VOL: 09

FAS NEWSLETTER 2025

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Contents

Acknowledgement

The Dean, Heads of Departments, all the academic staff and the FAS students are greatly appreciated for providing information for this newsletter.

Disclaimer

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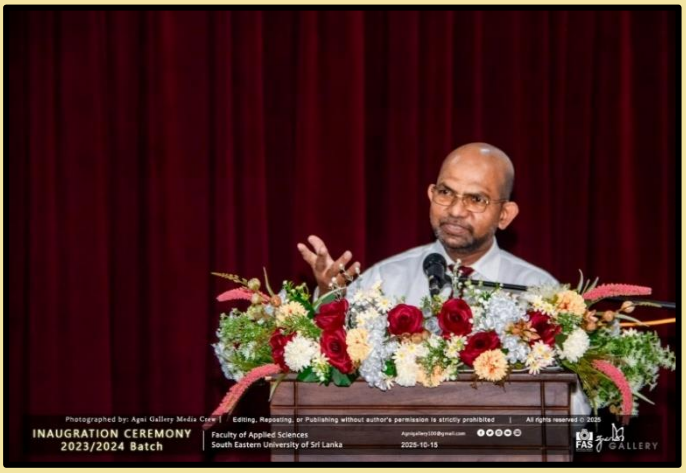
Guidance

Editorial Board

GRAPHICS & LAYOUT DESIGNING

Announcement

1. Inauguration Ceremony of the 2023/2024 Academic Year



On 15th October 2025, the Faculty of Applied Sciences warmly welcomed the 2023/2024 batch of students to the South Eastern University of Sri Lanka. The inauguration ceremony was graced by the Vice Chancellor, Dean, Heads of Departments, and the Academic, Administrative, and Non-Academic staff, marking the start of an exciting journey into a community where curiosity, innovation, and collaboration thrive.

Students were encouraged to explore, learn, and grow together, building friendships and experiences that will shape their academic and personal journeys. The FAS family extends its heartfelt wishes to all newcomers and wishes them that their time here be filled with discovery, inspiration, and success.

Announcement

2. Inauguration Ceremony of the Diploma in Computer Technology (DCT) - 2024/2025 Batch

On 20th January 2024, the Faculty of Applied Sciences warmly welcomed the first batch of students to the Diploma in Computer Technology Programme at the South Eastern University of Sri Lanka. The inauguration ceremony was attended by the Vice Chancellor, Dean, and academic staff, marking the beginning of a promising academic journey.

The programme commenced with religious observances and the national anthem, followed by a welcome address by the programme coordinator, Prof. H.M.M. Naleer. Inspiring speeches were delivered by the Dean of the Faculty of Applied Sciences and the Vice Chancellor, encouraging students to embrace learning, innovation, and personal growth throughout their academic journey.

Students were motivated to make the most of the opportunities provided, and develop both academically and professionally.

The faculty extends its best wishes to all students to gain knowledge and to have success in their initiatives.

Announcement

3. ASRS - 2025

The 14th Annual Science Research Session 2025 was successfully conducted by the Faculty of Applied Sciences, South Eastern University of Sri Lanka (FAS/SEUSL) on 30th October 2025, under the inspiring theme "Next-Gen Solutions: Bridging Science and Sustainability." The event brought together academics and researchers across diverse disciplines and was enriched by the keynote address delivered by Prof. Nasir Hanifa, from the Department of Mathematics and Statistics, College of Science, Sultan Qaboos University, Sultanate of Oman. The research sessions covered a wide range of tracks, including Biological Sciences, Chemical Sciences, Computer Science and IT, Environmental Sciences, Mathematics and Statistics, Agricultural Sciences, Physical Sciences, and Science Education, fostering interdisciplinary dialogue and innovation.

The success of the session was made possible through the dedicated efforts of the organizing team, with Dr. M. A. C. Mohamed Haniffa as the Coordinator, Ms. I. B. K. Thomas serving as the Secretary, and Dr. Thasajini serving as the Treasurer.

4. Annual General Meeting of the Senior Common Room Association (SCRA)

The Annual General Meeting (AGM) of the Senior Common Room Association (SCRA) was held on 28th January 2025 at Sammanthurai. The meeting commenced with a warm welcome from the outgoing committee, followed by the confirmation of the minutes of the previous AGM (2023) and the presentation of the statement of income and expenditure. An overview of the agenda was then presented to the members.

Announcement

A key highlight of the meeting was the **selection of the Executive Committee for the period 2025–2026**. The following members were elected to serve in the SCRA Executive Committee:

Office Bearers

- **President:** Mr. M.A.A.M. Faham
- **Secretary:** Dr. M.M. Mohamed Mufassirin
- **Vice-President:** Dr. T.B.N.S. Madugalla
- **Assistant Secretary:** Mrs. M.A. Farhana
- **Treasurer:** Mr. M.S.M. Imthiyas

Executive Committee Members

- Prof. K. Komathiraj
- Dr. U.L. Zainudeen
- Dr. A.M.N.M. Adikaram
- Dr. M.C. Alibuhtto

The association looks forward to the continued commitment and leadership of the newly elected Executive Committee in organizing activities and strengthening the collegial spirit among members. The event concluded with a delicious lunch, followed by the vote of thanks delivered by the newly elected Secretary.

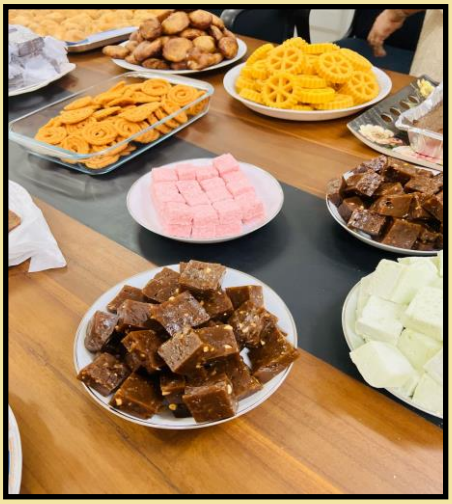
Senior Common Room Association (SCRA) Events

1. SCRA Festival Gathering Party

The **Senior Common Room Association (SCRA)** organized a **Festival Gathering Party** on **29th April 2025** at the **Faculty of Applied Sciences (FAS)** to celebrate **Eid** together with the **Sinhala and Tamil New Year**. The event was designed to promote unity and cultural harmony among staff members.

The gathering was hosted as a **BYO (Bring Your Own) Festival Party**, where members brought their own special homemade dishes to share with colleagues. This unique arrangement created a warm and inclusive atmosphere that celebrated the faculty's rich cultural diversity.

The event featured an impressive variety of **around 30 different sweets, traditional foods, and desserts**, which were shared and enjoyed by all participants. It was a vibrant celebration of diverse cultures, traditions, and fellowship among association members.



2. SCRA Excursion & Lunch Party

The **SCRA Excursion & Lunch Party** was successfully held on **05th November 2025** at **The Kerala Estate (Resort Hotel), Ninthavur**. The event was generously sponsored by the **newly promoted and newly appointed staff members of the Senior Common Room Association (SCRA)**.

The gathering was organized as an **outdoor excursion**, providing members with an opportunity to relax, interact, and refresh themselves through a variety of **fun activities** after their busy academic schedules. One of the unique highlights of the event was the preparation of food by the members themselves, adding a special homemade touch to the occasion.

The event created a pleasant atmosphere for strengthening collegial relationships among members while enjoying a memorable day together.

Staff Appointments & Announcements

1. Dean - Faculty of Applied Sciences

Prof. (Dr.) HMM. Naleer, Professor in Computer Science, has been appointed as the Dean of the Faculty of Applied Sciences, South Eastern University of Sri Lanka, with effect from 01.08.2025 for 3 years.

2. Head of the Department- Biological Sciences

Mr. A.M. Riyas Ahamed, Senior Lecturer (Gr-I) in Biology, attached to the Department of Biological Sciences has been appointed as the Head, Department of Biological Sciences, Faculty of Applied Sciences, SEUSL with effect from 01.07.2025.

3. Head of the Department - Computer Sciences

Mr. AL Hanees, Senior Lecturer (Gr-I) in Computer Science, attached to the Department of Computer Sciences has been appointed as the Head, Department of Computer Sciences, Faculty of Applied Sciences, SEUSL with effect from 02.08.2025.

4. Head of the Department- Chemical Sciences

Mr.M.F. Nawas Senior Lecturer (Gr-I) in Chemistry, attached to the Department of Chemical Sciences has been appointed as the Head, Department of Chemical Sciences, Faculty of Applied Sciences, SEUSL with effect from 02.08.2025.

5. Head of the Department- Physical Sciences

Dr. T. Jaseetharan, Senior Lecturer (Gr-I) in Physics, attached to the Department of Physical Sciences has been appointed as the Head, Department of Physical Sciences, Faculty of Applied Sciences, SEUSL with effect from 25.08.2025.

6. Head of the Department - Mathematical Sciences

Dr. M.C. Alibuhtto, Senior Lecturer (Gr-I) in Applied Statistics has been appointed as the Head of the Department of Mathematical Sciences, effective from September 16, 2025.

Staff Appointments & Announcements

7. Secretary-Teacher's Association of SEUSL (TASEU)

Dr. M. C. Alibuhtto, Senior Lecturer (Gr-I) in Statistics, has been appointed as the secretary of the Teachers' Association of South Eastern University of Sri Lanka, effective from March 04, 2025.

8. Chairman - Sports Advisory Board

Dr. U. L. Zainudeen, Senior Lecturer (Gr-1) in Physics within the Department of Physical Sciences has been appointed as the Chairman of the sports advisory board (SEUSL), effective from 30th June 2025.

9. Deputy Proctor and Academic Career Guidance Advisor

Dr. M. M. M. Mufassirin has been appointed as Deputy Proctor and Academic Career Guidance Advisor of the Faculty of Applied Sciences for a renewable term of two (02) years, effective from 04.07.2025.

10. Senior Student Councilor

Mrs. M. A. Haalisha, Senior Lecturer (Gr-II) in Applied Statistics, attached to the Department of Mathematical Sciences Faculty of Applied Sciences at the South Eastern University of Sri Lanka has been appointed as the Senior Student Counselor, effective from 16th September 2025.

11. Director - office of International Affairs (OIA)

Dr. U.L. Zainudeen, Senior Lecturer (Gr-I) in Physics, has been appointed as the Director, Office of the International Affairs (OIA), effective from 18th September 2025

12. Chaiman - CDC/FAS

Mr. M. A. A. M. Faham, Senior Lecturer (Gr-I) in Mathematics within the Department of Mathematical Sciences has been appointed as the Chairman of the CDC at the Faculty of Applied Sciences, effective from October, 2025 for 3 years.

Staff Appointments & Announcements

New Appointment

Mr. W. A. G. K. Wickramasinghe joined the Department of Physical Sciences, Faculty of Applied Sciences, South Eastern University of Sri Lanka, as a Lecturer (Probationary) in Earth Science with effect from 01st of July 2025. He holds a BSc (Special) Degree in Geology and an MPhil in Geological Sciences from the University of Peradeniya.

Before joining SEUSL, he worked for over 08 years as a Geologist at the Geological Survey and Mines Bureau (GSMB), contributing to geological mapping, mineral exploration, geophysical surveys, and national mineral policy. He also served as a Geologist at the National Building Research Organisation (NBRO) and worked as a Temporary Demonstrator at the Department of Geology and the Postgraduate Institute of Science, University of Peradeniya. He received the GSMB Best Scientist Award (2018) and has published two first-author papers in international peer-reviewed journals.

He is currently a trainee participant of the Linear Training Programme (LTP-OSI) of the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO). He also serves as the Treasurer of the Geological Society of Sri Lanka (GSSL).

Higher Studies

Mrs. A.R. Najitha, Lecturer (Probationary) in Physics at the Department of Physical Sciences, Faculty of Applied Sciences has commenced her PhD studies at the Universiti Kebangsaan Malaysia with effect from February 2025.

Promotions

1.Prof. A.Jahufer

Prof. A. Jahufer, Professor in Applied Statistics at the Department of Mathematical Sciences has been promoted as Senior Professor in Applied Statistics, effective from 09.09.2024.

2. Dr. T.Jaseetharan

Dr. T. Jaseetharan, Senior Lecturer in Physics at the Department of Physical Sciences, has been promoted as Senior Lecturer Gr-I in physics with effect from 27.05.2024.

3. Dr. A.B.Fathima Rifana

Dr. A. B. F. Rifana, Lecturer (Probationary) in Chemistry at the Department of Chemical Sciences has been promoted as Senior Lecturer Gr II in Chemistry with effect from 11.03.2024.

4. Dr. M.M.Mohamed Mufassirin

Dr. M.M.M. Mufassirin, at the Department of Computer Sciences, has been promoted as Senior Lecturer Gr II in Computer Science with effect from 01.04.2021.

5.Dr. W.S. Udayakantha

Dr.Sudesh at the Department of Biological Sciences has been promoted as a Senior Lecturer Gr-II with effect from 13.12.2024

6.Dr. T.M.M.Marso

Dr.T.M.M. Marso, Lecturer in Chemistry at the Department of Chemical Sciences, has been promoted as Senior Lecturer Gr-II in Chemistry with effect from 22.12.2024.

7.Dr. Thasajini Sajeevan

Dr. Thasajini Sajeevan, lecturer (Prob) in Botany at the Department of Biological Sciences, has been promoted as Senior Lecturer Gr - II in Botany with effect from 22.01.2025.

AWARDS

Vice Chancellor Awards

1. Dr. A.M.N Madurya Adikaram

The Researcher with the Highest Number of Indexed Publications in the Faculty of Applied sciences – 1st Place. The Outstanding Senior Researcher in the Faculty of Applied Sciences – 3rd Place.

2. Dr. M.A.C Akmal Jahan

Dr. MAC Akmal Jahan, Senior Lecturer in Computer Science, attached to the Department of Computer Science, received the Vice Chancellor Award-2025 in the Outstanding Senior Researcher category at the Faculty of Applied Sciences, as a 1st place holder. It was confirmed at the 250th meeting of the Senate.

3. Dr. M.H. Haroon

Dr. MH. Haroon, Senior Lecturer in Chemistry, attached to the Department of Chemical Sciences, has been recognized as One of the researchers with the highest number of Indexed Publications in the Faculty of Applied Sciences ranked 2nd Place, and was recognized as the Outstanding Senior Researcher in the Faculty of Applied Sciences – 2nd Place.

4. Dr. T.Jaseetharan

Dr. T. Jaseetharan, Senior Lecturer Gr – I in Physics, attached to the Department of Physical Sciences received the Vice Chancellor's Award – 2025 for 'The Researcher with the highest number of indexed publications in the Faculty of Applied Sciences – 3rd Place. Also, he received the Vice Chancellor's awards-2025-under the category of "Top 10 Researchers of the University" on 28.05.2025.

AWARDS

Senate Honours Award

Dr. M.A.C Akmal Jahan

Senate Honours Appreciation for the indexed publication titled Quality Assessment of Degraded Palmprints Using Enhancement Filters in the International Journal of Image, Graphics and Signal Processing. It was confirmed at the 250th meeting of the Senate.

Best Paper Award

Dr. M.A.C Akmal Jahan, Senior Lecturer in Computer Science, Department of Computer Science, has received the Best Paper Award at the IEEE International Joint Conference on Biometrics (IJCB) 2025, held in Osaka, Japan. The IJCB is a premier, top-tier venue for biometric research, ranked as a B-category conference by the CORE ranking system. It is organized by the IEEE Biometrics Council and the International Association for Pattern Recognition (IAPR) through the merger of the IEEE BTAS and IAPR ICB conferences.

High-Indexed Journal Publications

Dr. T.Jaseetharan

1. **Title of the paper -** Exponential developments of quantum dots ecosystem for solar energy conversion and photocatalytic reactions: From photo anode design to renewable energy applications.

Authors- Sunil Kumar, Niranjan Patra, Ismail Hossain, Abhinay Thakur, T. Jaseetharan, Navinchandra Gopal Shimpi.

Name and indexing-Materials Research Bulletin, Science Citation Index Expanded

2. **Title of the paper: Efficiency** enhancement in dye-sensitized solar cells through neodymium-doped graphene quantum dot-modified TiO_2 photoanodes.

Authors: G.K.R. Senadeera, W.M.S.K. Weerasekara, T. Jaseetharan, P.U. Sandunika, J.M.K.W. Kumari, M.A.K.L. Dissanayake, Mohammad Muhiuddin, Mohammad Rizwan Rahman, Udaya Bhat, Mohammad Waseem Akhtar, Udaya Kumar, A.B. Siddique, Piyasiri Ekanayake

Name and indexing-Physica B: Condensed Matter

Mr. S.V.T.D.Raveendrasinghe

1. **Title of the paper** - The influence of Cenozoic fluid expulsion on the seafloor morphology of the Vulcan Sub-basin, northwest Australia: Implications of gas chimneys and linear diapirs for hydrocarbon exploration.

Authors- Wang, Z., Raveendrasinghe, T.D., Luan, X., Jin, L., Wang, Y., Ma, H., Wang, J.

Name and indexing- Marine and Petroleum Geology- Scopus, WoS

2. **Title of the paper** - Tensile Fracture Propagation in Deep Coalbed Methane Layers Under Brazilian Test: A Quantitative Analysis Using Digital Rock Technology and Deep Learning-Based Image Segmentation

Authors - Naser Golsanami, Dingrui Guo, Shanilka G. Fernando, Mustafa Kumral, Lishuai Jiang, Thanuja Raveendrasinghe, Behzad Saberali, Ghasem Saedi, Weihcao Yan, Elham Bakhshi, Qazi Adnan Ahmad, Olga V. Dolbnya, Roman Kozlov, Mahmoud Behnia & Madusanka N. Jayasuriya

Name and indexing- Scopus, WoS

High-Indexed Journal Publications

Dr. M.N.M. Farhath

1. **Title of the book chapter** - Marine phenolic compounds and their halogenated derivatives: Structure, properties, isolation, characterization, and medical applications", Marine Specialized (Secondary) Metabolites and their Diverse Applications, edition 1, Thilina Jayawardena, Asanka Sanjeewa, Elsevier Inc., 2025,

Authors - Mohamed M. Farhath, Murthi S. Kandanapitiyeb, Rumesh Liyanagec, Niwanthi Dissanayaked, Vidura Thalangamaarachchiged, and Rohan S. Dassanayakec

Paperback ISBN: 9780443298431
eBook ISBN: 9780443298448

2. **Title of the book chapter -** Polymer and Biopolymer Nanocomposites", Polymer and Biopolymer Nanocomposites: Recent Advances and Applications, edition 1, Muhammad Moniruzzaman, A. Vijaya Bhaskar Reddy, Woodhead Publishing: Elsevier Inc., 2025

Authors - Danushika C. Manatunga, Murthi S. Kandanapitiye, Mohamed M. Farhath, Niwanthi Dissanayake, Vidura Thalangamaarachchige, and Rohan S. Dassanayake

Paperback ISBN: 978-0-443-26625-6

eBook ISBN: 978-0-443-26626-3

3. **Title of the paper**- Non-toxic Bi_2S_3 quantum dot-sensitized TiO_2 electrodes for cost-efficient solar power conversion

Authors-Senevirathne K.M.B.B., Murthi S. Kandanapitiye, Dinusha N. Udukala, Mohamed M. Farhath*, Dalia Fouad, Yedluri Anil Kumar, T. Jaseetharan.

Name and indexing - ElectrochimicaActa, 507, 145121, 2024.

4. **Title of the paper**-A comprehensive review on hydrogen production, storage, and applications

Authors-Chamila Gunathilake, Ibrahim Soliman, DhrubaPanthi, Peter Tandler, Omar Fatani, Noman Alias Ghulamullah, Dinesh Marasinghe, Mohamed Farhath, Terrence Madhujith, KirtConrad,jYanhai Du, MietekJaroniec.

Name and indexing-Chem. Soc. Rev., 2024,53, 10900-10969

5. **Title of the Patent** - Modulating Human Tyrosine Hydroxylase Expression Through Control of Specific G-Quadruplex Formation.

Inventers :SoumitraBasu, Nathan Beals, Mohamed M Farhath, Prakash Kharel
Publication date: 2024/9/5
Patent office: US
Patent publication no: Publication of US20240294919A1

High-Indexed Journal Publications

Mrs. M.N.F. Fajila

1. **Title of the paper** - Mutable Composite Firefly Algorithm for Microarray-Based Cancer Classification.

Authors- Fajila, F., & Yusof, Y.

Name and indexing- Scopus, WoS

2. **Title of the paper**-Multi-Leader Dynamic Composite Salp Swarm Algorithm for Biomarker Selection in Cancer Classification.

Authors- Fajila, F., & Yusof, Y.

Name and indexing- Scopus, EI Compendex

Dr. B.R.C.P.Samarasinghe

Title of the paper- Effect of storage on seed vigour and germinability of selected rainforest species from Sri Lanka

Authors-Samarasinghe, B.R.C.P., Jayasuriya, K.M.G.G., Gunaratne, A.M.T.A & Dixon, K.W.

Name and indexing- Journal of Forest Science (Springer Nature)

Science Research Centre (SRC) Events

The **Science Research Centre (SRC)** of the Faculty of Applied Sciences, South Eastern University of Sri Lanka, organized **a series of Scientific Talks** at the Lecture Theatre, Faculty of Applied Sciences focusing on diverse themes in science with the aim of promoting research culture and knowledge sharing among academics and students.

The **first talk** in SRC Scientific series was delivered by **Dr. M.M. Mohamed Mufassirin,** Senior Lecturer in Computer Science, on **28th May 2025**. The presentation, titled **"From Data to Discovery: AI-Driven Research in Science,"** explored the transformative role of **Artificial Intelligence in modern scientific research**. The seminar highlighted how AI technologies are accelerating data analysis, enabling new research methodologies, and supporting breakthrough discoveries across multiple scientific disciplines.

The **second talk** in this Series was delivered by **Dr. A.B.F. Rifana**, Senior Lecturer in Chemistry, on **16th July 2025.** The presentation titled **"Hydrogen: The Future Fuel – A Computational Journey into Clean Energy Storage"** highlighted the potential of hydrogen energy and its role in advancing a **green and sustainable energy future**.

Dr. Thasajini Sajeevan, Senior Lecturer in Botany, delivered **the third talk** in this Series on 19th August 2025. The presentation titled **"The Hidden Science Behind Seed Dormancy and Its Role in Plant Survival and Agriculture"** discussed the scientific mechanisms of seed dormancy and its significance for plant survival and agricultural sustainability.

Sinhala and Hindu New Year Celebration 2025

Student Activities

Bidayat Al-Rihlah Program

Bidayat Al-Rihlah was successfully held on 3rd January 2026 at 9:30 a.m. at the Auditorium, Faculty of Applied Sciences, South Eastern University of Sri Lanka.

THE POSSESSED- Social Night 2025

THE POSSESSED – Social Night 2025 took place on February 1st, 2025, at the auditorium of the Faculty of Applied Sciences, South Eastern University of Sri Lanka. Brought to life by the 20/21 batch, the evening stood as a meaningful celebration of togetherness and shared purpose. The gathering symbolized the values of solidarity, commitment, and perseverance, opening the door to fresh beginnings and inspiring participants to step forward on a collective path filled with hope and determination.

Student Activities

Seya Ruu -Street Art Competition

Seya Ruu – Street Art 2025 was held on July 6th, 2025, at the faculty premises of the Faculty of Applied Sciences, South Eastern University of Sri Lanka. Organized by the 21/22 batch, the event unfolded as a powerful expression of creativity and youthful imagination. More than an artistic display, it transformed ordinary spaces into living stories, where colors, ideas, and emotions spoke louder than words. Seya Ruu stood as a celebration of freedom, vision, and the courage to express identity through art.

Student Activities

Cricket Tournament – SPL 2.0

The cricket tournament SPL 2.0 was successfully held on 12th and 13th July 2025 at Seerah Ground, organized by the 2021/2022 batch.

Student Activities

Chemina-Movie Night

Movie Night 2025, hosted by ChemSoc – the Chemical Society of the Faculty of Applied Sciences, South Eastern University of Sri Lanka, took place on November 18th, 2025. The evening showcased the films Black and Get Out, offering a thrilling and captivating cinematic journey for all attendees. Held at the Auditorium & Lecture Theater, the gathering united students and faculty in a delightful celebration of storytelling, laughter, and shared enjoyment.

Mathematical Society-11.11 Movie Night

Movie Night 2025, organized by the Mathematical Society of the Faculty of Applied Sciences, South Eastern University of Sri Lanka, was celebrated on November 11th, 2025. Featuring the films Black and Get Out, the evening offered a thrilling and immersive experience that captured the imagination of all attendees. Held at the Auditorium & Lecture Theater, the event created a vibrant atmosphere of enjoyment, friendship, and shared memories among students and faculty.

Student Activities

Harithasara-2025

The 19/20 and 20/21 batches of the Faculty of Applied Sciences, South Eastern University of Sri Lanka organized a “Harithasara” program on 5th January 2025.It has been organized to clean up the area around Ampara city.

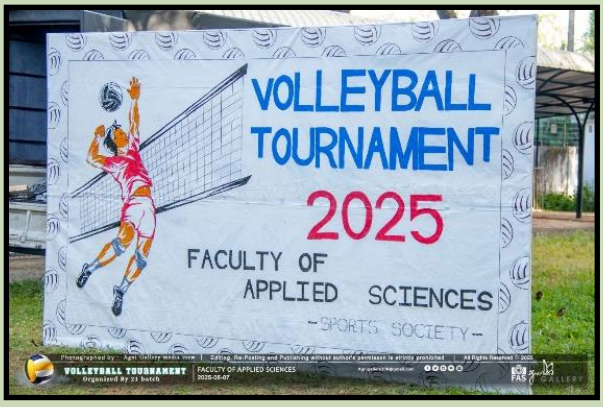
Gimhanayaka Maima-Educational program

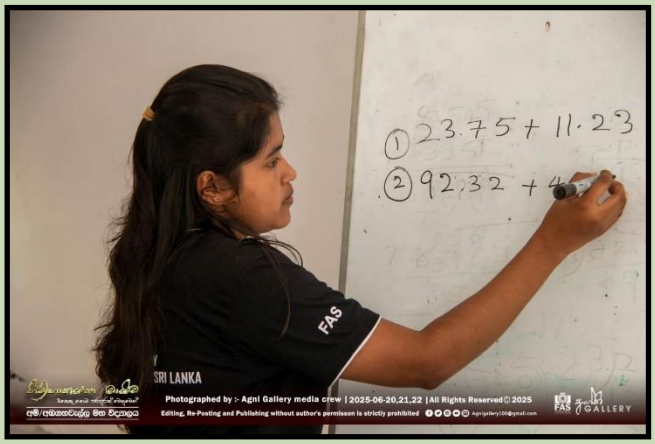
The Academic Society of the Faculty of Applied Sciences, South Eastern University of Sri Lanka, organized “Gimhanayaka Maima”, an educational program conducted on selected weekends throughout the year. We teach Mathematics and Science subjects for students in rural areas.

Student Activities

Volleyball Tournament

The Faculty of Applied Sciences, South Eastern University of Sri Lanka, successfully hosted its annual Volleyball Tournament on 7th June 2025, organized by the 21/22 batch. The tournament witnessed thrilling matches and enthusiastic participation from teams, making the event a remarkable success. Many memorable moments from the action-packed day were captured through our lenses.





Student Activities

Blood Donation Program

The Faculty of Applied Sciences, South Eastern University of Sri Lanka, hosted a Blood Donation campaign on August 4th 2025, bringing together both students and staff in support of a noble cause. The event highlighted the spirit of generosity and compassion, as donors and volunteers worked together to make a meaningful difference.

Their selflessness helped save lives, proving that simple acts of kindness can have a lasting, powerful impact.

Social Harmony Function

The 21/22 batch of the Faculty of Applied Sciences, South Eastern University of Sri Lanka, successfully conducted a social harmony function, themed “Unity in Diversity” on 31st July 2025. This function is organized to fulfill the requirements of the Social Harmony subject, which was an Auxiliary course for Level-II students.

Elderly Home Program

The 21/22 batch of the Faculty of Applied Sciences, South Eastern University of Sri Lanka, organized an Elderly Home Program on February 08th 2025, at Sarana Elderly Home, Ampara.

Student Activities

Agni Vaishakya Mangalya

The Agni Vaishakya Mangalya and Bakthi Geetha programs were held on May 13th and 14th, 2025, and were organized by the Buddhist Society of the Faculty of Applied Sciences, South Eastern University of Sri Lanka. The event was conducted in commemoration of Vesak, promoting spiritual reflection, religious harmony, and Buddhist values among students through devotional songs and cultural performances.

Student Activities

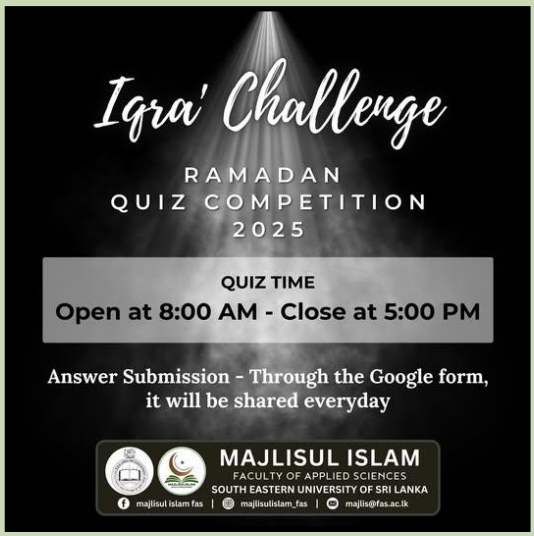
1. Tree Planting Campaign

A tree planting campaign was successfully organized at our hostel by Majlisul Islam on 04th of February 2025, with enthusiastic participation from our community. Together, we planted numerous seedlings, taking a meaningful step toward environmental sustainability and a greener future.

2. Iqra Quiz Competition

Majilisul Islam conducted the *Iqra Quiz Competition* for our faculty undergraduates during the month of Ramadan on 02nd of March 2025. The purpose of this program was to enhance students' knowledge, especially in Islamic studies, and to encourage learning and reflection during the blessed month.

The competition was both educational and engaging, promoting unity and intellectual growth among students.



3. ShutterScape

ShutterScape 2025 was a Mobile Photography Competition organized by Majlisul Islam – FAS, SEUSL. The event was successfully held from 19th to 23rd May 2025, inviting participants to capture meaningful moments through mobile photography. It included two categories: FAS Undergraduates of South Eastern University of Sri Lanka and an Open Category for external participants.

4. Set and Kills Volleyball tournament

The SET & KILL – Volleyball Tournament 2025 was successfully held on 01st of June, 2025 at the FAS Volleyball Ground. The tournament brought together enthusiastic players and energetic supporters for a day filled with teamwork, strategy, and competitive spirit. Organized jointly by the Hindu Society – FAS, SEUSL, and Majlisul Islam – FAS, SEUSL of the South Eastern University of Sri Lanka, the event aimed to strengthen unity and friendship among undergraduates while promoting physical fitness and sportsmanship.

5. Eid -Al- Wahda

Eid Al Wahda 2025 was successfully organized by the Majlisul Islam-FAS, SEUSL, in our faculty to celebrate the blessed Hajj festival on 14th of June 2025. The event brought together students to share the joy and spirit of Eid in a vibrant and meaningful way.

The celebration featured a variety of activities, including a lively food stall with delicious traditional dishes, a beautifully arranged mehendi stall that attracted many participants, and engaging stage performances that added color and excitement to the occasion.

Student Activities

6. Motivation and Guidance Program By Dr. Shafi Sihabdeen

The Motivation & Guidance Program was successfully held on 28th July 2025 at the Auditorium of the Faculty of Applied Sciences, South Eastern University of Sri Lanka. The session was organized by Majlisul Islam – FAS, SEUSL

7. Guide and Grow Continuous Seminar

Guid & Grow marked the beginning of a meaningful journey driven by dedication, vision, and teamwork. As part of the Continuous Seminar Series: An All-Island School Visit, the project was initiated to guide and mentor school students across the country.

Students Achievements

17th general convocation

The 17th general convocation of the South Eastern University of Sri Lanka was held on 3rd and 4th, 2025, to celebrate academic excellence and recognize outstanding graduates for their achievements.

Dr. Ashraff Memorial Medal for the Best Student in Science was awarded to Abdul Mubarak Fathima Sihatha Sino, and the Prof. Sultanbawa Memorial Medal for the Best Student in Chemistry was awarded to Mohamed Fowzer Fathima Rushdha from the 2017/2018 batch.

Feature Article

Distinctive Features of Semiconductor Quantum Dots in Nanotechnology

Dr. T. Jaseetharan
Department of Physical Sciences
FAS, SEUSL

Semiconductor Quantum Dots (SQDs) have attracted extensive attention with different applications including light emitting diodes, solar cells, and sensors due to their unique size-dependence of optical, electronic, magnetic, catalytic, and mechanical properties. Nanomaterials are materials that have at least one dimension in the nanometer (nm) range. Nanostructures can be classified into two-dimensional nano materials (quantum wells), one-dimensional nano materials (quantum rods or quantum wires), and zero-dimensional structures (quantum dots). In semiconductor quantum dots, charge carriers are confined in all three dimensions.

The properties of the quantum dots strongly depend on size, and charge carriers can occupy only discrete energy states. Excellent size-dependent optoelectronic properties of QDs are

- Tunable energy gap (quantum confinement effect)
- Multiple Exciton Generation (MEG)

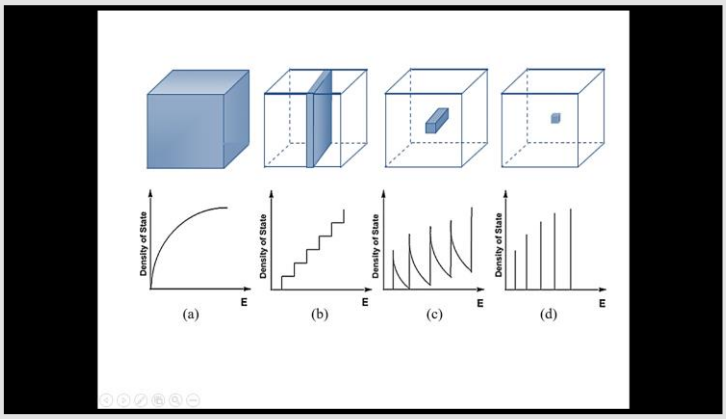


***Figure 1**: Quantum confinement of (a) bulk material (b) quantum well (c) quantum rod and (d) quantum dot.*

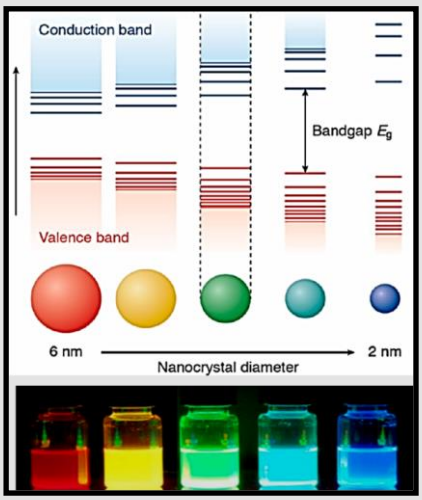


***Figure 2**: Quantum confinement effect (J. Phys. Chem. Lett. 2017, 8, 4077−4090)*

If the energy of a photon is greater than the bandgap of a bulk semiconductor, only one electron-hole pair (exciton) is created, and the excess energy is released in the form of heat. But, if the energy of the incident photon is greater than the bandgap of the SQD, it can generate more than one exciton. Here, the excess energy of the hot carrier creates an additional exciton. This phenomenon is called multiple exciton generation.

In addition to these properties, SQDs have high molar extinction coefficients. Among the several applications, quantum dot-sensitized solar cells have gained more attention recently in the area of solar power conversion systems due to their low production cost.

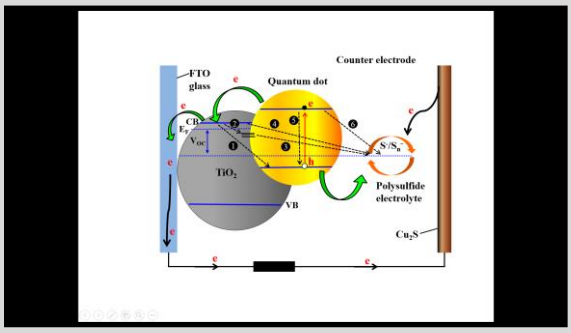


***Figure 3**: Working mechanism of quantum dot-sensitized solar cell*

Under the illumination, quantum dots are excited to a higher energy state, and excitons are created. Then the excited electrons are injected into the conduction band (CB) of the TiO_2. Electrons diffuse through the nanoporous TiO_2 and reach the conducting glass substrate (FTO glass) and enter the external load (electric lamp, rechargeable battery, etc.). Finally, these electrons reach the counter electrode and regenerate the oxidized component. This process will be repeated under the illumination of light.

SQD - based solar cells, Infrared detectors, UV detectors, heavy metal detection sensors, harmful hydrocarbon detection sensors and electro-chromic display research works are carried out at the Advanced Physics Laboratory, Department of Physical Sciences, Faculty of Applied Sciences, South Eastern University of Sri Lanka with the collaboration of Condensed Matter Physics & Solid State Chemistry Laboratory, National Institute of Fundamental Studies, Department of Nano science Technology, Faculty of Technology, Wayamba University of Sri Lanka and College of Chemical Sciences, Institute of Chemistry Ceylon.

Feature Article

Smarter Decisions with Skewed Data: A Statistical Perspective from Quality Control

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Introduction

In many areas of science, industry, and everyday life, decisions are made based on data. Whether assessing the quality of manufactured products, evaluating the effectiveness of medical treatments, analyzing customer behavior, or estimating system reliability, these decisions often rely on the assumption that data behave in a regular and balanced manner. In reality, however, most real-world data are not perfectly symmetrical. Instead, they tend to be skewed, where many observations cluster around smaller values while a few extreme values appear on one side of the distribution. This data imbalance poses an important challenge to reliable decision-making. The traditional approaches that assume symmetry may not always provide accurate conclusions when the data are uneven. For this reason, modern statistical methods increasingly focus on developing improved approaches for acceptance and rejection decisions that can effectively handle skewed data. Although such methods were originally developed in areas like industrial quality control, their relevance extends far beyond manufacturing, influencing fields such as healthcare, technology, and broader data-driven decision-making.

Understanding Variability in Real-World Data

Most of the fields are familiar with the average (mean) as a quality parameter to summarize data. However, data collected from practical settings, such as product lifetimes, waiting times, medical recovery periods, hospital stays, or income levels, often exhibit skewness, with long tails and extreme values. In such situations, the arithmetic mean may fail to accurately represent a typical outcome because a small number of unusually large or small observations can distort the overall picture and lead to misleading conclusions. Statistical practice, therefore, increasingly emphasizes the use of more robust measures, particularly the median.

Unlike the mean, the median reflects the typical experience and remains stable even when extreme observations are present. For this reason, it provides a more reliable basis for inference and decision-making when data depart from ideal symmetric assumptions. This principle is widely recognized in modern data science and analytics, where robust statistical summaries are preferred for analyzing real-world, skewed datasets.

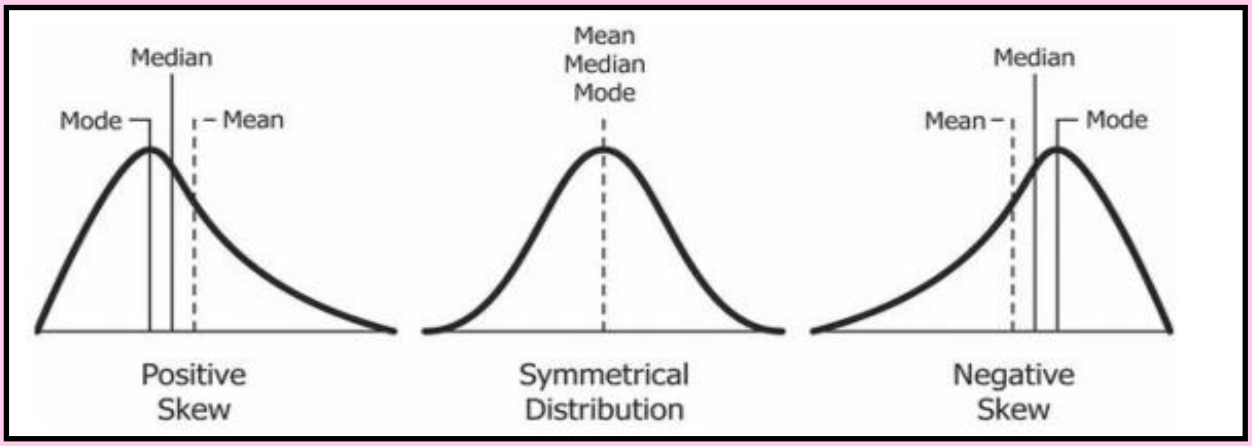

Figure 1: Behavior of Central Tendency Measures under Skewed Distributions

Balancing Errors in Decision-Making

As decisions are based on variable information, all decisions based on data have a certain level of uncertainty, which can lead to many types of costly errors in practice. For example, consumers may risk purchasing poor-quality products, producers may risk rejecting items that actually meet required standards, and individuals may make incorrect choices when decisions rely on biased or incomplete data. In quality control, these risks are often expressed as two opposing errors: rejecting a product that satisfies the standards and accepting a product that is defective. Effective decision-making, therefore, requires balancing these competing risks to minimize overall loss and maintain consistent quality.

Modern statistical methods set decision rules that manage both types of risk simultaneously rather than minimizing only one error. Such approaches rely on data-driven optimization techniques that create fairer and more efficient rules for acceptance and rejection. Similar trade-offs appear in areas such as healthcare diagnostics, risk assessment, and predictive analytics. This philosophy closely parallels the principles used in data science and machine learning, where models are evaluated not only for accuracy but also for their ability to balance false alarms and missed detections.

Broader Applications Beyond Industry

Although these ideas originate from statistical quality control, their relevance is much broader. Robust decision-making principles are equally important in:

- Healthcare, where patient outcomes and recovery times are often unevenly distributed
- Technology and engineering, where failure times and performance measures show variability
- Business and economics, where consumer behavior and financial data are rarely symmetric
- Public policy, where decisions rely on imperfect and heterogeneous data sources.

In all these contexts, recognizing skewness and choosing appropriate analytical tools leads to more reliable and transparent conclusions.

Conclusion

Effective decisions depend not only on the availability of data but also on how well that data is understood and summarized. Recognizing patterns such as skewness, diagnosing variability, selecting robust statistical measures, and carefully balancing uncertainty are essential components of responsible data analysis.

In conclusion, acknowledging and addressing skewness in data is not merely a technical refinement but a necessary step towards ensuring reliable, interpretable, and equitable decision-making across a wide spectrum of applications.

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Feature Article

Breaking the Memory Wall: The Future of Energy-Efficient AI Hardware

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Introduction

Artificial Intelligence (AI) is rapidly transforming fields such as health care, education, transportation, and smart systems. As AI models scale to billions of parameters, the demand for computation and data processing continues to grow. However, traditional computing architectures are increasingly unable to support these demands efficiently, particularly due to limitations in speed, energy consumption, and data movement.

The so-called "memory wall", a bottleneck caused by the physical separation of memory and processing units, is at the heart of this problem. This architectural constraint has become an important barrier to achieving effective AI performance. In response, researchers are looking into new hardware design paradigms that rethink how computation is performed. Compute-in-Memory (CIM), neuromorphic computing, and stochastic hardware are among the most promising approaches. These techniques are aimed at making AI systems faster and more energy-efficient.

The Memory Wall Problem

Most conventional computing systems are built upon the **Von Neumann Architecture**, where memory and processing units operate as separate components. While this design has served general-purpose computing well, it becomes inefficient when handling data-intensive AI workloads. In such systems, data must be continuously transferred between memory and processors, resulting in significant overhead. It increases energy consumption, slows down processing due to latency, and ultimately limits system performance. In fact, in many modern AI applications, the energy required to move data exceeds that used for actual computation. This imbalance is what defines the memory wall problem. It is one of the most critical challenges in growing AI technologies.

Compute-in-Memory (CIM): A Paradigm Shift

Compute-in-Memory (CIM) architectures differ significantly from traditional architectures in that computational capabilities are integrated directly into memory units. Instead of transferring data to a central processor, CIM allows computations to occur in place where the data is stored. This approach dramatically reduces the need for data movement. Therefore, it reduces energy consumption and fasters processing speeds. Additionally, CIM architectures enable high levels of parallelism, as multiple memory cells can perform computations simultaneously. These characteristics make CIM particularly well-suited for AI workloads by addressing the limitations imposed by the memory wall problem.

Neuromorphic Computing: Inspired by the Brain

Neuromorphic computing draws inspiration from the structure and functioning of the human brain. Unlike conventional artificial neural networks that process data continuously, neuromorphic systems employ Spiking Neural Networks (SNNs), which operate using discrete, event-driven signals.

In SNNs, neurons activate only when specific thresholds are reached, mimicking biological neural behavior. This results in sparse computation, where processing occurs only when necessary. Such an approach significantly reduces unnecessary operations, leading to substantial energy savings. When combined with CIM architectures, these systems can further enhance efficiency by reducing both computation and data transfer overhead.

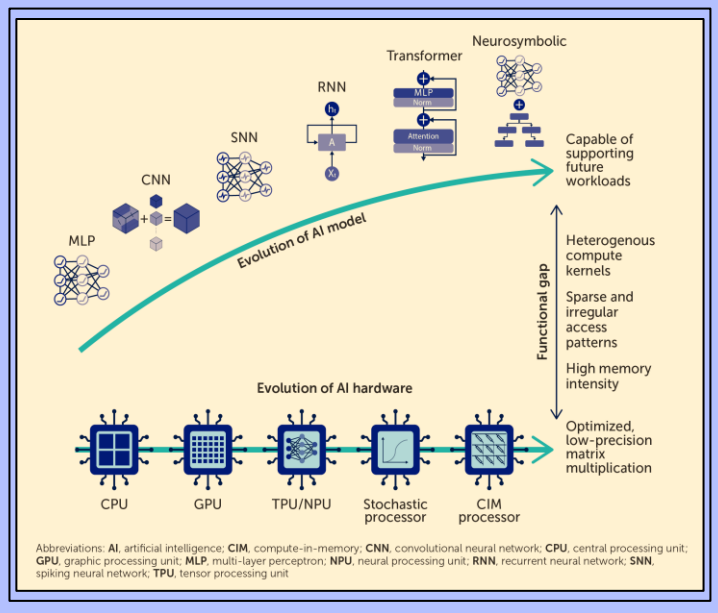

Figure 1: illustrates the evolution of AI models and hardware over time (Roy et al., 2025).

Stochastic Hardware: Embracing Approximation

Another innovative direction in AI hardware design is the use of stochastic computing, which leverages the inherent tolerance of AI algorithms to small computational errors. Unlike traditional systems that aim for exact precision, stochastic hardware introduces controlled randomness into computations.

This approach allows for simplified circuit designs and reduced computational complexity. Since many AI models can maintain performance even with approximate calculations, stochastic hardware can achieve significant energy savings without substantially compromising accuracy. By adopting approximation, this paradigm prioritizes efficiency and scalability over the traditional belief that greater precision always results in better performance.

Conclusion

The memory wall remains a critical challenge in modern AI systems. Emerging solutions such as Compute-in-Memory, neuromorphic computing, stochastic hardware, and co-design approaches provide effective ways to overcome this limitation. By reducing data movement and improving efficiency, these technologies are paving the way for scalable and sustainable AI systems that can support future innovations.

Keywords

AI Hardware, Memory Wall, Compute-in-Memory, Neuromorphic Computing, Edge AI, Energy Efficiency

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2025

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