St. PETER'S
INSTITUTE OF HIGHER EDUCATION & RESEARCH
(DEEMED TO BE UNIVERSITY u/s 3 OF THE UGC ACT 1956)
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Avadi, Chennai - 600 054, Tamil Nadu.

ANNUAL PROGRESS REPORT FOR SDG 17 – 2024

17.3.17. University publishes progress against SDG 17

St. Peter's Institute of Higher Education and Research (SPIHER) strongly supports **SDG 17: Partnerships for the Goals**, recognizing that meaningful progress toward sustainable development can only be achieved through collaboration and shared responsibility. SPIHER actively builds partnerships with government bodies, industries, academic institutions, and non-governmental organizations to advance education, research, and community initiatives aligned with the UN Sustainable Development Goals (SDGs).

The university engages in **academic collaborations** and **research partnerships** with national and international institutions to promote innovation, technology transfer, and knowledge exchange. Through Memoranda of Understanding (MoUs) with reputed organizations, SPIHER provides students and faculty opportunities to participate in joint research projects, conferences, internships, and training programs focused on sustainability, renewable energy, biotechnology, and environmental conservation.

SPIHER also collaborates with **local communities and government agencies** on outreach projects addressing issues such as clean water access, waste management, sustainable agriculture, and skill development. These initiatives empower communities while fostering a culture of shared learning and impact. The institution's partnerships with NGOs and social organizations ensure that students gain real-world exposure to SDG implementation through community engagement, volunteering, and service-learning.

Moreover, SPIHER encourages **industry linkages** to bridge the gap between academia and practice. Partnerships with corporate and industrial partners help promote green innovation, entrepreneurship, and sustainable business practices that align with global sustainability frameworks.

Research Articles published under SDG 17

1. Jamil D, Iqbal A, Bhattarai B, Rahman MM, Ganesh EN, Asim M, Rafique T, Abbasi MA. Sustainable Fraud Detection in Green Finance Empowered With Machine Learning Approach. Remittances Review. 2024 Jan;9(1):1897-914.

Remittances Review
January, 2024
Volume: 9, No: 1, pp. 1897-1914
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DOI: https://doi.org/10.33282/rr.vx9i1.82

SUSTAINABLE FRAUD DETECTION IN GREEN FINANCE EMPOWERED WITH MACHINE LEARNING APPROACH

Danial Jamil[*1], Ahmed Iqbal[2], Bijaya Bhattarai[3], Md Mahbubur Rahman[4], Dr.E.N.Ganesh[5], Muhammad Asim[6], Tariq Rafique[7], M Asjad Abbasi[8]

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*Corresponding author

Abstract—Prior to machine learning, businesses would employ a rule-based strategy to identify fraud by examining recurring and obvious indicators. Countless fraud scenarios are executed by pure rule-based algorithms, which are personally crafted by an individual. The goal of the paper is to create precise deep learning and machine learning models for the Green Finance fraud detection. Fraud in real-time transactions cannot be detected by conventional rule-based methods. The study tackles the problem of unbalanced data by using the PaySim dataset, which replicates mobile transactions. The performance of a number of algorithms is assessed, including Random Forests, Recurrent Neural Networks, and K-Nearest Neighbors. To uncover hidden patterns in user transactions, the application of long short-term memory models and artificial neural networks is investigated. The study talks about difficulties including data cleaning and tweaking hyperparameters. The results support the development of more precise and effective fraud detection systems, which helps Green Fiannce lower losses and preserve consumer confidence.

Keywords: Classification of fraud versus non-fraud, Grouping Identification of anomalies, Amount of transaction, Frequency of transactions.

2. Vasantha-Srinivasan P, Han YS, Karthi S, Senthil-Nathan S, Park KB, Radhakrishnan N, Ganesan R, Karthick K, Malafaia G. Phytochemical strategies for combating Spodoptera litura (Fab.): a review of botanicals and their metabolites. Toxin Reviews. 2024 Oct 1;43(4):591-633.

TOXIN REVIEWS
https://doi.org/10.1080/15569543.2024.2379239

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REVIEW ARTICLE

Phytochemical strategies for combating *Spodoptera litura* (Fab.): a review of botanicals and their metabolites

Prabhakaran Vasantha-Srinivasan[a], Yeon Soo Han[a], Sengodan Karthi[b], Sengottayan Senthil-Nathan[c], Ki Beom Park[d], Narayanaswamy Radhakrishnan[e], Raja Ganesan[f], Kalvikkarasan Karthick[g] and Guilherme Malafaia[h,i]

[a]Department of Applied Biology, Institute of Environmentally-Friendly Agriculture (IEFA), College of Agriculture and Life Sciences, Chonnam National University, Gwangju, Republic of Korea; [b]Department of Entomology, College of Agriculture, Food and Environment, University of Kentucky, Lexington, KY, USA; [c]Division of Biopesticides and Environmental Toxicology, Sri Paramakalyani Centre for Excellence in Environmental Sciences, Manonmaniam Sundaranar University, Tirunelveli, Tamil Nadu, India; [d]Research & Development Center, Invirustech Co., Inc., Gwangju, Republic of Korea; [e]Department of Bio-Chemistry, Saveetha Medical College and Hospital, Saveetha Institute of Medical and Technical Sciences (SIMATS), Chennai, India; [f]Department of Biotechnology, Faculty of Science and Humanities, SRM Institute of Science and Technology, Tamil Nadu, India; [g]Department of Biotechnology, School of Life Sciences, St. Peter's Institute of Higher Education and Research, Chennai, Tamil Nadu, India; [h]Post-Graduation Program in Conservation of Cerrado Natural Resources, Goiano Federal Institute, Urutaí, GO, Brazil; Post-Graduation Program in Ecology, Conservation, and Biodiversity, Federal University of Uberlândia, Uberlândia, MG, Brazil; [i]Post-Graduation Program in Biotechnology and Biodiversity, Federal University of Goiás, Goiânia, GO, Brazil

ABSTRACT

The adverse effects of the lepidopteran pest, *Spodoptera litura* (Fab.) on crops, result in significant economic losses due to decreased crop productivity and the cost of pest control measures. Using synthetic chemicals to manage this polyphagous pest can adversely impact the environment and contribute to the development of pesticide resistance in other insects. Integrated pest management strategies, including biological control agents, are often recommended to manage *S. litura* infestations in a more sustainable and environmentally friendly manner. Compared with synthetic chemicals, herbal pesticides are generally considered nontoxic for the environment. They often have lower toxicity toward non-target organisms, thus reducing the risk of harming beneficial animals and other wildlife. Botanicals include a variety of phytocompounds that can potentially help in managing polyphagous pests, such as *S. litura*. Improving herbal-based nano-pesticides (Hb-Np) that can serve as carriers for bioactive compounds would enable their controlled and targeted release. Therefore, the present review aims to highlight the impact of different resistance mechanisms employed by the lepidopteran larvae against synthetic chemicals and efficacy of herbal extracts, essential oils, and herbal-based nano-formulations in targeting the polyphagous pest, *S. litura*, and the key challenges associated with sustainable pest management in the agriculture sector.

ARTICLE HISTORY
Received 7 February 2024
Revised 2 April 2024
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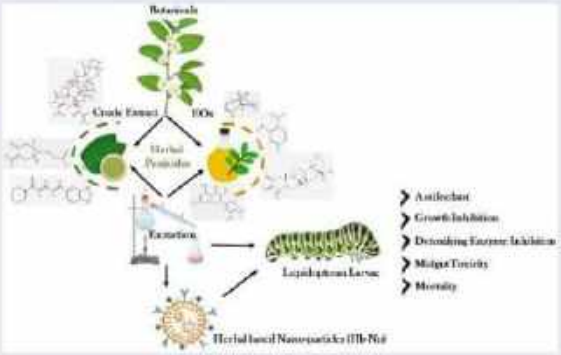
KEYWORDS
Botanicals; essential oils; chemical resistance; phytocompounds; mode of action; green pesticides

GRAPHICAL ABSTRACT



CONTACT Sengottayan Senthil-Nathan senthil@msuniv.ac.in Division of Biopesticides and Environmental Toxicology, Sri Paramakalyani Centre for Excellence in Environmental Sciences, Manonmaniam Sundaranar University, Tirunelveli, Tamil Nadu, 627412, India; Yeon Soo Han hanys@chonnam.ac.kr Department of Applied Biology, Institute of Environmentally-Friendly Agriculture (IEFA), College of Agriculture and Life Sciences, Chonnam National University, Gwangju, 61186, Republic of Korea.

Supplemental data for this article can be accessed online at https://doi.org/10.1080/15569543.2024.2379299.

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FDP on Emerging patterns in cyber security and digital forensics

The Faculty Development Programme (FDP) on Emerging Patterns in Cyber Security and Digital Forensics serves as a collaborative platform aimed at strengthening knowledge-sharing networks, technological expertise, and institutional partnerships. In alignment with SDG 17: Partnerships for the Goals, the programme brings together academicians, industry professionals, researchers, and technology experts to address global challenges related to cyber safety, digital evidence management, and online security governance.

Through interactive sessions, hands-on training, and expert lectures, the FDP fosters multi-stakeholder collaboration—an essential component of SDG 17. Participants gain insights into advanced security frameworks, cyber threat detection, forensic investigation techniques, and the responsible use of digital technologies. The programme also facilitates partnerships between educational institutions, cybersecurity agencies, and industry leaders, enabling the exchange of best practices and strengthening global capacity for secure digital ecosystems.

By promoting interdisciplinary cooperation and enhancing professional competencies, the FDP contributes to building resilient digital infrastructures and improving institutional readiness. These collaborative efforts support global sustainable development by ensuring secure, ethical, and transparent use of technology—an outcome that directly reflects the spirit of SDG 17.

The FDP on Cyber Security and Digital Forensics was conducted on 11th November 2024 at St. Peter's Institute of Higher Education and Research, Avadi, Chennai – 600054, Tamil Nadu. The event was organized by the Department of Computer Science and Computer Applications under the AICTE-approved ATAL FDP program to raise awareness about cyber security and digital forensic science.

During the FDP, discussions were held on the challenges in cyber security and the solutions to address them. The rising incidents of cybercrime in the country were also analyzed. A panel discussion on mobile cyber security with the participation of 50 representatives from various colleges, who shared insights on how cyber security and digital forensics can benefit the industry.

Programme Brochure

Programme Brochure

Vice Chancellor felicitating the Chief Guest

FDP Schedule for 6 days

FDP Application Number : 1717150985
Title of the FDP: Emerging Patterns in Cyber Security and Digital Forensics
FDP Start Date : 11.11.2024 **FDP End Date:** 16.11.2024

Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
9:00 – 9:30 Inauguration					
9:30 – 12:00 Session 1 1. Name of the Expert : Mr.J.Vinothchar. 2. Designation : IT Security Specialist 3. Organization: Cyber Code Private Limited, Chennai 4. Experience in Years: 15 5. Topic to be taught: Open Source Framework for Penetration testing and Tools in Cyber Security.	9:30 – 12:00 Session 3 1. Name of the Expert : Mr.Adarsh Sreesan. 2. Designation : Cyber Security Trainer. 3. Organization:Cyber Code Private Limited, Chennai 4. Experience in Years: 6 5. Topic to be taught: Introduction to Cyber Security & challenges	9:30 – 12:00 Session 5 ,6 1. Name of the Expert : Dr.S.Lydia 2. Designation : Director 3. Organization: Centre for Cyber Forensics and Information Security, University of Madras 4. Experience in Years: 25 5. Topic to be taught: Emphasis on Data Privacy and Compliance & 1. Name of the Expert : Prof. R.Thilagaraj 2. Designation : Director 3. Organization: CDEF 4. Experience in Years: 40 5. Topic to be taught: Rise in Cyber Crime	9:30 – 12:00 Session 8 1. Name of the Expert: Mr. Nihal Babu 2. Designation: Assistant Professor 3. Organization: Centre for Cyber Forensics and Information Security University of Madras 4. Experience in years: 2 5. Topic to be taught: Digital Forensics Latest Tools and Technology	9:00 – 10:30 Industrial visit 1. Name of the Organization: Centre of Excellence in Digital Forensics (COEDF) 2. Complete address with pincode : 4th Cross Street, Kamraj Colony, Chidambaram Nagar, Perungudi, Chennai – 600096 3. Industry Type : Education 4. Area of specialization : Digital Forensics and Information Security Session 10 10:30 – 1:00 1. Name of the Expert : Dr. Rama K Subramanian 2. Designation : Director & CEO 3. Organization: Valiant Technologies Pvt. Ltd. 4. Experience in Years: 37 5. Topic to be taught: Continued Professional Development and Training	9:30 – 12:00 Session 12,13 1. Name of the Expert : Mr. P.R. Ramesh 2. Designation : Senior Technical Project Manager 3. Organization: U.S. Technology International Private Limited 4. Experience in Years: 25 5. Topic to be taught: Expansion of Cloud Forensics 1. Name of the Expert Mr.R.Manimaran 2. Designation : Assistant Professor, 3. Organization CCDEF, 4. Experience in Years: 5 5. Topic to be taught: Application Security and VAPT Tools
12:00 – 1:00 Article Discussion 1.Title of the Research Paper : A Study Of Cyber Security Challenges And Its Emerging Trends On The Latest Technologies 2. Name of the journal: International Research Journal of Modernization in Engineering Technology and Science 3. Year of Publication : Dec 2023	12:00 – 1:00 Article Discussion 1.Title of the Research Paper : The Artificial Intelligence the Strategic Key of Cyber Security 2. Name of the journal: International Journal Of Combinatorial Optimization Problems And Informatics 3. Year of Publication: 2023	12:00 – 1:00 Article Discussion 1.Title of the Research Paper : Cloud Computing Forensics: Challenges and Future Perspectives: A Review 2. Name of the journal: Asian Journal of Research in Computer Science 3. Year of Publication: 2023	12:00 – 1:00 Article Discussion 1.Title of the Research Paper : Data Protection and Privacy 2. Name of the journal: Journal of Data Protection & Privacy 3. Year of Publication: 2023		12:00 – 1:00 Article Summary
1:00 – 2:00 Lunch	1:00 – 2:00 Lunch	1:00 – 2:00 Lunch	1:00 – 2:00 Lunch	1:00 – 2:00 Lunch	1:00 – 2:00 Lunch
2:00 – 4:30 Session 2 1. Name of the Expert : Mr.Sethumurugan 2. Designation : Transformation Leader, Automation Specialist 3. Organization: Infosphere , Chennai 4. Experience in Years: 14 5. Topic to be taught: Information Security and AI with Cyber Security	2:00 – 4:30 Session 4 6. Name of the Expert : Mr. E.R. Ramesh. 7. Designation : Senior Technical Project Manager 8. Organization: U.S. Technology International Private Limited 9. Experience in Years: 25 10. Topic to be taught: Growth in Mobile Forensics	2:00 – 4:30 Session 7 1. Name of the Expert : Ms. Priyadarshini 2. Designation: Assistant Professor 3. Organization: CCDEF 4. Experience in years: 2 5. Topic to be taught: Cyber Law	2:00 – 4:30 Session 9 1. Name of the Expert : Mr. G. Pathiran 2. Designation : Lecturer 3. Organization: Centre for Cyber Forensics and Information Security, University of Madras 4. Experience in Years: 3 5. Topic to be taught: Integration of Artificial Intelligence and Machine Learning	2:00 – 4:30 Session 11 1. Name of the Expert : Mr. C. Vinoth Petra 2. Designation : Assistant Professor 3. Organization: Cyber Forensics and Information Security, Institute of Distance Education, University of Madras 4. Experience in Years: 3 5. Topic to be taught: Collaboration and Information Sharing	2:00 – 4:00 MCQ & Reflection Journal
4:30 – 5:30 Hands on training - Tools Introduced and practice	4:30 – 5:30 Hands on training - Networking Tools	4:30 – 5:30 Hands on training – Ethical Hacking Tools	4:30 – 5:30 Hands on training - Forensics Tools	4:30 – 5:30 Hands on training - EnfiTool	4:00 – 5:00 Valedictory Session

Invited speaker explaining cybersecurity

Invited speaker demonstrating forensics

Invited speaker giving lecture

Group Photo during valedictory function

Public Links

https://www.instagram.com/p/DCMJJ3KvF2k/?igsh=cDhvcXEzczI2ajNh

https://www.facebook.com/share/p/sDX9Jz4RhcmY5m7D/

https://www.linkedin.com/posts/spiherchennai_atal-cybersecurity-digitalforensics-activity-7261344367292919808-2t5a?utm_source=share&utm_medium=member_android

https://x.com/SpiherIndia/status/1855578818150379717?t=BGfd8WLFiztn-xUCHM39iQ&s=19

REPORT ON ALUMNI WEBINAR SERIES

CHEMISTRY AND SUSTAINABLE DEVELOPMENT GOALS

11.03.2024 -13.03.2024

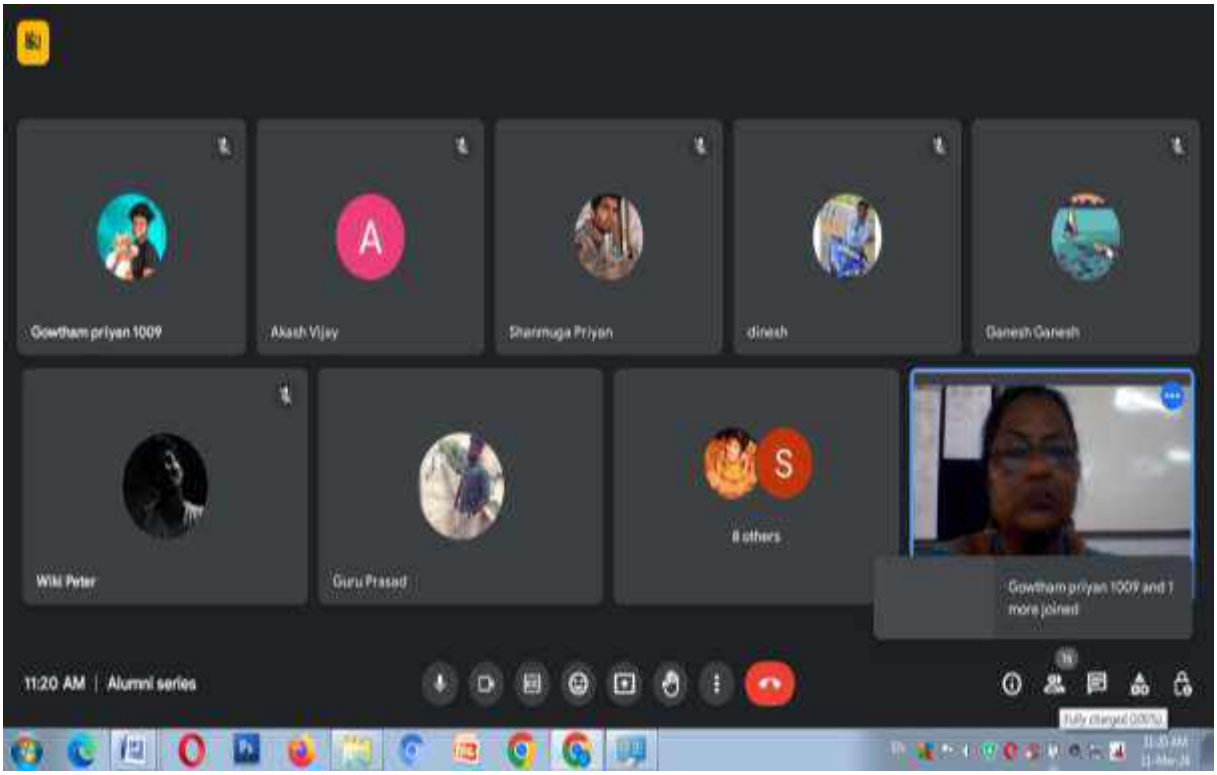
The Department of Chemistry organized Alumni webinar series on **CHEMISTRY AND SUSTAINABLE DEVELOPMENT GOALS** from 11.03.2024 to 13.03.2024. The main **objective** of the webinar is to create awareness among young minds about role of Chemistry in inventing a sustainable future.

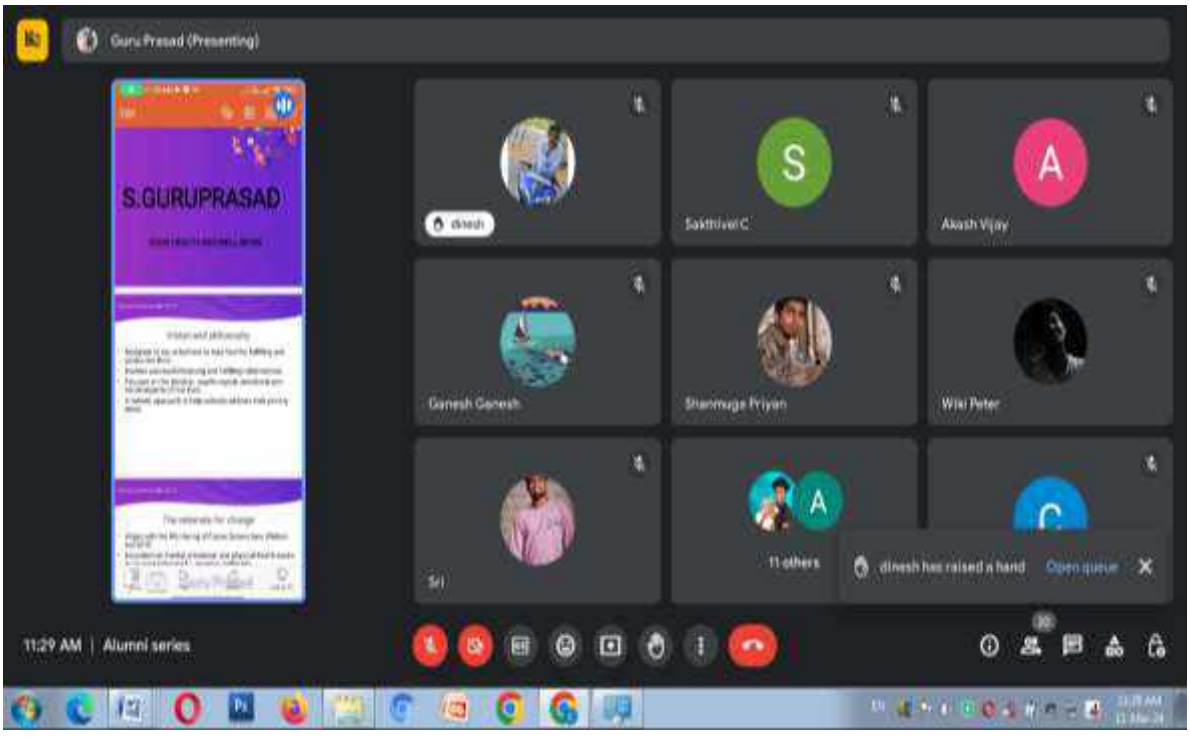
DAY 01-11.03.2024

Speaker: Mr.S.Guruprasad, Business Manager, Troika Pharmaceticals Ltd, Ahmedabad

The first session was completely devoted to **Good Health and Human Being**. He highlighted the importance of physical health, psychological and emotional stability,

and social engagement. He also mentioned that healthy relationships are fundamental to our sense of belonging and well-being.





DAY 1 Webinar Photos

DAY 02-12.03.2024

Speaker: Mr.T.Thirumurthi, Senior Associate, Stelis biopharma, Bangalore

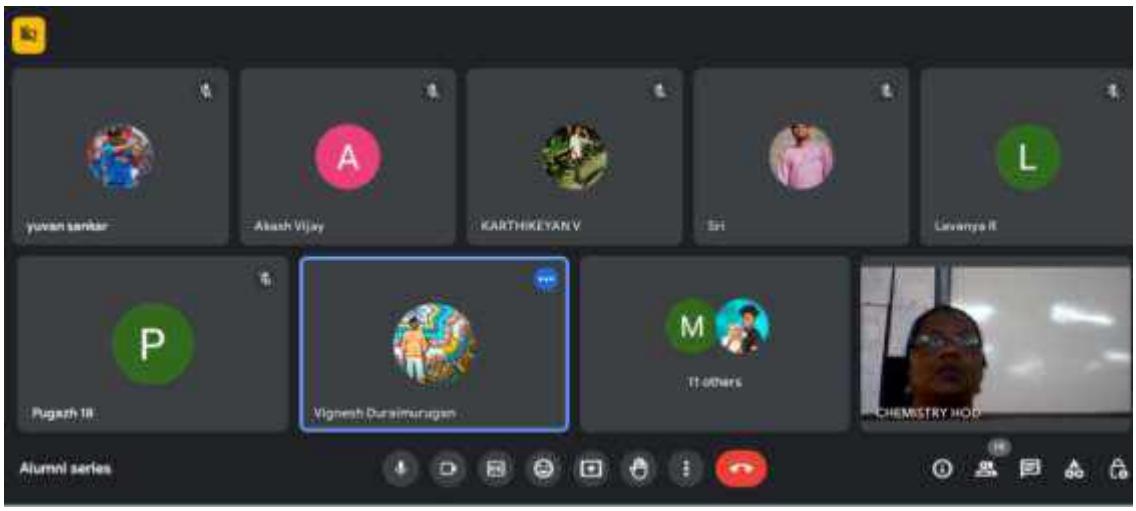
Mr.T.Thirumurthi explained the importance of **Green Chemistry for Sustainable Future**. The speaker related traditional chemical processes which often generate substantial waste with green chemistry in which the waste generation can be minimized through methods such as solvent recycling and catalytic reactions. The pharmaceutical sector has embraced green chemistry by redesigning synthetic routes to reduce the use of hazardous reagents and minimize waste.

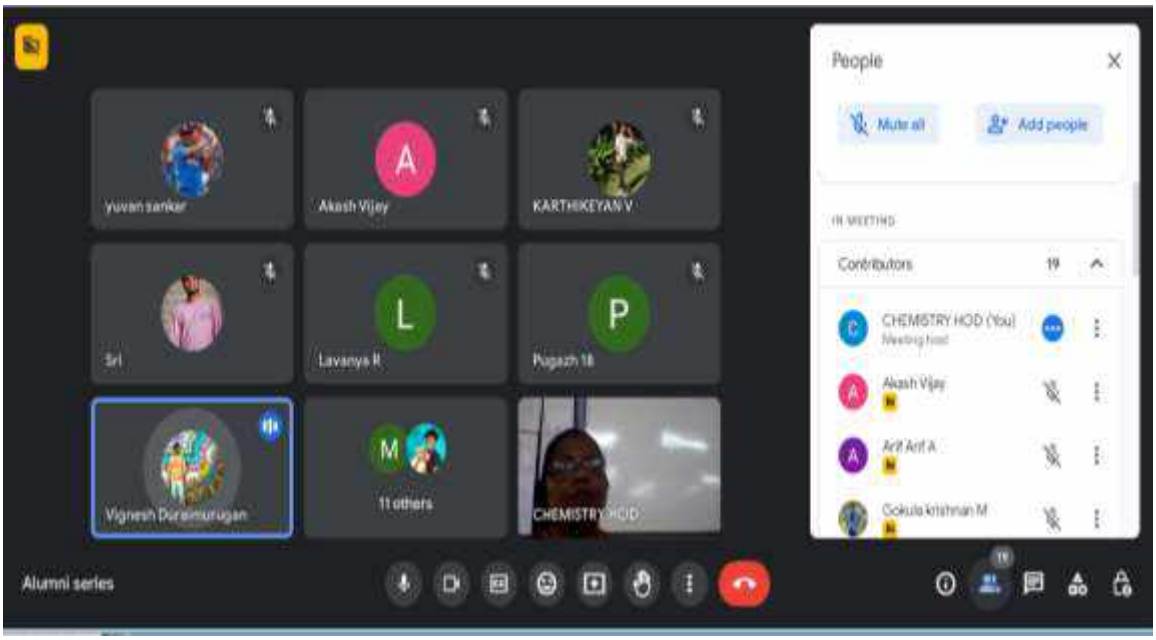
DAY 2 Webinar Photos

DAY 03-13.03.2024

Speaker: Mr.D.Vignesh, Trainee Chemist, Ultramarine Pigments, Chennai

The Speaker demonstrated the health hazards and environmental pollution caused by the artificial pigments and explained the advantages of production of microbial pigments. He insisted on the **sustainable production of bioactive pigments** with examples.





DAY 3 Webinar Photos

Outcome: Students gained knowledge on the role of Chemistry in tackling various challenges and ensuring a sustainable future.

The webinar was attended by 29 participants and came to an end with National anthem.

Department of Computer Science and Applications

Faculty Development Programme on

“FACILITATIVE TEACHING METHODOLOGIES” – 02nd MAR2024

REPORT

On March 2, 2024, at 9.00 a.m., Faculty Development Programme on “Facilitative Teaching Methodologies" by Department of Computer Science and Applications and IQAC in collaboration with CMSDI at our campus was a resounding success!. Dr. R. Latha, Professor and Head of the Department, welcomed the guest and spoke about our Institute, Department, and the understanding of and significance of AI and DS. Dr. S. Brindha, Associate Professor, and Mrs. J.A. Sophiya, Assistant Professor the faculty coordinators, introduced the guest as "Mr.Bernard George, Director, CMSDI & Mrs.Bhanumathi Cousik, Facilitator, CMSDI, Chennai." The guests demonstrate The facilitation methods included Action and Pair, Sketch noting process, Data Mining Process, Ambassadorial-Sharing, Gap Analysis on a Sticky Wall, ORID Framework. The '3-2-1 Process' brought our session to a triumphant close, surpassing all expectations More than 100 faculty members are Participated. The team of participants was outstanding, engaging in collaborative learning and demonstrating high-spirited teamwork. The National Anthem was played after the coordinator, Mrs. R.Vinotha, Assistant Professor, had given the vote of appreciation.

Faculties used Facilitative Teaching Techniques for SDG Goals

"Recent Trends in Biomedical Applications Using AI" online faculty development programme held from January 29 to February 2, 2024

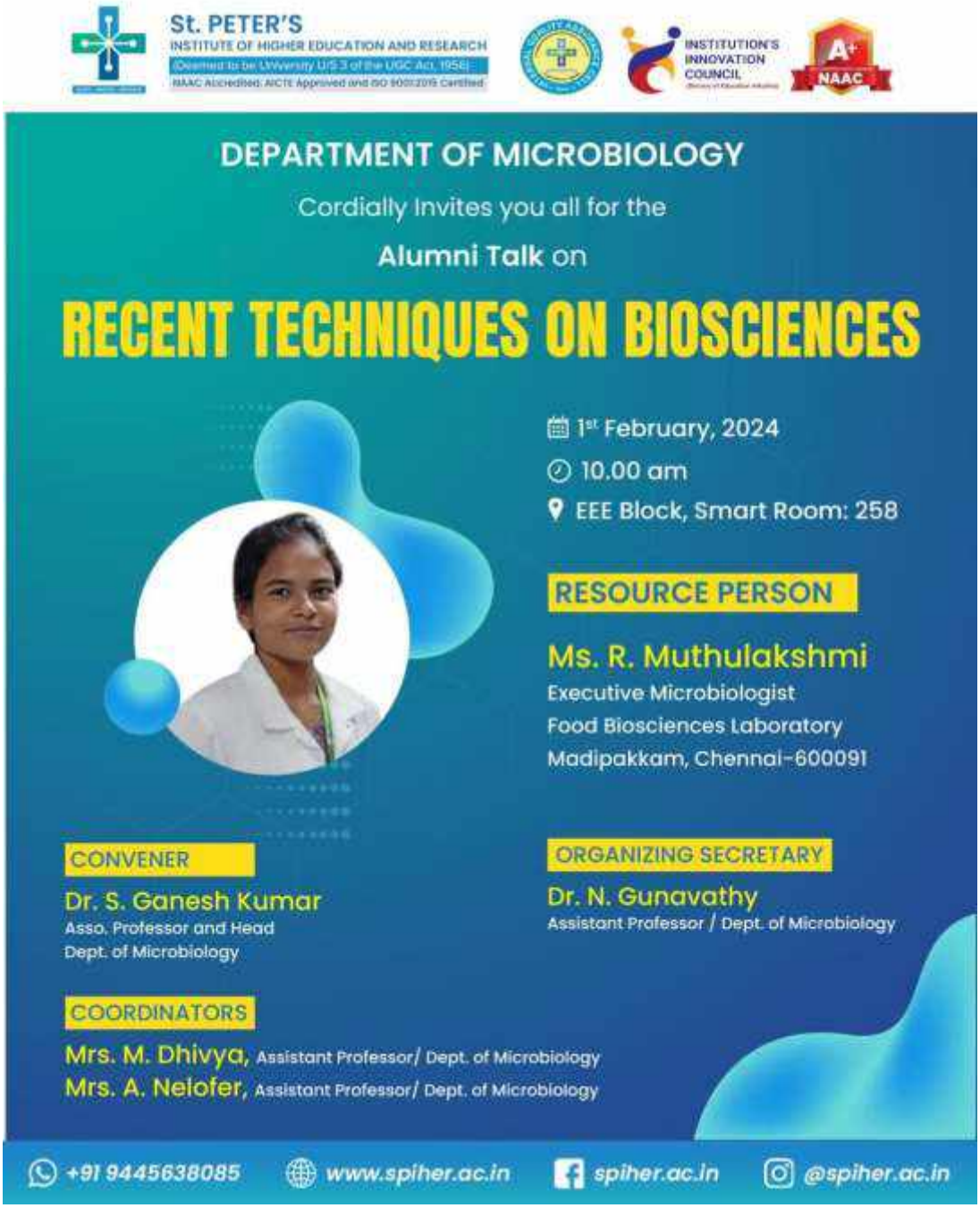
"Staff Development Programme on Empower 360: Knowledge for Wellbeing" organized by the Department of Mechanical Engineering, SPIHER from March 5 to March 7, 2024

Guest lecture titled "FinFET Technology Improvements," organized by the Department of Electronics and Communication Engineering at SPIHER conducted on January 31, 2024

Webinar on "Research towards Sustainable Goals" on 31.01.2024

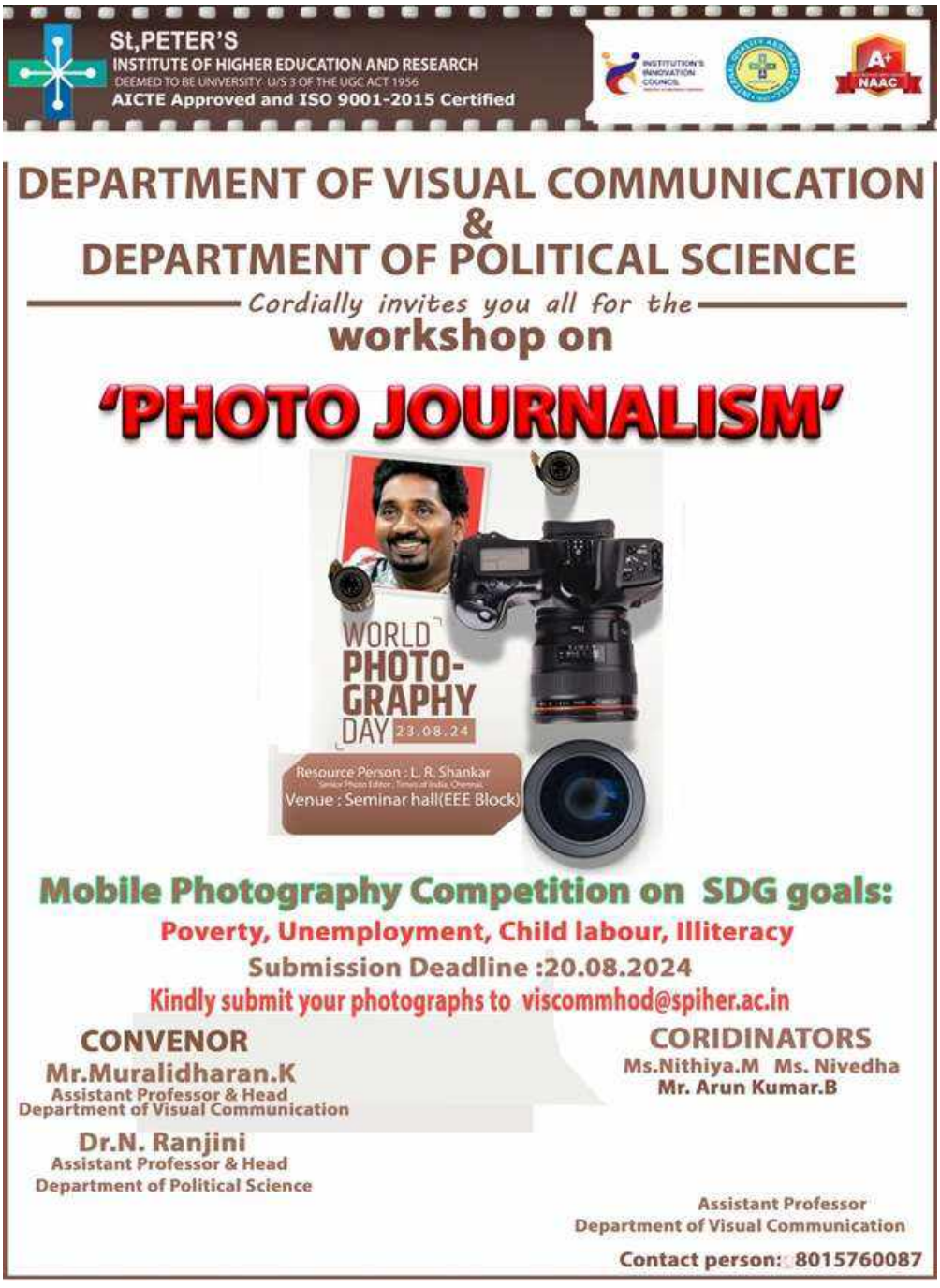
Guest Lecture on "Advanced Techniques in Road safety management"

Alumni Talk on "Recent Techniques on Biosciences"

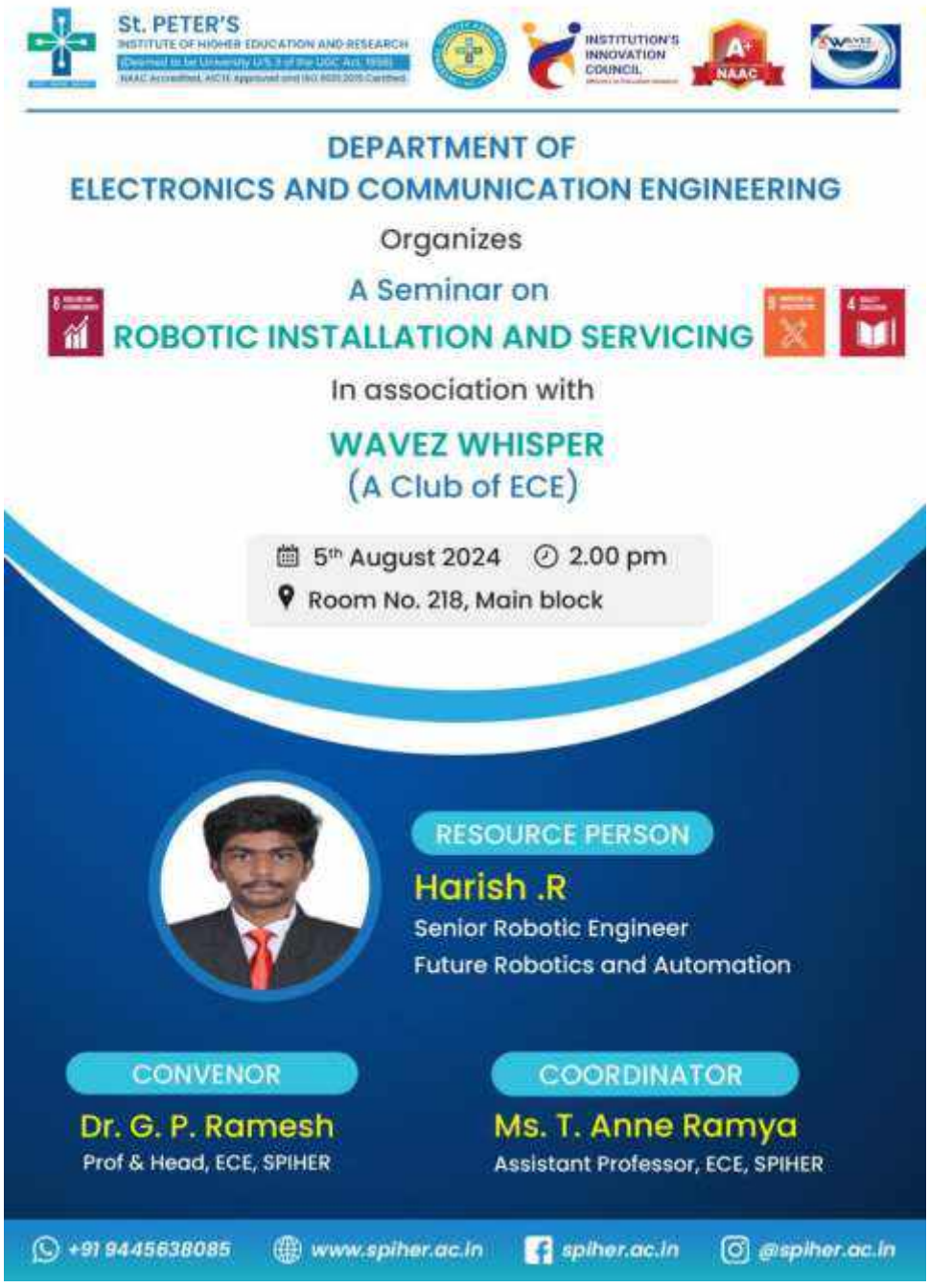


Guest Lecture on "Navigating product Life cycle: Strategies for sustainable growth and market resilience"

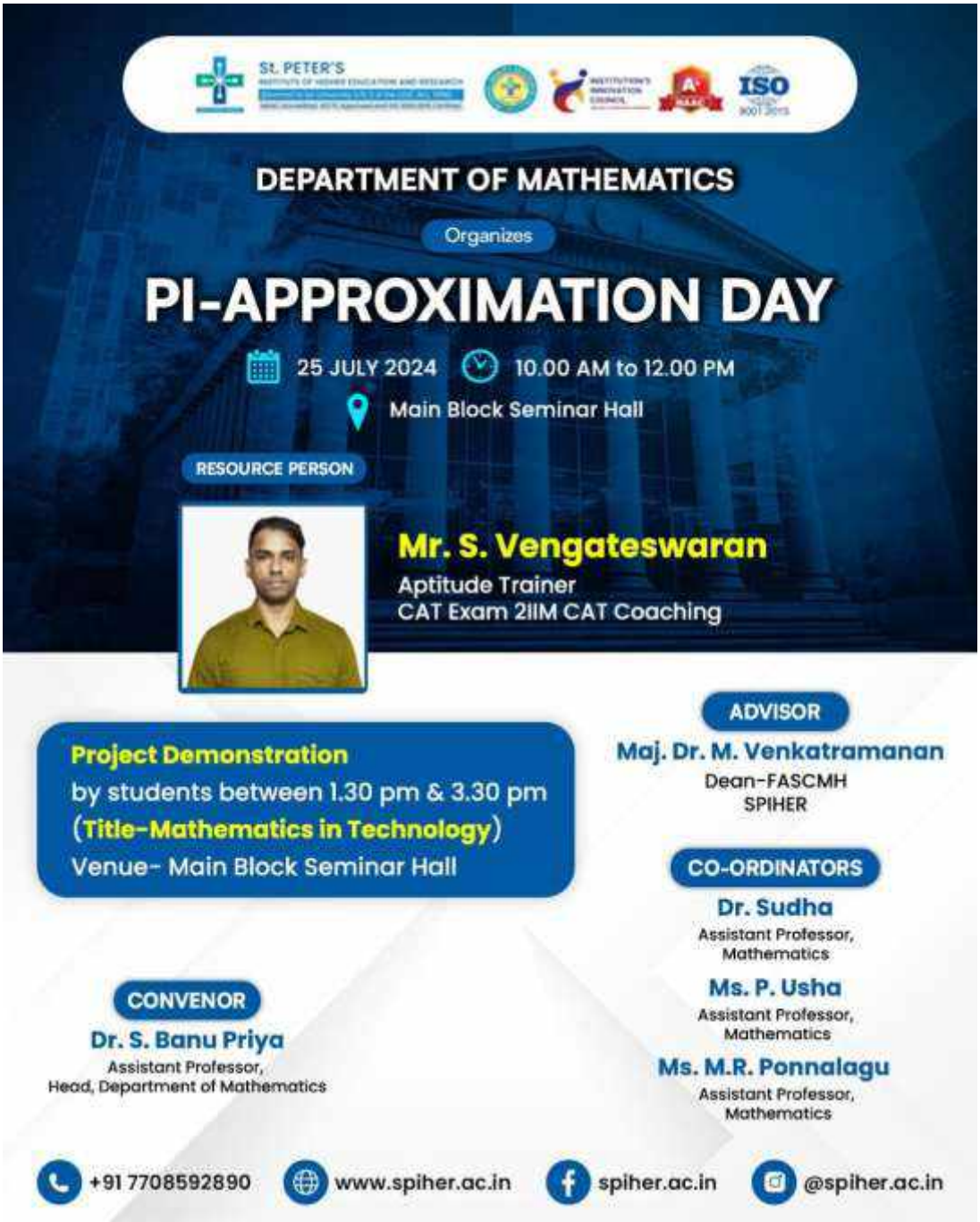
Workshop on "Photo Journalism" on 20th August, 2024



Seminar on "Robotic Installation and Servicing"



PI-Approximation Day on 25th July, 2024



Seminar on Sustainability 4.0 and its Applications in Pharmaceutical Industry

Inauguration of CHEM club 2024 and

Seminar on Artificial intelligence in Chemistry-The future of scientific discovery

Session on How to Plan for Start-up and Legal & Ethical Steps

One week Workshop on Decent Work and Economic Growth

Hands on Training in SPSS

Seminar on Presentation Accessing the Financial Performance of the company

Webinar on Thriving future in Mechanical Engineering

National Science Day: Indigenous Technologies for Viksit Bharat

Alumni Webinar series on Emerging Trends in Construction Industry

Staff Development Programme on Empower 360: Knowledge for Wellbeing

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Virtual FDP on Navigating the Frontiers of AI

Workshop on Entrepreneurship skills, Attitude and Behavioural Development

Alumni series Guest lecture on Recent Trends in Biotechnology

Workshop on Molecular Phylogeny of Cynobacteria

Conclusion:

In conclusion, the institution's efforts demonstrate a strong commitment to strengthening global academic partnerships through continuous engagement in international research, collaborative publications, and cross-border knowledge exchange. By participating actively in multidisciplinary global studies, co-authoring research with international teams, and contributing to scientific advancements across countries, the institution has significantly enhanced its global visibility and academic cooperation. The collaborative research outputs spanning sustainability, healthcare innovation, environmental biotechnology, and finance reflect the institution's dedication to solving global human challenges through shared expertise. These international research engagements not only enrich academic quality but also foster meaningful partnerships that extend beyond geographical boundaries.