DSP programming and application 411 (ESP 411)

Qualification	Undergraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
NQF Level	08
Programmes	BEng in Computer Engineering 4-year programme
	BEng in Computer Engineering 5-year programme
	BEng in Electronic Engineering 4-year programme
	BEng in Electronic Engineering 5-year programme
Prerequisites	ESC 320 GS or EDC 310 GS and admission into relevant programme.
Contact time	3 lectures per week, 9 hours practical per semester, 1 tutorial per week
Language of tuition	Module is presented in English
Department	Electrical, Electronic and Computer Engineering
Period of presentation	Semester 1

Module content

This module addresses basic principles of DSP (basic DSP system architecture and properties, analogue interfaces), discrete transforms (Fourier series, Discrete Fourier-Transform (DFT), Fast Fourier-Transform (FFT) and Z-transform), correlation and convolution (correlation, convolution, properties and applications, DSP implementation), digital filters (design framework, FIR and IIR filter design, introduction to adaptive filters), DSP hardware (computer architecture and DSP processors, mapping of DSP algorithms onto DSP hardware), real-world applications and design studies, and simulation (in C) and real-time implementation of selected signal processing algorithms on DSP hardware.

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.