



Course Organiser

Ismail Topaloglu
ismail.topaloglu@semiwise.uk

Lecturer

Prof. Asen Asenov
asen.asenov@glasgow.ac.uk

Organising Committee

Ismail Topaloglu (Semiwise)
German Cherstov (Semiwise)
Fikru Adamu Lema (Semiwise)
Nicolas Xenii (Semiwise)
Adam Wood (NMI)

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Advanced CMOS Devices and Technology

Eight Modules Training Course

Background

CMOS devices and technologies are the backbone of our economy and society. A surge in building of new semiconductor manufacturing facilities has been triggered by the US and EU Chips Acts. The main obstacle to achieving the Chips Acts objectives is the lack of trained semiconductor staff to work in both old and new facilities. It is expected that by 2030 there will be a shortage of one million semiconductor experts world-wide.

This course is designed to facilitate the rapid training of semiconductor professionals. It is based on the concepts of Virtual Semiconductor Manufacturing using Technology Computer Aid Design (TCAD) tools from Synopsys. All lecture materials are illustrated with TCAD simulation examples.

Target students

The course is designed for individuals at graduate level with no prior knowledge and experience in semiconductors. It targets:

- Conversion from other engineering degrees to semiconductors and CMOS;
- Training of new recruits in the semiconductor and design companies;
- Upskilling of existing staff.

The course is suitable for people interested or involved in both CMOS manufacturing and CMOS circuit and systems design.

Modules

Module1: Semiconductors and their properties

Module2: Building blocks of semiconductor devices

Module3: Bull MOSFETs

Module4: FinFETs

Module5: Nanosheet Transistors and what is next.

Module6: CMOS fabrication processes.

Module7: TCAD based process integration/optimisation

Module8: DTCO for CMOS devices

Laboratories

The learning objectives and outcomes for each module are further enhanced by a TCAD laboratory where students will be able to run their own simulations and understand better the intricate details of CMOS device operation and manufacturing

Delivery

At the initial stage this will be a face-to-face delivery course tutored by the world leading semiconductor expert Professor Asenov and tutors trained personally by him. Locations will include CMOS manufacturing and design companies or convenient areas with high CMOS manufacturing and design activities in UK, Europe and worldwide.

We are planning also web based delivery at a later stage.

Further Information

For further information and expression of interest please contact Dr. Ismail Topaloglu ismail.topaloglu@semiwise.uk,