

2-day course on



Semiconductor Fabrication Technology

WHO SHOULD ATTEND?

- * **Technicians, engineers, and researchers**
- * **Decision makers, policy makers, and managers**

PREREQUISITE

Basic technical background or working experience in a science or engineering discipline.

Dates : 7 & 8 March 2012 (Wednesday & Thursday)

Time : 9.00 a.m. – 5.00 p.m.

Venue : Kompleks EUREKA, Universiti Sains Malaysia, Penang.

In collaboration with:

USAINS
HOLDING SDN BHD

(wholly-owned by Universiti Sains Malaysia)

HRDF Claimable*

***Subject to HRDF Approval**

INTRODUCTION

This course focuses on the major process technologies used in fabrication of integrated circuits (ICs), discrete and other semiconductor devices. Each topic covers important scientific aspects of wafer processing steps, which include crystal growth and wafer preparation, crystal defects and purification techniques, contamination control, oxidation, diffusion, ion implantation, lithography, thin film deposition technology, etching, metallization, process integration, electronic packaging and yield.

LEARNING OUTCOMES

Upon completion of this course, participants will be able to:

- i. Explain processes of developing semiconductor devices and integrated circuits.
- ii. Understand types of operations sequence in a typical device and integrated circuit fabrication process.
- iii. Calculate important parameters applicable to different individual process steps.
- iv. Distinguish and compare different types of techniques used in different individual process steps.
- v. Propose and design a simple semiconductor-device fabrication process flow.

COURSE FEE

(Covers course material, refreshment including lunch and Certificate of Attendance.)

RM1,580.00 PER PARTICIPANT

Group discounts – RM1,422.00 PER PARTICIPANT (minimum of 3 participants from the same organisation/company)

COURSE METHODOLOGY

This course is conducted in a seminar room. Each participant will receive a set of course materials.

ENQUIRIES

Technical Details:
Associate Professor Dr. Ir. Cheong Kuan Yew
School of Materials & Mineral Resources
Engineering, Universiti Sains Malaysia.
(T) 04-653 3888 ext 5259
(E) cheong@eng.usm.my

Registration and others:
Khairol Anuar Hazir Mohammed
USAINS Holding Sdn Bhd
(T) 04-653 4372 / (M) 012-286 9048
(E) khairol@usainsgroup.com /
khairol_usains@yahoo.com

COURSE CO-ORDINATOR

ASSOCIATE PROFESSOR DR. IR. CHEONG KUAN YEW



Kuan Yew Cheong was born in Ipoh, Perak (1972) and received the B. Eng (1st Hons.) in Materials Engineering from Universiti Sains Malaysia (USM), Malaysia in 1997. After graduation, he worked for two years as a project engineer and quality assurance engineer in a project management company and a semiconductor-device manufacturing factory in Malaysia.

End of 1999, he decided to pursue his postgraduate study (M.Sc.) after being awarded a Fellowship under the Academic Staff Training Scheme from USM. After completion his M.Sc. in Materials Engineering (Thin Film Technology) in 2001, he continued his Ph.D. in the School of Microelectronic Engineering, Griffith University, Australia and the degree was awarded in 2004. This study was fully sponsored by Australian Research Council, USM, and Griffith University Postgraduate Research Scholarship. In 2005, he was awarded a Certificate of Teaching and Learning from USM. Now he is serving as an Associate Professor at the School of Materials & Mineral Resources Engineering. He is teaching under- and post-graduate courses related to fabrication and characterization of engineering & electronic materials and devices for more than 7 years. Dr. Cheong's main research area is on semiconductor device fabrication, electronic packaging, and characterization. The outcomes of his research have been published in more than 85 high-impact-factor journals and 3 book chapters. Due to his expertise in wide-bandgap semiconductor-based device fabrication technology, and as a Professional Engineer registered under Board of Engineers (Malaysia), for the past six years, he has been invited three times as a Visiting Scientist to Korea Electrotechnology Research Institute (KERI), Korea. He has also been invited as an Invited Speaker and Keynote Speaker in International Conference on Electronic Materials 2010 (ICEM 2010) - International Union of Materials Research Societies (IUMRS), Korea, CIE & IEM International Seminar on Electrical, Electronic and Energy Saving 2010, Taiwan, and Infineon Technologies (Kulim) Sdn Bhd (IFKM) Technical Symposium 2010, Malaysia, and Surface Engineering 2011 at Bangkok, Thailand. Dr Cheong has served as a reviewer for numerous referred journals and examiner for theses. He has reviewed more than 220 manuscripts and now serves as an Editorial Advisory Board Member of *Materials Science in Semiconductor Processing* published by Elsevier Science B.V. Currently, he is being appointed as an External Course Assessor of Microelectronic and VLSI Design for Wawasan Open University, Malaysia.

Outside university, he is very active in professional and community activities. He is a member of Materials Research Society (USA). He was the honorary treasurer for Electron Microscopy Society, Malaysia for year 2005/2006. Since 2005, he has been elected as one of the Ex-comms of the Institute of Electrical, Electronic Engineers (IEEE) – Component, Package, and Manufacturing Technology (CPMT) Society and Electron Device Society (EDS), Malaysia Chapter. In addition, he is also the Chairman of the electronic engineering technical division (eETD) under The Institution of Engineers Malaysia (IEM) since 2009. He has been appointed as a Council Member of IEM and a Standing Committee on Qualification/Admission and Examination/Training. For the past years, he has involved in organizing a number of local and international conferences and being invited to chair a few technical sessions in those conferences. Dr Cheong, who is a certified PSMB Trainer, has been delivering technical training courses both locally and abroad for the past 5 years and more than 400 engineers and researchers have benefited from those training.

SEMICONDUCTOR FABRICATION TECHNOLOGY

PROGRAM SCHEDULE

DAY 1 :

- ❖ Overview of Semiconductor Fabrication Process
- ❖ Contamination Control and clean room technology
- ❖ Vacuum Technology
- ❖ Crystal Growth
- ❖ Wafer Preparation
- ❖ Oxidation

DAY 2 :

- ❖ Doping Process
- ❖ Lithography
- ❖ Etching
- ❖ Thin Film Deposition Technology
- ❖ Process Integration
- ❖ Electronic Packaging
- ❖ Testing and Yield

Disclaimer

The Organizer reserves the right to reschedule or cancel any part of its published programme or venue due to unforeseen circumstances and will not accept liability for costs incurred by participants or their organizations for the cancellation of travel arrangements and/or accommodation reservations as a result of the course being cancelled or postponed. Advance notice will be given if there are such changes or cancellation.

Recommended Accommodation:

USM Guest House (inside USM compound)
Universiti Sains Malaysia,
11800 Minden, Penang.
Tel: 04-653 2030 / 04-653 2050
Fax: 04-659 7124
E-mail: guesthouse@usainsgroup.com

B-Suite
B Tower, Bayan Point,
19, Medan Kampung Relau,
11900 Bayan Lepas, Penang.
Tel: 04-646 7777
Fax: 04-644 5000
Email: info@b-suite.com.my

The Krystal Suites
Jalan Tun Dr. Awang,
11900 Bayan Lepas, Penang.
Tel: 04-613 3333
Fax: 04-613 3338/2
Email: enquiry@thekrystalsuites.com

Eastin Hotel Penang
1, Solok Bayan Indah, Queensbay,
11900 Bayan Lepas, Penang.
Tel: 04-612 1111
Fax: 04-612 1199
Email: info.pg@eastin.com

Hotel Vistana
213, Jalan Bukit Gambir, Bukit Jambul,
11950 Penang.
Tel: 04-646 8000
Fax: 04-646 1400
Email: vispgweb@ytlhotels.com.my

Hotel Equatorial Penang
1, Jalan Bukit Jambul,
11900 Bayan Lepas, Penang.
Tel: 04-6327000 / 04-6327900
Fax: 04-644 8000
Email: info@pen.equatorial.com

REGISTRATION FORM

SEMICONDUCTOR FABRICATION TECHNOLOGY

Send registration form to :
 Khairol Anuar, USAINS Holding Sdn. Bhd.,
 Ground Floor, Kompleks EUREKA, Universiti Sains Malaysia, 11800 USM PENANG.
 Fax : 04-657 2210

or
 Email to : khairol@usainsgroup.com / khairol_usains@yahoo.com

Please register the following name/names: (Please use separate sheet, if required)

NO.	Participants Name <i>(Please print clearly or attach business card)</i>	Position & Email
1.		
2.		
3.		
4.		
5.		
Industry Sector:		
Company:		
Address:		
Postcode:		
Primary Person:		Mobile Phone:
Telephone No.:	Fax No.	E-mail:

Mode of Payment

I enclose <input type="checkbox"/>	<input type="checkbox"/> Crossed Cheque	Number	Bank	No. of Participants:	
	<input type="checkbox"/> Bank Draft			Early Birds:	
	<input type="checkbox"/> Money Order			Group Discount:	
	<input type="checkbox"/> LO/PO			Total Sum:	RM
	Payment must be made payable to 'USAINS HOLDING SDN. BHD.'				

1. BANK TRANSFER [Please fax your Bank-in Slip (Print your name & details on the slip)].

Payee Name: **USAINS Holding Sdn. Bhd.**
 Details: **SEMICONDUCTOR FABRICATION TECHNOLOGY**
 Name of Bank: **CIMB Bank Berhad (USM Branch), Universiti Sains Malaysia, 11800 USM Penang.**
 Account Number: **0709-0006708-05-7**

2. A LOCAL ORDER (LO) OR PURCHASE ORDER (PO) must be presented before the event.

The Organizer reserves the right to refrain a registered participant from taking part in the event if no proof of payment can be presented. This only applies to registered participants who have NOT paid the registration fee PRIOR to the event date.

3. CANCELLATION / SUBSTITUTION

A full refund less administration fee of **RM500.00** will be given for cancellation received not later than **10 working days** before the course. No refund will be made after this period. However, substitute participants are welcomed at no extra charge provided written notice of at **least 5 working days** before the event is given to the Organizer.