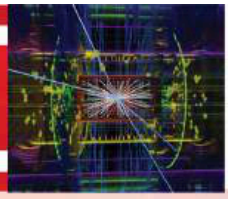


DEPARTMENT OF BASIC SCIENCES AND HUMANITIES

Communication Empowers



New Trends in Technology

Frontier Sciences and Technologies:

- **Precision Agriculture:** Leveraging AI, IoT sensors, drones, and satellite imagery for real-time data on soil health, crop growth, and weather. This enables optimized irrigation, fertilization, and pest management, minimizing waste and maximizing yields.
- **Biotechnology & Gene Editing (CRISPR):** Developing climate-resilient, high-yielding, and nutritious crop varieties that can withstand extreme weather, pests, and diseases, reducing reliance on chemical inputs.
- **Digital Agriculture Platforms:** AI-powered advisory systems, blockchain for supply chain transparency, and mobile applications providing real-time market data, weather forecasts, and expert guidance.
- **Controlled Environment Agriculture:** Vertical farming and hydroponics offer solutions for urban areas and water-scarce regions, allowing year-round, high-density crop production with minimal land and water.
- **Smart Livestock Farming:** Using sensors and data analytics for animal health monitoring, optimized feeding, and early disease detection, enhancing productivity and animal welfare.
- **Nanotechnology:** Developing nano-fertilizers and nano-pesticides for targeted delivery, reducing chemical usage and environmental impact. Sustainable Resource Management: Advanced water management (smart irrigation, rainwater harvesting) and soil health technologies (bio-fertilizers, microbial inoculants) are crucial

FACULTY FOCUS

1. Dr.K.Ponnari Lakshmi, Professor and Head of the Dept. B.S&H Published a paper with the title " Progressive stages or levels of technical Reading with Sample Reading Components Indicator: For Fourth year B.Tech students", In south Eastern European Journal of Public Health,2025(a Scopus indexed journal in March 2025.

2. Dr. K. Ponnari Lakshmi, Professor and Head of the Dept. B.S&H Published a paper with the title "Indian Education System in the teaching of English: Present scenario" in Library Progress International (Scopus indexed journal) in 2025.

3. Dr. V. Aruna, Assoc. Professor of English Published a paper with the title "Improving English Text Machine Translation Qualities with Cultines Edge Neural Network System" in a Scopus indexed journal in 2025.

4. Dr. V. Aruna, Assoc. Professor of English Presented a Paper on "Computing For Language Assessment in Large – Scale English Testing: A Study of Efficient and Scalable Solutions", in an International Seminar.

5. Dr. V. Aruna, Assoc. Professor of English attended ICSSR The Twelve- Day Capacity Building Program (CBP) for Faculty in social science and Humanities on the theme "Enhancing methodological Expertise and Technical Adaptations".

6. Dr. V. Aruna, Assoc. Professor of English Published Scopus Indexed paper titled "Improving English Text Machine Translation Quality with Cutting Edge Neural Network Systems"

7. Dr. G.R.K. Murthy, Asst.Professor of English,Published a paper with the title "Optimizing English Lexical Databases with BERT and Reinforcement learning" in a Scopus indexed journal in 2025.

8. Dr. G. Dharmaiah Assoc. Professor of Mathematics Published a paper in the title "Execution of Bioconvective Radiative Dissipative Non- Newtonian Magnetohydrodynamic Flow Comprising Stratification with BVP4C Approach Configured with Vertical Plane" in Computer Modeling in Engineering & Sciences 2025.

9. Dr. G. Dharmaiah Assoc. Professor of Mathematics Published a paper in the title "Thermal Diffusion Effect Analysis of Micropolar Nanofluid Flowing on Inclined Surface: Chemical Engineering Case Study in First Published: 30 January 2025 in https://onlinelibrary.wiley.comdoi/10.1002/htj.23297.

10. Dr. G. Dharmaiah Assoc. Professor of Mathematics Published a paper in the title "Optimizing Thermal Performance of Water-Based Hybrid Nanofluids with Magnetic and Radiative Effects over a Spinning Disc, Chemometrics and Intelligent Laboratory System" in 2025, 105336. https://doi.org/10.1016/j.chemolab.2025.105336.

11. Dr. G. Dharmaiah Assoc. Professor of Mathematics Published a paper in the title "Melting Heat Transfer Effects on MHD Chemically Thermally towards Stretching Exponentially Sheet with Heat Sink/Source, CFD Letters 17" Issue 7 2025 113129. https://doi.org/10.37934/cfdl.17.7.113129.

12. Dr. G. Dharmaiah Assoc. Professor of Mathematics Published a paper in the title "Exploration of physical characteristics of gyrotactic microorganisms and Cattaneo-Christov heat flux past a cone and a wedge with thermal radiation" in Case Study in Thermal Engineering Volume 68, https://doi.org/10.1016/j.csite.2025.105916.

13. Dr. G. Dharmaiah Assoc. Professor of Mathematics Published a paper in the title "Deep Learning Approach for predicting heat transfer in Water-Based hybrid nanofluid thin film flow and optimization via response surface methodology, in Case Study in Thermal Engineering Volume 68, 2025 105930 in the site, https://doi.org/10.1016/j.csite.2025.105930 .

14. Dr. G. Dharmaiah Assoc. Professor of Mathematics Published a paper in the title "A Novel Exploration of Magnetized Nano Jeffrey Fluid Flow Over a Chemically Reacted permeable disk with ohmic heating, Modern Physical Letters B, in 2025, 2550121, PP. 1-27. Doi/10.1142/S0217984925501210.

15. Dr. R. Mohana Ramana Asst. Professor of Mathematics Published a Paper with the title "Computational Study of Magnetized 3D Revolving Hybrid Nanofluid with Non-Linear Thermal Radiation and Heat Source/Sink Over a stretching sheet in Scopus indexed journal of https://doi.org/10.1007/s41939-025-00748-9.

16. Dr. R. Mohana Ramana Asst. Professor of Mathematics Published a Paper with the title "A Computational Analysis on Chemically Reacting Stagnation Point Hybrid Nanofluid Flow over Stretched Surface under the Influence of Arrhenius Kinetic Energy" in Scopus Indexed journal of Advanced Research in Fluid Mechanics and Thermal Sciences 131, Issue 1 (2025) 1-19.

17. Dr. R. Mohana Ramana Asst. Professor of Mathematics Published a Paper with the title 'Contribution of Soret and Dufour aspects on Hybrid Nanofluid over 3D Magneto Radioactive Stretching Surface with Chemical Reaction," in Scopus indexed journal of https://semarakilmu.com.my/journals/index.php/CFD_Letters/index. CDF Letters ,17,5,131-151.

18. Dr. CH. Maheshwari Asst. Professor of Mathematics Published a Paper with the title "Computational Study of Magnetized 3D Revolving Hybrid Nanofluid with Non-Linear Thermal Radiation and Heat Source/Sink Over a stretching sheet in Scopus indexed journal of https://doi.org/10.1007/s41939-025-00748-9.

19. Dr. K. Neeraja Assoc. Professor of Physics Published a paper with the title of "Spectral Analysis and Characterization of Na2O-SiO2-ZrO2 glasses doped with V2O5" in the journal of Molecular Structure Volume 1320, 15 January 2025,139567.

20. Dr.N.Giridhar Babu Asst.Professor of Physics Published a paper with the title of "Improvement of electrtocaloric energy storage properties in eco-friendly 0.63Na0.5Bi0.5TiO3-0.37SrTiO3-NaNbO3 Ceramic synthesized by sol-gel route" in the Scopus indexed journal of J Mater Sci. Mater Electron 36, 410 (2025). https//doi.org/10.1007/s10854-0.25-14471-1.

21. Dr.K.Santha Kumari Asst.Professor of chemistry Published a paper with the title of " Sustainable Climate Change analysis of Renewable Power" in IGI global series, (A Scopus journal).

22. G. Naga Raju Asst.Professor of Chemistry Successfully completed AICTE Training and Learning (ATAL) Academy, Faculty Development Program on "Sustainable Carbon-Free Technology for Hydrogen Generation and Storage", NIT Tiruchirappalli from 17/2/2025 To 22/2/2025.

23. G. Naga Raju Asst.Professor of Chemistry Successfully completed NITTR- Chandigarh FDP on "Science, Technology and Innovation for Sustainable development" Conducted by Electrical Engineering Department, NEC From 27/01/2025 To 31/01/2025.

24. Dr. Y. Lakshman Kumar Asst.Professor of Chemistry Successfully completed NITTR- Chandigarh FDP on "Science, Technology and Innovation for Sustainable development" Conducted by Electrical Engineering Department, NEC From 27/01/2025 To 31/01/2025.