



University of Pretoria Yearbook 2025

Industrial analysis 780 (BAN 780)

Qualification	Postgraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
NQF Level	08
Programmes	BScHons (Applied Science) Industrial Systems BScHons Financial Engineering
Service modules	Faculty of Natural and Agricultural Sciences
Prerequisites	Industrial Engineering students may not register for this module
Contact time	24 contact hours per semester
Language of tuition	Module is presented in English
Department	Industrial and Systems Engineering
Period of presentation	Semester 1 or Semester 2

Module content

Descriptive models are used to describe how systems or processes operate, and the outputs of these models are used as inputs for prescriptive and predictive models. Therefore, the first part of this module focuses on descriptive modelling and covers the basic approaches to data and statistical analysis.

In cases with numerous design or redesign options, mathematical programming is a powerful modelling tool that can be used to find the best design to implement. Therefore, the second part of this module covers the basics of mathematical programming and optimisation, and teaches students how to formulate, solve, and interpret results of Linear Programming (LP) and Mixed Integer Linear Programming (MILP) models.

After the best design is identified, predictive models are used to predict whether a new design or improvement will have the desired effect, before its implementation. Therefore, the final theme of this module introduces students to discrete-event simulation modelling, a popular predictive modelling approach.

General Academic Regulations and Student Rules

The [General Academic Regulations \(G Regulations\)](#) and [General Student Rules](#) apply to all faculties and registered students of the University, as well as all prospective students who have accepted an offer of a place at the University of Pretoria. On registering for a programme, the student bears the responsibility of ensuring that they familiarise themselves with the General Academic Regulations applicable to their registration, as well as the relevant faculty-specific and programme-specific regulations and information as stipulated in the relevant yearbook. Ignorance concerning these regulations will not be accepted as an excuse for any transgression, or basis for an exception to any of the aforementioned regulations. The G Regulations are updated annually and



may be amended after the publication of this information.

Regulations, degree requirements and information

The faculty regulations, information on and requirements for the degrees published here are subject to change and may be amended after the publication of this information.

University of Pretoria Programme Qualification Mix (PQM) verification project

The higher education sector has undergone an extensive alignment to the Higher Education Qualification Sub-Framework (HEQSF) across all institutions in South Africa. In order to comply with the HEQSF, all institutions are legally required to participate in a national initiative led by regulatory bodies such as the Department of Higher Education and Training (DHET), the Council on Higher Education (CHE), and the South African Qualifications Authority (SAQA). The University of Pretoria is presently engaged in an ongoing effort to align its qualifications and programmes with the HEQSF criteria. Current and prospective students should take note that changes to UP qualification and programme names, may occur as a result of the HEQSF initiative. Students are advised to contact their faculties if they have any questions.