

## **PROVISIONAL GRADUATION LIST**

**Graduation Date: 13 July 2026**  
**Time: 09:30**

The purpose of the provisional list is for you to check that **all** of your personal and academic details such as your name(s) and the title of your thesis, as well as the record of supervisor(s) is correct. It is too late to correct these when the final graduation list is published

## **FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT**

ACTING DEAN: PROFESSOR C MUSINGWINI BSc (Hons)(Eng) (UZ) MSc(Eng) (Wits) PhD (Wits) PrEng FSAIMM

### **Doctor of Philosophy**

**ASWAT**, Muhammed

*Electrical Engineering*

*THESIS:* Agent-Based modelling for constrained electrification systems

The candidate studied the challenges of rural electrification and developed a new approach to model how small power systems and loads interact in rural environments. This work led to an innovative approach and delivered a significant technological improvement in providing affordable electrical refrigeration.

Supervisors: Professor W Cronje and Mr A Van Wyk

**BOSALETSI**, Ouma Enesia Tlou

*Electrical Engineering*

*THESIS:* Managing controllable thermal loads to reduce the rate of change of frequency during system contingencies in low inertia power systems

This research developed a small-scale experimental power grid to study how renewable energy, like solar and wind, affects electricity stability. It showed that everyday appliances such as water heaters can automatically adjust their power use to help keep the grid steady, offering a low-cost, practical way to support renewable-based power systems.

Supervisors: Professor W Cronje and Professor L Masisi

**DANGOR**, Mohammed Raees Ebrahim

*Electrical Engineering*

*THESIS:* A multidimensional approach to measure and analyse online learning poverty

The candidate developed the concept of online learning poverty and introduced the Online Learning Poverty Index to measure resource-related deprivation in online and blended learning. Using survey data from 1,016 Wits University students, the thesis shows that unequal access to digital tools, electricity, and suitable study spaces creates measurable barriers to educational participation.

Supervisors: Professor E Trengove and Dr M Bekker

**ESSA**, Saadia

*Electrical Engineering*

*THESIS:* Personalised learning based on machine learning approaches

This thesis explores how Artificial Intelligence uses students' online learning behaviour to predict their learning preferences and support personalised learning. By developing and testing a hybrid machine learning approach within a South African institution, it contributes to personalised learning approaches that can provide effective, engaging learning experiences for diverse students.

Supervisor: Professor T Celik

**GONDWE, James**

*School of Architecture and Planning*

**THESIS:** Reimagining More-than-Human Cities in Africa: Exploring animal geographies of cattle in Karonga Town, Malawi

Current literature on livestock-human relations in urban Africa is limited to the premise that livestock are resources for human development and that livestock rearing is a rural enterprise. By adopting the empirics of complex cattle-human entanglements with more-than-human geography theories, the study of Karonga Town in Malawi show how ing'ombe contributes to the functionality of the urban beyond a commodity framework.

Supervisor: Professor M Sihlongonyane

**MATLALA, Boitumelo Veronica**

*School of Architecture and Planning*

**THESIS:** NGO Mediation In Urban Development. The case of Development Action Group's role in redevelopment of Woodstock and Salt River

Supervisors: Professor S Charlton and Professor C Benit-Gbaffou

**MKHIZE, Msizi Collen**

*Chemical Engineering*

**THESIS:** Viability of Sasol coal and ash as sources of critical raw materials, focusing on rare earth elements (REEs) This research has pioneered the recovery of rare earth elements and critical raw materials from South African coal and coal-derived ashes, demonstrating the transformative potential of unconventional resources for sustainable mineral beneficiation. Through the innovative integration of thermal, hydrothermal, and hydrometallurgical processes, this work advances circular economy development, strategic resource recovery, and future energy and industrial technologies.

Supervisors: Professor O Bada and Dr N Wagner

**MTHETHWA, Fundiswa**

*Electrical Engineering*

**THESIS:** Energy management and control paradigm for optimal peer-to-peer energy sharing to increase the resilience of remote interconnected microgrids

The candidate has conducted pioneering research on the management and control of renewable-dominated interconnected microgrids, also referred to as nested microgrids, aimed at delivering reliable and environmentally resilient power to agro-based rural communities. Her work addresses the critical challenge in regions where centralized grid access is either unavailable in remote areas or severely compromised by frequent outages and power quality deficiencies. By integrating advanced control strategies, adaptive load management, and renewable resource optimization, her research ensures both stability and sustainability of local energy systems. Importantly, her methodologies are highly transferable to practical and industrial implementations, offering scalable solutions that could substantially mitigate the long-standing energy reliability issues confronting the country, while promoting socio-economic development and climate-resilient energy infrastructure.

Supervisors: Professor G Gomes and Professor D Dorrell

**NELWALANI, Ndivhuwo Brayner**

*Metallurgy and Materials*

**THESIS:** The effect of casting parameters on mechanical properties of high chromium white cast iron

This research varied carbon and chromium content in high chromium white cast iron (HCWCI) alloys, linking solidification data to metallurgical microstructural development. This enabled optimisation of mechanical properties and corrosion behaviour. Ultimately, a predictive database was created to help engineers select the best alloy for practical applications

Supervisors: Professor M Bodunrin and Dr D Klenam

**OWOLABI, Abideen Toba**

*Civil Engineering*

**THESIS:** Factors affecting the interpretation of piezocone penetration testing

The candidate's research focused on the cone penetration test which is the most widely used method to assess the mechanical stability of mine waste facilities. His work has deepened our understanding of this test and yielded insights essential to preventing catastrophic failures. Such collapses have devastated communities across virtually all mining nations, including South Africa, as tragically illustrated by the disasters at Merriespruit and Jagersfontein.

Supervisors: Dr L Torres Cruz and Dr R Bradley

**ZULU**, Njabulo Mziwandile

*Chemical Engineering*

**THESIS:** Phase equilibrium investigation into mixed carbon dioxide and methane hydrates inhibition by Deep Eutectic Solvents

Exploring cost-effective and environmentally friendly measures to prevent the formation of gas hydrates during transportation of natural gases, a novel technology of gas hydrate inhibition using green solvents known as deep eutectic solvents was investigated. Using both experimental and theoretical approaches, an evidence that the deep eutectic solvents are promising alternative to conventional chemicals was presented

Supervisors: Dr H Hashemi and Dr A Tumba