STIMESI Training course program

IMEC : RF-SiP design and RF system integration

Delft University of Technology,
Faculty of EEMCS, Building 36, Room H17.150
8-10 June 2009

Abstract
IMEC’s multilayer thin-film (MCM-D) technology enables the integration of high-Q inductor, resistor, and capacitor components, suitable for high frequency (>50 GHz) operation, with standard CMOS and other process derived circuits.

In this course, a broad range of issues related to RF SiP design and RF system integration will be covered. This course is oriented towards designers of RF ICs and PCBs, who increasingly face complex design issues involving a range of novel packaging and interconnect technologies.

The focus of the course will be on off-chip passive components, circuit design and antenna integration. A number of tutorial exercises and examples will be carried out during the training course, under the guidance of skilled RF SiP designers from IMEC.

Topics
Day 1
The first day of this course will include an introduction to the MCM-D technology. Following this, an overview of the technology and the extensive microwave design library, containing parameterized cells for automatic layout generation, will be presented. Subsequent to this, hands-on training in the use of the Agilent ADS design tools with the technology library will take place. In this session, participants will work through design tutorials for RF SiP filter and Wilkinson power Splitter applications.

Day 2
The second day of the course will cover the design of passive circuits using the technology library. In addition, the use of electromagnetic field simulators for RF SiP microwave functions will be discussed in depth. Using a step by step approach, the design of RF SiP components for a MEMS based phase shifter tutorial will be elaborated by the participants while the basics of 2D and 3D modeling together with RF SiP components using the microwave library are explained in detail.

Day 3
The last part of the course will be devoted to the use of thin film technologies for microwave module systems integration. During this day, the focus is put on the system integration aspects of microwave components including packaging and assembly modeling (such as wirebonding, flip chip and solder interconnect modeling). Through hands-on training, the participants will gain insight all of the aspects of high frequency system integration. Finally some case studies of integrated systems with integrated antennas will be discussed.

What is STIMESI?
The goal of the STIMESI Stimulation Action is to stimulate European universities and research institutes to adopt MEMS and SiP technologies. The more experienced universities already active in MEMS design/technology will be assisted to increase their MEMS research activities and to design and fabricate more MEMS circuits and SiP components. Additionally other universities not currently active in this area will be given guidance to help them bootstrap their MEMS/SiP teaching and research activities.

Target Groups
The course is primarily aimed at postgraduate students and researchers from European universities and research institutes with interest in developing MEMS design skills and accessing low-cost fabrication services who may participate free of charge. In addition, engineers and researchers from industry and other organizations are invited to participate for a minimal fee.
Who should attend?

All Europractice member universities and research institutes that want to begin or strengthen their teaching and/or research activities in MEMS/SiP technologies. Also companies having interest in using MEMS in future products are invited to attend. Course participants are expected to have a basic knowledge and skills in using the Agilent-ADS microwave design software.

The course is kindly hosted by Dr. Rene van Leuken from Delft University of Technology.

Location

The STIMESI Course will be located at the Faculty Electrical Engineering, Mathematics and Computer Science and take place in Room H17.150/H16.100.

Address:
Faculty Electrical Engineering,
Mathematics and Computer Science,
Building 36, Room
H17.150/H16.100.
Mekelweg 4,
2628 CD Delft
The Netherlands.

You can find a map of the campus and detailed directions for car and public transport accesses on:
http://www.ewi.tudelft.nl
(Follow the Contact and English links)

Accommodation

Participants will need to make their own accommodation and travel arrangements. Participants that need hotel accommodation need to book hotels themselves. Available hotels can be found through:
http://www.delfthotels.nl/eng/index.html
http://www.booking.com/city/nl/delft.html?aid=301020;label=nl%7Cdelft%7Cdelft-hotel%7C18335

A joining pack will be sent to registrants containing details of the course location, schedule and suggested local accommodation upon registration.

Dates

June 8 - 10, 2009

Fees

- Attendance is free for members of universities and research centers from all 27 EU countries and Norway, Iceland, Lichtenstein, Israel, Croatia, Switzerland and Turkey. In case the course is oversubscribed, access may be limited to one participant per institute and will be on a first-come basis.
- Companies: 300 € (excl. 21% VAT)
- Fee includes all lectures, course notes, lunches and refreshment breaks. Accommodation, transport and meals other than lunches are not included in the course fee.
- Cancellation by a participant between 2 and 28 days before the start of the course is subject to a 200 € administration fee. A 300 € fee will be charged for cancellation within 48 hours of the start of the course or for those who do not attend.
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REGISTRATION

Registration can be done using the STIMESI Course Booking System, which is managed and maintained by STFC Rutherford Appleton Laboratory, UK.

The following link brings you there: http://www.stimesi.rl.ac.uk

Browse to the STIMESI Course Booking System, select the “IMEC RF SiP” course and use the “Book This Course” link:

NOTES:

Each course is limited to 16 participants to ensure a high quality of training. Please reserve your place early. This course runs approximately every 6 months and moves to different locations within Europe.

A joining pack will be sent to registrants containing details of the course location, schedule and suggested local accommodation.

The STIMESI Course Booking System is managed and maintained by STFC Rutherford Appleton Laboratory. All enquires should be emailed to: stimesi@rl.ac.uk