

ANNEXURE A

Name of qualification: Master of Engineering (Education Management)

Abbreviation: MEng (Education Management)

Faculty	Engineering and Technology	
Department	Electronic Engineering	
Contact details for Department	Department of Electronic Engineering S-Block Pvt Bag X021 Vanderbijlpark 1900	
Contact details for programme co-ordinator(s)	Dr Sutherland, G E110 Private Bag X021 Vanderbijlpark 1900	Prof Bekker, WJ S313 Private Bag X021 Vanderbijlpark 1900
Site(s) of delivery	Vanderbijlpark	

Rationale

- The changing educational environment surrounding the engineering discipline, prompt VUT to develop a master of engineering and education which will focus on the latest technology in research and engineering education. This programme will focus on specialised skills to educate others within the education environment specialising in the Scientific, Technological, Engineering or Mathematical (STEM) environment.
- The development of this programme was initiated by a collaborative project with global institutions and industry.
- This programme will prepare students to become specialised educators and scientific developers within any of the STEM fields.
- Through benchmarking with national and international higher education institutions as well as consultation with relevant stakeholders it became clear that the programme design must consist of core modules and a strong research component to prepare students for further studies.
- The programme design will ensure articulation to- and from this qualification.
- The research project included will be based on the specific field within STEM that the student entered from. Articulation provided in the programme design allows a student to choose and pursue a PhD in Engineering Education or revert back to the STEM discipline they came from.

- Students completing this qualification will have an advantage in the educational discipline as well as the STEM discipline as this qualification could also hold international accreditation.
- VUT students meet the needs of the surrounding community – South Africa is in need of excellent STEM educators and we have the opportunity to provide these educators.
- This programme speaks to a need in South Africa regarding STEM the National Development Plan of 2030.
- This programme design considered DHET, CHE and SAQA criteria and requirements.
- This programme design falls with the mission and vision of the VUT and respective faculties and is aligned with the academic plan of the institution.

Purpose of the qualification

The purpose of the structured Master of Engineering (Education Management) Degree is to give a postgraduate student specialised skills to teach, train and develop students in Engineering Research, Education Management and STEM. Engineering Education Management Master's Degree will enable students to engage at a high level in personal intellectual growth, gainful economic activity and contributions beneficial to local society and the international society as the qualification will be aligned with global institutions and industry. This program design is embedded within a social constructivist approach to teaching and learning. Engineering Education Management is emphasised and core to this programme. Modules integrated within this programme will address social economic areas, education management, STEM and research. Students will learn to manage, analyse problems and determine different scenario outcomes and gain experience in engineering education. Advanced skills developed in this programme will prepare students to teach on an advanced level, manage education, solve engineering education problems and conduct research within the sector. After the completion of this qualification the students can articulate vertically and horizontally into a relevant Master's and Doctorate in the same or relevant field.

Exit level outcomes (ELO's)

After the completion of this qualification the student will be able to:

- The ability to design, select and apply appropriate and creative methods, techniques, processes or technologies to complex practical and theoretical problems related to Engineering Education Management.
- To demonstrate the ability to make autonomous, ethical and professional decisions which affects Engineering Education Management.
- The ability to use resources including academic resources to communicate professionally to a professional and extended audience.
- Apply specialised Engineering Education Management knowledge to solve ill-defined problems within the STEM field.

- To demonstrate specialised knowledge to enable engagement and critique of current research and practices; as well as an advanced scholarship or research in a discipline of Engineering Education Management.
- The ability to use and apply a wide range of specialised Engineering Management, STEM and research strategies to identify, conceptualise, design methods of enquiry to address complex and challenging problems.
- Engage in independent research and lifelong learning through specialised developed skills.
- To design and implement a strategy for the processing and management of information to conduct comprehensive reviews of leading and current research.

Associated Assessment Criteria:

- Selecting, applying and designing appropriate and creative methods, techniques, processes or technologies to solve complex practical and theoretical problems.
- Making autonomous, ethical and professional decisions.
- Using resources to communicate professionally.
- Applying specialised Engineering Education Management knowledge to solve ill-defined problems within the STEM field.
- Demonstrating specialised knowledge to engage and critique of current research and practices.
- Using and applying a wide range of specialised Engineering Management, STEM and research strategies to identify and conceptualise design methods of enquiry.
- Conducting independent research.
- Designing and utilizing strategies for the processing and management of researched information.

Module alignment with ELO's

	ELO 1	ELO 2	ELO 3	ELO 4	ELO 5	ELO 6	ELO 7	ELO 8
Module alignment with ELO's	Critical Understanding and Application	Problem-solving and Design	Evaluation and Analysis (Group and Individual)	Professionalism	Ethics	Independent Research	Implement Strategies	Resolve Ill-defined Problems (Specialised Knowledge)
Artificial Intelligence	X	x	x	x	x	x	x	x

	ELO 1	ELO 2	ELO 3	ELO 4	ELO 5	ELO 6	ELO 7	ELO 8
Module alignment with ELO's	Critical Understanding and Application	Problem-solving and Design	Evaluation and Analysis (Group and Individual)	Professionalism	Ethics	Independent Research	Implement Strategies	Resolve III-defined Problems (Specialised Knowledge)
Education Statistics and Research Methods	x	x	x	x	x	x	x	x
Technology Education	x	x	x	x	x	x	x	x
Education Management & Leadership	x	x	x	x	x	x	x	x
Research Project	x	x	x	x	x	x	x	x

Programme Design:

MODULE STRUCTURE FOR: Master of Engineering (Education Management)

Module Name	CESM	SAQA Credits	NQF Level	Core / Fundamental / Elective	Sem 1 / Sem 2 / Year
1. Artificial Intelligence	080803	30	9	Core	Year
2. Education Statistics and Research Methods	070502	30	9	Core	Year
3. Technology Education	070401	30	9	Core	Year
4. Education Management & Leadership	070301	30	9	Core	Year
5. Research Project	081201	60	9	Core	Year
Total	180				