



## Workshop on Statistical Methods for Chemists

(Code BSM)

6 & 7 April 2020

Organized by

**IKM (Perak Branch) Professional Training Centre**



### ☐ Trainer's Profile



**PROF DR TEH GEOK BEE**

Email: [sharonteh2009@gmail.com](mailto:sharonteh2009@gmail.com)

- 20 years of teaching experience in two private universities
- 10 years as trainer at IKM Professional Centre
- Have trained more than 2000 chemists and technicians since 2008
- Appointed as SAMM Technical Assessor by Department of Standards Malaysia since 2011

Prof Dr Teh Geok Bee received her M.Phil and Ph.D. in Chemistry from University of Cambridge, United Kingdom in 1998 and 2000 under the sponsorship of Cambridge Malaysia Chevening and Cambridge Commonwealth Trust Scholarships, respectively. She received her first class honours degree from Universiti Kebangsaan Malaysia in 1995 and has been actively involved in research especially in the synthesis and characterization of magnetic nanoparticles. Her expertise is in the field of structural elucidation of nanoparticles using high resolution transmission electron microscopy.

Prof Dr Teh Geok Bee is the recipient of New Zealand ISAT Linkages Fund and the UNESCO-TWAS Associateship Scheme which enable her involvement in international research collaborations. She has served Institut Kimia Malaysia (IKM) in various capacities, including serving as Council Member (since 2007), Honorary Assistant Secretary (2009-2013), Honorary Assistant Treasurer (2014-2015), representing IKM in the ISO/TC 229 Working Group 3, which is working towards ISO regulatory guidelines in "Health, Safety and the Environment Relevant to Nanotechnologies" and Member to ISC B and ISC Y Standards Committee Groups.

She is a Fellow of Cambridge Commonwealth Society since 1998 and she received the IKM Fellowship in Dec 2015. She is an Associate Fellow of the Academy of Sciences Malaysia (2010-2016) and is a Taskforce Committee Member to the National Nanotechnology Directorate under the Malaysian Ministry of Science, Technology and Innovation since 2011. She is an appointed Malaysian Qualifications Agency Assessor for the chemistry programme since 2008 and a Malaysian Laboratory Accreditation Scheme Technical Assessor for ISO/IEC 17025 since 2011. She is the National Representative (NR, 2014-2015) and Associate Member (AM, 2016-2017) and Titular Member (2018-2021) to International Union of Pure and Applied Chemistry (IUPAC), Division VII: Chemistry and Human Health Division.

Currently, she is the President of Southern University College at Skudai, Johor, Malaysia.

## ❑ Learning outcomes of the course:

At the end of the course, the participants should be able:

- To recognise the different probability distributions: normal, rectangular and triangular;
- To identify the outliers from a set of analytical data by statistical analysis;
- To carry out significance testing for differences, if any, between two methods, techniques or analysts' performances for method validation;
- To set up simple laboratory quality assurance practises based on control charting;
- To interpret data output from MS Excel data analysis software applications

## ❑ Workshop Contents

### 1. Part A: Descriptive Statistics

- Population distribution – normal, triangular, rectangular, skewed
- Measure of location – means, median
- Measure of dispersion – variance, standard deviation, range, robust statistics
- Standard error of the mean, confidence limits
- Error – random error, systematic error,
- Measurement uncertainty, Accuracy of Measurement

### 2. Part B: Outlier Tests

- Dixon's Test
- Grubb's Test
- Cochran's C Test

### 3. Part C: Significant Testing

- The hypothesis
- One-sided or two sided
- Student t-test
- F-test
- Critical Values

### 4. Part D: Regression Analysis

- Types of regression models
- Residual & residual standard error
- Residual plot
- Method validation – linearity
- Method of standard addition

### 5. Part E: Control Chart

- What is a control?
- Quantitative QC Implementation
- Levey-Jennings Chart

### 6. Part F: ANOVA

- Variations between and within groups
- Types of ANOVA
- Rationale for ANOVA
- One-way ANOVA
- Method measurement uncertainty

## ❑ Registration closing date: 22 March 2020

## ❑ Registration Fee (*inclusive of refreshments, lunch & workshop materials*):

**IKM Members: RM 750.00**

**Non IKM Members: RM 950.00**

## ❑ Who should attend

Supervisor, laboratory technicians & people in charge of facilities who continually seek to enhance knowledge of good laboratory skills and practices as well as to understand the basic principles of data management, processing & instrumentation.

**Terms & Conditions**

The organizer reserves the right to make changes on the programme, cancel or reschedule the programme due to unforeseen circumstances. All efforts will be made to inform registered participants of such changes. The organizer will not be responsible for any damages or expenses suffered by the participants as a result of alternative arrangements made.

The **workshop registration fee** must be paid to “**Institut Kimia Malaysia Perak Branch**”, **Public Bank Account No: 3096895915**. No refund of registration fee for cancellation of registration after the closing date. However, a registered participant can be replaced with another person at no additional cost.



**Workshop Venue**

**Tower Regency Hotel And Apartments,  
6, Jalan Dato Seri Ahmad Said, Greentown, 30450 Ipoh, Perak**

For hotel room reservation, please contact Mr Meor Suhaniz at:

Email: meor@towerregency.com.my; Mobile number: 019-6002078

**Kindly email the registration form & payment slip to:**

Hon Secretary of IKM Perak Branch

Email: ikmperak@ikm.org.my (preferred); Whatsapp: 012-2523784 (Ms Jocelyn)

**Registration Form (Code: BSM)**

**Category**

Participants' Name *(Include IKM membership Number)*

IKM Member

Non-IKM Member

1.....

2.....

3.....

4.....

5.....

Company Name & Address

**Total Registration Fees: RM.....**

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Telephone Number..... Email.....