

SCHOOL OF CIVIL ENGINEERING AND THE BUILT ENVIRONMENT

Department of Construction Management & Quantity Surveying

Ms Maphefo Mogodi

Research Interests

Women in construction and built environment professions

E-mail: maphefom@uj.ac.za

Mr Ferdinand Fester

Research Interest

Construction Education

E-mail: ffester@uj.ac.za

Prof Clinton Aigbavboa

Research Activities

Low-income housing policy, informal settlements, sustainability human development, sustainable housing regeneration, post-occupancy evaluation, green job creation, construction management and quantity surveying education, building information modelling, construction site management and building indoor environmental qualities.

Research Interests

Low-income housing policy, informal settlements, sustainability human development, leadership development, building information modelling, green job creation and contract law.

E-mail: caigbavboa@uj.ac.za

Dr Innocent Musonda

Research Activities

Construction health and safety, construction project organisation and management, risk and risk management, organisation culture, integrated project delivery, infrastructure development and sustainability.

Research Interests

Human resource management systems, project management, information modelling and sustainability.

E-mail: imusonda@uj.ac.za

Dr Justus Agumba

Research activities

Health and safety in construction, project management in construction, construction education, human resource, construction law, construction finance, project communication, small and medium contractors and infrastructure delivery in construction.

Research interests

Construction material, sustainable construction, building information modelling, green building, ethics particularly malpractice in the construction industry and in higher education.

E-mail: jagumba@uj.ac.za

Prof Wellington Thwala

Research Activities

Education and training for competitive intelligence among Small and Medium Size Enterprises (SMEs) in construction, sustainable construction, strategic management in construction, project management processes tools and techniques, housing research, construction procurement practices, infrastructure delivery and project controls.

Research interests

Knowledge management and intellectual capital assets in diverse project management environments, managing innovations (process, product, technology, service and market) in construction, benchmarking and Key Performance Indicators, risk, quality, health and safety management in diverse project environments, refurbishment, modernisation and maintenance management, project management processes (including methodologies), tools and techniques, information technology and its impact on team-working, communication and productivity, supply chain and inventory management, construction procurement practices (including

partnering, Prime Contracting, PFI and PPP), strategic management in construction. Skills, knowledge and competencies for construction management, education and training for competitive intelligence among Small and Medium Size Enterprises (SMEs) in construction, sustainable construction, strategic management in construction, housing research project management processes tools and techniques, infrastructure delivery and project controls.

E-mail: didibhukut@uj.ac.za

Mr Morena Nkomo

Research Activities

Mentoring of graduates in the construction industry, training and development, mentoring frameworks, gender and race in mentoring, negative mentoring and mentoring of employees.

Research Interests

Human resource management and development, retention of employees, job hopping, talent management, retention strategies, new graduate mentoring and mentoring in higher education.

E-mail: mnkomo@uj.ac.za

Department of Town and Regional Planning

Mr George Onatu

Research Activities

Informal economy, land use planning, co-operative learning /WIL, community engagement and planning, local economic development, mixed-income housing, transit oriented development, spatial planning and town planning regulations, environmental management and sustainable development, property economics and investment planning.

Research Interests

Human settlement and planning, public transport and planning, city and regional planning, sustainable livelihood and rural economic planning, case study and design, town planning regulations / legislations.

E-mail: gonatu@uj.ac.za

Sthembile Thusi

E-mail: sithembilet@uj.ac.za

Office: 011 559 6428

Dr Trynos Gumbo

Research Activities

South Africa's Global Change Agenda and mainstreaming of social issues with AISA/HSRC, bio-derived fuels and solar energy transition in South Africa with UNISA.

Research Interests

Sustainable and smart cities, housing development, economic informality, urban environmental issues, generation of renewable energy and application of GIS to provide solutions to urban problems.

E-mail: tgumbo@uj.ac.za

Dr Walter Musakwa

Research Activities

Developing a spatial decision support system for land reform, social media and crowd sourcing use in public transit use, land use and land cover change analysis, Smart Cities concept smart mobility, intelligent transport systems, application of Geographic Information Systems, remote sensing and earth observation in decision making.

Research Interests

Application of Geographic Information Systems, remote sensing and earth observation in decision making, land use and land cover change analysis, mapping and cartography, spatial statistics, geodesign and visualization, application of new Geographic Information Technology, location based services, sustainable urban development, developing GIS algorithms, smart cities concept smart mobility, intelligent transport systems, developing spatial decision support systems, environmental conservation, spatial crowd sourcing and social media.

E-mail: wmusakwa@uj.ac.za

Mr Eric Makoni**Research Activities**

Identification of strategically located land for reform purposes using Geographic Information Systems and formulation of a national land-use classification framework for South Africa (Department of Rural Development and Land Reform).

Research Interests

Spatial planning, city-regional planning, rural development, decolonial theory and practice, national, regional and local planning and intergovernmental planning practices.

E-mail: emakoni@uj.ac.za

Mr Aurobindo Ogra**Research Activities**

Urban and regional planning, urban development and management, municipal/ urban governance, municipal reforms, tourism studies, infrastructure planning and development, Geographic Information System (GIS), spatial planning, metropolitan planning, e-Governance, capacity building, project development and management.

Research Interests

Smart Cities, Healthy Cities, Integrated Development Planning (IDP), Spatial Development Framework (SDF), public policy, spatial analytics, spatial planning and land use management, environmental management, municipal and project finance, local economic development, and spatial data repository.

E-mail: aogra@uj.ac.za

Ms Zenzile Mbinza**Research Interest**

Urban symbiology and imaginaries, township disambiguation, informal labour markets, metropolitan planning and urban sensibilities.

E-mail: zmbinza@uj.ac.za

Department of Civil Engineering Technology**Prof Morgan Dundu****Research Activities**

Steel portal frames, buckling of structural steel elements (columns, beams, beam-columns), plastic behavior of structural steel, structural steel connections and base connections, composite structural elements (beams, composite columns, composite slabs), steel construction and alternative building systems (Mi Panels).

Research Interests

Cold-formed structural steel, stainless steel and composite structural elements.

E-mail: mdundu@uj.ac.za

Departmental Secretary: Reginah Mogola

E-mail: mogola@uj.ac.za

Contact: 011 559 6934

Prof George Fanourakis**Research Activities**

Concrete creep, concrete elastic modulus and properties of concrete with waste material partial replacement.

Research Interests

Concrete technology and soil classification.

E-mail: georgef@uj.ac.za

Ryan Sun**Research interest**

Estimation of concrete's elastic modulus.

E-mail: ryans@uj.ac.za

Cronje Bruwer**Research Activities and Interests**

Strengthening of existing reinforced concrete structural elements by bonding steel or CFRP plates by means of epoxy glueing and/or bolting.

E-mail: cbruwer@uj.ac.za

German Nkhonjera**Research activities and Interests**

Climate change and groundwater recharge, wastewater decentralization, constructed wetlands and sustainable urban drainage systems.

E-mail: germann@uj.ac.za

Jannes Bester**Research Activities**

Engineering education, concrete repair, concrete durability and recycled materials.

Research interests

Concrete repair and rehabilitation, concrete forensics and diagnostics, recycled materials and engineering education.

E-mail: jannesb@uj.ac.za

Florindo Thaimo**Research Activities**

M Tech: Civil Engineering.

Research Interest

Geotechnical Engineering.

E-mail: fthaimo@uj.ac.za

Department of Civil Engineering Science**Dr Felix Okonta****Research Activities**

Geo-instrumentations, rock and soil mechanical properties and bearing capacity assessment, geotechnical site characterization for low cost construction, stabilization of marginal soil and rock profiles for road pavement construction, geotechnical assessment for landfill sites, and modelling of landfill life, geomechanics of domestic and industrial wastes, design and evaluation of stability of mine tailings, and design for extension of mine tailings.

Research Interests

Rock mechanics, geotechnical modelling of marginal and cemented soils, highway pavement geotechnics, soil structure interaction, waste/ landfill geotechnics, geotechnics of mine tailings, geotechnical and forensic site investigation for shallow and deep foundations.

E-mail: fnokonta@uj.ac.za

Departmental Secretary: Lerato Mahlangu

E-mail: leratojm@uj.ac.za

Contact: 011 559 2342

Harry Quainoo**Research Activities**

Optimisation of traffic flow along Beyers Naude Road, Johannesburg, South Africa, mechanical properties of polymer stabilised road pavements. An investigation into Train-Bus intermodal transport intermodal problems in Gauteng, Intelligent Transport Management in Gauteng province of South Africa - Challenges and Prospects. An investigation into introduction of bicycles as an alternative transport, Origin-Destination survey within the university community of Johannesburg. An investigation into Train-Truck intermodal freight transportation in Johannesburg, problem analysis, statistical re-interpretation of road accident data in Johannesburg in relation to road geometrics.

Research Interests

Sustainable pavement design and innovative materials, transportation demand modelling, transportation engineering studies (traffic engineering-related problems traffic volume studies, parking studies, accident

studies and management, highway capacity and level of service), intermodal freight transportation, transportation and the environment.

E-mail: hquainoo@uj.ac.za

Deon Kruger

Research Activities

Structural reinforcement by retro fitment with carbon fiber (temperature effects), UV stability of polymers and natural fibers, concrete repairs to old structures, coating protection to exposed concrete under adverse conditions, thermal imagery as diagnostic tool, and microfiber reinforcing for ballistic impact resistance concrete panels.

Research Interests

Polymers in concrete, concrete repair and rehabilitation, concrete forensics and diagnostics.

E-mail: dkruger@uj.ac.za

Mr Pierre van Tonder

Research Activities and Interests

Nanotechnology and concrete performance improvements.

E-mail: pierrevt@uj.ac.za

Megersa Dinka

Research Activities

Water balance modelling, irrigation water management, land use/cover change analysis and lake management.

Research Interests

Hydrology, hydraulics, remote sensing and GIS, climate change analysis, soil and water quality analysis.

E-mail: mdinka@uj.ac.za

SCHOOL OF MINING, METALLURGY AND CHEMICAL ENGINEERING

Department of Metallurgy

Prof Antoine Mulaba-Bafubiandi

Research Activities and Interests

Education for rural development, strategies to attract learners from rural communities to engineering and technologist careers, hydrometallurgy, rural development (use of solar energy, use of agricultural wastes etc), monitoring and evaluation by impact, engineering education, Mossbauer spectroscopy, management in higher education, small scale mining and value addition, mineral processing and beneficiation, process simulation and modelling, neural networks, multivariate analysis, process optimisation, multi perspectives and hierarchical decision modelling, materials development through mechanical alloying, materials weathering, use of solar in rural foundries and mining generated environmental issues.

E-mail: amulaba@uj.ac.za

Departmental Secretary Nomfundo Radebe

E-mail: hosmining@uj.ac.za

Office: 011 559 6635

Dr Didier Nyembwe

Research activities

Casting moulding sands, characterisation and re-use of foundry waste sands and foundry applications of additive-manufacturing.

Research interests

Metal casting, additive manufacturing, physical metallurgy, process control and software development.

E-mail: dnyembwe@uj.ac.za

Departmental Secretary Lincky Lesufi

E-mail: linckyl@uj.ac.za

Contact: 011 559 6169

Mr Justin de Beer**Research Activities**

Financial accounting, financial management and taxation. Strength development of chemically bonded chromite sand and expansion type casting defects in greensand.

Research Interest

Investments related to the Johannesburg Securities Exchange (JSE). Foundry moulding systems, foundry moulding aggregates, bentonite activation, greensand bonding, engineering education – teaching practical classes to large groups.

E-mail: justindb@uj.ac.za

Mr Xiaowei Pan**Research Activities**

Improvement of process efficiency for mineral processing processes, pyro-metallurgical process and metal casting processes.

Research Interests

Process modelling, process simulation, advanced process control and process optimization.

E-mail: xpan@uj.ac.za

Mr Michel Wa Kalenga**Research Activities**

Use of low grade manganese ore in manganese industry, high carbon ferromanganese (Coke bed relations) and high carbon ferromanganese-Coke bed relation using south African manganese ores.

Research Interests:

High carbon ferromanganese, slag cleaning processes with the use of advanced thermodynamics, use of low grade manganese ores in ferromanganese production, new technologies in pyrometallurgy.

E-mail: michelk@uj.ac.za

Mr Shepherd Bhero**Research Activities**

Biomedical material development, determination of creep damage and remnant life of thermal power station boiler tubes and high temperature phases in nickel-tungsten-cobalt alloys.

Research Interests

Ferrous pyrometallurgy, powder metallurgy and hard materials.

E-mail: bshepherd@uj.ac.za

Dr Sydney du Plessis**Research Activities**

Microbial fuel cell, organic (Flexible) photovoltaics and quantum dots photovoltaics.

Research Interests

Metal casting, metal hydride batteries, hydrogen storage, superconductivity, geopolymer cement, process control and software development.

E-mail: sydneydp@uj.ac.za

Dr Willie Nheta**Research activities**

Flotation of low grade iron ores, purification of crystallizer salts from PGM plants, incorporation of base metals in jarosite precipitate and retreatment of fluorspar tailings.

Research interests

Mineral processing, hydrometallurgy, nonferrous metallurgy (PGMs, gold and silver).

E-mail: wnheta@uj.ac.za

Dr Mamookho Makhatha**Research Activities**

Polymer composites and mineral processing.

Research Interest

Coal processing and technology.

E-mail: emakhatha@uj.ac.za

Department of Chemical Engineering Technology

Mr Mohamed Belaid

Research Activities and Interests

Environmental engineering, separation processes, phase equilibrium, mineral processing, fluidized beds, focus on circulating fluids bed combustion, activated carbon focus on various sources of activated carbon production and its applications, and engineering education.

E-mail: mbelaid@uj.ac.za

Departmental Secretary Showneez Snyders.

E-mail: ssnyders@uj.ac.za

Contact: 011 559 6276

Dr Robert Huberts

Research Activities

E-learning, OBE, and microbial fuel cells.

Research Interest

Bacterial leaching.

E-mail: roberth@uj.ac.za

Prof Freeman Ntuli

Research Activities

Gaseous reduction processes, leaching processes, reduction crystallization, precipitation, modelling of particulate processes, wastewater characterization, treatment of mineral effluents e.g. acid mine drainage, value added processing of solid waste namely coal fly ash, gypsum, sewage sludge for construction and agricultural applications, geopolymerization of gold mine tailings, environmental monitoring and occupational health and hygiene.

Research Interests

Hydrometallurgy, crystallization, adsorption, precipitation, wastewater treatment, environmental process engineering, solid waste treatment and utilization.

E-mail: fntuli@uj.ac.za

Prof Kalala Jalama

Research Activities

Synthesis and properties of carbon nanotubes coated tin oxide for gas sensing applications, Soybean oil transesterification, Waste oils to biodiesel over solid catalysts, Effect of coal beneficiation on IGCC, Effect of liquid products on supported Fischer-Tropsch catalysts.

Research interests

Nano-materials and heterogeneous catalysis, coal/gas/biomass to liquid via Fischer-Tropsch processes and biofuel synthesis.

E-mail: kjalama@uj.ac.za

Prof Edison Muzenda

Research Activities

Waste utilization for energy poverty reduction, capacity building, the green economy and job creation, Phase Equilibrium Measurement, Modelling and Computation, Waste Utilization and Minimisation, Waste to Energy.

Research interests

Phase equilibrium measurement and computation, gas scrubbing, the environment, green energy as well as waste management and utilization.

E-mail: emuzenda@uj.ac.za

Tebogo Mashifana

Research Interests

Water Resources Management, Waste utilization, Mineral Processing, Air pollution, Renewable Energy and Climate Change.

E-mail: tmashifana@uj.ac.za

Mr Ishmael Ramatsa**Research Activities**

My research interest stem from my desire to understand fundamental aspect of anaerobic digestion, the fundamental include parameters that influence the promotion of optimal biogas production. This also include the design of bio-digester that treat relevant substrate. In my current research am more focused in understanding the internal condition that contributes to optimal biogas production.

Research Interest

Process system Engineering, Mineral processing and Waste to Energy under anaerobic system.

E-mail: iramatsa@uj.ac.za

Department of Mining & Mine Surveying**Dr Hennie Grobler****Research Activities and Interests**

Gyroscopic surveying, laser scanning and sidewall station surveying techniques.

E-mail: hgrobler@uj.ac.za

Departmental Secretary: Alta De Wet

E-mail: altadw@uj.ac.za

Contact: 011 559 6186

Heinrich Strauss**Research Activities**

Project management maturity in the mining industry.

Research Interests

The application of project management, specifically in smaller (non-capital, or operational) projects on South African mines, and the development of a model to assess its maturity.

E-mail: hstrauss@uj.ac.za

Mr Milton Ramaguba**Research activities**

Strategies to improve ore accounting from the underground mining operation to the plant at Siphumelele One Shaft conventional mining.

Research interests

Small scale mining, production mining and constraints to ore flow, support in underground mining, mine ventilation, mechanisation and transition from conventional mining, mineral processing and beneficiation.

E-mail: miltonr@uj.ac.za

Mr Peter Knottenbelt**Research Interests**

Holistic educational practices particularly in Engineering that promote good citizenship, development of personal consciousness, meaningful transformation, developing an ethical foundation in young people, Mining engineering education – particularly for purposes of supporting the production activities at mines, use of technology in engineering teaching and learning – Clickers.

E-mail: peterk@uj.ac.za

Mr Tshupo Mmola**Research Activities**

MSc: Mining Engineering: Mine Planning and Optimisation.

Research Interest

Mine planning and optimisation, mine management (operational and strategic), mineral resource management and operational research.

E-mail: tmmola@uj.ac.za

Mauritz Meyer**Research Interest**

RPAS Regulations.

E-mail: mauritzm@uj.ac.za

Amuli Bukanga

Research Activities

MTech: South African Olivine / serpentine exploitation for Co2 sequestration.

Research Interest

Mineral processing, mine design and planning

E-mail: abukanga@uj.ac.za

Ivan Wermuth

Research Activities

Mining.

Research Interest

Sustainability.

E-mail: ivanw@uj.ac.za

Rudzani Mukwevho

Research Activities

Dam/tailings deformation monitoring.

Research Interest

Slope stability monitoring.

E-mail: rudzanim@uj.ac.za

SCHOOL OF MECHANICAL AND INDUSTRIAL ENGINEERING

Department of Mechanical and Industrial Engineering Technology

Mr Samuel Gqibani

Research Interest

Renewable Energy Storage.

E-mail: samuelg@uj.ac.za

Departmental Secretary: Lindelwa Bolilitye

E-mail: llbolilitye@uj.ac.za

Contact: 011 559 6136

Dr Able Mashamba

Research Activities

Computational quantitative methods (mathematical modelling, optimization, simulation, queuing theory, forecasting, Bayesian inference and networks, decision trees, facility layout, game theory, experimental design, planning and scheduling, decision support systems, CAD/CAM, CFD, FE) in energy research. Compressed biogas (CBG) as a potential biofuel for ICE's, New PMC materials using indigenous plant fibres.

Research Interests

Computational methods in engineering, Polymer Matrix Composites and Renewable energy.

E-mail: amashamba@uj.ac.za

Mr Emmanuel Bakaya-Kyahurwa

Research Interest

Renewable Energy.

E-mail: ebakaya@uj.ac.za

Prof Rudolph Laubscher

Research activities

Advanced machining and manufacturing, sustainable manufacturing, non-linear finite element analysis, residual stress measurement and surface integrity.

Research interests

Aerospace and advanced materials.

E-mail: rflaubscher@uj.ac.za

Mr Forbes Chiromo

Research Interests

Supply Chain Management, Quality Management, Manufacturing Systems and Business Incubation.

E-mail: fchiromo@uj.ac.za

Mr Dube Partson

Research Interests

Product Modularization and Supply Chain.

E-mail: partsond@uj.ac.za

Dr Daramy Kallon

Research Interests

Industrial grinding mills, nuclear physics and computational mechanics.

E-mail: dkallon@uj.ac.za

Mr Frank Martinez

Research Interests

Tyre recycling.

E-mail: frankm@uj.ac.za

Mr Terence Miller

Research Interests

Renewable energy, design and finite element methods.

E-mail: tmiller@uj.ac.za

Dr Linda Mthembu

Research Interests

Artificial intelligence (cognition) and machine learning.

E-mail: lmthembu@uj.ac.za

Mr Robert Mutyavavire

Research Interests

Operations research, decision support systems and engineering education.

E-mail: rmutyavavire@uj.ac.za

Mr Goodwell Muyengwa

Research Activities

Entrepreneurship, SMME Business models, technological capability assessments, new product development in small enterprises, lean implementation in manufacturing and service sector, project risk assessment, quality management systems, maintenance systems, modelling and optimisation, thermodynamics, heat transfer, computational fluid dynamics, renewable energy - concentrated solar thermodynamics.

Research Interests

Business analysis, manufacturing operations, absorptive capacity, simulation, quality management and project management.

E-mail: gmuyengwa@uj.ac.za

Ms Christina Popa

Research Interests

Design and finite element methods.

E-mail: cpopa@uj.ac.za

Mr Sphiwe Simelane

Research Interests

Rapid prototyping.

E-mail: psimelane@uj.ac.za

Mr Peter Stachelhaus

Research Interest

Conveyor machines.

E-mail: peterst@uj.ac.za

Mr Francis Tekweme

Research Interests

Microwave energy heating and robotics.

E-mail: ftekweme@uj.ac.za

Dr Daramy Kallon

Research Activities

Minerals processing research co-supervision of masters' students.

Research Interests

Automotive, fuel and combustion systems, material strengths and stress analysis.

E-mail: dkallon@uj.ac.za

Ms Rita Steenkamp

Research Activities

BTech project research and involved in establishing a distribution strategy for the Post Office.

Research interest

Distribution strategy for the Post Office and industrial engineering in public hospitals.

E-mail: rsteenkamp@uj.ac.za

Baloyi Amukelani

Research Activities

Application of TQM in the reconfigured higher education landscape of South Africa.

Research Interests

Simulation modelling, business engineering, business architecture, operational improvement, TQM and process automation.

E-mail: amukelanib@uj.ac.za

Department of Mechanical Engineering Science

Prof Andre Nel

Research Activities

Image processing in areas of medical and mineralogical imaging - especially in thoracic imaging for TB and other infectious diseases and areas of mineral identification in core samples. Risk management research specifically aimed at understanding model risk and ways to address basic model risk to improve risk management at a fundamental level. Computational fluid mechanics analysis of hydrocyclones for mineral separation use in beneficiation plants as well as concentrators for primary mining applications.

Research Interests

Image processing, computational fluid mechanics of equipment and thermal system analysis for storage of low-grade energy for later use.

E-mail: andren@uj.ac.za

Departmental Secretary: Heidi Robertson

E-mail: heidir@uj.ac.za

Contact: 011 559 3760

Prof Esther Akinlabi

Research Activities

Friction stir welding of dissimilar metals, advanced manufacturing systems, process optimization, laser additive manufacturing, composites production using friction stir processing and laser metal deposition processes and materials characterizations.

Research Interests

Biodiesel production, biodigester and supply chain management.

E-mail: etakinlabi@uj.ac.za

Departmental Secretary: Elma Taylor
E-mail: elmat@uj.ac.za
Contact: 011 559 2386

Dr Francois Pieterse

Research Activities

In collaboration with CSIR: Optical fibre wind tunnel balances and load measuring devices.

Research Interest

Optical fibres load measuring devices and optical fibre strain measuring systems.

E-mail: ffpieterse@uj.ac.za

Dr Obi Kanchireddy

Research Areas/Interests

Microfibrillated cellulose/nano-cellulose reinforced polymer composites, natural fibers-polymer composites, biodegradable films made of natural resources and non-wood (natural fibers) based pulp and paper.

E-mail: obik@uj.ac.za

Sunita Kruger

Research Activities

PhD research in progress.

Research Interests

Computational fluid dynamics, natural ventilation and environmental fluid Mechanics.

E-mail: skruger@uj.ac.za

Mr Daniel Madyira

Research Activities

Effect of high speed machining on fatigue of Titanium.

Research Interests

Biomass briquetting, natural composites, passive and displacement ventilation, and solar drying.

E-mail: dmadyira@uj.ac.za

Dr Anton Maneschijn

Research Activities

Research programme initiated.

Research Interests

The engineering design and development of mechanical elements of UAS that are intended specifically for civil-use, as well as mechanical engineering elements of the logistic support elements of such UAS.

E-mail: amaneschijn@uj.ac.za

Ms Nickey Janse van Rensburg

Research Activities

Manufacturing Research Centre, UJ Energy Movement, UJ Solar Project and engineering education research group.

Research Interests

Material science, manufacturing, titanium, composite materials, residual stress and engineering education

E-mail: nickeyjvr@uj.ac.za

Prof Jen Tien-Chien

Research Activities

Heat pipe cooling for drilling and milling processes, cold gas dynamic surface coating technology (micro and nano size particles) and its applications, on-demand hydrogen generation using metal hydride, atomic layer deposition processes, PEM fuel cells, and harvesting geothermal energy for building.

Research Interests

Thermal aspects of research machining processes (e.g., grinding, turning, honing, milling, drilling, etc.), cold gas dynamic spraying (CGDS) surface coating technology, environmentally benign machining processes, fuel cells and hydrogen generation technology, nano-technology (thermal) in materials processing (ECGDS),

atomic layer deposition process and its applications, solar cells, li-ion battery, geothermal energy and numerical simulation in heat and mass transfer.

E-mail: tjen@uj.ac.za

Department of Quality and Operations Management

Prof Charles Mbohwa

Research Activities

Sustainability engineering, biofuel potential and sustainability, biodiesel and bioethanol sustainability assessment, life cycles assessment and engineering methodology development, environmental economic and social life cycle assessment, supply chain management and systems- logistics, humanitarian systems green manufacturing, cleaner production, sustainable consumption and production.

Research Interests

Manufacturing/production systems, manufacturing technology-laser-based additive manufacturing, organisational development and management services, humanitarian operations, and operations research.

E-mail: cmbohwa@uj.ac.za

Departmental Secretary: Paballo Nkhumane

E-mail: pnkhumane@uj.ac.za

Contact: 011 559 6165

Dr Pule Kholopane

Research Activities

Process improvement, lean, Toyota Production System (TPS), Total Production System (TPM) and Theory of Constrain (TOC).

Research Interests

Operations, manufacturing/ production systems, manufacturing technology, human resource at plant level, general and industrial management.

E-mail: pulek@uj.ac.za

Departmental Secretary: Moloko Ramaboea

E-mail: molokor@uj.ac.za

Contact: 011 559 1204

Mr John Agwa-Ejon

Research Activities

Refurbishments of buildings, bioethanol and solar energy sustainability assessment, life cycles assessment, SMMEs and co-operatives sustainability assessment.

Research Interests

Management of technology, entrepreneurship, operations management and production systems.

E-mail: jagwa-ejon@uj.ac.za

Nita Sukdeo

Research Interests

Quality management, statistical quality control and operations management.

E-mail: nsukdeo@uj.ac.za

Nwobodo-Anyadiegwu Eveth

Research Interests

Process optimization, operations research, operations management, business process engineering, project management, engineering management, quality management systems and Life cycle assessment.

Research Activity

Operations research – application of mathematical modelling in operations.

E-mail: evethn@uj.ac.za

Vusimusi Lukonga

Research Activities

How work study can be used as a tool to improve productivity.

Research Interest

Work Study.

E-mail: yusimusil@uj.ac.za

Ms Takalani Nemarumane

Research Interests

Renewable energy, social life cycle assessment and organisational productivity.

E-mail: tnemarumane@uj.ac.za

Sambil Mukwakungu

Research Activities

Lean thinking and implementation in the call centre industry in South Africa – Call Centre State of Affairs.

Research Interests

Lean operations in call centres and insurance industry.

E-mail: sambilm@uj.ac.za

Junior Mabiza-ma-Mabiza

Research Activities

Proton exchange membrane (PEM) fuel cell systems, platinum and platinum alloys nano-composite electrodes, environmental assessment tools other than LCA and Eco-indicator 99 Method, platinum nanophase processes and related emissions, platinum mining activities and environmental related issues, climate change impacts and SMEs business sustainability, green economy and SMEs, Sub-Saharan migration and urbanization issues, management services (UJ), operations, quality, project management, energy efficiency, industrial systems and techniques, renewable technology, information technology and entrepreneurship.

Research Interests

Climate change mitigation. technology and strategic approaches, clean and renewable energy sustainability supply, nanotechnology, Proton Exchange Membrane (PEM) Fuel Cell system, SPE systems and efficient electro catalytic activities, carbon footprint and equivalent carbon dioxide emission assessment for systems, processes and industrial composites, environmental impact assessment of CO₂ equivalent emissions, water footprint of systems and processes, solar systems, hydrogen storage system and technology, and hydrogen economy.

E-mail: jmabiza@uj.ac.za

SCHOOL OF ELECTRICAL ENGINEERING

Department of Electrical and Electronic Engineering Science

Prof Bhekisipho Twala

Research Activities

Data comparison, inference, analysis, and presentation to design, collect, and interpret data experiments surrounding the fields of transport, medical, artificial intelligence, software engineering, robotics and most recently in electrical and electronic science engineering, exploring problems in various fields by applying artificial intelligence (machine learning) and statistical sciences.

Research Interests

Knowledge discovery and reasoning under uncertainty, intelligent systems, image and signal processing, multivariate statistics, sensor data fusion and inference, theoretical and applied research in machine learning.

E-mail: btwala@uj.ac.za

Mr Philip Robinson

Research Activities

Video and image enhancement, de-blurring, contrast enhancement and video stabilizing of atmospherically degraded video sequences.

Research Interests

Image processing, computer vision, robotics, radio astronomy in the field of real-time signal processing.

E-mail: phillipr@uj.ac.za

Yuko Roodt**Research Activities**

Computer vision and image processing research, photogrammetry and 3D reconstruction, super-resolution and image enhancement, object recognition and classification, stream processing and supercomputing, vision and artificial intelligence algorithms.

Research Interests

Ray-tracer photo-realistic rendering and computational intelligence.

E-mail: yukor@uj.ac.za

Mbuyamba Tshibanda**Research Activities**

To determine the energy production from renewable sources especially from wind energy units.

Research Interests

Develop models, methods and techniques based on the probabilistic models and Monte Carlo, in order to determine optimal solutions for integrating wind sources in the distribution systems.

E-mail: mtshbanda@uj.ac.za

Dr Megan Vannucci**Research Activities**

Photonics research.

Research Interests

Biomedical engineering and applications of photonics.

E-mail: mvannucci@uj.ac.za

Prof Theo Swart**Research Activities**

Constraint coding with balanced codes and error correction coding for power-line communications.

Research Interests

Information theory, error correction coding, digital communications and power-line communications.

E-mail: tgswart@uj.ac.za

Prof Khmaies Ouahada**Research Activities**

Error correcting codes, spectral shaping codes, convolutional codes, line codes, combined coding and modulation, permutation codes and M-FSK modulation, spectral shaping codes with OFDM modulation, Wireless Sensor Networks, smart grid, graph theory and its application to communications.

Research Interests

Digital communications, information theory, power-line communications, graph theory and coding techniques.

E-mail: kouahada@uj.ac.za

Prof Hendrik Ferreira**Research Activities**

Information theoretic coding techniques, channel coding, power line communications and visible light communications.

Research Interests

Information theory, digital communications, telecommunications employing emerging technologies and smart grid communications.

E-mail: hcferreira@uj.ac.za

Dr Francois du Plessis**Research Activities**

Battery management systems, machine vision and mobile robots.

Research Interest

Battery management systems, renewable energy management and control systems.

E-mail: francoisd@uj.ac.za

Dr Suvendi Rimer**Research Activities**

Wireless Sensor Networks

Research Interest

Wireless Sensor Networks

E-mail: suwendic@uj.ac.za

Dr Evan Hurwitz**Research Interests**

AI/CI applications to risk analysis, asset management, decision-making, automation and social engineering.

E-mail: ehurwitz@uj.ac.za

Dr Rodolfo Martinez**Research Activities**

Photonics Research group leader, research proposals, preparation and supervise postgraduate students (master and doctorates)

Research Interests

Integration of intelligent systems based on optical and electronic sensors, development of different kinds of quasi-distributed sensors, experimental study of fiber sensors based on Fiber Bragg Gratings (measurement of rotation, temperature, strain, refractive index), development of different configurations of tunable wavelength fiber optic laser for interrogation of sensors, development of different configuration of fiber laser in continuous tuning and pulsing wave and photosensitivity study in fiber optics.

E-mail: rodolfom@uj.ac.za

Dr Arnold de Beer**Research Activities**

Group on Electrical Energy Processing (GEEP) research with Prof JD van Wyk and Dr David Pentz and Centre for Telecommunications with Prof HC Ferreira.

Research Interests

Electromagnetic Compatibility and Electromagnetic Interference (EMC / EMI). EMC in Power Electronics. EMC in Power Line Communication (PLC).

E-mail: asdebeer@uj.ac.za

Department of Electrical Engineering Technology**Dr Paul Babu****Research Interests**

Communication and Wireless Sensor Networks.

E-mail: bspaul@uj.ac.za

Departmental Secretary: Melanie van der Voorden Bester

E-mail: melanievdv@uj.ac.za

Contact: 011 559 6106

Mr Philip Baron**Research Activities**

Laboratory development (new networks laboratory).

Research Interests

Cybernetics, second order cybernetics, acoustics, psychology and technology.

E-mail: pbaron@uj.ac.za

Pierre Lindeque**Research Interests**

Digital signal processing, image processing, calculus and statistics.

E-mail: pierrel@uj.ac.za

Pitshou Bokoro**Research Interests**

Power Quality and Surge Protection.

E-mail: pitshoub@uj.ac.za

Dr Michael Grobler**Research activities**

Fibre sensors and chemical fibre sensors.

Research Interests

Fibre Bragg sensors and Fibre Lasers.

E-mail: michaelg@uj.ac.za

Meera Joseph**Research Activities**

Femto Cells, pricing policy to mitigate interference management in Femtocells network, impact of technology in farming and food production in South Africa, ICT use in Community Casting Project, comparative studies on 3G and 4G wireless technologies, indoor communication, Femto cell behaviour in an indoor environment.

E-mail: meeraj@uj.ac.za

Mr Johan van Zyl**Research Interests**

Engineering in relation to Medical/Health/Botanical.

E-mail: johanvz@uj.ac.za

Mr Brett Klette**Research Activities**

Postgraduate research.

Research Interest

Studying the impact that different types of breathing has on the brain and body.

E-mail: bklette@uj.ac.za

Prof Johan Meyer**Research Interests**

Alternative and renewable energy systems, hydrogen fuel cells, systems engineering, optical fibre systems and unmanned aerial systems.

E-mail: johanm@uj.ac.za

Dr Johnson Carroll**Research Activities**

Stochastic control, Markov decision processes, energy management, control systems and engineering education.

Research Interests

Educational assessment, process automation, machine vision and robotics.

E-mail: jcarroll@uj.ac.za

Reolyn Heymann**Research activities**

Coding for Powerline Communications, coding for Flash Memory, Error-correction and synchronization.

Research interests

Smart grids, neural networks and graph theory.

E-mail: rheymann@uj.ac.za

OTHER

Dr Vain Jarbandhan

Research Activities

Public sector leadership and development, social acceptance issues surrounding renewable energy, human resource management and development.

Research Interest

Social acceptance issues surrounding renewable energy.

E-mail: vainj@uj.ac.za

Ms Yvonie Marowa

Research Activity

M-Tech industrial engineering.

Research Interest

Quality.

E-mail: yvoniem@uj.ac.za

Jude Okafor

Research Activities

Geographic Information Systems use on land use /land cover impact prediction on environment and climate change.

Research Interest

Mining and energy activities in Gauteng.

Lerato Moatlhodi

Research Activities

Bulk volume use of fly ash in civil engineering applications.

Research Interest

Geotechnics and geocomposite materials in civil construction.

Dr Tumisang Seodigeng

Research Activities and Interests

Process systems engineering, process synthesis and modelling, process de-bottlenecking and optimization, computational and applied mathematics, numerical modelling and optimization, clean coal energy process, business modelling and analysis, engineering, manufacturing and supply chain, discrete numerical modelling and optimization, numerical modelling and optimization, math, statistics and optimization, chemical engineering modelling and simulation.

Tirivaviri Mamvura

Research Activities

Research in reducing greenhouse emissions in electricity generation power plants by co-firing coal with green raw materials.

Research interests

Thermodynamics in electricity generation, green energy engineering, fabrication of nanoparticles, beer brewing, fabrication of stainless steel pipes and vessels, biotechnology in food and beverage industries including cleaning processes.

Ms Dorina Lonescu

Research Interests

Computational fluid dynamics, engineering education and Total Productive Maintenance (TPM).

Ms Vera Tritchkova

Research Interests

Railway transport, sourcing fresh water and energy generation - hydraulic storage Schemes.

Sinisa Bugarin**Research Activities**

Research in computational mechanics - "Use of gradient only optimization in shaping the dynamic stress concentration in PRMMC".

Research interests

Computational mechanics, hybrid finite element modelling, dynamic stress concentration in metal matrix composites.

Chipo Mugova**Research Activities**

PV quality management.

Research Interests

Continuous quality improvement and quality management, electronic waste management, life cycle assessment and operations management.

Dr Miidzo Hove**Research Activities**

Power Line Communications and Surge Protection.

Barend Van Jaarsveld**Research Activities**

Wide band modelling of induction motors for transient voltage simulations

Research Interests

Transient voltage simulations and insulation coordination on power systems, wide band modelling of electrical equipment and transient voltage studies