

# University of Pretoria Yearbook 2021

## DSP programming and application 411 (ESP 411)

<b>Qualification</b>	Undergraduate
<b>Faculty</b>	<a href="#">Faculty of Engineering, Built Environment and Information Technology</a>
<b>Module credits</b>	16.00
<b>NQF Level</b>	08
<b>Programmes</b>	<a href="#">BEng Computer Engineering</a> <a href="#">BEng Computer Engineering ENGAGE</a> <a href="#">BEng Electronic Engineering</a> <a href="#">BEng Electronic Engineering ENGAGE</a>
<b>Prerequisites</b>	ESC 320 GS or EDC 310 GS
<b>Contact time</b>	1 practical per week, 1 tutorial per week, 3 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Electrical, Electronic and Computer Engineering
<b>Period of presentation</b>	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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