

**Subject: Software Demodulation**

**Topic: Final assignment**

***Assignment***

DEMCON designs and produces a medical device for measuring blood pressure. The device requires a solution to modulating and demodulating a signal. Analog switches controlled by a microcontroller are used to achieve this. Having access to high performance ADC’s, a software demodulation scheme could also be possible. It is expected that the software solution is more flexible with regards to tuning, BOM and PCB space efficient.

To prove that this is a valid demodulation strategy, the following aspects are included in the assignment:

* Analysis of the existing solution
* Design of a software demodulation solution
* Implementation of the software demodulation
* Performance analysis

During the assignment the following knowledge is useful

* Analog circuit design
* Embedded software ( C or C++ )
* Modulation ( <https://en.wikipedia.org/wiki/Modulation> )

The student will be supervised by engineers from both the electrical and software engineering departments.

***About Demcon***

DEMCON is a high-end technology supplier of products and systems, with as focus areas[high-tech systems](http://www.demcon.nl/en/hightech/) and [medical devices.](http://www.demcon.nl/en/medical-devices-2/) DEMCON is a fast-growing business that supports clients with a wide range of competencies. As a system supplier, DEMCON can meet the entire needs of its clients, from proof of principle, prototype and pre-production to serial production. In more than 20 years, the business has grown to become [the DEMCON Group](http://www.demcon.nl/en/demcon-group/) (with more than 200 employees in 2015).

Mechatronics is the multi-disciplinary specialism of DEMCON, which means that mechatronic systems engineering is the key discipline, the ‘mechatronic conscience’ within DEMCON. There are also strong disciplinary departments that combine the knowledge and competencies in their fields. Together, they are responsible for conceiving and developing innovative concepts and creative solutions for the design challenges of the clients.