**HALMSTAD UNIVERSITY**
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School of Information Technology

**SYLLABUS**
-translated from Swedish
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Course Code: EL6001 / 1

# Electronics - Wireless System Exploration, 3 credits

Elektronik - praktisk studie av trådlösa sändtagare, 3 hp

First level
Main field: G2F
Syllabus is adopted by the Research and Education Board (2016-06-07) and is valid for students admitted for the autumn semester 2016.

## Placement in the Academic System

The course is a single subject course.

## Prerequisites and Conditions of Admission

## Course Objectives

The objective of the course is that the students should develop a basic understanding of some forms of works and some methods used in technical development within wireless transceiver systems. The students should also develop their ability to present their work, orally as well as in technical reports.

Following successful completion of the course the student should:

*Knowledge and understanding*

- discuss fundamental concepts of technical project work

- explain some methods applied in computerbased work on wireless transceiver systems

*Skills and ability*

- formulate problems in wireless technology, search and evaluate information, and identify and use for this purpose appropriate methods, tools and design principles when working with a practical application of wireless transceiver systems

- present the result of his or her own work, orally and in writing, and by practical demonstration

*Judgement and approach*

- relate his or her own work to the needs of the surrounding society

## Primary Contents

The course is projectbased and the course content focused on designing a wireless transceiver from basic building blocks. The building blocks include antenna, low noise amplifier, mixer, IF-stage, oscillator, filter, and detector. The students will study each individual basic building block before adding it to a computation model. We will use softwares being used worldwide in industry, preparing students for participation in large R&D projects. In parallel with theoretical studies practical setup and measurements on a corresponding hardware model deepen the students understanding of the subject. System aspects such as selectivity, bandwidth, nonlinearity, noise and power will be covered. Supported by a supervisor the project group should define the problem, obtain the necessary information, process the information with the relevant tools and methods, and present the results of their work in writing, orally, and practical demonstration.

## Teaching Formats

Instruction consists of lectures, laboratory exercises, individual work under supervision and seminars.
Teaching is in English.

## Examination

The overall grades of Fail or Pass will be awarded for the course.
The examination consists of a written report and an oral presentation at a seminar.

## Course Evaluation

Course evaluation is part of the course. This evaluation should offer guidance in the future development and planning of the course. Course evaluations should be documented and made available to the students.

# Literature Draft

Journal papers available through the University library.