

## MEng: MECHANICAL

Research-based (SAQA 73989) (NQF 9)

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**EB9.2.1 Purpose of the qualification**

The purpose of the qualification is to develop an engineer with advanced abilities in applying fundamental engineering sciences and/design and synthesis and related principles to specific problems of society at large. One of the main objectives of this process is to develop an advanced capability to do fundamental engineering research independently. It also promotes a lifelong learning approach.

**EB9.2.2 Qualification outcomes****Exit level outcomes:****The qualified student will be able to:**

1. Identify, assess, formulate, interpret, analyse and solve engineering research and development problems creatively and innovatively by applying relevant fundamental knowledge of i.e. Mathematics, Basic Science and Engineering Sciences in the chosen field of research.
2. Plan and manage engineering research projects, demonstrating fundamental knowledge, understanding and insight into the principles, methodologies and concepts that constitute socially responsible (to local and other communities) engineering research/development in the chosen field of research practice.
3. Work effectively, individually or with others, as a member of a team, group, organisation and the community or in multi-disciplinary environments in the chosen field of research.
4. Organise and manage him/herself and his/her activities responsibly, effectively, professionally and ethically, accept responsibility within his/her limits of competence, and exercise judgment based on knowledge and expertise pertaining to the field of research.
5. Plan and conduct applicable levels of investigation, research and/or experiments by applying appropriate theories and methodologies, and perform data analysis and interpretation.
6. Communicate effectively, both orally and in writing, with engineering and specifically research audiences and the community at large, in so far as they are affected by the research, using appropriate structure, style and graphical support.
7. Use and assess appropriate research methods, skills, tools and information technology effectively and critically in engineering research/development practice, and show an understanding and a willingness to accept responsibility for the impact of engineering research/development activities on society and the environment.
8. Perform procedural and non-procedural design and synthesis of components, systems, works, products or processes as a set of related systems, and assess their social, legal,

- health, safety and environmental impact and benefits, where applicable, in the chosen field of research.
9. Employ various learning strategies and skills to master outcomes required for preparing him/herself to engage in continuous learning, to keep abreast of knowledge and skills required in the engineering field.
  10. Participate as a responsible citizen in the life of local, national and global communities by acting professionally and ethically in the chosen field of research.
  11. Demonstrate, where applicable, cultural and aesthetic sensitivity across a range of social contexts in the execution of engineering research and development activities.
  12. Explore, where applicable, education and career opportunities through engineering problem-solving, design, technical research and managerial skills.
  13. Organise and develop entrepreneurial opportunities through engineering, technical research, development and/or managerial skills.

### **EB9.2.3 Admission requirements and selection criteria**

An approved four-year Bachelor's degree in Engineering or similar approved degree at honours level.

Final admission to the programme will only be granted upon successful presentation of a research seminar six months after enrolment. Research topics must also be accepted and approved by the supervisors in the Faculty.

### **EB9.2.4 Conferment of the degree**

The MEng: Mechanical degree will be conferred on students who have completed the research seminar and dissertation successfully.

### **EB9.2.5 Curriculum First year**

<b>CODE</b>	<b>MODULE</b>	<b>CODE</b>	<b>MODULE</b>
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First semester		Second semester	
M6M0109	Dissertation	M6M0209	Dissertation