EB21.3 BEngTech: INDUSTRIAL ENGINEERING (NQF 7) B6INDQ

21.3.1 Purpose of the programme

The purpose of the BEngTech (Industrial Engineering) is thus to build the necessary knowledge, understanding, abilities and skills required for further learning towards becoming a competent practicing industrial 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 ECSA.
• For graduates with an appropriate level of achievement, the ability to enter NQF level 8 programmes and then proceed to Master's degrees.
• For certificated engineers, the education base for achieving proficiency in industrial engineering / plant operations and occupational health and safety.

21.3.2 Outcomes

Exit level outcomes:

The exit level outcomes as informed by ECSA are that students who complete this programme will be able to:
• Systematically diagnose and solve broadly defined industrial 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 industrial 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 industrial 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 industrial 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 industrial engineering activity on the society, economy, industrial and physical environment, and address issues by analysis and evaluation.
• Demonstrate knowledge and understanding of industrial 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 industrial engineering technology practice.

21.3.3 Curriculum

CODE	MODULE	CODE	MODULE
First year			
First semester		Second semester	

CPSELA1	Computer Skills 1A	ECS1BB1	Engineering Communication Skills 1B
ELTELA1	Electrotechnology 1A	MATE1B1	Engineering Mathematics 1B
ECS1AA1	Engineering Communication Skills 1A	STAE1B1	Engineering Statistics 1B
MATE1A1	Engineering Mathematics 1A	EWSMIB1	Engineering Work Study 1B
PHYE1A1	Engineering Physics 1A	MANMIB1	Mechanical Manufacturing Engineering 1B
TGRMIA1	Technical Graphics 1A	THFMIB1	Thermofluids 1B

Second year

First semester		Second semester	
AFINSA1	African Insights	AUTMIB2	Automation 2B
MATE2A2	Engineering Mathematics 2A	FACMIB2	Facility Lay Out And Materials Handling 2B
MFDMIA2	Manufacturing Systems Design 2A	IACMIB2	Industrial Accounting 2B
MATMIA2	Material Science 2A	INFMIB2	Information Systems 2B
PDEMIA2	Production Engineering 2A	OPRMIB2	Operational Research 2B
QUAMIA2	Quality Assurance 2A		

Third year

First semester		Second semester	
EMGMIA3	Engineering Management (Industrial) 3A	ENTMIB3	Entrepreneurship 3B
PDTMIA3	Production Technology 3A	LOGMIB3	Logistics Engineering 3B
PENMIA3	Project Engineering 3A	PJIMIB3	Final Year Project 3B
PJIMIA3	Final Year Project 3A	QMSIB3	Quality Management Systems 3B
PRSMIA3	Project Research 3A	SYSMIB3	System Dynamics 3B