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SRI LANKA

CENTRAL PROVINCIAL BRANCH



Bimonthly News Magazine Volume 4- May 2021 (Date issued: 05-May-2021)



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Bimonthly News Magazine published by the Central Provincial Branch of Institution of Incorporated Engineers, Sri Lanka Volume 4- May 2021 (Date issued: 05-May-2021)

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Editorial

Welcome to the INCO CENT News Magazine. We are proud to present you the fourth issue of INCO CENT News Magazine featuring the writing skills of IIESL-CPB Members and Family Members. Presently, we are accepting limited number of nonmembers articles.

I've sought members who have a variety of interests, are involved in diverse academic and non-academic networks and are engaging in diversified industries.

I am excited and eager to help our writers to bring that expertise to new audiences and apply it in new directions.

"A READER LIVES A THOUSAND LIVES BEFORE HE DIES.THE MAN WHO NEVER READS LIVES ONLY ONE".

One of the main questions of our time is climate change. That is a truth which Engineering Studies is just now adopting. Those who are practicing engineering have already made the turn, as have scholars in related fields worldwide.

Engineering practitioners were/are central figures in the creation of the Anthropocene, the recognition of climate change as a problem, and in formulating responses to climate change.

Fourth EXCO Meeting

4th EXCO for meeting of the Institution of Incorporated Engineers, Sri Lanka –Central Province Branch (IIESL-CPB) was held on 14th of March 2021 from 7.00 PM through online platform. Due to the prevailing situation in the country and the government imposed restrictions for gatherings, the Executive committee of the IIESL decided to hold the 5th EXCO Meeting of the IIESL-CPB through both physical and online platform.

Attended by 16 EXCO members of the institution, it was a successful event.



Fifth EXCO Meeting

5th EXCO for meeting of the Institution of Incorporated Engineers, Sri Lanka –Central Province Branch (IIESL-CPB) was held on 18th of April 2021 from 7.00 PM through online platform. Due to the prevailing situation in the country and the government imposed restrictions for gatherings, the Executive committee of the IIESL decided to hold the 6th EXCO Meeting of the IIESL-CPB through online meeting.

Attended by 11 EXCO members of the institution, it was a fruitful event.





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⑦ බන්නාවූ නව වසර කිරීයෙන් පැණියෙන් ඉතිරේවා යන්න අවුරුදු සමයේ අපට නිතොර ඇසෙන පැතුමකි. ඔබ සියල් යස ඉසුර ලබත්වායි මෙම පැතුමේ අරුත වුව ද එහි ගැබ්ව ඇති සැබෑ අරුත හෙළ හැදියාවේ උසස් බව පසක් කරයි.

පැතුමට අදාල කිරී මුදවාගත් මී කිරිය පැණි කිතුල් පැණිය. තුන් වේල බත් බුදින හෙළයාට බැත නොව කිරී පැණි ලැබේවායි පතනුයේ කිමැයි විමසුම වටී.

මී කිරි මුදවන්නේ හිතකර කුෂුදු පීවින් ගේ උදව්වෙනි. හිතකර කුෂුදු පීවින් අහර මගට එක්වූ කල අහර මග සුවපත් වැ නිරෝගි වැ සවිමත් වේ. එවන් උදරයක් හිමි අයෙක් ජව සම්න්නය. කාරියේ සූරය.

කිතුල් පැණි නිරෝගි හදවතකට මං සදන බැව් දෙස් වෙදැදුරු මතය වේ. පරයින් දුන් සීනි නිසාවෙන් මදුමේහය ජනිත වන මුත් කිතුළ් පැණි හෝ කිතුල් හකුරු පමන දැන වැලඳුමෙන් චිලෙස නොමවන බව පසක්වැ ඇත. නිරෝගි හදවතක් ඇත්තාට කය වෙහෙසා වැඩ කළ හැකිය.

බලන් අරුමය. කිරී පැණි කෑ කල ජව සම්න්න කයක් හා නිරෝගි හදවතක් ඇති වන බව හෙළයා දනී. චහෙයින් ම අනෙකාට පූර්ණ සුවය අත් වැ සෙත සැදේවාය පතන්නට තරම් උතුම් කරුණාවක් හා උසස් නුවනක් හෙළයා සතුය.

මේ, හෙළ දහමේ දහසින් වූ උසස් දැනුම් සමුදායේ එකක් පමනි.



මෙවන් පසුබිමක ජාතික සත්වයා ලෙස මී ගවයා නම් කැරුම යෙනෙකි යැයි හඟින්නේ ඌ මී කිරී නම් ඔසුව දෙනවා පමනක් නොව ගොවිතැන් කරණා ජාතියකට උගෙන් ඇති මහඟු පල සැලකි කල්හිය . චිපමනක් නොවැ බෝග වනසන දඬු

ලේණා ජාතික සත්වයා සේ නම් කැරුම ගොවිතැනින් දිව් සරී කරගන්නා හෙළයාට කළ නිගාවක් යැහි හඟිමි.

හුදෙක් දැවයේ දැඩි බව පමනක් සලකා ජාතික රුක ලෙස නම් කර ඇති නා (Ceylon Iron Wood) ගසට වඩා පැණි ,රා වැනි අනගි දෑ සපයන කිතුළ් ගසට ජාතික රුක වන්නට අයිතියක් ඇත්තේමය . වැනසි ලොව යලි ඔසවන්නට හෙළ දහම පිළිපදිමු .

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Social and Welfare Subcommittee Institution of Incorporated Engineers Sri Lanka Central Provincial Branch.

Planned activities/events for the Session 2020/2021:

- Scholarship reward program for best performers of IIESL CPB Family Members,
- ➢ Grade 5 scholarship examination (the exam year 2020).
- O/L Examination (the exam year 2021).
- A/L Examination (the exam year 2021).
- Loyalty cards for all CPB members from leading organizations in the central province.
- Arrange a day out or gathering for the members.
- INCO Scholarship fundraising.

Completed Activities:

We are happy to announce that our first activity (Grade 5 scholarship reward) was completed in April 2021. The recipient was the daughter of Ms. Sewwandi Mallicarchi, Ms. D.M. T. J. Dhanasekara who is a student of Good Shepherd Convent Kandy.



Sri Lanka-Central Province Branch Social and Welfare Subcommittee

(SWELLCO)



Progressing Activities:

 Loyalty cards printing is in the process of Seetha Holding, is one of the leading trade organization in the central province.







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How to identify the cracks on concrete and monitoring?

Measuring and Monitoring crack width in concrete is simple. Cracks in concrete structures can indicate underlying problems and should be monitored to avoid serious functionality or stability issues.

- Duration: Two weeks after the first finding (With 5 days' interval).
- Monitoring tools: Crack gauge (2 types).

(If necessary, the area around the crack will be chipped to enable a closer visual).





Sample Crack control sheet: Records maintained on format shown below.

NO	Pouring	FORM	Location/	1st measuring (within 3 days after form striking)			2nd measuring (within 5 days after 1ª measuring)			3rd measuring (within 5 days after 2nd measuring)			4th measuring (within 5 days after 3rd measuring, If necessary)			Crack Rectification		Remark
		Date	Date	Element	Date	Width (max, mm)	Length (max, M)	Date	Width (max, mm)	Length (max, M)	Date	Width (max, mm)	Length (max, M)	Date	Width (max, mm)	Length (max, M)	Date	Method
1																		
2																		
3																		
4																		

- The Crack depth shall be measured using a fine wire (and measuring gauge) and recorded in the "Remarks" column.
- The depth shall be verified before carrying out rectification.





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Crack Types & Rectification

- Type 1 Crack width below 0.2mm, depth below 25mm: No rectification needed.
- Type 2 Crack width more than 0.2mm, depth below 25mm (Surface crack): V-cutting (Grinding or Chipping) + Non-shrink Grouting (NSG).



There are various NSGs in the industry, so the application method varies from product to product, type of element and Concrete grade. It is better to follow the manufacturer guide once you identified the type of crack.

• Type 3 - Crack width more than 0.2mm, depth over 25mm (Structural crack): Epoxy Injection.

The following procedures shall be adopted in rectifying all cracks that would appear in concrete as a result of shrinkage, excessive drying, early removal of formwork, etc.

Before attempting a crack repair, the cause of cracking must be established. If the crack is dynamic the amount of movement must be determined. There is no point in repairing a crack if the structure is still subject to the stresses that caused the crack. The structure will simply crack again at the next weakest point. If it is proved that the crack is dynamic, it should be cut and or introduce a suitable new joint to be sealed with the appropriate sealant to accommodate the movement.

By Eng. Chathurani Gunathilaka Niwunhella Editor-IIESL CPB

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KITCHEN WASTEWATER TREATMENT SYSTEM (OIL INTERCEPTOR & WETLAND)



Oil Mixing with water sources is one of the main factors of environmental pollution. Following a treatment system as a suit, kitchen wastewater can be treated to prevent the pollution of the environment. My house is located in a semi-urban and semi-rural area. This concept is applicable in any area of Sri Lanka. The oil interceptor is the first unit in the treatment



The oil and solid particles are separated in this unit. Once in two weeks, we have to clean the unit by removing the residues. The outlet water from this is made to pass through a wetland. In the wetland, permeability has found in different levels: high permeability, semi permeability or low permeability. In most cases, surface water runoff occurs if the existing ground is of low permeability. That runoff water is suitable to be discharged to any source, such as river, streams, ponds, public drain etc. There are special wetland plant species or else any available wetland plants in our environment can be used for this purpose.

A plot of 5 sqft is capable of treating wastewater generated by one person on average. Hence the total area of wetland to be calculated taking this as the rate. i.e. for a house with five occupants, the wetland area should be 25 sqft.







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The following images show the parts of the treatment plant designed and installed by myself in my house. In this system, the effluent is sent to an underground seepage gallery. Free Water Surface Constructed Wetlands (FWS CW) are efficient in the removal of organics through microbial degradation and settling of colloidal particles. Suspended solids are effectively removed by means of settling and filtration through the dense vegetation. Nitrogen can be removed primarily through nitrification (in the water column) and subsequent denitrification (in the litter layer), and ammonia volatilization under the higher potential of hydrogen (Ph) values caused by algal photosynthesis. Phosphorus retention is usually low because of limited contact of water with soil particles that adsorb and/or precipitate phosphorus. Plant uptake represents only temporal storage because the nutrients are released to water after the plant decay.



By Eng. A.W.M. Munas Assistant Secretary-IIESL CPB

SINGHA ULTRA Making a stronger difference.





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l vote for Plastic

I want to know your true answer and opinion if ask you whether plastic [polymer] products should be Banned for the sake of the Environment. Majority would say "Yes, Plastic and Polymer products should be Banned". In fact, by now, the Government of Sri Lanka has imposed bans on many plastic & polymer applications. Your answer and the government implementations can be justified without hesitation when the damage done is considered.

Plastic has become a menace not due to its own behaviors but due to the misbehaviors or rather the undisciplined acts of the user, the man. Plastic/polymers are widely used for many applications ranging from simple grocery bag to heavy ship constructions. It even has become a vital component in the medical practice; the Injection syringe is a fine example.

Plastic gained its popularity due to many features as Lightweight, Easy workability and easy recyclability. But it could not retain this fame long. The man is responsible for "ALL BADS OF PLASTIC".

You, who has read up to this point of my writing may wonder "what this man is trying to say? "

Please study the following case before you stop reading thinking that I am out of mind.

Suppose there is a factory that manufactures 100,000 liters of a particular drink monthly and the drink is sold in 1-liter bottles. So that they require 100,000 bottles per month. They have the choice of either selecting a Glass Bottle or a PET Bottle. An average glass bottle of one-liter capacity weighs 350 grams whereas a PET bottle of the same capacity weighs a maximum 25 grams. If the Glass Bottle is the choice, an extra weight of 325 grams to be entertained. In other words, the manufacturing plant has to take care of-an extra weight of 100,000 times 325 grams that gives a figure of 32,500,000 grams. An extra weight of 32,500 kg i.e. 32.5 Metric Tons.

This weight of 32.5 MT is equivalent to the weight of a Long Train Compartment.

Just think of the Energy Involved in transporting an Extra Weight of 32.5 MT as a result of using glass. This clearly shows that Plastic is a Better Environmental Friendly Material when compared with glass.

Even in the recycling process, a 90 % of energy can be saved with Plastic than it's with Glass.

Be open-minded. Energy consumption directly related to Environmental Pollution, especially Atmospheric Pollution due to burning of Fossil Fuels. Therefore, the Conservation of Energy is simply the Conservation of Nature.

Should we go with the masses under bloated slogans or else be wise and be disciplined?



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We have a plentiful of plastic reusing and recycling options and opportunities that require a little enthusiasm and practice of loving-kindness.

Lastly, think of this. You eat biscuits, don't you? At the beginning, when you have biscuits in the pack do you feel the weight of the packing? Absolutely not. But once you have finished eating all, you start to feel the weight of the packaging and you want to throw it fast. This is what many do for packaging (Bottles/ sachets etc). I would rather define this act as "Pure Laziness and Foolishness" This is the common problem of PLASTIC. Attitude!



The attitudinal changes would lead us to make Wise Decisions, not the Popular Decisions.

Please vote for the correct usage of Plastic with correct Attitudes.

Eng. Sarath Walisundara General Secretary-IIESL CPB

Note: The writer expects criticisms, counter arguments and comments.



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ΙοΤ

IoT stands for the **internet of things** for short. Most people may not understand when they hear this word, but we use equipment made using this technology every day. Simply put, the IoT is a device that can remotely monitor or control a device over the Internet. Many of these devices are widely available in the market today and are available in everything from very small to large devices. The main purpose of the upcoming 5G technology is to work with the IoT device. With the new generalization with the covid-19 epidemic, many people were tempted to use such devices.



An IoT ecosystem consists of web-enabled smart devices that use embedded systems such as processors, sensors, and communication hardware. IoT devices share the sensor data they collect by connecting to an IoT portal or other edge device that sends data to the cloud for local analysis or analysis. Sometimes, these devices communicate with other related devices and act on information received from each other. Devices do most of the work without human intervention, although humans can interact with devices for example, to set them up, advise them, or access data (Gillis, 2020-02).

Data collection is done by transmitting it from a device to a gathering point. Data transfer can be done wirelessly with a variety of technologies or wired networks. Data can be sent over the Internet to a data center or to a cloud with storage and computing power, or to exchange platforms, which the intermediate device collects before sending the data. (Fruhlinger, 2020-05-13).

Device management

In order to work together, all of those devices need to be authenticated, provisioned, configured and monitored, as well as patched and updated as needed. Often, all of this happens in the context of a single dealer's proprietary systems or, if it never happens, it is even riskier. But the industry is beginning to shift to a standardized device management model that allows IoT devices to interact and ensure that devices are not compromised (Fruhlinger, 2020-05-13).



IoT communication standards and protocols



When IoT gadgets talk to other devices, they can use a variety of communication standards and protocols, many of which are limited to devices with limited processing capabilities or less power. You've probably heard of some of these - some devices use Wi-Fi or Bluetooth, for example - but many more are specific to the IoT world. (Fruhlinger, 2020-05-13) ZigBee, for example, is a wireless protocol for low-power communications, while message queuing telemetry



Bimonthly News Magazine published by the Central Provincial Branch of Institution of Incorporated Engineers, Sri Lanka Volume 4- May 2021 (Date issued: 05-May-2021)

(MQTT) is a publishing/subscription messaging protocol for devices connected by unreliable or delayed networks.

IoT platforms

Cloud giants are trying to sell you more than just a place to stash the data your sensors have collected. They offer complete IoT platforms that combine many functions to coordinate the elements that makeup IoT systems. In summary, the IoT platform serves as the middleware that connects IoT devices and the Edge Gateway (Fruhlinger, 2020-05-13). While every platform vendor seems to have a slightly different definition of what an IoT platform is, it is better to stay away from the competition (Gillis, 2020-02).

IoT benefits to organizations,

- Monitor their overall business processes
- Improve the customer experience (CX)
- Save time and money
- Enhance employee productivity
- Integrate and adapt business models
- Make better business decisions
- Generate more revenue.

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By Eng. Sumedha Walisundara

Member of Education and Training Subcommittee (EDSCO)



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Machine learning (ML)

Machine learning (ML) can be called the great revolutionary turning point in the developing world. This is what Artificial Intelligence (AI) was all about before it was introduced. I think it would be more appropriate to briefly introduce what Artificial intelligence is a device that works like a human being introduced by man. Artificial Intelligence works according to a set of instructions previously given by a human. Take the Tesla car, for example.



Machine learning is another development of artificial intelligence (branch of artificial intelligence). What makes it special is the ability to deliberately act as a human according to the data obtained by the big-data or sensor. That is the ability to analyze the data obtained and deliberately makes new decisions as a human being. It allows the system to automatically learn and improve from experience without being programmed. Machine learning focuses on developing computer programs that can access data and use it to learn on their own.



The learning process begins with observations or data, such as examples, direct experience or advice, to explore patterns in data and make better decisions in the future based on the examples we provide. The primary purpose is to allow computers to learn automatically without human intervention or assistance and design programs accordingly (Expert.ai, 2020 may 06). But using machine learning classical algorithms, the text is considered a

sequence of words; instead, an approach based on semantic analysis mimics the human ability to understand the meaning of a text. (cloud, 15 July 2020)

Machine learning approaches are divided into four broad categories, depending on the nature of the signal or feedback available to the learning system.

Supervised machine learning

Supervised machine learning is practiced on a labelled dataset. That is, the information is labelled as having built a machine learning model for data learning that can be categorized even in the ways in which data is expected to be categorized.

Supervised machine learning requires less training data than other machine learning methods and facilitates training. But processing properly labelled data can be costly, over-risky, or create a biased model that is closely linked to training data that does not properly handle changes in new data. (cloud, 15 July 2020)



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Unsupervised machine learning

Unsupervised machine learning algorithms are used when the information used for training is not categorized or labelled. Unsupervised learning studies how systems can infer a function to describe a structure hidden from unlabeled data. The system does not detect the correct output, but it searches for data and can guess from datasets to describe hidden structures from unlabeled data. For example, a team of data scientists generate more emails than they would like to label or categorize in their lifetime. An unsupervised learning algorithm can analyze large volumes of email and detect features and patterns that appear to be spam (and be better at marking spam over time). (Expert.ai, 2020 may 06).

Semi-supervised learning

Semi-supervised machine learning algorithms fall somewhere between supervised and unsupervised learning because they use both labelled and unlabeled data for training, usually a small amount of labeled data and a large amount of unlabeled data. Systems that use this method can significantly improve learning accuracy. Generally, semi-supervised learning is selected only when skills and relevant resources are needed to train, learn from the acquired labelled data. Otherwise, extra resources are usually not required to obtain unlabeled data.

Reinforcement machine learning

Reinforcement machine learning is a behavioral machine learning model similar to supervised learning, but the algorithm is not trained using sample data. Learn this model using trial and error. This method allows machine and software agents to automatically determine the perfect behavior in a specific context to maximize its functionality. The agent needs simple return feedback to know which action is most appropriate; this is called strengthening. A sequence of successful outcomes will be reinforced to develop the best recommendation or policy for a given problem. (Expert.ai, 2020 may 06)

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Available at: https://www.ibm.com/cloud/learn/machine-learning Available at: https://www.expert.ai/blog/machine-learning-definition/

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LED Part - 1

Light Emitting Diodes are abbreviated as LED. Nowadays LEDs' are very popular in lighting and decorations. The

followings have made use of LED in Illumination.

- 1. Very high energy saving capacity.
- 2. Longer life span than incandescent and CFL lights.
- 3. Heat emitting is low than Incandescent and CFL lights
- 4. The single bulb has multi colours that can change by the user.
- 5. Various types of designs and very small to very large bulbs in the market.
- 6. It can use indoors, out the door or underwater
- 7. Very hard use not like incandescent or CFL bulbs (Shockproof).
- 8. Less harmful chemicals like mercury
- 9. Savings on accessories and cables due to low current consumption.



LED consists of a P-N Junction made of semiconductors. When a current flow through the junction, it emits an electromagnetic wave. The frequency and the wavelength of that wave are varied according to the semiconductor material and the current passing through the junction and according to that, it emits various colours.

The first LED invented was RED colour. Thereafter GREEN colour LED was invented. Yellow was invented by mixing RED and GREEN. BLUE colour LED was manufactured after a long break. In 1993 Japanese scientist Fuji Nakamura invented a semiconductor that can emit BLUE colour. Now all primary colours, RED, GREEN, and BLUE are available. Using these primary colours they invented WHITE colour LED. It was a great invention. Due to that, Mr Nakamura awarded in Nobel Prize in 2014 for his blue colour LED. Normally, the RED colour has the visible largest wavelength and low frequency. As well as PURPLE is the smallest wavelength and high-frequency colour.

There are some LEDs' that produces invisible colours. They are called IR led (Infrared) and UV LED (Ultraviolet). IR LEDs' is mostly used in remote controllers and night vision equipment. UV LEDs' used in medical treatments.

Different types of semiconductors are used to obtain different colours. So that the supply voltage varies based on the colour of the LED.

Forward voltage is the supply voltage. When the voltage increases or decreases the particularly given voltage, the LED will burn. Wavelength is the colour wavelength. Size is the diameter of a bulb. There are LEDs smaller than 3mm. They are called Chip LED or SMD LED. (Surface Mount Device) They are very small and mostly used in mobile devices.



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The Bellow table displays the characteristics of LEDs.

LED Colour	Size	Forward Voltage	Wavelength
Croop	3mm	3.0v-3.4v	520nm
Green	5mm	3.0v - 3.4v	520nm
Ded	3mm	1.8v-2.2v	625nm
Keu	5mm	1.8v-2.2v	625nm
Vallaw	3mm	1.8v – 2.2v	590nm
Yellow	5mm	1.8v – 2.2v	590nm
White	3mm	3.0v - 3.4v	N/A
white	5mm	3.0v - 3.4v	N/A
Dhue	3mm	3.0v - 3.4v	465nm
Blue	5mm	3.0v - 3.4v	465nm
Orango	3mm	1.8v - 2.2v	600nm
Orange	5mm	1.8v - 2.2v	600nm

The current, passing through a semiconductor junction, is uncontrollable so that an external circuit should be used to control the current. Normally a current limiting resistor whose value can be calculated using Ohm's law is used in Series with the LED as shown below.



Types of LED

1. White LED

White LEDs' are more environmentally friendly than CFL and other blubs. Because there are no chemicals like Mercury. And the White LEDs only emit visible light. But Other blubs emit IR and UV rays which are harmful to the human body and also it is an energy loss.

There are two methods to generate a WHITE colour.

1st one is using RGB LED. White colour can be generated by light up RED, GREEN, BLUE colours in equal brightness. These bulbs are named RGB White LED. Red-green and Blue LEDs are manufactured in the same package as one bulb.

2nd method is using BLUE or UV LED. This blue light (or UV Light) direct to a special Phosphorus layer. Then it emits yellow colour. Now the yellow and blue in the same package. Finally, the bulb emits white colour. This LED named Phosphor-based LED (PCLED).



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2. Bicolour LED

This is a two-pin bicolor LED. Two LEDs are in a single package. When A terminal (+) and B terminal (–) bulb emits GREEN. When A and B polarity change blub emits RED. Also, when polarity change very speedy bulb emits yellow colour. (**RED** + **GREEN** = **YELLOW**).



"Electricity is a Good Servant, But a Bad Master"

By Mr. P. Chathuranga Domagammana

Member of Professional Affairs Subcommittee (PASCO)

Part 2 will be continued to the Vol.05...





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An expression that doesn't exactly mean what the words say.

English idioms are an important part of everyday English. They come up all the time in both written and spoken English. Because idioms don't always make sense literally, you will need to familiarize yourself with the meaning and usage of each idiom. That may seem like a lot of work, but learning idioms is enjoyable.

- Uphill battle There are many obstacles to sort out before we achieve what we want. There is an uphill battle to win the contract.
- No time to lose Something must be finished very soon. He has no time to lose as his project is due in

first thing tomorrow morning.

- Word and mouth News which spreads very fast as people tell other people the same news. The news spread by word and mouth that the new hotel was very successful.
- Throw in the towel To give up, leave or quit He threw in the towel and left his job as he was unhappy.
- Absence makes the heart grow fonder Being away for a while from someone or something makes you miss/appreciate that person or situation.

Absence made his heart grow fonder and he realized he missed her terribly.

A watch pot never boils - A situation or event can take far longer than expected. Don't keep watching for developments.

A watch pot never boils when you are waiting for something to cook more quickly.

- Good things come to those who wait Be patient. Good will come out of the situation. Good things come to those who wait. Your promotion will come soon.
- Birds of a feather People who are like minded often spend more time together. Those two are birds of a feather. No wonder they meet so often.



If it isn't breaking don't fix it - If something is already or still working, leave it as it is as it is still working.

If it isn't breaking don't fix it, the car still works so do not buy a new one.

When in Rome, do as the Romans do -When you are doing something new, act like others do in that situation.

Try eating English food when in England. When in Rome, do as the Romans do.



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There is no such thing as a free lunch -**Cold Light of Day** Everything has a hidden cost. From a realistic There is no such thing as a free lunch. He wants rather than wishful you to invest in his Company. perspective On't judge a book by its cover - Do not be quick to judge a person or a book - you might like the person more than you think you will/you may enjoy the book more than you expected. **Burn the Candle** Move Up in the Don't judge a book by its cover. The book is excellent and I recommend that you try reading at Both Ends World it again. Work very long Become more successful hours ③ Jump The shark - the moment when a form of entertainment reaches a decline in quality by including gimmicks to maintain interest. Hanging by a Thread In great danger of elimination or failure Get one's goat – to irritate or annoy someone. Get the Sack **Blue Moon** To be fired Very rarely a fish out of water a person who is uncomfortable in an unfamiliar situation:

Learning to use common idioms and expressions will make your English sound more native, so it's a good idea to master some of these expressions. You can start by learning the common English idioms.

Editor-IIESL CPB







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TRAVEL DESTINATION-2

Visit to Sri Lanka





Planning a visit to UNESCO World Heritage Sites can be overwhelming. We will be looking back to ancient civilizations and lands that time forgot, and will be overloaded with curiosities every time we dig deep into these rich archaeological and architectural wonders. The Cultural Triangle in Sri Lanka is home to 6 out of 8 incredible world heritage sites in the country, including Anuradhapura, Polonnaruwa and the Sigiriya rock fortress. These sites have preserved the prosperous culture and history of ancient Sri Lanka and exhibits a picturesque view of different

ruling period of different dynasties. If you are in Sri Lanka, visiting these ruins of this glorious civilization should be on top of any itinerary.

POLONNARUWA

Another ancient capital of Sri Lanka is Polonnaruwa, a UNESCO world heritage site. The architecture of the ruins of this era is known to have influence from the neighboring south India, hence a site you can find nowhere else but here. The ruins of Polonnaruwa are in excellent condition; you can walk relatively freely through the ruins, temples and shrines. Fortunately, the attractions are also concentrated in one area, located relatively close together, which makes it easier to visit within one day.



- The Sacred Quadrangle or Dalada Maluwa
- Hatadage
- Sathmahal Prasadaya Seven Story Palace
- Lankathilaka Viharaya
- Gal Viharaya
- Rankoth Viharaya
- Lakes Parakrama Samudraya



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- The Royal Palace of King Parakramabhahu and the Citadel
- King Parakramabhahu Statue/ The Statue near the Potgul Vehera
- Vatadage or Circular Relic House





By: Dr. K.M. Anjana Karunatilaka Photo Credit: Dr. Yohan Perera

Next destinations are Dambulla and Sigiriya Fortress.

STAY WITH US



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විශුාමික දෙමාපියන්ගේ නූතනයේ ජීවන භූමිකාව

ආගම හා සංස්කෘතිය කවලම් වූ සමාජ වටපිටාව දෙස විමර්ශනාත්මක ඇසින් බැලූ කල නූතනයේ විශුාමික වයසේ පසුවිය යුතු වැඩිහිටි දෙමාපියන් මුදල පිටුපස දිවයන සමාජයතුල අසරණභාවයකට පත්ව ඇත. මෙය වූ කලී දුප්පත්, මධාීම පාන්තික හා ධනවත් ඉහල පාන්තික යන තුන් කොටසටම ඒ ඒ පන්තියට අදුල වන ලෙස බලපෑමට ලක්ව ඇත.

ලංකාවේ ගතානුගතික සම්පුදය තුල පුරවැසියාගේ නව යොවුන් කාලය තම ඉගෙනීමටත් ඉන්පසු හදු යෞවනය රැකියාව හා තම විවාහක ජීවිතය ඇරඹීම උදෙසාත් වැයකිරීමට සිදුවේ. මැදිවිය ආරම්භයේ දෙමාපිය පදවියෙන් පිදුම්ලබන මොවුන් ඉන්පසු කාලය තම දරුවන් පෝෂණයෙහි ද තම සිහින දරුවන් ලවා සැබෑකරගැනීමේ කර්තවායේ ද ඉසිඹුවෙක නොලබාම වෙහෙසෙයි. මෙම කාලාන්තරය තුලම ආගම දහම කෙරෙහි අබමල් රේණුවක සෙවීමක් බැලීමක් නොකරන මොවුන් ඒ සඳහා කාලය තම විශුාමික අවධියෙන් යෙදවීමට පිඹුරුපත් සකසයි. නමුදු එය එසේ කරලීමට හැකි වන්නේද? එය එසේ නොවන්නේ වෘද්ධ වූ දෙමාපියනට තම ජීවිතකාලයේ දෙවන අදියරේ 🤦 දේමාපියන් බවට පත්වීමට සිදුවීම නිසාය. තම දරුවන් එකිනෙකා පරයන සමාජ පොරයේ නිතහ සාමාජිකයන්ව ඇති නිසා දරු මුණුබුරු මිණිබිරියන් අනේක වූ වැඩ රාජකාරි පැටවෙන්නේ සීයා සහ අත්තම්මා මතය. දිනයේ ආරම්භයේ සිට අවසානය දක්වා අවිවේකී වයසට නොදරන තරම් වැඩගොඩක නූතන සීයලා අත්තම්මලා නිරතවේ. උදෑසන පෙරපාසැල්, පාසැල් ගේට්ට අසල තරුණ දෙමාපියන් සිටියද දිවා කලට සිටින බහුතරය වයසක ආච්චිලා සීයලාය. පෝයට සිල් නැත ටියුෂන් යා යුතුය. කලට වේලාවට නෑමට කෑමට බේත් හේත් ගැනීමට නැත්තේය. ඇස මුණුබුරු මිණිබිරියන් වෙත නිබඳවම රැඳවිය යුත්තේය. ළමා කමට කරන්නාවූ දෙයකින් සීරීමක් හෝ වුවහොත් අයිතිකරුවන්ගෙන් දෙස් බොහෝය. මේ පොඩි වැඩයවත් කරගන්නට බැරිදැයි විමසන්නේය. අතීතයේ සැලසුම් කළ විවේකී විශුාමික දිවිය අහෝසිව ගොසිනි. දින දෙක තුනක වන්දනාවක් නම් සිතීමටවත් බැරිය. මුණුබුරාගේ මිණිබිරියගේ ශිෂාත්වය ළඟය. එම නිසා බොහෝ විශුාමික දෙමව්පියෝ සීලයට, වන්දනාවට කරන්නේ තම දරුවන්ගේ දරුවන් බැලීමය. පත්වන අසරණභාවය සාධාරණීකරණයට ලක්කරලීමට වදන් සමාජයේ බොහෝය.

මෙය කියවන ඔබත් මේ මොහොතේ හෝ ජීවිතයේ මොනයම් කාලයක හෝ තම දරුවන්ගේ බර තම දෙමාපියන් මත පටවා තිබෙන්නට පුළුවන. ඔබට ඇති සීමිතවූ කාලය තුල අසීමිතවූ වැඩකන්දරාව මත කළහැකි වෙනයම් දෙයක් තිබෙන්නටද නැත. නමුත් එහි අසාධාරණයක් තිබෙනා බව මටනම් පුතෳක්ෂව ඇත. මගේ අකීකරු සිතුවිලි පෑන් තුඩ මත දඟලන්නේ එනිසාය.

මෙයට ඇති විසඳුම කුමක්ද? විසඳුමක් නැත්තේද? නිතැතින්ම විසඳුම් ඇත. සරලකම පළමුවන විසඳුමය. පියා ඉපැයීමේත් මාතෘ මූලිකව පවුල ගොඩනැගීමත් ඉතා සාර්ථකම කුමයයි. අනෙක වන්නේ තමන්ට තනිව රැකීමට හැකිවන තුරු දරුවන් නොමැතිව සිටීමයි. නමුත් කණගාටුවට කරුණ වන්නේ මෙය තුන්වන ලෝකයේ රටක් වීමයි. තුන්වන ලෝකයේ රටක එය කළ නොහැකිය.

සමාජයේ දරුවන් ලද සියලු දෙමව්පියන් මේ ගණයෙහි ලා නොසැලකූ බව සටහන් කරමි.



-ධනංජය දයාරත්න -



Bimonthly News Magazine published by the Central Provincial Branch of Institution of Incorporated Engineers, Sri Lanka Volume 4- May 2021 (Date issued: 05-May-2021)



Did you visit that beach again Did you spend some time there Do you see the seashells which I used to collect Do you remember how I asked you to make me a chain with them were you thinking about me Were you missing me Brought you caring shade again Please tell to the waves that I won't be coming there again Please tell those stewards at the restaurant that You left me so easily But tell them one thing

When they ask Just tell them I was bad.. Please don't drink to burry my memories Please don't think much and make yourself uneasy Just take a fist full of sand and tell to the sea that It's how much I love you It's how much you mean to me Tell to the smooth breez that I miss her so much Tell to the clouds that I miss their mischievous Behaviors Tell those fur buddies that I won't be coming back I won't be coming back .. -Ziggie-



Bimonthly News Magazine published by the Central Provincial Branch of Institution of Incorporated Engineers, Sri Lanka Volume 4- May 2021 (Date issued: 05-May-2021)

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Creating age-friendly cities – A new urban challenge in Sri Lanka



By Chethika Gunasiri (PhD candidate, Institute for the Advanced Study of Sustainability, United Nations University, Tokyo)

The world population is slowly becoming aging. According to United Nations statistics, in 2019, the global population of older persons (65 or above) were 703 million and which is projected to more than double in 2050, reaching over 1.5 billion persons (Department of Economic and Social Affairs, 2019). Currently, Eastern and South-Eastern Asia is the home for the largest older population followed by Europe and North America.

However, this situation will be completely opposite in 2050, where developing countries will be home for more than two-thirds of the world's older population (1.1 billion) as the future elderly population growth rate will be fastest in the African region especially Northern Africa, Southern Africa and Sub-Saharan Africa (Department of Economic and Social Affairs, 2019). In contrast, the projected increase will be relatively small in Australia and New Zealand and Europe and Northern America and regions where the population is already significantly older than in other parts of the world.

At present increasing part of the elderly population is living in cities. The aging society is a challenging phenomenon, but when it's combined with urbanization, the interaction will lead to more complicated challenges for all the communities living in cities. Issues of ageing societies include public health challenges such as the higher risk of mental disorders, adequate provision of services, safety concerns of older people, and affordability issues. Moreover, aging trends are different between metropolitan areas and non-metropolitan areas, wherein in large cities, the older population is growing faster than the total population (OECD, 2015). However, even though cities have more challenges to overcome with ageing societies, cities also have better resources and offer good opportunities for the well-being of senior citizens.

Ageing societies in Sri Lanka

Sri Lanka is one of the fastest aging countries in the South Asian region, as well as the first country, achieved demographic transition in the region (Figure 1). According to the 2012 Census, the country recorded the highest aging population among other South Asian countries with the percentage of year 60 and above 12.4 (Perera, 2017). According to the projections, this value will be doubled in 2041 reaching the level of 24.8% which means, in the year 2041, one in every four people living in Sri Lanka will be an elderly person (Perera, 2017). Colombo, Gampaha, Mathara



Bimonthly News Magazine published by the Central Provincial Branch of Institution of Incorporated Engineers, Sri Lanka Volume 4- May 2021 (Date issued: 05-May-2021)

and Kegalle districts have been identified as rapid ageing districts (Perera, 2017). Therefore, a key characteristic of Sri Lanka's demographic future that could be expected is the gradual shift of age structure of the country from a pyramid, which is typical in developing countries, towards a pillar structure that is similar to many developed economies. This age structure shift will result in the rapid rise of the dependency ratio. In addition, this rapid increase of the elderly population in Sri Lanka is projected to happen much faster than developed economies and at a lower level of per capita income signaling various complicated socio-economic issues in the future. Simply based on current demographic projections, Sri Lanka will grow old before getting rich.



Figure 1: Ageing populations in South Asian Countries in 2012 (Source: Ageing Population of Sri Lanka by UNFPA Sri



Lanka 2017)

Note: Medium variant of population projection as reported in World Population Prospects is used. Source: Authors' estimates based on data from United Nations, Department of Economic and Social Affairs, Population Division. 2019. World Population Prospects 2019. New York. https://population.un.org/wpp/ (accessed 21 August 2019).

Figure 2: Share of the elderly (aged 60 years and over) in Sri Lanka's total population, 1960-2100 (Source: "Growing old before becoming rich" by ADB, 2019)



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Urban challenges for ageing cities

With rising aging populations, cities and infrastructure need to be attuned to this demographic change to overcome potential social and economic challenges. The main challenges of urban planning in ageing cities are promoting mobility within cities (such as walkability and public transportation), promoting safety and security and empowering elderly people within local communities. Therefore, urban planning is now more focusing on active aging, which is the process of optimizing opportunities for health, participation and security in order to enhance the quality of life as people age (World Health Organization, 2003). In active-ageing, elderly people are considered as consumers in various types of employment. However, there are many questions to be addressed when planning cities with ageing populations such as, how does built environment and urban planning should be adopted when the city's s population is aging? how to balance the housing needs of elderly people with the growing demand for real estates from younger people? how to trade-off the needs of ever-diversifying urban populations? And finally who is going to take the responsibility of providing these services with an ever-growing dependent ratio? However, a true age-friendly city is not only focused on one generation but consider all the current and future generations in the area.

Age friendly cities

Most of the cities around the world are now taking steps towards becoming age-friendly with various parameters. The most important question is what exactly makes cities age-friendly? World Health Organization (WHO) has developed "Global Age-Friendly Cities: A Guide" by identifying core features that a city should sustain to become age-friendly. WHO developed this guide based on inputs from large-scale focus group discussions conducted in 35 cities around the world. This guide is based on eight topics that give a comprehensive picture of the city's age-friendliness. These topics cover outdoor spaces and buildings, transportation, housing, social participation, respect and social inclusion, civic participation and employment, communication and information, and community support and health services (World Health Organization, 2003).

Planning for future age-friendly cities

Few main important questions will play a significant role in future urban planning of Sri Lanka with respect to creating sustainability to a rapid increase of the elderly population. The affordability of housing is one important issue to be addressed in an ageing city. Having a strong Asian culture, in Sri Lanka, the family usually takes care of their elderly family members. However, during the past few decades, this tradition has been gradually changed where the proportions of elders living alone have increased steadily due to various reasons such as shrinking of family size, migration for work, and increased female participation in the labor force and interestingly, this rate of increase is



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similar to Japan 40 years ago (ADB, 2019). Today, Japan is suffering from serious socio-economic issues due to a large number of elderly living alone, therefore, there is a probability that Sri Lanka also might face the same challenges in future. One strategy that ageing cities use to solve the affordability challenge is to invest in creating small size dwellings which are more affordable and suitable for both young and old citizens. In contrast, creating larger spaces that could be dwelled by multiple numbers of tenants at the same time is another potential strategy for sustainable housing in an ageing society. This could be much advantage for elders who live alone as it supports to tie up social relationships of senior citizens with like-minded people. Such common residences will provide an opportunity for them to be a part of the community which stimulates their sense of belonging and sense of community. The Netherlands has housing for groups of elders who has roots in the colonial past, such as people with a Netherlands East Indies (and/or Indonesian) and Surinamese background.

Urban green spaces are one of the essential features in age-friendly cities which provide spaces for improving mental and physical health, maintaining social network and providing a sense of belonging among older adults. A study conducted in Hong Kong shows that elderly residents who live in urban areas spend more time in green spaces (Yung, Ho, & Chan, 2017). However, when designing age-friendly outdoor green spaces, they should be well-maintained and safe, should have adequate shelter and toilet facilities, proper seating areas should be available and should be easily accessed. A study conducted in Hong Kong and Taiwan, suggests that 400 m is the best walking distance for easy accessibility of urban green spaces for elderly people (Tan, Lau, Roberts, Chao, & Ng, 2019). Outdoor seating should not only be a requirement in parks but also in transport stops and public places with space at regular intervals.

Improving walkability is another critical fact to be considered as it is strongly related to the quality of life of senior citizens. Safe and comfortable public transportation, pedestrian-friendly walkways, well maintained, smooth level and wide enough pavements should be in urban designs to improve the walkability of neighborhoods. Moreover, in future city planning, even an accessible distribution of services should be a major aspect to be considered.

Urban ageing leads to long-term depopulation in cities which is known as an urban decline of urban shrinkage. Shrinking cities face a new set of complicated challenges which are opposite to urbanization, such as abandoned and increasing housing vacancies, under-utilized infrastructure, an abundance of green spaces, inadequate income options, shrinking public revenue, de-densification etc. Therefore, the complexity of issues created by urban ageing and urban decline need strong policy level involvement to create long-term sustainability in cities.



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Lessons from other countries

Cities that are already experiencing urban ageing have launched many successful programs for the well-being of urban citizens. In order to make streets safer for elderly citizens, the City of New York initiated a program "Transportation's Safe Streets for Seniors" in 2018. This identified the most dangerous aspects in an outdoor environment for senior citizens including insufficient crossing times, holes, pedestrian ramps in disrepair.

Toyama is a city in Japan with declining and super-ageing populations. In order to achieve sustainable city planning, Toyama city is aiming to a "concentrated type of compact city planning through the renovation of public transportation". The aim of this concept is to create an efficient and comfortable compact city through strengthening public transport and integrating many different lifestyle and urban functions. Through creating smaller cities, it is also expected to reduce the city maintenance cost as reducing public revenue is one of the major issues in cities with decline and ageing populations.

In 2016, the London City implemented a network of "Quiteways", a system of side streets along with tree lines, parks and waterways to create a safe environment for older citizens to walk and bike away from the pollution and traffic from main roads.

What we need to do to?

Being a developing country, Sri Lanka will face many economic challenges in future when dealing with an ever-rising elderly population. Therefore, it is very important for us to think more about economically feasible strategies in urban planning and designing. At the same time, it also needs to consider designs with less maintenance cost as public revenue is reduced in ageing cities. In addition, since the public health system of Sri Lanka is free of charge, with the high dependency ratio, the government will have to spend more health expenditure in future. Therefore, a country needs to find financial feasible strategies to meet the challenges of urban ageing.

However, since at present, the country is facing the challenges of urbanization, therefore, when planning for this new future challenge which is totally in contrast to the present, it is much important to balance the requirements of multiple generations live in present and future. Therefore, our urban planning should take more holistic and long-term approaches and need to have policy level reformations. Finally, it is utterly important that all sectors and professions should work together to face this new urban challenge successfully and create a sustainable urban future in Sri Lanka. **References**

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Quotes of the Inco Cent



Source:WWW.diaystore.com

Soft Skills

From the time we wake up, until the time we sleep, we're surrounded by people. Whether you're an extrovert or an introvert, whether you like it or not, you have to interact with people. That's when soft skills come into the picture.

Soft skills are your interpersonal skills sometimes referred to as "people skills". I wish to Call them your "smart skills". Soft skills reflect how you communicate and cooperate with others and involve a variety of attributes including <u>communication</u>, <u>collaboration</u>, <u>problem-solving</u>, <u>social skills</u>, <u>adaptability</u> and more.





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Wise Words about Change your Mind & Life

A wise person knows that there is something to be learned from everyone.



If someone wants to see you, they will find a reason, they will find a way, and they will make the effort.



Ambuj Sony



"Overthinking is the biggest cause of our unhappiness. Keep yourself occupied. Keep your mind off things that don't help you. Be positive."

— 🖊 Karan Gaur

By Editor-IIESL CPB



8 Truths Of Life

Truth no 1 : Nobody is real in this world except Mother.

Truth no. 2 : A poor person has no friends.

- Truth no. 3 : People do not like good thoughts they like good looks.
- Truth no 4 : People respect the money not the person.
- Truth no 5 : The person you love the most, will hurt you the most!
- Truth no 6 : Truth is Simple, But, The Moment YOU try to Explain It, it Becomes Difficult.
- Truth no 7 : When you are happy you enjoy the music", but "when you are sad, you understand the lyrics".

Truth no 8 : IN LIFE Two things define you "Your patience" when you have nothing & "Your attitude" when you have everything..



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CROSSWORD PUZZLE # 2

<u>Across</u>

- 1. A barrier constructed to contain the flow of water.
- 2. A tap with a horizontal inlet and a nozzle arrange discharge in a downward direction.
- 3. A rotary mechanical device that extracts energy from a fluid flow and converts it into useful work.
- 4. Sri Lankan standard construction rate can take from this.
- 5. A column that is driven into the ground to provide support.
- 6. A digital logic gate that implements logical disjunction.
- 7. A large earthen dam on the Missouri River.
- 8. A curved member supporting a vault or defining its form.
- 9. A family or suite of Computer-aided design (CAD) apps supporting the product, design for discrete manufacturers and is developed.
- 10. The inclined platform used to get from one level to another.
- 11. A full bore or fully ported type of control valve uses a pinching effect to obstruct fluid flow.

<u>Down</u>

- 1. A slotted hinged metal plate forming part of a fastening for a door or lid, fitted over a loop and secured by a pin or padlock.
- 2. A unit of measurement of magnetic induction.
- 3. The structure forming the upper covering of a building.
- 4. A projecting horizontal beam fixed at one end only.
- 5. The resistance of a liquid to flowing.

By Mr. Udayanka Wijayarathne

Member of the Social and Welfare Subcommittee-IIESL CPB

We invite and encourage you to send us an article for INCO CENT Vol 05.

"A person who wrote badly did better than a person who does not write at all. A bad writing can be corrected. An empty page remains an empty page".

Articles can be on,

- 1. General Engineering articles.
- 2. News important and useful for the members
- 3. Poetry and criticisms on art
- 4. Religious articles and Food Thoughts
- 5. Humor
- 6. Members views on current affairs
- 7. Retro Items such as crossword puzzles to reintroduce the joy of life.
- 8. Language Lessons
- 9. Support for document preparation [CDR etc.]
- 10. Lesson learnt stories or current topics or any of his/her experience related to engineering.
- 11. Work Place Safety (Since the majority are engaged in the industry)

After your draft is edited by the editorial board, you will have the opportunity to make further improvements.

We would like to inform that family member [spouses and kids] of IIESL-CPB members and Nonmembers an opportunity to ride across the fascinating world of writing.

Article Submission Due Date: 15-Jun-2021

Please feel free to e-mail at <u>iieslcpbeditor@gmail.com</u> or WhatsApp me at 0777886400 with your photograph. Eng. Chathurani Gunathilaka IIESL CPB Editor







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Be a member of Senkadagala Toastmasters Club

and improve your communication and Leadership skills.

President - 070 2472884

VP Education - 077 9196108



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President - 077 348 7072

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Toastmasters & Life

Many people become surprised when they hear about Toastmasters at first. Many assume it might be someplace where people get together and learn to cook. Outsiders have lots of questions about what it does and if it is similar to other famous international organizations like Rotary or Lions. My definition of Toastmasters is that 'it is a place you will find everyone supporting and inspiring you to become a better person.

A toastmaster is a non-profit educational international organization that excels in teaching public speaking and leadership skills through a worldwide network of clubs. It began in 1924 and since then it has helped people from diverse backgrounds become more confident speakers, communicators and leaders. It is spread in 145 countries and with over 16,200 clubs.

As a student when I was 18 years old I could speak but I couldn't speak in front of an audience full of strangers. I felt nervous and my body would go cold. My words would stutter and eventually there will be more mistakes than I had thought. I wanted to overcome it and I found a place. They all called themselves Toastmasters and everyone was very welcoming. I was nervous but the

atmosphere in the club made me feel at ease. For the first time when I did a prepared speech, I got an evaluation pointing out my good points and where I must improve. From that point onwards I did many speeches and filled in many roles in the meeting. Naturally making a speech in front of an audience became something comfortable to me. When I began to work my practice in speaking and networking through Toastmasters played a huge role. I had developed the skills to convince, persuade, inspire and communicate with people. Seeing how others opinions of me have become better I realize that all these years my progress was for real.





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It takes time for every Toastmaster to realize their strength and how they are changing. But after several months they begin to realize how delightful it is to invest in yourself for your betterment.

Toastmasters teach us lots of things that are important for our life. Punctuality, Responsibility,

Integrity, Honesty and Respect. Toastmasters won't question your class or your job. It only requires one thing and that is the 'passion to see yourself improve'. I have made many friends that have taught me many things. It is always a mystery when it comes to life and I think Toastmasters is a worthy risk to take.

By TM Jayani Herath Senkadagala Toastmasters Club

Visit www.toastmasters.org



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Please use Block L letters and forward the completed application to the General Secretary. Remit the application fee of Rs. 1000.00 to the account "Institution of Incorporated Engineers Sri Lanka, Central Provincial Branch – Acct no 8794497 of BOC

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North or South, East or West Home is the Best.

Take some Rest, Don't call any Guest.

Enjoy your Home Fest,

Don't have an outgoing Zest.



This is our Life Saving Test.

So, be in your nest;

Wearing FACE MASK is better than

wearing Ventilator MASK.

Washing HANDS is better than washing

your LIFE away.





This is the IIESL-CPB request to all.