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SKCT DIGEST

THE PRIDE OF OUR REFLECTION

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A bird does not sing because it has an answer, it sings because it has a song

-Maya Angelou

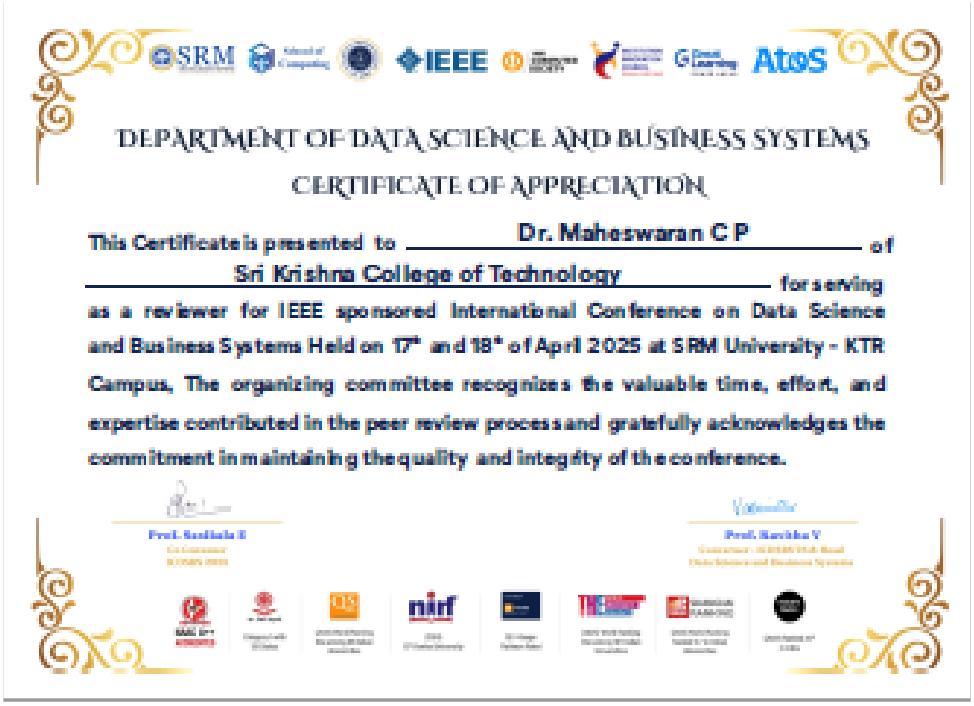
Contact Us

0422-2984567 - 68
Kovaipudur,
Coimbatore - 641 042.

ARTIFICIAL INTELLIGENCE & DATA SCIENCE

FACULTY PARTICIPATION

Dr C P Maheswaran, Professor, served as a **Reviewer** for the IEEE-sponsored International Conference on "**Data Science and Business Systems"** held at SRM University – Kattankulathur Campus.



DEPARTMENT OF DATA SCIENCE AND BUSINESS SYSTEMS

CERTIFICATE OF APPRECIATION

This Certificate is presented to Dr. Maheswaran C P of Sri Krishna College of Technology for serving as a reviewer for IEEE sponsored International Conference on Data Science and Business Systems Held on 17th and 18th of April 2025 at SRM University - KTR Campus, The organizing committee recognizes the valuable time, effort, and expertise contributed in the peer review process and gratefully acknowledges the commitment in maintaining the quality and integrity of the conference.

Prof. Sasikala E

Prof. Ravisha V

ARTIFICIAL INTELLIGENCE & DATA SCIENCE

FACULTY PUBLICATION

Dr K Vimala, Asst. Professor, co-authored a research article titled **"Multiscale Dynamic Attention Framework for Skin Lesion Segmentation and Classification".** The article has been published in the International Journal of Imaging Systems and Technology, indexed in SCI, Web of Science (WoS), and Scopus.

RESEARCH ARTICLE

Multiscale Dynamic Attention Framework for Skin Lesion Segmentation and Classification

G. Prince Devaraj, V. Vanitha, K. Vimala, Praveen Kumar Gupta

First published: 04 June 2025 | https://doi.org/10.1002/ima.70130

ARTIFICIAL INTELLIGENCE & DATA SCIENCE

FACULTY PARTICIPATION

Mr R Arunkumar, Asst. Professor, presented a paper titled **"Revolutionizing Legal Workflows: Advanced AI Techniques for Document Summarization, Legal Translation, and Conversational Assistance"** at ICoACT – 2025.

ARTIFICIAL INTELLIGENCE & DATA SCIENCE

STUDENT PLACEMENT

Mr Thadeus Cruz Govindapillai, Student of Third B.Tech. AI&DS, got placed in **Esko**.

Mr Thadeus Cruz Govindapillai

Reg. No: 727822TUAD057

CSE (CYS)

STUDENTS' INTERNSHIP

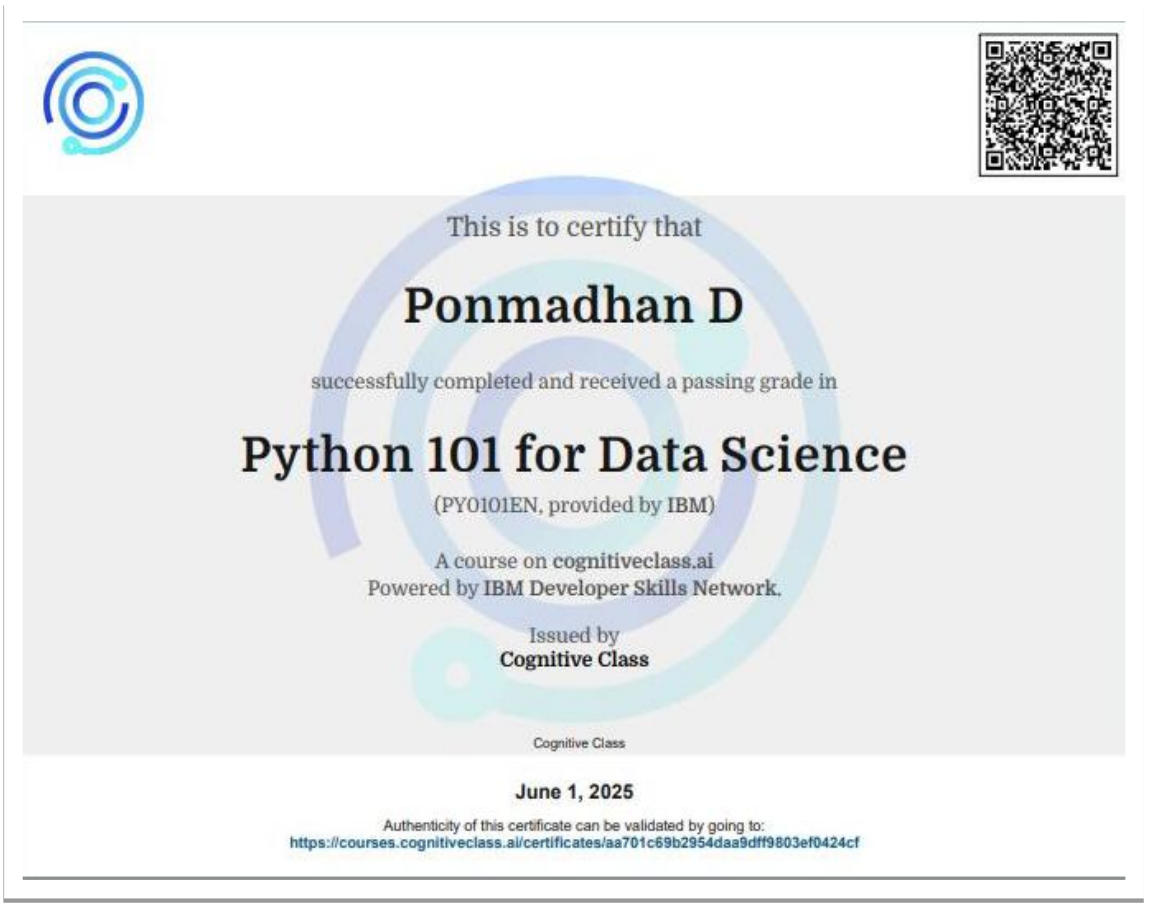
The following Students of Second B.E. CSE (Cyber Security) completed a **31-day Internship Programme** on **"Cyber Security & Ethical Hacking"** during 01 May to 31 May 2025:

- **Mr M Dakkshina**
- **Mr J P Jeeva**
- **Mr V Guruprasad**
- **Mr M Sabarinathan**
- **Mr S Deepak**
- **Mr T Padalinga Praveen**
- **Mr S Hariharan**
- **Mr KK Ram Prabhu**
- **Mr S Thirumurugan**
- **Mr M Santhosh**
- **Mr M Gokul Ram**

CSE (IoT)

STUDENT CERTIFICATION

Mr D Ponmadhan, Student of First B.E. CSE (IoT), completed a course on **"Python 101 for Data Science"** through Cognitive Class on 01 June 2025.



This is to certify that

Ponmadhan D

successfully completed and received a passing grade in

Python 101 for Data Science

(PY0101EN, provided by IBM)

A course on cognitiveclass.ai
Powered by IBM Developer Skills Network.

Issued by
Cognitive Class

Cognitive Class

June 1, 2025

Authenticity of this certificate can be validated by going to:
https://courses.cognitiveclass.ai/certificates/aa701c69b2954daa9dff9803ef0424cf

CSE (IoT)

STUDENT PARTICIPATION

Ms G Navika, Student of First B.E. CSE (IoT), participated in **"Yantra Quest: The National Technology Day 2025 Quiz"** organized by the Technology Development Board (TDB) for 2025.

CSE (IOT)

STUDENT CERTIFICATION

Ms S Jeeva Dharshini, Student of First B.E. CSE (IoT), completed an online course on **"IoT Networking"** offered by **Coursera**.

CSE (IOT)

STUDENT CERTIFICATION

Mr F I Abinash, Student of First B.E. CSE (IoT), completed three online courses on **“Introduction to C++”**, **“AI for Everyone”** and **“IoT Devices”** offered by **Coursera**.

CSE (IoT)

FACULTY CERTIFICATION

Mr S Shanmugaraju, Asst. Professor, completed a course on **"Data Visualization with Python"** on 06 June 2025.

In recognition of the commitment to achieve professional excellence

shanmugaraju.s Assistant Professor

Has successfully satisfied the requirements for:

Data Visualization with Python

Issued on: Jun 06, 2025
Issued by: Coursera

Verify: https://www.credly.com/badges/78c6670a-ac95-438d-afb2-3c0ae4d1af36

CIVIL ENGINEERING

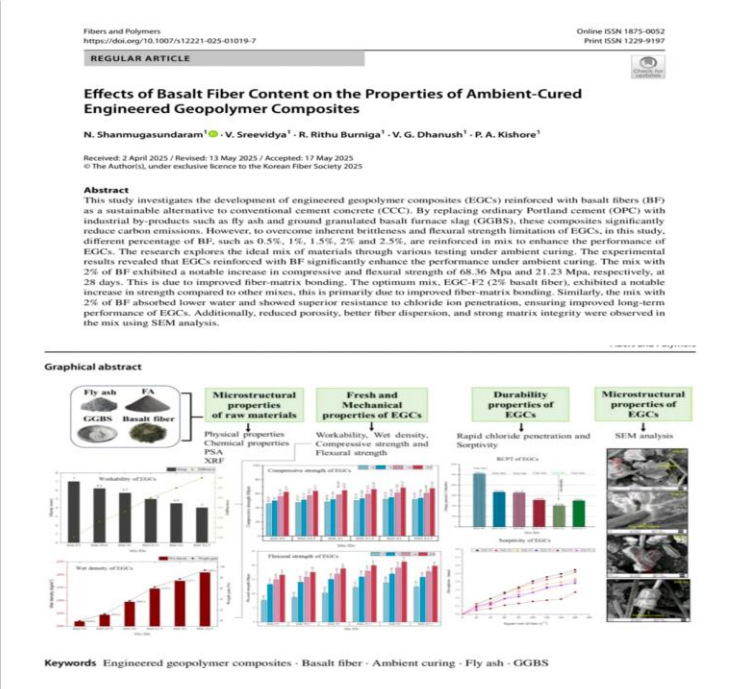
STUDENT ACHIEVEMENT

Mr Sriram G, Student of Second B.E. Civil Engineering, has been recognized as an "**NPTEL Enthusiast"** for the Jan–Apr 2025 semester.

CIVIL ENGINEERING

RESEARCH

Dr V Sreevidya, Professor & Head, **Dr N Shanmugasundaram**, Asst. Professor, **Mr R Rithu Burniga**, **Mr V G Dhanush** and **Mr P A Kishore**, Students of B.E. Civil Engineering, published a research article on **"Effect of Basalt Fiber Content on the Properties of Ambient-Cured Engineered Geopolymer Composites"** in Fibers and Polymers (Q2, Impact Factor: 2.2).



Fibers and Polymers
https://doi.org/10.1007/s12221-025-01019-7
Online ISSN 1875-0052
Print ISSN 1229-9197

REGULAR ARTICLE

Effects of Basalt Fiber Content on the Properties of Ambient-Cured Engineered Geopolymer Composites

N. Shanmugasundaram[1] · V. Sreevidya[1] · R. Rithu Burniga[1] · V. G. Dhanush[1] · P. A. Kishore[1]

Received: 2 April 2025 / Revised: 13 May 2025 / Accepted: 17 May 2025

Abstract
This study investigates the development of engineered geopolymer composites (EGCs) reinforced with basalt fibers (BF) as a sustainable alternative to conventional cement concrete (CCC). By replacing ordinary Portland cement (OPC) with industrial by-products such as fly ash and ground granulated basalt furnace slag (GGBS), these composites significantly reduce carbon emissions. However, to overcome inherent brittleness and flexural strength limitation of EGCs, in this study, different percentage of BF, such as 0.5%, 1%, 1.5%, 2% and 2.5%, are reinforced in mix to enhance the performance of EGCs. The research explores the ideal mix of materials through various testing under ambient curing. The experimental results revealed that EGCs reinforced with BF significantly enhance the performance under ambient curing. The mix with 2% of BF exhibited a notable increase in compressive and flexural strength of 68.36 Mpa and 21.23 Mpa, respectively, at 28 days. This is due to improved fiber-matrix bonding. The optimum mix, EGC-F2 (2% basalt fiber), exhibited a notable increase in strength compared to other mixes, this is primarily due to improved fiber-matrix bonding. Similarly, the mix with 2% of BF absorbed lower water and showed superior resistance to chloride ion penetration, ensuring improved long-term performance of EGCs. Additionally, reduced porosity, better fiber dispersion, and strong matrix integrity were observed in the mix using SEM analysis.

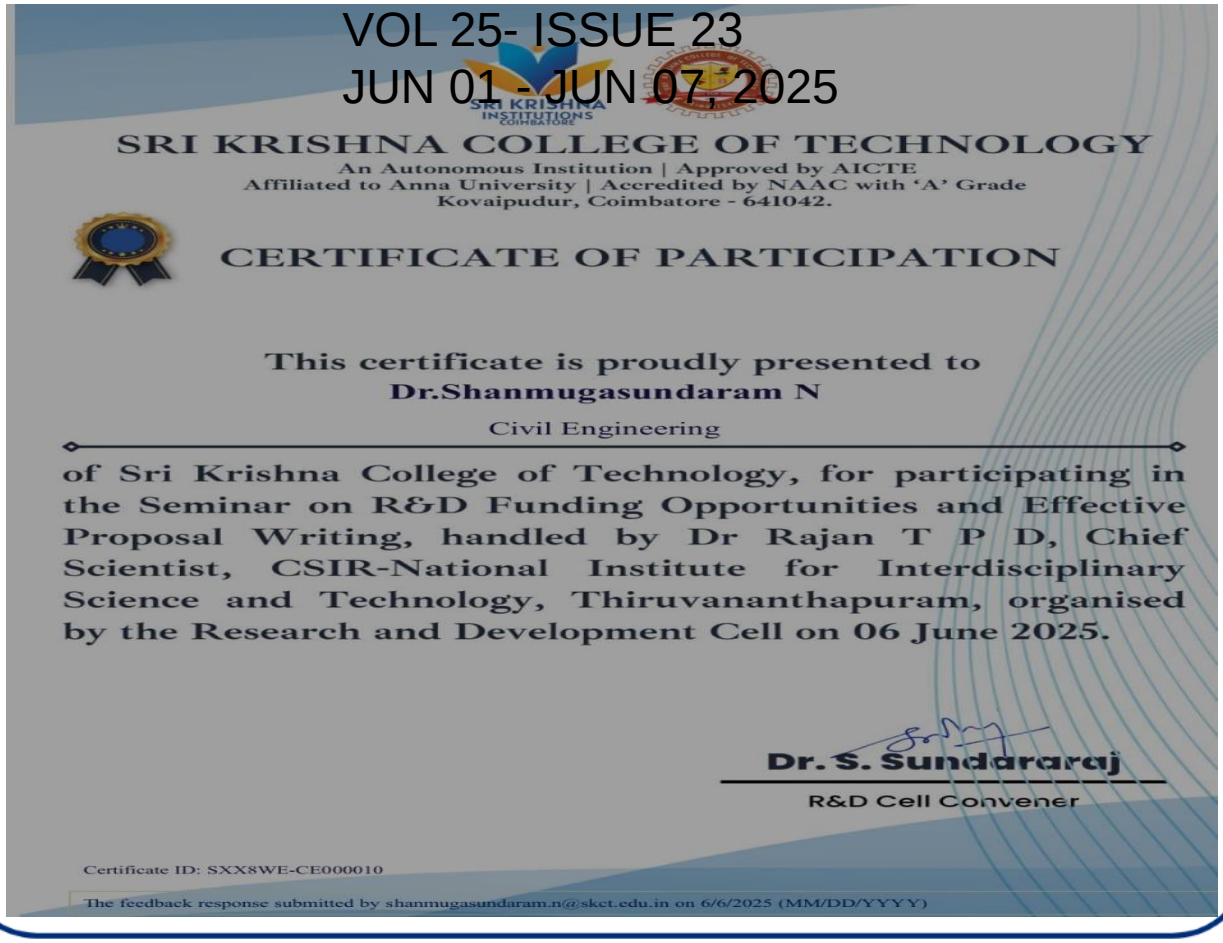
Graphical abstract

Keywords Engineered geopolymer composites · Basalt fiber · Ambient curing · Fly ash · GGBS

CIVIL ENGINEERING

FACULTY PARTICIPATION

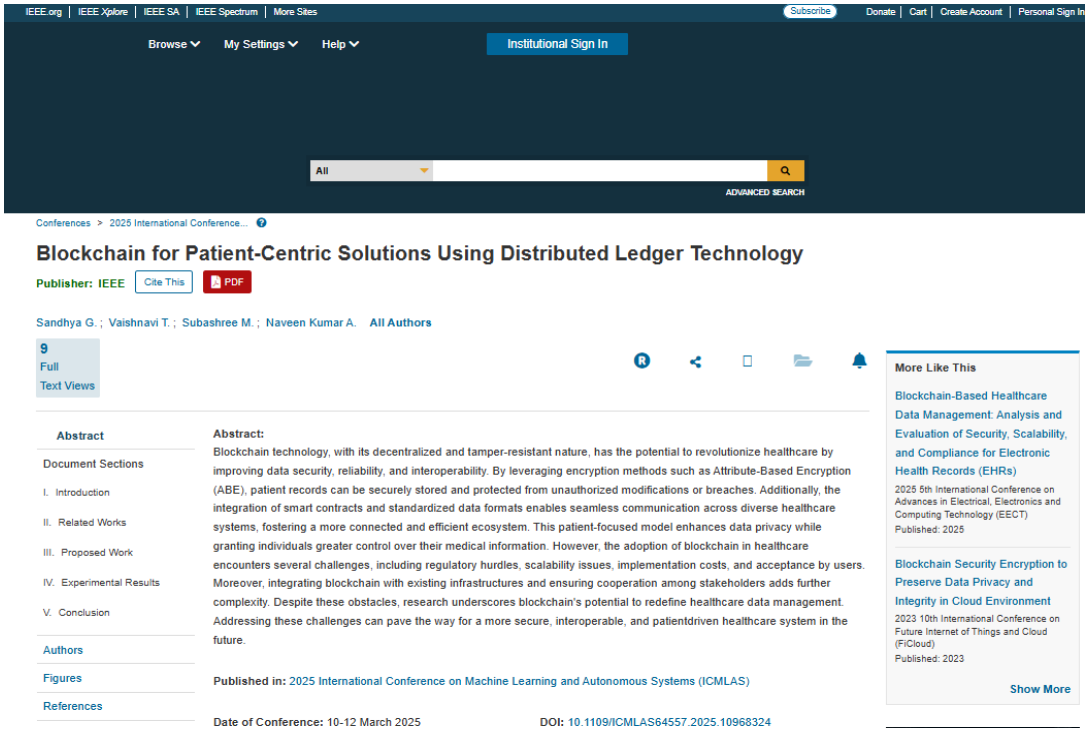
Dr N Shanmugasundaram, Asst. Professor, participated in a seminar on **"R&D Funding Opportunities and Effective Proposal Writing"** conducted by **Dr Rajan T P D**, Chief Scientist at CSIR-NIIST, Thiruvananthapuram.



COMPUTER SCIENCE AND ENGINEERING

PUBLICATION

Ms Vaishnavi T, **Ms Subashree M**, and **Mr Naveen Kumar A**, Students of B.E. CSE, published a research article in *IEEE Xplore* through the **International Conference on Machine Learning and Autonomous Systems (ICMLAS)**, under the guidance of **Ms G Sandhya**, Asst. Professor.



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Conferences > 2025 International Conference...

Blockchain for Patient-Centric Solutions Using Distributed Ledger Technology

Publisher: IEEE | Cite This | PDF

Sandhya G. ; Vaishnavi T. ; Subashree M. ; Naveen Kumar A. All Authors

9 Full Text Views

Abstract
Document Sections
I. Introduction
II. Related Works
III. Proposed Work
IV. Experimental Results
V. Conclusion
Authors
Figures
References

Abstract:
Blockchain technology, with its decentralized and tamper-resistant nature, has the potential to revolutionize healthcare by improving data security, reliability, and interoperability. By leveraging encryption methods such as Attribute-Based Encryption (ABE), patient records can be securely stored and protected from unauthorized modifications or breaches. Additionally, the integration of smart contracts and standardized data formats enables seamless communication across diverse healthcare systems, fostering a more connected and efficient ecosystem. This patient-focused model enhances data privacy while granting individuals greater control over their medical information. However, the adoption of blockchain in healthcare encounters several challenges, including regulatory hurdles, scalability issues, implementation costs, and acceptance by users. Moreover, integrating blockchain with existing infrastructures and ensuring cooperation among stakeholders adds further complexity. Despite these obstacles, research underscores blockchain's potential to redefine healthcare data management. Addressing these challenges can pave the way for a more secure, interoperable, and patientdriven healthcare system in the future.

Published in: 2025 International Conference on Machine Learning and Autonomous Systems (ICMLAS)

Date of Conference: 10-12 March 2025 **DOI:** 10.1109/ICMLAS64557.2025.10968324

More Like This

Blockchain-Based Healthcare Data Management: Analysis and Evaluation of Security, Scalability, and Compliance for Electronic Health Records (EHRs)
2025 5th International Conference on Advances in Electrical, Electronics and Computing Technology (EECT)
Published: 2025

Blockchain Security Encryption to Preserve Data Privacy and Integrity in Cloud Environment
2023 10th International Conference on Future Internet of Things and Cloud (FiCloud)
Published: 2023

Show More

COMPUTER SCIENCE AND ENGINEERING

FACULTY CERTIFICATION

Dr N Saranya, Asst. Professor, completed an online course on **"Cryptography, Network Security and Application Security"** offered by **Coursera**.

COMPUTER SCIENCE AND ENGINEERING

FACULTY CERTIFICATION

Ms A Gomathy, Asst. Professor, completed an online course on **"Introduction to Unix"** offered by **Infosys Springboard.**

Infosys
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COURSE COMPLETION CERTIFICATE

The certificate is awarded to

Ms.A.GOMATHY ASSISTANT PROFESSOR,CSE

for successfully completing the course

Introduction to Unix

on June 1, 2025

Infosys | Springboard

Congratulations! You make us proud!

Issued on: Sunday, June 1, 2025
To verify, scan the QR code at https://verify.onwingspan.com

Thirumala Arohi
Executive Vice President and Global Head
Education, Training & Assessment (ETA)
Infosys Limited

COMPUTER SCIENCE AND ENGINEERING

FACULTY CERTIFICATIONS

Ms M Kavitha Margret, Asst. Professor, completed online courses on **"Python for Data Science, AI & Development"** and **"Discovery and Low-Fidelity Design with Figma"** offered by **Coursera.**

COMPUTER SCIENCE AND ENGINEERING

FACULTY CERTIFICATION

Ms M Kavitha Margret, Asst. Professor, completed an online course on **"Internet of Things"** offered by **Infosys Springboard.**

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COURSE COMPLETION CERTIFICATE

The certificate is awarded to

Ms. M. KAVITHA MARGRET MANSINGH

for successfully completing the course

Internet of Things

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Congratulations! You make us proud!

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To verify, scan the QR code at https://verify.onwingspan.com

Thirumala Arohi
Executive Vice President and Global Head
Education, Training & Assessment (ETA)
Infosys Limited

COMPUTER SCIENCE AND ENGINEERING

FACULTY CERTIFICATIONS

Ms P Divya, Asst. Professor, completed online courses **"Introduction to Cloud Computing"** offered by Simply Learn and **"Introduction to Information Security"** offered by Infosys Springboard.

COMPUTER SCIENCE AND ENGINEERING

STUDENT CERTIFICATION

Ms V Savitha, Student of Third B.E. CSE, completed an online course on **"Flutter for Beginners"** offered by **Great Learning.**

COMPUTER SCIENCE AND ENGINEERING

STUDENT CERTIFICATION

Ms K Shalini, Student of Third B.E. CSE, completed an online course on **"Getting Started with ReactJS Components"** offered by **SimpliLearn**.

Great Learning

CERTIFICATE OF COMPLETION

Presented to

SAVITHA V

For successfully completing an online course

Flutter for Beginners

Course completed on June 05, 2025

Harish Subramanian
Academic Director, Great Learning

VERIFIED CERTIFICATE

To verify this certificate visit https://www.mygreatlearning.com/certificate/TTLVWTJC

ELECTRONICS AND COMMUNICATION ENGINEERING

FACULTY ACHIEVEMENT

Dr M Thillai Rani, Assoc. Professor, completed the **"SWAYAM-NPTEL Domain Certification in VLSI Design (Electrical Engineering)"**.

ELECTRONICS AND COMMUNICATION ENGINEERING

FACULTY ACHIEVEMENT

Dr P Divya, Assoc. Professor, completed the **"SWAYAM-NPTEL Domain Certification in Faculty Domain – Advanced"**

Course Type	Course Name	Duration	Offering Institute	Course Timeline	Marks Obtained (Out of 100)	QR Code
core	Effective Engineering Teaching in Practice	4 weeks	IIT Madras	Jan-Feb 2025	82	
core	Ethics in Engineering Practice	8 weeks	IIT Kharagpur	Feb-Apr 2025	67	
core	Introduction To Professional Scientific Communication	4 weeks	IIT Kanpur	Jan-Feb 2024	69	
core	Teaching And Learning in General Programs: TALG	4 weeks	IISc Bangalore	Jul-Aug 2024	72	
core	NBA Accreditation and Teaching and learning in Engineering (NATE)	12 weeks	IISc Bangalore	Jan-Apr 2025	75	
Elective	Designing Learner-Centric E-learning in STEM Disciplines	4 weeks	IIT Bombay	Aug-Sep 2024	53*	
Elective	Education for Sustainable Development	12 weeks	IIT Kharagpur	Jan-Apr 2024	80	
Total Marks					498	

ELECTRONICS AND COMMUNICATION ENGINEERING

FACULTY PUBLICATION

Mr M Kalimuthu, Asst. Professor, published a research article on **"Design and Comparison of Hybrid Optimization Controllers for Artificial Respiration System"** in IEEE Xplore (Scopus Indexed).

ELECTRONICS AND COMMUNICATION ENGINEERING

FACULTY PARTICIPATION

Ms B Priyanka, Asst. Professor, attended an Online Staff Research Workshop on **"AI in Healthcare"** organized by St. Joseph's Institute of Technology, Chennai in association with IE(I) Kancheepuram Local Centre, during 19 – 23 May 2025.

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Department of Computer Science and Engineering
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The Institution of Engineers(India)
5 Days Online Staff Research workshop on "AI in Healthcare"

Certificate of Participation

This is to certify that Mr./ Ms. /Mrs./Dr. Ms. B.Priyanka, Assistant Professor, from Sri Krishna College of Technology has participated in 5 Days Online Staff Research Workshop on "AI in Healthcare" organized by the Department of Computer Science and Engineering, St. Joseph's Institute of Technology, OMR, Chennai in association with IE(I) Kanchepuram Local Centre during the period 19th May 2025 to 23rd May 2025

Dr. S. Arivazhagan M.E., Ph.D
PRINCIPAL

CONVENOR
Dr. J. Dafni Rose, M.E., Ph.D
HOD - CSE

ELECTRONICS AND COMMUNICATION ENGINEERING

FACULTY PARTICIPATION

Ms M Sathia Priya, Asst. Professor, attended an Online FDP on **"Mastering Deep Learning: Theory, Techniques and Applications"** organized by KIT-Kalaignarkarunanidhi Institute of Technology, Coimbatore, during 12 – 16 May 2025.

KIT-KALAIGNARKARUNANIDHI INSTITUTE OF TECHNOLOGY
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Coimbatore - 641 402

CERTIFICATE

This is to certify that Ms.M.Sathia Priya from Sri Krishna college if technology has Participated in Five Days Online Faculty Development Programme on "Mastering Deep Learning: Theory, Techniques and Applications" from 12.05.2025 to 16.05.2025 organized by the Department of Artificial Intelligence and Data Science, KIT - Kalaignarkarunanidhi Institute of Technology, Coimbatore.

Ms. K. Saranya
Coordinator

Dr. C. Deepa
HoD/AI & DS

Dr. M. Ramesh
Principal

ELECTRONICS AND COMMUNICATION ENGINEERING

FACULTY PARTICIPATION

Dr J Asokan, Assoc. Professor, attended an online workshop on **"Capacity building program in Cybersecurity and its Investigation"** organized by Research Foundation of India, during 23 – 30 May 2025.

ELECTRONICS AND COMMUNICATION ENGINEERING

FACULTY PARTICIPATION

Dr K Bagyalakshmi, Asst. Professor, attended the Seminar **"R&D Funding Opportunities and Effective Proposal Writing"** organized by Sri Krishna College of Technology, Coimbatore on 06 June 2025.

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Kovaipudur, Coimbatore - 641042.

CERTIFICATE OF PARTICIPATION

This certificate is proudly presented to
Dr.K.Bagyalakshmi
Electronics and communication Engineering

of Sri Krishna College of Technology, for participating in the Seminar on R&D Funding Opportunities and Effective Proposal Writing, handled by Dr Rajan T P D, Chief Scientist, CSIR-National Institute for Interdisciplinary Science and Technology, Thiruvananthapuram, organised by the Research and Development Cell on 06 June 2025.

Dr. S. Sundararaj
R&D Cell Convener

Certificate ID: SXX8WE-CE000009
The feedback response submitted by bagyalakshmi.k@skct.edu.in on 6/6/2025 (MM/DD/YYYY)

ELECTRONICS AND COMMUNICATION ENGINEERING

FACULTY PARTICIPATION

Mr R Naveenkumar, Asst. Professor, attended the Seminar on **"R&D Funding Opportunities and Effective Proposal Writing"** organized by Sri Krishna College of Technology, Coimbatore on 06 June 2025.

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Kovaipudur, Coimbatore - 641042.

CERTIFICATE OF PARTICIPATION

This certificate is proudly presented to
Mr.Naveenkumar R
Electronics and Communication Engineering

of Sri Krishna College of Technology, for participating in the Seminar on R&D Funding Opportunities and Effective Proposal Writing, handled by Dr Rajan T P D, Chief Scientist, CSIR-National Institute for Interdisciplinary Science and Technology, Thiruvananthapuram, organised by the Research and Development Cell on 06 June 2025.

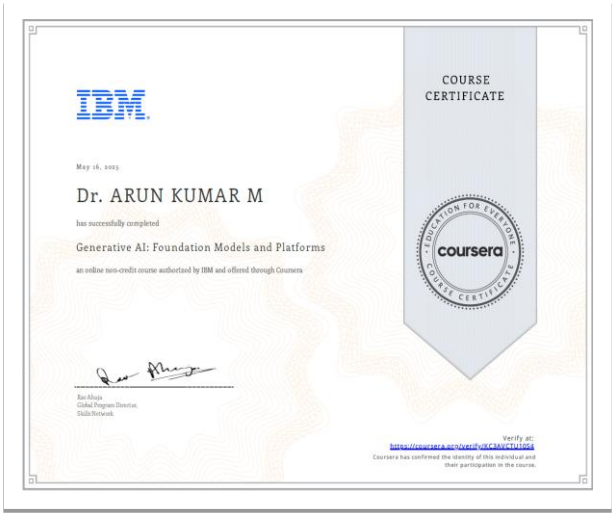
Dr. S. Sundararaj
R&D Cell Convener

Certificate ID: SXX8WE-CE000006
The feedback response submitted by naveenkumar.r@skct.edu.in on 6/6/2025 (MM/DD/YYYY)

ELECTRONICS AND COMMUNICATION ENGINEERING

FACULTY CERTIFICATION

Dr M Arun Kumar, Asst. Professor, completed Online certification courses on **"Introduction to Quantum Information",** and **"Generative AI: Foundation Models and Platforms"** through Coursera.



ELECTRICAL AND ELECTRONICS ENGINEERING

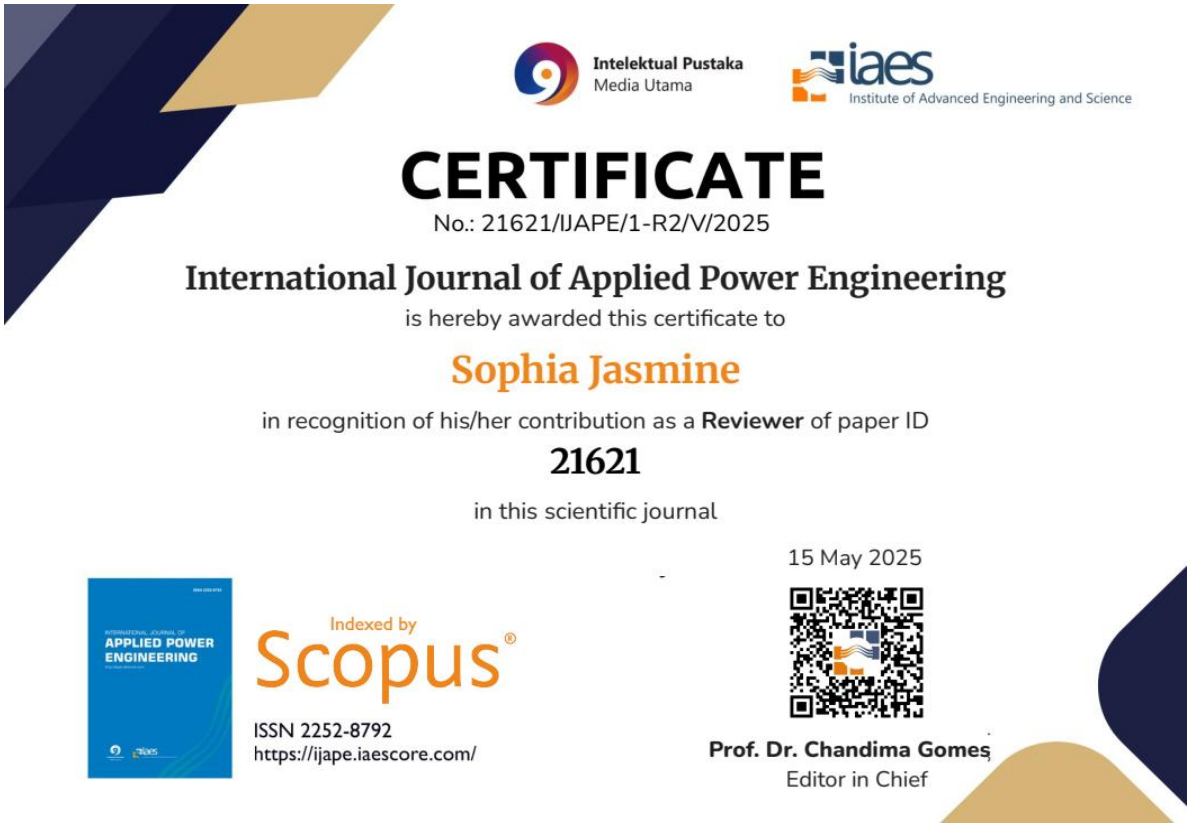
PUBLICATION

Dr Sanjana Devi V S, Asst. Professor and the Students of Final B.E. EEE, published a research article on **"A Modified Brushless Isolated SEPIC Converter Fed With HB-LLC Resonant Converter for Power Factor Correction"** in Micro2025, organized by Jalpaiguri Government Engineering College, Jalpaiguri during 10–11 May 2025.

ELECTRICAL AND ELECTRONICS ENGINEERING

FACULTY ACHIEVEMENT

Dr Sophia Jasmine D, Assoc. Professor, received a "**Certificate of Appreciation"** for reviewing articles in the **International Journal of Applied Power Engineering** on 15 May 2025.



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iaes Institute of Advanced Engineering and Science

CERTIFICATE

No.: 21621/IJAPE/1-R2/V/2025

International Journal of Applied Power Engineering

is hereby awarded this certificate to

Sophia Jasmine

in recognition of his/her contribution as a **Reviewer** of paper ID

21621

in this scientific journal

15 May 2025

Indexed by Scopus®

ISSN 2252-8792
https://ijape.iaescore.com/

Prof. Dr. Chandima Gomes
Editor in Chief

ELECTRICAL AND ELECTRONICS ENGINEERING

PUBLICATION

Mr T Bharaniprakash, Asst. Professor and the Students of B.E. ICE, published a research article on **"Dam Monitoring and Control System Using IoT"** in the 7th International Conference on Inventive Material Science and Applications (ICIMA-2025), organized by Muthayammal Engineering College, Rasipuram during 28–30 May 2025.


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IEEE

IEEE PES
Power & Energy Society

Certificate of Presentation

This is to certify that

Prajeesh S

has participated & successfully presented the pape

Dam Monitoring and Control System using Ic

at the

7th International Conference on Inventive Material Science (ICIMA-2025) held from 28th-30th, May 2025 at Muthayammal Rasipuram, Tamil Nadu, India.

Session Chair

Dr. P. Suresh
Conference Chair


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IEEE

IEEE PES
Power & Energy Society

Certificate of Presentation

This is to certify that

T Bharani Prakash

has participated & successfully presented the paper entitled

Dam Monitoring and Control System using IoT

at the

7th International Conference on Inventive Material Science and Applications (ICIMA-2025) held from 28th-30th, May 2025 at Muthayammal engineering college, Rasipuram, Tamil Nadu, India.

Session Chair

Dr. P. Suresh
Conference Chair

Dr. M. Madheswaran
Principal

ELECTRICAL AND ELECTRONICS ENGINEERING

PUBLICATION

Dr Lijo Jacob Varghese, Professor & Head and the Students of B.E. EEE, published a research article on **"Energy-Efficient Smart Street Lighting with Fault Detection and Real-Time Monitoring"** in IEEE Xplore (ICICT-2025), organized by the International Conference on Inventive Computation Technologies, Kirtipur, Nepal during 23–25 April 2025.

Energy-Efficient Smart Street Lighting with Fault Detection and Real-Time Monitoring

Publisher: IEEE | Cite This | PDF

Lijo Jacob Varghese ; Prasath SR ; Rahul M ; Rathi Prabha E All Authors

Abstract

Document Sections
I. Introduction
II. Literature Review
III. Critical Aspects of Economic Analysis
IV. Proposed System
V. Result and Discussion
Show Full Outline
Authors
Figures
References
Keywords

Abstract:
The essential aspect for developing sustainable urban infrastructure includes effective energy management in street lighting systems. Street lighting systems require automaticstanding models with advanced energy efficiency alongside costefficient elements and systems for fault detection and energy reporting coupled with surveillance functions. System integration features sensors together with objects detection elements and real-time monitoring technology which dynamically adjusts lighting activities. Security increases through camera-based surveillance which enables remote video monitoring and adaptive lighting enables better human traffic visibility and avoids unnecessary energy usage by adapting to movements from animals. The system operates through a combination of solar power elements that charge lithium-ion cells for optimum utilization. A smart grid interface enables the system to provide live energy monitoring while enabling predictive equipment maintenance and adaptive lighting protocols to decrease operational disruptions. Energy reports are developed from continuously monitored and recorded voltage, current and power data which enables businesses to reach maximum operational effectiveness. The fault detection system can immediately identify broken streetlights while enhancing maintenance operations. IoT technology alongside machine learning and data analytics boosts fault identification and predictive services and energy monitoring so operators gain more reliable and affordable operation. The deployment of intelligent features leads to substantial energy-saving reductions along with improved city security levels. The paper reviews current strategic frameworks and technical approaches before establishing basic requirements for upcoming urban illumination systems. Technology applications contribute to constructing smart cities because they deliver better infrastructure while reducing power usage and increasing town safety.

Published in: 2025 International Conference on Inventive Computation Technologies (ICICT)

Date of Conference: 23-25 April 2025
DOI: 10.1109/ICICT64420.2025.11004986
Date Added to IEEE *Xplore*: 23 May 2025
Publisher: IEEE
ISBN Information:
Conference Location: Kirtipur, Nepal
ISSN Information:

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Enhancing Energy Efficiency and Security in IoTDriven Smart Cities Using Hybrid GAN-ICA Framework
2024 Global Conference on Communications and Information Technologies (GCCIT)
Published: 2024

Centralized Monitoring System Street Light Fault Detection and Location Tracking for Smart City
2024 International Conference on Electronics, Computing, Communication and Control Technology (ICECCC)
Published: 2024

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ELECTRICAL AND ELECTRONICS ENGINEERING

PUBLICATION

Dr Lijo Jacob Varghese, Professor & Head and the Students of B.E. EEE, published a research article on **"IoT Based Smart Water Meter for Domestic Utility"** in IEEE Xplore (ICICT-2025), organized by the International Conference on Inventive Computation Technologies, Kirtipur, Nepal during 23-25 April 2025.

IoT Based Smart Water Meter for Domestic Utility

Publisher: IEEE | Cite This | PDF

Lijo Jacob Varghese ; Devanath V. ; Kishore V. ; Poornima R ; Suma Sira Jacob All Authors

Abstract
Document Sections
I. Introduction
II. Related Work
III. Proposed Work
IV. Results & Discussion
» Conclusion
Authors
Figures
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Keywords

Abstract:
In the absence of water, our kind would face extinction. Rapid population growth and increasing urbanization have become water usage monitoring a critical issue in our society. The water use of residences may be monitored, regulated, and perhaps reduced. The Internet of Things has recently introduced the potential for electronic devices, systems, and applications that might diminish water use in urban environments and structures. Although extensive study has been conducted on smart meter systems utilizing the IoT, there is significantly less investigation into the IoT sensor node, especially concerning battery longevity. This research aims to create and assess an efficient and effective data collection approach for IoT-based smart metering applications, emphasizing the significance of energy consumption. The system comprises a Wi-Fi-ESP8266, an Arduino Uno, and water flow sensors. This research introduces an IoT smart water meter system employing two ESP32 microcontrollers arranged in a master-slave configuration. It utilizes Wi-Fi connectivity for instantaneous monitoring and control. Utilizing a water flow sensor and the subordinate ESP32, connected to a local Wi-Fi network, data on water use may be transmitted wirelessly to the primary ESP32. Users may remotely track their water consumption using web platforms or mobile applications, while the master unit aggregates all data to provide real-time alerts for any irregular usage. The Wi-Fi-enabled communication among the ESP32 units renders the design optimal for both residential and commercial applications, as it eliminates the necessity for wired connections. To enhance water management, install a smart meter and utilize its features, such as leak detection and water conservation insights. The ESP32's Wi-Fi capabilities facilitate integration into larger IoT ecosystems, enhancing the system's scalability. This system provides comprehensive, real-time data to facilitate decision-making, promoting sustainable water ...
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Published in: 2025 International Conference on Inventive Computation Technologies (ICICT)

Date of Conference: 23-25 April 2025
DOI: 10.1109/ICICT64420.2025.11005058
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ELECTRICAL AND ELECTRONICS ENGINEERING

PUBLICATION

Mr Harish R, Asst. Professor and the Students of B.E. EEE, published a research article on **"A Comparative Analysis of Different Types of SoC Estimation Using Machine Learning Techniques for Li-ion Battery Management System (BMS)"** in IEEE Xplore (ICICT-2025), organized by International Conference on Inventive Computation Technologies, Kirtipur, Nepal during 23–25 April 2025.

A Comparative Analysis of Different Types of SoC Estimation Using Machine Learning Techniques for Li-ion Battery Management System (BMS)

Publisher: IEEE | Cite This | PDF

Srinidhi J ; Sakthimugesh Durai S ; Roshni S ; Harish R All Authors

Abstract
Document Sections
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II. Lierature Review
III. Proposed System
IV. Methedology
V. Simulation and Results
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Keywords

Abstract:
The increasing demand for using electric vehicles (EVs) has emphasized the need for efficient and reliable lithiumion batteries, which form the basis of modern EV technology because of their high energy density, longevity and reusability. However, to achieve these performances and the security of these batteries, SoC measurement is fundamentally important as a key parameter defining battery recharge level compared to its nominal capacity. Accurate estimation of SoC is again crucial as overcharging leads to improved SoC estimation, profound releasing and waste energy concerns of encouraging, leading to reduced battery life, less safety, and poor EV performance tantamount to the degradation level. In response to these difficulties, this work focuses on the plan and development of the progressed SoC estimation techniques that combines three different approaches; Coulomb counting (CC), Extended Besides, we have such systems as Extended Kalman Filter (EKF), Artificial Neural Network (ANN). This technique Coulomb Counting, though simple and easy to implement, accrues aggregate errors when used over a long time. Integrating the proposed ANN and EKF model results in a high-performance SoC estimation model capable of overcoming non-linear and weakness associated with lithiumion battery. MATLAB simulations are made to measure the effectiveness of all the plans, with come out illustrating the predominant accuracy and reliability of the hybrid model irrespective of conditions. This work is relevant regarding the enhancement of battery technologies and supports further efforts to push the growth of electric vehicles. Furthermore, accurate estimation of other key battery states such as State of Health (SoH), State of Energy (SoE), State of Power (SoP), and Remaining Useful Life (RUL) is crucial for efficient battery management and longevity.

Published in: 2025 International Conference on Inventive Computation Technologies (ICICT)

Date of Conference: 23-25 April 2025
DOI: 10.1109/ICICT64420.2025.11004713
Date Added to IEEE Xplore: 23 May 2025
Publisher: IEEE
ISBN Information:
Conference Location: Kirtipur, Nepal
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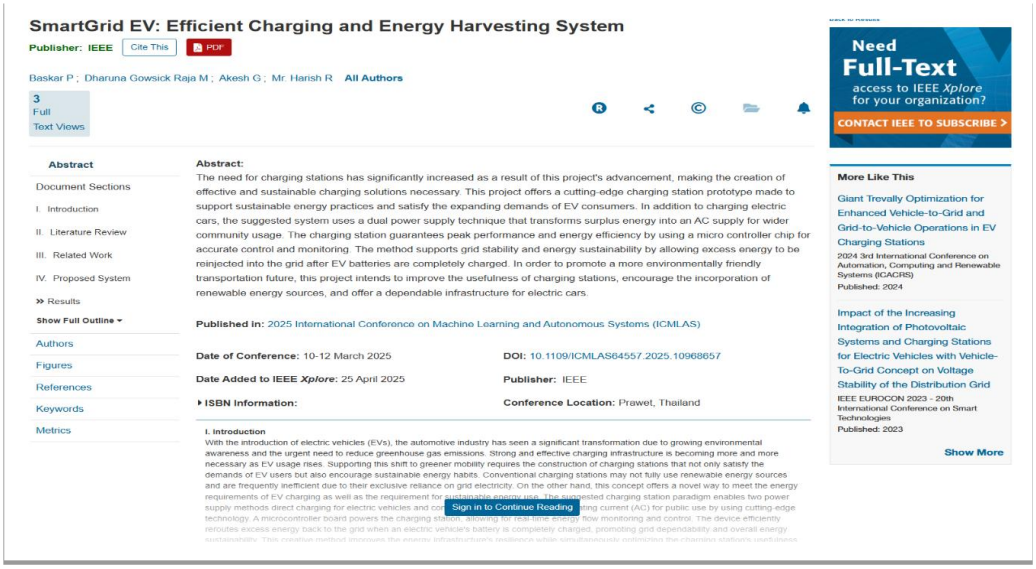
ELECTRICAL AND ELECTRONICS ENGINEERING

PUBLICATION

Mr Harish R, Asst. Professor and the Students of B.E. EEE, published a research article on **"Smartgrid EV: Efficient Charging and Energy Harvesting System"** in IEEE Xplore (ICMLAS-2025), organized by International Conference on Machine Learning and Autonomous Systems, Prawet, Thailand during 10–11 March 2025.



SmartGrid EV: Efficient Charging and Energy Harvesting System

Publisher: IEEE | Cite This | PDF

Baskar P ; Dharuna Gowsick Raja M ; Akesh G ; Mr. Harish R All Authors

3 Full Text Views

Abstract
Document Sections
I. Introduction
II. Literature Review
III. Related Work
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Abstract:
The need for charging stations has significantly increased as a result of this project's advancement, making the creation of effective and sustainable charging solutions necessary. This project offers a cutting-edge charging station prototype made to support sustainable energy practices and satisfy the expanding demands of EV consumers. In addition to charging electric cars, the suggested system uses a dual power supply technique that transforms surplus energy into an AC supply for wider community usage. The charging station guarantees peak performance and energy efficiency by using a micro controller chip for accurate control and monitoring. The method supports grid stability and energy sustainability by allowing excess energy to be reinjected into the grid after EV batteries are completely charged. In order to promote a more environmentally friendly transportation future, this project intends to improve the usefulness of charging stations, encourage the incorporation of renewable energy sources, and offer a dependable infrastructure for electric cars.

Published in: 2025 International Conference on Machine Learning and Autonomous Systems (ICMLAS)

Date of Conference: 10-12 March 2025
DOI: 10.1109/ICMLAS64557.2025.10968657
Date Added to IEEE *Xplore*: 25 April 2025
Publisher: IEEE
ISBN Information:
Conference Location: Prawet, Thailand

I. Introduction
With the introduction of electric vehicles (EVs), the automotive industry has seen a significant transformation due to growing environmental awareness and the urgent need to reduce greenhouse gas emissions. Strong and effective charging infrastructure is becoming more and more necessary as EV usage rises. Supporting this shift to greener mobility requires the construction of charging stations that not only satisfy the demands of EV users but also encourage sustainable energy habits. Conventional charging stations may not fully use renewable energy sources and are frequently inefficient due to their exclusive reliance on grid electricity. On the other hand, this concept offers a novel way to meet the energy requirements of EV charging as well as the requirement for sustainable energy use. The suggested charging station paradigm enables two power supply methods direct charging for electric vehicles and co[illegible]ting current (AC) for public use by using cutting-edge technology. A microcontroller board powers the charging station, allowing for real-time energy flow monitoring and control. The device efficiently reroutes excess energy back to the grid when an electric vehicle's battery is completely charged, promoting grid dependability and overall energy sustainability. This creative method improves the energy infrastructure's resilience while simultaneously optimizing the charging station's usefulness

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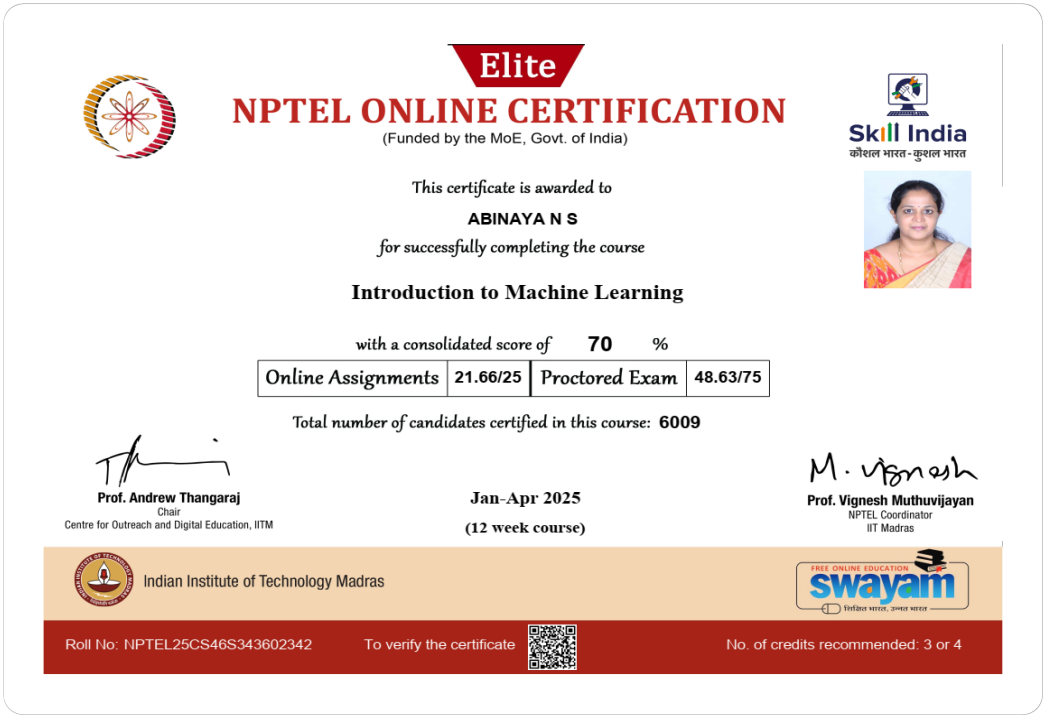
Dr Abinaya N S, Asst. Professor, completed an online certification course on **"Introduction to Machine Learning"** with **Elite** through NPTEL.



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NPTEL Coordinator
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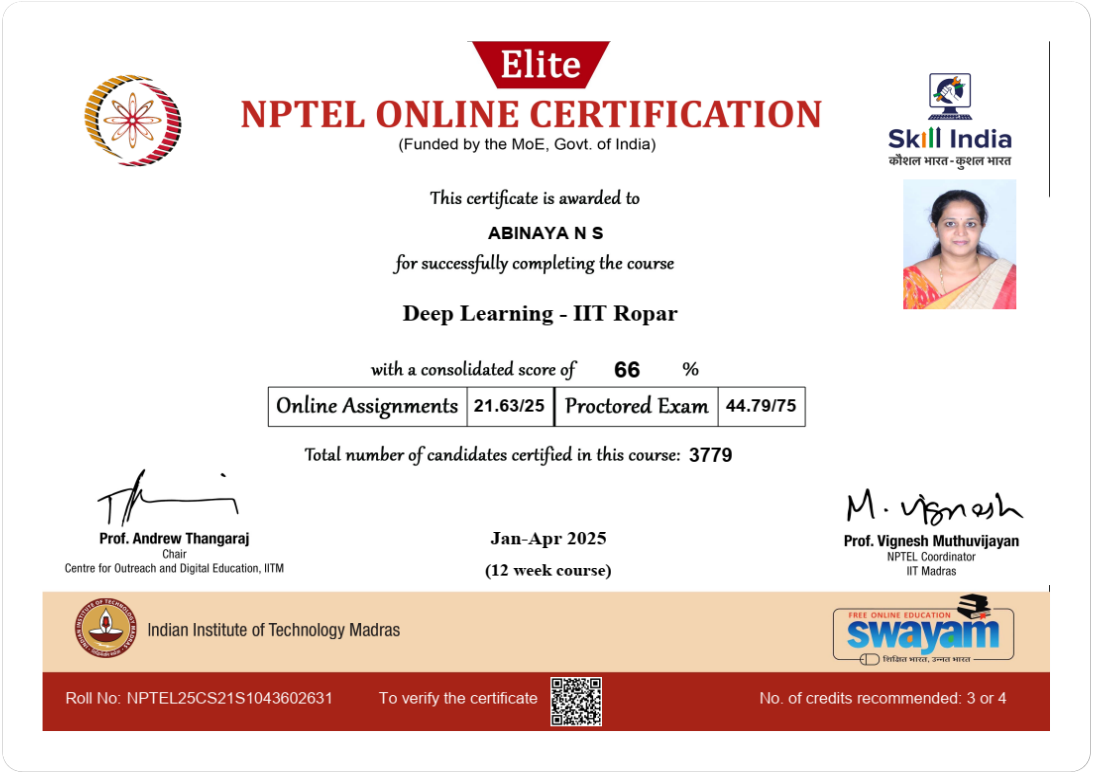

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ELECTRICAL AND ELECTRONICS ENGINEERING

STUDENTS' PARTICIPATION

Mr Sri Hari Durgas B, Mr Sibi Surya M, Mr Sri Lingeswaran M and **Mr Sukesh S A**, Students of Third B.E. EEE, completed Inplant Training at **Bharat Heavy Electricals Limited (BHEL),** Tiruchirappalli during 03–13 May 2025.

MECHANICAL ENGINEERING

VIVA – VOCE

Mr A Arun Thangadurai, Research Scholar, Anna University, Chennai, successfully defended his Ph.D. Public Viva-Voce Examination.

Research Topic: **Studies on Mechanical Properties of Copper Oxide Nanoparticle Reinforced Polyester Composites**

Supervisor: **Dr V S Sreenivasan**, Assoc. Professor, Mechanical Engineering

MECHANICAL ENGINEERING

FACULTY PUBLICATION

Dr R B Jeen Robert, Professor, co-authored a research article on "**Natural Fiber Filaments Transforming the Future of Sustainable 3D Printing"** published in Methods (Q2, ESCI indexed, Impact Factor: 1.6).

MethodsX 14 (2025) 103385

Contents lists available at ScienceDirect

MethodsX

journal homepage: www.elsevier.com/locate/methodsx

Natural fiber filaments transforming the future of sustainable 3D printing

Senthil Maharaj Kennedy [a], Lenin Anselm Wilson [b], Joemax Agu M [c], Rajeev D [d], Jeen Robert RB [e,*], Balamurugan S [a]

[a] Department of Mechanical Engineering, AAA College of Engineering and Technology, Sivakasi, Tamilnadu 626005, India
[b] Mechanical Section, Engineering Department, University of Technology and Applied Sciences, Shinas Sultanate of Oman – 324, India
[c] Faculty of Mechanical Engineering, KGISL Institute of Technology, Coimbatore, Tamilnadu 641035, India
[d] Department of Mechanical Engineering, Mar'Ephraem College of Engineering and Technology, Marthandam, Tamil Nadu 629171, India
[e] Department of Mechanical Engineering, Sri Krishna College of Technology, Coimbatore, Tamilnadu 641042, India

REVIEW HIGHLIGHTS

- This review examines the revolutionary potential of natural fiber-reinforced filaments in enhancing sustainable FDM 3D printing.
- Examines current advancements in pelletized natural fiber composites, focusing on issues such as moisture control and mechanical properties.
- Demonstrates the adaptability of natural fiber filaments across sectors including automotive, aerospace, and consumer products.
- Identifies research deficiencies and suggests improvements in recyclability, material uniformity, and scalable production for more sustainable additive manufacturing.

ARTICLE INFO

Method name:
Fabrication and Testing methods of Sustainable Natural Fiber Filaments

Keywords:
Additive manufacturing
Natural fiber
Filament
3D printing
Biodegradability

ABSTRACT

The rapid advancement of additive manufacturing (AM), or 3D printing, has created unparalleled prospects for design innovation and production efficiency. Nonetheless, dependence on petroleum-derived polymers presents considerable environmental and sustainability issues. In reaction to these issues, natural fiber-reinforced filament technologies have surfaced as a promising approach for sustainable production. This review aims to objectively evaluate the progress in the development of natural fiber-reinforced filaments, emphasizing their capacity to diminish the carbon footprint of additive manufacturing while improving mechanical, thermal, and functional characteristics. This paper systematically examines manufacturing methodologies, including pelletization and extrusion processes, material behavior such as viscoelasticity and morphological characteristics, and assesses their performance in various applications within the automotive, aerospace, medical, and consumer goods sectors. Particular attention is directed on resolving enduring challenges including material inconsistency, moisture sensitivity, and recycling constraints. Moreover, the analysis delineates existing research deficiencies and suggests prospective avenues, including the incorporation of smart materials and the implementation of circular economy frameworks. This article provides a thorough assessment of difficulties and opportunities to facilitate the progress and practical implementation of sustainable natural fiber-based filaments in the next generation of additive manufacturing.

* Corresponding author.
E-mail address: jeenrobert.rb@skct.edu.in (J.R. RB).

https://doi.org/10.1016/j.mex.2025.103385
Received 27 December 2024; Accepted 22 May 2025
Available online 22 May 2025

MECHANICAL ENGINEERING

FACULTY PUBLICATION

Dr S Sundararaj, Professor, co-authored a research article published in **Materia**, a SCIE and Scopus indexed journal included in Anna University Annexure.

REVISTA MATÉRIA V.30
ISSN 1517-7076 articles e20240743, 2025

Performance analysis of an enhanced indirect solar dryer with thermal storage material integration for drying apple slices

Manirathnam Athppagoundenpudur Sadasivan[1], Sundararaj Subramanian[2]

[1]Dr NGP Institute of Technology, Department of Mechanical Engineering. Coimbatore, Tamil Nadu, India.
[2]Sri Krishna College of Technology, Department of Mechanical Engineering. Coimbatore, Tamil Nadu, India.
e-mail: asmanirathnam3@gmail.com, ssundararaj038@gmail.com

ABSTRACT

This study evaluates the performance of an enhanced indirect solar dryer with integrated thermal storage for drying apple slices efficiently, offering a practical solution for sustainable post-harvest management. The dryer features a single-pass solar collector and a 16.5 kg capacity drying chamber embedded with paraffin wax as a thermal energy storage material to maintain consistent heat during the drying process. This innovative design achieved a thermal efficiency 11 ± 0.2% higher than conventional solar dryers and reduced drying time by 40 ± 2.1%, aligning with the goals of energy-efficient post-harvest practices. Compared to open sun drying and thin-layer drying, the solar dryer with thermal storage (SDTS) preserved nutrients more effectively, with total sugar content reaching 64.85 ± 3.50% and fiber content at 12.50 ± 0.75%, the highest among all methods. Moreover, SDTS-dried apple slices exhibited greater total phenolic content (TPC) and antioxidant activity, underscoring superior product quality. The integration of thermal storage minimized drying inconsistencies, reducing post-harvest losses and ensuring nutrient retention. Statistical models were developed to predict moisture ratios accurately, validated through chi-square and root mean square error analysis. This enhanced dryer demonstrates improved efficiency and reliability, making it a scalable, sustainable solution for small-scale fruit farmers, ultimately addressing critical post-harvest management challenges.

Keywords: Solar Dryer; Thermal Storage Material; Drying; Apple Slices; Moisture Ratio.

1. INTRODUCTION

The drying of agricultural products plays a crucial role in food preservation by extending shelf life, preventing microbial growth, and minimizing biochemical spoilage [1, 2]. Among various drying techniques, solar drying offers a cost-effective and environmentally sustainable solution by utilizing renewable energy [3]. However, conventional solar dryers often face challenges such as reliance on sunlight availability and inconsistent temperature control, leading to extended drying times and compromised product quality [4]. The integration of thermal storage materials into solar dryers addresses these issues by providing consistent heat during cloudy periods or at night, thereby enhancing drying efficiency and product preservation [5–7].

Apple slices, a popular and nutritious snack, are rich in vitamins, fiber, and antioxidants, but their high moisture content makes them perishable. To extend their shelf life, effective drying techniques are essential [8]. Traditional drying methods, such as open sun drying, are commonly used but pose risks including contamination, weather dependency, and nutrient degradation [9–11]. Therefore, developing a reliable solar drying system with thermal storage can offer an affordable and practical solution to small-scale farmers, ensuring better product quality and enhanced preservation [12, 13].

Indirect solar drying, which utilizes solar collectors to provide heat to a separate drying chamber, offers better temperature control and airflow compared to direct drying methods [14]. Incorporating thermal storage materials, such as paraffin wax, into the drying system stabilizes the environment by storing excess heat during the day and releasing it during low solar radiation periods, improving energy efficiency [15]. This approach addresses key challenges of traditional solar drying, including uneven drying, extended durations, and nutrient loss [16, 17].

The enhanced solar dryer with thermal storage integration provides a sustainable alternative to energy-intensive drying methods [18]. It aligns with global efforts to reduce carbon emissions by minimizing fossil fuel dependency in agriculture [19]. The compact and affordable design makes it particularly suitable for smallholder

Corresponding Author: Manirathnam Athppagoundenpudur Sadasivan Received on 28/10/2024 Accepted on 12/12/2024

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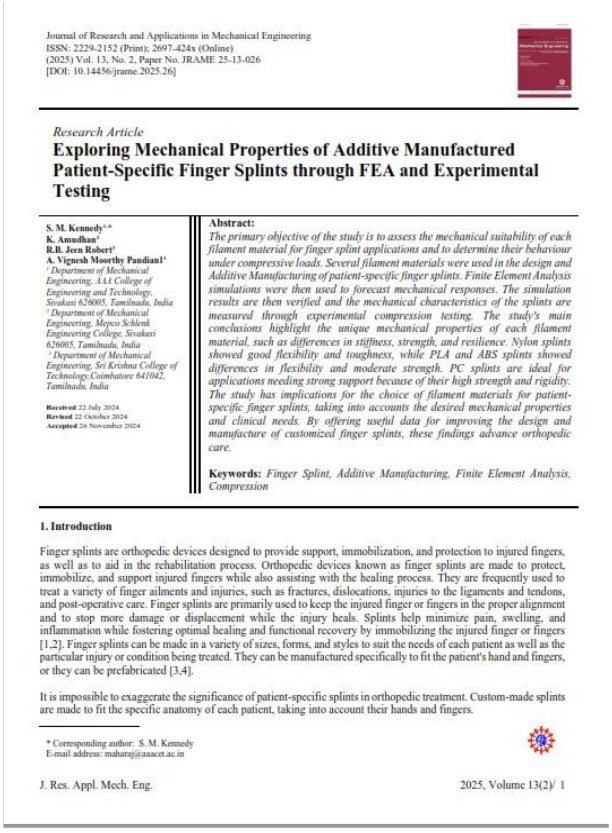
MECHANICAL ENGINEERING

FACULTY PUBLICATION

Dr R B Jeen Robert, Professor, co-authored a research article on "**Exploring Mechanical Properties of Additive Manufactured Patient-Specific Finger Splints through FEA and Experimental Testing"** in the Journal of Research and Applications in Mechanical Engineering.



Journal of Research and Applications in Mechanical Engineering
ISSN: 2229-2152 (Print); 2697-424x (Online)
(2025) Vol. 13, No. 2, Paper No. JRAME 25-13-026
[DOI: 10.14456/jrame.2025.26]

Research Article

Exploring Mechanical Properties of Additive Manufactured Patient-Specific Finger Splints through FEA and Experimental Testing

S. M. Kennedy[1,*]
K. Amudhan[2]
R.B. Jeen Robert[3]
A. Vignesh Moorthy Pandian I[4]
[1] *Department of Mechanical Engineering, AAA College of Engineering and Technology, Sivakasi 626005, Tamilnadu, India*
[2] *Department of Mechanical Engineering, Mepco Schlenk Engineering College, Sivakasi 626005, Tamilnadu, India*
[3] *Department of Mechanical Engineering, Sri Krishna College of Technology,Coimbatore 641042, Tamilnadu, India*

Received 22 July 2024
Revised 22 October 2024
Accepted 26 November 2024

Abstract:
The primary objective of the study is to assess the mechanical suitability of each filament material for finger splint applications and to determine their behaviour under compressive loads. Several filament materials were used in the design and Additive Manufacturing of patient-specific finger splints. Finite Element Analysis simulations were then used to forecast mechanical responses. The simulation results are then verified and the mechanical characteristics of the splints are measured through experimental compression testing. The study's main conclusions highlight the unique mechanical properties of each filament material, such as differences in stiffness, strength, and resilience. Nylon splints showed good flexibility and toughness, while PLA and ABS splints showed differences in flexibility and moderate strength. PC splints are ideal for applications needing strong support because of their high strength and rigidity. The study has implications for the choice of filament materials for patient-specific finger splints, taking into accounts the desired mechanical properties and clinical needs. By offering useful data for improving the design and manufacture of customized finger splints, these findings advance orthopedic care.

Keywords: *Finger Splint, Additive Manufacturing, Finite Element Analysis, Compression*

1. Introduction

Finger splints are orthopedic devices designed to provide support, immobilization, and protection to injured fingers, as well as to aid in the rehabilitation process. Orthopedic devices known as finger splints are made to protect, immobilize, and support injured fingers while also assisting with the healing process. They are frequently used to treat a variety of finger ailments and injuries, such as fractures, dislocations, injuries to the ligaments and tendons, and post-operative care. Finger splints are primarily used to keep the injured finger or fingers in the proper alignment and to stop more damage or displacement while the injury heals. Splints help minimize pain, swelling, and inflammation while fostering optimal healing and functional recovery by immobilizing the injured finger or fingers [1,2]. Finger splints can be made in a variety of sizes, forms, and styles to suit the needs of each patient as well as the particular injury or condition being treated. They can be manufactured specifically to fit the patient's hand and fingers, or they can be prefabricated [3,4].

It is impossible to exaggerate the significance of patient-specific splints in orthopedic treatment. Custom-made splints are made to fit the specific anatomy of each patient, taking into account their hands and fingers.

* Corresponding author: S. M. Kennedy
E-mail address: maharaj@aaacet.ac.in

MASTER OF BUSINESS ADMINISTRATION

FACULTY CERTIFICATION

Dr Piradeep S, Asst. Professor, completed the Mastercourse on **"Digital Marketing Fundamentals"** through IIDE - The Digital School on 11 May 2025.

MASTER OF BUSINESS ADMINISTRATION

FACULTY CERTIFICATION

Dr Piradeep S, Asst. Professor, completed the course on **"Human Resource Management – Application of Technology in HR"** through Infosys Springboard on 18 May 2025.

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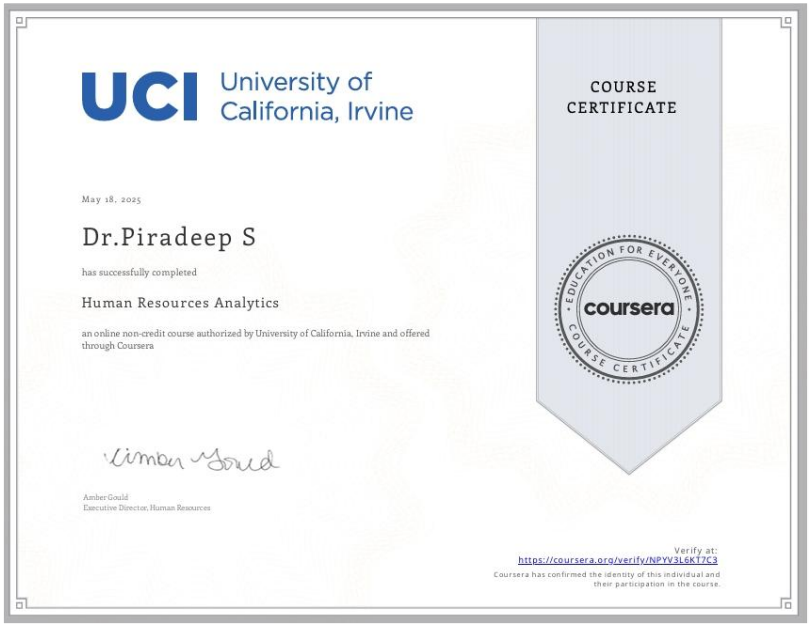

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Ms Jeya Preethi S, Asst. Professor, completed the following courses through Infosys Springboard during 18–19 May 2025:

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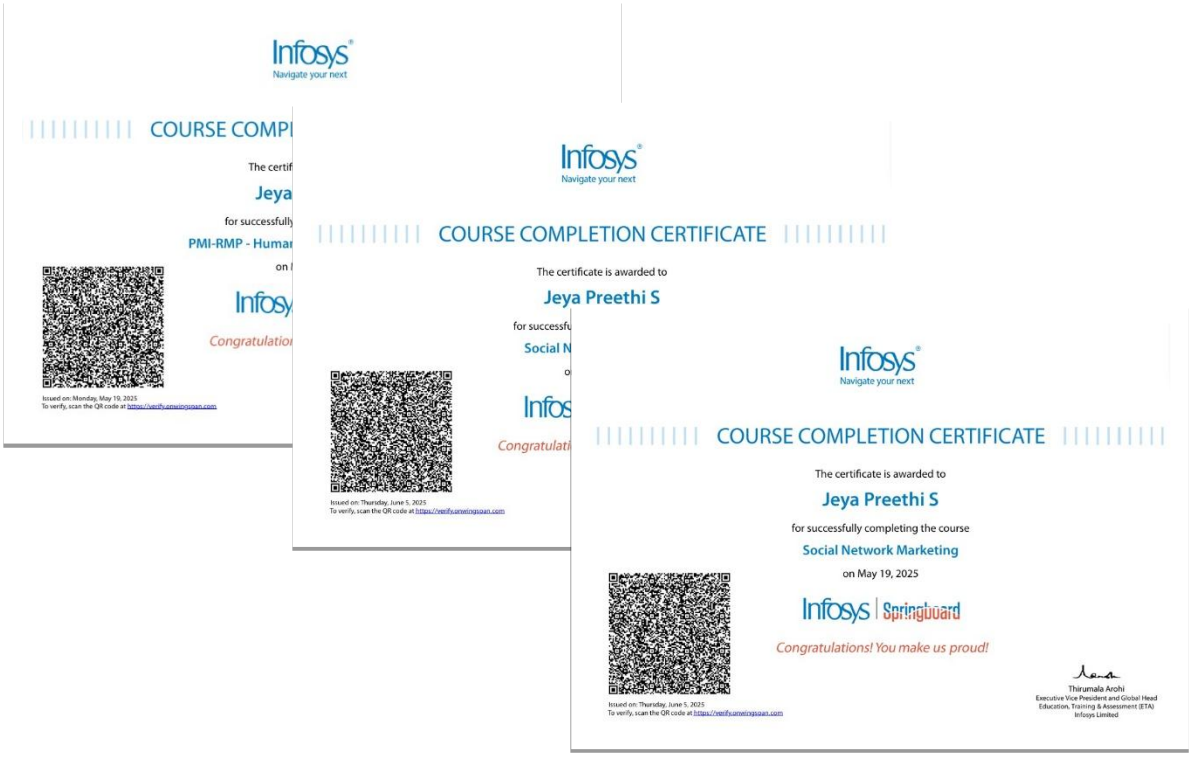

SCIENCE AND HUMANITIES

FACULTY CERTIFICATION

Dr M Shankar, Asst. Professor, published a research article on **"Influence of Urea in Growth Habit and Physico-Chemical Properties of Ammonium Chloride Single Crystal"** in *Elsevier - Journal of Crystal Growth* (Impact Factor: 1.7).

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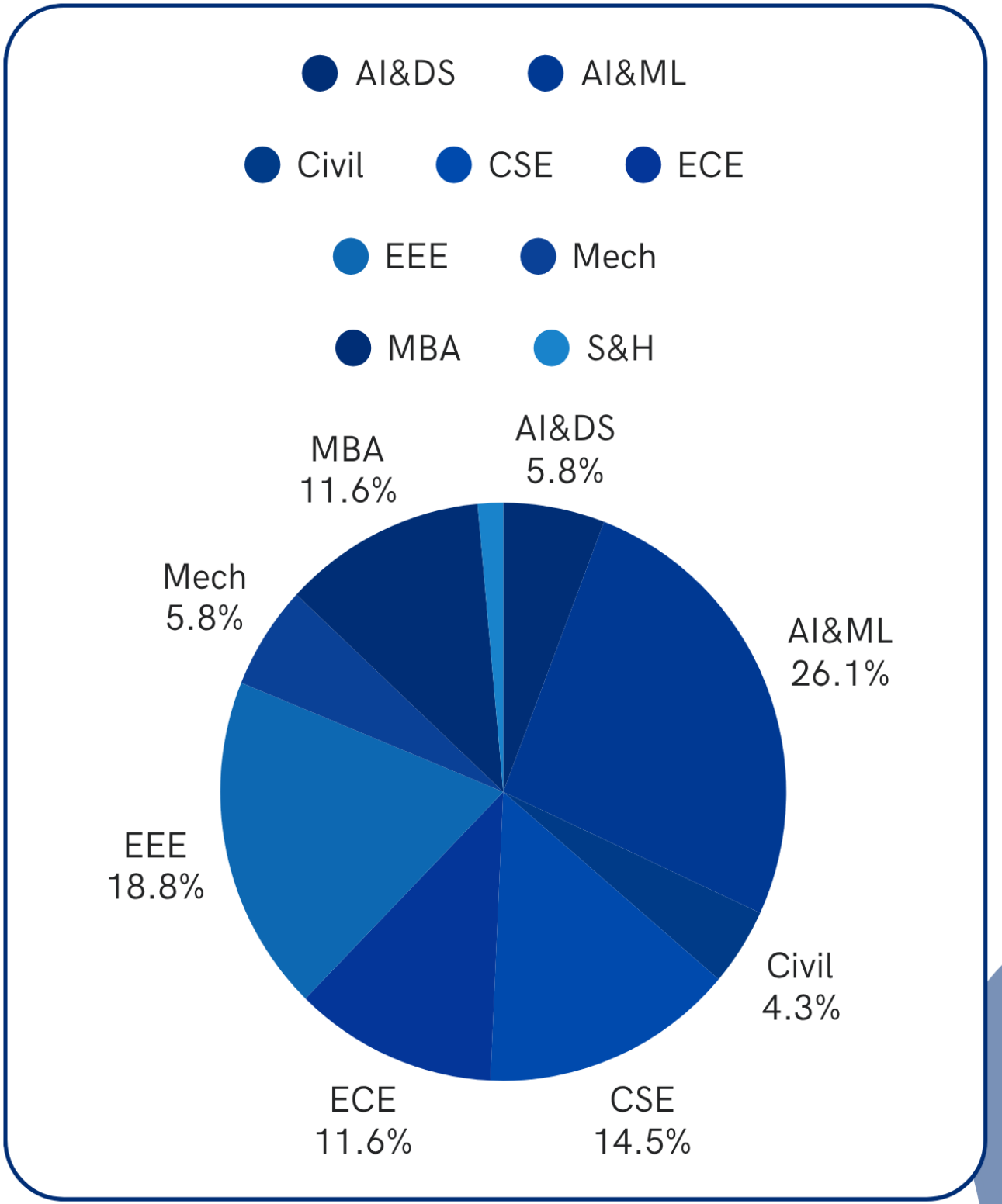

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