

ONE DAY SEMINAR ON PROBABILITY AND RELIABILITY METHODS FOR CIVIL, STRUCTURAL, AND GEOTECHNICAL ENGINEERING



SPEAKER:
Ir. PROF. DR LOW BAK KONG
SENIOR PROFESSOR UTAR,
FELLOW ASCE

3 NOVEMBER 2026, TUESDAY
8:30 am - 6:00 pm
WISMA IEM, PETALING JAYA



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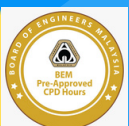
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APPROVED DURATION:
9/9/2026 - 9/9/2027
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SYNOPSIS

This seminar will present probability and reliability methods across the broad spectrum of civil, structural, and geotechnical engineering in two sessions in the morning. The afternoon sessions will focus on application examples, plus guided hands-on for deeper appreciation and understanding. It will be shown that system reliability, importance sampling, and Monte Carlo simulations can be done as lucid extensions of the first-order reliability method (FORM, which includes the Hasofer-Lind index as a special case). The aim of this seminar is to overcome conceptual and implementation hurdles in probability and reliability methods faced by engineers, instructors, and research students. Instead of lengthy mathematics in the traditional approach, the same solutions are obtained much more quickly, clearly, and efficiently by automatic cell-based constrained optimization in the ubiquitous Excel platform. The seminar will focus on insights, alternative perspectives and comparisons with other methods. The valuable complementary role of reliability methods to the Eurocodes and LRFD will be discussed.

PROGRAMME

Time	Description
8:30am – 8:50am	Registration & Light Refreshment
8:50am – 9:00am	Welcoming Address
9:00am – 10:15am	Morning Session 1: From deterministic to probability-based design accounting for uncertainty, and links with Eurocodes and LRFD. Topics covered include correlation analysis, FORM, SORM, system reliability, Monte-Carlo simulation, and importance sampling.
10:15am – 10:30am	Morning Tea Break
10:30am – 12:30pm	Morning Session 2: Illustrative examples of reliability-based design in Civil, Structural, and Geotechnical Engineering. Insights revealed by reliability-based design will be discussed.
12:30pm – 1:00pm	Q&A - 1
1:00pm – 2:00pm	Lunch
2:00pm – 3:45pm	Afternoon Session 3: Application examples of reliability-based design (RBD) in civil and structural engineering, emphasizing insights revealed at the design point, including context-dependent sensitivities.
3:45pm – 4:00pm	Afternoon Tea Break
4:00pm – 5:30pm	Afternoon Session 4: Application examples in reliability-based design (RBD) in geotechnical engineering. Insights and valuable revelations include load-resistance duality. RBD's valuable complementary role in overcoming the limitations of partial factor design approaches (like Eurocode 7 and LRFD) will be illustrated.
5.30pm - 6.00pm	Q&A - 1

SPEAKER'S BIODATA

Dr. LOW Bak Kong earned a PhD at the University of California, Berkeley, and a BS and an MS at the Massachusetts Institute of Technology. He has taught at Nanyang Technological University (Singapore) for 35 years and is a Fellow of the American Society of Civil Engineers. He is a registered professional engineer of Malaysia, and has been listed among the world's top 2% scientists (both Career and Single Year categories) in the annual lists compiled by Stanford University. In 2019, Dr. Low received the prestigious Thomas A. Middlebrooks Award from the American Society of Civil Engineers. Dr Bak Kong LOW is the author of a 2021 book titled Reliability-Based Design in Soil and Rock Engineering and a 2026 book titled Practical Probability and Reliability Methods for Civil and Environmental Engineering, both published by the CRC Press of the Taylor and Francis group. (Can visit <https://www.routledge.com/9781032956749>, and see the Critics' Reviews of Dr Low's April 2026 book by Robert Gilbert, Gregory Baecher, and Herbert Einstein). Dr Low is a senior professor at the Universiti Tunku Abdul Rahman (UTAR) main campus of Kampar, Malaysia.

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