

Postgraduate course in Radio Engineering, Telecommunication Laboratory, University of Oulu, fall term 2007

Telecommunication Laboratory is arranging a postgraduate course in antenna technology. The course consists of seminar lectures given by experts from the academia, research institutes and industry. An additional part of the course is an exam based on a recent book on portable device antennas. The aim of the course is to provide a wide view of the current research and development topics on antennas and on closely related technologies.

The course is aimed for postgraduate students and also for students in their graduation phase specialized in telecommunications, electronics, and electrical engineering.

Experts giving the lectures are from Helsinki University of Technology (TKK), University of Oulu (UO), VTT, Patria, and EB. A preliminary list of lecturers, topics, and course schedule is shown below.

Date	Time	Place	Lecturer	Topic
Tue 13.11.	15-16	TS 407	Taavi Hirvonen, EB	Course introduction
Tue 27.11.	10-12		Pertti Vainikainen, TKK	Multi-system and multi-element antennas for mobile terminals
Tue 27.11.	13-14		Erkki Salonen, UO	Adjustable antennas for mobile terminals
Tue 27.11.	14-15		Tommi Laitinen, TKK	New characterisation methods for small antennas
Tue 27.11.	15-16		Sylvain Ranvier, TKK	MM-wave antennas and measurements
Tue 27.11.	16-17		Sergei Tretyakov, TKK	Artificial materials in antenna applications
Wed 28.11.	9-10		Juha Hagberg, UO	New materials for small antennas
Wed 28.11.	10-11		Pekka Salonen, Patria	Textile antennas
Wed 28.11.	11-12		Arto Hujanen, VTT	Antenna research at VTT
Wed 28.11.	13-15		Juha Ylitalo, EB	BF, diversity, and MIMO algorithms
Wed 28.11.	15-17		Tommi Jämsä, EB	Channel models for multi-antenna systems

The completion of the course consists of the following parts:

- Participate in the seminar lectures
- Report on a selected topic
 - topic based on the seminal lectures
 - reports should be submitted by December 21st
- Exam on the course book (the book can be at hand in the exam)
 - Zhi Ning Chen (ed.), *Antennas for Portable Devices*, John Wiley & Sons, 2007, 290 p.
 - First exam will be in December 2007 followed by two additional exams in spring term 2008 (e.g. January and March)

As an alternative way of completion, the exam only can be taken separately. The extent of the course, in either cases, will be confirmed later.

Required preliminary knowledge: Basics of radio and antenna engineering, for example the following courses at the University of Oulu: 521384A Radiotekniikan perusteet (Basics of Radio Engineering) and 521380S Antennit (Antennas).

Registration for the course: In the course opening or by email to the supervisors not later than November 16th, 2007.

Course supervisors: docent Taavi Hirvonen (taavi.hirvonen@elektrobit.com) and D.Sc. (Tech) Seppo Karhu (skarhu@ee.oulu.fi).