



# Surface Analysis Techniques

18 - 19 December 2017  
 MIMOS @ Kulim Hi Tech Park  
 Fees: Early bird - RM2,300/pax  
 After 5 Nov. 2017 - RM2,500/pax  
 Group Discount - RM2,100/pax  
 (3 pax & more)  
 (rate exclude GST)

## Synopsis

The characteristic of surface and near-surface regions of materials can be characterised by various surface analysis techniques. Applications of many engineering materials are determined by the surface and near-surface structures. Therefore, well-being of this region is essential in order to obtain a pre-required condition for those materials to be applied for a specific application. Typically, failure of engineering products may be traced back to surface/near-surface contamination or surface reconstruction. In order to obtain more information related to the failure, in-sight of these regions need to be exposed. This course is outlined to introduce basic principles of surface science, which serve as an essential foundation to explain the operation concepts and applications of several important surface analysis techniques. Know-how of interpreting the analysis data is also briefly explained in this "easy-to-follow" and "easy-to-understand" training course. With these and the support of brief but sufficient theories of fundamental, skill of selecting a relevant and appropriate technique with respect to its practical engineering usage will be covered. Ultimate goal for this course is to increase level of knowledge in making a correct technical decision to solve surface related issues and transform knowledge into applications.

## Course Outcomes

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

- List down common techniques used for surface analysis.
- Explain operation principles of those techniques.
- State advantages and limitations of a given technique.
- Systematically identify and justify useful analytical technique for problem solving.

## Who Should Attend

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

## Benefits to Participants

1. Enhancement of technical knowledge.
2. Selection of appropriate analysis techniques for problem solving.
3. Improvement in decision-making process for analysis technique selection based on:
  - Technical justify concept.
  - Technical guidelines.
4. Reduction of wastage (time and money) by making a correct technical decision.

## Prerequisite

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

## Course Methodology

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

## Course Duration

2 full days, 9am – 5pm

## Course Content

1. Introduction
2. Fundamental of Surface Sciences
3. Electron Beam Techniques:
  - Electron Microscopy (EM)
  - Energy Dispersive X-ray (EDX)
  - Auger Electron Spectroscopy (AES)
  - Electron Energy Loss Spectroscopy (EELS)
4. Ion Beam Techniques:
  - Secondary Ion Mass Spectroscopy (SIMS)
5. X-Ray Techniques:
  - X-Ray Fluorescence (XRF)
  - X-Ray Photoelectron Spectroscopy (XPS)
  - X-ray Diffraction (XRD) Analysis Techniques
7. Selection of Surface Analysis Techniques – A General Rule

## Profile of Trainer



As a passionate researcher, educator, trainer, consultant, and Professional Engineer of material science and engineering for twenty years, Kuan Yew CHEONG received B. Eng (1st Hons.) (1997) and M.Sc. (2001) both in Materials Engineering from Universiti Sains Malaysia (USM), Malaysia, and Ph.D (2004) in Microelectronic Engineering from Griffith University, Australia. Before joining USM, Malaysia, as a Lecturer in late 2004, he attached to Korea Electrotechnology Research Institute (KERI), Korea, as a Commissioned Senior Scientist and had been working as a Project Engineer and Quality Engineer just after completion of his undergraduate study. Currently, he is serving as a full Professor and leading the Electronic Materials Research Group at the School of Materials and Mineral Resources Engineering, USM, Malaysia. Prof. Cheong is also serving as an External Examiner for Wawasan Open University, Malaysia, and INTI International College Penang, Malaysia.

Solving environmental and energy related issue through the development of advanced oxide in two-dimensional nanostructures based on wide bandgap semiconductor substrates is his main research interest. He has edited a book entitled “Two-Dimensional Nanostructures for Energy Related Applications” (CRC Press/ Taylor & Francis Group) and it has been fully published on early January 2017. Research outputs of his work (<http://www.researcherid.com/rid/B-8318-2009>) have been published in 175 high impact-factor journals, 6 reputable book chapters, and 1 Malaysian Patent (MY-153033-A). Currently, he is working with Prof. Mariana A. Fraga (Brazil) and Prof. G. Impellizzeri (Italy), co-editing a new book [Emerging Materials for Energy Conversion and Storage (Elsevier)] that will be fully released in mid of next year.

Prof. Cheong has been engaged with Elsevier as a regular author and reviewer since the being of his research career. Officially, he had being appointed as an Editorial Advisory Board Member of Materials Science in Semiconductor Processing on mid of August 2011. Working with then the Editor-in-Chief, Prof Hepp (ex-NASA), to guest edit two volumes of Special Topical Issues on “Wide Bandgap Materials and Devices” (Vol. 29, January 2015, pp. 1 – 386) and “Advanced Oxide in Electronics” (Vol. 16, Issue 5, October 2013, pp. 1171 – 1364) with Prof. Mariana A. Fraga (Brazil) and Prof. A. Paskaleva (Poland), respectively.

As a registered Professional Engineer (Material Engineering discipline) with the Board of Engineers, Malaysia, “Top Research Scientists Malaysia (TRSM) 2013” [Academy of Sciences Malaysia (ASM)], Certified Professional Trainer registered with the Ministry of Human Resource, Malaysia, and a Certified Member of Steinbeis Transfer Centre Network (Steinbeis Malaysia Foundation), Prof. Cheong has delivered more than 190 technical training courses to various local and multinational industries. Since 2014, he is also serving as a technical consultant to MIMOS Semiconductor Sdn. Bhd. Currently, Prof. Cheong is a Fellow of The Institution of Engineers Malaysia (IEM), Senior Member of Institute of Electrical, Electronic Engineers (IEEE), member of Materials Research Society (USA), Vice-Chairman of IEEE, Component, Package, and Manufacturing Technology (CPMT) Society, Malaysia Section. Previously, he served as the Chairman (2009 – 2011) and Advisor (2011 – 2012) of Electronic Engineering Technical Division under IEM, a Council Member of IEM (2009 – 2012), and Region Vice-President of Thin Film Society (2012) (<http://www.thinfilms.sg/>).

# Register Now!

(Limited seats available)



## REGISTRATION FORM

### Surface Analysis Techniques

MIMOS @ Kulim Hi-Tech Park

18 - 19 December 2017 (2 days)

Please complete this form and fax or email to us

COURSE FEE	Fee per participant	Fee inclusive GST
<input type="checkbox"/> Standard Registration	RM 2,500.00	RM 2,650.00
<input type="checkbox"/> Early Bird Registration (Before 5 November 2017)	RM 2,300.00	RM 2,438.00
<input type="checkbox"/> Group Discount (Minimum 3 participants)	RM 2,100.00	RM 2,226.00
<input type="checkbox"/> Universities & Colleges	RM 2,000.00	RM 2,120.00

No	PARTICIPANT DETAILS	CONTACT INFORMATION	MEAL PREFERENCE
1	Name: Designation:	Email: Mobile No.:	<input type="checkbox"/> Vegetarian <input type="checkbox"/> Non-Vegetarian
2	Name: Designation:	Email: Mobile No.:	<input type="checkbox"/> Vegetarian <input type="checkbox"/> Non-Vegetarian
3	Name: Designation:	Email: Mobile No.:	<input type="checkbox"/> Vegetarian <input type="checkbox"/> Non-Vegetarian
4	Name: Designation:	Email: Mobile No.:	<input type="checkbox"/> Vegetarian <input type="checkbox"/> Non-Vegetarian

Organisation : .....

Postal Address : .....

Tel : ..... Fax : .....

Contact Person : ..... Position : .....

Email : .....

#### AUTHORISATION

I understand and agree to MIMOS Berhad terms and conditions (Signatory must be authorised to sign on behalf of the Organisation)

Name of the Authorised Person : .....

Position : ..... Date : .....

Signature and Company Stamp:

#### Terms & Conditions:

- 1) Upon received of this registration form (MIMOS), we will invoice to the contact-person for payment processing.
- 2) Payment is required within 30 days upon receipt of the invoice. All payment must be received 7 working days prior to the training date. The fee shall includes luncheon, coffee/tea breaks and training materials.
- 3) This quotation includes Government Service Tax (GST).
- 4) Mode of Payment - **Cheque** or **Bank Drafts** to be made payable to **MIMOS Berhad**.
- 5) Cancellation or postponement - Any cancellation must be made in writing and to reach us no later than 10 working days prior to the training date. If written notice is received in less than 10 working days, 100% of total fees is chargeable. A substitute delegate with similar background and competencies, is always welcome at no additional charge.
- 6) Our instructor(s) and topics are confirmed at the time of this print. However, circumstances beyond the control of the organizers' may occur and MIMOS Berhad reserves the rights to alter or modify the advertised speakers/ topics if necessary.

#### To Register & for More Information:

Business Development (MSSB), MIMOS Berhad

Call : +603-8995 5000 ext. 55279 (Fara)

55642 (Amy)

Email : faradaya.machmud@mimos.my

letchumy@mimos.my



Claimable under HRDF Scheme-SBL

National R&D Centre in ICT

