

University of Pretoria Yearbook 2025

Formal aspects of computing (II) 441 (COS 441)

Qualification	Undergraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	15.00
NQF Level	08
Prerequisites	COS 301 and at least two COS modules at third-year level.
Contact time	2 lectures per week
Language of tuition	Module is presented in English
Department	Computer Science
Period of presentation	Semester 1 or Semester 2

Module content

The status of Computer Science, including software science, as a proper “science” is closely related with our ability to construct accurate and precise models of the structures and processes of computational systems. The precision of these models is closely related with our ability to express them in formal notations with mathematical rigour, such that it also becomes possible to reason formally about relevant and interesting properties of these models. Examples of such interesting properties are logical consistency (i.e. absence of inherent contradictions), or safety properties such as deadlock freeness. This module focuses on formal languages and techniques which are suitable for such purposes. Of particular importance are process algebras with which systems of parallel and concurrent computation can be formally described. Other suitable formalisms may be discussed as well, such that the contents of this module may slightly vary from year to year.

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.