



Dhanalakshmi Srinivasan

Engineering College (Autonomous)

(Approved by UGC & AICTE and Affiliated to Anna University, Chennai)

(Recognized under section 2(f) & 12B of the UGC Act, 1956)

(NAAC Accredited with 'A' Grade and NBA Accredited Programmes)

Perambalur - 621212, Tamil Nadu, India.



Research & Development Cell Innovation Nexus – The R & D Newsletter

Academic Year 2022 - 2023

Blessings by the Ayya



Shri. A. Srinivasan
Chancellor,
Dhanalakshmi Srinivasan University

May the fruits of the R & D Cell labor bring forth advancements that enrich lives, foster sustainability, and leave an indelible mark on generations to come.

About the R & D Cell

The "Research and Development Cell" (RDC) is an integral part of the Dhanalakshmi Srinivasan Engineering College (DSEC) and is committed to creating a strong and vibrant higher education system emphasizing active research, innovation, and technology development. The RDC strives to promote research activities to meet the societal challenges of our country as well as pressing technological issues at the global level. To attain the objectives, the RDC of the DSEC plays a crucial role in many facets: in disseminating research findings to students and faculties of the DSEC through various scientific events (conferences, Hackathon, Expo, Workshops and so on) as well as through reputed scientific publications; in securing funding for researchers as fellowships, sponsorships, and grants for research projects; in identifying and protecting intellectual property (IP) generated through research activities. The R & D Cell also ensures that research activities adhere to ethical standards, regulatory requirements, and best practices.

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Vision of the DSEC

An active and committed center of advanced learning focused on research and training in the fields of Engineering, Technology and Management to serve the nation better.

Vision of the RDC

To create a conducive environment that nurtures fundamental, transformative, multidisciplinary, and innovative research contributing to the betterment of society.

Mission of the DSEC

To develop eminent scholars with a lifelong follow up of global standards by offering UG, PG and doctoral programs

To pursue professional and career growth by collaborating mutually beneficial partnership with industries and higher institutes of research

To promote sustained research and training with emphasis on human values and leadership qualities

To contribute solutions for the need based issues of our society by proper ways and means as dutiful citizen

Mission of the RDC

To provide comprehensive support to students and faculty members for their research endeavors through scientific facilitation, financial assistance, literature resources, and state-of-the-art facilities.

To establish a platform for partnerships and collaborations with renowned academic institutions and industries at the national and global level.

To encourage interdisciplinary, multidisciplinary and transdisciplinary research among active researchers to nurture a culture of holistic problem-solving.

To promote the dissemination of research findings through scientific events, book publications, research papers, patents, start-ups, commercialization-enabling technology transfer, and so on.

Research Proposal Submission

The R&D Cell has presented three research proposals to different funding agencies, seeking a total budget exceeding 5.4 Crores, between January and August 2023.

1. A FIST Institutional Project submitted to DST, New Delhi, India.

Coordinators: Dr. K. Elangovan, Dr. T. Sivaraman, Dr. S. Anbu, Dr. D. Karthikeyan & Dr. R. Gobi

Project amt.: Rs. 1,35,90,755

Status : Under Review

2. A Research Project submitted to TNSCST under STPS, Chennai, Tamil Nadu.

Project Title: Computational Design of Novel Chemical Antagonists Targeting Mcl-1 for Apoptosis Modulation

Investigator: Dr. T. Sivaraman

Project amt.: Rs. 5,37,300

Status: Under Review

3. A Social Project submitted to DST under SEED.

Project Title: Revolutionizing Agriculture for Socio-Economic Empowerment: Introducing Agricultural Drones, Smart Irrigation Systems, and Resilient Crops in Ladapuram Village, Perambalur - Tamil Nadu's Most Backward District.

Investigators: Dr. S. Anbu & Dr. T. Sivaraman

Project amt: Rs. 4,06,13,401

Status: Under Review

Institutional Patents

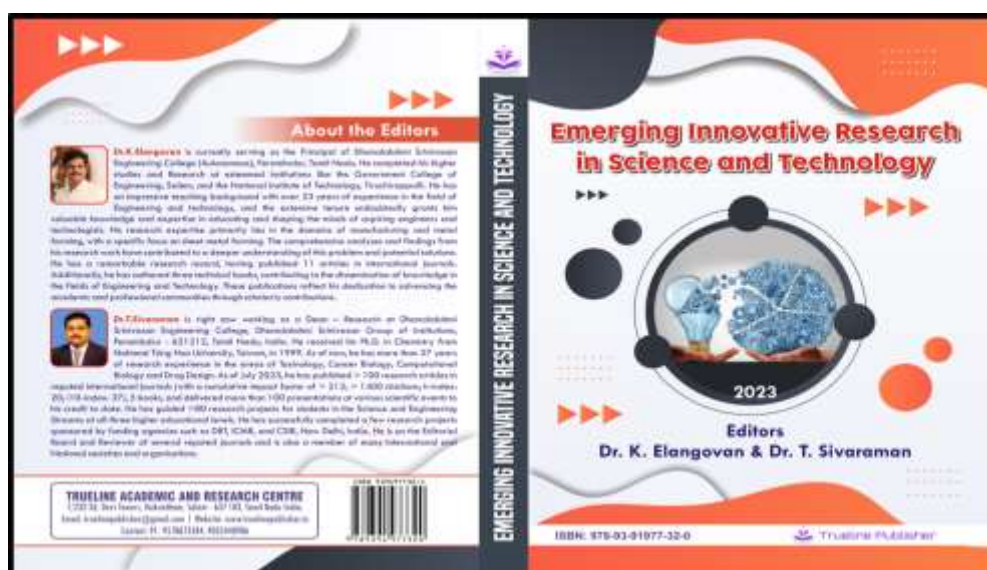
The R&D Cell proactively embarked on a journey to secure **institutional utility patents**, accomplishing this endeavor with resounding success. Notably, 10 patents were successfully filed and published within the prescribed timeframe of four months (May – August), each representing a department within the institution, including BME, CSE, Civil Engineering, ECE, EEE, Food Technology, IT, Mechanical Engineering and Pharmaceutical Technology, as shown in the following table.

Department	Inventors	Title	Application Number
Chemistry & Pharmaceutical Technology	Dr. T. Sivaraman Dr. S. Kodhaiyolli Mr. S. Sathiyaraj Ms. S. Saranyadevi Ms. C. Sellathamizh	Drug Delivery System for the Treatment of Chronic Pain	202341038354
Robotics And Automation	Dr. D. Katherasan Mr. S.Balamurugan Mr. R. Sanjeevi Mr. P. Sundaresan Mr. G. Chandrasekar	Smart Garbage Can with Automated Sorting And Recycling	202341035927
Electronics And Communication Engineering	Dr. P. Rajeswari Mr. C. Sathish Kumar Mr. N. Khadar Basha Mr. T. Boopathy Mrs. R. Gayathri Dr. K. Vishalatchi Dr. B. Karthiga	Smart Water Bottle with Hydration Tracking and Reminders	202341037247
Mechanical Engineering	Dr. K. Elangovan Dr. K. Velmurugan Dr. M. Chellappan Dr. S. Anbu Dr. J. Arunprasad	Innovative Air Filtration System for Improved Indoor Air Quality	202341041228
Electrical And Electronics Engineering	Dr. K. Anbarasan Dr. N. Arunkumar Mr. M. Asaithambi Mr. C. P. Vignesh Mr. V. Vinothkumar	Machine Learning Based Smart HVAC Control System With Predictive Analytics	202341048474
Biomedical Engineering	Mr. C. Narayanan Dr. D. Karthikeyan Ms. A. K. Nivedha Ms. S. Krishna Priya Ms. R. Ragul Kannan	Artificial Intelligence System For Early Disease Diagnosis and Intervention	202341052570
Food Technology	Ms. Vigneshwari, K Ms. Yashini, M Ms. Shirin Fargana Ms. Krishnaveni S Ms. Irine Briny Hepzibha	Innovative Aquaponic Systems for Efficient Food Production	202341052776
Computer Science And Engineering	Dr. R. Gopi Dr. Syed Sabir M Mr. V. Gokulakrishnan Ms. S. R. Sowmiya Ms. T. Geetha Ms. Aarthya	Ai-Based Intelligent Load Sharing In Integrating Renewable Power Plants In the Existing Network	202341053161

Information Technology	Dr. V. T. Kesavan Dr. N. V. Chinnasamy Mr. D. Vijayakumar Mr. S. Saravanan Mr. S. Saravanakumar	System and Method for Intelligent Assistance for Supplier Selection Using Machine Learning	202341053289
Aeronautical Engineering & Artificial Intelligence And Data Science	Mr. T. Ayyasamy Dr. K. Niranjani Dr. Shree K V M Ms. M. Sujithra Ms. A. Sivasankari	Advanced Neurostimulation Device for Migraine Relief Through Artificial Intelligence	202341039442

Book Publication

The R&D Cell is proud to present the publication of a remarkable book titled **"Emerging Innovative Research in Science and Technology"**. Our esteemed 'Revered Ayya' **Shri. A. Srinivasan, Chancellor of Dhanalakshmi Srinivasan University, officiated the book launch and blessed everyone for an inspiring journey through the pages of the book.** This distinguished book, accredited with an ISBN (978-93-91977-32-0), has been meticulously prepared by a renowned national publisher and showcases the research endeavors exclusively conducted at DSEC. The book comprises 39 enlightening chapters contributed by approximately 100 faculty members from our institution. **This significant publication stands as a testament to the scientific merit of our endeavors and it is now streamlined to publish a book every year with similar objectives.**



Details of the 39 Book Chapters Published in the Book

1. Stepwise Unfolding Pathways of an All-beta-sheet Protein by Hydrogen Exchange – **T. Sivaraman**, Department of Chemistry & Research and Development Cell
2. Synthesis and Evaluation of Bio-Scaffold using both Traditional and 3D Printing Method for Bone Tissue Regeneration - **Yogapriya M S, Narayanan C, Nivedha A K, Subhashini P, Roshini M & Veerasathiya D**, Department of Biomedical Engineering
3. Anti-Arthritic Activity of Isolated Compound 2-(3,4-Dihydroxyphenyl)-3,5,7-Trihydroxychromen-4-One from Ethanolic Extract of *Cardiospermum Halicacabum* Linn Leaves - **Vinothini G, Narayanan C, Gomathi T, Gokulprakash P, Barathraj S & Dhiwakar A**, Department of Biomedical Engineering
4. Remodelling and Simulation of Customized 3D Printed Leg Brace for Stabilizing the Musculoskeletal Disorders - **Keerthi Vembu NVP, Rubina Begam M, Krishnapriya S, Jeevanantham D, Dinovishal J & Bavish A**, Department of Biomedical Engineering
5. The Anticancer Activities of *Annona Muricata* fruit Hydroalcoholic Extract Against Human Osteosarcoma Cells - **Krishnaveni S, Maria J Mukkadan & Thilagavathy R**, Food Technology
6. Decolorization Studies of Synthetic Reactive Yellow 4 Azo Dye By *Rhizopus Oryzae* – **P. Rajkumar & N .Sangeetha**, Department of Chemical Engineering
7. Design of Recharge Pit in Red Loamy Soil for Dug Well Recharge in Pudukottai District - **Abinaya A, Prabavathi S, Prithivi M & Durka Devi A**, Department of Agriculture Engineering
8. Recent Technologies in Innovative Whey Production - **Sangeetha N, Shibani M, Akilandeeshwari R, Dharani M & Priyadharshini Y**, Department of Agriculture Engineering
9. An Overview of Amylases Industrial Applications - **Gebiru Sinshaw, Vignesh Raj S, Aanandhalakshmi R & Chandran Masi**, Department of Biotechnology
10. Double Substrate Based Milky Mushroom Cultivation – A Comparative Study - **Amirtha Varshini R, Karthikeyan Kandasamy, Sathiyaraj S & Chandran Masi**, Department of Pharmaceutical Technology

11. Jackfruit as a Key Ingredient in Plant-Based Meat Alternatives: A Comprehensive Review of Manufacturing, Nutritional Composition, Sensory Attributes, and Consumer Acceptance - **Princess Monica, Krishnaveni S, Thilagavathy R & Maria J Mukkadan**, Department of Food Technology

12. Rfid Based Interaction Free Infant: Breast Milk Lactation Conditioning and Monitoring System - **R. Ragul Kannan, D. Karthikeyan, C. Sathish Kumar, A. Madasamy, S. Muthulakshmi, R. Deepthi, P.Dharini & T.Durga devi**, Department of Biomedical Engineering

13. Decolorization of Reactive Congo Red Dye By Cloud Point Extraction with Process Optimization using Experiemental Design - **Duraimurugan M. D, N. Sangeetha & T. Jayakumar**, Department of Chemical Engineering

14. Developing Self-driving Cars through Neat-driven AI Simulation - **K. Niranjani, M. Vinoth, K. Rishivanth, R. Vengadesan & M. Parimala**, Department of Artificial Intelligence and Data Science

15. Stock Price Prediction Using LSTM - **Sujithra M, Aardra R, Akshara Lakshmi M, Lavanya R & L. Shakira Banu**, Department of Artificial Intelligence and Data Science

16. Blockchain Based Crowdfunding Application in Web - **Ramya Priyatharsini, T.G. Saravanan S, Saravana Kumar S, Vijayakumar D & Lalithavani K**, Department of Information & Technology

17. IoT Enabled Greenhouse Plantation Monitoring - **S. Francis Shamili, K. Ramya & K. Aswin**, Department of Computer Science and Engineering

18. Privacy Preserving Voting Scheme Based on Recognition and Blockchain Technology - **R. Gopi & V. Gokulakrishnan**, Department of Computer Science and Engineering

19. A Robust Dense Neural Network for Cotton Disease Detection - **S. Chinnadurai & T. Geetha**, Department of Computer Science and Engineering

20. Enhancing the Natural Properties of Silicone Oil with Semi-Conductive Nanoparticles - **N. Arnkumar, D. Jasper, M. Asaithambi & V. Vinothkumar**, Department of Electrical and Electronics Engineering
21. Sentiment Analysis on Tweeter Feedback - **A. Sivasankari, K.V.M. Shree & K. Murugeswari**, Department of Artificial Intelligence and Data Science
22. Induction Motor Control by Employing Sepic Converter For Electrical Applications - **S. Nalini, M. Bhuvaneswari, N. Chandrasekaran & A. Thamijunisha**, Department of Electrical and Electronics Engineering
23. Smart Attendance Monitoring System - **M. Parameswari, N. Saranya & P. Suriya**, Department of Electrical and Electronics Engineering
24. IoT Based Monitoring System of Life Saving Drug's Infusion - **T. Boopathy, N. Khadar Basha, A. Yogeshwaran & S. Nithiya**, Department of Electronics and Communication Engineering
25. Data Transmission between Vehicle To Vehicle Communications Using Visible Light Technology for Intelligent Transport System - **C. Sathish Kumar, S. Nithya, R. Ragul Kannan & M. Rekha**, Department of Electronics and Communication Engineering
26. Cross-Layer Design with Multi-carrier CDMA Implementation - **Shree K V M**, Department of Artificial Intelligence and Data Science
27. Experimental Investigations on Electrochemical Discharge Machining of Ceramic Composite - **M. Vijay, D. Katherrasan, G. Chandrasekar, P. Sundaresan & S. Balamurugan**, Department of Robotics and Automation Engineering
28. Thermal Barrier Coating - **S. Rajkumar, K. Sathiyalingam, A. Mohamed Hamdan & D. Madhesh**, Department of Aeronautical Engineering
29. Experimental Study of Bagasse Ash Infused Cement and Ground Granulated Blast Furnace Slag Concrete - **R. Balaji & R. Jeevika**, Department of Civil Engineering

30. An Experimental Investigation of Glass Powder and Coconut Fiber Ash In Soil Stabilization - **S. Gopinathan & S. Sharmila**, Department of Civil Engineering
31. Glass Fiber Wrapping System for Rc Element Strengthening - **N. Sunmathi & B. Manibalu**, Department of Civil Engineering
32. Design of a Telescopic Saw for pruning trees - **R. Rajesh, S. Suthagar, B. Ranjith kumar, S. Karpagarajan & K. Parameshwaran**, Department of Mechanical Engineering
33. Design and a Model Generation for Road Cleaning - **C. Sivakumar, R. Anandan, R. Kalaiyarasan, D. Manikandan & P. Ramu**, Department of Mechanical Engineering
34. Wall Climbing Robot with Permanent Magnets for Inspection - **J. Arunprasad, R. Kiruthika, R. Rajesh, R. Thirugnanasambantham, M. Chellappan & S. Sugumar**, Department of Mechanical Engineering
35. Thermophysical Properties of Nano Erythritol for Photothermal Energy Conversion and Storage - **P. Kalidos, S. Anbu, K. Elangovan, K. Velmurugan & P. Arunkumar**, Department of Mechanical Engineering
36. Applications of Thermal Barrier Coating and Advanced Technologies - **S. Rajkumar, T. Ayyasamy, A. Mohamed Hamdan & D. Katherasan**, Department of Aeronautical Engineering
37. A Study on Organisational Culture and How it Affects Employee Actions in Logskim Solution Pvt.Ltd., Chennai - **Vimala R, Atchaya A, Ummul Haseen S, Neelakanda Iyer M & Shanmuga Priya R**, Department of Management Studies
38. A Study of the Organization's Promotion and Reward Policy by Eminence HR Solutions, Chennai - **Baskar B, Rakesh R, Manish Ram, Chandan Kumar & Vignesh M**, Department of Management Studies
39. A Study on Improving Employee Engagement Parameters in Bharat Heavy Electricals Limited, Tiruchirappalli - **Suguna N, Vijay N, Elamaran R, Abinaya A & Thangamalar P**, Department of Management Studies

Forging strategic MoUs and Sponsored Events

The R&D Cell diligently completed all essential procedures to establish partnerships through Memorandums of Understanding (MoUs) with two entities: (1) NSKD Techno Research & Innovation Solution, Tamil Nadu, and (2) Rubicon Skill Development Pvt. Ltd., Pune, Maharashtra. The first MoU significantly enhances our research and intellectual property rights (IPR) publications, while the second MoU facilitates the provision of certified trainers from Rubicon Skill Development Pvt. Ltd., enabling the cost-effective implementation of LifeSkills programs for pre-final and final year students.



A Lecture Workshop on ‘**Patent filing and Drafting at National and International Levels**’ was conducted on Feb 18, 2023 at Mini Auditorium in the premises of Dhanalakshmi Srinivasan Group of Institutions, Perambalur - 621212. The program was organized by ‘Research and Development Cell’ of the DSEC. The scientific event was inaugurated and presided over by **Honourable Shri. A. Srinivasan, Chancellor, Dhanalakshmi Srinivasan University**. The Dean, Research and Development, DSEC, explicated gist of the event and delivered the welcome address and the lecture workshop was facilitated by the Principal, Vice-Principal, CoE and Dean – Academic of the DSEC. The resource person of the event was **Mr. N. Nagarajan**, Director, NSKD Techno Research Innovation and Solution and he explained various steps pertaining to grafting patent documents and patent filing procedures in a systematic manner. All the teaching faculty members of the DSEC were actively participated in the workshop.



Lecture Workshop on ‘Patent Filing and Grafting at National and International levels’ Conducted on Feb 18, 2023.

A CSR-sponsored ‘LifeSkills Training Program’ was conducted from **March 7–10, 2023**, at DSEC for **545 registered students** of pre-final and final-year undergraduates. **The Hon'ble Chancellor, Shri. A. Srinivasan, Dhanalakshmi Srinivasan University**, presided over and inaugurated the skill development training program, and in his inauguration speech to the students, he pointed out that the students can excel as a great multifaceted personality in the society upon multiplying their skills in different fields.

The 545 registered students were grouped into 7 sections, and **seven certified trainers**, as selected by **Rubicon Skill Development Pvt. Ltd., Pune, Maharashtra**, effectively engaged the courses for the students. In this program, training courses were conducted to develop various skills, including how to face an interview, workplace culture, self-awareness, leadership qualities, goal setting, psychology, self-employment, and communication skills.



Certified trainers of Rubicon Skill Development Pvt. Ltd. and dignitaries of DSEC are with the Ayya, Hon'ble Chancellor, Shri. A. Srinivasan, Dhanalakshmi Srinivasan University, during the inauguration of the 'LifeSkill Program' on March 7, 2023.



DSEC Undergraduate Students, Certified trainers, the Dean and the Coordinator of R&D Cell are in the Valedictory of the 'LifeSkills Program' on March 10, 2023.

The Digital 101 Programme was conducted by the Research and Development Cell on April 11, 2023, for about 500 engineering students who are from Years I, II, III, and IV of various departments of the DSEC. **The Hon'ble Chancellor, Shri. A. Srinivasan, Dhanalakshmi Srinivasan University**, presided over and inaugurated the programme, and in his inauguration speech to the students, he pointed out that the students should update their knowledge to safely handle and travel with the digital technology.

The Digital 101 Programme was funded by NSDC, sponsored by NASSCOM, and presented by SkillsDa INGU's Knowledge Academy Pvt. Ltd. in Chennai. Two certified trainers, Mr. K. A. Kananan and Ms. S. Lavanya from SkillsDa, effectively engaged the courses for the students, and the programme widely covered topics such as the internet, smartphones, social media, digital technology, and online privacy.



Certified trainers of Skills Da and dignitaries of DSEC are with the Ayya, Hon'ble Chancellor, Shri. A. Srinivasan, Dhanalakshmi Srinivasan University, during the inauguration of the 'Digital 101 Program' on April 11, 2023.



A few glimpses of the Digital 101 Programme conducted by the R & D Cell, DSEC, on April 11, 2023

The **'Financial Literacy Program'** was conducted by the Research and Development Cell on May 29, 2023, for about 150 first year UG engineering students and for about 60 MBA students of the DSEC. With the blessings of the **Hon'ble Chancellor, Shri. A. Srinivasan, Dhanalakshmi Srinivasan University**, the awareness program was convened by the principal of the college, Dr. Elangovan, and the program was governed by the Dean (Research) - Dr. Sivaraman, the Coordinator - Dr. Anbu, and R&D Team members. The program was sponsored by the BSE (Bombay Stock Exchange) and presented by Ms. Harshini Neralla, Managing Director, Frince Learnings, Bangalore. The program widely covered topics such as Bitcoin, Cryptocurrency, Investments, Stock exchange, Demonetization and so on.



A few glimpses of the 'Financial Literacy Program' conducted by the R & D Cell, DSEC, on May 29, 2023



Research Publications

The R&D Cell efficiently shared a range of strategic blueprints with the faculty members of DSEC within the designated six-month period. These plans were aimed at fostering the creation of high-caliber research papers, monographs, and books, and the outcomes were notably successful. As evidence, a selection of noteworthy publications in SCIE Journals is outlined below.

Thirunavukkarasu Sivaraman - Bcl-2 Family Proteins in Therapeutic Arena for Cancers, *Current Protein and Peptide Science* (ISSN: 1389-2037), 24(10), 781-782, 2023.

VP Gunasekaran, **Thirunavukkarasu Sivaraman*** and M Ganeshan - Apoptotic Switch in Cancer Stem Cells: A Potential Approach for Cancer Treatment in **Current Protein and Peptide Science**, 24(10), 843-852, 2023

Vijay Manoharan* and Sekar Tamilperuvalathan – Experimental investigation and prediction of ECDM parameters on fibre reinforced SiC composite using hybrid ERNN-based Sparrow Search Optimization, **Materials Today Communications**, 2023, 36, 106777

S Anbu*, P Kalidoss, K Elangovan, P Arunkumar - Comparative Studies on Thermal Performance of Spiraled Rod Inserts in Laminar Flow with Nanofluids in **International Journal of Ambient Energy**, 2023, 44, 2214-2228

J Arunprasad*, S Rajkumar, Aklilu Teklemariam, Dawit Tafesse, Mebratu Tufa, and A Bejaxhin - Influence of Nano Additives on Performance and Emissions Characteristics of a Diesel Engine Fueled With Watermelon Methyl Ester, **Journal of Thermal Engineering**, 2023, 9(2), 395-400

Policies and Consultancy Services

The R&D Cell has formulated 'Research Policy' and 'Consultancy Policy' to provide guidelines about compliance with relevant laws, regulations and ethical standards to conduct genuine and original research, as well as the rights and welfare of research participants. In addition, the policy points out many terms to maintain a harmonious state and amicability among task forces consisting of research students, academicians, administrative staff, and financial personnel of the management. During the current timeframe, the R&D cell has granted authorization for several consultancy projects and furnished structured templates for the organized dissemination of project particulars.

Fostering R&D Activities

The R&D Cell is rightnow steadily broadening its horizons and enriches its landscape with diverse perspectives and insights such as **Investment in Excellence, Institutional Metrics, Interdisciplinary Synergy, Local & Global Engagement and so on.**

Notably, scientific involvements of the R&D Cell in the Nakshatra. The Nakshatra Extravaganza – 2023 was conducted in the premises of Dhanalakshmi Srinivasan Group of Institutions from February 23 to February 25. In the cultural events, there were 2 food courts (for male and female separately) and the food courts consisted of 22 food stalls altogether. The Department of Food Technology and Research & Development Cell of Dhanalakshmi Srinivasan Engineering College jointly took an initiative to assess quality of the foods served



Snapshots of a few laboratory experiments



A glimpse of distribution of 'Appreciation Certificate' to the stall members



A Model ‘Appreciation Certificate’ distributed in the event.

by the stalls and as well to create an awareness on maintaining hygienic environments in and around the stalls. The assessment team consisted of about 20 members (Dr. T. Sivaraman, Dean – Research, Ms. K. Vigneshwari, HoD, Ms. B. Shirin Fargana & a few faculty members of DSEC and students of Food Technology Department). The team met the members of each stall in the food courts and explained the objectives of the task. Essential food samples such as water, milk, oils, butter and etc were collected and quality of the samples were analysed in the laboratories of Food Technology, DSEC and the results of the analyses had been also brought into the notices of the respective stall members for further perusal. As a token of appreciation for their friendly cooperation towards the task of maintaining hygienic environments, ‘Appreciation Certificates’ were also distributed to the food courts.

Students Achievements

The R&D Cell provided guidance to students in the Biomedical Engineering department for a research project. The outcomes of this research were showcased at the **International Conference on Innovative Approaches in Life Sciences**, which took place on March 24 & 25, 2023. The conference was held at the Department of Food Science and Nutrition, located at The American College in Madurai, Tamil Nadu, India. Notably, the research presentation was honored with the **Best Presentation Award**, underscoring the exceptional quality and impact of the work.

Title of the Research Project: Designing of Novel Non-caloric sweeteners on the basis of structural interactions between taste receptors and sweet proteins

Authors: Juhana Zamzad, M. Safvana, T. Sivaraman and C. Narayanan

