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Scientific Research and Revolution

ICSRR 2025

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ICSRR 2025

August 17, 2025

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ABOUT CONFERENCE

The International Conference on Scientific Research and Revolution (ICSRR 2025), scheduled for August 17, 2025, will be conducted in virtual mode, providing a global platform for researchers, academicians, and industry professionals to share ground-breaking ideas and transformative innovations. This conference will spotlight pioneering research and revolutionary approaches across diverse scientific domains, fostering discussions that challenge conventional thinking and open new frontiers of knowledge.

Through engaging technical sessions and thought-provoking presentations, participants will explore emerging trends, disruptive technologies, and forward-looking solutions that have the potential to shape the future of science and society. Experts from multiple disciplines—including engineering, natural sciences, social sciences, technology, and management—will come together to present cutting-edge work and address pressing global and societal challenges.

With a strong focus on collaboration, innovation, and impactful outcomes, ICSRR 2025 will serve as a unique forum for networking, exchanging ideas, and inspiring research that can lead to meaningful change. Leveraging virtual technologies, the conference aims to ensure inclusivity and reach, enabling participation from across the globe in this pivotal dialogue on the evolution and revolution of scientific research.

ABOUT ORGANIZER

Scientific Research Reports (SRR Books) is an innovative publishing company that publishes digital books in a wide range of arts, social, science, and technology fields and is registered and approved as a digital book publisher with the Government of India. The goal of the Scientific Research Reports is to encourage the dissemination of both fundamental and applied research across the various academic fields and research communities located all over the world. In addition to this, it intends to create research networking among the many different research groups and encourage conversation on emerging research standards

Dr. J. Arunprasad is a faculty member at the School of Mechanical, Industrial, and Aeronautical Engineering, University of the Witwatersrand, Johannesburg, South Africa. He specializes in advanced manufacturing, materials engineering, and mechanical system design. With significant research contributions, he has published in high-impact journals and presented at reputed international conferences. As the corresponding author for several studies, Dr. Arunprasad actively collaborates with global research communities to address industrial and societal challenges through innovative engineering solutions. His dedication to academic excellence, research innovation, and mentoring has established him as a respected professional in the field.

Dr. Sivanraju Rajkumar is a faculty member in the Department of Mechanical Engineering, Faculty of Manufacturing, Institute of Technology, Hawassa University, Hawassa, Ethiopia. He has extensive teaching and research experience in manufacturing engineering, materials science, and mechanical design. His academic contributions include publishing research articles in reputed journals, guiding student projects, and participating in international conferences. Dr. Rajkumar is dedicated to advancing engineering education through innovative teaching methods, industry-oriented research, and skill development initiatives. His commitment to academic excellence and knowledge transfer has made him a valued mentor and contributor to the growth of the mechanical engineering discipline.

Dr. Sharad K. Pasale earned his Ph.D. in Chemistry from the University of Rome Tor Vergata, Italy, in 2014, after completing his M.Sc. in Organic Chemistry from Maulana Azad Research Center, Dr. Babasaheb Ambedkar Marathwada University (2006) and B.Sc. in Chemistry from Dayanand College, Solapur (2004). He worked as a Research Associate at CSIR-National Chemical Laboratory, Pune, and collaborated with Oxford University during his Ph.D., visiting 14 countries for research. He has published over 14 papers, authored five books, and received multiple awards. Currently, as Assistant Professor at Thakur College, Mumbai, he inspires students through his research on heterocycles, polymers, and soft materials.

Dr. M. Chandrasekar is a Professor in the Department of Mechanical Engineering at K. Ramakrishnan College of Technology, Samayapuram, Trichy, India. With extensive academic and research experience, he specializes in areas such as nanomaterials, advanced manufacturing, and mechanical system design. He has guided numerous student projects, published research papers in reputed journals, and actively contributed to conferences and workshops. Dr. Chandrasekar is committed to fostering innovation, skill development, and industry-academia collaboration. His expertise and dedication have significantly advanced the department's academic excellence and research output, making him a respected educator and mentor in the engineering community.

ICSRR 2025 - PAPER INDEX

ICSRR – E001

AI-DRIVEN APPROACHES TO TRANSFORM WORKFORCE PERFORMANCE PREDICTION

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Abstract:

The rise of Artificial Intelligence (AI) and Machine Learning (ML) is redefining the foundations of workforce performance assessment. Organizations, driven by the need for real-time insights and predictive accuracy, are increasingly adopting AI-powered tools to anticipate employee productivity, skill gaps, and future potential. This paper presents a contextual theoretical exploration of AI-driven approaches to workforce performance prediction, integrating insights from the Job Demands–Resources (JD-R) model, Human Capital Theory, and the Technology Acceptance Model (TAM). The paper examines the transformative role of AI in enhancing performance measurement accuracy, supporting evidence-based decision-making, and aligning human capital strategies with organizational goals. Ethical considerations, cross-sector applicability, and the post-pandemic shift to hybrid work models are addressed to provide a comprehensive understanding of the opportunities and challenges in AI-driven performance prediction. The proposed conceptual framework positions AI not as a replacement for human judgment, but as a powerful augmentation tool that complements managerial expertise.

Keywords: *Artificial Intelligence, Workforce Performance Prediction, Job Demands–Resources Model, Human Capital Theory, Machine Learning, Workforce Analytics*

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ICSRR – E002

TRANSFORMING POWER NETWORKS: THE ROLE OF SMART GRIDS AND SCADA IN THE FUTURE

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Abstract:

The nation's electric power grid is outdated, overburdened, and inefficient. Relying on today's digital society with yesterday's grid is like trying to run the Internet through a manual switchboard. A major accident or act of sabotage could paralyze large regions for days or even weeks, leading to massive economic losses. Upgrading the grid with advanced computer controls would enable more efficient, safer, and resilient power distribution. The smart grid represents a modernized version of the 20th-century power grid, encompassing upgrades to both transmission and distribution systems. It promises a more efficient approach to how we generate, supply, and consume energy. At its core, the smart grid integrates a data communications network with the power grid, allowing for real-time collection and analysis of data related to power transmission, distribution, and consumption. Through the smart grid, two-way communication with customer premises enables active monitoring, demand management, and control of embedded generation. Traditional SCADA systems are an early form of smart grid technology, and the data managed by SCADA plays a crucial role in any smart grid deployment.

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ICSRR – E003

DRILLING CHARACTERISTICS STUDY ON HUMAN HAIR REINFORCED PLASTIC COMPOSITES

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Abstract:

The manufacturing of the natural fibre reinforced composite can broadly be classified as primary and secondary manufacturing. Primary manufacturing processes are hand lay-up, Pultrusion, filament winding, vacuum bag moulding and resin transfer moulding. Secondary manufacturing include drilling, cutting and surface finishing. Hole making is one of the important machining operations to facilitate the assembly operations. Though a number of approaches have been used for making holes in composite laminates, conventional drilling till date is the most widely acceptable and frequently practiced machining operation for hole making. Conventional drilling however results in damage in the form of delamination, micro cracks, fiber pull out and matrix burning around the hole and may ultimately cause variation in the strength of the component with a drilled hole. The objective of this work is Minimize delamination damage and Maximize residual tensile strength. In this work, experiments were carried out as per the Taguchi experimental design hole by varying the parameters speed in the range of (500-1500) point angle in the range of (90-110) Feed in the range of (0.02-0.06) and result are analysed using Analysis of variance (ANOVA) technique to know the percentage contribution of each factor on residual tensile strength, and delamination damage of the hole

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ICSRR – S004

ORGANIC FERTILIZERS AND SOIL CONDITIONERS FROM AGRICULTURAL WASTE

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Abstract:

The growing global population and intensive farming practices have caused a significant rise in agricultural waste, creating serious environmental issues. At the same time, sustainable agriculture requires less dependence on synthetic fertilizers and a stronger focus on soil health. This chapter looks at the huge potential of agricultural waste as a useful resource for producing organic fertilizers and soil conditioners. It examines the different types of agricultural waste and explains the many benefits of using them for soil fertility, plant growth, and environmental sustainability. It also investigates various conversion methods like composting, anaerobic digestion, and biochar production. In addition, it offers practical strategies for application, addresses existing challenges, and presents future outlooks for encouraging the widespread use of these sustainable practices. By turning waste into valuable resources, agriculture can move toward a more circular, resilient, and environmentally friendly system.

Keywords: Agricultural waste, organic fertilizers, soil conditioners, sustainable agriculture, composting, anaerobic digestion, biochar, soil health, nutrient cycling, waste management.

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ICSRR – S005

GREEN SYNTHESIS OF SILVER NANOPARTICLES USING PLANTS EXTRACT AND ANALYSIS OF THEIR ANTIMICROBIAL ACTIVITY

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Abstract:
This study deals with the green synthesis of silver nanoparticles using Plants extract from Ocimum tenuiflorum, Solanum tricobatum, Syzygium cumini, Centella asiatica and Citrus sinensis was used for the synthesis of silver nanoparticles (Ag NPs) from silver nitrate solution. Ag NPs were characterized by UV–vis spectrophotometer, X-ray diffractometer (XRD), atomic force microscope (AFM) and scanning electron microscope (SEM). The formation and stability of the reduced silver nanoparticles in the colloidal solution were monitored by UV–vis spectrophotometer analysis. The mean particle diameter of silver nanoparticles was calculated from the XRD pattern according to the line width of the plane, refraction peak using the Scherrer's equation. AFM showed the formation of silver nanoparticle with an average size of 28 nm, 26.5 nm, 65 nm, 22.3 nm and 28.4 nm corresponding to O. tenuiflorum, S. cumini, C. sinensis, S. tricobatum and C. asiatica, respectively. SEM determination of the brown color stable samples showed the formation of silver nanoparticles and well dispersed nanoparticles could be seen in the samples treated with silver nitrate. Antimicrobial activity of the silver bio-nanoparticles was performed by well diffusion method against *Staphylococcus aureus, Pseudomonas aeruginosa, Escherichia coli* and *Klebsiella pneumoniae*. The highest antimicrobial activity of silver nanoparticles synthesized by S. tricobatum, O. tenuiflorum extracts was found against *S. aureus* (30 mm) and *E. coli* (30 mm) respectively. The Ag NPs synthesized in this process has the efficient antimicrobial activity against pathogenic bacteria. of these, silver nanoparticles are playing a major role in the field of nanotechnology and nanomedicine

Keywords: *Green Synthesis, Silver nanoparticles, UV–vis spectrophotometer, XRD, AFM, SEM, Antibacterial Activity.*

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ICSRR – E006

GREEN ALTERNATIVES IN FIBER-REINFORCED CONCRETE: A FUTURE-READY APPROACH

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Abstract:

Fiber-Reinforced Concrete (FRC) represents a major innovation in construction materials, offering substantial improvements in strength, durability, and sustainability over conventional concrete. This review provides a comprehensive analysis of recent advancements in the use of fibers in concrete, with a focus on optimizing its mechanical and structural properties. It examines the impact of different fiber types, volume fractions, and distribution methods on crack resistance, load-bearing capacity, and long-term performance. The review also explores contemporary trends, such as the use of hybrid fibers, natural and recycled fibers, and nanofibers, and discusses the challenges and research gaps in the field.

Keywords: Durability enhancement, Hybrid fiber systems, Construction materials optimization, Hybrid fiber systems

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ICSRR – S007

ADVANCES IN PHOTOVOLTAICS SCIENCE: NEXT-GEN MATERIALS AND SMART ENERGY SOLUTIONS

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Abstract:
A growing desire for clean sustainable energy solutions across the entire globe has fuelled considerable innovations in the field of Photovoltaics (PVs) in recent years. The advancement of smart energy solutions and next-generation materials is set to transform solar power generation as the demand for renewable energy grows. The article highlights the most recent developments in photovoltaic science, emphasizing cutting-edge technologies, innovative materials and intelligent systems that are impacting solar energy's future. At the core of these advancements are next-generation photovoltaic materials. These materials are excellent choices for upcoming solar technologies because of their exceptional qualities, which include lightweight flexibility, adjustable band gaps and ease of manufacture. The potential for improved performance, transparency and flexibility in organic photovoltaic (OPV) cells and quantum dot solar cells, in addition to perovskites has been investigated. This will make it possible for integration into an array of environments and applications. Photovoltaic systems have grown greater effective and helpful thanks to smart energy solutions. Integrating energy storage technologies such flow and solid-state batteries is essential for reducing solar power's unreliability and ensuring a steady supply of electricity. Predictive maintenance, real-time monitoring and smart inverters are just a few instances of how intelligent technologies are enhancing the longevity and general efficiency of PV systems. In terms of cost-effectiveness, sustainability and energy conversion efficiency the combination of innovative technology with advanced supplies offers significant advantages. These advancements support the worldwide movement to achieve net-zero emissions targets and reduce the carbon footprint of the energy industry. These innovations have the potential to drastically alter the energy production landscape as we transition to a more sustainable energy future by increasing the accessibility, effectiveness and adaptability of solar power to an extensive spectrum of applications.

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ICSRR – S008

MACHINE LEARNING FOR INTRUSION DETECTION AND ANOMALY DETECTION

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Abstract:
In the era of rapid digitalization and increasing cyber threats, ensuring the security of information systems has become a critical concern. Traditional rule-based intrusion detection systems (IDS) are often insufficient in identifying novel and sophisticated attacks. Machine Learning (ML), with its ability to learn from data and detect complex patterns, has emerged as a powerful tool for enhancing intrusion detection and anomaly detection mechanisms in cyber security.This paper explores the application of machine learning techniques in developing intelligent intrusion detection systems capable of detecting known and unknown threats. Supervised learning algorithms such as Support Vector Machines (SVM), Decision Trees, and Random Forests are commonly employed to classify network traffic into normal and malicious categories based on labeled datasets. Unsupervised learning methods like K-Means clustering and Auto encoders are utilized for anomaly detection in unlabeled data, where abnormal behaviors are flagged based on deviations from normal patterns. Additionally, semi-supervised and reinforcement learning techniques offer hybrid solutions for real-time threat detection. The paper also discusses feature selection, data preprocessing, and the importance of benchmark datasets such as KDD Cup 99, NSL-KDD, and CICIDS2017 in training and evaluating IDS models. Emphasis is placed on challenges such as data imbalance, high false positive rates, and the need for explainable and scalable models in practical deployments.By leveraging ML-based approaches, organizations can significantly improve their threat detection capabilities, reduce response times, and adapt to evolving attack strategies. The study concludes by highlighting recent advancements in deep learning, adversarial ML, and federated learning, paving the way for robust, real-time, and privacy-preserving cybersecurity solutions.

Keywords- *Machine Learning, Intrusion Detection System (IDS), Anomaly Detection, Cybersecurity, Supervised Learning, Unsupervised Learning, Deep Learning, Network Security, KDD Dataset, Threat Detection.*

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ICSRR – M009

SUSTAINABLE DEVELOPMENT OF MICROBIAL HYDROGEL MATRIX FOR STRUCTURAL CRACK REPAIR – A REVIEW

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ABSTRACT

The combination of environmental stress and mechanical load and material aging causes frequent surface cracking in concrete and masonry structures. Water infiltration occurs through untreated cracks which causes corrosion together with structural deterioration. The standard sealing technique which uses cement and chemical sealants requires extensive manual work and generates high expenses while being environmentally unsustainable. The BioCrete Patch Spray functions as an innovative sprayable biotechnological hydrogel which heals concrete and masonry cracks directly at the site. The spray formulation contains sodium alginate together with *Bacillus subtilis* bacterial spores and either calcium lactate or urea as nutrient sources. The sprayed formulation undergoes crosslinking through calcium chloride mist contact which produces a calcium alginate hydrogel that sticks to the cracked surface. When moisture exists bacteria begin their activation process which starts microbial-induced calcium carbonate precipitation (MICP) to seal cracks through natural biomineralization. This repair technique eliminates cement use while being environmentally friendly and requires no special equipment for application thus serving household repairs and civil maintenance and emergency response needs. The dual system in BioCrete Patch Spray first stabilizes the hydrogel then promotes biological healing to achieve both structural reinforcement and long-lasting durability. The BioCrete Patch Spray provides an innovative sustainable approach that holds commercial potential as well as prospects for green construction technology development.

Keywords: *Self-healing concrete, Hydrogel, Bacillus subtilis, Microbial-induced calcium carbonate precipitation (MICP), Calcium alginate, Biomineralization, Sustainable construction, Crack repair.*

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ICSRR – E010

ENGINEERED MICROBES FOR THE CONVERSION OF CO_2 INTO VALUABLE BIOBASED PRODUCTS: A REVIEW

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Abstract:

The rapid increase in atmospheric carbon dioxide and the depletion of fossil fuel reserves have necessitated the development of sustainable solutions for both carbon mitigation and renewable energy. Microorganisms such as algae, bacteria, and fungi present an eco-efficient alternative for dual-function applications: carbon capture and biofuel production. This project focuses on evaluating specific species—*Scenedesmus dimorphus, Rhodobacter sphaeroides, Yarrowia lipolytica, and Phanerochaete chrysosporium*—based on their individual and combined potential in capturing CO_2 and producing lipid-based biofuels. *Scenedesmus dimorphus*, a microalga, is known for its rapid growth, high carbon fixation rate, and lipid accumulation capabilities, making it ideal for biodiesel production. *Rhodobacter sphaeroides*, a photosynthetic bacterium, contributes to biohydrogen generation and supports carbon cycling. *Yarrowia lipolytica*, an oleaginous yeast, efficiently converts organic waste into lipids under nitrogen-limited conditions. Additionally, *Phanerochaete chrysosporium*, a white rot fungus, enhances the biodegradation of lignin-rich biomass, enabling better access to fermentable sugars for co-culture systems. The project aims to develop a hybrid, synergistic microbial culture that maximizes biofuel yield while minimizing environmental impact. Species selection is guided by lipid yield, carbon sequestration ability, growth conditions, and novelty. Future prospects include AI-driven metabolic pathway optimization and strain engineering to further enhance biofuel production. This integrated biological model offers a promising path toward sustainable, scalable bioenergy solutions and circular carbon economy systems.

Keywords: *Carbon capture, Biofuel production, Microbial synergy, Sustainable biotechnology*

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ICSRR – E011

OUTCOME BASED EDUCATION ON AI TECHNOLOGY

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Abstract:

In recent years, Artificial Intelligence (AI) has emerged as a transformative force in education, fundamentally reshaping how teaching, learning, and assessment are approached. Within the framework of Outcome-Based Education (OBE)—an educational philosophy that prioritizes clearly defined learning outcomes—AI technologies offer powerful tools to personalize learning experiences, enhance instructional strategies, and provide real-time feedback. As education systems shift toward more learner-centric and competency-based models, integrating AI into OBE has become both a necessity and an opportunity. This study aims to investigate the integration of AI within OBE systems, with a focus on understanding its impact on student learning outcomes, teaching effectiveness, and institutional performance. It explores how AI-driven solutions can support personalized learning pathways, streamline assessments, and provide actionable insights for educators, ultimately improving the quality and efficiency of educational delivery. A mixed-methods approach was employed, combining a systematic review of existing literature with empirical research drawn from institutions that have implemented AI-based OBE models. Quantitative data—including performance metrics, student engagement rates, and learning outcome achievements—were analyzed alongside qualitative insights from educators and learners. The study also examined the role of AI-powered tools such as adaptive learning platforms, intelligent tutoring systems, and data analytics dashboards in enhancing pedagogical practices. This research contributes valuable insights for educators, administrators, policymakers, and edtech innovators. It highlights not only the transformative potential of AI in OBE but also the importance of thoughtful planning, stakeholder engagement, and iterative evaluation. As AI continues to evolve, its role in shaping the future of education will grow, making it essential for institutions to adapt strategically and ethically.

Keywords: *AI, Outcome-Based Education, Personalized Learning, Adaptive Instruction, Educational Data Analytics, Machine Learning, Assessment Innovation, EdTech, Digital Education, Competency-Based Learning*

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ICSRR – S012

GENUS SUAEDA: ADVANCES IN PHARMACOLOGY AND CLINICAL APPLICATIONS SUPPORTING SDG 3 – GOOD HEALTH AND WELL-BEING

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Abstract:

The genus Suaeda, comprising halophytic species native to saline and coastal ecosystems, has emerged as a promising source of pharmacologically active compounds with wide-ranging health benefits. Recent studies highlight the therapeutic potential of Suaeda maritima, S. salsa, and S. glauca in managing chronic conditions such as diabetes, hypertension, liver fibrosis, and inflammation. Bioactive constituents—including flavonoids, polyphenols, and ACE inhibitory peptides—present robust cytoprotective, antioxidant, and anti-inflammatory activity. These advances resonate strongly with the objectives of Sustainable Development Goal 3, which promotes universal access to effective medicines and healthcare technologies. Moreover, the sustainable cultivation of Suaeda in marginal soils supports resilient public health systems in vulnerable regions, bridging ecological sustainability with clinical relevance. This review underscores the genus's role as a natural ally in achieving global health equity through integrative, SDG-oriented research. More than 100 species of annual herb genus *Suaeda* widely distribute (Asia, North America, northern Africa and Europe), are rich in resources (about

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hundreds of millions of tons/Y) and have a long historical application. Most of them are mainly used for traditional food, feed and medicine. Recently, they have been employed to repair saline-alkali land and beautify the environment. So far, only 27 species have been reported on the bioactivity diversity, broad spectrum and effectiveness in clinical practice. Therefore, the in-depth and extensive research of *Suaeda* has become a research hotspot around the world. However, only one review summarized the nutritional, chemical and biological values of *Suaeda*. By searching the international authoritative databases (ACS Publications, ScienceDirect, PubMed, Springer, web of Science and Bing International etc.) and collecting 100 literatures closely related to *Suaeda* (1895–2024), herewith a comprehensive and systematic review was conducted on the phytology, chemistry, pharmacology and clinical application, enveloping the classification evolution between Amaranthaceae and *Chenopodiaceae*, distribution and common botanical characteristics; involving 9 chemical categories of 163 derivatives covering 14 new and 6 first-isolated ones, and appraising the content determination of 6 categories of components; mainly including the pharmacology of 13 species *in vivo* and *vitro*; estimating the clinical application of 16 species cured the related diseases of eight human physiological system except for the motor system. It is expected that this paper will provide forward-looking scientific ideas and literature support for the further modern research, development and utilization of the genus.

Key words: S.Vermiculata, medicinal uses, anticancer mechanism, hepatoprotective activity, Sustainable Development Goal 3 - Good Health and Well-being.

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ICSRR – M013

A STUDY ON RURAL WOMEN ENTREPRENEURSHIP AND MICRO ENTERPRISE DEVELOPMENT IN INDIA

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Abstract:

Women entrepreneurs can play a role of catalyst in social and economic development of country like India. They faced many obstacles specifically in finance and marketing of their produce. Micro finance is playing a vital role in the success of SHGs, particularly the entry of rural women in micro enterprises will be encouraged and aggravated. Rural women can do wonders by their effectual and competent involvement in entrepreneurial activities. The rural women are having basic indigenous knowledge, skill, potential and resources to establish and manage enterprise. Now, what is the need is knowledge regarding accessibility to loans, various funding agencies procedure regarding certification, awareness on government welfare programmers', motivation, technical skill and support from family, government and other organization. More over formation and strengthening of rural women Entrepreneurs network must be encouraged. Women entrepreneur networks are major sources of knowledge about women's entrepreneurship and they are increasingly recognized as a valuable tool for its development and promotion. This will motivate other rural women to engage in micro entrepreneurship with the right assistance and they can strengthen their capacities besides adding to the family income and national productivity.

Keywords: *Empowerment, Micro Enterprise, Micro credit, Rural entrepreneurship, Self-help groups, Women entrepreneur.*

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ICSRR – E014

FUNGAL MYCELIUM IN BIOPACKAGING: SAFETY, SUSTAINABILITY, AND INDUSTRIAL PROSPECTS

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Abstract:

In recent years, the urgent need to reduce environmental pollution caused by petroleum-based plastic waste has accelerated the search for sustainable alternatives. Biopackaging, a form of eco-friendly packaging derived from biological sources, has gained attention for its biodegradability and low environmental footprint. Among various biopackaging materials, mycelium, the vegetative network of fungal hyphae, presents a promising and innovative option due to its natural abundance, mechanical strength, low cost, and ability to be molded into different shapes. Mycelium-based materials are biodegradable, compostable, and capable of being produced from agricultural waste substrates, thereby supporting the principles of circular bioeconomy. A common concern when working with fungi is the potential risk of toxicity or pathogenic effects. However, the species selected for this project will be non-toxic, non-pathogenic, and non-sporulating varieties such as *Ganoderma*, *Pleurotus*, or *Trametes* species. These fungi, when cultivated under sterile and controlled conditions, do not produce harmful metabolites or allergens, making them safe for use in packaging applications. Moreover, the final mycelium product is subjected to heat treatment or drying, which halts further biological activity and ensures safety for human contact and product storage. The novelty of this project lies in integrating efficient substrate utilization with fungal biology to create high-performance mycelium-based packaging. Compared to existing commercial techniques, this project aims to develop an optimized Standard Operating Procedure (SOP) that includes substrate pre-treatment, inoculation parameters, controlled incubation, shaping techniques, and drying processes to enhance the product's strength, water resistance, and shelf-life. The project not only addresses the environmental impact of packaging waste but also demonstrates the feasibility of sustainable packaging innovations suitable for food, cosmetic, and fragile item industries. This work seeks to contribute a scalable and eco-conscious alternative in the evolving field of green materials.

KEYWORDS: Mycelium-based packaging, biodegradable materials, sustainable packaging, fungal biomaterials, agro-waste utilization, eco-friendly innovation

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ICSRR – S015

THE MULTIFACETED CHALLENGE OF ULCERATIVE COLITIS: A REVIEW

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Abstract:

Ulcerative colitis (UC) is a chronic inflammation of the colon and rectum, arising from a mix of genetic, environmental, and immune factors. Though its precise origins remain unclear, current therapies aim beyond symptom relief toward full mucosal healing. Modern treatment includes mesalamines, corticosteroids, biologics, and novel agents like JAK inhibitors and IL-23 blockers. However, severe and refractory cases often require surgical intervention. In parallel, this study explored Nubia red garlic (*Allium sativum* L.) for its therapeutic potential in UC. Using an ex vivo model of LPS-induced colon inflammation in mice, both hydroalcoholic (GHE) and water-based (GWE) garlic extracts showed strong anti-inflammatory effects—significantly reducing COX-2, TNF-α, NF-κB, and IL-6 expression. They also lowered oxidative damage and improved serotonin turnover, especially with GHE. These actions are linked to polyphenols such as catechin, quercetin, and benzoic acid. The finding support the role of Nubia red garlic extracts as promising natural agents in alleviating intestinal inflammation and enhancing UC treatment strategies.

Keywords: Ulcerative colitis, Garlic extract, corticosteroids,

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ICSRR – M016

IMPACT OF COVID-19 CRISIS ON HUMAN RESOURCE MANAGEMENT AND DIGITALISATION OF WORK WITH SPECIAL REFERENCE TO CHENNAI BASED COMPANIES

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Abstract

Dramatic changes caused by the new coronavirus COVID-19 have unprecedented implications on companies around the globe and influenced human resource management profoundly. HRM took leadership to navigate in the vague present and unforeseeable future by managing people to cope with stress and to continue working remotely so that business goes on with its operations. However, HRM had to deal with the dismissals and reduction of the staff caused by the pandemic lockdown. The expert interview findings indicate that companies, together with the HR managers, should develop crisis management plans, elaborate new policies for remote as well as hybrid working systems as a response to the current and future crises.

Keywords: *Adaptability, Flexibility, Resilience, HRM, Employees, Remote working, Digitalization*

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ICSRR – E017

THE BOT (INTEGRATION OF BLOCKCHAIN WITH IOT) IN TRANSPORTATION

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Abstract:

Blockchain technology combined with IoT (BoT-Blockchain of Things)in transportation enables secure, transparent and energy-efficient tracking and management of vehicles, cargo, and energy usage. IoT sensors collect real-time data (such as location, fuel consumption, and cargo conditions), while blockchain provides an immutable ledger for data storage and sharing among stakeholders. This integration(BoT) supports secure energy and vehicle tracking, operational efficiency, enhanced visibility and incident response, energy optimization and sustainability. Blockchain technology supports energy saving initiatives, predictive maintenance, and dynamic resource allocation, contributing to sustainable transportation networks.Strong security of IoT devices was obtained by multi-layered authentication, encryption, secure update mechanisms, access controls, and continuous monitoring to safeguard against evolving cyberthreats. The hybrid blockchain model suits energy efficiency in IoT-based smart transportation. It is also used to optimize electric vehicle charging, monitor emissions, and support decentralized energy markets within the broader transportation ecosystem.

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ICSRR – E018

LOW-COST IOT LOGGER FOR MONITORING CARBON EMISSION & ENERGY WASTE IN MSME UNITS

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Abstract

The rapid rise of industrialization in Micro, Small & Medium Enterprises (MSME) sectors has significantly contributed to energy consumption and carbon emissions. However, most MSME units lack real-time tools to monitor and manage their environmental impact. This chapter presents a low-cost IoT-based logger system designed to monitor carbon dioxide emissions, temperature, humidity, and energy waste in MSME environments. Utilizing ESP32, various sensors (MQ135, DHT11), and cloud integration, the proposed solution helps track environmental parameters and energy usage patterns in real-time. This enables early detection of anomalies, promoting sustainable and energy-efficient practices. The system emphasizes affordability, scalability, and offline capability for rural or semi-urban industries.

Keywords: *IoT Logger, Carbon Emission Monitoring, Energy Waste, MSME, ESP32, Low-Cost Environmental Monitoring, Sustainable Industry*

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ICSRR – M019

COMMEMORATING REVOLUTION: ANALYSING MEMORY TOURISM THROUGH CULTURAL MEMORY AT THE PUNNAPRA-VAYALAR MEMORIAL IN KERALA

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Abstract:

This study explores how memory tourism operates at the Punnapra-Vayalar Memorial in Alappuzha, Kerala, a site commemorating the 1946 uprising led by Communist workers in the princely state of Travancore. Drawing from Memory Studies and Pierre Nora's theory of sites of memory, the research investigates how the memorial shapes and sustains cultural memory through commemorative practices. While much of the existing literature on memory tourism focuses on sites of genocide or war, this study focuses on a regional revolutionary site of national significance. Employing a qualitative methodology, the research analyses the evolution of the Memorial as a site of memory tourism. Furthermore, it evaluates multiple annual commemorative events such as public speeches, processions, revolutionary songs, and symbolic rituals that collectively sustain a shared memory of martyrdom and class struggle. Rather than functioning as a neutral heritage site, the memorial becomes a contested space where historical memory is ritualized and emotionally performed for visitors and participants. The study finds that the Punnapra-Vayalar Memorial functions not just as a physical monument but as a destination of memory tourism where cultural identity, historical pride, and political loyalty are reinforced. By analysing a local and ideologically specific memory site, the paper contributes to broader discussions on how memory tourism can serve not only to remember the past but also to solidify collective identity in the present.

Keywords: *Memory Tourism, Cultural Memory, Punnapra-Vayalar, Sites of Memory, Political Commemoration*

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ICSRR – S020

GASTRO-RETENTIVE FLOATING SYSTEM FOR CONTROLLED RELEASE: A NATURAL POLYMER APPROACH

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Abstract:

Gastro retentive Drug Delivery System (GRDDS) has gained significant attention due to its ability to reduce dosing frequency, enhance bioavailability, and improve patient compliance. In this study, a novel plant-based, pH-sensitive, and controlled swelling GRDDS was developed using Amla and Aloe vera hydrogel combined with cellulose for the sustained release. The system is designed as a floating drug delivery system, which possesses a bulk density lower than gastric fluids, allowing it to remain buoyant in the stomach and thereby extend gastric residence time.

The formulation achieved a floating lag time of less than 1 minute and maintained buoyancy for over 12 hours. Sustained drug release was observed for more than 12 hours, following the Hixson-Crowell model and non-Fickian diffusion, indicating a combined mechanism of diffusion and erosion. In vivo pharmacokinetic studies confirmed the extended release and absorption of LEVO. Furthermore, toxicity evaluations demonstrated the non-toxic nature of the hydrogel-based system.

Overall, this approach represents a promising strategy for oral delivery of antibiotics like LEVO by minimizing dosing frequency and enhancing therapeutic outcomes. Its natural polymer base also contributes to better biocompatibility and patient safety, highlighting its potential for clinical application.

KEYWORDS: *Controlled release, Floating tablet formulation, Microcrystalline cellulose, Natural hydrogel, Pharmacokinetic***.**

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ICSRR – M021

INVISIBLE WOUNDS: CHILDHOOD NEGLECT AND EMOTIONAL ABSENCE IN MODERN AMERICAN MEMOIRS

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Abstract:

Trauma has traditionally been studied in the context of large-scale and catastrophic events such as war, genocide, abuse, rail accidents, and natural disasters. This study feels the importance of shifting the lens to a quieter form of trauma, where trauma is not born from violence but from silence. This study explores the interior world of personal and familial pain—traumas that have their root in daily experiences of parental neglect, emotional absence, chronic invalidation, or unspoken expectations. These forms of trauma, though subtle and often normalized, are no less endangering. This paper argues that unprocessed emotions, unhealed wounds, and unspoken feelings do not disappear. Instead, they linger and embed themselves deep within the psyche and the body [Psychosomatic illness] that shape a person's sense of self and their adult responses and relationships. Drawing on Canadian physician Gabor Maté's **'developmental trauma'** theory and trauma theorist Cathy Caruth's work on **'unclaimed experience'**, this study examines how childhood trauma continues to echo across the lifespan. By closely analysing two powerful American memoirs — ***Educated*** by Tara Westover and ***The Glass Castle*** by Jeannette Walls — the paper demonstrates how childhood experiences of neglect and emotional disconnection manifest later in life as identity confusion, emotional volatility, dissociation, and even addiction. In these narratives, the wound is not always visible, but it bleeds into memory, behaviour, and the struggle for self-worth. Hence, trauma is not a singular event but a lingering presence.

Keywords: Childhood Trauma, Parental Neglect, Emotional Disconnection, Psychosomatic Illness, Developmental Trauma Theory.

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ICSRR – S022

SUGAR DEGRADING BACTERIA WITH THE WASTE PEEL OF VEGETABLE AND FRUITS

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Abstract:

Growing quantities of organic waste, particularly waste from fruits and vegetables make a major utilization challenge. However, these wastes are full of carbohydrates mainly sugar which can be a low-cost substrate for microbial fermentation. The project is focusing on the isolation and characterization of sugar degrading bacteria that utilize fruit and vegetable peels as a carbon source. It is centered on the bioconversion of agricultural by-products into value-added products using microbial processing activity. The peels will derive from fruits and vegetables that are commonly found in discarded waste streams - banana, orange, potato and carrot. Peels will be collected, processed, and used as a substrate to grow the bacteria. Will obtain the bacterial isolates from natural sources - soil, compost, decayed fruit and veggies using nutrient and selective media. Sugar degradation potential will be determined using standard biochemical assays (e.g. using DNSA method). By isolating good sugar degrading bacteria this project will support waste management in an environmentally-circular way through the use of microbially driven bioconversion and promote a relevant role of microbial biotechnology for sustainability. The products of the project could improve biofertilizer applications, composting and biofuels. The project supports a circular economy and provides the potential for scaling up biodegradable waste streams and promotes value added bioproducts.

Keywords: *Agricultural waste, Bioconversion, Microbial fermentation, Sustainable biotechnology, Organic waste management, Microbial isolates.*

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ICSRR – E023

SMART MARKET FORECASTING FOR SUSTAINABLE ECONOMIC GROWTH: ADVANCING SDG 8 & 9 THROUGH PREDICTIVE FINANCIAL TECHNOLOGY

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Abstract:

In order to predict stock prices, this study examines the nexus of transdisciplinary science and technology, emphasizing how it may stimulate innovation and sustainable economic growth. By utilizing financial theory, data analytics, and machine learning, the study offers intelligent forecasting models that lower investment risks, improve market transparency, and aid in well-informed decision-making. These models give investors, entrepreneurs, and institutions real-time insights that enable them to deploy resources more efficiently by fusing artificial intelligence with economic indices. By increasing financial accessibility and facilitating strategic capital flow, the strategy supports economic resilience and productive employment, which is in line with Sustainable Development Goal (SDG) 8. Regarding SDG 9, the report emphasizes the value of innovation and technical infrastructure in contemporary financial systems, promoting sophisticated predictive tools as a cornerstone of sustainable industrial growth. By employing a clever and straightforward technique, this study seeks to advance a more inclusive and future-ready financial ecosystem, opening the door for strong economic growth directed by astute data-driven tactics.

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ICSRR – E024

BEYOND CHATBOTS: DESIGNING EMPATHETIC AI COMPANIONS FOR EMOTIONAL HEALTH

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Abstract:

Loneliness and emotional distress are rising global concerns, especially in the post-pandemic era. While chatbots and mental health apps have gained popularity, most remain transactional and lack true empathetic interaction. This paper explores the potential of AI-powered digital companions designed to foster emotional well-being by going beyond traditional chatbot functions. Integrating natural language processing (NLP), emotion recognition, and adaptive learning, these companions aim to provide personalized and context-aware support to users experiencing loneliness, anxiety, or stress.

The study reviews advancements in affective computing, sentiment analysis, and human–computer interaction to outline design principles for empathetic digital companions. A conceptual model is proposed that combines emotion-sensitive dialogue generation, daily well-being tracking, and ethical frameworks to ensure privacy and trust. Case studies of existing mental wellness technologies are analyzed to identify limitations, including lack of personalization, shallow empathy, and dependency risks.

The findings suggest that empathetic AI companions, when thoughtfully designed, can complement human relationships by offering accessible, continuous, and stigma-free emotional support. The paper concludes by discussing future opportunities and ethical imperatives for ensuring safety, inclusivity, and authenticity in digital mental health solutions.

Keywords: *Empathetic AI, Digital Companions, Emotional Health, Natural Language Processing, Affective Computing, Mental Well-Being*

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ICSRR – E025

IMPROVING 5G NETWORK PROTECTION THROUGH TWO-WAY AUTHENTICATION AND ATTRIBUTE BASED ENCRYPTION MECHANISMS

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Abstract:

The evolution of mobile communication is progressing toward 5G technology, which offers low latency and high reliability—making it feasible to wirelessly manage industrial control systems such as power monitoring networks. In the power sector, 5G network slicing enables the creation of specialized "business private networks" to meet the diverse requirements of power grid services. Fully Homomorphic Encryption (FHE) plays a crucial role in securing this infrastructure, as it allows various computations to be performed directly on encrypted data without requiring decryption. By outsourcing computations on confidential data to a server, and using a secret key to decrypt the final results, FHE ensures both functionality and data privacy. This study proposes an advanced attribute-based framework aimed at strengthening network security. The model is implemented in MATLAB, and its performance is evaluated based on energy usage, execution time, and resource consumption.

Keywords: 5G, Security, Secure Channel, FHE, Diffie-Helman

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ICSRR – S026

HASH FUNCTIONS IN CRYPTOGRAPHY

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Abstract:

Hash functions are introduced in Cryptography as tool to protect the integrand authenticity of information in late seventies. Later it plays a vital role in many fields like Computer science, Communication networks, Password security, Digital signature. This paper discusses the basics of Hash functions and their applications, properties and also discusses the Algorithms of Hash functions and their limitations. Now a day the security and authenticity of information are very essential and Hash functions play a crucial role to solve the emerging challenges.

Keywords: Hash Function, Concept of Cryptography, Integrity, Secure Hashing Algorithm.

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ICSRR – S027

ARITHMETIC CONCEPTS IN KANAKKATIKARAM THROUGH TRANSLATION

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Abstract:

The Kanakkatikaram reveals an extensive legacy of Indigenous Mathematical knowledge, demonstrating the profound integration of Arithmetic into the social and economic fabric of medieval Tamil culture. The tasks, which are all encoded in beautiful Tamil culture. The tasks, which are all encoded in beautiful Tamil verse, involve learners in real-life scenarios such as surveying land, calculating crop the shares, allocating pay and answering time-based riddles. They are by no means theoretical or abstract. These puzzles enhance logical reasoning, proportionate thinking and cultural literacy in addition to teach computation. Kanakkatikaram shows that information does not have to imported or elite in order to be rigorous and profound. This is achieved by integrating Mathematics into everyday situations and utilizing, local units and metaphors.

Keywords: Number System, Tamil Literature Poem, Kaṇakkatikaram.

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ICSRR – M028

AI ON MULTIDISCIPLINARY MARKETING TECHNOLOGY

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Abstract:

The research project examines the impact of Artificial Intelligence (AI) on marketing strategies across various industries, focusing on how AI-driven technologies enhance customer engagement and optimize marketing campaigns. The objective of this study is to explore the diverse effects of AI on marketing practices and to identify the challenges and ethical considerations that arise from its implementation. The research was conducted through a qualitative methodology that conducted interviews with 18 marketing professionals to gather information about their experiences and perceptions regarding AI in marketing.

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ICSRR-S029

CONTROLLED GROWTH OF MULTI-WALLED CNTS VIA FE–MO SUPPORTED ON ALUMINA

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Abstract:

Carbon nanotubes (CNTs) have garnered immense interest due to their unique structural, electrical, and mechanical properties. In this study, metal-doped alumina (Al_2O_3) is employed as an effective catalyst support for the controlled synthesis of CNTs via the catalytic chemical vapor deposition (CVD) method. Transition metals such as nickel (Ni), cobalt (Co), and iron (Fe) were doped into mesoporous alumina to serve as active catalytic sites, enhancing carbon deposition and nanotube growth. The high thermal stability, large surface area, and strong metal-support interaction provided by alumina contribute to improved metal dispersion and resistance to sintering during high-temperature synthesis. The resulting CNTs were characterized by SEM, TEM, XRD, and Raman spectroscopy to confirm their morphology, crystallinity, and quality. The use of metal-doped alumina not only increased CNT yield but also enabled tunable properties suitable for applications in energy storage, catalysis, and environmental remediation. This work underscores the significance of engineered catalyst supports in achieving efficient and scalable CNT production.

Keywords: Fe-Mo/Al_2O_3, Multiwalled CNTs, XRD, SEM and TEM

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ICSRR – S030

SOLVABILITY OF PEG SOLITAIRE ON OCTAHEDRAL GRAPH

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Abstract:

Peg solitaire is a single-player board game that involves removing pegs from a board, usually leaving just one peg in the end. In the traditional game, jumps were only allowed to occur in a linear fashion. In this paper the jumps are allowed to occur in any direction since the layout of any graph in graph theory is arbitrary. In order to completely solve board, or graph, these jumps must continue until only one peg remains. This Chapter obtains Peg Solitaire game is solvable, freely solvable on an octahedral graph. Deriving the result of playing Peg Solitaire on these graphs involve finding the optimal sequence of moves that allows to remove all but one peg from the graph, following the game rules. As the game proceeds the goal is to minimize the number of pegs remaining on the board at the end. For derive the result of the game, strategies and logical thinking to plan the moves are required.

Keywords: Solvability, Peg Solitaire, Octahedral graph.

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ICSRR – E031

A STUDY ON THE IMPACT OF SMART TRAFFIC MANAGEMENT SYSTEMS ON URBAN CONGESTION

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Abstract:

Rapid urbanization has led to a significant rise in traffic congestion across metropolitan areas resulting in increased travel times, fuel consumption & environmental pollution. This study explores role of Smart Traffic Management Systems in alleviating urban traffic congestion. These systems utilize real-time traffic data, adaptive signal control, GPS tracking, surveillance cameras & data analytics to monitor & regulate traffic flow efficiently. Research involves a comparative analysis of traffic patterns in urban areas before & after implementation of STMS supported by simulations & case studies from selected cities. Key performance indicators as average travel time, vehicle delay & emission levels were assessed. Findings reveal a considerable reduction in congestion levels with improved travel efficiency & smoother traffic flow. Study highlights importance of integrating smart infrastructure with public transportation networks & urban planning strategies. Results suggest that STMS offer a promising sustainable solution to challenges posed by rapid urban growth & increasing vehicular density. Study concludes that wider adoption of such intelligent systems can enhance mobility reduce environmental impacts & support development of smart livable cities. Research is recommended to address implementation challenges & cost-efficiency concerns.

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ICSRR – M032

ANALYZING THE DYNAMICS OF PLACE IDENTITY FORMATION THROUGH MULTI-REALITY BRANDING FRAMEWORKS

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Abstract:

The multifaceted travel landscape, destinations are no longer experienced through a singular lens. A single location can simultaneously be a spiritual sanctuary, a luxury escape, a backpacker's haven, and a digital nomad's playground—depending entirely on the traveler's perspective. This paper explores the concept of Parallel Destinations, a branding philosophy that embraces multiplicity, fluid identity, and layered storytelling. By analyzing case studies, psychological frameworks, and design strategies, we propose a model for branding places in ways that honor their complexity and appeal to varied traveler archetypes. The goal is not to dilute identity, but to enrich it—allowing destinations to speak to many without losing their soul.

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ICSRR - M033

THE ROLE OF IDENTITY AND INNER TRANSFORMATION IN BRANDING TRAVEL AS A PILGRIMAGE EXPERIENCE

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Abstract:

In today's world, travel is no longer just about crossing borders—it's about crossing thresholds within ourselves. As travelers increasingly seek meaning, healing, and transformation, tourism branding must evolve to reflect this inner quest. This paper explores how destinations can be positioned not merely as places to visit, but as mirrors for introspection and growth. Through mythic storytelling, emotional design, and spiritual symbolism, we propose a framework for branding travel as a journey of self-discovery—a pilgrimage of the soul. Drawing from psychology, cultural studies, and design thinking, we offer strategies for crafting tourism experiences that resonate deeply with the human spirit.

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ICSRR - M034

A STUDY ON PERFORMANCE AND ADAPTABILITY OF AGENTIC AI IN SIMULATED ENVIRONMENTS

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Abstract:

A paradigm change in artificial intelligence is represented by agentic AI, which moves away from static, command-based systems and toward autonomous agents with the capacity for autonomous thought and goal-oriented behaviour. The effectiveness of an agentic framework in solving complicated problems is examined in this article. Agentic architectures are made to independently plan, carry out, and iterate on a sequence of activities, whereas standard AI systems frequently falter when faced with dynamic, multi-step tasks. A novel agent was deployed in a simulated environment to accomplish a series of logistical and resource management tasks as part of the technique. In comparison to a non-agentic baseline, the results showed that the agentic system significantly increased task completion efficiency and demonstrated improved flexibility to unforeseen environmental changes. We conclude that for dynamic, complex tasks, an agentic design works quite well. In order to control these systems' autonomous capabilities, we advise more research into scaling them to real-world applications and creating strong ethical frameworks.

Keywords: *Agentic AI, autonomous agents, novel agent, agentic design, multi-step tasks*

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ICSRR - M035

A STUDY ON ENHANCING TRUST AND INTERPRETABILITY: THE ROLE OF EXPLAINABLE AI IN BUSINESS ANALYTICS

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Abstract:

In order to build trust and support well-informed decision-making, Explainable AI (XAI) is becoming increasingly necessary as complex machine learning models are used more and more in business analytics. This study looks at how XAI approaches affect the usefulness and interpretability of prediction models in a corporate setting. We evaluate a XAI-enhanced variant of a conventional black-box model for customer churn prediction that uses SHAP and LIME to produce post-hoc explanations. Both models were deployed on a proprietary dataset as part of the approach, and business analysts participated in user research to evaluate the models' performance. The findings show that although the predictive accuracy of both models was comparable, the XAI-enhanced model greatly enhanced analysts' comprehension of model outputs and boosted their confidence in the forecasts. We come to the conclusion that XAI integration is essential to the moral and successful application of AI in business analytics. We advise creating explanation dashboards that are easier to understand and researching the most effective ways to use XAI in routine business processes.

Keywords: *Explainable AI (XAI), Business Analytics, Machine Learning, Model Interpretability, Decision-Making*

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ICSRR - M036

A STUDY ON THE IMPACT OF CONVERSATIONAL INTERFACES ON BUSINESS INTELLIGENCE AND USER EXPERIENCE

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Abstract:

More user-friendly techniques for data engagement and analysis are required due to the abundance of data in contemporary businesses. In order to overcome the drawbacks of conventional, static dashboards, this study presents Conversational Analytics, which allows users to query data using natural language. With the help of a sizable language model, we created and deployed a prototype conversational interface. We then evaluated its effectiveness and user experience in comparison to a traditional business intelligence dashboard. Participants in the user research were given a number of data exploration tasks as part of the approach. The conversational interface was found to be substantially more user-friendly and resulted in a 40% decrease in the amount of time needed to obtain actionable insights. We come to the conclusion that Conversational Analytics provides a strong, approachable framework for data exploration. We suggest that future research concentrate on creating strong security standards for managing critical corporate data and merging this strategy with multi-modal data.

Keywords: *Conversational Analytics, Natural Language Processing, Data Exploration, Large Language Model (LLM), User Experience (UX)*

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ICSRR - M037

A STUDY ON INTEGRATION OF AI/ML WITH TRADITIONAL BUSINESS INTELLIGENCE: A SYNERGISTIC APPROACH FOR ENHANCED DATA-DRIVEN DECISION MAKING

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Abstract:

To enhance data analysis and decision-making, this abstract explores the integration of AI/ML with conventional business intelligence (BI). By focusing on reporting and descriptive analytics, conventional BI provides a solid foundation for understanding past performance. However, it often does not possess the prescriptive and predictive abilities essential for proactive strategies. By incorporating AI/ML algorithms, we can transform static dashboards into dynamic, predictive instruments. This convergence enables advanced analytics such as forecasting, anomaly detection, and customer churn prediction. Along with automating repetitive tasks and uncovering concealed patterns, the abstract highlights how this collaboration produces practical insights that lead to more strategic and informed business choices. This approach represents the future of business intelligence (BI), utilizing data proactively to forecast trends and enhance processes instead of merely being documented.

Keywords: *Artificial Intelligence, Machine Learning, Business Intelligence, Predictive Analytics, Data-Driven Decision Making*

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ICSRR – M038

EFFECTIVE LEADERSHIP DEVELOPMENT AND TEAM MANAGEMENT: STRATEGIES FOR SUCCESS

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Abstract:

In today's fast-paced and dynamic work environment, leadership development and team management are crucial for achieving organizational success. This topic explores the key principles and strategies for developing effective leaders and managing high-performing teams. Globalizations are shrinking the gap and increasing the competition between organizations. The constantly changing environment modifies the dynamics of standard business practices. An organizational change can be pre-planned or unexpected. Hence, effective leadership is crucial to handle the change process with a positive and long-term vision. In addition, to be successful in organizational change, leaders must possess the capability of dealing with challenges such as resistance, confusion, exploration, and commitment. Internationalization has increased global competition, which brings both positive and negative impacts on an organization's performance. It covers essential skills such as communication, collaboration, decision-making, and managing conflict. A good leader sets a clear vision, establishes realistic goals, and strategically guides their team in the right direction. Leadership is not something which is essential only to the "top honcho", the "C-Suite", or the owners of the business. Leadership has to be a culture in the organization. Leadership is to be practised every day, all day, at the workplace by everyone in the organization. It is the consistent, small acts of leadership that lead to the big results. By understanding the importance of leadership development and team management, organizations can improve productivity, enhance employee engagement, and drive business results.

Keywords: *Organizational success, leaders, employee engagement, team management, conflict.*

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ICSRR – E039

SMART PROSTHETIC THUMB CONTROLLED BY EMG SIGNALS: DESIGN AND BUILD

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Abstract:

This research work presents the design and construction of an innovative artificial thumb prosthesis that utilizes the index finger for control. The prosthesis aims to provide individuals with thumb amputation or dysfunction a natural and functional replacement. The proposed design incorporates a sophisticated control mechanism that interprets the index finger movements and translates them into corresponding thumb movements. A combination of 3D printing and bioengineered materials is employed to fabricate the prosthetic, ensuring a lightweight and customizable solution. Preliminary tests with amputee subjects demonstrate promising results, indicating improved dexterity and usability. The artificial thumb prosthesis offers a novel approach to enhance the quality of life for individuals with thumb-related impairments advancement in prosthetic technology is led to the development . This technology has the potential to significantly improve the daily lives of amputees, making tasks such as grasping objects, typing, or even playing musical instruments more accessible and comfortable.It represents a remarkable fusion of biomedical engineering and electronics to restore a sense of autonomy and functionality for those in need.We map the degree of deviation through 8-bit PWM signals over the Servo Motor concerning the amplified digital signal extraction from the EMG Sensor module on the ADC channel.

Keywords: Artificial thumb, amputation, control, Mechanism ,3d printing , light weight, ADC Channel

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ICSRR – M040

REDEFINING HUMAN CAPITAL MANAGEMENT WITH HRIS: PATHWAYS TO HR 4.0

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Abstract:

Industry 4.0, which originated in Germany, highlights the combination of digital technologies in processes and data exchange to increase efficiency in operations. Following this, HR 4.0 is a logical follow-up, with the focus being placed on the digitalization of human resource management activities. This development includes electronic Human Resource Management (e-HRM), Human Resource Information Systems (HRIS), and complete digitization of HR processes. By automating HR procedures and enabling data-driven decision-making, HRIS is a key enabler that enables businesses to smoothly implement HR 4.0. Adoption of HR 4.0 not only transforms HR procedures but also aligns them with the Industry 4.0 initiative, promoting innovation, agility, and sophisticated decision-making across the entire company. This modification highlights how crucial HRIS is to the HR 4.0 model and how it is changing traditional HRM into a more dynamic, tech-driven industry. The use of digital tools in HR operations provides instant access to data, increases employee participation, and enables strategic workforce planning. Furthermore, HR 4.0 promotes differentiated employee experiences through automation and analytics, leading to increased productivity and job satisfaction. While organizations face mounting complexity and competition, HR 4.0 provides a compass for agile adaptation and long-term competitiveness in talent management. In addition, improvements in machine learning and artificial intelligence in HRIS enable companies to forecast workforce trends, optimize hiring, and improve retention.

Keywords: *HRIS, HR 4.0, digitization, efficiency, digitisation*

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ICSRR – E041

EVALUATION OF THE COMBUSTION AND EMISSIONS PERFORMANCE OF NEEM (AZADIRACHTA INDICA) BIODIESEL IN A COMPRESSION IGNITION ENGINE

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Abstract:

A lot of research has been done on biodiesel as a replacement for traditional fossil fuels due to the growing demand for environmentally friendly and sustainable energy sources. Due to its high oil content, low cost, and lack of competition with food resources, neem (Azadirachta indica) oil—a non-edible and abundant feedstock in tropical regions—has become a promising raw material for the production of biodiesel. This study examines the transesterification process used to produce neem biodiesel and assesses its combustion, emission, and performance properties in a compression ignition (CI) engine. According to experimental results, blends of neem biodiesel show brake thermal efficiency that is comparable to that of diesel, albeit with a slightly higher brake specific fuel consumption because of their lower calorific value. Particulate matter, unburned hydrocarbons (HC), and carbon monoxide (CO) have all significantly decreased, according to emission analysis.

Keywords: *Neem biodiesel, Transesterification, Compression ignition engine, Performance analysis, Emission characteristics*

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ICSRR – S042

UNVEILING THE ADJUVANT THERAPEUTIC POTENTIAL OF DABRAFENIB DERIVATIVES IN LUNG ADENOCARCINOMA VIA *IN SILICO* MULTI-TARGETING OF B-RAF, NEK11, AND S1K1

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Abstract:

Lung adenocarcinoma (LUAD) is a common subtype of non-small cell lung cancer (NSCLC) with high prevalence, high mortality, and few treatment options, particularly at advanced stages. Because of its intricate signalling network, LUAD needs multi-targeted therapy. This research analyzes Dabrafenib as a potential new therapeutic drug against B-RAF, NEK11, and S1K1 in LUAD, considering the repurposing opportunity of this selective B-RAF inhibitor already approved for malignant melanoma. In silico approaches were utilized to determine dabrafenib's pharmacokinetic properties, molecular interactions, and toxicity profile. Swiss ADME analysis affirmed good drug-likeness, satisfying Lipinski's Rule of Five. Molecular docking analyses with CB-Dock showed Dabrafenib derivatives possess high binding affinity towards all three target proteins. The R_{10} derivative has the highest binding affinity for NEK11 (−11.0 kcal/mol). Pro Tox-II predicted minimal cytotoxicity and mutagenicity but showed respiratory and nephrotoxicity. Although acute toxicity hazards existed, the majority of compounds were at acceptable levels. The results indicate that dabrafenib can potentially act as a new adjuvant therapy by simultaneously inhibiting several LUAD-associated kinases. These encouraging in silico findings demonstrate the potential of computational drug repurposing methods in cancer and warrant further preclinical exploration in vitro and in vivo.

Key Words: Molecular Docking, Dabrafenib, B-Raf, SIK1, NeK11

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ICSRR – S043

STRUCTURE-BASED DRUG DESIGN OF SHIKIMIC ACID AS A PUTATIVE DRUG TARGET FOR BRCA VIA *IN SILICO* METHOD

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Abstract:

Cancer is a type of tumor that exhibits aberrant cell proliferation and has the capacity to infiltrate or spread from its original organ (the "site") to other body parts. Breast cancer is heterogenous disease which may due to both genetic and environmental factors. Breast cancer accounts for 23% of all cancer fatalities in postmenopausal women, making it one of the top causes of death in this population. The "shikimate pathway," also referred to as the "shikimic acid pathway," is a metabolic route comprising seven steps, employed by a range of organisms such as plants, bacteria, algae, fungi, and some protozoans, for the biosynthesis of folates and aromatic amino acids. Molecular docking simulations were performed to investigate the binding interactions between shikimic acid and the target proteins BRCA1 and BRCA2, and the resulting interactions, such as hydrogen bonds, hydrophobic contacts, and electrostatic forces, were analyzed. Docking studies of shikimic acid and Niraparib with BRCA1 and BRCA2 were performed, considering the Lipinski rule, rerank score, and MolDock score. In vitro experiments – DPPH free-radical scavenging and nitric oxide radical inhibition assays – were also carried out to connect these findings with anticancer potency. The shikimic acid and niraparib have a good interaction in holding the molecule in place (binding) of the active site, and docking investigations have been carried out using Molegro Virtual Docker (MVD).

Keywords: *Shikimic acid pathway, BRCA1, BRCA2, Breast Cancer, Lipin rule, DPPH method, Nitric oxide radical inhibition assay.*

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ICSRR – E044

NANOTECHNOLOGY IN ADVANCED MATERIALS AND BIOFUEL SYSTEMS: A SUSTAINABLE APPROACH

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Abstract:

Nanotechnology has emerged as a transformative tool in the development of advanced materials and biofuel systems, offering innovative solutions to pressing sustainability challenges. This chapter explores the integration of nanostructured materials, nanoparticles, and nano-catalysts in enhancing the efficiency, performance, and environmental compatibility of biofuel production processes. Special emphasis is placed on the role of nanomaterials in improving feedstock conversion, reducing processing costs, and increasing energy yield. The chapter also examines the development of advanced composites, coatings, and functional materials enabled by nanotechnology to improve durability, thermal stability, and biodegradability, thus supporting a circular economy. Furthermore, it highlights case studies demonstrating successful industrial applications, lifecycle assessments, and techno-economic analyses of nanotechnology-enabled biofuel systems. By bridging material science innovations with renewable energy technologies, this sustainable approach aims to advance cleaner energy production and resource efficiency, aligning with global decarbonization and climate change mitigation goals.

Keywords: *Nanotechnology, Advanced materials, Biofuel systems, Nano-catalysts, Sustainable energy, Renewable feedstock, Biomass conversion, Energy efficiency, Circular economy, Green technology*

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ICSRR – E045

INTEGRATING NANOMATERIALS FOR HIGH-PERFORMANCE MATERIALS AND GREEN BIOFUEL TECHNOLOGIES

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Abstract:
The integration of nanomaterials into high-performance materials and green biofuel technologies represents a cutting-edge approach to achieving sustainability in both industrial manufacturing and renewable energy production. This chapter investigates the functional advantages of nanostructured materials, including enhanced mechanical strength, thermal stability, corrosion resistance, and energy efficiency. In the context of biofuel technologies, it explores the application of nano-catalysts, nanocomposites, and nano-adsorbents to improve biomass conversion rates, reduce process energy consumption, and increase yield purity. The discussion also addresses emerging nanofabrication methods, surface engineering techniques, and the incorporation of bio-based nanomaterials to advance environmentally friendly solutions. Case studies and lifecycle analyses illustrate how nanotechnology can simultaneously drive innovation in material science and renewable energy systems while reducing environmental footprints. By integrating nanomaterials into these sectors, industries can transition toward more efficient, cost-effective, and eco-friendly practices aligned with global clean energy and sustainable development objectives.

Keywords: *Nanomaterials, High-performance materials, Green biofuels, Nano-catalysts, Nanocomposites, Biomass conversion, Sustainable energy technologies, Renewable feedstock, Energy efficiency, Circular economy*

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ICSRR – S046

POWER EDGE DOMINATION NUMBER ON MYCIELSKIAN OF CERTAIN SPECIAL GRAPHS

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Abstract:

A dominating set of a graph G is a set S of vertices of G such that any vertex in $V - S$ is adjacent to a vertex in S. For a graph $G = (V, E)$, a subset F of E is called an Edge Dominating set of G if every edge not in F is adjacent to some edge in F. The edge domination number $\gamma(G)$ of G is the minimum cardinality taken over all edge dominating set of G. For a graph $G(V, E)$ with size n, and for any edge $f \in E$, a set $S' - E$ is said to be an power edge dominating set of graph G if each edge $g \in E - S'$ is dominated by the following rules: (i) an edge f in E is in power edge dominating set (in short PEDS), then it dominates itself and dominates all the adjacent edges of f (ii) an observed edge h in E has $m > 1$ adjacent edges and if $m - 1$ of these edges are observed earlier, then the remaining non- observed edge is also observed by $h \in E$. The minimum cardinality of a power edge domination number of G is denoted by $\gamma'_{ped}(G)$. In this project we are determine about power edge domination on Mycielskian of some special graphs.

Keywords: *Domination Number, Edge Domination Number, Power Domination Number, Power Edge Domination Number.*

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ICSRR - S047

TIME SERIES ANALYSIS OF SALES PRICES IN THE FOOD AND BEVERAGE SECTOR IN INDIA

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Abstract:

This study investigates the sales price trends of food and beverages in India using time series analysis techniques. The objective is to identify patterns, seasonal variations, and long-term trends to aid in understanding market behaviour and forecasting future prices. The dataset, sourced from reliable governmental publications, covers multiple years and reflects the influence of economic, seasonal, and policy-driven factors on price fluctuations. Statistical tools such as trend analysis, seasonal decomposition, and ARIMA modelling are employed to evaluate the data and produce accurate forecasts. The ARIMA (2,1,2) model was selected based on statistical criteria, including the highest MAPE values, and demonstrated strong predictive performance The results reveal significant seasonal components and an upward trend in prices over the study period, with ARIMA providing robust short-term predictions. These findings can assist policymakers, industry stakeholders, and researchers in making informed decisions regarding price stabilization, supply chain planning, and market interventions in the food and beverage sector.

Keywords: *Time Series Analysis, Sales Price, Food and Beverages, ARIMA, Forecasting.*

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ICSRR-S048

EFFECT OF ANTIBACTERIAL PROPERTIES ON THE SIZE OF TEMPERATURE DEPENDENT GREEN SYNTHESIZED SILVER NANOPARTICLES

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Abstract:

Synthesis temperature has played a major role in the synthesis of silver nanoparticles (Ag NPs) with Aloe vera leaf extract. Scanning Electron Microscopy (SEM) and UV-visible spectroscopy confirm the structure of silver nanoparticles. With increasing temperature, the size of the nanoparticles increases. As a result of it, more surface area is exposed for the study of antibacterial activity against gram-negative and gram-positive bacterial species. It has been found that the silver nanoparticles with higher size show the maximum antioxidant properties with $FeCl_3$ method. Size of the silver nanoparticle is the plays an important role in inhibiting the bacteria.

Keywords: *Nanoparticle, bacteria, surface-area, green, anti-oxidant*

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ICSRR – E049

A FLOWER POLLINATION ALGORITHM APPROACH FOR OPTIMAL REACTIVE POWER DISPATCH

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Abstract:

This paper proposes an effective and robust evolutionary optimization technique, known as the Flower Pollination Algorithm (FPA), to address the Optimal Reactive Power Dispatch (ORPD) problem in power systems. The performance of the proposed FPA is evaluated using the standard IEEE 30-bus test system, where control variables include bus voltages, transformer tap settings, and reactive power sources. The objective functions considered are the minimization of active power transmission losses, total voltage deviation, and enhancement of the voltage stability index. The results obtained using FPA are compared with those from other recently developed evolutionary algorithms reported in the literature. Simulation outcomes demonstrate that FPA provides superior performance in terms of solution quality, effectiveness, and convergence speed, making it a promising tool for solving the ORPD problem.

Keywords: *Optimal Reactive Power Dispatch, Flower Pollination Algorithm, Loss Minimization, Voltage Stability*

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ICSRR – E050

KRILL HERD ALGORITHM-BASED APPROACH FOR COMBINED ECONOMIC AND EMISSION DISPATCH OPTIMIZATION

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Abstract:

This paper addresses the multi-objective economic load dispatch (ELD) problem by simultaneously considering fuel cost and environmental emission functions. The Krill Herd Algorithm (KHA) is employed to obtain optimal solutions for this multi-objective optimization task. The effectiveness of the proposed approach is validated using a six-unit power system. The results demonstrate the algorithm's strong performance in terms of rapid convergence and solution quality.

Keywords: *Economic Load Dispatch, Krill Herd Algorithm, Multi-objective Optimization, Emission Reduction.*

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ICSRR - M051

FOOD SAFETY AND HYGIENE MANAGEMENT: POST-COVID STANDARDS AND CONSUMER EXPECTATIONS

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Abstract:

The COVID-19 pandemic significantly altered public health priorities, with food safety and hygiene emerging as critical concerns in the hospitality industry. This research examines the evolving standards of food safety management and how these shifts have influenced consumer expectations in a post-pandemic world. Drawing on responses from 285 hospitality consumers and 65 food service professionals across India, the study investigates awareness levels, perceived hygiene practices, and trust factors affecting dining decisions. The research further evaluates the implementation of new safety protocols such as contactless dining, enhanced sanitation, employee health monitoring, and digital menus. Findings indicate a marked increase in customer sensitivity toward hygiene ratings, transparent kitchen operations, and visible cleaning practices. Moreover, food safety has transitioned from being a back-of-house function to a front-facing branding tool. The study concludes by highlighting the need for hospitality establishments to maintain rigorous hygiene standards, train staff regularly, and communicate safety efforts clearly to reassure customers. These findings provide valuable insights for hospitality operators aiming to align operational practices with heightened consumer expectations in a post-COVID landscape.

Keywords: *Food Safety, Hygiene Management, Post-COVID Hospitality, Consumer Expectations, Contactless Dining, Health Protocols, Hotel Restaurants*

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ICSRR - M052

EXPLORING EMOTIONAL INTELLIGENCE AND SERVICE EXCELLENCE IN HOTEL AND TOURISM OPERATIONS

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Abstract:

In the fast-paced world of hospitality and tourism, it's not just polished procedures or elegant spaces that create memorable experiences, it's the people behind the service. Emotional intelligence, the ability to understand, manage, and respond to emotions, quietly shapes every guest interaction, especially in high-stress, people-driven environments. Frontline employees and supervisors working across hotels and tourism services in shared their experiences through a structured survey. Out of 200 distributed questionnaires, 184 meaningful responses painted a clear picture: professionals with stronger emotional intelligence those who demonstrate empathy, self-awareness, and emotional regulation consistently deliver higher levels of service. Their ability to remain calm under pressure, anticipate guest needs, and respond with warmth translated into better feedback, smoother operations, and more personalized hospitality. These insights highlight the quiet power of emotional intelligence as more than just a soft skill. It becomes a core ingredient in crafting exceptional service and building lasting guest connections. Rather than focusing solely on procedures, the findings encourage hospitality leaders and educators to foster emotionally intelligent teams — where human understanding becomes the heart of excellence.

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ICSRR - M053

OPTIMIZING KITCHEN WORKFLOW AND ERGONOMICS IN HOTEL FOOD PRODUCTION

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Abstract:

Efficient kitchen workflow and ergonomic design are essential for maintaining high productivity, ensuring food quality, and safeguarding employee well-being in hotel food production environments. Streamlined processes, strategic equipment placement, and logical task sequencing reduce delays, minimize physical strain, and enhance coordination among culinary staff. Integrating ergonomic principles into layout planning, workstations, and tool selection helps prevent work-related injuries and fatigue, contributing to a safer and more comfortable workplace. Technological advancements, such as automated equipment, digital order systems, and real-time inventory management, further support operational efficiency. Sustainable practices, including energy-efficient appliances and waste reduction strategies, complement these improvements while aligning with environmental goals. A well-optimized and ergonomically designed kitchen fosters faster service, consistent food standards, and improved employee morale, ultimately elevating guest satisfaction and the hotel's overall service quality.

Key Words: *Efficiency, Ergonomics, Food Production, Hotel Kitchens, Workflow Optimization*

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ICSRR - M054

A QUANTITATIVE ANALYSIS OF INDUSTRY PERCEPTIONS AND IMPLEMENTATION OF SUSTAINABLE HOUSEKEEPING PRACTICES

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Abstract:

Sustainability has emerged as a key concern in the hospitality sector, particularly in housekeeping operations that significantly impact resource consumption and environmental health. This study investigates the awareness, implementation, and challenges of sustainable housekeeping practices in five-star hotels. A structured questionnaire was distributed among 189 housekeeping professionals, including executive housekeepers, supervisors, and room attendants, across premium hotel properties. The study focused on core sustainability dimensions such as water and energy conservation, use of eco-friendly cleaning agents, linen and towel reuse programs, waste management, and staff training initiatives. The study suggests a growing positive attitude towards sustainability among housekeeping staff, though strategic alignment, policy enforcement, and awareness campaigns are required for consistent execution. Key barriers identified include lack of consistent guest cooperation, inadequate training, and cost implications of sustainable products. This research contributes to the development of best practices and policy recommendations for enhancing sustainable housekeeping in luxury hospitality settings.

Keywords: *Sustainable housekeeping, five-star hotels, green practices, hospitality industry, environmental sustainability, hotel operations.*

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ICSRR - M055

A STUDY ON THE INFLUENCE OF CULTURAL TOURISM ON THE PRESERVATION OF HERITAGE AND LOCAL IDENTITY

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Abstract:

Cultural tourism plays a vital role in promoting heritage conservation and reinforcing local identity, particularly in historically rich urban centres. Focusing on Chennai—a city renowned for its vibrant cultural legacy, temples, colonial architecture, and traditional arts—the investigation explores how cultural tourism influences heritage preservation and community identity. A mixed-method approach was adopted, combining qualitative interviews with heritage stakeholders and quantitative surveys from 200 domestic and international tourists at key cultural sites. Data analysis involved descriptive statistics and thematic analysis to reveal patterns in tourist behaviour and stakeholder insights. Findings highlight that cultural tourism in Chennai significantly raises heritage awareness, generates restoration funds, and enhances community pride. However, issues such as commercialization, poor visitor management, and limited local engagement remain concerns. To maximize the positive impact, sustainable practices and inclusive planning are crucial. Key recommendations include improving heritage interpretation, engaging local communities in tourism development, and upgrading infrastructure at cultural sites to benefit both visitors and residents in the long term.

***Key Words**: Chennai; Cultural Tourism; Heritage Conservation; Local Identity; Preservation; Sustainable Tourism*

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ICSRR - M056

A PRAGMATIC STUDY ON WASTE MINIMIZATION PRACTICES IN HOTELS

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Abstract:

In the era of environmental accountability, the hotel industry faces mounting pressure to reduce operational waste and adopt sustainable practices. This study presents an empirical investigation into waste minimization strategies implemented across key departments within classified hotels, including front office, housekeeping, food and beverage, and engineering. Drawing data from 40 hotels through structured questionnaires and semi-structured interviews with departmental heads, the research identifies the primary categories of waste generated—such as food waste, paper, plastic, and energy-related waste—and evaluates the effectiveness of current reduction practices. The findings indicate that hotels employing integrated policies, cross-departmental coordination, and regular staff training demonstrate higher success in minimizing waste. Notable practices include digital check-in/check-out systems, linen reuse programs, portion control in food service, and waste segregation. However, barriers such as inconsistent departmental implementation, budget constraints, and limited guest cooperation continue to affect overall outcomes. The study underscores the importance of a comprehensive waste management framework supported by leadership commitment, employee engagement, and guest participation. Recommendations are provided to help hotels scale their sustainability initiatives and align with national and global environmental goals.

Key Words: Classified Hotels, Environmental Sustainability, Staff Engagement, Waste Minimization, Waste Reduction Strategies

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ICSRR - M057

A REVIEW OF GUEST EXPERIENCE ENHANCEMENT STRATEGIES IN FINE DINING SERVICE

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Abstract:

Enhancing guest experience in fine dining involves a strategic combination of personalized service, culinary excellence, and immersive ambiance. Effective strategies integrate meticulous attention to detail in menu design, presentation, and wine pairing, while fostering emotional connections through genuine hospitality. Technological innovations, such as digital reservation systems and guest preference tracking, enable seamless service delivery without diminishing the human touch. Continuous staff training ensures precision, attentiveness, and adaptability, allowing service teams to anticipate and exceed guest expectations. Ambiance elements—including lighting, acoustics, décor, and table arrangements—are harmonized to create a memorable and immersive dining atmosphere. These integrated approaches not only elevate satisfaction but also strengthen customer loyalty, brand prestige, and long-term profitability in the fine dining sector.

Key Words: Customer Satisfaction, Fine Dining, Guest Experience, Service Quality, Staff Training

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ICSRR - M058

EVALUATING THE INFLUENCE OF EMPLOYEE TRAINING ON PERFORMANCE AND SERVICE QUALITY IN THE HOTEL INDUSTRY

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Abstract:

Employee training is a strategic driver of hotel performance, service quality, guest satisfaction, and staff retention. This reviews contemporary evidence on how different types of training technical/IT, soft skills, cross-training, leadership and compliance training influence employee capabilities, motivation, and organizational outcomes in hotels. It synthesizes empirical findings, practical implementation lessons and suggested evaluation metrics, and provides recommendations for hotel managers and educators designing workforce development programs. Key takeaways: training raises operational competence and perceived service quality, soft-skills and leadership training improve guest-facing outcomes and team cohesion, technology (PMS) training is essential for Front-office effectiveness, and continuous and well-targeted training helps reduce turnover and builds resilience in crisis contexts.

Key words: *Employee training, Staff development, Workforce skills, Training effectiveness*

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ICSRR – S059

A MORDERN APPROACH TO DRUG DISCOVERY

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Abstract:

Drug repurposing refers to employing an existing medicine for a previously unapproved treatment. It has garnered a great deal of attention during the COVID-19 pandemic. Drug repurposing has become an urgent necessity in order to accelerate the drug discovery process and provide faster answers to the overburdened healthcare landscape and drug needs. medicine repurposing entails discovering a medicine, assessing its efficacy using preclinical models, and moving to phase II clinical trials. Computational and experimental makes use of publicly available drug databases. Data from primary and translational research, clinical trials, anecdotal stories of off-label applications, and other public human data information are included.

Investigators use artificial intelligence algorithms and other bioinformatics methods to detect drug-protein interactions. It can be integrated with genetic data, clinical analysis, structure (molecular docking), pathways, signatures, targets, phenotypes, binding assays, and artificial intelligence to achieve the best repurposing results. This review discusses the tactics used in drug repurposing and details a number of repurposed pharmaceuticals and their indications.

Keywords: Drug repurposing, clinical trials, molecular docking, drug discovery, post-market safety

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ICSRR - S060

COMPARATIVE MORPHOLOGY OF HAEMIN CRYSTALS IN HEN, HUMAN AND FISH BLOOD SAMPLES

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Abstract:

This study investigated the formation and morphological characteristics of haemin crystals (hydrochlorate of haematin) in blood samples from hen, human, and fish. Haemin crystals were successfully prepared in all three species and examined microscopically for structural comparison. The analysis revealed no statistically significant difference between the haemin crystals of fish and hen compared to those of humans, indicating a fundamental similarity in their structural properties. While standard deviation was noted in crystal length measurements—suggesting minor variations in elongation—no dispersion was observed in breadth, confirming morphological consistency across species. These findings highlight the conserved nature of haemin crystal morphology among vertebrates, with implications for hematological research, forensic science, and comparative biochemistry. Future studies could explore the molecular mechanisms influencing haemin crystallization across diverse taxa.

Keywords: *Haemin crystals, hydrochlorate of haematin, forensic science, hematology, comparative biochemistry, crystal morphology, blood detection, microscopy.*

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ICSRR – E061

DEVELOPMENT OF A LOW-COST REHABILITATION DEVICE FOR STROKE PATIENTS: ROBO REHEB (MOBAID)

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Abstract:

Stroke is one of the leading causes of mortality and long-term disability worldwide, impacting millions annually. This research focuses on the development of MOBAID, an affordable, portable, and user-friendly rehabilitation device designed for stroke patients. Using a slider-crank mechanism, the device facilitates repetitive passive motion to aid neuroplasticity and functional recovery. This study includes device design, fabrication, performance evaluation, and comparison with existing Continuous Passive Motion (CPM) machines. The results demonstrate that MOBAID offers a cost-effective and accessible solution for rehabilitation, especially in resource-limited settings.

Keywords: TStroke rehabilitation: Neuroplasticity: Slider-crank mechanism, MOBAID : Passive exercise

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ICSRR – E062

LIGHTWEIGHT MAGNESIUM ALLOY COMPOSITES FOR ENHANCED AUTOMOBILE PERFORMANCE AND FUEL EFFICIENCY

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Abstract:

The global automotive industry faces increasing pressure to improve fuel efficiency, reduce carbon emissions, and enhance vehicle performance in response to stringent environmental regulations and consumer demand for sustainability. Lightweight materials play a pivotal role in achieving these goals, as vehicle mass is directly linked to energy consumption. Among the various material options, magnesium alloy composites have emerged as a promising alternative to traditional steel and aluminum due to their low density, high strength-to-weight ratio, and favorable mechanical properties (Smith, 2022). This chapter explores the application of magnesium alloy composites in automobile manufacturing, with a focus on material properties, fabrication techniques, performance evaluation, and environmental impact. The novelty lies in integrating nanoparticle reinforcements and optimized fabrication methods to enhance the mechanical performance of magnesium alloys for real-world automotive applications. Experimental and literature-based evidence is presented to assess potential fuel savings, emission reductions, and cost-effectiveness. The findings indicate that strategic adoption of magnesium alloys in specific automotive components can deliver significant sustainability benefits without compromising performance.

Keywords: Magnesium alloy, Lightweight composites, Fuel efficiency, Automobile performance, Sustainable mobility, Weight reduction

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ICSRR – E063

INDUSTRIAL CYCLE TIME OPTIMIZATION USING MECHANIZED EQUIPMENT AND SIX SIGMA METHODOLOGY

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Abstract:

Innovation and research play a key role in meeting industrial needs, improving operational efficiency, and introducing advanced solutions to society. In the manufacturing sector, such advancements help minimize worker fatigue, enhance employee morale, and boost overall productivity. This study addresses these needs within a gearbox manufacturing environment. Using the Six Sigma-based Eliminate, Combine, Rearrange, and Simplify (ECRS) framework alongside cycle time analysis, the existing production process was examined to identify issues and potential improvements. A newly developed mechanized system was implemented and evaluated. The findings reveal a notable decrease in cycle time, coupled with reduced operator fatigue and a significant improvement in workplace morale. Furthermore, the proposed equipment design offers versatile applicability for productivity enhancement across similar manufacturing settings.

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ICSRR – E064

REVIEW OF HYDROGEN EMBRITTLEMENT MECHANISMS IN HIGH-STRENGTH ALUMINUM ALLOYS: MICROSTRUCTURAL INFLUENCES AND MITIGATION STRATEGIES

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Abstract:

Hydrogen embrittlement (HE) is an emerging reliability concern in high-strength aluminum alloys, especially 7xxx series grades used in aerospace structures. Although aluminum has low bulk hydrogen solubility, localized ingress during manufacturing or service can significantly reduce ductility, fracture toughness, and fatigue life. Microstructural features—such as grain boundaries with η-phase precipitates, dislocation networks, quenched-in vacancies, and partially recrystallized grains—govern hydrogen trapping, diffusion, and crack propagation. Key mechanisms include hydrogen-enhanced localized plasticity (HELP), hydrogen-enhanced decohesion (HEDE), and vacancy–hydrogen interactions, each influenced by alloy chemistry, heat treatment, and environment. Processing steps like casting, welding, and quenching, as well as corrosion and cathodic protection in service, are major hydrogen sources. Gaps remain in correlating microstructural parameters with HE resistance and in applying in-situ hydrogen mapping to aluminum. Advances in predictive modelling and microstructure-optimized processing are essential for mitigating HE in next-generation alloys.

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ICSRR – E065

SURFACE ENGINEERING OF 316L STAINLESS STEEL USING DUPLEX CRN/TIN COATINGS VIA DC MAGNETRON SPUTTERING: MICROSTRUCTURAL, TRIBOLOGICAL, AND HARDNESS EVALUATION

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Abstract:
Surface engineering plays a critical role in improving wear resistance, corrosion resistance, and overall service life of industrial components. This study presents the deposition and characterization of duplex chromium nitride/titanium nitride (CrN/TiN) coatings on AISI 316L stainless steel substrates using physical vapor deposition (PVD) via DC magnetron sputtering. Substrate temperature, working pressure, and nitrogen gas flow rate were selected as primary control variables, identified from literature review and RSM considerations. Coatings of approximately 4 µm thickness were deposited and examined using XRD. SEM, and tribological testing according to ASTM G99 standards. XRD analysis confirmed distinct CrN and TiN phases, while SEM micrographs revealed uniform coating coverage with good adhesion and minimal porosity. Wear testing demonstrated that duplex CrN/TiN coatings significantly outperformed both uncoated and single-layer TiN-coated samples, showing reduced wear rates and lower coefficients of friction even under increased normal loads. Hardness measurements indicated that duplex coatings possessed hardness values nearly five times greater than the base 316L substrate. These improvements are attributed to the synergistic combination of TiN's lubricity and CrN's high hardness and corrosion resistance. The findings suggest that duplex CrN/TiN coatings are highly promising for applications requiring enhanced durability, such as plastic molding tools, die-casting dies, and mechanical components subject to severe wear.

Keywords: *CrN/TiN duplex coating, DC magnetron sputtering, PVD, wear resistance, hardness, surface engineering, stainless steel*

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ICSRR – E066

ALGAE-BASED CARBON EMISSION CONTROL PRODUCT DESIGN FOR ENVIRONMENT

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Abstract:

The continued increase in atmospheric carbon dioxide (CO_2) levels is one of the most pressing environmental challenges of the 21st century. While conventional carbon capture and storage (CCS) technologies offer partial solutions, they are often limited by high operational costs and environmental concerns. This paper presents a comprehensive design framework for an algae-based carbon emission control product capable of integrating into industrial and urban environments. Utilizing the high photosynthetic efficiency and rapid biomass accumulation of microalgae, the system captures CO_2 directly from emission sources and converts it into biomass for secondary applications such as biofuels, fertilizers, and bioplastics. The research covers strain selection, photobioreactor (PBR) design, system integration, environmental performance, and economic feasibility. A comparative analysis between algae-based CCS and conventional CCS methods is also provided.

Keywords: Algae, carbon capture, photobioreactor, CO_2 mitigation, biomass utilization, sustainable design, renewable energy

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ICSRR – E067

INTELLIGENT GAS LEAK DETECTION WITH AUTOMATED SAFETY ALERTS

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Abstract:

Gas leakage poses significant hazards, often leading to accidents that cause both property damage and human casualties. The risks of explosion, fire, and suffocation depend on the physical properties of the gas, such as toxicity and flammability. In recent years, the number of fatalities from gas cylinder explosions has risen, primarily due to substandard cylinders, deteriorated valves, and worn-out regulators. This project aims to detect gas leaks promptly and alert nearby individuals through both SMS notifications and audible alarms, thereby enhancing safety and preventing potential disasters.

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ICSRR – E068

A COMPREHENSIVE REVIEW OF NANO ADDITIVES APPLICATIONS FOR ENHANCING PALM BIODIESEL PERFORMANCE IN INTERNAL COMBUSTION ENGINE

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Abstract:

Palm biodiesel is recognized as a promising alternative fuel for internal combustion engines (ICEs) due to its renewable origin, biodegradability, and potential to reduce greenhouse gas emissions. However, its lower energy density, higher viscosity, and limited oxidative stability restrict widespread utilization. The incorporation of nano additives into palm biodiesel has emerged as an effective strategy to enhance combustion characteristics, emission profiles, and engine efficiency. This review critically examines recent progress in nano additive applications for palm biodiesel, emphasizing their effects on fuel properties, engine performance, and emission behavior. In addition, it discusses prevailing challenges, assesses economic feasibility, and identifies future research directions for the sustainable deployment of nanoadditives in biodiesel-fueled ICEs.

Keywords: biodiesel, nano additives, performance, emission, palm biodiesel, I.C. Engine

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ICSRR – E069

DESIGN, SIMULATION AND ANALYSIS OF FLOATING ROTOR BRAKE PLATE

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Abstract:

In an ever-evolving automotive landscape, brake systems play a pivotal role in ensuring vehicle safety and performance. This engineering project takes an extensive look at the design, analysis, and implications of a floating rotor brake plate, a critical component within the disc brake assembly. By examining the detailed design and modeling process, simulation analysis, and experimental testing of the floating rotor brake plate, this project addresses the limitations of traditional solid disc rotors. Key objectives include enhancing thermal management, reducing weight, and simplifying maintenance. The implications of this research extend to improving brake system design, increasing safety and reliability, reducing vehicle weight, and streamlining maintenance procedures, contributing to the automotive industry's pursuit of safer, more efficient, and high-performance vehicles.

Keywords: Floating rotor brake plate, Disc brake assembly, Thermal management, Vehicle safety, Vehicle performance, Experimental testing

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ICSRR – E070

CONVERSION OF WASTE PLASTIC INTO OIL: TECHNOLOGIES, CHALLENGES, AND PROSPECTS

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Abstract:

Plastic waste is a mounting global environmental problem. Converting waste plastics into liquid fuels and chemicals via thermochemical processes such as pyrolysis, catalytic cracking, and gasification offers a promising route toward circularity and energy recovery. This review summarizes feedstock considerations, principal conversion technologies (conventional and catalytic pyrolysis, hydrocracking, gasification, and microwave/plasma-assisted methods), the properties and upgrading needs of produced oils, and environmental and economic aspects. Key technical challenges feedstock heterogeneity, halogenated plastics, catalyst deactivation, and scaling economics are discussed and research directions for catalyst development, process integration, and policy support are proposed.

Keywords: Plastic Waste Management, Pyrolysis, Catalytic Cracking, Hydrocarbon Recovery, Thermochemical Recycling, Waste-to-Energy

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ICSRR – S071

EFFECT OF TOUGHENER ON MOISTURE ABSORPTION AND GLASS TRANSITION TEMPERATURE OF GLASS / PHENOLIC LAMINATES

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Abstract:

Composite materials are a blend of two or more components, one of which is made of stiff, long fibers and the other is matrix, which holds the fibers in place. Such combinations exhibit the best properties of the individual material possess. Composites like laminated plywood, reinforced concrete etc., has been in use for a number of years but the advancement in recent years has been in fiber/ reinforced plastic. The use of light building materials for various applications such as airplanes, automobiles etc., has given rise to synthetic polymeric materials. Fiber Reinforced Plastic (FRP) is one such material, which is a combination of a resin system, reinforced with a glass fabric. It has a tendency to undergo deterioration in strength due to moisture absorption. Moisture diffusion study is very important for the successful design of FRP material. As a part of project study, a phenol- formaldehyde resin system and glass fiber was selected. A laminate of the two materials was prepared and the effect of a hydrothermal environment on moisture absorption and its effect on glass transition temperature (Tg) were studied.

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ICSRR – S072

ARTIFICIAL INTELLIGENCE IN PHARMACY: THE FUTURE OF DRUG DESIGN

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Abstract:

Artificial Intelligence (AI) is rapidly transforming the pharmaceutical landscape, particularly in drug design and development. By leveraging machine learning, deep learning, and natural language processing, AI enables the analysis of vast chemical and biological datasets to accelerate drug discovery, reduce costs, and enhance therapeutic precision. AI-driven approaches support target identification, lead optimization, and predictive modeling, while advanced techniques like generative adversarial networks and reinforcement learning facilitate de novo molecular design. In toxicology and pharmacokinetics, AI predicts ADMET properties and simulates biological interactions to minimize late-stage failures and improve patient safety. Clinical trials benefit from AI through optimized patient recruitment, response prediction, and real-time monitoring. Trailblazing platforms like IBM Watson, Atomwise, BenevolentAI, and AlphaFold epitomize the transformative fusion of artificial intelligence with pharmaceutical innovation, streamlining everything from molecular discovery to clinical strategy. Despite its promise, AI faces challenges including data quality, model interpretability, algorithmic bias, lack of standardization, and regulatory hurdles. The infusion of AI intopharmaceutical domains is accompanied by enduring ethical dilemmas, notably those concerning the sanctity of personal data and the contested ownership of algorithmic outputs. Addressing these limitations is crucial for scalable, equitable, and trustworthy AI adoption in drug development. As the field evolves, interdisciplinary collaboration and robust validation frameworks will be essential to fully realize AI's potential in revolutionizing pharmacy.

Keywords: Artificial Intelligence, Drug Discovery, Machine Learning, Deep Learning, Pharmacokinetics, Toxicology, Clinical Trials, Molecular Modeling, ADMET, Algorithmic Bias

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ICSRR – E073

REVIEW ON RECENT WEARABLE TECHNOLOGY FOR RESPIRATION MONITORING

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Abstract:

Respiration is one of the most vital parameters of human body. The advancements of the technology had improved the way of detecting the respiration through wireless technology. The wireless technology mainly uses wearable and portable sensors which has its unique featured properties in monitoring the respiration rate. The proposed review paper describes the recently discovered wireless technology the has improved the continuous monitoring of respiration rate based on the angular velocity, flexible capacitive pressure sensor and non-contact capacitive electrode. The working principle of all the determined technologies varied based on the types of sensors used to monitor the respiration rate.

Keywords: *wearable technology, respiration monitoring, inertial sensor, flexible capacitive pressure sensor, non-contact capacitive based electrode.*

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ICSRR – M074

A STUDY ON CONSUMER BEHAVIOUR IN FAST MOVING CONSUMER GOODS – DESCRIPTIVE ANALYSIS

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Abstract:
The study of consumer behaviour is paramount in marketing & business as it plays a crucial role in knowing the needs to be met. Consumer behaviour is the analysis of the decisions made by consumers on their needs or wants, the act of buying products or services or organisations. The study aims to discuss in detail consumer behaviour towards Fast Moving Consumer Goods (FMCG), the factors that affect the decision making of consumers, the prevailing trends and suggestions on improvements by marketers in the market. The study is an analysis of the current picture of the market in terms of its improvements from the past behaviour of consumers. This study is a literature review from journals of the past to the present market circumstances, many online websites, course materials of online courses, blogs, etc and the validity of this study is measured by the secondary data provided by past researchers. The study is from the consumer perspective on how marketers convince consumers are focused. There are multifarious activities behind the scenes of marketing. The study focuses mainly on the psychological factors, personal factors, cultural factors, social factors and economic factors. The study also concentrates on the online and traditional shoppers of consumer goods, the decision-making process, and prevailing challenges for marketers. From the consumer perspective, the convincing factors that affect the purchase decision of consumers are discussed. The technology has advanced in every sector the different digital technologies involved in the marketing of consumer goods are discussed. Every aspect of modern marketing is covered in this study.

Keywords: *Consumer Behaviour, psychological factors, personal factors, cultural factors, social factors, economic factors, decision-making process, trends.*

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ICSRR – M075

EFFECTIVE LEADERSHIP DEVELOPMENT AND TEAM MANAGEMENT: STRATEGIES FOR SUCCESS

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Abstract:

In today's fast-paced and dynamic work environment, leadership development and team management are crucial for achieving organizational success. This topic explores the key principles and strategies for developing effective leaders and managing high-performing teams. Globalizations are shrinking the gap and increasing the competition between organizations. The constantly changing environment modifies the dynamics of standard business practices. An organizational change can be pre-planned or unexpected. Hence, effective leadership is crucial to handle the change process with a positive and long-term vision. In addition, to be successful in organizational change, leaders must possess the capability of dealing with challenges such as resistance, confusion, exploration, and commitment. Internationalization has increased global competition, which brings both positive and negative impacts on an organization's performance. It covers essential skills such as communication, collaboration, decision-making, and managing conflict. A good leader sets a clear vision, establishes realistic goals, and strategically guides their team in the right direction. Leadership is not something which is essential only to the "top honcho", the "C-Suite", or the owners of the business. Leadership has to be a culture in the organization. Leadership is to be practised every day, all day, at the workplace by everyone in the organization. It is the consistent, small acts of leadership that lead to the big results. By understanding the importance of leadership development and team management, organizations can improve productivity, enhance employee engagement, and drive business results.

Keywords: *Organizational success, leaders, employee engagement, team management, conflict.*

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ICSRR - E076

SMART SLEEP APNEA MONITORING DEVICE

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Abstract:

Sleep apnea is a serious sleep disorder in which breathing repeatedly stops and starts again. The risk factors include age and obesity. The sleep disorder is associated with a medical disorder where the normal sleeping pattern of the person is disturbed. The common sleep disorder is sleep apnea. Sleep apnea has different types. Obstructive sleep apnea is the most common form that occurs when throat muscles relax, whereas Central sleep apnea occurs when the brain doesn't send proper signals to the muscles that control breathing. About 1 billion people worldwide suffer from sleep apnea disorder, and the age group of above 40 years old is affected by this disorder. Sleep apnea symptoms are loud snoring, morning headache, irritability, and gasping for air during sleep. It rarely occurs in men for 20-44years old and mostly affects in men for 45-64 years old. The existing sleep apnea devices are costly and not very user-friendly. The proposed proposal is designed to monitor heart rate detection. It is very comfortable for patients, and the design is compact and can be used for infants, as well as the graphical output can be continuously monitored through a computer screen or LCD.

Keywords: *Sleep apnea, snoring, sleeping disorders, breathing, heart rate monitor*

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ICSRR – S077

SELF-MICROEMULSIFYING DRUG DELIVERY SYSTEMS (SMEDDS) FOR PHYTOPHARMACEUTICALS

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Abstract:

Phytopharmaceuticals have gained increasing attention due to their therapeutic potential and natural origin. However, their clinical utility is often compromised by poor aqueous solubility, low permeability, chemical instability in the gastrointestinal tract, and extensive first-pass metabolism, leading to poor oral bioavailability. Self-Microemulsifying Drug Delivery Systems (SMEDDS) have emerged as a promising lipid-based delivery approach to overcome these challenges. SMEDDS are isotropic mixtures of oils, surfactants, and co-surfactants that spontaneously form fine oil-in-water microemulsions upon mild agitation in gastrointestinal fluids. These systems significantly enhance drug solubilization, protect labile constituents, and improve intestinal absorption and lymphatic transport. This chapter provides a comprehensive overview of the formulation, characterization, and evaluation of SMEDDS, with special emphasis on their application in enhancing the bioavailability of key herbal drugs such as curcumin, silymarin, boswellic acids, and quercetin. Moreover, the chapter explores existing hurdles, regulatory considerations, and the evolving clinical potential of SMEDDS in the advancement of phytopharmaceutical drug delivery.

Key words : *Herbal drug delivery, Lipid-based systems, Nanoemulsion, Silymarin, Quercetin, Lymphatic transport*

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ICSRR - S078

HARMONIOUS CHROMATIC NUMBER OF AT LEAST ONE DEGREE OF VERTICES IN CERTAIN GRAPHS

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Abstract:

A harmonious coloring is a proper vertex coloring where no two colors are connected by more than single edge, the least quantity of colors in harmonious coloring is a harmonious chromatic number and it is denoted by $\chi_H(G)$. This paper shows that the harmonious chromatic number of at least one degree of vertices in certain graphs like the Key graph ky_n, Hurdle graph Hd_n, Y tree graph Y_n, F tree graph $F(P_n)$, Bull graph B(G), and also its complement of the graphs. Each graph of the vertices has degree at least one, i.e., $d(v_i) \geq 1$, for every vertex $v \in V(G)$ of degree at least 1, the neighbors of v receive distinct colors and also different color pair of vertices.

Keywords: Harmonious coloring, Key graph, Hurdle graph, Y tree graph, F tree graph, Bull graph.

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ICSRR – S079

$WO_3/TiO_2/CeO_2$ NANOCOMPOSITES: FABRICATION APPROACHES AND THEIR ANTIBACTERIAL AND ANTIFUNGAL POTENTIALS

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Abstract:

WO3/TIO2/CeO2 nanocomposites are advanced antimicrobial material exhibiting strong activity under ultraviolet and visible light. The integration of WO3, TiO2, and CeO2 enhances lighr absorption, charge separation, and reactive oygen species (ROS) generation, enabling effective inactivation of Gram- positive, Gram- negative and fungal pathogens. WO3 provides visible light responsivenss and electron mobility, TiO2 ensure structural stability and antimicrobial support, and CeO2 offers Ce3+/ Ce4+ redox cycling for sustained ROS production via oxygen vacancies. Among synthesis route, solvothermal processing yields optimal morphology, crystallinity, and dispersion for superior antimicrobial performance. Antimicrobial assays reveals ROS- mediated oxidation damage to membranes, protein, and DNA, aided by strong microbial adheaion on rough, porous surfaces. The trimetallic system outperforms mono- and bimetallic oxides, offering application in self disinfecting surfaces, coatingd, water purification, and biomedial devices.

Keywords: $WO_3/TiO_2/CeO_2$ Nanoocomposites; Solvothermal Synthesis ; Antimicrobial activity; Reactive Oxygen Species (ROS); .

ICSRR – S080

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GREEN SYNTHESIS OF SELENIUM NANOPARTICLES USING LEAF EXTRACT OF *MUKIA MADERASAPATANA* AND DECIPHERING ITS BIOMEDICINAL PROPERTIES

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Abstract:

Selenium nanoparticles (SeNPs) are tiny particulates, which possess the ability for assimilation by biological systems, and have garnered attraction among researchers due to its exceptional biological properties and potential therapeutic functionalities. In the present study, SeNPs were synthesized via an effective and eco-friendly technique u.sing leaf extract of Mukia oiaderas¿iatana. Then SeNPs were characterized by various analytical techniques. UV-Vis spectroscopy showed absorption peak at 265 nm. Biomolecules acts as stabilizers for synthesized SeNPs. Alcoholic group, nitro compounds, aromatic compounds in SeNPs is revealed by the O-H bond, N-O bond and C-C bond by FTIR analysis. SEM analysis showed dimensions of synthesized SeNPs ranging from 73.24 rim to 187.6 nm. EDX analysis highlights the elemental composition of SeNPs as (13.75a) of Selenium, (69.27%) of oxygen and (16.98a) of sodium, and XRD spectroscopy revealed the crystalline structure of SeNPs. The anlioxidant potential of SeNPs via in vitro assays like NO, ABTS, FRAP and HiOz showed higher inhibition as 86.71%, 89.18a, 87.5496, and 89.9% at a concentration of 50 pg/ml. Anti-inflammatory effects of SeNPs demonstrated a noteworthy inhibition of Bovine Serum Albumin, Egg Albumin denaturation as 78% and 77a, also in membrane stabilization with increase in the concennations of SeNPs it stabilizes the cellular membranes. Brine shrimp lethality assay performed to assess the cytotoxicity effects of SeNPs and recorded the 5096 of survival at 50 pg/mL of concentration, and thereby validated its biosafety profile and potential therapeutic index. Collectively, this investigation highlights the multifunctional capabilities of SeNPs as promising candidates for applications in the biomedical field.

Keywords: *Selenium nanoparticles, Mukia maderaspatana, green synthesis, antioxidant, anti-inflammatory, Cytotoxicity*

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ICSRR – S081

THE THIRD SPACE IN TRANSIT: HYBRIDITY IN *MEMORIES OF RAIN* AND *A SIN OF COLOUR*

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Abstract

This paper explores the representation of hybridity in Sunetra Gupta's *Memories of Rain* (1992) and *A Sin of Colour* (1999), two novels that negotiate cultural crossings, diasporic dislocations, and fragmented identities. Drawing upon Homi K. Bhabha's theory of the "Third Space" and other postcolonial perspectives, it examines how Gupta's protagonists navigate multiple cultural, linguistic, and emotional geographies between India and England. Both novels depict characters whose lives are suspended between homeland and adopted land, memory and reality, belonging and estrangement. Through her poetic prose, non-linear narrative structures, and layering of time and space, Gupta creates a literary form that mirrors the hybrid consciousness of her characters. This study argues that hybridity in Gupta's fiction is not merely a symptom of displacement but a creative and destabilizing force that reshapes identity while simultaneously producing a deep sense of alienation. By comparing the narrative strategies and thematic resonances of the two novels, the paper situates Gupta's work within the larger discourse of postcolonial and diasporic literature.

Keywords: *Sunetra Gupta, hybridity, postcolonial fiction,* Memories of Rain, A Sin of Colour*, Third Space, diasporic identity, fragmentation.*

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ICSRR – S082

CUTTING THROUGH SILENCE: A SOCIO-LITERARY STUDY OF BAMA'S *KARUKKU*

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Abstract:

Bama's *Karukku* (1992) stands as a milestone in Indian Dalit literature, breaking new ground as one of the first autobiographies written by a Dalit woman in Tamil. Through an unflinching narrative voice, Bama exposes the intertwined oppressions of caste, gender, and religion, drawing upon her lived experiences as a Catholic Dalit woman in rural Tamil Nadu. The text disrupts conventional literary forms, blending autobiography with oral storytelling and testimonial writing. This article examines *Karukku* through multiple lenses: the socio-political context of Dalit life, the thematic focus on resistance and self-assertion, the intersection of caste and religion, the deployment of oral narrative techniques, and the articulation of a distinct Dalit feminist perspective. It situates the text within the broader framework of subaltern studies and postcolonial theory, emphasizing Bama's challenge to dominant cultural narratives. In doing so, the article highlights how *Karukku* functions simultaneously as a personal testimony and a collective voice for the marginalized, redefining Indian autobiographical writing in both form and purpose.

Keywords: *Bama;* Karukku*; Dalit literature; Tamil autobiography; caste oppression; Dalit feminism; subaltern studies; resistance; oral narrative; liberation.*

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ICSRR – S083

REIMAGINING THE SACRED FEMININE: A FEMINIST LITERARY ANALYSIS OF DEVDUTT PATTANAIK'S *SITA* AND KAVITA KANE'S *KARNA'S WIFE*

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Abstract:
This paper explores the reinterpretation of the sacred feminine in contemporary Indian mythological retellings through a feminist literary analysis of Devdutt Pattanaik's *Sita: An Illustrated Retelling of the Ramayana* and Kavita Kane's *Karna's Wife: The Outcast's Queen*. Both authors reimagine canonical epic narratives by shifting the focus from male heroic exploits to the nuanced interior worlds and agency of women often marginalised in traditional tellings. Pattanaik's *Sita* challenges the passive, idealised image of the epic heroine by presenting her as a figure of resilience, moral strength, and spiritual autonomy, deeply rooted in cultural symbolism. Kane's *Karna's Wife* reconstructs the Mahabharata through the eyes of Uruvi, an invented character, whose voice questions patriarchal structures, caste hierarchies, and the silencing of female perspectives. Employing a feminist theoretical framework, this study examines how both works subvert patriarchal myth-making, employ narrative strategies to reclaim women's voices, and create space for alternative mythic identities. The analysis further engages with concepts of agency, intersectionality, and cultural memory, demonstrating how mythological fiction can serve as a site for resistance, reclamation, and redefinition of gender roles within the Indian epic tradition.

Keywords: *Sacred feminine, feminist literary analysis, Devdutt Pattanaik, Kavita Kane, Sita, Karna's Wife, Indian mythology, epic retellings, agency, gender roles, narrative reclamation.*

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ICSRR – S084

CULINARY MEMORY AND FEMININE AGENCY: FOOD AS NARRATIVE POWER IN *LIKE WATER FOR CHOCOLATE* AND *SERVING CRAZY WITH CURRY*

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Abstract:

Food in literature often transcends its physical function, becoming a repository of memory, a medium for emotional expression, and a tool for reclaiming agency. This paper examines the role of food as a narrative force in Laura Esquivel's *Like Water for Chocolate* (1989) and Amulya Malladi's *Serving Crazy with Curry* (2004), with a focus on how culinary acts preserve cultural memory and empower women in contexts of patriarchal control and diaspora. In Esquivel's magical realist narrative, Tita's emotions are transmitted through the dishes she prepares, making cooking both an act of resistance and an articulation of desire. In Malladi's diasporic fiction, Devi uses food as a silent language to process trauma and rebuild fractured family bonds. Through a comparative framework drawing on food studies, feminist criticism, and diaspora theory, this study reveals how both novels reimagine the kitchen as a site of creativity, resistance, and self-definition. By situating these works in a transnational literary context, the paper underscores the universality of culinary storytelling as a form of feminine agency.

Keywords: *Laura Esquivel, Amulya Malladi, food studies, magical realism, diaspora, culinary memory, feminine agency, identity*

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ICSRR – M085

NATURE OF INDIAN TOURISM WITH RESPECT TO DOMESTIC AND INTERNATIONAL VISITORS

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Abstract:

Tourism has been one of the thrust areas of Government of India from time to time. The Governments at every level have laid every emphasis to promote India as a tourism destination. This has been recognized as a part of services sector. Every country in the world has attached great importance to tourism. International visitors have been thronging India due to various facilities available for tourists. Events like tourist fairs and facilities like visa-on-arrival are certain measures in this direction. At the same time, many countries have recognized Indian nationals as potential tourists and have rolled out several attractive schemes specifically for Indian nationals. This study is performed to study the nature of tourism in India in terms of its performance based on both domestic and foreign tourist arrivals, and the larger revenue-generating potential this industry possesses.

Keywords: *Tourism, India, Services, Fairs, Visa-on-arrival.*

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ICSRR – M086

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON CONSUMER BEHAVIOUR IN E-COMMERCE: A REVIEW

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Abstract:

For online businesses to succeed over the long term in the ever-changing world of electronic commerce (e-commerce), it is essential to comprehend and adjust to changing consumer behaviour. With an emphasis on the revolutionary role of customization driven by artificial intelligence (AI) and its influence on market trends, this analysis explores the relationship between e-commerce and consumer behaviour. The introduction of AI has completely changed how e-commerce platforms interact with and accommodate the interests of individual customers. AI-powered personalization strategies use sophisticated algorithms to examine enormous datasets in technology, allowing for the provision of user experiences, product recommendations, and content that is extremely relevant and customized**.** The study explores how machine learning algorithms can be used to forecast customer preferences, expedite the checkout process, and create a more individualized shopping experience. The review also looks at the difficulties and moral dilemmas surrounding AI-powered customisation as e-commerce develops. To give a thorough grasp of the wider ramifications of AI in influencing consumer behaviour, topics including data privacy, algorithmic bias, and the fine line between personalization and intrusiveness are investigated. In conclusion this research provides insightful information about the mutually beneficial interaction between e-commerce and consumer behaviour, highlighting the revolutionary potential of AI-powered personalization and its impact on new market trends.

Keywords: *Artificial Intelligence, E-commerce, Consumer Behaviour, Technology, Review.*

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ICSRR – E087

SMART SOIL MECHANICS: INTEGRATING AI AND IOT FOR GEOTECHNICAL INSIGHTS

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Abstract:

Smart soil mechanics is an emerging interdisciplinary domain that integrates Artificial Intelligence (AI), Machine Learning (ML), and Internet of Things (IoT) technologies to enhance the accuracy, efficiency, and adaptability of geotechnical engineering practices. As infrastructure becomes more complex and demands for real-time data and predictive maintenance grow, the integration of smart sensors, cloud-based monitoring systems, and AI-driven analytics is reshaping how engineers evaluate and manage soil behavior. This chapter delves into the theoretical principles, sensor technology, data interpretation, real-world applications, and future directions of smart soil mechanics. It also highlights recent developments from 2023 to 2025, offering evidence from cutting-edge research and case studies in landslide prediction, real-time settlement monitoring, and AI-based soil classification.

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ICSRR – E088

ENHANCED REACTIVE POWER OPTIMIZATION IN POWER SYSTEMS USING FPA

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Abstract:

This study presents a robust and efficient evolutionary optimization method, the Flower Pollination Algorithm (FPA), for solving the Optimal Reactive Power Dispatch (ORPD) problem in power systems. The proposed approach is tested on the standard IEEE 30-bus system, considering control variables such as bus voltages, transformer tap positions, and reactive power compensators. The optimization objectives include minimizing active power transmission losses, reducing total voltage deviation, and improving the voltage stability index. Performance comparisons with other recently developed evolutionary algorithms from the literature reveal that FPA achieves superior solution quality, higher efficiency, and faster convergence, establishing it as a promising technique for addressing the ORPD challenge.

Keywords: *Optimal Reactive Power Dispatch, Flower Pollination Algorithm, Evolutionary Optimization, Voltage Stability*

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ICSRR 2025 – Presentation Schedule on 17TH AUGSUT 2025

Theme	Paper IDs	Date & Time
Computer Science & Information Technology	E001, E002, S008, E011, E017, E018, E023, E024, E025, S026, E031, E068, E076, E087, E088	**Session I:** 17.08.2025 (Sunday) 10.00 am to 12 Noon
Maths and Languages	M021, S027, S030, S046, S047, S078, S081, S082, S083, S084	**Session I:** 17.08.2025 (Sunday) 10.00 am to 12 Noon
Bio-Engineering, Pharmacy & Science	S004, S005, S007, E010, S012, E014, S015, S020, S022, S029, S042, S043, S048, S059, S060, S072, S077, S079, S080	**Session II:** 17.08.2025 (Sunday) 10.00 am to 12 Noon
Automobile, Mechanical, Civil	E003, E006, M009, E039, E041, E044, E045, E049, E050, E061, E062, E063, E064, E065, E066, E067, E069, E070, S071, E073	**Session III:** 17.08.2025 (Sunday) 2.00 pm to 4.00 pm
Management	M013, M016, M019, M028, M032, M033, M034, M035, M036, M037, M038, M040, M051, M052, M053, M054, M055, M056, M057, M058, M074, M075, M085, M086	**Session IV:** 17.08.2025 (Sunday) 2.00 pm to 4.00 pm

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