESEARCH GROUPINGS
12

DOCTORAL GRADUATIONS
15

ERP PARTICIPANTS
63

DHET-ACCREDITED JOURNALS
94.68

PEER-REVIEWED PUBLICATIONS
375

FILED PATENTS
16

GRANTED PATENTS
5

POSTGRADUATE STUDENTS
1 096

POSTGRADUATE FUNDING
R24,61 million

POSTDOCTORAL RESEARCH FELLOWS
13

POSTDOCTORAL RESEARCH FUNDING
R1,84 million
Within the School of Architecture, Planning and Geomatics, research work includes conventional research and applied research as well as creative work. This takes place within the actively teaching divisions within the School, as well as within dedicated research units. In the Architecture and Planning programmes these research endeavours include areas of enquiry such as urban design, architectural design, architectural education, digital technology, contemporary architectural theory and practice, planning theory, urban conservation, urban transport policy and urban informality.

The ethos of this School is also strongly influenced by our context: the physical context, the city, and the broader social/cultural/economic context of the region and the country. We are committed to engage with these contexts in both a meaningful and critical way, not as abstract sites for investigation but rather as peopled places to which we can respond.

There are a few projects underway in the School that evidences this: the PERC - VPUU “Participatory Design” project, the community-led and involved Planning & Landscape Architecture Studio Project that focuses on the informal settlements of Barcelona & Europe (run in conjunction with CORC [Community Organisation Resource Centre] with support by the international NGO Slum and Shack Dwellers International [SDI]), and the 2nd year BAS Platform building project in the informal settlement of Imizamo Yethu.

The Geomatics Division within the School undertakes research in a variety of areas. These include documentation, modelling and visualization of African heritage sites, close-range photogrammetry, laser scanning of architectural structures and remote sensing of the environment; issues relating to land surveying, ownership, registration and tenure; modeling of the shape of the Earth (geoid) using gravity and satellite data, applications of GPS and modeling of datum transformations in Africa; applications of remote sensing and geographic information systems (GIS) to urban, agricultural and environmental monitoring. Spatial data infrastructure (SDI) development for integrated development planning (IDP) in sub-Saharan African cities.

RESEARCH UNITS AND GROUPS

African Centre for Cities

Known colloquially by the acronym ‘ACC’, the Centre is now five years old. In its short life it has established an impressive international profile and reputation as a dynamic home for analysis of urban problems and policies. Its interdisciplinary brand gives the ACC huge potential to facilitate urban conversations and inquiry throughout UCT.

‘CityLabs’, a new model of engaged and applied research, were created to address pressing concerns in Cape Town, including flooding, urban health, densification, ecology, and climate change. New Labs on violence, culture and human settlements have been launched. The ACC partners with international research units studying food security, and women’s informal employment. Honours for ACC include its (renewed) status as a UCT ‘Signature Theme’ and a Rockefeller Innovation Award.

The ACC is linked tightly to the flourishing Association of African Planning Schools (47 members across the continent) and it leads a multinational ‘state of the cities’ audit in four African capitals. Extending the ACC’s cross-continent work is under consideration. The ACC has good links with UCT’s newly established African Climate & Development Initiative (ACC was present at COP17), and will work closely with the new Violence Signature theme. Exchange of PhD students with City officials is starting in 2012 in an exciting programme for co-production of urban knowledge.

The Cape Urban Observatory is an ACC project, run from within the Geomatics Division, which aims to facilitate evidence-based decision making and improved collaboration by providing a public internet-based platform for the storage, dissemination and analysis of geo-spatial information and analysis of themes relevant to integrated development planning.

Noteworthy achievements in 2011

Professor Jo Noero was awarded UCT’s Creative Works Award for the Red Location Museum of Struggle in Port Elizabeth.
Professor Vanessa Watson was elected as a fellow of the University.
Emeritus Professor Dave Dewar received the Mayor’s Medal for Social Affairs and Services for his contribution to the study of Planning in South Africa.
SCHOOL STATISTICS

Permanent and Long-term Contract Staff

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Students

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RESEARCH FIELDS AND STAFF

DR MAHMOUD ABDEL-GELIL
Senior Lecturer: Geomatics
Gravity data analysis, GPS, Geodesy and geophysics.

FRANCIS CARTER
Senior Lecturer: Architecture
Curriculum theory in relation to undergraduate built environment design programmes; theories of making, with reference to contemporary South African architecture; programming for new knowledge space.

ASSOCIATE PROFESSOR NICHOLAS COETZER
Architecture
Architectural design; contemporary architectural history and theory; digital technology.

ALBERTRUM CROWDER
Lecturer: Architecture
Specializes in the area of cultural heritage conservation. His research focuses on the inherent values that people associate with their environment and the possibility for this to help promote sustainable cultural heritage conservation and development.

KEVIN FELLINGHAM
Senior Lecturer: Architecture
Interdisciplinary research, practice and design.

CLINTON HINDES
Senior lecturer: Landscape Architecture
History and theory of landscape architectural design and its application to teaching and practice. Documenting the history of South African landscape architecture.

SIMON HULL
Lecturer: Geomatics
Digital photogrammetry for heritage documentation, fields of land tenure reform, disaster management using remote sensing and GIS, heritage documentation, and improving education.

FADLY ISAACS
Lecturer: Architecture
(Measuring) urban settlement quality, integrating strategic urban infrastructure investment.

TANIA KATZSCHNER
Lecturer: Planning
Education for sustainable development, sustainable urban systems, creating and nurturing educational systems that serve human needs while also protecting our resources for future generations, trans-disciplinarity and systems thinking.

SIMONE LE GRANGE
Lecturer: Architecture
Architectural design, Academic Development Lecturer.

MIKE LOUW
Lecturer: Architecture
Sustainable architecture and urbanism, architectural history and materiality.

PROFESSOR IAIN LOW
Architecture
Space and transformation; critical thinking / practice and the ‘re-writing’ of architectural type; post apartheid South African condition: urbanism, the ‘new’ public realm, contemporary dwelling and architectural pedagogy.

LIANA MULLER
Lecturer: Landscape Architecture
Heritage and management of cultural landscapes, heritage landscapes and representation, specifically focussing on people’s connection with the environment and landscape as an anchoring point for memory and meaning.

PROFESSOR JO NOERO
Architecture.

DR NANCY ODENDAAL
Senior Lecturer: Planning
Relationship between Information and Communication Technology and urban transformation, metropolitan planning, planning theory and infrastructural transitions in cities of the Global South. Commissioned research on planning and transformation, land use management and planning standards.

STELLA PAPANICOLAOU
Lecturer: Design, the tension between meaning and the production of space in architectural practice and education; developing tools for critical thinking to enhance the creative process in architectural education.
PROFESSOR EDGAR PIETERSE
Director: African Centre for Cities, and holder of a DST/NRF SARChI Chair.
Promoting new approaches to urban development in South Africa and Africa, in collaboration with partners from the global South.

PROFESSOR GORDON PIRIE
Deputy Director: African Centre for Cities
Geographer, principal research field of transportation and travel.

DR TOM SANYA
Senior Lecturer: Architecture
Sustainable Habitat Innovations (SusHI), systems theory in sustainable architecture evaluation with particular focus on Africa. Sustainability evaluation tool (emerging from PhD). Design and making Epistemology – in Search of an Afro-centric perspective via the African Informal Settlement.

DR GEORGE SITHOLE
Senior Lecturer: Laser altimetry, photogrammetry, 3D object reconstruction.

ASSOCIATE PROFESSOR JULIAN SMIT
Geomatics
Application of remote sensing, photogrammetry and geographic information systems for land and environmental management.

ASSOCIATE PROFESSOR ALTA STEENKAMP
Director: School of Architecture, Planning & Geomatics
History and theory of Southern African architecture and its relation to the global environment.

PROFESSOR VANESSA WATSON
Planning
Planning theory; governance; housing; urbanization; large city planning.

ASSOCIATE PROFESSOR JENNY WHITTLAR
Geomatics
Land tenure and cadastral systems, specialising in land for the urban poor and fiscal cadastral systems and reform.

DR TANJA WINKLER
Senior Lecturer: Planning
Current research interests include critically assessing “the voice of the poor” in urban governance and public decision making processes. Ongoing research on civil society, poverty, and inner city regeneration.

RESEARCH ASSOCIATES

EMERITUS PROFESSOR JULIAN COOKE
Contemporary South African architecture.

EMERITUS PROFESSOR DAVID DEWAR
Former Deputy Dean of the Faculty of Engineering and the Built Environment; BP Chair of Planning; urban structure and form; place making; informal housing; housing policy; informal economic development; public space; regional planning and development.

EMERITUS PROFESSOR LUCIEN LE GRANGE

EMERITUS PROFESSOR FABIO TODESCHINI
Architect, city planner, urban designer, heritage practitioner.

EMERITUS PROFESSOR HEINZ RÜHER
Digital close range and aerial photogrammetry; precise engineering surveying; geographic information systems; visualisation and 3D modeling.

EMERITUS ASSOCIATE PROFESSOR CHARLES MERRY
Earth’s gravity field; global positioning system; co-ordinate transformations.

MR. BARRIE GASSON
Ecologically sustainable cities; regional planning and development.

CONTACT DETAILS
School of Architecture, Planning and Geomatics, University of Cape Town, Private Bag X3, Rondebosch, 7701, Republic of South Africa
Telephone and Fax:
Architecture: Tel: SA (21) 650-2374 and Fax: SA (21) 650-2383
Planning: Tel: SA (21) 650-2359 and Fax: SA (21) 689-9466
Geomatics: Tel: SA (21) 650-3577 and Fax: SA (21) 650-3572
Webpage: http://www.apg.uct.ac.za

RESEARCH OUTPUT

Chapters in books

Crona, B., Ernstson, H., Prell, C., Reed, M. and Hubacek, K. 2011. Combining social network approaches with social theories to improve understanding of natural resource


**Articles in Peer-reviewed Journals**


**Peer-reviewed published conference proceedings**


**Artistic works**


Exhibitions

DEPARTMENT OF CHEMICAL ENGINEERING
(Including The Centre for Bioprocess Engineering Research (CeBER), the Centre for Catalysis Research, c*change – DST-NRF Centre of Excellence in Catalysis, HySA/catalysis – National Hydrogen Catalysis Competence Centre, the Centre for Minerals Research, the Centre for Research in Engineering Education and the Crystallization and Precipitation Research Unit)

HEAD OF DEPARTMENT: PROFESSOR JCQ FLETCHER

DEPARTMENTAL PROFILE
The Department of Chemical Engineering has a proud national and international reputation both for the quality of its graduates at the BSc and postgraduate levels and for its research programs, thriving on the dynamic created by a synergy between research, industry and education. The undergraduate program enjoys accreditation with the Engineering Council of South Africa. The postgraduate program forms the largest academic research activity in Chemical Engineering on the continent, and is focused on mineral processing, catalysis, bioprocess engineering, environmental and process systems analysis as well as precipitation and crystallization. One of the overarching research themes in the department is the UCT strategic research theme ‘Minerals to Metals’ engaging with most of the research groupings. Based on close contacts with the chemical, petrochemical, biotechnology and mining industries, the research programs in the Department, although fundamental in nature, have a strong industrial flavour. The Department of Chemical Engineering is host to two DST/NRF SARChI Research Chairs, the national DS/NRF Centre of Excellence in Catalysis, (c*change) and the National Hydrogen Catalysis Competence Centre (HySA/catalysis).

DEPARTMENTAL STATISTICS

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Lecturer 1
Lecturers - Contract 2
Research Staff (permanent) 10
Research Staff (contract) 7
Technical & Scientific Staff (permanent & Long-term Contract) 26
Technical & Support Staff (contract) 12
Administrative and Clerical Staff (permanent) 19
Administrative and Clerical Staff (contract) 3
Total 97

Honorary Staff

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Students

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<td>BSc(Eng)</td>
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RESEARCH FIELDS AND STAFF

HONORARY SENIOR LECTURER WALTER BÖHRINGER
Centre for Catalysis Research - Acid catalysis.

HONORARY PROFESSOR DEE BRADSHAW

PROFESSOR JENNI CASE
Centre for Research in Engineering Education – student experience of learning in science and engineering, gold catalysis.

PROFESSOR MICHAEL CLAEYS
Centre for Catalysis Research – Director DST/NRF Centre of Excellence in Catalysis (c*change), Fischer Tropsch synthesis, in-situ catalyst characterization, nano-materials.

PROFESSOR DAVE DEGLON
Centre for Minerals Research - modelling of mechanical mineral flotation cells, computational fluid dynamics, hydrodynamics, gas dispersion, solids suspension.

HONORARY PROFESSOR MARK DRY
Centre for Catalysis Research - Fischer Tropsch (FT) catalytic processes, production of synthesis gas.
PROFESSOR JACK FLETCHER
Head of Department - Director of the Centre for Catalysis Research – Contract Director National Hydrogen Catalysis Competence Centre (HySA/catalysis) - catalysis by noble metals, zeolite catalysed conversion of phenol and derivatives, wax hydrocracking, shape selectivity in zeolites and molecular sieves, hydrogen processors and fuel cells.

PROFESSOR JEAN-PAUL FRANZIDIS
Director - Minerals to Metals Initiative, integrating and expanding capacity in minerals beneficiation research.

PROFESSOR DUNCAN FRASER

HONORARY SENIOR LECTURER MARTIN HARRIS
Centre for Minerals Research – flotation, modelling, simulation.

ADJUNCT PROFESSOR PETER HARRIS
Centre for Minerals Research - froth flotation.

PROFESSOR SUE HARRISON
Director of the Centre for Bioprocess Engineering Research – Fundamental studies in the interaction of microorganisms with the biochemical, thermal and hydrodynamic environment. Microbial community dynamics in planktonic and sessile environments. Biokinetics and metabolic modelling of the biomass and bioproduct components, applied to alkane biotechnology, human health products, mineral bioleaching through heap and tank processes, AMD prevention and remediation, algal bioprocesses for bioenergy and fine chemicals. Bioprocesses for sustainable process engineering.

DR ADENIYI ISAIFADE
Environmental and Process Systems Engineering – Process design and optimization.

MISS LINDA KOTTA
Academic Development Lecturer – Academic mentor; Centre for Research in Engineering Education – student learning and curriculum studies in engineering.

PROFESSOR ALISON EMLSLIE LEWIS
Director of the Crystallography & Precipitation Research Unit – Industrial Precipitation and Crystallization, product and particle analysis; process control for optimised product quality; crystallization process development; aqueous chemistry modelling of speciation, thermodynamic equilibria, hydrodynamic and population balance modelling of precipitation systems; water treatment through crystallization.

DR AUBREY MAINZA
Centre for Minerals Research – Comminution and classification, PEPT, DEM, CFD.

DR SANET MINNAAR
Centre for Bioprocess Engineering Research - mineral biotechnology, bioprocesses for pharmaceuticals.

PROFESSOR KLAUS MÖLLER

PROFESSOR CYRIL O’CONNOR
Director of the Centre for Minerals Research, flotation, reagent evaluation, cell design. Centre for Catalysis Research - heterogeneous catalyst and catalytic processes, zeolites.

DR JOCHEN PETERSEN
Centre for Bioprocess Engineering Research – Heap bioleaching of low grade minerals, heap reactor modelling, bio-oxidation kinetics, leaching hydrometallurgy.

PROFESSOR JIM PETRIE
Honorary Professor UCT and Emeritus Professor University of Sydney; environmental performance; technology development; life cycle assessment and management systems; waste management; site remediation and recovery from waste.

DR RANDHIR RAWATLAL
Reactor Engineering with focus on modelling and simulation. Mass transfer modelling in the activation of alkanes, multiphase flow, population balances and applications of segregation and compartment models in flow reactors for minerals bio-leaching and polymerization.

DR ROB VAN HILLE
Centre for Bioprocess Engineering Research – mineral biotechnology, algal biotechnology, microbial ecology, carbon cycling, sulphide chemistry and bioremediation.

PROFESSOR ERIC VAN STEEN
Director Postgraduate Studies, Centre for Catalysis Research - Fischer-Tropsch synthesis, catalysis by gold, nano-materials, molecular modeling of heterogeneous catalytic systems, reaction kinetics.

ASSOCIATE PROFESSOR HARRO VON BLOTTNITZ
POSTDOCTORAL FELLOWS

DR MAYELI ALVAREZ-SILVA
An investigation into the role of the froth phase in the flotation of UG2 ore using a laboratory column flotation cell

DR THERESA FELTES
Preparation and characterization of nano-materials for Fischer-Tropsch synthesis.

DR THEBE MOKONE
Acid mine drainage remediation using sulphate reduction technology

DR QILING NAIDOO
Synthesis core-shell platinum group metal electrocatalysts by different approaches

DR JOHN STENSON
Impact on yeast cell wall structure on cell strength, resilience and product release.

DR ANGELA STOTT
Developing interactive quizzes for improving conceptual learning in science education.

INTERNATIONAL VISITORS

PROF FRANO BARBIR
University of Split, Croatia

PROF ELDRED CHIMOVITZ
University of Rochester (USA)

SUSAN COZZENS
Georgia Institute of Technology, USA

ANNA DANIELSON
University of Cambridge, UK

DR MARK DEBE
3M, Minneapolis, USA

DR DENIS KRAMER
Imperial College, University of London

DR ANTHONY KUCERNAK
Imperial College, University of London, UK

PROF CLAUDE LAMY
University of Poitiers, France

PROF MARCELO LINARDI
Nuclear & Energy Research Institute (IPEN), Sao Paulo, Brazil

PROF DON McKEE
Retired Professor & Founding Director of the Sustainable Minerals Institute, University of Brisbane

DR JENS MUELLER
Smart Fuel Cells, Germany

HIDEYUKI MURAKAMI
National Institute for Materials Science, Japan

DR BARRY MURRER
Johnson Matthey (UK)

DR PETER NEUBAUER
Technische Universitat Berlin

DR MIKE NICHOL
Murdoch University, Perth, Australia

PROF PATRICE NORTIER
Grenoble INP - Pagora, France

A/PROF KATSUHIRO NOSE
University of Tokyo, Japan

DR LIZ ROUSSEL
Johnson Matthey (UK)

PROF GUNTHER SCHERER
Paul Scherer Institut Switzerland

PROF THOMAS SCHMIDT
Paul Scherrer Institut, Switzerland

PROF ALLA SMIRNOVA
Eastern Connecticut State University, USA

DR NATALIA STRELTSOVA
Vale, USA

PROF YASUYUKI TAKATA
Graduate School of Engineering, Kyushu University, Japan

A/PROF RIE UMETSU
Tohoku University, Japan

MASAHIRO YAMAMURA
Department of International Affairs JST, Japan

PROF ANDY YORK
Johnson Matthey (UK)

GRAHAM SIM, LAUREL PICKETT AND MABUYA CANON
GE Power and Water, Australia

PIERO ARCANGELEI AND CHRIS DE JAGER
Mettler Toledo, Switzerland
**DELEGATION FROM**
Zhejiang Environmental Protection Bureau, Hangzhou, China

**CONTACT DETAILS**
Postal Address: Department of Chemical Engineering, University of Cape Town, Private Bag X3, Rondebosch, 7701
Telephone: +27 21 650 2509
Fax: +27 21 650 5501
Web: http://www.chemeng.uct.ac.za/
UCT general phone number: +27 21 650 9111
UCT web site: http://www.uct.ac.za

**RESEARCH OUTPUT**

**Chapters in books**


**Articles in Peer-reviewed Journals**


measurements on tumbling mills at PEPT Cape Town. Minerals Engineering, 24: 261-266.


**Peer-reviewed published conference proceedings**


**DEPARTMENT OF CIVIL ENGINEERING**

**HEAD OF DEPARTMENT: PROFESSOR A. ZINGONI**

**DEPARTMENTAL PROFILE**

The Department of Civil Engineering currently has an establishment of 14 permanent full-time academic positions, supported by a dedicated complement of 16 technical, administrative and secretarial staff. It offers a four-year BSc (Civil Engineering) degree programme and several taught postgraduate programmes, as well as supervised research studies leading to Master’s and Doctoral degrees of the University of Cape Town. The Department currently has an enrolment of about 400 undergraduate students and 60 postgraduates.

Postgraduate teaching and research is conducted within the framework of well-established research groups in the areas of Structural Engineering and Mechanics, Geotechnical Engineering, Concrete Materials and Technology, Hydraulic Engineering, Water Quality and Water Engineering, Urban Engineering and Management, Transport Studies and GIS. Members of staff also interact with research groups in other departments, such as the Centre for Research in Computational and Applied Mechanics (CERECAM). The Department has fruitful collaborative links with several local and overseas universities, and with local industry. Much of the work done by members of staff finds application in industry.

The high quality of the research undertaken by the Department is evidenced by the considerable number of peer-reviewed publications in ISI-accredited international journals produced by members of staff annually, and the international recognition that members of staff enjoy in their areas of research. Members actively participate on the committees of local professional bodies, provide expert advice to industry, and serve on the editorial and advisory boards of various international journals and conferences.

**DEPARTMENTAL STATISTICS**

**Permanent and Long-Term Contract Staff**

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Students

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<td>Undergraduate</td>
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<td>TOTAL</td>
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</table>

RESEARCH FIELDS AND STAFF

Permanent Staff

PROFESSOR MARK ALEXANDER
Concrete durability; concrete materials; properties of aggregates; applications to structural design and construction.

ASSOCIATE PROFESSOR NEIL ARMITAGE
Hydraulics; urban drainage; urban catchment management.

ASSOCIATE PROFESSOR ROGER BEHRENS
Activity-based travel analysis; local movement network configuration and management; non-motorised transportation; policy analysis in the fields of urban passenger transport; land use-transport interaction.

DR HANS BEUSHAUSEN
Concrete materials; structural engineering; repair of concrete structures.

ASSOCIATE PROFESSOR ROMANO DEL MISTRO
Urban engineering and management.

PROFESSOR GEORGE EKAMA
Chemical and biological wastewater treatment; physical and biological process modelling.

DR DENIS KALUMBA
Geotechnical engineering.

ASSOCIATE PROFESSOR PILATE MOYO
Structural health monitoring and testing.

ASSOCIATE PROFESSOR ULRIKE RIVETT
Spatial information systems and decision making in urban context; data acquisition using wireless technology.

DR SEBASTIAN SKATULLA
Structural engineering; computational structural mechanics; meshless methods.

ASSOCIATE PROFESSOR MARIANNE VANDERSCHUREN
Assessment of urban transport systems; urban transport decision-making; transport policy.

ASSOCIATE PROFESSOR KOBUS VAN ZYL
Hydraulics; urban water management; water demand analysis; distribution networks.

MS NICKY WOLMARANS
Academic development; teaching and learning; mechanics of solids.

PROFESSOR ALPHOSE ZINGONI
Shell structures; space structures; structural mechanics; applications of group theory; finite element modelling; vibration and structural dynamics; structural analysis and design.

HONORARY RESEARCH ASSOCIATES

MS LISA KANE
Transportation engineering and planning.

CONTACT DETAILS

Postal Address: Department of Civil Engineering, University of Cape Town, Private Bag X3, Rondebosch, 7701
Tel: +27 21 650 2584
Fax: +27 21 689 7471
E-mail: civil@ebe.uct.ac.za
Web: http://www.civil.uct.ac.za/
UCT general phone number: +27 21 650 9111
UCT web site: http://www.uct.ac.za

RESEARCH OUTPUT

Chapters in books


Articles in Peer-reviewed Journals


**Peer-reviewed published conference proceedings**


van Rensburg, J. and Behrens, R. 2011. Measuring the impacts of rail-based park-and-ride facilities on commuting behaviour in Cape Town: Findings and methodological


DEPARTMENT OF CONSTRUCTION ECONOMICS AND MANAGEMENT

HEAD OF DEPARTMENT: PROFESSOR KEITH CATTELL

DEPARTMENTAL PROFILE

Research and allied scholarly work in the Department falls under two broad themes of property and construction. Four research groups examine issues related to infrastructure delivery, construction industry development, emerging property markets, and facilities management. A number of cross cutting themes provide diversity and smaller research interest groups; these themes include sustainability, project management, human development, procurement, entrepreneurship and teaching and learning.

Strong research links exist with academic institutions in the United Kingdom, Australia, United States of America, Central and East Africa, and India, as well as with institutions within South Africa.

During 2011, papers were presented at key international conferences in Port Elizabeth, Salford, Bristol and The Netherlands. In addition, a number of papers were published in peer-reviewed local and international journals, frequently with international co-authorship, underlining the Department’s international profile and collaborative research philosophy.

Nationally, the Department continues its engagement with local and international organisations. These include:

- The Association of South African Quantity Surveyors on the Standard System and Chapter Committees;
- The South African Council for the Quantity Surveying Profession as Council Members and on the Education Standards and Research Sub-Committee;
- The Royal Institution of Chartered Surveyors on the World Regional Board, the Education Standards Board and on the MENEA Region Education Standards Board;
- EU Framework 7 SME Thematic Area as the Assistant National Contact Point;
- The South African Facilities Management Association;
- The South African Property Owners Association; and
- The Construction Industry Development Board.

Research endeavours by individual staff have been good in terms of higher degree graduates, attracting research funding, and research outputs. The staff received research funding from a variety of sources in 2011, namely: the University Research Committee, the National Research Foundation (NRF), and the Construction Industry Development Board. In addition, the department boasts a “B2” NRF-rated researcher.

DEPARTMENTAL STATISTICS

Permanent and Long-term Contract Staff

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<tr>
<th>Position</th>
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<td>Professors</td>
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<td>Lecturer</td>
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<td>Departmental Assistant</td>
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Students

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<td><strong>TOTAL</strong></td>
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</table>
RESEARCH FIELDS AND STAFF

Permanent Staff

PROFESSOR K.S. CATTELL
Head of Department: Value management; workplace facilities management; learning spaces; the impact of HIV/AIDS on the South African construction industry; corruption in the construction industry; and stress management for built environment professionals.

PROFESSOR P.A. BOWEN
Value management; project procurement; project briefing as an interpersonal communication process; the sustainability assessment of buildings; the impact of HIV/AIDS on the South African construction industry; corruption in the construction industry; and stress management for built environment professionals.

ASSOCIATE PROFESSOR K.A. MICHELL
Facilities management as a social and community enterprise in low-income areas of cities; work space planning in buildings; learning spaces.

ASSOCIATE PROFESSOR F. VIRULY
Urban Economics; Property Development; Property feasibility studies; Property and Building Cycles; Property and the Macro economy; Econometric forecasting of the Commercial and Residential property markets; Institutions and the structure of property markets.

DR S. ALLEN
Senior Lecturer: Successful delivery of strategic economic infrastructure, programmes and construction projects and the realization of benefits arising from these, specifically through the optimization and appropriate use of project procurement systems; integrated construction project delivery processes; sustainable technologies; and performance measurement and benchmarking.

MRS E. EDWARDES
Senior Lecturer: Education in Construction Studies; enhancement of skills required for Construction Studies.

MRS K. EVANS
Senior Lecturer: Work with the African Centre for Cities Research Laboratory; innovative financing of medium to low-income housing from the perspective of end-users; working capital, bridging finance and wholesale finance.

MR I. JAY
Senior Lecturer: Project Management – particularly in the area of project strategy and project portfolio (Programme) management. Application of value models to portfolio balancing, and enterprise wide project management structures and systems. Value Management – particular focus on client values, determination of project measures of success (success criteria) and modelling of client values.

MRS K. LE JEUNE
Senior Lecturer: Gender related issues within the Built Environment professions; green buildings; service learning and application in construction education; social responsibility and construction education.

MR J. MARKS
Senior Lecturer: Entrepreneurial thinking; skills migration, learning spaces; experiential learning; integrated learning.

MR M. MASSYN
Senior Lecturer: Skills and competencies of SME’s within the construction industry; procurement systems using in housing delivery with particular emphasis on the PHP delivery system.

MR R. MCGAFFIN
Senior Lecturer: The relationship between land economics and planning; property markets and value-capture; Housing and affordable housing markets.

DR M. MOoya

DR A. WINDAPO
Senior Lecturer: Contractor performance and development studies; housing procurement and development studies; risk and quality management processes on construction projects and health, safety and environmental issues.

DR E. HURST
Academic Development Lecturer: Academic literacies; student-centred learning and assessment; identity and agency; the sociolinguistic study of the links between language, style and identity.

CONTACT DETAILS
Postal address: Department of Construction Economics & Management,
University of Cape Town, Private Bag X3, Rondebosch,
7701, South Africa
Telephone: +27 21 650 3443
Fax: +27 21 689 7564
E-mail: Mareldia.Fagodien@uct.ac.za
Web: http://www.cons.uct.ac.za

RESEARCH OUTPUT

Articles in Peer-reviewed Journals


**Peer-reviewed published conference proceedings**


DEPARTMENT OF ELECTRICAL ENGINEERING

HEAD OF DEPARTMENT: PROFESSOR B.J. DOWNING

DEPARTMENTAL PROFILE

The Department of Electrical Engineering has 25 permanent academic staff, 143 MSc. students and 48 PhD students. The research activities and projects are largely industrially based. The main funding sources are Eskom, Telkom, Siemens, De Beers, Mintek, Water Research Commission, Anglo Platinum, Department of Trade and Industry, South African National Defence Force, SunSpace, IQS and the NRF.

The Department has seen a growth in the number of undergraduate students over the past 10 years, which is expected to result in higher postgraduate numbers. There are six large research groups in the Department, which attract 80% of the postgraduate students. These are:
- Broadband, Wireless, Communication, and Networks
- Image Processing and Vision Systems
- Instrumentation and Control
- Power Engineering
- Remote Sensing and Radar
- Speech Processing

DEPARTMENTAL STATISTICS

Permanent and Long-term Contract Staff

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<tr>
<th>Position</th>
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Students

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</table>

RESEARCH FIELDS AND STAFF

Permanent Staff

PROFESSOR M. BRAAE
Multivariable control; mineral extraction control applications; computer-based education

PROFESSOR B.J. DOWNING
Microwave systems and circuits

PROFESSOR C.T. GAUNT
Electricity delivery networks

PROFESSOR M.R. INGGS
Radar remote sensing; synthetic aperture radar; software defined radio; parallel computing

PROFESSOR J. TAPSON
Instrumentation and measurements; ultrasonics; microactuators; probe microscopy

PROFESSOR P. PILLAY
Electrical machines and drives

ASSOCIATE PROFESSOR S.P. CHOWDHURY

ASSOCIATE PROFESSOR M. E. DLODLO
3G mobile and future communication systems

ASSOCIATE PROFESSOR K. FOLLY
Power system stability and control

ASSOCIATE PROFESSOR A.J. WILKINSON
Signals and image processing; radar; SAR interferometry; tomography, Bayesian interference; inverse problems; RF power amplifiers

DR P.S. BARENDSE
Senior Lecturer; Electrical machines and drives

DR S. CHOWDHURY
Senior Lecturer, Power & Energy

DR M.A. KHAN
Senior Lecturer; Electrical machines and drives

ADJUNCT ASSOCIATE PROFESSOR M. MALENGRET
Power electronics; remote area power supplies and rural electrification
DR A. MISHRA
Senior Lecturer; Radar Signal Processing and Machine Learning

DR A. MURGU
Senior Lecturer, Telecommunications, Networks, IP and Network Reliability

DR F.C. NICOLLS
Senior Lecturer; Image processing, signal processing and computer vision

MR. A.W.D. JONGENS
Senior Lecturer; Acoustics, acoustical properties of materials; environmental & transportation noise

MR. M.J.E. VENTURA
Senior Research Officer, Broadband communications & applications; digital systems

MRS K.E. AWODELE
Lecturer, Power System Reliability

DR O.E. FALOWO
Lecturer, Communications

MR S. GINSBERG
Lecturer, Digital systems

MR I. KHAN
Lecturer, High frequency power electronics, induction heating

MR M.S. TSOEU
Lecturer, Control and Instrumentation

MS R.A. VERRINDER
Lecturer, Evolutionary and Biorobotics, Control and Instrumentation

MR S. WINBERG
Lecturer, High Performance Computing & Software Defined Radio

Honorary/Emeritus Professors

EMERITUS PROFESSOR G. DE JAGER
Image processing; machine vision and image compression

EMERITUS PROFESSOR S.G. MCLAREN
Machines

EMERITUS PROFESSOR A. PETROIANU
Power system analysis; operation and control

EMERITUS PROFESSOR K.M. REINECK
Antennas

EMERITUS ASSOCIATE PROFESSOR J.R. GREENE
Computational Intelligence

CONTACT DETAILS
Postal address: Department of Electrical Engineering, University of Cape Town, Private Bag X3, Rondebosch, 7701
Telephone: +27 21 650 2811
Fax: +27 21 650 3465
E-mail: ElecEng@uct.ac.za
Web: http://www.ee.uct.ac.za

RESEARCH OUTPUT

Chapters in books


Articles in Peer-reviewed Journals


Folly, K.A. 2011. Performance evaluation of power system stabilizers based on population-based incremental


Peer-reviewed published conference proceedings


Ipinino, O., Chowdhury, S. and Chowdhury, S.P. 2011. ANN-Based voltage dip mitigation in power networks with


**Technical and economic assessment of power generation**


DEPARTMENTAL STATISTICS

Permanent and long-term contract staff

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</table>

RESEARCH FIELDS AND STAFF

PROFESSOR KEVIN BENNETT
Director, Energy Research Centre; Energy research.

MS TRACY BOOYSEN
Chief Scientific Officer; Electro Mechanical engineering, robotics and agents.

DEPARTMENTAL PROFILE

The Department of Mechanical Engineering includes the following recognized research groupings: Blast Impact and Survivability Research Unit (BISRU), the Centre for Materials Engineering (CME), the Centre for Research in Computational and Applied Mechanics (CERECAM), the Energy Research Centre (ERC) and the SASOL Advanced Fuels Laboratory (SAFL). The research interests of BISRU cover all engineering aspects of blast and impact scenarios, including the impact/blast process, structural response and material characterisation of structural components, as well as human bio-mechanical response under impact conditions. Research in CME is directed at an understanding the relationships between the production processes and structure, properties and performance of engineering materials. CERECAM focuses on mathematical modelling of complex material behaviour, simulation of processes of deformation and failure of engineering components and artefacts, development of stable and accurate computational solution techniques and computational fluid dynamics. The ERC researches energy efficiency, energy modelling, climate change issues and sustainable energy. The SAFL is arguably the most sophisticated engines laboratory undertaking fuels research in the country. A number of smaller research groupings focus on areas such as advanced manufacturing, aeronautics, orthopaedics, composite materials engineering, computational fluid dynamics, engineering education, engineering management, fracture and fatigue, non-destructive testing and robotics.
ASSOCIATE PROFESSOR BRANDON COLLIER-REED
Director of the Centre for Research in Engineering Education (CREE); the sociocultural characterization of the student experience; social aspects of technology; technological literacy of adolescents; podcasting in engineering education.

MR TREVOR CLOETE
Senior Lecturer; BISRU, CERECAM; deformation and tearing of blast loaded metal plates; high strain rate plasticity; constitutive modeling.

MR DIRK FINDEIS
Senior Lecturer; non-destructive testing; portable ESPI and shearography.

EMERITUS PROFESSOR JASSON GRYZAGORIDIS
CERECAM; heat transfer and refrigeration; combined absorption and compression refrigeration cycles; optical techniques in non-destructive testing; holographic interferometry; ESPI; shearography; materials properties evaluation.

MR ERNESTO ISMAIL
Lecturer; BISRU, CERECAM; meshless methods, non-linear elasticity.

PROFESSOR DORA KARAGIOZOVA
Honorary Professor; BISRU; analytical and computational analysis of dynamic systems.

ASSOCIATE PROFESSOR FRANZ-JOSEF KAHLEN
Lean/advanced manufacturing; laser materials processing; laser diagnostics.

ASSOCIATE PROFESSOR RAMESH KUPPUSWAMY
Advanced manufacturing; micro/nano systems.

PROFESSOR ROBERT KNUTSEN
Deputy Head of Department; Director, Centre for Materials Engineering; physical metallurgy; thermo-mechanical processing; texture; microstructure; microscopy.

PROFESSOR CANDACE LANGLEY
Deputy Dean; Centre for Materials Engineering; physical metallurgy; electrical properties; electron microscopy.

ASSOCIATE PROFESSOR GENEVIEVE LANGDON
BISRU; CREE; blast response of structures and materials; high strain rate behaviour; structural impact.

ASSOCIATE PROFESSOR ARNAUD MALAN
Computational Fluid Dynamics

MR STEPHEN MARAIS
Senior Lecturer; Electro Mechanical design.

PROFESSOR GERALD NURICK
Director, BISRU; structural impact; crashworthiness; high strain rates; impact biomechanics.

MR RODGER NKUMBWA
Lecturer; advanced manufacturing processes; manufacturing IT integration, lean & green manufacturing, Engineering Management

PROFESSOR CHRIS REDLINGHUYYS
Head of Department; autonomously guided parafoils, airliners in formation flight.

ASSOCIATE PROFESSOR ANTHONY SAYERS
CERECAM; fluid mechanics; industrial aerodynamics; CFD; vehicle aerodynamics; engineering of sport.

MS CORRINNE SHAW
Senior Lecturer; Engineering Management; management and engineering education, systems theory and practice.

PROFESSOR ROBERT TAIT
Centre for Materials Engineering; fracture mechanics; fatigue; assessment of residual stresses in structural components; applied non-destructive testing.

DR GEORGE VICATOS
Senior Lecturer; heat transfer and refrigeration; combined absorption and compression refrigeration cycles; bioengineering prosthesis design.

ASSOCIATE PROFESSOR CHRIS VON KLEMPERER
Composite materials; processing and modelling of composite materials and structures.

DR CHRIS WOOLARD
Site leader; Sasol Advanced Fuels Laboratory; fuels chemistry; polymeric materials; thermal analysis.

HONORARY LECTURERS

MR PAUL SCHABERG
Honorary Lecturer, SASOL Advanced Fuel Lab, engines and fuels research.

PROFESSOR ANDY YATES
Adjunct Professor, SASOL Advanced Fuels Lab, engines and fuels.

PERMANENT AND CONTRACT RESEARCH STAFF

MR VICTOR BALDEN
Research Officer, BISRU; impact dynamics.

MS ANYA BOYD
Assistant Research Officer, ERC; energy, environment and climate change.
DR BRETT COHEN
Senior Research Officer, ERC; energy & modeling group.

DR STEEVE CHUNG KIM YUEN
Research Officer, BISRU; structural dynamics, blast response, crashworthiness.

MR STEPHEN DAVIS
Research Officer, ERC; energy modelling team.

MS CATHERINE FEDORSKY
Research Officer, ERC; energy, poverty & development.

DR GARETH FLOWEDAY
Projects co-supervisor, SASOL Advanced Fuels Lab, engines and fuels.

MR ANDREW HIBBERD
Energy Efficiency Engineer, ERC; measurement and verification.

MS ALISON HUGHES
Senior Research Officer, ERC; energy efficiency; energy modeling.

MR RICHARD LARMOUR
Research Officer, ERC; measurement & verification.

MR THAPELO LETETE
Assistant Research Officer, ERC; climate change.

DR ANDREW MARQUARD
Senior Research Officer, ERC; energy and climate change team.

MR Mkhululi MAGWACA
Energy Efficiency Engineer, ERC; measurement and verification.

MR BRUNO MERVEN
Senior Research Officer, ERC; energy modelling team.

MR PULE MONAMODI
Assistant Research Officer, ERC; renewable energy, energy efficiency, and commercial and residential energy issues.

MS MASCHA MOORLACH
Energy Efficiency Engineer, ERC; measurement and verification.

MR ALFRED MOYO
Assistant Research Officer, ERC; Assistant Research Officer; energy & climate change group.

DR GISELA PRASAD
Chief Research Officer, ERC; energy, poverty and development.

DR SEBATAOLO RAHLAO
Researcher, ERC; energy, environment and climate change.

DR DEBBIE SPARKS
Senior Research Officer, ERC; energy and climate change.

DR MIRA TOPIC
Senior Research Scientist, iThemba Laboratory for Accelerator Based Sciences, Centre for Materials Engineering; solid-state phase transformation, thin films and coatings, materials characterization by nuclear microprobe, X-ray, neutron and synchrotron diffraction techniques.

MR AJAY TRIKAM
Research Officer, ERC; energy efficiency; greenhouse gases; mitigation modeling.

PROFESSOR HARALD WINKLER
ERC; climate change (economics, mitigation & policy) and environmental economics.

MS HOLLE WLOKAS
Assistant Research Officer, ERC; energy, poverty & development group.

RESEARCH HIGHLIGHTS 2011

Inaugural lecture: Wednesday 17 August, Professor Harald Winkler from the Energy Research Centre gave his inaugural lecture on ‘Climate change mitigation in the context of development’.


Popular Mechanics named bioengineer Dr George Vicatos as South Africa’s “Inventor of the Year” for his development of a versatile and potentially life-changing facial reconstruction system. His R50 000 prize money included an award for top spot in the Cutting Edge category of a nationwide inventors’ competition. The judges remarked that Vicatos’s invention “demonstrated his commitment to a better understanding of the human organism and the tireless pursuit of practical solutions for its frailties”.

Plenary addresses: Professor Gerald Nurick gave two plenary addresses in 2011, (1) International Conference on Impact Loading of Lightweight Structures (Valenciennes, France) and (2) Lightweight Armour Group Meeting (Portugal)

DISTINGUISHED VISITORS

Prof Wesley Cantwell, University of Liverpool
Dr Luke Louca, Imperial College London
CONTACT DETAILS
Postal Address: Department of Mechanical Engineering, University of Cape Town, Private Bag X3, Rondebosch, 7701
Telephone: +27 21 650 3231
Facsimile +27 21 650 3240
E-mail: MEC-mechanicalengineering@uct.ac.za
Web: http://www.mecheng.uct.ac.za/

RESEARCH OUTPUT

Articles in Peer-reviewed Journals


Peer-reviewed published conference proceedings


