

21.2.1 Purpose of the programme

ECOSA views the process of professional development in engineering as having three principal phases: education, training and experience leading to registration and continuing development during practice. The phases are separated by important stages. At Stage 1, educational requirements are met. During employment, training is completed and experience is gained to attain the competencies for Stage 2, namely professional competence at the point of registration. Holding a qualification attached to a programme accredited for the category of registration is the normal way of meeting the Stage 1 educational requirements. (ECOSA document: E-02-PT Rev1 Bachelor of Engineering Tech)

The purpose of the BEngTech (Civil Engineering) is thus to build the necessary knowledge, understanding, abilities and skills required for further learning towards becoming a competent practicing Civil Engineering Technologist. Specifically, the qualification provides graduates with:

- Preparation for careers in engineering itself and areas that potentially benefit from engineering skills, for achieving technological proficiency and to make a contribution to the economy and national development;
- The educational base required for registration as a Professional Engineering Technologist with ECOSA.
- For graduates with an appropriate level of achievement, the ability to enter NQF level 8 programmes and then proceed to masters degrees.

21.2.2 Outcomes

Exit level outcomes:

Students who complete this programme will be able to:

- Systematically diagnose and solve broadly defined Civil Engineering problems by applying engineering principles;
- Apply knowledge of mathematics, natural science and engineering sciences to defined and applied engineering procedures, processes, systems and methodologies to solve broadly-defined Civil engineering problems;
- Perform procedural and nonprocedural design of broadly defined components, systems, works, products or processes to meet desired needs normally within applicable standards, codes of practice and legislation in Civil engineering;
- Conduct investigations of broadly-defined problems; locate, search and select relevant data from codes, data bases and literature, design and conduct experiments, analyse and interpret results to provide valid conclusions;
- Use appropriate techniques, resources, and modern engineering tools, including information technology, prediction and modeling, for the solution of broadly-defined Civil engineering problems with an understanding of the limitations, restrictions, premises, assumptions and constraints;
- Communicate effectively, both orally and in writing, with engineering audiences and the affected parties.
- Demonstrate a knowledge and understanding of the impact of Civil engineering activity on the society, economy, industrial and physical environment, and address issues by analysis and evaluation.
- Demonstrate knowledge and understanding of Civil engineering management principles and apply these to one's own work, as a member and leader in a team and to manage projects
- Comprehend and apply ethical principles and commit to professional ethics, responsibilities and norms of Civil engineering technology practice.

21.2.3 Curriculum

CODE	MODULE	CODE	MODULE
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First year

First semester	Second semester
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AFINSA1	African Insights	CDRCIB1	Computer Aided Drawing 1B
APMCIA1	Basic Science (Applied Mechanics) 1A	CMSCI1B	Construction Methods And Safety 1B
CDRCIA1	Civil Engineering Drawing 1A	GLGC1B1	Engineering Geology (Civil) 1B
CPSELA1	Computer Skills 1A	MATE1B1	Engineering Mathematics 1B
ECS1AA1	Engineering Communication Skills 1A	MGTCIB1	Management 1B
MATE1A1	Engineering Mathematics 1A	SURCIB1	Surveying 1B
STAE1A1	Engineering Statistics 1A	TSTCIB1	Theory of Structures 1B
SURCIA1	Surveying 1A		

Second year

First semester		Second semester	
MATE2A2	Engineering Mathematics 2A	CMGCI2B	Contract Management 2B
GTECIA2	Geotechnical Engineering 2A	GTECIB2	Geotechnical Engineering 2B
HYDCIA2	Hydraulics 2A	HYOCIB2	Hydrology 2B
TRACIA2	Transportation Engineering 2A	STRCIB2	Structural Analysis 2B
SUSCIA2	Principles of Sustainability 2A	TRACIB2	Transportation Engineering 2B
SOM2AA2	Strength of Materials 2A	CRM2BB2	Research Methodology 2B

Third year

First semester		Second semester	
CDPCI3A	Capstone Project 3A	CDPCIB3	Capstone Civil Design Project 3B
SSDCIA3	Structural Steel Design 3A	ETHHUB3	Ethics and Community Studies 3B
WRDCI3A	Reticulation Design 3A	WWWCIB3	Water & Waste Water Engineering 3B
RCSCIA3	Reinforced Concrete Design 3A	PJMCI3B	Project Management 3B
TRACI3A	Transportation Engineering 3A	TRACI3B	Transportation Engineering 3B
STRCIA3	Structrural Analysis 3A		