

Half Day Talk on “Development in Structural Health Monitoring Systems”

Date : Saturday, 5 August 2023
Time : 9.00 a.m. – 1.00 p.m.
Venue : IEM (Southern Branch) Training Centre, 24B, Jalan Abiad, Taman Tebrau Jaya, 80400 Johor Bahru
Speaker : Assoc. Prof. Dr. Mohammadreza Vafaei, UTM

Synopsis

There are many structures and infrastructures worldwide that have passed their service life. These structures are subjected to aging and loads that are sometimes larger than their design loads. Therefore, as has been observed in many countries, they may face a sudden catastrophic failure. Conventionally, visual inspection together with non-destructive and destructive techniques have been used to assess the integrity of existing structures. However, these approaches have shown several shortcomings. For example, the outcome of a visual inspection is highly dependent on the experience of engineers and can be very time-consuming and costly for large structures like long-span bridges. Furthermore, damage may occur at any time and may not necessarily be seen during the periodic inspections. In recent decades, a new method which is referred to as the structural health monitoring (SHM) technique has emerged for the integrity assessment of structural systems. SHM systems employ different types of sensors to measure structural responses. These measured signals are then analysed to extract damage-sensitive features and report on the probable damage locations/ severity in real time. This presentation, at first, explains the differences between the conventional assessment of structural integrity and the SHM system. Then, the main components of a SHM system are described and their types and connections with other components are explained in detail. Next, different damage identification methods employed in SHM systems are presented and their advantages and disadvantages are discussed. Finally, some real-world examples of installed SHM systems on tall and important structures are presented.

Time	Tentative Programme
8.30 a.m. – 9.00 a.m.	Registration
9.00 a.m. – 9.10 a.m.	Welcome Speech by IEM (SB) Organising Committee
9.10 a.m. – 10.30 a.m.	Session 1
10.30 a.m. – 10.45 a.m.	Coffee Break
10.45 a.m. – 12.30 p.m.	Session 2
12.30 p.m. – 1.00 p.m.	- Case study and Discussion - Question & Answer Session
1.00 p.m.	Closing & End of Talk

About the Speaker:



Dr. Mohammadreza Vafaei (PhD, P.Eng, Ts., M.ASCE, M.EERI, M.IET) is currently an Associate Professor in School of Civil Engineering, Universiti Teknologi Malaysia (UTM), Johor, Malaysia. Prior to joining UTM, he served several Consultant Companies in Iran and has led the Seismic Design of many structures like Tall Buildings, Air Traffic Control Towers, Airport Terminals, Water Reservoirs, Telecommunication Towers, and Monumental Structures. His expertise includes Seismic Design and retrofitting of structures, Vibration Control through Passive Dampers, and Structural Health Monitoring. He has been invited as the Keynote Speaker for several International Conferences and Workshops. He has also published more than 65 papers in referred Journals and Conferences.

Participant Fees:

Grade	Online
IEM Members	RM 90.00
IEM Student Members	RM 25.00
Non-IEM Member	RM 140.00

Closing Date: 1 August 2023

The seminar is strictly limited to **30 participants** only. Registration will be on a first-come-first-serve basis. Kindly return the reply slip to the IEM (SB) office before **1 August 2023** together with a non-refundable cheque for the participant fees made payable to **The Institution of Engineers, Malaysia (Southern Branch)**. Alternatively, you could bank-in the participant fees into the Institution's Maybank Current Account (No. 5-013920-15708), and to facsimile both the Bank-in and Reply Slips to the Institution. The Institution requests all members co-operation in ensuring fees are paid in advance to the seminar. Please also be reminded that fees will not be refunded to absent participants who have paid, and to also note that all reservations must be paid despite participant cancellations. Thank you for your continuous support of the Institution.

Chairman, Sub-Committee on Seminar and Technical Talk, IEM (SB)

BEM Approved
CPD/PDP Hours: 4.0
Ref No: IEM23/SB/289/T

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I wish to attend the above talk. I enclosed herewith a cheque no. for the amount of RM.....as payment for the participant fee.

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