IEM
The Institution of Engineers, Malaysia

VIRTUAL HALF-DAY WORKSHOP ON

"FUNDAMENTALS OF AUTOMOTIVE ENGINE ENGINEERING AND ENVIRONMENTAL IMPACT FOR ENGINEERS AND STUDENTS"

Organised by: Seniors Special Interest Group (SSIG)

BEM Approved CPD: 4 Hours
CPD Ref.No.:IEM24/HQ/437/W (w)

Ir. Sukhairul Nizam Abdul Razak

26 OCTOBER 2024
9.00 AM - 1.00 PM
ZOOM PLATFORM

	ONLINE (Log-in for registration & payment: www.myiem.org.my/member/login.aspx)	NORMAL FEE (by fax & email) Payment by cash, credit card and bank-in
IEM Student Member	40.00	50.00
IEM Graduate Member	75.00	90.00
IEM Corporate Member	125.00	150.00
Non-IEM Member	240.00	300.00

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SPEAKER BIODATA'S

Ir. Sukhairul Nizam Abdul Razak received an early education at SMK Methodist ACS Klang Selangor, UTM Skudai in Bachelor of Mechanical (Aeronautical) Engineering and MBA from Charles Sturt University Australia. Registered as Asean Chartered Professional Engineer (ACPE), Professional Mechanical Engineer with practicing certificate (PEPC) since year 2016 with Board of Engineers Malaysia and registered as Professional Technologist with MBOT since year 2020. Started career at Proton's Manufacturing since 1995 as RND's body design engineer follow with other positions in various departments in Proton Edar for nearly 18 years such as a Car Body Design Engineer, Branch Sales Manager, Manager Sales Standard, Manager Warranty Operations, Manager Equipment Tools & Calibration, Head of Division Office and worked with Accenture Malaysia for Daimler Group's project. He was a Regional Director for Leanmax Pro Sdn Bhd, was a Senior Lecturer for City University Malaysia, appointed as Programme Coordinator for First City University College and as Director for Enviroklar Tech Sdn Bhd. Ir Ts Sukhairul Nizam has experienced designed, developed automotive components as well managed anti-corrosion and painting development, aerodynamic development, and crash test development for the national car company. Ir. Sukhairul Nizam is also specialised in automotive sales training or coaching and managing product recall for automotive industry.

SYNOPSIS

This half-day online workshop is designed to provide engineers and engineering students with a comprehensive understanding of automotive engine fundamentals and the associated environmental impacts. Participants will gain insights into the key components and operation of internal combustion engines (ICE), including the latest advancements in engine technology such as turbocharging, direct injection, and hybrid systems.

The workshop will also explore the environmental challenges posed by automotive engines, focusing on emissions, their impact on air quality and climate change, and the global regulatory standards aimed at mitigating these effects. Participants will learn about innovative approaches in engine design to enhance efficiency and reduce emissions, alongside the role of alternative fuels and electrification in shaping the future of automotive technology. Through real-world case studies, the workshop will illustrate how industry leaders are balancing engine performance with environmental responsibility.

By the end of the workshop, attendees will have a solid foundation in both the technical and environmental aspects of automotive engines, equipping them with the knowledge needed to contribute to sustainable automotive engineering practices.

Why Should You Attend This Workshop

This workshop is suitable for anyone interested in the intersection of automotive engineering and environmental sustainability, whether they are beginners or experienced professionals seeking to expand their knowledge.

This half-day workshop is ideal for:

- **Engineering Students:** Individuals pursuing a degree in mechanical, automotive, or environmental engineering who want to deepen their understanding of automotive engine technology and its environmental impact.
- **Engineers:** Professionals working in the automotive industry or related fields who seek to update their knowledge on the latest advancements in engine technology and sustainable practices.
- **Automotive Technicians and Designers:** Those involved in the design, development, and maintenance of automotive engines who wish to enhance their technical skills and awareness of environmental considerations.
- **Environmental Specialists:** Professionals focused on environmental protection and sustainability who want to understand the impact of automotive engines on air quality and climate change.
- **Academic and Industry Researchers:** Individuals conducting research in automotive engineering, emissions control, or alternative fuels who are looking to broaden their expertise in engine fundamentals and environmental regulations.
- **Policy Makers and Regulators:** Government officials and regulatory bodies involved in setting and enforcing automotive emissions standards who need a solid technical foundation to inform their decision-making processes.

WORKSHOP OUTLINE

*** IEM reserves the right to postpone, reschedule, allocate or cancel the seminar**

Time	Programme
9:00 am – 10:00 am	**Introduction** • Welcome and objectives of the workshop • Overview of automotive engine technology • The importance of understanding engine fundamentals and their environmental impact

10:00 am – 11:00 am	**Fundamentals of Automotive Engine Engineering**
	• **Basic Engine Components and Operation:**
	  ○ Overview of internal combustion engine (ICE) types (e.g., gasoline, diesel)
	  ○ Key components: pistons, crankshaft, camshaft, valves, etc.
	  ○ The four-stroke cycle: intake, compression, power, and exhaust
	• **Engine Performance Metrics:**
	  ○ Power, torque, efficiency
	  ○ Understanding fuel consumption and emission factors
	• **Recent Advancements in Engine Technology:**
	  ○ Turbocharging, direct injection, and variable valve timing
	  ○ Introduction to hybrid and electric engines

11:00 am – 11:10 am	Break

11:10 am – 12.00 pm	**Environmental Impact of Automotive Engines**
	• **Emissions and Environmental Concerns:**
	  ○ Types of emissions (CO_2, NOx, particulate matter)
	  ○ Impact on air quality and climate change
	• **Regulatory Standards and Compliance:**
	  ○ Overview of global emissions regulations (e.g., Euro standards, EPA regulations)
	  ○ Compliance strategies for automotive manufacturers
	• **Innovations for Reducing Environmental Impact:**
	  ○ Advances in engine design for improved efficiency and lower emissions
	  ○ The role of alternative fuels (biofuels, hydrogen) and electrification

12:00 pm – 1:00 pm	**Case Studies and Real-World Applications** • Examination of specific case studies where innovative engine designs have reduced environmental impact • Discussion on the balance between performance and environmental responsibility

Chairman,
Seniors Special Interest Group (SSIG)
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REGISTRATION FORM

VIRTUAL HALF-DAY WORKSHOP ON "FUNDAMENTALS OF AUTOMOTIVE ENGINE ENGINEERING AND ENVIRONMENTAL IMPACT FOR ENGINEERS AND STUDENTS"

26 OCTOBER 2024 (SATURDAY)

Closing Date : 19 Oct 2024

No	Name(s)	Membership No.	Grade	Fee (RM)
			SUB TOTAL	
			+ 8% SST	
			TOTAL PAYABLE	

PAYMENT DETAILS :

- ☐ Cash RM_____
- ☐ Cheque no._____for the amount of RM_____(non-refundable) .

FULL PAYMENT must be settled before commencement of the course, otherwise participants will not be allowed to enter the hall. If a place is reserved and the intended participant fails to attend the course, the fee is to be settled in full. If the participant failed to attend the course, the fee paid is non refundable. The Registration Fee includes lecture notes, refreshment and lunch.

For **ONLINE REGISTRATIONS,** please note that payment **MUST** be made **BEFORE the closing date.** If payment is not received within the stipulated time, the registration fee will be reverted to the normal registration fee.

Contact Person: _____Designation:_____

Name of Organization: _____

Address : _____

_____

Telephone No. : _____(O) _____(Fax No.)

_____(H) _____(HP)

Email :_____

_____ _____

Signature & Stamp Date

Photocopies are acceptable