



University of Pretoria Yearbook 2020

DSP programming and application 411 (ESP 411)

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| Qualification | Undergraduate |
| Faculty | Faculty of Engineering, Built Environment and Information Technology |
| Module credits | 16.00 |
| Programmes | BEng Computer Engineering BEng Computer Engineering ENGAGE BEng Electronic Engineering BEng Electronic Engineering ENGAGE |
| Prerequisites | ESC 320 GS or EDC 310 GS |
| Contact time | 1 practical per week, 1 tutorial per week, 3 lectures per week |
| Language of tuition | Module is presented in English |
| Department | Electrical, Electronic and Computer Engineering |
| Period of presentation | Semester 1 |

Module content

Fourier-Transform: revise the Discrete Fourier-Transform (DFT); Fast Fourier-Transform (FFT). Digital filters; cyclic convolution; overlap-and-add as well as overlap-and-save methods; design of FIR- and IIR-filters (incorporating the effect of finite word lengths). Implementation: computer architecture and DSP processors; Mapping of DSP algorithms onto DSP hardware. Projects: simulation (in C) and real-time implementation of selected signal processing algorithms on DSP hardware.

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