

University of Pretoria Yearbook 2025

Operational research 410 (BON 410)

Qualification Undergraduate

Faculty Faculty of Engineering, Built Environment and Information Technology

Module credits 16.00

NQF Level 08

Programmes BEng in Industrial Engineering 4-year programme

BEng in Industrial Engineering 5-year programme

Prerequisites (BES 220), (BOZ 312), admission to relevant programme

Contact time 2 tutorials per week, 4 lectures per week

Language of tuition Module is presented in English

Department Industrial and Systems Engineering

Period of presentation Semester 1

Module content

Review of basic probability, Markov chain models, Markov decision models. Queuing systems: M/M/1 queues (both finite and infinite capacity), etc.; deterministic and stochastic inventory models. Competitive games: pure and mixed strategies, optimum strategy, two-person zero-sum games, graphical methods and applications, LP methods for games. Forecasting: time series problems, different methods of forecasting. Introduction to Neural Network, supervised and unsupervised learning, selected network types and learning rules. Introduction to fuzzy logic and membership function, fuzzy operations and relations, fuzzy applications in Industrial Engineering.

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.