ABOUT THE COURSE

This Course aims to provide participants with an understanding of the fundamental elements of structural reliability and risk analysis. It will also introduce the concepts of uncertainty modelling in load and resistance applications. The course will discuss the formulation of reliability concepts for structural components and systems and will also cover risk assessment methods for decision-making.

COURSE OUTLINE

Monday 9th October

09:00 – 10:30
Lecture 1: Introduction to Random Variables (1)
Probability distributions and functions.; Basic statistics for uncertainty modelling; Definitions for random variables.

10:45 – 12:15
Lecture 2:: Introduction to Random Variables (2)
Discrete and continuous random variables; probability distributions.

13:30 – 15:00
Lecture 3: Structural Reliability (1)
Basic analysis of structural safety; definitions of reliability; classical reliability theory; First-order and second-order reliability; simulation methods.

15:30 – 17:00
Lecture 4: Structural Reliability (2)
Load and load effect modelling; resistance modelling. Examples.

Tuesday 10th October

09:00 – 10:30
Lecture 5: Reliability of Structural Systems
System reliability; series and parallel systems; examples.

10:45 – 12:15
Lecture 6: Time Dependent Reliability
Hazard functions; Continuous and discrete load sequences; Examples.

13:30 – 15:00
Lecture 7: Risk Analysis
Risk assessment frameworks; quantification of risk; System representation; Exposure and Hazards; Vulnerability.

15:30 – 17:00
Lecture 8: Risk Analysis(2)
Consequence analysis; risk perception; risk mitigation; acceptance of risk.

COST

Course fee will be £500 which includes course notes and lunches. The fee doesn’t include accommodation. You should make your own arrangements for accommodation.

VENUE

(TBC)
ABOUT THE LECTURER

Dr Boulent Imam is Senior Lecturer at the Department of Civil & Environmental Engineering at the University of Surrey and Programme Director for the postgraduate courses in Bridge Engineering and Infrastructure Engineering & Management. His expertise lies in the area of bridge management, fatigue of structural systems, risk & reliability and climate change adaptation. Through the European project BriFaG (Bridge Fatigue Guidance), he has contributed towards the drafting of advanced European guidelines for the fatigue design of new and fatigue assessment of existing steel bridges. Through the European project MAINLINE, he developed a framework for life cycle cost analysis and environmental impact assessment of railway bridge maintenance. Recently, he has been investigating the effects of climate change on bridge scour risk. Dr Imam has extensively collaborated with Network Rail and other European infrastructure owners and managers.

REGISTRATION

☐ I wish to register for the course at a cost of £500 including course material and workshop lunches.

Payments can be made by cheque (made payable to ASRANet Ltd.), cash or bank transfer but no card payments. Please enquire for details.

☐ Please invoice me at the below address

NAME

ADDRESS

EMAIL

TEL/MOB

Disclaimer

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I accept the above

Signed

Date

The completed form should be sent to: info@asranet.co.uk or to ASRANet Ltd

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