

Lectured (SAQA -) (NQF 9)

EB9.6.1 Purpose of the qualification

The purpose of the programme is to develop an engineer with advanced abilities in applying fundamental structural engineering sciences, design and synthesis to specific structural engineering problems in society at large. One of the main objectives is to develop an advanced capability to do fundamental structural engineering research independently and, in so doing, promote lifelong learning.

EB9.6.2 Qualification outcomes

Exit level outcomes:

The qualified student will be able to:

1. Identify, assess, formulate, interpret, analyse and solve structural 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 structural engineering research projects demonstrating underlying 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, organization, and community or in multidisciplinary environments in the chosen field of research
4. Organise and manage him/herself and his/her activities responsibly, effectively, professionally and ethically and take responsibility within his/her own limits of competence and to exercise judgment commensurate with knowledge and expertise, pertaining to the field of research
5. Plan and conduct applicable level of investigations, 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 structural engineering research methods, skills, tools, technology and information technology effectively and critically in engineering research/development practice and show an understanding and a willingness to accept responsibility for the impact that engineering research/development practice have 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 impacts and benefits where applicable in the chosen field of research
 9. Employ various learning strategies and skills to master outcomes required in preparing him/herself to engage in continuous learning to keep abreast of knowledge and skills required in the structural 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 structural engineering skills
 13. Organise and develop entrepreneurial opportunities through engineering research, development and/or structural engineering skills

EB9.6.3 Admission requirements and selection criteria A four year professional Bachelor's degree in Civil Engineering OR

A Bachelor Honours degree or Postgraduate Diploma in Civil Engineering or an affiliated Engineering field

EB9.6.4 Conferment of the degree

The MEng: Structural Engineering degree will be conferred on students who have completed the six coursework modules (4 core modules and to electives) and minor dissertation successfully. Weight of dissertation is 50%.

EB9.6.5 Curriculum First year

CODE	MODULE	CODE	MODULE
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First semester		Second semester	
M6CCT29	Advanced concrete technology	M6PAD19	Plastic analysis and design of structures
Second year		M6ARC19	Advanced reinforced concrete analysis and design

First semester		Second semester	
M6FEA19	Finite element analysis	M6SOS19	Stability of steel structures
M6CSE19	Minor Dissertation	M6CSE29	Minor Dissertation

Choose two electives	
M6DAR26	Durability, assessment and repair of concrete structures (Second Semester)
M6DYS29	Dynamic analysis of structures (Second Semester)
M6DCS29	Design of cold-formed steel structures (First semester)
M6SPE19	Special topics in civil engineering materials and structures (First Semester)