

FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT



Postgraduate Programme: **Master of Micro-and Nano-electronics Engineering**



**The Future
Reimagined**

POSTGRADUATE PROGRAMME: MASTER OF MICRO AND NANOELECTRONICS ENGINEERING

The Master of Micro and Nanoelectronics Engineering programme strives to develop professionals with advanced abilities in applying fundamental microelectronics engineering within multi and cross-disciplinary environments of today' s workplace.

The Master of Micro and Nanoelectronics Engineering Programme focus on the development of professionals for various leadership roles in engineering and related technology fields.

WHAT ARE THE OUTCOMES OF THE MASTER OF MICRO AND NANOELECTRONICS ENGINEERING PROGRAMME?

- Apply theoretical concepts of system identification, modelling, and optimisation.
- Take technical-scientific questions from practice, to understand the problems, to formulate them, and then communicate them to others in an appropriate way
- Analyze engineering and technology questions and formulate solutions
- Understand the impact of design activities on the life cycle of products
- Adequately report results and work practices both in writing and verbally using current technical language and terminology to persuade others about the benefits of new ideas and inventions
- Communicate adequately in their native language and in English

WHAT WILL THE MASTER OF MICRO AND NANOELECTRONICS ENGINEERING PROGRAMMES OFFER YOU?

- High level capability of specialization, research-related training, and in-depth, domain-specific knowledge at a professional level.
- Micro- and nanoelectronics is a cross-disciplinary field covering knowledge and skills from other specialisations, such as biomedical engineering, computer engineering, and information and communication technology as well as electrical power engineering and the interactions with the following topics specific to micro- and nanoelectronics:
 - ❖ devices, sensors, actuators, measurement instrumentation, and technology for fabrication
 - ❖ analogue, mixed-signal, high frequency, and digital circuit design
 - ❖ architecture, systems, and selected applications of VLSI systems

WHO CAN APPLY?

Bachelor of Honors degree or equivalent from accredited programmes within the electronic engineering or related field such as physical physics, mathematics, computer science or material science, or Bachelor of Technology in Electrical/Electronic Engineering that is supported by any postgraduate learning or experience, may be admitted to study towards the degree qualification. Research topics must be accepted and approved by the supervisors in the department in the case of research dissertation.

INTERNATIONAL STUDENTS?

The University of Johannesburg welcomes international students.

HOW TO APPLY?

All applications to be completed online. To apply for the Master of Micro and Nanoelectronics Engineering programme, please follow the application link on the UJ website <http://tiny.cc/hgqpsz> and <http://tiny.cc/9gqpsz>

MASTER OF MICRO AND NANOELECTRONICS ENGINEERING PROGRAMME:

The duration of the programme is one-year full time and two years part time (minor dissertation, first and second semester second year). The mode of delivery for the

programme is through contact sessions supported by self-study and a research minor dissertation.

MODULES AND CONTENT STRUCTURE:

MODULE	NQF LEVEL	MODE	SEMESTER	CREDITS
Analogue and RF Microelectronics (ARFM1E1)	8	Compulsory	1	30
Digital and Memory Design (DIMD1E1)	8	Compulsory	1	30
Engineering Research Proposal Writing (ERPW1E1)	8	Compulsory	1	15
Minor Dissertation (MNEM1E1)	9	Compulsory, Topic Elective	1	45
Research Related Specialisation (RRSP2E1)	8	Compulsory	2	15
Minor Dissertation (MNEM2E1)	9	Compulsory, Topic Elective	2	45
TOTAL CREDITS	9	Full Time	1 Year	180

CONTACT INFORMATION:

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