



香港品質學會

**Workshop
on
Body of Knowledge (BoK) for Reliability Engineer**

**7 April – 19 May 2018
(6 Saturday afternoons)**

**2018 Intake
Based on the new BoK**

**Jointly Organized by
Hong Kong Society for Quality
American Society for Quality (Hong Kong)**

Web site: www.hksq.org
Email: info@hksq.org

The Body of Knowledge for Reliability Engineer provides useful guidance for candidates preparing to take ASQ's (American Society for Quality) Certified Reliability Engineer (CRE) Examination



Each participant will receive a copy of CRE Primer (660+ pages) and the CRE Exam CD (with 1,000 questions and solutions) published by Quality Council of Indiana, USA

Co-organizer:



Supporting organizations:



Objectives of the Workshop

Since 1968, more than 130,000 individuals around the world have become certified through American Society for Quality (ASQ) in recognition of their knowledge and proficiency in, and comprehension of, a particular quality area. The value of ASQ certification as perceived in the global marketplace is ever-increasing. Currently ASQ offers 17 certifications covering roles such as Manager of Quality / Organizational Excellence (MQ/OE), Quality Auditor, Quality Engineer, Master Black Belt, Six Sigma Black Belt, Reliability Engineer, Software Engineer, Pharmaceutical GMP Professional, and HACCP Auditor.

This Workshop is designed to review the basic knowledge and relevant techniques listed in the new Body of Knowledge (BOK) of ASQ's Certified Reliability Engineer (CRE) Program*. **CRE examinations administered from 2018 onwards will be based on the new BOK.**

On completion of this Workshop, participants will be more familiar with the knowledge and tools that are expected to be put to good use by an ASQ Certified Reliability Engineer.

Theories will be brief. The emphasis of this Workshop is to highlight key areas of the knowledge domain and to develop effective test taking skills.

Outline of the Workshop

1. Reliability Fundamentals

- Relating safety, quality and reliability
- Product lifecycle
- Root cause analysis
- Managing risks, risk matrix, mitigation
- Sources of reliability data; warranty data

2. Probability and Statistics

- Probability concepts; Bayes' Theorem
- Statistical terms – pdf, cdf, hazard rate
- Discrete and continuous distributions
- Parametric distributions – Poisson, exponential, Weibull, normal
- Risks of hypothesis testing

3. Reliability Design Techniques

- Environmental factors
- Stress-strength analysis
- FMECA and FTA

4. Reliability Modeling

- Reliability block diagrams: modeling of series and parallel systems
- Active and standby redundancies
- Evaluating reliability of complex system models
- Simulation techniques
- Part count and reliability prediction models

5. Data Collection and Use

- Bathtub model
- Shape, scale and location parameters of a Weibull distribution; Weibull plot of failure data; Median ranks
- Estimating MTTF / MTBF

6. Reliability Testing (I)

- Reliability test strategies
- Accelerated tests
- HALT
- Reliability growth testing

7. Reliability Testing (II)

- Qualification testing
- Product reliability acceptance tests (PRAT)
- Sequential probability ratio tests (SPRT)
- Stress screening
- Attribute testing
- Software testing – white-box tests, black-box tests, fault injection

8. Maintainability and Availability

- Reliability-centered maintenance
- Availability tradeoffs
- Preventive and corrective maintenance analysis; optimization of preventive replacement
- Spare parts analysis



* **For information on the CRE Program, visit ASQ's web site or click the following link:**

<http://asq.org/cert/reliability-engineer>

Who should attend

This course is designed for quality managers and engineers who wish to obtain recognition as ASQ Certified Reliability Engineer (CRE), or quality and reliability professionals who wish to refresh their familiarity with the concepts, methodologies and tools in the Body of Knowledge (BoK) for ASQ's CRE Certification Program.

The CRE Exam is a one-part, 150 multiple-choice questions, four-hour examination. It is administered in the computer-based testing mode. When taken in Hong Kong, the examination is in English. Those who plan to take the CRE Exam have to submit their application to ASQ directly, with payment of the applicable fee*.

* The registration fee of this Workshop does not cover the application fee for taking the ASQ CRE Examination.

Lecturers

Dr. Albert Tsang
Mr. Y.C. Tsim

Authorized Trainers of
Hong Kong Society for Quality

Venue

TQM Training Room
11/F, Lockhart Centre
301 Lockhart Road, Wan Chai, HK

Date & Time

7, 14, 21 April 2018
5, 12, 19 May 2018

Six four-hour sessions on Saturdays
All sessions start at 2:00 till 6:00pm

Certificate of Attendance

Participants with at least 70% attendance will receive a Certificate of Attendance

How to apply for Enrollment

1. Complete the registration form and prepare a crossed cheque for the appropriate registration fees payable to "The Hong Kong Society for Quality Ltd." Fees paid are not refundable, unless the Workshop is cancelled by the organizer.
2. Send the registration form and the cheque to the following address:

Dr. Albert Tsang
Hong Kong Society for Quality
P.O. Box 84375,
Hung Hom Bay Post Office
Kowloon, Hong Kong

(Fax: 3522-4128)
3. Registration form should reach us before 29 March 2018

Seats are limited and will be allocated on a first-come-first-served basis.

HKSQ reserves the right in cancellation (in such case, the paid fees will be refunded) and re-arrangement of the course details when necessary.

If you have questions

Call Dr. Albert Tsang at 9182-7810 by phone, or send fax to 3522-4128

Registration fee per participant

HK\$4,900 for HKSQ/ASQ/IISE members or clients of TQM Consultants Co., Ltd.,
HK\$5,200 for others. The registration fee covers a copy of CRE Primer and the
CRE Exam CD, both published by Quality Council of Indiana, USA;
it does not cover the application fee for taking the ASQ CRE Examination.



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on
Body of Knowledge for Reliability Engineer
7 April – 19 May 2018



(Deadline for registration: 29 March 2018)

Registration Form

Mr./Ms.* _____ (in Chinese) _____

* *Select whichever is appropriate*

Correspondence Address:

_____ (Private E-mail) _____ (Telephone) _____ (Fax)

Company Name: _____

Position: _____

Department: _____

Company Address:

_____ (Office E-mail) _____ (Telephone) _____ (Fax)

Please whatever is appropriate

Self-financed Company Sponsored

HKSQ member ASQ member IISE member Membership No: _____

TQM Client Others

A cheque payable to “The Hong Kong Society for Quality Ltd.” for the amount of HK\$ _____ is enclosed. (The registration fee is HK\$ 4,900 for HKSQ / ASQ / IISE members, and clients of TQM Consultants Co., Ltd., HK\$ 5,200 for others.)

Signature: _____ Date: _____ (dd/mm/yyyy)

Please send completed registration form with payment to:

Dr. Albert Tsang, P.O. Box 84375, Hunghom Bay Post Office, Kowloon, Hong Kong

For enquiries, please call Dr. Albert Tsang at 9182-7810, fax 3522-4128, or send email to dr.albert.tsang@gmail.com or info@hksq.org