

# BACCALAUREUS TECHNOLOGIAE: ENGINEERING: INDUSTRIAL

Qualification code: BTEI03 - NQF Level 7

Campus where offered: Pretoria Campus

## Important notification to new applicants:

Students who intend to enrol for this qualification should take note that no new applications will be accepted as from 2020. Potential students are advised to consult the University's website for possible new qualifications which are aligned with the newly-implemented Higher Education Qualification Sub-Framework.

## REMARKS

a. *Admission requirement(s):*

A National Diploma: Engineering: Industrial or an NQF Level 6 (old NQF and the new HEQSF) qualification in Industrial Engineering (or related fields in Mechanical or Mechatronics Engineering), obtained from an accredited South African university. Preference will be given to candidates with an average of 60% or more. Candidates who do not meet the 60% requirement will be evaluated by the Department and may be requested to provide a portfolio of relevant work experience (excluding P1 and P2) in order to be considered for selection.

National Diploma students at TUT who are busy with their final semester (P2) and do not have more than one theoretical subject outstanding may also apply for admission and may be considered based on the average of their completed theoretical subjects, but admission will be subject to the successful completion of the National Diploma and the Faculty's Student Enrolment Plan (SEP).

Holders of any other equivalent South African or international qualification may also be considered, see Chapter 1 of Students' Rules and Regulations.

b. *Selection criteria:*

Due to capacity constraints, candidates will be selected based on academic performance and/or work experience. Selection will be done after the closing date for applications. Please note that meeting the minimum requirements does not guarantee admission.

c. *Minimum duration:*

One year.

d. *Presentation:*

Block-mode classes presented in the day or evening provided that there are sufficient students. Classes and assessments may take place on Friday afternoons and/or Saturdays.

e. *Intake for the qualification:*

January and July.

f. *Exclusion and readmission:*

See Chapter 2 of Students' Rules and Regulations.

g. *Recognition of Prior Learning (RPL), equivalence and status:*

See Chapter 30 of Students' Rules and Regulations.

h. *Accreditation by professional body:*

This qualification has been accredited by the Engineering Council of South Africa (ECSA).

i. *Subject credits:*

Subject credits are shown in brackets after each subject.



## CURRICULUM

### ATTENDANCE

CODE	SUBJECT	CREDIT
<b>FIRST SEMESTER (JANUARY – JUNE)</b>		
ENT401B	Entrepreneurship IV	(0,125)
ISY401T	Information Systems IV	(0,125)
PJR401B	Project Research IV	(0,125)
SDN411T	Systems Dynamics IV	(0,125)
TOTAL CREDITS FOR THE SEMESTER:		0,500
<b>SECOND SEMESTER (JULY – DECEMBER)</b>		
LEN401T	Logistics Engineering IV	(0,125)
PHY401T	Production Technology IV	(0,125)
PJE401T	Project Engineering IV	(0,125)
QAS401T	Quality Assurance IV	(0,125)
TOTAL CREDITS FOR THE SEMESTER:		0,500
TOTAL CREDITS FOR THE QUALIFICATION:		<b>1,000</b>

### SUBJECT INFORMATION (OVERVIEW OF SYLLABUS)

The syllabus content is subject to change to accommodate industry changes. Please note that a more detailed syllabus is available at the Department or in the study guide that is applicable to a particular subject. On 8 August 2018, the syllabus content was defined as follows:

#### E

**ENTREPRENEURSHIP IV (ENT401B) 1 X 3-HOUR PAPER**  
**(Subject custodian: Department of Management and Entrepreneurship)**  
Introduction to strategic management. A strategic management model for a business. Situational analysis of a business. Strategy formulation, implementation and control. Continuous improvement approaches. Case studies and projects. Entrepreneurship: principles, innovation, creativity, opportunities, entrepreneurial options, sources of support. (Total tuition time: ± 70 hours)

#### I

**INFORMATION SYSTEMS IV (ISY401T) 1 X 3-HOUR PAPER**  
**(Subject custodian: Department of Industrial Engineering)**  
Structure and strategic organisational role. Computer systems resources. Decision support systems and executive information systems. Development and implementation of information systems. (Total tuition time: ± 40 hours)

#### L

**LOGISTICS ENGINEERING IV (LEN401T) 1 X 3-HOUR PAPER**  
**(Subject custodian: Department of Industrial Engineering)**  
Introduction to logistics. Measurement of logistics. System operational requirements. Logistics in system design. System operation and support. Logistic support management. Projects. (Total tuition time: ± 40 hours)



**P****PRODUCTION TECHNOLOGY IV (PHY401T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Industrial Engineering)**

Computer integrated design and manufacturing systems. Enterprise integration. Computer-Integrated Manufacturing. Agile manufacturing systems. Advanced control systems. Advanced robotics. Advanced manufacturing technologies. South African manufacturing arena. (Total tuition time: ± 40 hours)

**PROJECT ENGINEERING IV (PJE401T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Industrial Engineering)**

Need for and advantages of project management. Definition of the project. Modern project planning methods. Communication and presentation of information. Feasibility studies (affordability). Project implementation. Support of the operational systems. Case studies, projects and computer applications. (Total tuition time: ± 40 hours)

**PROJECT RESEARCH IV (PJR401B)****1 X 3-HOUR PAPER****(Subject custodian: Department of Industrial Engineering)**

Introduction to business research methods and the research process, designing of research including observation studies, qualitative research, experiments and surveys. Data collection and sources with emphasis on measurement and measurement scales, questionnaires and sampling. Analysis and presentation of data with Hypothesis testing, multivariate analysis and measures of association. (Total tuition time: ± 40 hours)

**Q****QUALITY ASSURANCE IV (QAS401T)****1 X 3-HOUR PAPER****(Subject custodian: Department of Industrial Engineering)**

Introduction: quality assurance in perspective. Philosophies of Crosby, Deming, Juran, etc. Advanced quality techniques. Quality audit (SABS 0157/ISO 9000). Total quality management. Case studies and projects. (Total tuition time: ± 40 hours)

**S****SYSTEMS DYNAMICS IV (SDN411T)****CONTINUOUS ASSESSMENT****(Subject custodian: Department of Industrial Engineering)**

Introduction to and fundamentals of modelling, system definitions and model formulation, model validation and analysis, interpretation of simulation outputs. Station sub-models and entity transfer. Animation of simulation model with the help of cinema. Additional discrete modelling concepts, advanced manufacturing features. Coupling to user sub-programs. Continuous and combined models. Variant reduction techniques. (Total tuition time: not available)

