

NEWSLETTER



INSTITUTION OF INCORPORATED ENGINEERS, SRI LANLA - UAE BRANCH

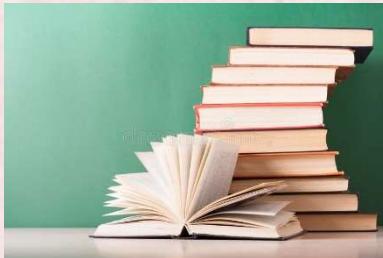
C/o Consulate General of Sri Lanka, PO Box 51528, Dubai, UAE. Email: iiesluae@gmail.com Web: www.iiesluae.org. Established on 18th July 2006.

Volume : 17.2

Since : 2006

March : 2023

IIESL-UAE Branch Launched the Second Edition of the Book Donation Drive



IIESL UAE Branch successfully launched, yet another CSR project, the second stage of the “Book Donation Drive” in collaboration with the Sri Lankan Day Celebrations in Dubai. The collection of the pre-loved books was launched together with the commencement of the Sri Lankan Day Celebrations on the 11th of February 2023 at the Zabeel Park, Dubai.

It was a remarkable event for the members of the IIESL UAE as it was the first outdoor event of the Branch since the global health crisis due to Covid pandemic. There was a remarkable support from the visitors to the book collection drive and finally the drive had become a resounding success as they could collect over 1000 books during the day.



Hon Consul General Mr. Nalinda Wijerathne visited the IIESL UAE stall and met the members

Publication Committee

- Eng. Sisira Walaliyadde – Past Chairman, IIESL UAE
- Eng. Nishan Karunaratne - Member, IIESL UAE

- Eng. Priyanga De Mel – Chairman, IIESL UAE
- Eng. Anura Jagoda – Imd. Past Chairman, IIESL



A Member Association of the
SRI LANKAN PROFESSIONALS ASSOCIATION - UAE
Office No 902, Level 9, Dubai World Trade Center, Dubai, UAE, Tel.+971 4 311 6387



Association Management Company
MCI MIDDLE EAST

The Pre-loved Books collected during the first edition of the Book Donation Drive were delivered to Sri Lanka and handed over to the North Central Provincial Council, Education Department. The books were meant to be distributed among the schools where underprivileged school children are studying. The collection of the pre-loved books of the stage two will also be sent to a carefully selected provincial council for distribution.



Former Sri Lankan Cricketer and ICC match referee Roshan Mahanama visited IIESL UAE stall



IIESL UAE team joined the Book Donation Drive

The IIESL UAE Branch would not have been gained this success without the amazing generosity and dedication of the volunteers on the ground. The UAE Branch expressed their gratitude to everybody who helped them to complete the day's work successfully.

IIESL UAE Branch sincerely thank everyone who donated valuable books and appreciate greatly the wonderful commitment and generous efforts of their members who ensured the success of this campaign.



Members of the IIESL UAE at their stall collecting books





Sri Lankan Day 2023

IIESL UAE Branch participated in the “Sri Lankan Day 2023” celebrations held on 11th February 2023 at Zabeel Park Dubai, in collaboration with the Sri Lankan Professionals Association (SLPA). The Consulate General of Sri Lanka in Dubai and Northern Emirates, together with the Sri Lankan community in Dubai organized this unique event in commemoration of the 75th Independence Day of Sri Lanka and 30th Anniversary of the establishment of the Consulate General of Sri Lanka in Dubai.

Apart from the commemoration of the two anniversaries the “Sri Lankan Day 2023” was meant to enhance the friendship between Sri Lanka and the United Arab Emirates. A grand cultural show and several attractive events had been in display with the celebrations to enhance the relationship of Sri Lanka with the UAE.

The UAE-Sri Lanka Friendship Walk was one of the most impressive event which took place at the beginning of the event. A large number of students and community members of many professional, social and cultural associations took part in this remarkable walk which was meant to symbolize and portend the friendship between Sri Lanka and the UAE. Members of the IIESL UAE also joined this walk together with other members of the partnering professional associations of SLPA.



Members of the IIESL UAE Branch took part in the UAE-Sri Lanka Friendship Walk

Drive train topologies of hybrid electric vehicles (HEVs)

By Eng. Dr. Sunil Jayantha Hettiarachchi

Hybrid and electric vehicles are a solution everybody suggesting to overcome the environmental pollution created by conventional internal combustion engines (ICEs). Hybrid and electric vehicles are not a new concept. History goes back to the year 1828, when early type of electric motor invented by Anyos Jedlik, before the invention of gasoline engine in 1876 by Nicolaus Otto. Hybrid vehicles use two or more distinct power sources, which commonly use gasoline or diesel engine with battery power to propel or for end application. First hybrid vehicle was produced in 1898 by engineers Ferdinand Porche and Lohner Werke (Fig. 1).



Figure 1. First gasoline-electric hybrid vehicle “Lohner-Porsche Mixte” produced in 1898; www.wikipedia.org

Hybrid electric vehicle (HEV) powertrains are designed to switch from one power source to another to maximize both fuel efficiency and energy efficiency. In HEVs, for instance, the electric motor is more efficient at producing torque, or turning power, while the combustion engine is better for maintaining high speed. Improved efficiency, lower emissions, and reduced running costs relative to non-hybrid vehicles are three primary benefits of hybridization. Hybrid power trains are used in both light and heavy applications such as; passenger cars, buses, railway locomotives, heavy goods vehicles, mobile hydraulic machinery and ships.

There are many hybrid powertrain topologies in operation. However, **parallel hybrid**, **series hybrid (range extender)**, **power split or series parallel hybrid** and **plug in hybrid** are the main topologies in application. All these vehicles use battery power and gasoline or diesel-powered ICE for power hybridization.

In **parallel hybrid** topology, an Electric motor and an ICE are coupled to the drive wheels separately as illustrated in Fig. 2a, enabling to power the vehicle either individually or combined to suit the power demand.

Most commonly the ICE, the electric motor and gearbox are coupled by automatically controlled clutches. For electric driving, the clutch between the ICE is open while the clutch to the gearbox is engaged. While in combustion mode the engine and motor run at the same speed.

Second era of HEVs begins around 1960 with the escalation of middle east fuel crisis. First generation "Honda Insight" is the first mass-produced parallel hybrid sold outside Japan. Mercedes Benz-E300, Honda civic, accord, Chevrolet Malibu, Silverado, are a few early parallel hybrids which became popular with the introduction of regenerative brake power. Now all the topologies are with regenerative brake power system.

A series hybrid is like a battery electric vehicle (BEV) in design (Fig. 2b). Here, the ICE drives an electric generator instead of directly driving the wheels. Only electric motor drives the wheels. The generator coupled to the ICE charges a battery and powers an electric motor that moves the vehicle. When large amounts of power are required, the motor draws electricity from both the battery and the generator. Series hybrids may also be referred to as extended-range electric vehicles (EREVs) or range-extended electric vehicles (REEVs) since the ICE only generates electricity to be used by the electric motor and never directly drives the wheels. Some examples include the BMW i3, GM Chevy bolt, Cadillac ELR, Chevrolet Volt, and Fisker Karma was the first produced series hybrid topology. Also, a common topology in electric locomotives.

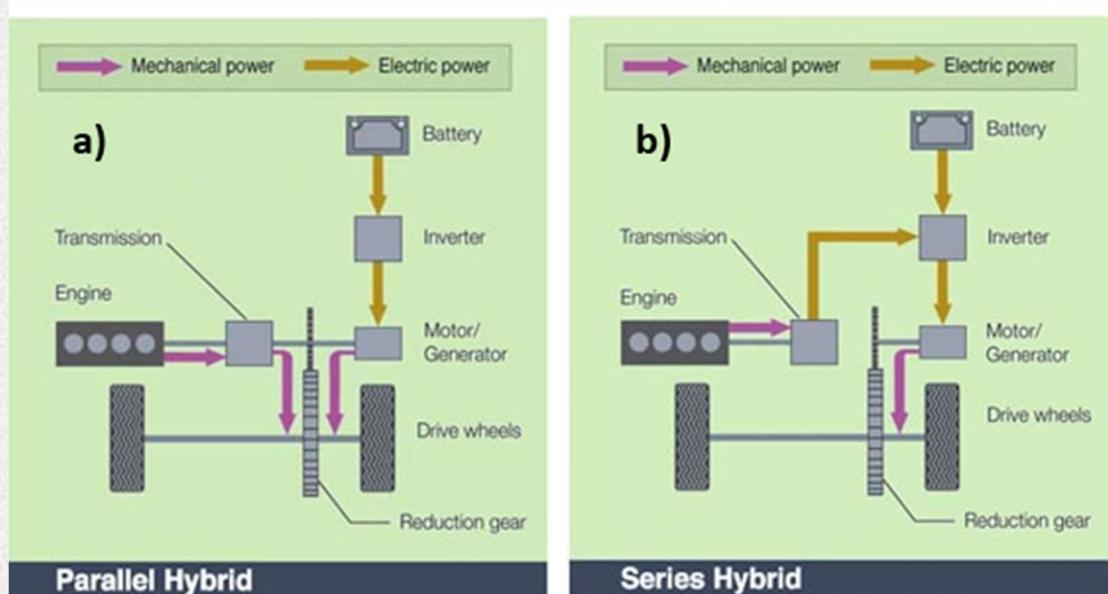


Figure 2. Typical HEV drivetrain topologies; a) parallel hybrid, b) series hybrid with energy flow diagram; www.autocaat.org

Power split (series – parallel) hybrid combines the best aspects of both parallel and series hybrid topologies, because series hybrids tend to be more efficient at lower speeds and parallel tend to be more efficient at high speeds. In this system power from both ICE and battery can be shared to drive wheels via a power split, which is a simple planetary gear mechanism for torque multiplication (Fig. 3a). Similar to series hybrid only the electric motor drives the wheels. ICE power splits in two paths, to drive the electric motor to power the wheels or to drive the motor/generator to charge the battery. Thus, compensate high torque demands for starting, climbing or similar application.

Contemporary versions such as the Toyota Hybrid Synergy Drive (HSD) have a second electric motor/generator connected to the planetary gear. In cooperation with the traction motor/generator and the power-split device, this provides a continuously variable transmission.

On the open road, the primary power source is the internal combustion engine. When maximum power is required, for example, to overtake, the traction electric motor is used to assist. This increases the available power for a short period, giving the effect of having a larger engine than actually installed. In most applications, the ICE is switched off when the car is slow or stationary thereby reducing curb side emissions.

Passenger car installations include Toyota Prius, Ford Escape and Fusion, as well as Lexus RX400h, RX450h, GS450h, LS600h, and CT200h.

Plug in hybrid electric vehicles (PHEVs) is usually a general fuel-electric (parallel or serial) hybrid with increased energy storage capacity, usually through a lithium-ion battery, which allows the vehicle to drive on all-electric mode a distance that depends on the battery size and its mechanical layout (series or parallel). It may be connected to mains electricity supply at the end of the journey to avoid charging using the on-board ICE (Fig. 3b).

This concept is attractive to those seeking to minimize on-road emissions by avoiding or at least minimizing the use of ICE during daily driving. As with pure electric vehicles, the total emissions saving, for example in CO₂ terms, is dependent upon the energy source of the electricity generating company.

For some users, this type of vehicle may also be financially attractive so long as the electrical energy being used is cheaper than the petrol/diesel that they would have otherwise used. The first plugin full electric or battery electric vehicle (PBEV) was Nissan leaf. At present almost all the car manufactures are producing their PBEVs and PHEVs to meet the contemporary global demand.

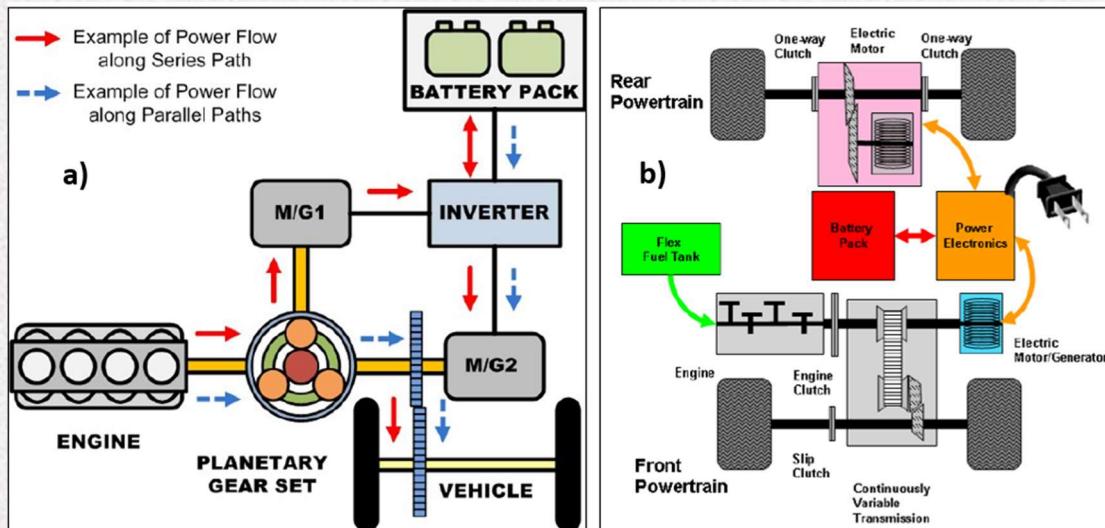


Figure 3. Typical hybrid drivetrain topologies for; a) power split hybrid and b) plugin hybrid with power flow diagram;
<https://www.researchgate.net/publication/>; <https://inspirationaltechnology.in/hybrid-electric-vehicles>

References:

1. https://en.wikipedia.org/wiki/Hybrid_electric_vehicle [Accessed: 12/03/2023]
2. http://autocaat.org/Technologies/Hybrid_and_Battery_Electric_Vehicles/HEV_Types/ [Accessed: 12/03/2023]
3. https://www.researchgate.net/publication/265525745_PLUG-IN_HYBRID_ELECTRIC_VEHICLE_POWER_MANAGEMENT_OPTIMAL_CONTROL_AND_BATTERY_SIZING/figures?lo=1 [Accessed: 12/03/2023]
4. <https://inspirationaltechnology.in/hybrid-electric-vehicles-in-details/latest-tech-updates/> [Accessed: 12/03/2023]



Eng. (Dr.) Sunil Jayantha Hettiarachchi

NDT (Mech), GCGI (Mech), MSc (P.Eng), PhD (Mech), MIMechE, MIET, MIESL, FIIESL, CEng, IEng.
 Lecturer, Department of Mechanical Engineering, Institute of Technology, University of Moratuwa, Sri Lanka.

INCO 2023 Industrial Exhibition

Institution of Incorporated Engineers, Sri Lanka (IIESL), yet again successfully completed a grand session of an INCO. It was INCO 2023 and the 17th version of the series of premier industrial exhibitions, organized by the IIESL annually, which kicked off in Colombo on 13th January 2023, showcasing the latest engineering technology and solutions in the country. The annual exhibition offers a platform for small and medium enterprise sector industrialists, manufactures, engineering companies, exporters, importers, and service providers to showcase their products and services and to meet their potential customers under one roof.

Inco 2023 was held at the BMICH on 13th January was inaugurated by Prime Minister Dinesh Gunawardena.

IIESL commenced the series of INCO exhibitions in 2003 and successfully completed 16 sessions continually over the two decades, growing to over 200 exhibit stalls in the process. Inco 2023 has been the first industrial exhibition held after four years due to the Covid 19 pandemic.



Inco Chairman, Eng. Wimal Jayawardhana explaining a product to the Chief Guest, Education Minister, Susil Premajayanta and Mr. Nihal Ranasingha, Secretary to Ministry of Education.



Prime Minister, Dinesh Gunawardena, Industrial Minister, Ramesh Pathirana, IIESL President Eng. Pushpa Jinadasa, Inco Chairman Eng. Wimal Jayawardhana, Senior Committee Members of the IIESL and guests at Inco 2023 opening ceremony on 13-01-2023.

INCO 2023 launched after four years had to be organized with a 'Change', to proceed concurrently with the changing world. Inco committee decided to change the campaigning methods and communication systems with stall holders and visitors. Inco committee introduced the latest technologies, digital marketing for campaigns and the organizers gained a higher effectiveness with low cost. They also secured the required forum for an industrial exhibition.

The school students and the students from universities and technical institutes were also given opportunities to display their knowledge, skills and innovations and the exhibition displayed many innovations and latest products from the industrial sector and the organizers had also arranged a contest to judge the best innovative products.



Hon. Champika Ranawaka and Inco Chairman, Eng. Wimal Jayawardhana with other officials at the ceremony of lighting the traditional oil lamp on 15-01-2023.



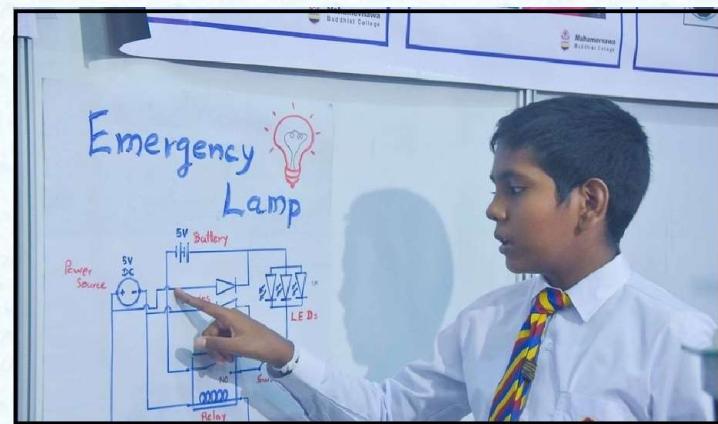
School students had their innovations on display.

At the end, the organizers happily announced that Inco 2023 had collected the highest revenue for IIESL since the inception of Inco in 2003 and most of the stall holders were satisfied with the return they gained from Inco. They also stated that they are more than happy to observe the successful completion of the project organized during a very short period and the result of the unity among the team of IIESL enabled to lay the path for Inco 2024.

Eng. Wimal Jayawardena, the Chairman of Inco 2023 thanked the President of the IIESL Eng. Pushpa Jinadasa and the event organizing committee members, namely, Manager-Inco- Mr. P C Thilakaratne, Coordinator & Compere - Eng. Jagath Arawwawala, Adviser & Coordinator of 3 Institutes - Eng. Shantha Senarath, Adviser - Eng. Senarath Rekogama and the Inco 2023 committee members, for their support.



Students from Moratuwa University sharing an electric racing car prototype with Prime Minister, Dinesh Gunawardhana, guests and visitors.



Students had the opportunity to display their knowledge and skills.

Membership Award Ceremony 2023

Institution of Incorporated Engineers, Sri Lanka conducted its Membership Award Ceremony 2023, an event held by the Institution, 30 years after the first ceremony (first ceremony was held on 28.11.1992 at Hotel Sapphire, Wellawatta), on 4th March 2023 at the Lotus Hall of BMICH, Colombo 7.

The Award Ceremony was held to award membership certificates to the newly elected Members and Associate Members and recognize their achievements and honour them. The event was well attended by nearly 400 award recipients with their guests and exiting to be a perfect award ceremony with two sessions to accommodate all the recipients.

The award of certificates during the first session was done by the President-IIESL and the guests attended the ceremony as follows.

- Eng. Pushpa Jinadasa – President IIESL
- Guest of Honor 1. Eng. Udeni Wickramasinghe, Chairman, Tertiary and Vocational Education Commission (TVEC)
- Guest of Honor 2: Prof. Mahesh Edirisinghe, Director General, Sri Lanka Institute of Advance Technical Education (SLIATE)
- Chief Guest. Hon Dr. Susil Premjayantha, Minister of Education

The certificates awarded by the Chief Guest and the Guest of Honors in 3 different segments accompanied by the president, VP/chairmen – membership, and two past presidents in all segments. Other special invitees attended the first session: Dr. T Mohotti, Chair IET (UK) SL network and Mr. G.G. Jayarathne, Snr Lecture ITUM.



Awarding certificate to members....

Second session:

- Eng. Pushpa Jinadasa – President IIESL
- Guest of Honor. Prof Prasanna Ratnaweera, Dean, Faculty of Engineering Technology – Open University, Sri Lanka.
- Chief Guest. Mr. M. N. Ranasinghe, Secretary – Ministry of Education

The certificates awarded by the Chief guest and guest of honor in two segments accompanied by the President, VP/Chairmen – membership, and two past presidents in all segments. Other special invitees attended the second session: Dr W. M. S. Wijesinghe, Director General, Apprentice and Industrial Training Authority (NAITA), Eng (Mrs) N. P. Dias, Director, Institute of Advance Technical Education (Mattakkuliya) and Eng. D. R. Saputhanthri, Principal, Institute of Engineering Technology (Kutunayaka).

A video presentation, “Who is the Incorporated Engineer?” was displayed during the session showing the audience how the IIESL was formed from the “All Ceylon Engineering Diplomates Association (ACEDA) which was established in 1977 and the future plan, to rename the basic qualification ‘the Diploma’ as a ‘Degree’.



Guests at the Award Ceremony.

People
who shine from
within don't need
a spotlight.

(Thoughts Wonder)

Excuses make today easy,
but tomorrow hard.

Discipline makes today hard,
but tomorrow easy.

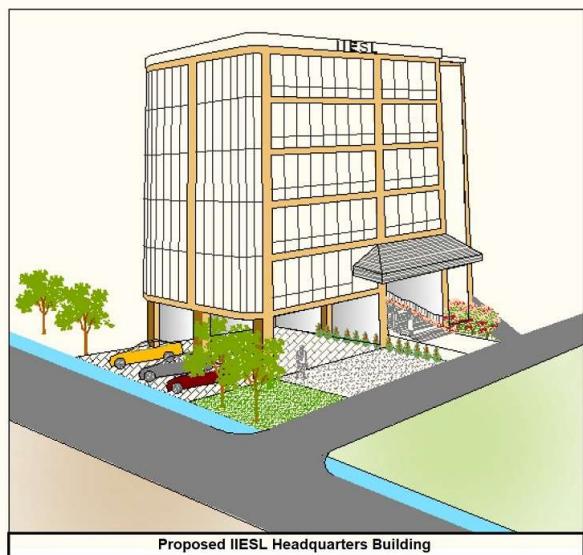
Dream IIESL Headquarters Building is Becoming a Reality!

It was a long wait for all the IIESL members, around two decades with disappointing hopes passing each year, to see their headquarters building, finally rising from the ground in the year 2023. When the project team of the IIESL Building Committee made an announcement that, **the 'foundation' laying ceremony could be possible by the month of May, 2023**; during the recent IIESL council meeting, a huge applause ruptured the walls of the conference room with extreme delight!

The present Building Committee had been working tirelessly to re-review all the project documents which had been stalled during past so many years due to various Government restrictions imposed to put the building plans on hold.

As a blessing in disguise, the current IIESL Council unanimously decided to press to re start the process and give a new lease of life where it was held. With Urban Development Authority (UDA) giving clearance to the project team of IIESL to re submit the application; the dream of seeing the Head Quarters building on hold had started to come to life once again.

The proposed building was planned to be comprised of the following structural formation with initial target to complete up to third floor and proceed to complete two more floors with the roof top after occupation.



1. **Ground floor**-Car Park & Standby Generator
2. **First Floor**- IIESL main offices, Inco office, record room
3. **Second Floor**-Committee room, the library, Presidents office, Treasurers office, General Secretary's office. common room for other office bearers and Council Members
4. **Third Floor**- proposed Skills Development Centre
5. **Fourth Floor**- Renting out rooms for members for overstay.
6. **Fifth Floor**- IIESL Auditorium
7. **Roof Top**

With funds already available as a capital to start the paperwork, ground and piling work, and back up funds been added from recent fund raising events carried out by IIESL namely the 'Praharsha' concert and the 'INCO' industrial exhibition, IIESL is confident once the foundation is laid, the work will proceed at immense speed as some well-wishers have already pledged their support in the form of supplying essential construction materials. The progress of the construction activities could also be expedited as the IIESL has got inhouse expertise in leap and bounds as Incorporated Engineers in the form of civil construction consultants, contract administrators and experts on MEP, HVAC and other engineering services. I'm sure within a short time'; the dream of all IIESL members to proudly see their 'dream' Head Quarters building won't be just a dream but a proud reality while adding another new iconic building to the skyline of Battaramulla, Sri Jayewardenepura, the capital of the country.



Eng. Deepal Rajaguru

I.Eng (ECSL), MIIESL, FCPM, MBA (PIM-USJ), GCGI(UK), AMRAeS

Council Member, IIESL Council member, IIESL and, functional committee member of the IIESL Building Committee

Academic / Professional Achievements of Members Year 2022/2023

#		Name of the Member	Academic/Professional Achievements	Designation/Title	Awarding Body, Institution or University
1		Eng. A S M Faizal	Coporate Member	MIIESL, IEng.	Institution of Incoporated Engineers, Sri Lanka
2		Eng. Chathurika Gunawardane	Coporate Member	MIIESL, IEng.	Institution of Incoporated Engineers, Sri Lanka
3		Eng. Arisanan Ramanathan	Coporate Member	MIIESL, IEng.	Institution of Incoporated Engineers, Sri Lanka
4		Eng. Tharanga Dilruksha Perera	Coporate Member	MIIESL, IEng.	Institution of Incoporated Engineers, Sri Lanka
5		Eng. Ranjan Dommanige	Coporate Member	MIIESL, IEng.	Institution of Incoporated Engineers, Sri Lanka
6		Eng. Sanjaya Rohana Kodithuwakku	Coporate Member	MIIESL, IEng.	Institution of Incoporated Engineers, Sri Lanka
7		Eng. George Sahayaraj Alfrick	Coporate Member	MIIESL, IEng.	Institution of Incoporated Engineers, Sri Lanka

Institution of Incorporated Engineers, Sri Lanka – UAE Branch

C/O Consulate General of Sri Lanka

P O Box 51528, Dubai, United Arab Emirates

Email: iiesluae@gmail.com

Web: www.iiesluae.org

IIESL HEAD OFFICE

Institution of Incorporated Engineers,
Sri Lanka
No. 27/B, Udumulla Road,
Battaramulla, Sri Lanka
Tel +94112887734 Fax: +94112887737
Email : iiesl@iie.lk , editor@iie.lk
Web. www.iie.lk, iiesl@iie.lk

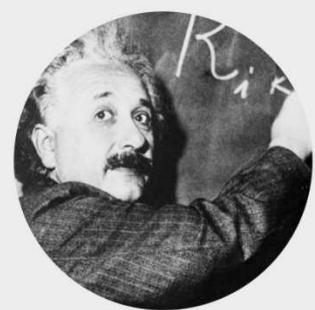
IIESL CITY OFFICE

Institution of Incorporated Engineers,
Sri Lanka
No. 490, Ocenica tower, 6th Floor,
Galle Road,
Colombo, Sri Lanka
Tel : +94114736708
Fax : +94114734298
Email : inco@slt.net.lk

Renewal of the Registration of ECSL

If any registered Member who has not renewed his registration for the year 2023, please contact IIESL or send a letter [Click here for the specimen](#) to the IIESL with the registration fee.

Please be informed that, according to the section 14(1) of Engineering Council Sri Lanka Act no. 4 of 2017, no engineering practitioner shall engage in the practice of engineering profession without being registered in ECSL.



ALBERT EINSTEIN

PHYSICIST | 1879-1955

German-born Albert Einstein is considered one of the most influential physicists of the 20th century for developing the general theory of relativity and the formula $E=MC^2$, which related mass and energy – and led to the discovery of atomic energy.

QUICK FACTS



Nobel Prize
winner



NAACP
member



Worked
at Princeton



Declined becoming
president of Israel



Brain stolen
after death

"A person who never made a mistake
never tried anything new."

BIOGRAPHY

Photo: Bettmann/CORBIS