Course Specifications
From the academic year 2016-2017 up to and including the

Course offerings and teaching methods in academic year 2019-2020
A (semester 2) Dutch practicum 12.0 h
lecture 18.0 h

Lecturers in academic year 2019-2020
Gevaert, Wouter TW06 staff member
wyffels, Francis TW06 lecturer-in-charge

Offered in the following programmes in 2019-2020

<table>
<thead>
<tr>
<th>Programme</th>
<th>crdts</th>
<th>offering</th>
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<tbody>
<tr>
<td>Master of Science in Electronics and ICT Engineering Technology</td>
<td>3</td>
<td>A</td>
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<tr>
<td>(main subject Electronics Engineering)</td>
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Teaching languages
Dutch

Keywords
AD and DA transition, discrete signals, discrete systems, FFT techniques, digital filters

Position of the course
Digital signal processing involves the digital signal processing principles, and the
design of digital filters and systems. In the laboratory design techniques and simulation
tools for digital systems are learned.

Contents
DSP
• analog to digital transition
• Digital to analog transition
• Discrete signals and Discrete Fourier Transform
• Discrete systems and Z-transform
• Discrete filters
• IIR systems: infinite impulse response systems
• FIR systems: finite impulse response systems
• Digital filters: Design Methods
• FFT: Fast Fourier Transform
lab DSP The discrete signals are during the lab sessions practical used on the basis of
Python. The design methods and properties of discrete systems are verified in a
practical way.

Initial competences
Knows the signal processing and system principles in the time and frequency domain
for continuous signals and systems as seen in the courses of the bachelor.

Final competences
1 Controls the analog-to-digital and digital-to-analog transition
2 Knows the principles of digital signal processing and discrete systems
3 Can use the acquired skills in advanced digital systems
4 Can design discrete systems
5 Can design filters design
6 Can make a suitable choice for use of FIR or IIR methods in the design of discrete
   systems
Conditions for credit contract
Access to this course unit via a credit contract is determined after successful competences assessment.

Conditions for exam contract
This course unit cannot be taken via an exam contract.

Teaching methods
Lecture, practicum

Extra information on the teaching methods
Theory: lectures
Lab: practicum:

Learning materials and price
Course notes in the form of an iPython Notebook will be available

References

Course content-related study coaching

Evaluation methods
end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period
Written examination

Examination methods in case of periodic evaluation during the second examination period
Written examination

Examination methods in case of permanent evaluation
Report

Possibilities of retake in case of permanent evaluation
examination during the second examination period is possible in modified form

Extra information on the examination methods
PE - Theory: written examination
NPE - Lab : evaluation of the report

Calculation of the examination mark
50% theory + 50 % project