



IEEE

2017 Seasonal School Theme

The Fundamental of CMOS-Radio Frequency Integrated Circuit Design

This SSCAS course will introduce some of the latest and most significant topics in the area of circuit design of RF ICs for wireless infrastructure communication systems. It will cover circuit design techniques like power amplifiers, low noise amplifiers and mixers.

The course will provide an organic and accessible coverage of this rather broad subject. The latter, unfortunately, is often only partially found on disconnected sources of specialized technical literature, or in some graduate-level engineering courses, but in a rather piecemeal form. This course would instead aim to provide a sufficiently insight of the individual circuits while, at the same time, give insight on the signal chains as a whole and the inter-relation between its functional blocks.

This course also provides a comprehensive grounding in the principles associated with RF ICs for wireless systems plus practical information on their design and implementation. It also equips the participating students to put the ideas into practice through hands-on in the lab.

Course Outline

Day 1

Introduction to RF and Wireless Communication

- RF Circuit Fundamentals
- The Radio as Fundamental RF System
- Transmission and Modulation Techniques
- Wireless Transmission Protocols

Fundamentals of RF Circuit Design

- Transmission Line Theory
- The Smith Chart
- The S-Parameter Theory
- The Impedance Transformation Network Design
- Practical Impedance Transformation Network Design with Cadence

Day 2

CMOS Power Amplifier Design in Cadence

Day 3

CMOS Low Noise amplifier and Mixer Design methodologies in Cadence

Date: 8th Aug 2017 – 10th Aug 2017

Venue: Collaborative Microelectronic Design Excellence Centre (CEDEC), Universiti Sains Malaysia, Penang.

Key organizers



Dr. Jagadheswaran Rajendran from Universiti Sains Malaysia. He the recipient of the IEEE CAS Outstanding PhD Thesis award in the year 2015. He has authored more than 10 technical journals, conference papers, white papers and filed two US patents in the field of RFIC. He was the chairman of the IEEE Penang Chapter from 2012 to 2013. His main research interest is Analog IC Design, RFIC Design and RF System Design.



Assoc. Prof Ir Dr Harikrishnan Ramiah From University of Malaya. He was the recipient of Intel Fellowship Grant Award, 2000-2008. He is a Chartered Engineer of Institute of Electrical Technology (IET) and also a Professional Engineer registered under the Board of Engineers, Malaysia. He is a member of The Institute of Electronics, Information and Communication Engineers (IEICE). His research work has resulted in several technical publications.

Contacts for registration

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Registration fees

IEEE CAS Members: RM 100
Non-CAS Members: RM 130
Non-IEEE Members: RM 160

Lodging for students

USM hostel: RM 15 per-night
Breakfast and Lunch is provided