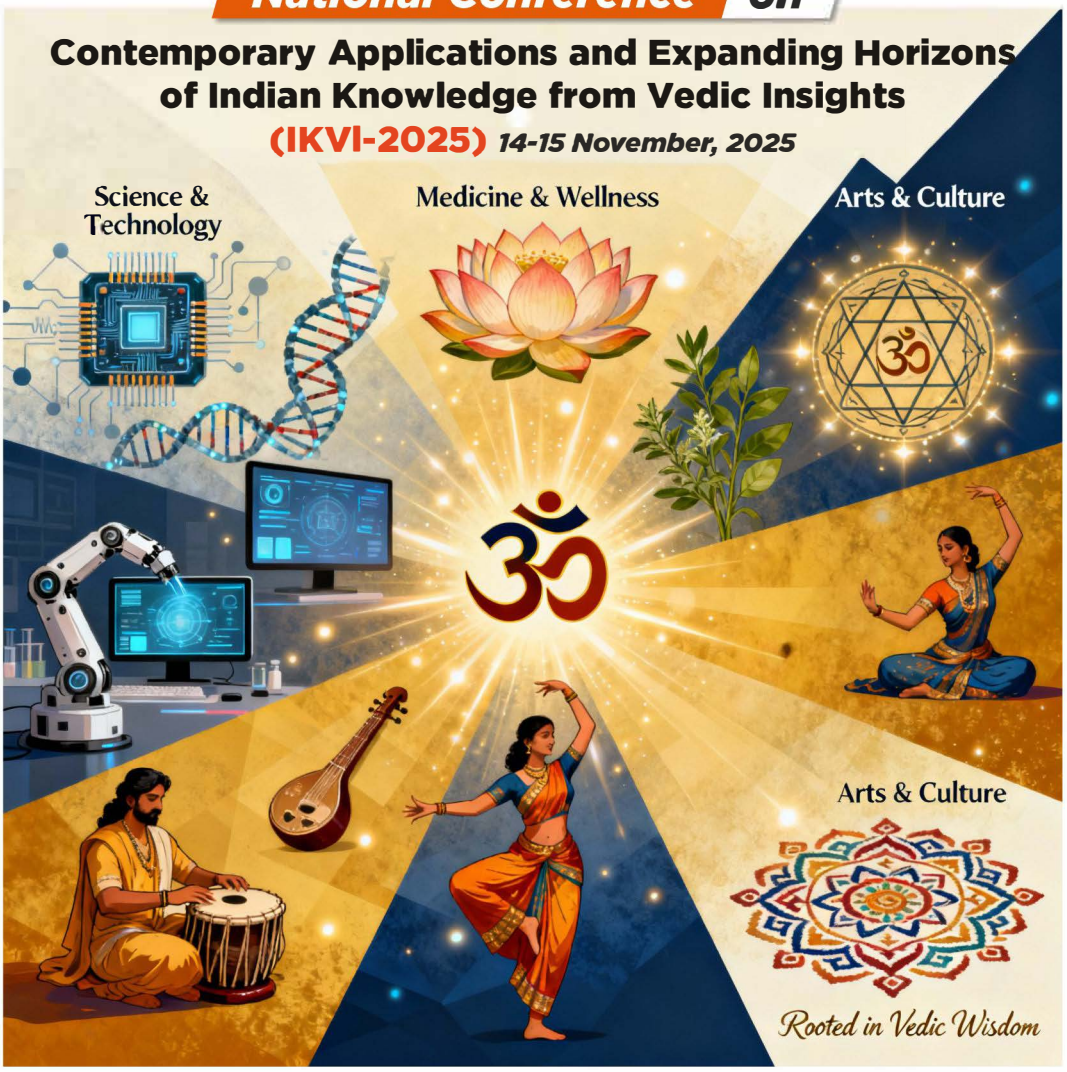
Shobhit Institute of Engineering & Technology
Deemed to-be-University
EDUCATION EMPOWERS

NAAC A

National Conference on

Contemporary Applications and Expanding Horizons of Indian Knowledge from Vedic Insights

(IKVI-2025) 14-15 November, 2025



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Shobhit Kumar
Chairman

MESSAGE

It's a pleasure to know that **IKVI-2025** has emerged as a vibrant meeting ground for thinkers, seekers, and scientists committed to rediscovering the eternal spirit of Indian Knowledge.

At **Shobhit University**, our vision has always been to nurture minds that seek truth, create knowledge that serves humanity, and build a future rooted in wisdom, compassion, and innovation. Education, in its highest form, is not merely the transmission of information but the awakening of consciousness, a journey from knowing to understanding, and from understanding to realization.

In a world often driven by speed and competition, the rediscovery of India's knowledge traditions reminds us that true progress must harmonize material advancement with spiritual depth. **IKVI-2025** embodies this idea that learning becomes meaningful only when it elevates both intellect and insight.

May this gathering inspire all participants to become torchbearers of knowledge that enlightens, empowers, and unites.

With warm blessings and best wishes for the success of this noble initiative.

Shobhit Kumar
Dr. Shobhit Kumar

Shobhit University

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Kunwar Shekhar Vijendra
Chancellor

Message

It fills me with joy to convey my greetings to all scholars, scientists, and seekers gathered for **IKVI-2025** at **Shobhit Institute of Engineering & Technology, Meerut**.

This conference, exploring *Contemporary Applications and the Expanding Horizons of Indian Knowledge from Vedic Insights*, reaffirms the timeless truth that **Bharat has always been a knowledge civilization** - where wisdom was not borrowed, but born from the depths of consciousness.

The Hon'ble Prime Minister's vision of **NEP 2020** calls for reviving this spirit - blending ancient insights with modern innovation, and nurturing learners who think globally yet remain rooted in dharmic values.

At **Shobhit University**, we are striving to translate this vision into practice - from **Rudraksha research** to **Ayurveda, Yoga, and Naturopathy**, from the exploration of **Vedic Mathematics** to initiatives in **tribal agriculture and sustainable living**. Each of these efforts reflects our belief that Indian Knowledge is not confined to the past; it is a living force shaping a conscious and compassionate future.

Indian Knowledge Systems are not remnants of history; they are **living streams of awareness** that continue to inspire science, wellness, and social harmony across the world. From the rhythm of the Vedas to the logic of Nyaya and the compassion of Ayurveda, India's wisdom has always sought balance between matter and spirit.

The parallel **Swadeshi Mela** beautifully echoes this idea that true self-reliance is not merely economic, but cultural and intellectual.

I congratulate the organizers and participants for shaping IKVI-2025 into a confluence of wisdom and action. May it awaken in every mind the courage to think originally, live consciously, and serve selflessly as envisioned in the journey of **Viksit Bharat @ 2047**

With good wishes,

Kunwar Shekhar Vijendra

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प्रो० के० के० पंत
निदेशक
Prof. K. K. Pant
Director



MESSAGE

It gives me immense pleasure to extend my heartfelt greetings and best wishes to the organizers and participants of the National Conference on 'Contemporary Applications and the Expanding Horizons of Indian Knowledge from Vedic Insights' (IKVI-2025) organized by Shobhit Institute of Engineering and Technology (Deemed to be University), Meerut. The theme of this event resonates deeply with India's ongoing educational and cultural renaissance, emphasizing the integration of our ancient wisdom with the demands of modern science and technology.

The Indian Knowledge System (IKS) is not merely a collection of past achievements but a living tradition of inquiry, innovation, and interconnectedness. Rooted in centuries of scientific, philosophical, and artistic exploration, it encompasses a holistic vision that unites intellect with ethics, and progress with purpose. In today's rapidly evolving world, where technology often races ahead of values, the rediscovery of our civilizational knowledge provides a guiding light for sustainable and humane development.

As an academician and technologist, I firmly believe that the future of innovation lies in interdisciplinary thinking — where ancient principles inspire new discoveries, and modern tools refine age-old practices.

I commend the organizing committee, faculty members, and students for their vision and dedication in conceptualizing this meaningful event. I extend my warmest wishes for the grand success of the conference.

May this initiative continue to inspire hope, creativity, and collaboration — guiding us toward a future where India's timeless wisdom shapes global innovation and sustainable progress.

(K K Pant)

भाकृअनुप-भारतीय पशु-चिकित्सा अनुसंधान संस्थान
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डॉ त्रिवेणी दत्त
निदेशक

Dr Triveni Dutt
Director

MESSAGE

The Vedic civilization of India has long been recognized as a cradle of holistic wisdom, where knowledge encompassed every aspect of life—including the welfare of animals. Rooted in compassion and harmony with nature, Vedic insights emphasized the interconnectedness of all living beings, encapsulated in the ideal of *Sarve Bhavantu Sukhinah* "May all beings be happy." This profound vision laid the foundation for early veterinary science, where animal health, ethics, and sustainable coexistence were integral to human progress.

Texts such as the *Ashva Ayurveda*, *Gaja Shastra*, and *Pashu Tantra* reflect an advanced understanding of animal physiology, medicine, and behavior. Ancient scholars like Shalihotra—revered as the father of veterinary science—developed detailed treatises on equine and bovine health that resonate with modern veterinary principles. Their approach combined empirical observation with a deep sense of respect for animal life, offering a model for sustainable and ethical veterinary practice today. In contemporary times, these Vedic insights are finding renewed relevance. The principles of Ayurveda are being explored for developing herbal veterinary formulations, natural disease management, and eco-friendly livestock care. Concepts of preventive medicine, dietetics, and environmental balance from ancient Indian texts are aligning with modern approaches to animal welfare, zoonotic disease control, and One Health initiatives that link human, animal, and ecosystem health.

As we expand the horizons of Indian knowledge, integrating Vedic wisdom with modern veterinary science, we create pathways toward compassionate innovation—where traditional insight and scientific inquiry together ensure the well-being of all species. The rediscovery of this ancient wisdom invites us to embrace a holistic vision of veterinary care that not only heals but also harmonizes life in all its forms.

It gives me immense pleasure to know that Shobhit Institute of Engineering & Technology (Deemed to-be University), Meerut, U.P. is organizing a National Conference on *Indian Knowledge Systems* entitled "Contemporary Applications and Expanding Horizons of Indian Knowledge from Vedic Insights" (IKVI-2025) on 14-15 November 2025

I am convinced that this conference will lead to pioneer ideas and approaches to solve the impending problems in the horizons of Indian knowledge, integrating Vedic wisdom.

I congratulate the organizers of the conference and wish the **IKVI - 2025**, a grand success.

[Triveni Dutt]

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क्रमांक: V.C.O/142/05/2025-026

दिनांक: 06.11.2025

Message

It gives me immense pleasure to convey my heartfelt best wishes to the organizers, participants, and delegates of the **ICSSR & ANRF-Sponsored National Conference on "Contemporary Applications and Expanding Horizons of Indian Knowledge from Vedic Insights"** being organized by **Shobhit Institute of Engineering & Technology (Deemed-to-be University), Meerut** on **14–15 November 2025**.

The theme of this conference is highly relevant in the present era, as it focuses on rediscovering and integrating the timeless wisdom of our Indian Knowledge Systems (IKS) with contemporary research and innovation. The vision of reviving Vedic insights in light of the **National Education Policy (NEP) 2020** is indeed commendable and essential for nurturing holistic education rooted in our cultural ethos.

I am confident that this academic congregation will serve as a vibrant platform for scholars, researchers, and academicians to engage in meaningful deliberations and share valuable perspectives that will enrich the academic and intellectual landscape of our nation.

I extend my best wishes for the grand success of this conference and pray that it may inspire all participants to continue contributing to the growth of knowledge, harmony, and wisdom for the benefit of society.

With warm regards and best wishes,

(Prof.Vimala Y.)
Vice Chancellor

Prof. V. K. Tyagi
(Vice Chancellor)
Shobhit Institute of Engineering & Technology
(Deemed to-be University), Meerut, U.P.

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I am delighted to learn that Shobhit Institute of Engineering and Technology (Deemed to-be University), Meerut is organizing a National Conference on "Contemporary Applications and Expanding Horizons of Indian Knowledge from Vedic Insights." This is indeed a commendable initiative that seeks to revive and reinterpret the profound intellectual and spiritual heritage of our nation within the context of modern academic inquiry.

The Indian Knowledge System is a treasure house of timeless wisdom, encompassing science, philosophy, ethics, art, and ecology. In an era driven by rapid technological transformation, it is essential that our education and research remain anchored in such foundational principles that promote both innovation and integrity. By providing a platform for scholars, researchers, and practitioners to exchange ideas and explore new dimensions of Vedic thought, this conference is contributing meaningfully to the national discourse on integrating tradition with modernity. It also reaffirms the vital role of universities as custodians of culture and catalysts of intellectual growth. I am confident that the deliberations during the conference will open new avenues for interdisciplinary research and inspire educators to incorporate the essence of Indian Knowledge Systems into contemporary curricula. The collective reflections emerging from this forum will undoubtedly enrich our understanding of India's intellectual legacy and its relevance to global challenges.

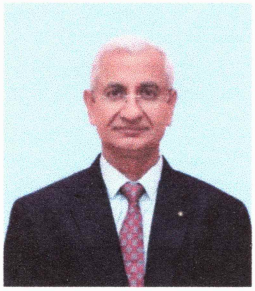
I congratulate the organizing committee for their vision, dedication, and scholarly spirit in conceptualizing this significant event. I extend my warm wishes for the success of the conference and for the continued academic excellence of Shobhit Institute of Engineering and Technology (Deemed to-be University), Meerut

May this initiative continue to illuminate the path of knowledge, harmony, and holistic progress.

Prof.(Dr.) Ranjit Singh
(Vice Chancellor)
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Message from the Vice Chancellor
Shobhit Institute of Engineering & Technology (Deemed-to-be University)

The journey of knowledge is not confined to time — it is a continuum of ideas, reflections, and realizations that transcend generations. The National Conference on "Contemporary Applications and the Expanding Horizons of Indian Knowledge from Vedic Insights" scheduled during November 14-15, 2025 at Shobhit Institute of Engineering & Technology (Deemed to-be University) Meerut, U.P. India, is a meaningful endeavor to revisit this continuum and to interpret it in the light of present and future challenges.

In an age characterized by technological acceleration and information abundance, the rediscovery of such timeless insights is vital. Integrating these principles into our education, research, and innovation ecosystems enables us to build a knowledge society grounded in values, inclusivity, and wisdom. The conference theme, focusing on contemporary applications of Vedic insights, beautifully captures this vision of synthesis — where tradition does not resist change but enriches it.

Universities today bear a profound responsibility: to nurture minds that are not only competent but also conscious, not only skilled but also sensitive to the ethical and cultural dimensions of knowledge. I believe that forums like this conference encourage reflection, dialogue, and collaboration — essential elements for academic excellence and nation-building alike.

I deeply appreciate the initiative of the organizers, faculty, and scholars who have come together to make this event possible. May the deliberations of this conference inspire participants to explore new dimensions of research, teaching, and innovation through the lens of India's timeless wisdom.

Let this platform serve as a reminder that education, when rooted in heritage and directed toward humanity, becomes the highest form of service to society.

My best wishes for the grand success of the event

V.K.Tyagi

Prof. (Dr.) V.K. Tyagi
(Vice Chancellor)
Shobhit Institute of Engineering & Technology
(NAAC 'A' Grade Accredited Deemed-to-be University)
Meerut, U.P. (INDIA)

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MESSAGE FROM PRO VICE CHANCELLOR

It gives me immense pleasure to extend my warm greetings to all the distinguished delegates, academicians, and researchers participating in the **National Conference on "Contemporary Applications and Expanding Horizons of Indian Knowledge from Vedic Insights (IKVI-2025)"**, organized by **Shobhit Institute of Engineering & Technology (Deemed to-be-University), Meerut**.

The National Conference on *"Contemporary Applications and Expanding Horizons of Indian Knowledge from Vedic Insights (IKVI-2025)"* encompasses diverse research themes including **Applied Science & Technology**, **Education & Pedagogy**, **Management & Leadership**, **Law & Governance**, **Yoga & Meditation**, **Ayurveda & Holistic Health**, and **Environment & Sustainable Development**, along with other interdisciplinary domains. These themes collectively aim to explore the integration of ancient Indian wisdom with modern scientific, educational, and socio-economic frameworks, emphasizing sustainable development, holistic health, ethical governance, and human values inspired by India's timeless knowledge traditions.

The deliberations of IKVI-2025 promise to inspire a deeper understanding of how ancient Indian wisdom can harmoniously integrate with contemporary knowledge systems. By bridging the past with the future, such endeavors not only preserve our civilizational ethos but also contribute to realizing the vision of the **National Education Policy (NEP) 2020**, which emphasizes the inclusion of IKS as a cornerstone for a self-reliant and globally competent India.

I convey my heartfelt congratulations to the organizing team for their commendable efforts and extend my best wishes for the grand success of IKVI-2025. May the souvenir of this conference inspire every participant to contribute meaningfully toward the rediscovery and application of Vedic insights for the betterment of humanity.

Prof. (Dr.) Jayanand
Pro-Vice Chancellor & Co-Chairman, IKVI-2025
Shobhit Institute of Engineering & Technology (Deemed to-be-University),
Meerut (U.P.), India

MESSAGE FROM THE CONVENERS

It is a great pleasure to welcome all of you to this National Conference on Contemporary Applications and Expanding Horizons of Indian Knowledge from Vedic Insights organized by Shobhit Institute of Engineering & Technology (Deemed to be University) Meerut which is supported by Indian Council of Social Science Research (ICSSR) and Anusandhan National Research Foundation (ANRF). This conference aims to create an intellectual platform for scholars, academicians, practitioners, and students to explore the vast potential of ancient Indian wisdom and its relevance in addressing the contemporary challenges of our times. India's Vedic knowledge system is a timeless repository of science, philosophy, medicine, mathematics, and spirituality. This is an opportunity to revisit and reinterpret such ancient insights in the light of modern science and technology for sustainable and holistic solutions in the modern world. The main purpose of the conference is to bring together experts and researchers from various fields to deliberate on how the Vedic principles can be applied in today's evolving areas like health and well-being, environmental sustainability, management, governance, education, and innovation.

This is an academic congregation supported by eminent scholars and research enthusiasts for the cause of collaboration and dialogue among its members and the pursuit of interdisciplinary research with roots in Indian knowledge systems. The sessions shall aim at rediscovery, re-evaluation of the presently existing body of traditional wisdom, formulation of new frameworks that conform to contemporary scientific understanding, and adjustment according to India's cultural ethos.

We feel highly obliged to all the distinguished guests, speakers, and participants who have joined this initiative. We would like to extend our heartfelt thanks to the management of Shobhit Institute of Engineering & Technology for continuous guidance and support in organizing this national conference. We also deeply appreciate the efforts of the members of the Organizing Committee for their tireless work and dedication to the success of this event.

We sincerely hope that this conference will inspire new perspectives, encourage meaningful research, and strengthen our collective understanding of how the profound insights from the Vedic era can illuminate the path toward a balanced and progressive future.

Dr. Neha Tyagi

Dr. Shail Dhaka

Message from Co-conveners

It is our privilege to welcome all participants to the National Conference IKVI 2025 at Shobhit institute of Engineering and Technology (Deemed to be University), Meerut, a landmark event that bridges ancient wisdom with modern technological innovation. This year's conference is designed to foster interdisciplinary dialogue, bringing together scholars, researchers, and practitioners from diverse fields to explore the contemporary applications of Indian knowledge systems, especially those rooted in Vedic insights. The event will feature a robust technical program, including sessions on artificial intelligence, engineering, sustainable development, governance, and holistic approaches to science and technology. These tracks are curated to encourage critical thinking and the exchange of cutting-edge research, with a special emphasis on how traditional knowledge can inform and enrich modern scientific and technological advancements.

Complementing the academic rigor is the vibrant Swadeshi Mela, a celebration of indigenous craftsmanship and self-reliance highlighting the region's rich heritage and creative spirit. The Swadeshi Mela serves as a platform for networking, collaboration, and the promotion of sustainable livelihoods.

Participants have the opportunity to engage with a diverse range of themes, including the integration of Vedic principles in AI and machine learning, sustainable engineering solutions, ethical governance, and the application of traditional wellness practices in modern healthcare. The conference also features technical workshops, panel discussions, and poster presentations, providing a dynamic environment for knowledge sharing and innovation. Shobhit University's commitment to interdisciplinary research and practical learning is reflected in the conference's structure, which encourages collaboration across disciplines and sectors.

We extend our heartfelt gratitude to all contributors, organizing members, and supporting institutions whose dedication has made IKVI 2025 possible. We look forward to an enriching and memorable event that inspires new ideas, fosters collaboration, and celebrates the enduring relevance of Indian knowledge traditions.

Dr. Jayanta Kumar Mahato

Dr. Aniket Kumar

Message from the Organizing Secretary

It is with great honor and immense pleasure that I welcome all esteemed scholars, academicians, researchers, industry experts, and participants to the National Conference on Contemporary Applications and the Expanding Horizons of Indian Knowledge from Vedic Insights (IKVI-2025), hosted by Shobhit Institute of Engineering & Technology, Meerut, a NAAC 'A' Grade accredited deemed-to-be university.

The central theme of this conference reflects our collective pursuit of bridging the timeless knowledge contained within ancient Vedic scriptures with the dynamic demands of the modern world. Indian Knowledge Systems (IKS) are rooted in profound philosophical, scientific, technological, and cultural insights that have shaped civilizations for thousands of years. Today, as the global community seeks sustainable, ethical, and holistic solutions, revisiting this heritage becomes not only relevant but necessary.

This Abstract Book is a testament to the intellectual curiosity, diverse research interests, and scholarly commitment of contributors across disciplines. The abstracts showcased here represent explorations in fields such as Vedic mathematics, Ayurveda, linguistics, environmental studies, psychology, computing, management, architecture, philosophy, and emerging interdisciplinary domains. Together, they highlight how ancient wisdom can complement contemporary scientific frameworks, inspire innovation, and contribute meaningfully to national development.

We deeply value the efforts of all authors who have enriched this conference with their research. Their contributions reflect the spirit of inquiry, originality, and academic rigor. I would also like to extend heartfelt appreciation to our publication partner, review committee, session chairs, and subject experts whose careful evaluation and constructive feedback have helped in maintaining the quality of academic content in this compilation.

Our sincere gratitude goes to the Indian Council of Social Science Research (ICSSR) and all supporting bodies for their guidance and encouragement. The visionary leadership of our Hon'ble Chancellor, Vice-Chancellor, and institutional advisory teams has been instrumental in conceptualizing and executing this scholarly platform. The enthusiastic involvement of faculty members, student volunteers, and administrative staff is also highly commendable.

Conferences such as IKVI-2025 play a pivotal role in fostering dialogue, encouraging research collaborations, and offering young scholars a platform to engage with experienced academicians. We are confident that the ideas shared and connections formed during this event will lead to further publications, projects, and innovations.

As you explore the abstracts compiled in this volume, I encourage you to approach them with curiosity and an open mind. May they inspire thoughtful debate, interdisciplinary research, and a deeper appreciation of India's intellectual legacy.

We hope this conference experience proves academically enriching, professionally rewarding, and personally memorable for each one of you.

Dr. Surbhi Saroha

Dr. Shiva Sharma

ABOUT THE UNIVERSITY

Shobhit Institute of Engineering & Technology (popularly known as Shobhit University), a NAAC 'A' Grade accredited Deemed-to-be University, is located in Meerut and established under Section 3 of the UGC Act, 1956. As a research-intensive and multi-disciplinary institution, it fosters high-quality education and innovative research in a globally competitive environment. With over 50.000 alumni excelling across industries, including Fortune 500 companies, the university has
nurtured engineers, managers, researchers, and entrepreneurs of global repute.

Aligned with the national vision of "Viksit Bharat" under the leadership of Hon'ble Prime Minister Shri Narendra Modi Ji, Shobhit University is dedicated to empowering communities through education, innovation, and skill development. By shaping changemakers, it contributes to India's mission of becoming a developed nation by 2047, embodying a vision of self-reliance and excellence.

Legacy of Excellence
With over 100 years of educational heritage in Gangoh and established as a deemed-to-be university in 2006, Shobhit University embodies a rich tradition of academic and cultural excellence.

Innovative Academic Programs
The University offers a wide array of industry-oriented programs, including specialized fields like Industry Oriented Business Studies, Legal Studies, Biomedical Engineering, Agri-Tech, and Emerging Technologies like AI, ML, and Cloud Computing.

Cutting-Edge Research and Innovation
Recognized for its contributions to research, the University actively works on Sustainable Development Goals (SDGs) and innovations addressing real-world challenges.

Global Alumni Network
Shobhit University alumni are working globally across industries, embodying the institution's vision of producing leaders and changemakers.

State-of-the-Art Infrastructure
Modern facilities, including smart classrooms, high-tech laboratories, a digital library, and green campuses, provide an ideal environment for learning and innovation.

Student-Centric Excellence
Shobhit University fosters holistic development through mentorship, personalized career counseling, and 20+ vibrant clubs and societies. From sports and cultural activities to entrepreneurship and NCC programs, students are empowered to explore passions, build leadership, and thrive as impactful individuals.

Industry-Academia Collaboration
Strategic partnerships with leading industries and global institutions ensure that students gain exposure to practical learning, internships, and career opportunities.

About the Conference

The National Conference on Indian Knowledge Systems (IKS) is a visionary initiative aimed at exploring the profound wisdom embedded in India's ancient traditions and reinterpreting them in the light of contemporary global challenges. The conference, organized by Shobhit institute of Engineering and Technology (Deemed to-be University), Meerut, serves as an intellectual platform that brings together scholars, academicians, practitioners, and researchers from diverse disciplines to deliberate upon the timeless relevance and modern applicability of India's knowledge heritage.

The theme"Contemporary Applications and the Expanding Horizons of Indian Knowledge from Vedic Insights" reflects a conscious effort to bridge the ancient and the modern, the spiritual and the scientific, and the local and the global. The focus of the conference is not merely to revisit the past, but to recognize how India's vast repository of knowledge, ranging from philosophy, mathematics, science, linguistics, medicine, governance, and education to arts and ecology, can contribute to addressing the complex realities of the 21st century.

The conference aspires to rekindle pride in the nation's intellectual heritage and to motivate educators, students, and policymakers to contribute towards a holistic and inclusive model of knowledge creation and dissemination. It is a collective stride towards realizing the vision of a self-reliant, knowledge-driven India that harmonizes scientific inquiry with ethical and spiritual values.

The objectives of the conference are to explore the historical significance and contemporary relevance of Indian Knowledge Systems across diverse disciplines, while fostering a deeper understanding of their role in shaping modern thought. It aims to create a dynamic platform for scholars, researchers, policymakers, and practitioners to exchange ideas on integrating IKS with modern education, science, and governance. By bridging traditional wisdom with contemporary innovations, the conference seeks to encourage interdisciplinary research and informed policymaking. Aligned with the spirit of the National Education Policy (NEP) 2020**,** it emphasizes the inclusion of IKS in curricula to enrich learning with indigenous perspectives. Furthermore, the deliberations aspire to promote sustainability, ethical values, and holistic practices inspired by India's timeless traditions, guiding society towards harmony, balance, and responsible progress.

The conference focuses on several key areas that highlight the depth and contemporary relevance of Indian Knowledge Systems. In the field of Education and Pedagogy**,** it emphasizes the integration of IKS into modern curricula to promote multidisciplinary and experiential learning. In Law and Governance**,** it explores ancient legal principles from texts such as the *Manusmriti* and *Arthashastra* and examines their influence on contemporary legal frameworks. The area of Yoga and Meditation investigates the scientific validation of yogic practices for enhancing mental and physical well-being. Ayurveda and Holistic Health examines the relevance of Ayurveda in preventive and curative healthcare, aligning it with global wellness trends. The segment on Applied Science and Technology highlights the contributions of Indian mathematics, astronomy, metallurgy, and engineering to modern scientific advancements. In Management and Leadership**,** the conference draws lessons from Indian philosophy—particularly Kautilya's *Arthashastra*—for promoting ethical leadership and effective business strategies. Finally, the focus on Environment and Sustainable Development underscores indigenous ecological practices and traditional water management techniques that address pressing global challenges such as climate change.

Adding to this academic exploration, a Swadeshi Mela is organized alongside the conference to showcase India's rich heritage of traditional crafts, indigenous technologies, local innovations, and sustainable products. The Mela provides a vibrant platform for artisans, entrepreneurs, and institutions to display their creations, celebrate the spirit of self-reliance, and reconnect modern society with the wisdom and skills rooted in India's cultural and scientific legacy.

Peer reviewed and accepted articles of the conference will be published by the publishing partners: STM Journals and IJREI. These publications will undoubtedly enrich the existing body of knowledge in the open literature domain.

The conference IKVI-2025 is sponsored by Indian Council of Social Science Research (ICSSR) and Anusandhan National Research Foundation (ANRF), DST, GoI.

National Conference on Contemporary Applications and Expanding Horizons of Indian Knowledge from Vedic Insights (IKVI-2025)

Technical Program Schedule

Day-I (14 Nov 2025)

Swadeshi Mela
Blessings of Lord Ganesha and Abhivadan of the Chief Guests through Swasti Vachan 09:00-09:15 am
Inauguration of Swadeshi Mela with Mangla Charan and Saraswati Pujan And opening remarks by the Chief Guest November 14th, 2025 09:30-10:00 am
Visit and interaction with the Participants of the Mela and shower of Blessings 10:00 – 10:30 am

Inaugural Ceremony Conference 10:30-12:00 am		
1.	**Lighting of Lamp with Vedic Mantra**	**10:30-10:35 am**
2.	**Welcome Address: Dr. Shail Dhaka,** Director, School of Education	**10:35-10:40 am**
3.	**Address by Prof. (Dr.) Jayanand,** Pro Vice-Chancellor, SUM	**10:40-10:45 am**
4.	**Address by** Vice Chancellor, SUM	**10:45-10:55 am**
5.	**Address by** Vice Chancellor, SUG	**10:55- 11:05 am**
6.	**Address by Chief Guest**	**11:05- 11:15 am**
7.	**Guest of Honor - 1**	**11:15-11:25 am**
8.	**Guest of Honor -2**	**11:25-11:35 am**
9.	**Blessings by** Hon'ble Chancellor	**11:35 Onwards**
10.	**National Anthem**	
HIGH TEA FOLLOWED BY GROUP PHOTOGRAPH 12:00 to 12:10 pm		
KEYNOTE ADDRESS – I		
Prof. (Dr.) Debi Prasad Mishra, Director, NITTTR, Kolkata, West Bengal		**12:10 to 12:25 pm**
KEYNOTE ADDRESS – II		
Prof. (Dr.) V. K. S. Dhiman, Vice Chancellor, Shri Krishna AYUSH University, Kurukshetra		**12:25 to 12:40 pm**
KEYNOTE ADDRESS – III (Online)		
Prof. (Dr.) Neelendra Badal, Director, REC, Bijnor Link-1		**12:25-12:40 PM**

TECHNICAL TRACK – I: Indigenous Science and Technology for Sustainable Development						
Session I-V	**Session I (Offline)-**	**Session II (Offline)**	**Session-III (Online)**	**Session-IV (Online)**	**Session-V (Online)**	**12:40-02:15 pm DAY-I**
	Session Chair: Prof. Satya Raj, IGNOU, New Delhi **Co-Chair**: Dr. Nidhi Tyagi **Venue:** University Auditorium	**Session Chair: Dr. Tarun Sharma** S.U. Gangoh **Co-Chair**: Dr. Vineet Vishoni **Venue:** Agriculture Seminar Room	**Session Chair: Dr. Neelendra Badal** REC, Bijnor **Co-Chair**: Dr. Mamta Bansal Link-1	**Session Chair: Dr. Abhinav Saxena** JCBUST (YMCA) Haryana **Co-Chair**: Dr. Manoj Sharma Link-2	**Session Chair: Dr. S. Barman** NIT Sikim **Co-Chair**: Dr. Rakhi Bhardwaj Link-3	
1.	IKVI-2025-020	IKVI-2025-017	IKVI-2025-010	IKVI-2025-012	IKVI-2025-028	**12:40-12:45 pm**
2.	IKVI-2025-033	IKVI-2025-030	IKVI-2025-029	IKVI-2025-023	IKVI-2025-088	**12:45-12:50 pm**
3.	IKVI-2025-071	IKVI-2025-057	IKVI-2025-038	IKVI-2025-043	IKVI-2025-095	**12:50-12:55 pm**
4.	IKVI-2025-091	IKVI-2025-065	IKVI-2025-039	IKVI-2025-046	IKVI-2025-110	**12:55-01:00 pm**
5.	IKVI-2025-125	IKVI-2025-072	IKVI-2025-047	IKVI-2025-050	IKVI-2025-118	**01:00-01:05 pm**
6.	IKVI-2025-133	IKVI-2025-115	IKVI-2025-073	IKVI-2025-053	IKVI-2025-130	**01:05-01:10 pm**
7.	IKVI-2025-185	IKVI-2025-116	IKVI-2025-104	IKVI-2025-069	IKVI-2025-135	**01:10-01:15 pm**
8.	IKVI-2025-187	IKVI-2025-128	IKVI-2025-108	IKVI-2025-080	IKVI-2025-144	**01:15-01:20 pm**
9.	IKVI-2025-225	IKVI-2025-134	IKVI-2025-131	IKVI-2025-106	IKVI-2025-149	**01:20 -01:25 pm**
10.	IKVI-2025-253	IKVI-2025-152	IKVI-2025-145	IKVI-2025-117	IKVI-2025-153	**01:25-01:30 pm**
11.	IKVI-2025-262	IKVI-2025-169	IKVI-2025-154	IKVI-2025-139	IKVI-2025-179	**01:30 -01:35 pm**
12.	IKVI-2025-271	IKVI-2025-170	IKVI-2025-167	IKVI-2025-232	IKVI-2025-180	**01:35 -01:40 pm**
13.	IKVI-2025-279	IKVI-2025-259	IKVI-2025-172	IKVI-2025-235	IKVI-2025-181	**01:40-01:45 pm**
14.	IKVI-2025-287	IKVI-2025-282	IKVI-2025-174	IKVI-2025-245	IKVI-2025-190	**01:45-01:50 pm**
15.	IKVI-2025-300	IKVI-2025-302	IKVI-2025-178	IKVI-2025-246	IKVI-2025-206	**01:50-01:55 pm**
16.		IKVI-2025-313	IKVI-2025-280	IKVI-2025-247	IKVI-2025-272	**01:55-02:00 pm**
17.			IKVI-2025-283	IKVI-2025-248	IKVI-2025-278	**02:00 -02:05 pm**
18.			IKVI-2025-286	IKVI-2025-268	IKVI-2025-301	**02:05-02:10 pm**
19.			IKVI-2025-294	IKVI-2025-307	IKVI-2025-306	**02:10-02:15 pm**
PANEL DISCUSSION (Parallel Session)- 12:10-02:15 pm						
LUNCH (02:15-03:00 PM)						
KEYNOTE ADDRESS – IV						
Prof. (Dr.) Y. Vimala **Vice Chancellor, Maa Shakumbhari University, Saharanpur, U.P.** **Venue: University Auditorium**						**03:00-03:15 PM**

TECHNICAL TRACK – II: Yoga, Meditation and Ayurvedic Perspectives on Holistic Well-being				Venue: University Auditorium
KEYNOTE ADDRESS – V				
Prof. Gaurav Vermaji, Former Advisor, Ministry of Ayush				**03:15-03:30 pm**
Session	**Session VI (Offline)**	**Session VII (Online)**	**Session-VIII (Online)**	
Session VI-VIII	**Session Chair: Prof. Gaurav Vermaji,** Ministry of Ayush **Co-Chair:** Dr. Monika Chaudhary **Venue**: University Auditorium	**Session Chair: Dr. Namit Vashistha** Shobhit University, Gangoh **Co-Chair:** Ms. Deepika Sharma Link-4	**Session Chair: Dr. Amar Pal** CCS University, Meerut **Co-Chair:** Dr. Sweety Pal Link-5	**03:30-04:15 pm DAY-I**
S. No.	**ORAL PRESENTATION (Abstract ID)**			**03:30-04:15 pm**
1.	IKVI-2025-018	IKVI-2025-011	IKVI-2025-222	**03:30-03:35 pm**
2.	IKVI-2025-037	IKVI-2025-022	IKVI-2025-223	**03:35-03:40 pm**
3.	IKVI-2025-084	IKVI-2025-052	IKVI-2025-243	**03:40-03:45 pm**
4.	IKVI-2025-085	IKVI-2025-055	IKVI-2025-255	**03:30-03:35 pm**
5.	IKVI-2025-105	IKVI-2025-064	IKVI-2025-269	**03:35-03:40 pm**
6.	IKVI-2025-224	IKVI-2025-083	IKVI-2025-274	**03:40-03:45 pm**
7.	IKVI-2025-267	IKVI-2025-102	IKVI-2025-276	**03:45-03:50 pm**
8.	IKVI-2025-292	IKVI-2025-177	IKVI-2025-288	**03:50-03:55 pm**
9.	IKVI-2025-296	IKVI-2025-183	IKVI-2025-290	**03:55-04:00 pm**
10.	IKVI-2025-299	IKVI-2025-200	IKVI-2025-291	**04:00-04:05 pm**
11.	IKVI-2025-304	IKVI-2025-203	IKVI-2025-295	**04:05-04:10 pm**
		IKVI-2025-209	IKVI-2025-308	**04:10-04:15 pm**

TECHNICAL TRACK – III: Reviving Indigenous Knowledge Systems: Pathways to Sustainable Technological Innovation					
KEYNOTE ADDRESS – VI					
Prof. M. Moni, Former DG, NIC					**04:15-04:30 pm**
Session IX-X	**Session IX: Oral Presentation: Session Chair:** Prof. M. Moni, Former DG, NIC **Co-Chair:** Prof. Mamta Bansal **Venue**: University Auditorium	**Session X: Session Judge:** Prof. R.K. Jain Prof.. Nidhi Tyagi Prof. Jyoti Sharma Dr. Anuj Goel **Venue:** Swadeshi Mela Lawn POSTER PRESENTATION (Abstract ID)			**04:30-05:30 pm DAY-I**
1.	IKVI-2025-313	IKVI-2025-067	IKVI-2025-193	IKVI-2025-213	**04:30-04:35 pm**

2.	IKVI-2025-315	IKVI-2025-086	IKVI-2025-196	IKVI-2025-214	**04:35-04:40 pm**
3.	IKVI-2025-319	IKVI-2025-112	IKVI-2025-205	IKVI-2025-216	**04:40-04:45 pm**
4.	IKVI-2025-320	IKVI-2025-136	IKVI-2025-207	IKVI-2025-226	**04:45-04:50 pm**
5.	IKVI-2025-321	IKVI-2025-137	IKVI-2025-208	IKVI-2025-234	**04:50-04:55 pm**
6.	IKVI-2025-322	IKVI-2025-148	IKVI-2025-210	IKVI-2025-258	**04:55-05:00 pm**
7.	IKVI-2025-323	IKVI-2025-156	IKVI-2025-211	IKVI-2025-263	**05:00-05:05 pm**
8.	IKVI-2025-324	IKVI-2025-161	IKVI-2025-212	IKVI-2025-289	**05:05-05:10 pm**
9.	IKVI-2025-325	IKVI-2025-162	IKVI-2025-310	IKVI-2025-312	**05:10-05:15 pm**
10.	IKVI-2025-326	IKVI-2025-309	IKVI-2025-311	IKVI-2025-314	**05:15-05:20 pm**
11.					**05:20-05:25 pm**
12.					**05:25-05:30 pm**
High Tea and Cultural Program (05:30-06:30 pm)					

Day-II (15 Nov 2025)

KEYNOTE ADDRESS - VII						
Padmasree Bharat Bhushan Tyagi, Progressive Farmer, Trainer & Educator						**09:30-09:45 am**
TECHNICAL TRACK – IV: Education and Pedagogy in the Indian Knowledge Tradition (09:45 to 11:30)						**Venue: University Auditorium**
KEYNOTE ADDRESS – VIII						
Keynote Address – VIII: Prof. (Dr.) Shashikant Sharma Former Professor, Institute of Education, Bundelkhand University, Jhansi (U.P.)						**09:45-10:00 am**
KEYNOTE ADDRESS – IX						
Keynote Address – IX: Prof. (Dr.) Bijender Singh, Dean, Indira Gandhi University, Haryana						**10:00- 10:15 am**
KEYNOTE ADDRESS – X						
Keynote Address – X: Prof. (Dr.) V. Ramanathan, Head, IKS Center of Excellence, IIT (BHU), Varanasi Link-6						**10:00- 10:15 am**
Session-XI-XV	**Session XI (Offline)**	**Session XII (Offline)**	**Session XIII (Online)**	**Session XIV (Online)**	**Session XV (Online)**	**Timing**
	Session Chair: Dr. S. Sharma Bundelkhand University, Jhansi **Co-Chair**: Dr. Lomas Tomar **Venue**: University Auditorium	**Session Chair: Dr. Bijender Singh** Indira Gandhi University, Meerpur **Co-Chair**: Dr. Jyoti Sharma **Venue**: Board Room	**Session Chair: Dr. Suraksha Bansal** Kishan Inst. of Teacher Education, Meerut **Co-Chair**: Dr. Asif Beig Link-7	**Session Chair: Dr. Swati Sharma** Manipal University, Jaipur **Co-Chair**: Dr. Vikas Yadav Link-8	**Session Chair: Dr. P.K. Pattnaik** Nagaland University, Kohima **Co-Chair**: Dr. Shamshad Hussain Link-8	**10:15-11:00 am Day-II**
ORAL PRESENTATION (Abstract ID)						
1.	IKVI-2025-001	IKVI-2025-122	IKVI-2025-048	IKVI-2025-049	IKVI-2025-070	10:15-10:20 am
2.	IKVI-2025-005	IKVI-2025-123	IKVI-2025-008	IKVI-2025-090	IKVI-2025-159	10:20-10:25 am
3.	IKVI-2025-009	IKVI-2025-126	IKVI-2025-013	IKVI-2025-092	IKVI-2025-171	10:25-10:30 am
4.	IKVI-2025-019	IKVI-2025-164	IKVI-2025-014	IKVI-2025-098	IKVI-2025-191	10:30-10:35 am
5.	IKVI-2025-035	IKVI-2025-175	IKVI-2025-026	IKVI-2025-099	IKVI-2025-198	10:35-10:40 am
6.	IKVI-2025-119	IKVI-2025-221	IKVI-2025-031	IKVI-2025-100	IKVI-2025-201	10:40-10:45 am
7.	IKVI-2025-121	IKVI-2025-244	IKVI-2025-032	IKVI-2025-111	IKVI-2025-237	10:45-10:50 am
8.	IKVI-2025-199		IKVI-2025-056	IKVI-2025-120	IKVI-2025-293	10:50-10:55 am
9.			IKVI-2025-129	IKVI-2025-077		10:55-11:00 am
TECHNICAL TRACK – V: Bharatiya Management Thought and Leadership (11:00-12:30 noon)						**Venue: University Auditorium**
KEYNOTE ADDRESS – XI						
Keynote Address – XI: Prof. (Dr.) M. L. Singla, Advisor, Shobhit University, Meerut						**11:00-11:15 am**
KEYNOTE ADDRESS – XII						
Keynote Address – XII: Mr. Ambarish Dwivedi, Vice President, Indiamart Link-10						**11:15-11:30 am**

Session	Session XVI (Offline)	Session XVII (Online)	Session XVIII (Online)	Session XIX (Online)	
Session Chair	**Session Chair: Dr. M.L. Singla** SU Meerut **Co-Chair**: Dr. Anuj Goel **Venue**: University Auditorium	**Session Chair: Dr. Amit Kansal** TMU, Moradabad **Co-Chair**: Dr. Preeti Garg Link-11	**Session Chair: Dr. Himanshu Agarwal** D.N. College, Meerut **Co-Chair**: Dr. Sandeep Kumar Link-12	**Session Chair: Dr. Paresh Shah** Director, Fenil Institute LLP **Co-Chair**: Dr. Shalabh Mehrotra Link-13	**11:30 am to 12:30 pm Day-II**
S. No.	**ORAL PRESENTATION (Abstract ID)**				
1.	IKVI-2025-024	IKVI-2025-015	IKVI-2025-124	IKVI-2025-204	11:30-11:35 am
2.	IKVI-2025-097	IKVI-2025-016	IKVI-2025-132	IKVI-2025-217	11:35-11:40 am
3.	IKVI-2025-101	IKVI-2025-021	IKVI-2025-141	IKVI-2025-249	11:40-11:45 am
4.	IKVI-2025-109	IKVI-2025-027	IKVI-2025-142	IKVI-2025-251	11:45-11:50 am
5.	IKVI-2025-140	IKVI-2025-036	IKVI-2025-146	IKVI-2025-252	11:50-11:55 am
6.	IKVI-2025-182	IKVI-2025-054	IKVI-2025-147	IKVI-2025-254	11:55 am -12:00 pm
7.	IKVI-2025-218	IKVI-2025-061	IKVI-2025-155	IKVI-2025-256	12:00-12:05 pm
8.	IKVI-2025-265	IKVI-2025-062	IKVI-2025-157	IKVI-2025-270	12:05-12:10 pm
9.		IKVI-2025-063	IKVI-2025-166	IKVI-2025-273	12:10-12:15 pm
10.		IKVI-2025-094	IKVI-2025-168	IKVI-2025-297	12:15-12:20 pm
11.		IKVI-2025-096	IKVI-2025-176	IKVI-2025-298	12:20-12:25 pm
		IKVI-2025-303			12:25-12:30 pm
High Tea (12:30-01:00 PM) Venue: Moot Court					
TECHNICAL TRACK – VI: Law, Governance and the Indian Civilizational Ethos (01:00-02:00 pm)					
KEYNOTE ADDRESS - XIII					
Mr. Sandeep Jindal Advocate on-record, Supreme Court of India					
Session	**Session XX (Offline)**	**Session XXI (Online)**	**Session XXII (Online)**		**01:00-02:00 pm Day-II**
Session Chair	**Mr. Sandeep Jindal** Advocate on-record, Supreme Court of India	**Prof. Pramod Goel** Director, SLCS, SU Meerut	**Ms. Nisha Goel** Retd. Vice Chairman, Aligarh Development Authority		
Co-Chair	Dr. Pallavi Jain	Dr. Kuldeep Kumar	Mr. Pawan Kumar		
Venue	Moot Court	Link-14	Link-15		
S. No.	**ORAL PRESENTATION (Abstract ID)**				**12:30 to 14:00**
1.	IKVI-2025-075	IKVI-2025-034	IKVI-2025-093		01:00-01:05 pm
2.	IKVI-2025-076	IKVI-2025-040	IKVI-2025-107		01:05-01:10 pm
3.	IKVI-2025-079	IKVI-2025-041	IKVI-2025-127		01:10-01:15 pm
4.	IKVI-2025-059	IKVI-2025-042	IKVI-2025-138		01:15-01:20 pm
5.	IKVI-2025-260	IKVI-2025-044	IKVI-2025-143		01:20-01:25 pm
6.	IKVI-2025-277	IKVI-2025-045	IKVI-2025-150		01:25-01:30 pm

7.	IKVI-2025-285	IKVI-2025-058	IKVI-2025-151	01:30-01:35 pm
8.	IKVI-2025-184	IKVI-2025-066	IKVI-2025-160	01:35-01:40 pm
9.		IKVI-2025-068	IKVI-2025-173	01:40-01:45 pm
10.		IKVI-2025-082	IKVI-2025-281	01:45-01:50 pm
		IKVI-2025-087		01:50-01:55 pm
Lunch (02:00-03:00 pm)				
Valedictory 03:00-04:00 pm				

| Swadeshi Mela | Day-I and Day-II | University Ground |

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3. The Forgotten Seers: Brahmaxādinīs and their Enduring Legacy in Vedic Literature
4. Characterization of Wheat Straw Reinforced Polymer Composite
5. Displacement and Modernity in Rural Assam – A Comparative Study of Jahnu Barua's film Halodhiya Choraye Baodhan Khai and Xagoroloi Bohu Dur
6. Cloudbrust-GLOF Hazard Chain in Sikkim: A Case Study of the October 2023 South Lhonak Lake Disaster
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8. Utilization of Living Insecticides for Promoting Sustainable Agriculture
9. Design and Development of Integrated Solar Powered Prototype Machine for Agriculture
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Ayurveda & Holistic Health



Environment & Sustainable Developmıt



Other Related Topics

Smart Tribal Farming: Representing three distinct yet overlapping traditional knowledge systems of ancient India (Vedic knowledge, Tamil Sangam knowledge, and Tribal Agriculture), and its contemporary applications in Sustainable Development

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Ancient Indian knowledge systems—Vedic, Tamil Sangam, and Tribal—provide sustainable, holistic agricultural blueprints highly relevant today. These traditions emphasize ecological resilience, resource management, and a deep spiritual connection to nature, offering sophisticated logical frameworks applicable to modern technology like Artificial Intelligence (AI).

Vedic agriculture, detailed in texts like ***Krishi Parashara, Kashyapiyakrishi Sukti, and Vrikshayurveda***, evolved from pastoralism to settled farming and integrated governance and spirituality, with parallels to modern programming logic. The **Tamil Sangam text *Tholkappiyam*** categorized land into five ecological zones (*Tinais*) - Kurinji (Hilly and Mountainous regions), Mullai (Forests and Pastoral slopes), Marutham (Fertile Plains/Wetlands), Neithal (Coastal regions), and Palai (Arid or Desert zones), prescribing specific practices for each, showcasing advanced understanding of biodiversity and conservation. Its sophisticated linguistic and logical structures can inform modern Natural Language Processing (NLP) and knowledge representation in AI systems.

Traditional Tribal Agriculture (TTA) embodies principles of sustainability through practices like agroforestry and mixed cropping, demonstrating high climate resilience and self-reliance (*Atmanirbhar*). The integration of TTA with modern concepts such as STEAM (Science, Technology, Engineering, Arts, Agriculture, Mathematics and Management) principles, agroecology, and AI is crucial for a sustainable green economy.

Recognizing this potential, there are profound calls for a **"National Mission on Smart Tribal Farming"** to leverage digital transformation and frontier technologies. This proposed Mission aims to manifold tribal farmers' incomes by 2030 by promoting agro-ecological resilience, regenerative agriculture, and digitalized agricultural value chains by promoting: Agro-Ecological Resilience, Regenerative Agriculture, and Digitalized Agricultural Value Chains, through Smart Tribal Farming Project Initiatives in a cluster of 10-15 Tribal Villages in many States since 2022 onwards, through multi-stakeholder approach having Higher Education Institutions (HEIs) and Civil Society organisations (CSOs-NGOs) Centric Hub-Spoke Development Model and adoption of 5W1H Development Framework.

By bridging ancient wisdom with modern innovation, this Smart Tribal Farming Initiative seeks to pave the way for resilient, organic, and sustainable agricultural systems and livelihood opportunities for 1.45 lakh tribal villages, contributing to the vision of Viksit Bharat 2047.

Keywords: Vedic Agriculture, Tamil Sangam Knowledge, Tribal Agriculture, Smart Tribal Farming, Sustainable Development, Agroecology, Artificial Intelligence (AI), Traditional Knowledge Systems.

Floral Infusions in Indian Knowledge Systems: Health and Healing through Aparajita, Hibiscus, and Periwinkle Teas

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Indian Knowledge Systems (IKS) represent an integrated worldview where food, medicine, and spirituality coexist to promote holistic well-being. Within this framework, the use of flowers in daily diet and medicine exemplifies the harmony between humans and nature. This paper investigates three traditional floral herbal teas—Aparajita (Clitoria ternatea), Hibiscus (Hibiscus rosa-sinensis), and Periwinkle (Catharanthus roseus)—each known for distinctive therapeutic properties and cultural significance. Drawing from Ayurvedic concepts of *Ahara Chikitsa* (dietary therapy), *Swasthya Rakshanam* (health maintenance), and *Dravyaguna Vijnana* (materia medica), the study combines textual review and an empirical survey to explore awareness, preparation practices, and perceived health benefits of these teas. Secondary literature demonstrates their pharmacological potential—anthocyanins in Aparajita, flavonoids in Hibiscus, and alkaloids in Periwinkle—corroborating traditional uses for cognition, circulation, and metabolic regulation. The primary questionnaire, administered to 100 respondents, is designed to assess patterns of consumption and cultural continuity. By bridging indigenous wisdom with modern wellness trends, this study emphasizes that the revival of floral teas is not a novelty but a renewal of ecological ethics and preventive healthcare embedded in India's civilizational heritage.

Keywords: Indian Knowledge Systems, Herbal Tea, Aparajita, Hibiscus, Periwinkle, Ayurveda, Traditional Medicine.

The Forgotten Seers: Brahmavādinīs and their Enduring Legacy in Vedic Literature

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The Vedic corpus, the foundational scripture of Hinduism, is often perceived as a monolithic, patriarchal tradition. However, a closer examination of the literature reveals a significant and profound intellectual and spiritual presence of women, known as Brahmavādinīs. This paper seeks to challenge simplistic narratives by conducting an in-depth analysis of these female seers, scholars, and philosophers who were not mere exceptions but integral contributors to the Vedic milieu. This research distinguishes between the 'Brahmavādinīs', who dedicated their lives to scriptural study and the pursuit of Brahman, and the 'Sadyovadhūs', who studied until marriage. The paper traces their contributions chronologically, beginning with the hymns of the Rigveda, where Rishikās (female seers) like Vāk Ambhṛṇī, Lopāmudrā, Ghoṣā, and Apālā composed verses that articulated complex theological, social, and metaphysical ideas. It then moves to the philosophical heartland of the Upaniṣads, focusing on the incisive inquiries of Gārgī Vācaknavī and Maitreyī in the Bṛhadāraṇyaka Upaniṣad, whose questions spurred some of the most pivotal discourses on the nature of the Ātman (Self) and Brahman (Ultimate Reality). By examining the textual evidence of their compositions and debates, this paper argues that Brahmavādinīs were active agents in shaping the spiritual landscape of their time, functioning as composers, ritualists, and formidable intellectual debaters. Finally, the paper briefly explores the socio-historical factors that led to the gradual decline of this tradition, while concluding that the legacy of the Brahmavādinīs endures as a powerful testament to a historical precedent for female spiritual authority and intellectual leadership within Sanatana Dharma.

Key words: Brahmavādinīs, Vedas, Contributions, Dharma, Spirituality.

Characterization of Wheat Straw Reinforced Polymer Composite

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This project focuses on the fabrication and characterization of a natural fiber-reinforced composite using wheat straw as reinforcement and epoxy resin as the polymer matrix. The main objective of this work is to develop a lightweight, eco-friendly, and cost-effective composite material with improved mechanical and physical properties suitable for engineering applications. Wheat straw, being an abundantly available agricultural residue, has been utilized to promote sustainability and reduce environmental pollution caused by open-field burning of crop waste. This approach not only supports waste management but also encourages the use of renewable resources in material development.

In this study, composite samples were fabricated by varying the weight percentage of wheat straw fibers in the epoxy matrix to determine the optimal composition for achieving maximum strength and durability. The fabrication process involved alkali treatment of fibers, uniform mixing, and proper curing to ensure effective bonding between the reinforcement and the matrix. The mechanical properties, including tensile, flexural, compressive, impact, and hardness strengths, are evaluated to analyze the performance of the developed composites. Additionally, water absorption and moisture resistance tests are conducted to assess environmental stability and suitability for practical use.

The results expected that alkali-treated wheat straw fibers would show excellent interfacial adhesion with the epoxy resin and notable improvements in strength, stiffness, and toughness without a significant increase in weight. The developed composite is found to be lightweight, durable, and moisture-resistant. Thus, the material can serve as a sustainable alternative to synthetic fiber composites in applications such as furniture, construction panels, automotive interiors, and packaging. This research demonstrates an effective and eco-friendly method for transforming agricultural waste into valuable engineering materials.

Keywords: Natural Fiber Composite, Wheat Straw, Epoxy Resin, Sustainable Materials, Mechanical Properties, Fiber Reinforcement, Eco-Friendly Fabrication.

Displacement and Modernity in Rural Assam – A Comparative Study of Jahnu Barua's film *Halodhiya Choraye Baodhan Khai* and *Xagoroloi Bohu Dur*.

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Assamese cinema has often highlighted the everyday struggles of rural communities, and Jahnu Barua is one of its most important voices. This article compares two of his films, Halodhiya Choraye Baodhan Khai (1987) and Xagoroloi Bohu Dur (1995), to understand how they reflect displacement, corruption, and changing identities in Assam. The first film shows how a farmer loses his land due to corrupt officials and landlords, while the second focuses on a boatman whose livelihood disappears with the construction of a bridge.

By critically summarizing and analyzing these films, the article explores key themes such as human resilience, survival, and the tension between tradition and modernity. It also looks at rural–urban dynamics, migration, and the role of women as silent but central figures in sustaining families and communities. The comparative study suggests that Barua's cinema not only tells individual stories but also reflects broader social and cultural changes in Assam, where capitalist interests and modernization often come at the cost of rural life and dignity.

Keywords: Assamese cinema, displacement, rural identity, tradition vs modernity, Jahnu Barua.

Cloudbrust-GLOF Hazard Chain in Sikkim: A Case Study of the October 2023 South Lhonak Lake Disaster

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Cloudburst events represent a significant hydrometeorological hazard in high-mountain regions, often triggering cascading disasters such as Glacial Lake Outburst Floods (GLOFs). This study examines the 2023 South Lhonak Lake GLOF in Sikkim as a representative case of a cloudburst-induced multi-hazard event. A cloudburst, defined by rainfall exceeding 100 mm within an hour over an area of 20–30 km², poses elevated risks in the Sikkim Himalaya due to steep topography, fragile lithology, and climate-driven glacial instability. The October 2023 event, initiated by intense precipitation, led to the, sudden breach of South Lhonak Lake, causing the collapse of the Teesta III Dam, multiple fatalities, extensive infrastructural losses, and severe geomorphic disturbances along the Teesta River valley. The findings underscore the urgent need for integrated early warning systems, real-time monitoring of glacial lakes, and the design of climate-resilient infrastructure. The study further advocates for proactive adaptation measures, including controlled lake siphoning and transboundary risk governance, to mitigate future GLOF hazards in the Himalayan region.

Keywords: Climate Chang; Flash Floods; Natural Hazard

The Future is Ancient: Reclaiming Ayurveda for Global Sustainability

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Things that are fake or don't work usually disappears with time, but Ayurveda has been around since the start of Indian culture. It's been said that when a country loses its freedom, it loses everything, and we have lost our Vedic heritage, including Ayurveda.

Today, the world is realizing its true significance. Countries like the USA and Japan are conducting research, filing patents, and establishing laboratories based on Ayurvedic knowledge. Yet, India the birthplace of this science still lacks sufficient research centres, modern facilities, and awareness. Despite having access to original texts and resources, our youth rarely view Ayurveda as a field of innovation or a viable career.

But the question remains when will Indians themselves recognize their roots?

Our idea focuses on reviving the glorious Ayurvedic era for societal well-being and the restoration of India's ancient healthcare wisdom. This research paper aims to spread awareness about the importance, effectiveness, and sustainability of Ayurveda as a natural healing system. It will cover its historical evolution, scientific principles, modern relevance, and integration with current medical practices. We also seek support and funding from the government to establish advanced Ayurvedic research centres, promote skill development, and create sustainable employment opportunities. Doing so will not only restore the health of our people, but also strengthen India's economy by reducing dependence on foreign, chemical-based medicines and products.

Keywords: Ayurveda; Future goals; Vedic Heritage; Sustainable Development; Economy

Utilization of Living Insecticides for Promoting Sustainable Agriculture

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Numerous issues pertaining to agricultural productivity are brought on by the world's population gro wth and environmental degradation, leading to many biotic and abiotic stressors. Intensive use of chemical pesticides has negative effects on ecosystem and on non-target organisms. Considering the need alternative approaches is the utilization of bio-pesticides, microbial pesticides, and plant-incorporated protectants, to preserve agriculture output, enhance plant growth, and compensate for the reduced use of synthetic pesticides. Living insecticides, which include microbial and biological pest control agents—are becoming increasingly acknowledged as essential instruments for sustainable agriculture and crop production. They offer safer alternatives to chemical insecticides for the environment. The beneficial bacteria, fungi, and viruses target agricultural pests precisely, without harming non-target species, soil, or water systems. These methods encourage ecologically resilient and sustainable agricultural production by reducing the likelihood of pesticide resistance and the contamination issues caused by chemical pesticides. Microbial agents like *Bacillus thuringiensis*, *Trichoderma sp., Metarhizium sp.*, and *Beauveria* are used to control some crop pests. Living pesticides increase crop output and quality while protecting beneficial species, enhancing nutrient uptake, and assisting plants in fending off abiotic challenges. Appropriate use of living insecticides aids in controlling pests that have become resistant to chemical pesticides. Consequently, long-term crop output is ensured, and food security promotes the environmental impact of agriculture and boosts crop yields in a sustainable way by employing live insecticides as a part of resilient agricultural systems.

Keywords: Living Insecticide, Biopesticides, Sustainable Agriculture.

Design and Development of Integrated Solar Powered Prototype Machine for Agriculture

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Agriculture is the primary source of income in India and is considered the backbone of the economy. Farmers employ a variety of machines and equipment, however due to their cost, not all use them. Developed agriculture requires innovative approaches to increase efficiency. One solution is to utilize intelligent machines to decrease and concentrate energy inputs more effectively than in the past. Precision farming has proven beneficial, but it's time to upgrade to new equipment. Autonomous system designs allow for the development of new agricultural equipment based on small machines capable of executing duties at the right time and location. This paper aims to highlight an integrated Solar Powered Prototype Machine for Agriculture is a modern concept that aligns perfectly with the future of sustainable farming. The machines typically combine rotavator, grass cutter and spraying operations into a single unit powered by solar energy making them eco-friendly, cost-effective and ideal for small-scale farmers. By combining these functions into one solar-powered system, the prototype offers a cost-effective, lightweight and portable solution that reduces manual labour, conserves energy and supports sustainable agricultural practices for modern farmers.

Keywords: Precision farming, renewable energy; Agro-technology, sustainable agriculture.

Ayurveda and the Global Wellness Industry: Exploring Opportunities and Overcoming Challenges

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Ayurveda, the ancient Indian system of holistic healing, is now gaining significant attention across the global wellness landscape. Based on the concept of balance between body, mind, and spirit, it emphasizes preventive care and individualized approaches through diet, lifestyle, and herbal therapies. As people worldwide increasingly seek natural and sustainable ways to maintain health, Ayurveda offers a time-tested foundation that aligns closely with the modern wellness movement.

The expanding global wellness industry—valued at several trillion dollars—creates vast opportunities for Ayurveda in areas such as wellness tourism, herbal products, and integrative healthcare. Its focus on personalized well-being and preventive health strongly resonates with global trends toward mindfulness, natural medicine, and stress management.

Despite this growing interest, Ayurveda faces several barriers in achieving wider recognition. The major challenges include limited scientific validation, inconsistent quality standards, regulatory complexities, and lack of widespread awareness about authentic Ayurvedic principles. Additionally, the commercialization of Ayurveda without proper understanding or respect for its traditional root risks compromising its integrity.

Addressing these challenges requires a balanced approach that combines traditional wisdom with modern scientific research. Collaborative studies, standardization of products, transparent regulations, and global educational initiatives can enhance credibility and trust. The use of digital technology and data-driven wellness platforms can further support innovation and global accessibility.

In summary, Ayurveda's future in the global wellness sector depends on maintaining its authenticity while adapting to contemporary health frameworks. With scientific validation, education, and ethical practice, Ayurveda can become a vital contributor to holistic global health and sustainable well-being.

Keywords: Integrative Health; Preventive Care; Traditional Medicine; Wellness Tourism.

Ancient Indian Buddhist Ethics as a Foundation for Modern Leadership Theories: A Conceptual and Analytical Study

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The present study explores the profound interconnections between ancient Indian Buddhist ethics and modern leadership theories, emphasizing the continuing relevance of ethical and human-centric leadership models in contemporary organizational contexts. Rooted in the philosophical tenets of Dhamma (righteousness), Karuṇā (compassion), Prajñā (wisdom), and Sīla (moral conduct), Buddhist thought provides a timeless ethical framework that aligns with modern paradigms such as transformational, servant, and authentic leadership. This conceptual and analytical study aims to reinterpret the moral and managerial insights derived from canonical Buddhist texts—including the Dhammapada, Sigalovada Sutta, and Jataka Tales to understand their applicability in present-day organizational leadership. The paper analyses how Buddhist ethics can serve as a guiding foundation for leaders to cultivate mindfulness, empathy, and ethical responsibility while ensuring sustainable decision-making and organizational harmony. By bridging the wisdom of ancient Indian Buddhist philosophy with contemporary management theories, the study contributes to the emerging discourse on ethical, mindful, and sustainable leadership models suited for an increasingly complex global business environment.

Keywords: Buddhist Ethics; Leadership Theories; Ancient Indian Philosophy; Ethical Leadership; Mindfulness; Compassion; Transformational Leadership; Sustainable Management; Dhamma; Organizational Ethics

Holistic Harmony with Nature: Vedic Concept of Prakṛti

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In Vedic philosophy, Prakṛti refers to nature or primordial material reality, conceived as a living, sacred force rather than inert matter. This paper explores how the Vedic concept of Prakṛti embodies a holistic harmony with nature, integrating metaphysical ideas with environmental ethics in ancient Indian thought. Drawing on sources including the *Upanishads*, the *Bhagavad Gita*, and *Patanjali's Yoga Sutras*, as well as scholarly interpretations, we examine how Prakṛti (nature) and Puruṣa (consciousness) form a dualistic yet complementary framework. Vedic literature personifies natural elements as divine and emphasizes ṛta (cosmic order), suggesting an intrinsic balance and moral duty toward the environment. These metaphysical foundations translate into practical ethics: ancient hymns revere Earth as mothers and enjoin humans to treat soil, plants, and animals with respect and restraint. The principle of *Ishavasyam idam sarvam* ("the Divine pervades everything") from the *Isha Upanishad* encapsulates the view of nature as sacred, laying a spiritual basis for environmental responsibility. This paper also discusses how these ancient ideals resonate with contemporary concepts of sustainability and ecological well-being. Traditional Indian communities have long practiced conservation (e.g. protecting groves and rivers) as a religious duty, and modern movements like Chipko echo these values. Findings suggest that reviving the Vedic vision of harmony between humanity and Prakṛti could enrich global environmental ethics. The conclusion highlights the continued relevance of Vedic ecological wisdom in addressing today's environmental challenges through a spiritually informed, ecocentric worldview.

Keywords: Prakriti; Purusha; Vedic philosophy; Environmental ethics; Sustainability; Upanishads; Bhagavad Gita; Samkhya.

प्राचीन गुरू शिष्य परंपरा के विशेष संदर्भ में आधुनिक युग में गुरू शिष्य संबंध

पूजा रानी
असिस्टेंट प्रोफेसर
सम्राट पृथ्वीराज चौहान डिग्री कॉलेज, बागपत

भारतीय सभ्यताएंव संस्कृति विश्व की प्राचीनतम सभ्यताओं में सेएक है, जिसने शिक्षा और ज्ञान के क्षेत्र में अद्वितीय योगदान दिया। वैदिक काल में विकसित शिक्षा प्रणाली धर्म, दर्शन, ईश्वर–भक्ति, नैतिकता, चरित्र निर्माण और सामाजिक कर्तव्यों के पालन पर आधारित थी। उसका उद्देश्य केवल ज्ञान प्रदान करना नही, बल्कि संपूर्ण व्यक्तित्व का विकास और राष्टीय संस्कृति का संरक्षण भी था। इस व्यवस्था में गुरू–शिष्य परंपरा को अत्यंत गौरवपूर्ण स्थान प्राप्त था। गुरूकुलों में शिक्षा दी जाती थी, जहां गुरू को सर्वोच्च स्थान दिया जो कि निम्न श्लोक से स्पष्ट हो जाता है–

"गुरू ब्रहमा गुरूविष्णु गुरू देवो महेश्वर
गुरू साक्षात् पर ब्रहम तस्मै श्री गुरूवे नमः।"

आधुनिक युग में शिक्षा प्रणाली तकनीकी और व्यावयायिक दृष्टिकोण से प्रभावित होकर प्रतिस्पर्धाएवं जीविकोपार्जन का साधन मात्र बन गई है। इसके परिणामस्वरूप गुरू–शिष्य सम्बन्धों की प्रकृति में भी परिवर्तन आया है। यह शोधपत्र प्राचीन गुरूकुल परंपरा और आधुनिक शिक्षा व्यवस्था के बीच तुलनात्मक अध्ययन प्रस्तुत करता है तथा यह दर्शाता है कि बदलते स्वरूप के बावजूद गुरू–शिष्य सम्बन्ध आज भी समाज, संस्कृति और शिक्षा के लिए प्रासंगिकएवं आवश्यक हैं।

मुख्य शब्दः गुरू–शिष्य परंपरा ,गुरूकुल शिक्षा व्यवस्था,भारतीय शिक्षा, आधुनिक युग, संस्कृति ।

Role of Vedic Education in Shaping Ethical and Value – Based Learning in Modern India

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Vedic education has played a profound role in shaping ethical and value-based learning in modern India by promoting moral integrity, social responsibility, and holistic character development. Its foundational principles—such as discipline, self-control, respect for all beings, and the pursuit of truth and righteousness—remain deeply relevant amid today's ethical challenges and rapid societal changes. Integrating Vedic wisdom through curriculum innovations and experiential learning fosters not only academic excellence, but also emotional resilience, empathy, and inner harmony among students. Consequently, drawing from the ethical traditions of the Vedic era provides Indian education with a balanced, transformative approach, nurturing individuals equipped to face contemporary dilemmas with a strong moral compass rooted in India's rich spiritual heritage. This article primarily focus on the acceptable features of Vedic education that can inform and enrich modern educational practices.

Keywords: Vedic education, Indian culture, holistic approach, Indian constitution.

वैदिक गुरुकुल परंपरा की 21वीं सदी की भारतीय ज्ञान परंपरा में प्रासंगिकता

नीरज कुमार
शिक्षा विभाग
महावीर विश्वविद्यालय, मेरठ

वैदिक गुरुकुल परंपरा भारतीय शिक्षाएवं ज्ञान का मूल स्रोत रही है, जिसने न केवल व्यक्ति के बौद्धिक विकास पर बल दिया, बल्कि उसके नैतिक, सामाजिक, आध्यात्मिकएवं व्यावहारिक जीवन का भी समग्र निर्माण किया। आज 21वीं सदी के वैज्ञानिकएवं तकनीकी युग में जब शिक्षा व्यावसायिकता, प्रतिस्पर्धा और भौतिकता के दायरे में सिमटती जा रही है, तब पुनः यह आवश्यक हो गया है कि हम अपनी प्राचीन गुरुकुल परंपरा की शिक्षा–दृष्टि, मूल्यएवं पद्धतियों को समझें और उन्हें आधुनिक संदर्भ में पुनर्स्थापित करें। प्रस्तुत शोध लेख में वैदिक गुरुकुल प्रणाली की मूल विशेषताओं, उसके उद्देश्य, पद्धतिएवं 21वीं सदी में उसकी प्रासंगिकता का विश्लेषणात्मक अध्ययन किया गया है।

भारत की शिक्षा परंपरा का इतिहास अत्यंत प्राचीन और समृद्ध रहा है। वैदिक काल से लेकर आधुनिक युग तक शिक्षा का स्वरूप समाज की आवश्यकताओं के अनुसार विकसित होता रहा है। वैदिक गुरुकुल प्रणाली भारतीय ज्ञान, संस्कृति और नैतिकता की मूल धारा रही है, जिसने केवल बौद्धिक शिक्षा नहीं दी, बल्कि जीवन के समग्र विकास का मार्ग प्रशस्त किया। आज जब शिक्षा व्यावसायिकता, प्रतिस्पर्धा और भौतिकवाद की ओर उन्मुख होती जा रही है, तब वैदिक गुरुकुल की मूल भावना को पुनः समझना और आधुनिक शिक्षा में समाहित करना अत्यंत आवश्यक हो गया है।

वैदिक गुरुकुल परंपरा केवल शिक्षा का माध्यम नहीं थी, बल्कि वह जीवन जीने की कला का केंद्र थी। उसने व्यक्ति को ज्ञान के साथ–साथ आचरण, मूल्य और आत्मबोध का बोध कराया। आज जब शिक्षा प्रणाली में नैतिक और आध्यात्मिक दृष्टिकोण का अभाव दिखाई देता है, तब वैदिक गुरुकुल की शिक्षण पद्धति और दर्शन आधुनिक शिक्षा के पुनर्निर्माण का आधार बन सकते हैं।

कुंजी शब्द– वैदिक शिक्षा, वैदिक गुरूकुल परंपरा, भारतीय ज्ञान परंपरा

वैदिक अंतर्दृष्टियों से भारतीय ज्ञान का समकालीन अनुप्रयोग और विस्तृत क्षितिज

गुरप्रीत कौर
शोधार्थी, स्कूल ऑफएजुकेशन, शोभित इंस्टीटयूट ऑफ इंजीनियरिंगएण्ड टेक्नोलॉजी (डीम्ड टू बी यूनिवर्सिटी), मेरठ 250110 (उत्तर प्रदेश), भारत

भारतीय ज्ञान परंपरा का मूल स्रोत वैदिक साहित्य है, जिसने मानव जीवन के आध्यात्मिक, नैतिक, सामाजिक तथा वैज्ञानिक आयामों को दिशा प्रदान की है। समकालीन परिप्रेक्ष्य में वैदिक अंतर्दृष्टियाँ विशेष प्रासंगिक हो उठी है, क्योंकि आज का समाज तीव्र तकनीकी प्रगति, पर्यावरणीय संकट, मानसिक असंतुलन और नैतिक पतन जैसी चुनौतियों से जूझ रहा है। भारतीय ज्ञान परंपरा का आधार वैदिक साहित्य में निहित है। वैदिक दृष्टिकोण जहाँ आत्मबोध, सत्य, अहिंसा, पर्यावरण–संरक्षण तथा मानवीय सहयोग की शिक्षा देता है, वहीं यह वैज्ञानिक चिंतन, गणित, खगोलशास्त्र और चिकित्सा जैसे क्षेत्रों में भी मूल्यवाद दिशा प्रदान करता है। इसके अतिरिक्त प्रबंधन और उद्यमिता में नेतृत्व, अनुशासन और समर्पण जैसे वैदिक सिद्धांत, आधुनिक कॉर्पोरेट जगत और सामाजिक उद्यमों के लिए मार्गदर्शक सिद्ध हो सकते हैं। भारतीय शिक्षा परंपरा में गुरुकुल और तक्षशिला जैसे आचार्य–केंद्र केवल ज्ञान के संप्रेषण स्थल नहीं थे, बल्कि जीवन–दर्शन, नैतिकता और सामाजिक मूल्यों के संवाहक भी रहे। प्रायः इन्हें पुरुष–प्रधान शिक्षा संस्थानों के रुप में देखा गया, किंतु प्राचीन ग्रंथों औरऐतिहासिक प्रमाणों से ज्ञात होता है कि स्त्रियों को भी इनमें शिक्षा प्राप्त करनेएवं विद्वत्ता अर्जित करने का अवसर मिला। गार्गी, मैत्रेयी, अपाला जैसी विदुषियों का योगदान यह सिद्ध करता है कि वैदिक और उत्तर वैदिक काल में स्त्रियों की भूमिका ज्ञान परंपरा के निर्माण में महत्वपूर्ण रही। समकालीन युग में योग और आयुर्वेद की प्रासंगिता और भी बढ़ गई है।एक ओर, तनाव, प्रदूषण और असंतुलित जीवनशैली से उत्पन्न मानसिक व शारीरिक रोगों के समाधान हेतु योग की साधनाएँ–आसन, प्राणायाम, ध्यान–वैश्विक स्तर पर स्वस्थ्य–सुरक्षा का प्रभावी माध्यम बनी हैं। दूसरी ओर, आयुर्वेदिक चिकित्सा प्रणाली रोगों की जड़ तक पहुँचकर प्राकृतिक और स्थायी उपचार का मार्ग प्रस्तुत करती है। आहार–विज्ञान, पंचकर्म और औषधीय जड़ी–बूटियों का महत्व आज विश्व स्वास्थ्य संगठन द्वारा भी स्वीकार किया जा रहा है। राष्ट्रीय शिक्षा नीति 2020 (NEP 2020) भारतीय शिक्षा प्रणालीय मेंएकऐतिहासिक परिवर्तन का दस्तावेज है, योग और आयुर्वेद का समावेश NEP 2020 में विशेष रुप से स्वास्थ्य, शारीरिक–मानसिक संतुलन तथा नैतिक मूल्यों की शिक्षा के लिए किया गया है। विद्यालय स्तर से ही योगाभ्यास, ध्यान और जीवन–कोशल कार्यक्रमों को प्रोत्साहित किया जा रहा है, जिससे विद्यार्थी तनाव–नियंत्रण, आत्म–नियंत्रण और सशक्त व्यक्तित्व का विकास कर सकें। साथ ही आयुर्वेदिक दृष्टिकोण से ''स्वास्थ्य आहार और जीवनशैली'' को शिक्षा प्रणाली का अंग बनाने की दिशा में पहल की गई है। NEP 2020 भारतीय परंपरा और आधुनिक शिक्षा का संगम है, जिसमें वैदिक ज्ञान, गुरुकुल–तक्षशिला की शिक्षा पद्धति, स्त्रियों का योगदान, योग और आयुर्वेद सभी को नई दृष्टि से समाविष्ट किया गया है। अतः यह कहा जाता सकता है कि NEP 2020 भारतीय परंपरा और आधुनिक आवश्यकताओं के संगम का उदाहरण है। इसमें वैदिक ज्ञान, गुरुकुल परंपरा, योग और आयुर्वेद को पुनर्परिभाषित कर शिक्षा को अधिक मानवीय, समावेशी और व्यावहारिक बनाने का प्रयास किया गया है। अतः वैदिक अंतर्दृष्टियाँ भारतीय ज्ञान कोएक विस्तृत क्षितिज प्रदान करती हैं, जो न केवल भारत बल्कि संपूर्ण विश्व के लिए मानवीय कल्याण और सतत भविष्य की दिशा में मार्गदर्शक सिद्ध हो सकती है।

कुंजी शब्द – भारतीय ज्ञान परंपरा, गुरुकुल, तक्षशिला, आयुर्वेद, हिंदी साहित्य, शिक्षा शास्त्र

Science Problem Solving Ability among Secondary School Students in Boudh District, Odisha

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This study investigated the science problem-solving ability among secondary school students in Boudh District, Odisha, based on gender (boys and girls) and locality (rural and urban). The research had two main objectives: (1) to study the science problem-solving ability of secondary school students, and (2) to compare their problem-solving ability based on gender and locality. The study adopted the descriptive survey method. The researcher randomly selected eight secondary schools and collected a sample of 80 students (40 boys and 40 girls) from three blocks - Harabhanga, Boudh, and Kantamal of Boudh District. Data were collected using a self-developed Problem-Solving Ability Scale (PSAS), which included five-point and open-ended questions. For analysis and interpretation, measures of central tendency (mean and standard deviation) and the parametric t-test were employed. The results revealed that the mean score of boys (77.8) was lower than that of girls (80.875), and the mean score of urban students (79.95) was higher than that of rural students (78.725). The calculated t-value for gender comparison was 1.709, and for locality comparison it was 0.670. Both values were less than the critical t-value of 1.990 at the 0.05 level of significance and 2.639 at the 0.01 level of significance (with 78 degrees of freedom). Therefore, the study concluded that there was no significant difference in science problem-solving ability among secondary school students with respect to gender and locality.

Keywords: Science Education, Problem-Solving Ability, Secondary School Students, Gender, Locality.

योग–ध्यान और आधुनिक तकनीकःएक समन्वित अध्ययन

नीलम सिंह
शिक्षा विभाग
नौबल कॉलेज ऑफ प्रोफेशनल स्टडीज, मेरठ

योग और ध्यान भारत की प्राचीन जीवनशैली हैं। जो शरीर, मन और आत्मा के बीच संतुलन स्थापित करने का मार्ग प्रदान करता है। यह न केवल शारीरिक स्वास्थ्य सुधारने में सहायक है, बल्कि मानसिक स्थिरता, भावनात्मक संतुलन और आध्यात्मिक उन्नति में भी योगदान करता है। आधुनिक युग में जीवन की तेज रफतार व तनावपूर्ण जीवनशैली के कारण अवसाद और अनिद्रा जैसी समस्याएं बढती जा रही हैं। आधुनिक तकनीक से चिकित्सा और स्वास्थ्य के क्षेत्र में अभूतपूर्व उन्नति हुई है जैसे– आर्टिफिसियल इनटैलिजैन्स आधारित हैल्थएप, हैल्थ टेक करने के लिए वियरएबल डिवाइस ऑनलाइन योग व ध्यान कक्षाएँ। इस शोध लेख मे योग और ध्यान के पारम्परिक लाभों तथा आधुनिक तकनीक की स्वास्थय सेवा में भूमिका का समन्वित रूप से अध्ययन किया गया है। इस अध्ययन से स्पश्ट हुआ कि योग और ध्यान मानसिक तथा शारीरिक संतुलन प्रदान करते हैं, जबकि तकनीक उनकी प्रभावशीलता को मापने और फैलाने का माध्यम बनती है। ऑनलाइन योग व ध्यान कक्षाएं और मोबाइलऐप्स ने लाखों लोगों तक लाभ प्रदान किया है। उदाहरण के लिए कोविड–19 महामारी के समय जूम औार यूटयूब के माध्यम से योग–ध्यान का प्रसार हुआ। इस पर आधारित पोस्चर करक्सन टूल्स जैसे योगीहव मैट लोगों को सही योगासन करने में मदद करते हैं। जब योग, ध्यान व आधुनिक तकनीक का समन्वय किया जाता है तो यह स्वास्थ्य सेवाओं और जीवनशैली में क्रान्तिकारी बदलाव लाता है।

कुंजी शब्द–योग–ध्यान, आधुनिक तकनीक, शारीरिक स्वास्थ्य, मानसिक स्थिरता, भावनात्मक संतुलन।

Gurukul System vs. Modern Pedagogy: Lessons for contemporary Education

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Education serves as the foundation of societal progress, shaping the minds and values of generations to come. Across civilizations, different models of pedagogy have developed, each shaped by philosophical, cultural and historical contexts. In India, the Gurukul system- a residential form of education rooted in Vedic traditions, represented one of the earliest and most holistic approaches to learning. It sought to cultivate not only intellectual abilities but also moral values, spiritual awareness, emotional balance and social responsibility. In contrast, modern pedagogy, developed primarily under Western influence and shaped by colonial heritages, emphasizes structured curricula, standardized assessment, technological integration and professional preparation.

The comparative analysis yields critical insights for contemporary reforms. Today's education must move beyond the false dichotomy of tradition versus modernity. Instead, it should create the timeless wisdom of the Gurukul system with the strengths of modern pedagogy. Key lessons include; embedding value-based education into mainstream curricula, strengthening teacher-people mentorship models, integrating experiential and project-based learning, prioritizing life skills, blending yoga and meditation with digital technologies and emotional intelligence, fostering sustainability and community living, reforming assessment methods to focus on holistic growth, and empowering teachers as both mentors and professionals.

The study determines that the future of education lies in creating a balanced curriculum- multidisciplinary, globally relevant, and locally rooted that equips students not only with technical expertise but also with ethical integrity. The National Education Policy (NEP) 2020 in India reflects this direction by encouraging for holistic and value-based education while integrating Indian knowledge systems with global best practices. Such reforms, if implemented sincerely, can revive the spirit of the Gurukul in a modern context, ensuring that education produces not only skilled professionals but also compassionate persons and wise leaders.

Keywords: Gurukul system, modern pedagogy, National Education Policy, Indian knowledge system.

भारतीय ज्ञान परंपरा का विस्तृत क्षितिज : वैदिक अंतर्दृष्टियोंएवं राष्ट्रीय शिक्षा नीति 2020 के संदर्भ में

इंद्रजीत कौर
शोधार्थी, स्कूल ऑफएजुकेशन, शोभित इंस्टीटयूट ऑफ इंजीनियरिंगएण्ड टेक्नोलॉजी (डीम्ड टू बी यूनिवर्सिटी), मेरठ 250110 (उत्तर प्रदेश), भारत

वैदिक काल से लेकर आधुनिक समय तक भारतीय ज्ञान परंपरा ने शिक्षा, समाज और जीवन–दर्शन कोएकीकृत करने का कार्य किया है। इसमें आत्मबोध, धर्म, अर्थ, काम और मोक्ष की अवधारणाओं के साथ–साथ योग, आयुर्वेद, खगोलशास्त्र, गणित और दर्शन जैसे विविध आयामों का उल्लेख मिलता है, जो आज भी ज्ञान का अक्षय स्रोत हैं। राष्ट्रीय शिक्षा नीति 2020 में भारतीय ज्ञान परंपरा की प्रासंगिकता को विशेष महत्व दिया गया है। नीति में स्थानीय भाषाओं के प्रयोग, समग्र शिक्षा, वैदिक साहित्य, योग और आयुर्वेद के समावेशन तथा विद्यार्थियों में उद्यमशीलता, नवाचार और नैतिक मूल्यों का विकास की परिकल्पना की गई है। इस निबंध में वैदिक अंतर्दृष्टियों और NEP 2020 के बीच सामंजस्य की खोज की गई है तथा यह दर्शाया गया है कि कैसे प्राचीन परंपराएँ और आधुनिक नीतियाँ मिलकर शिक्षा को अधिक प्रासंगिक, समावेशी और भविष्यन्मुखी बना सकती हैं। निष्कर्षतः यदि भारतीय शिक्षा प्रणाली में पारंपरिक ज्ञान और आधुनिक वैज्ञानिक दृष्टिकोण का संतुलित समावेश किया जाए, तो यह न केवल छात्रों के सर्वांगीण विकास में सहायक होगा, बल्कि भारत को वैश्विक ज्ञान परंपरा के अग्रणी राष्ट्र के रुप में स्थापित करने में भी महत्पूर्ण योगदान देगा।

कुंजी शब्द – भारतीय ज्ञान परंपरा, वैदिक अंतर्दृष्टियाँ, राष्ट्रीय शिक्षा नीति 2020, योगएवं आयुर्वेद, मातृभाषा आधारित शिक्षा, समग्र शिक्षा, नैतिक मूल्य, वैश्विक ज्ञान परिदृश्य

Cultivating Narrative Empathy through Indian Knowledge Systems: A Transformative Approach to Higher Education Pedagogy in the NEP 2020 Framework

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This paper explores the integration of narrative empathy with Indian Knowledge Systems (IKS) in higher education, examining how traditional pedagogical approaches can enhance empathetic understanding in contemporary academic settings. Through comprehensive analysis of the Gurukul system's narrative-centered learning methodologies and their alignment with the National Education Policy (NEP) 2020's vision for holistic education, this study demonstrates how ancient Indian pedagogical practices naturally cultivated narrative empathy through storytelling, dialogue, and experiential learning.

The research proposes the Narrative Empathy-IKS Integration Model (NEI Model), a theoretical framework that bridges traditional IKS approaches with modern empathy research. This model consists of four interconnected components: narrative foundations using traditional Indian texts, dialogical engagement through ancient debate formats, experiential learning connecting concepts to lived reality, and reflective integration using contemplative practices from Indian philosophical traditions.

Case studies from medical education, business ethics, and environmental studies reveal successful implementations across diverse disciplines. Results indicate significant improvements in student engagement, cultural competency, and ethical reasoning. The All-India Institute of Ayurveda showed enhanced empathetic concern scores among students engaging with classical medical narratives, while IIM Ahmedabad demonstrated superior ethical reasoning skills in graduates who completed dharma-integrated business courses.

Key opportunities include cultural authenticity for Indian students, global educational differentiation, holistic development addressing cognitive and emotional dimensions, and innovative interdisciplinary learning approaches. Primary challenges involve faculty preparation requirements, institutional resistance to pedagogical change, quality assurance concerns, and resource allocation needs.

The study provides actionable recommendations for institutional transformation, curriculum development, and policy support. Implementation strategies include gradual integration through pilot programs, comprehensive faculty development initiatives, innovative assessment methods capturing empathetic development, and establishment of community partnerships with traditional knowledge keepers.

This research contributes to NEP 2020's vision by demonstrating how culturally grounded pedagogical approaches can enhance contemporary higher education while maintaining global relevance and academic rigor.

Keywords: narrative empathy, Indian knowledge systems, higher education pedagogy, NEP 2020, multidisciplinary learning, cultural competency.

Psychological Effects of Vashishta Pranayama as a Stress Alleviation Tool Among IT Professionals: A Pre-Post Tele-Yoga Pilot Study

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IT professionals face persistent stress due to high workloads, tight deadlines, and constant demands for innovation, which often lead to burnout and reduced well-being. Traditional stress management approaches may not be sufficient, prompting interest in complementary techniques such as yogic breathing. Vashishta Pranayama, rooted in ancient yogic traditions, has been shown to positively impact psychological health and stress regulation through modulation of the autonomic nervous system. This pilot study aimed to evaluate the psychological effects of Vashishtha Pranayama, delivered via tele-yoga sessions, on perceived stress and overall well-being among IT professionals.

A pre-post intervention design was employed with 20 IT professionals aged 25–35 years. Participants attended online sessions of Vashishtha Pranayama for 20 minutes 4days/week over four weeks. Standardized protocols and certified instructors ensured consistency. Psychological assessments included the Perceived Stress Scale (PSS) and WHO-5 Well-Being Index, administered before and after the intervention. Statistical analysis used paired t-tests to evaluate changes. Post-intervention findings demonstrated a statistically significant reduction in perceived stress ($p < 0.0001$) and improvements in well-being scores ($p < 0.0001$). Participants reported enhanced emotional balance, increased clarity of thought, and better sleep quality.

Vashishtha Pranayama, administered through tele-yoga, appears to be an effective, accessible, and low-cost intervention for alleviating stress and improving psychological health among IT professionals. Larger studies are recommended to confirm these promising results and explore long-term benefits.

Keywords: Vashishtha Pranayama, Perceived Stress Scale, Stress, Psychological assessments, Well-being.

A Taxonomy of Image Retargeting: From Discrete Optimization to Continuous Warping

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At its core, image retargeting is the process of changing an image's aspect ratio (the ratio of its width to its height) while preserving the important content and minimizing visual artifacts. The proliferation of devices with diverse screen aspect ratios has made image retargeting the process of adapting images to different sizes a critical task in computer graphics and vision. This paper presents a comprehensive taxonomy of image retargeting techniques, charting their evolution and systematically classifying the underlying methodologies. We structure our survey along the fundamental divide between discrete optimization methods, such as the seminal Seam Carving algorithm which removes or inserts pixel paths, and continuous warping techniques, which re-size images by smoothly optimizing a deformation field. The taxonomy further explores the progression towards hybrid and multi-operator frameworks that intelligently combine the strengths of both paradigms to better preserve salient content and structural integrity. Furthermore, we investigate the recent paradigm shift driven by learning-based and generative models, which leverage deep neural networks to achieve perceptually superior results by learning from vast datasets. For each category, we analyse the core algorithms, their underlying mathematical principles, and their characteristic visual artifacts. By synthesizing the field's trajectory and discussing evaluation methodologies and open challenges, this paper serves as a valuable resource for researchers and practitioners, providing a clear map of the current landscape and highlighting promising avenues for future research.

Keywords: Content Preservation, Pixel and Patch Manipulations, Visual Media Resizing, hybrid frameworks and multi-operator frameworks.

Redefining Secondary Education Using Digital Infrastructure in Alignment with NEP2020 and Indian Knowledge System

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India is a country with highest population in the world hosting rich cultural heritage and diversity. Any country's rich progress is depended on its strong education system and policies. Our ancient education system emphasized on moral, physical, spiritual and intellectual aspects of life. It focused on values such as humanity, truthfulness, discipline, self-reliance and respect for all creations. The NEP 2020 visualizes an education system that is inherent in India's rich cultural heritage while being responsive to the needs of a digital society. This paper presents how Digital infrastructure transforms secondary school education in corresponds with NEP 2020 while drawing inspiration from Indian Vedic knowledge system. By blending ancient insights on holistic learning, experiential methods, critical thinking with the usage of Digital Infrastructure. This paper spotlights on pathways for fostering 21st century learners who are globally potential and deeply rooted in culture.

Keywords: Digital Infrastructure, NEP 2020, Indian Knowledge System, 21st Century Learners, Secondary Education.

Leadership Lessons from Kautilya's Arthashastra: Developing a Contemporary Leadership Model for Indian Armed Forces

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Kautilya's *Arthashastra* is well-known for its strategic and statecraft teachings. The treatise also offers a nuanced philosophy of leadership that extends far beyond mere military tactics. This research paper undertakes a critical examination of Kautilya's *Arthashastra* to extract its core leadership tenets and assess their applicability for developing a contemporary leadership model for Indian Armed Forces. The research focusses on three primary objectives: to identify the specific leadership qualities enunciated by Kautilya, to evaluate their relevance in the twenty-first century, and to determine the feasibility of constructing a leadership model for the training of future Indian military leaders based on these principles.

The study uses qualitative content analysis to identify leadership qualities from the primary text and compares them with modern leadership theories and current security issues to assess their ongoing relevance. The findings demonstrate that the *Arthashastra* offers a robust, indigenous approach to leadership—emphasizing ethical integrity, decisiveness, intellectual insight, and the welfare of subordinates—qualities that are still relevant today. Consequently, this paper proposes a structured leadership model derived from these qualities, designed for integration into the training and pedagogical curriculum of future Indian Armed Forces officers.

The research concludes that the leadership qualities described in the *Arthashastra* are still crucial today and can be effectively used for developing leaders who are prepared to deal with the difficult moral and strategic problems of modern warfare.

Keywords: *Arthashastra*, Military leadership, Indian Armed Forces, Statecraft, Strategic.

Vedic Symbolism and the Loss of Spiritual Aura: Reinterpreting the *Koh-i-Noor* in Indu Sundaresan's *The Mountain of Light*

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This paper interprets Indu Sundaresan's *The Mountain of Light* applying the dual theoretical lens, exploring the *Koh-i-Noor* diamond's journey as a parallel to the transformation of the *Vedic vajra.* While the *Koh-i-Noor* is not mentioned in *Vedic* texts, but its symbolic function in the novel aligns with the *vajra* — a symbol of divine authority, cosmic order (Ṛta), and kingly duty (dharma). To draw a parallel between *Vedic vajra* and Sundaresan's Koh-i-Noor, the paper first employs semiotic analysis to trace how the diamond's meaning shifts and secondly Walter Benjamin's theory of the 'loss of aura' to frame its physical and spiritual journey. The argument posits that under Indian rulers, the *Koh-i-Noor*, like a *vajra*, possesses its 'aura', a unique authority rooted in its sacred role and cultural context. Its transfer to British hands, however, severs it from this ritualistic frame. It is recut, displayed at the Great Exhibition, and mounted in the Crown, becoming a reproducible image and a trophy. This 'loss of aura' is the modern, observable symptom of a deeper *Vedic* rupture: the loss of *dharma*. The diamond is no longer a center of righteous power but an object of material desire *(kama*). The legendary curse thus symbolizes the negative consequences of this *adharmic* possession. By combining these frameworks, the paper shows how the novel uses the diamond's fate to depict the clash between a *Vedic* worldview, where objects hold metaphysical significance, and a colonial one that reduces them to mere property.

Keywords: *Dharma*, *Koh-i-Noor*, Loss of aura, *Vajra*, *Vedic* Semiotic.

Sixteen Ādhāra from Siddhasiddhāntapaddhatiḥ: A Gateway towards Enlightenment

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Haṭhayogic practices has been always on the peak of popularity since time immemorial. The physical, mental, spiritual benefits offered by this yogīc path has always attracted of the yoga practioners worldwide as they help to lead a holistic lifestyle. Haṭhayogic literature is one of eminent aspect of Traditional Indian Knowledge System whose glory will never fade irrespective of the timeline. One among them is the Hathayogic text of Guru Gorakshanātha from the Nātha tradition. Siddhasiddhāntapaddhatiḥ (SSP) is a gem embedded in the Haṭhayogic crown. SSP is an epitome among the haṭhayogic literature. It is a classic piece of true knowledge compiled by Guru Gorakshanātha in 11th century. It consists of six chapters, ādhāra included in the second chapter Piṇḍavīcaraḥ (II. 10-25). To be very prompt the Nātha text straightforwardly mentions that, "A yogī who has no proper understanding of nine cakras, sixteen ādhāras, three lakṣyas and five vyomas is only a yogī for name's sake". Very few, or the true seekers of haṭhayoga are aware about this mysterious text. It describes aṣṭāṅga yoga, along with elaborate discussion on the origin of the piṇḍa, deliberation on the piṇḍa, insight into the piṇḍa, sustainer of the universe, union of the piṇḍa and brahmāṇḍa, meditational techniques, avadhūta laksanam etc. Sixteen ādhāra is a unique concept in which five techniques meditational techniques of concentration, expansion, contraction, restraint, fixing the gaze etc. are applied on the ādhāra. The ādhāra are the energy plexus or centers within the body on which if the above-mentioned meditational techniques implemented gives not only physical, mental but outstanding spiritual benefits. his piece of research aims to illuminate the concept of ādhāra as a meditational technique to achieve the true goal of any being self- realization or enlightenment.

Keywords: haṭhayoga, ādhāra, meditation, enlightenment, nātha.

Integrating Emotional and Behavioural Interventions: Understanding How Combined Approaches Alleviate Parental Stress

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Parents of children with Attention Deficit Hyperactivity Disorder (ADHD) and Autism Spectrum Disorder (ASD) often encounter elevated levels of stress due to their children's behavioural and emotional challenges. The present study examined the effectiveness of integrating emotional and behavioral interventions—counseling and Barkley's Parent Training Program—in reducing parental stress. Thirty participants were divided into three groups: Counseling only, Parent Training only, and a Combined Intervention group. Pre- and post-assessments were conducted using the Parent Stress Scale and Conners' Behavior Checklist. Statistical analyses using t-tests, F-tests, and ANOVA revealed that parents in the combined intervention group showed the most significant reduction in stress and improvement in child behavior compared to other groups. The findings suggest that integrating emotional coping with behavioral modification techniques offers a more comprehensive and sustainable approach to managing parental stress. The study highlights the importance of multidimensional interventions in enhancing the well-being of families with neurodiverse children.

Keywords: ADHD, ASD, Parental Stress, Counseling, Barkley's Parent Training Program, Behavioral Modification, Emotional Regulation.

Enfolding Indian Knowledge System Unveiling the Path to Holistic Education

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Our Indian traditional educational system based on principles like experiential learning, harmony with mother nature, critical thinking, ethical reasoning, etc. At Vedic time period, the Indian traditional educational system helped in blooming children in a holistic way. Indian educational system experienced a rejuvenation with NEP 2020 after the integration of Indian knowledge system. It focuses on back to the roots of our traditional educational system while preparing students for a global future. Enfolding Indian knowledge system along with modern framework brings an important shift in Indian education system through NEP 2020. This paper investigates the significance of Indian knowledge system in present educational context, how Indian knowledge system like Vedic mathematics, Yog, ayurveda, traditional arts, environmental sustainability, value-based education and vocational training unveiling the path to holistic education.

Keywords: Indian traditional education, NEP 2020, Vedic mathematics, Environmental sustainability, value-based education, integration of Indian knowledge system.

From Hormones to Heritage: The Hidden Science and Culture of Women's Well-being

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Women's health involves a complex balancing act between their body, mind, emotions, culture, and spirit. When these layers function harmoniously, true well-being is revealed. Natural biological cycles and hormonal changes that affect mood, mental clarity, and emotional fortitude shape the path of womanhood, from menstruation to motherhood and beyond. These changes are strong cycles that link the body, brain, and inner resilience rather than just being physical occurrences. Many generations of women around the world have fostered traditional knowledge systems that respect this connection. Menstrual care, childbirth, herbal medicine, and community healing practices are examples of deeply ingrained cultural knowledge that is frequently transmitted through customs and storytelling. These traditions emphasise an alternate aspect of health that values intuition, empathy, and spiritual balance, in contrast to modern medicine's emphasis on scientific explanations. Women's self-perception is further influenced by cultural views on menstruation and fertility. These natural processes are misconstrued or restricted by taboos in some societies, which leads to feelings of shame or loneliness. Some people celebrate them as periods of spiritual strength, creativity, and rebirth. These divergent viewpoints indicate how culture can either support or undermine women's self-esteem and mental health. By embracing both biological understanding and cultural insight, society can move towards a more compassionate and comprehensive vision of women's well-being—one that honours every rhythm, emotion, and story that shapes a woman's life. A truly holistic view of women's health understands the interdependence of the body, mind, and culture, and acknowledges that women are not just patients in need of care but also keepers of wisdom who bridge science and heritage.

Keywords: Holistic well-being, Mind-body connection, Hormonal cycles, Cultural beliefs, Women's empowerment.

Reviving Wisdom: Integrating Indian Knowledge Systems in Modern Higher Education

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The National Education Policy (NEP) 2020 emphasizes the inclusion of Indian Knowledge Systems (IKS) to create a holistic, rooted, and multidisciplinary framework for higher education. IKS represents India's long-standing traditions in sciences, arts, ethics, and spirituality, encouraging learning that balances intellect and values. Integrating IKS within modern academia seeks to reconnect learners with indigenous wisdom while promoting critical thinking, creativity, and sustainability.

A comparison between the ancient Gurukul system and modern pedagogy offers valuable insights. The Gurukul emphasized teacher–student harmony, experiential learning, moral development, and a life-based curriculum, while modern education highlights technology, specialization, and standardized evaluation. Blending both models can help develop an education system that nurtures competence with character, combining modern scientific inquiry with the ethical and ecological consciousness of traditional learning.

However, implementing IKS in higher education presents significant challenges, including curriculum design, shortage of trained faculty, and the need for credible research translations of ancient texts. Despite these obstacles, the multidisciplinary potential of IKS is immense. It fosters convergence between disciplines such as Ayurveda and modern medicine, Vastu and architecture, or Indian philosophy and management studies. By embracing IKS, higher education can move toward a more inclusive, innovative, and culturally anchored model that prepares learners to address global issues through local wisdom.

Keywords: National Education Policy, Spirituality, Gurukul, Vastu and Architecture.

Welding of AMMCs Reinforcements Using Cold Metal Transfer Technology: Expanding Horizons from Vedic Insights

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This research presents a comprehensive study on the Cold Metal Transfer (CMT) welding of aluminum metal matrix composites (AMMCs) reinforced with silicon carbide (SiC) and aluminum oxide (Al_2O_3) particles. It examines hybrid reinforcement ratios of 1:1, 1:2, 2:1, 1:3, and 3:1 to determine their influence on microstructure and mechanical performance. CMT welding, characterized by its precisely controlled heat input and smooth metal transfer, minimizes distortion, porosity, and residual stresses that commonly affect welded aluminum composites. The investigation reveals that hybrid composites with balanced reinforcement proportions show superior tensile strength, hardness, and interfacial bonding due to uniform particle distribution and minimal thermal mismatch. Microstructural analysis confirms refined grain structures. The study bridges modern welding advancements with ancient Vedic metallurgical knowledge, emphasizing the continuity of India's innovative material practices spanning over seven thousand years. By integrating current scientific techniques with traditional metallurgical insights, this work highlights the sustainable evolution of metal joining technologies. The findings highlight CMT as an efficient and reliable process for fabricating high-performance aluminum-based hybrid composites, offering potential for aerospace, automotive, and defence applications where lightweight strength and durability are essential.

Keywords: AA6061 aluminum alloy, Cold Metal Transfer welding, SiC reinforcement, Al_2O_3 reinforcement, hybrid composites, Vedic metallurgy.

Effect of Om Meditation on Academic Performance and Stress in Students

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Academic stress is a common problem among students, and it can lead to a lack of focus, poor academic performance, and other psychological health issues. Meditation practices, Om meditation, for example, are known for their calming effects and may improve cognitive and emotional health. The objective of this study is to investigate whether Om meditation improves academic performance and reduces stress in students. Two hundred undergraduate students enrolled in this study and were randomly assigned to an intervention group and a control group.

This preliminary report indicated a significant decrease from pre-assessment to post-assessment in stress scores and improved academic performance in the treatment group compared to the waitlist control ($p < 0.05$). Participants in the treatment condition self-reported improvements in attention, emotional stability, and psychological well-being. Regular Om meditation may be an effective non-pharmacological intervention for stress and academic performance in students. Brief periods of meditation may provide long-lasting benefits for students.

Keywords: Om meditation, stress reduction, academic performance, students, mindfulness.

Electron-induced Ionization Cross-Sections of the C_2F_6 Molecule

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Electron-induced ionization cross-sections, along with their corresponding ionization rate coefficients, have been evaluated for the C_2F_6 molecule. Evaluated results by using the Jain-Khare semiempirical approach of total ionization cross-section, showing good agreement with presently available theoretical and experimental data sets. Single differential cross-sections (SDCS) have also been calculated for the first time at fixed incident electron energies of 100 and 200 eV. Double differential cross-sections (DDCS) have also been calculated for the first time at fixed incident electron energies of 100 and 200 eV with fixed incident angles of 30° and 60°. 3D profiles of DDCS, varying with angle and secondary electron energy, have also been generated. Evaluated results have importance in plasma and atmospheric sciences.

Keywords: Ionisation cross-sections, ionisation rate coefficients, Jain-Khare semi-empirical approach, Single differential cross-sections, Double differential cross-sections.

Knowledge Systems, Thoughts and Practices

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This paper focuses on how ancient Indian scriptures such as Bhagavad Gita, Mahabharata, Ramayana offered different perspectives on leadership qualities. It examines the leadership styles of characters like Lord Shree Krishna, emphasizing adaptability, strategic thinking and ethical conduct. The ancient Indian wisdom literature including Vedas, Upanishads and Bhagavad Gita, Ramayanas focused ethical conduct, Self-realization, and pursuit of knowledge, Ancient Indian business practices were governed by the concept of Dharma which promoted fair trade practices, mutual benefits, sustainability and long-term relationships with customers. Incorporating ancient business practices and thoughts into modern business organizations can lead to a more socially responsible and sustainable into business environment. Ancient Indian wisdom practices encompasses a vast profound body knowledge that has been passed down through generations, shaping the cultural, spiritual, and intellectual heritage of India, business practices were deeply rooted in ethical principles and a holistic understanding of the interconnectedness of all aspects of life.

Owing to increased importance of leadership, the emphasis has now shifted from developing leadership at top level to establishing systems and processes that build leadership at various levels in the organization. The objective of this work was to identify whether practices in Human Resources Management – Recruitment and Selection, Integration, Training and Development, Benefits, Compensation and Performance Evaluation – have any relation to ancient Management practices and thoughts. Ancient Indian Business practices and thoughts offered valuable insights which can be applied to the modern business world. Ancient principles e.g. Karma, dharma, ahimsa, yoga, Gurukul systems, Vasudhaiva Kutumbakam can create a more ethical, sustainable and harmonious environment in modern Indian organizations.

Keywords: Ancient Indian Wisdom, Leadership Qualities, Bhagavad Gita, Mahabharata, Ramayana, Lord Shree Krishna, Ethical Conduct.

Bridging Tradition and Technology: Automation, Employee Engagement, & Organizational Support in the Light of Indian Knowledge System (IKS)

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In the contemporary times the Indian Automotive Sector stands at the pivotal juncture of human-centered innovation and technological transformation. This calls for blending the aspirations of nation and modern advancement of automotive sector in the light of timeless wisdom emanated by Indian Knowledge System (IKS). Anchored within the thematic purview of "Contemporary Applications and Expanding Horizons of Indian Knowledge from Vedic Insights (IKVI-2025)", present study attempts to explore the evolution of automation in the automotive firms of India through the interpretative lens of Indian Knowledge System (IKS). By doing so, it endeavors to provide an advocacy for adaptability, equilibrium, and seamless synthesis of human intellect with the dynamic evolution of fast paced technological development. Structured around the objectives: (1) to investigate the evolution and various forms of automation adoption in Indian automotive firms; (2) to examine the relationship between automation and diverse dimensions of employee engagement; and (3) to assess the moderating influence of organizational support on the automation-engagement relationship. In this context, the automation is interpreted as dynamic continuum embodying Vedic principles of harmony between Manas (mind) and Yantra (machine), wherein there is existence of efficiency and human empathy rather than just a mechanical or digital advancement.

This study endeavors to situate automation within larger framework of sustainable innovation, organizational well-being, and dynamic inclusive development driven by the National Education Policy (NEP) 2020 and Sustainable Development Goals (SDGs). Furthermore, this research attempts to posit that automation is capable of amplifying employee performance, creativity, and engagement; and contribute to the sustainable and ethical development and transformation of industries, if it is reinforced by value-driven leadership and robust organizational culture. By weaving the empirical insights drawn from automotive sector and philosophical insights from in-depth realms of IKS, present research advances the discourse on India's role in the evolution of global industrial sector. Additionally, it envisions a future that provides for harmonious amalgamation of IKS and technological transformation of automotive sector.

Keywords: Automation, Indian Knowledge System (IKS), Organizational Support, Employee Engagement, Sustainable Developmental Goals.

A Comprehensive Analysis of Brain–Computer Interfaces: Innovation, Challenges, and Vulnerabilities

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Brain–computer interface (BCI) is a new technology that allows direct communication between the brain and a computer. In the past few years, it has gained a lot of attention from researchers. Experiments have shown that BCI can help physically challenged people regain some abilities, which can improve their everyday life. This technology has also brought big changes in several fields like gaming and entertainment, automation, education, neuromarketing, and even neuroergonomics. Even though BCI has many uses, the overall global trend of its research has not been discussed much in previous studies. Understanding these trends can help researchers and professionals know which areas are developing fast and where they should focus their efforts. Keeping this in mind, we analyzed 25,336 BCI-related publications from Scopus to study the progress of the field. The study found that publications from China have grown very fast since 2019, even overtaking those from the United States, which started to decline during the same period. The paper also talks about possible reasons and implications behind this shift. In addition, the challenges and threats that stop BCI from being fully used have been explained in detail. A general BCI system design is suggested to handle two major issues, privacy and security, aiming to make this technology more reliable and commercially useful for society.

Keywords: Brain–computer interface, Brain signals, Machine learning, Neurological disorders, Signal processing, Neural decoding.

A Comprehensive Review of Generative AI Architectures for Medical Image Enhancement and Diagnostic Advancement

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Medical imaging is an important part of healthcare because it helps doctors look inside the body and understand different health problems. It is used for detecting diseases early, making correct diagnoses and planning treatments. However, the quality of medical images is not always perfect. Sometimes they have noise, low brightness, motion blur or poor contrast, which makes it hard for doctors to see details clearly. To fix these issues, researchers are now using new AI-based methods. Recently, Generative Artificial Intelligence (AI) has become popular because it can create, improve and restore medical images with better clarity and detail. This study reviews and compares three main AI models Generative Adversarial Networks (GANs), Transformers and Diffusion Models that are widely used to enhance medical images. The main goal of this review is to look at how these AI models work and compare their performance in different types of medical images. GAN models are good at producing realistic and detailed images, Transformer models focus on understanding the overall structure of the image using attention mechanisms and Diffusion Models are useful for reducing noise and improving image clarity. This review was carried out following the PRISMA guidelines to ensure a proper and clear selection of studies. Research papers were collected from Google Scholar, PubMed, IEEE Xplore, SpringerLink and the ACM Digital Library. From a total of 989 papers, 63 were finally chosen because they used one of these three models for enhancing medical images. Each selected paper was carefully examined based on the type of model, dataset used, performance metrics and reported results.

The results show that generative AI models really help in improving the quality of medical images. GANs perform well in texture correction and missing detail recovery, Transformers maintain structure and spatial relations in the image and Diffusion Models work great in denoising and reconstruction. Still, there are some issues like high hardware requirement, less training data and limited testing on real hospital data. Many studies are also focused more on technical accuracy than on real clinical use. In the end, this review says that generative AI can change the future of medical imaging by making diagnosis faster, cheaper and more accurately. But to make these models more useful in real hospitals, researchers need to focus on lightweight, explainable models and make common datasets for testing. More real-world trials and collaborations will make these methods more trusted and helpful for patients and doctors. This combination of GANs, Transformers and Diffusion Models can make healthcare more intelligent and reliable in the coming years.

Keywords: Generative Artificial Intelligence (AI); Medical Image Enhancement; Generative Adversarial Networks (GANs); Transformers; Diffusion Models.

Rethinking Education: Transposing Indian Knowledge Systems into Global Pedagogical Frameworks

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In the context of increasingly globalized education systems, there is a growing need to reimagine pedagogical frameworks that are both locally rooted and globally relevant. This paper explores the theoretical basis and practical implications of integrating Indian Knowledge Systems (IKS) into global education paradigms. IKS encompasses a diverse range of indigenous, classical, spiritual, ecological, and philosophical traditions that emphasize holistic development, ethical values, embodied learning, and contextual knowledge. Drawing on recent policy reforms, particularly India's National Education Policy (NEP) 2020, the paper contrasts IKS with dominant modern pedagogies, identifies key epistemological and structural shifts required for integration, and proposes a conceptual framework for implementation. Challenges such as epistemic dissonance, teacher capacity, assessment reform, and cultural adaptation are addressed. The study argues that meaningful incorporation of IKS can enrich global education by fostering ethical consciousness, cultural rootedness, ecological sensitivity, and human flourishing. Ultimately, this transposition invites a transformation in how we define knowledge, learning, and the purpose of education itself.

Keywords: Indian Knowledge Systems, Global Pedagogy, NEP 2020, Holistic Education, Indigenous Knowledge, Educational Philosophy, Curriculum Integration, Teacher Education.

राष्ट्रीय शिक्षा नीति–2020 के मुददेएवं चुनौतियॉ–माध्यमिक स्तर परएक आलोचनात्मक विश्लेषण

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शिक्षा विभाग
शोभित विश्वविद्यालय,मेरठ

राष्ट्रीय शिक्षा नीति –2020 भारत की शैक्षिक व्यवस्था मेंएक क्रांतिकारी परिवर्तन का संकेत देती है, जिसका उददेश्य शिक्षा को समग्र, लचीला और बहुविषयक बनाना है। यह नीति विद्यालयी शिक्षा में व्यापक सुधारों की परिकल्पना करती है, किंतु माध्यमिक स्तर पर इसके क्रियान्वयन में अनेक व्यावहारिक समस्याएँ और चुनौतियॉ सामने आती हैं। प्रस्तुत शोद्य पत्र में इन चुनौतियों का आलोचनात्मक विश्लेषण किया गया है। जिसमें नीति के क्रियान्वयन की स्थिति, शिक्षकों की तैयारी, भौतिक संसाधनों की उपलब्धता, पाठयक्रम के पुनर्गठन तथा मूल्यांकन प्रणाली में सुधार जैसे पहलुओं पर विशेष ध्यान दिया गया है। अध्ययन से यह स्पष्ट होता है कि नीति की भावना और वास्तविकता के बीचएक स्पष्ट अंतर मौजूद है। शहरी और ग्रामीण विद्यालयों के बीच संसाधनों और अवसरों की असमानता, डिजिटल विभाजन और शिक्षण पद्वति में परिवर्तन के प्रति प्रतिरोध इसके क्रियान्वयन को जटिल बनाते हैं। इसके अतिरिक्त, प्रशासनिक अडचने, पर्याप्त वित्तीय सहयोग का अभाव तथा शिक्षकों के निरंतर व्यावसायिक विकास की आवश्यकता भी नीति के प्रभावी क्रियान्वयन में प्रमुख बाधाएँ हैं। इस विश्लेषण से यह निष्कर्ष निकलता है कि माध्यमिक स्तर पर राष्ट्रीय शिक्षा नीति 2020 को सफलतापूर्वक लागू करने के लिए नीतिनिर्माताओं, शिक्षकों, अभिभावकों और समुदाय के बीच सहयोगात्मक दृष्टिकोण अपनाना अत्यन्त आवश्यक है। जब तक सुनियोजित योजना, संसाधनों का समुचित वितरण और क्षमता निर्माण पर ठोस कार्य नहीं किया जाता, तक तक इस नीति द्वारा कल्पित समानता, समावेशन और गुणवत्तापूर्ण शिक्षा के लक्ष्य को पूर्ण रूप से प्राप्त नहीं किया जा सकता। इस प्रकार नीति के सफल क्रियान्वयन हेतू न केवल संरचनात्मक सुधारों की आवश्यकता है, बल्कि शिक्षण की दृष्टि, पद्वति और दायरे में भी परिवर्तन आवश्यक है, जिससे माध्यमिक शिक्षा परिर्वतनकारी बन सके।

कुंजी शब्द– राष्ट्रीय शिक्षा नीति–2020, मुददेएवं चुनौतियों, माध्यमिक स्तर, संरचनात्मक सुधार, परिर्वतनकारी।

Integrating Vedic Mathematics in Post-Quantum Cryptography

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Post-quantum cryptography (PQC) demands effective implementations of algorithms such as Kyber, in limited-resource devices, i.e., smart meters and Internet of Things (IoT) ends. Central to the cryptographic function of Kyber (encryption, key generation, and decryption) includes an effective process of complicated polynomial multiplication. Conventionally, this operation is carried out relying on the Number Theoretic Transform (NTT), which has been a dominant approach; unfortunately, it presents an enormous bottleneck due to complexity in hardware description and processing capacity, particularly for miniature devices.

This research paper proposes a novel hardware design architecture that totally skips the impediments relating to the Number Theoretic Transform (NTT). The typical multipliers are replaced by a specially designed unit based on the ancient Indian Vedic mathematics 'Urdhva Tiryagbhyam' (Vertically and Crosswise) sutra. This approach finds a specific benefit for modern hardware design since it inherently supports parallel computations. Such parallel processing makes the circuitry much simpler and eliminates the long transformation stages required due to the conventional NTT approach. Further, it presents an optimized solution in terms of hardware footprint, power saving and processing latency, when compared to the existing system. The design provides full post-quantum security guarantee, while still allowing for the required resource savings necessary to make mass deployment of quantum-resistant cryptography a reality in the IoT sector.

Keywords: Post-Quantum Cryptography, Kyber Algorithm, Vedic Mathematics, Latency Reduction, Parallel Computation, Urdhva Tiryagbhyam.

Technological Advancements & Their Legal Implications in E-Contracts: Towards a Smart Legal Framework

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In the era of digitization, technology has revolutionized the conception, formation, and enforcement of contracts, giving rise to a new paradigm in global commerce—the e-contract. This paper explores the transformative role of emerging technologies such as blockchain, smart contracts, and artificial intelligence in redefining contractual relationships, legal responsibilities, and regulatory expectations. Through doctrinal and comparative analysis, the study investigates how automation, algorithmic contracting, and decentralized platforms challenge traditional principles of consent, enforceability, and jurisdiction. It further examines the interface between technological innovation and legal accountability, highlighting issues of liability in AI-driven contracting and the need for adaptive legal interpretations.

The research identifies cybersecurity and data protection as pivotal concerns within technologically enabled e-contracting. By analyzing global instruments such as UNCITRAL's Model Law, the EU's eIDAS Regulation, and India's Information Technology Act, 2000, the study demonstrates that existing frameworks, though progressive, remain inadequate to govern autonomous and self-executing digital agreements. The findings advocate for a harmonized global legal structure that integrates technological neutrality with robust ethical safeguards. Ultimately, the study argues that the evolution of e-contracts demands a dynamic, interdisciplinary legal model that balances innovation, security, and justice in the digital marketplace.

Keywords: Artificial Intelligence; Blockchain; Cybersecurity; E-Contracts; Smart Contracts.

नई शिक्षा नीति 2020–भारतीय ज्ञान प्रणाली और आधुनिकता के संगम से समग्र शैक्षिक पुर्नजागरण की दिशा में

सुरक्षा बंसल
शिक्षा विभाग
किशन इंस्टीट्यूट ऑफ टीचरएजुकेशन, मेरठ
चौ0चरणसिंह विश्वविद्यालय, मेरठ

यह व्यापक साहित्य समीक्षा भारतीय ज्ञान प्रणाली के आधुनिक शिक्षाशास्त्र में समेकन की पडताल करती है। भारतीय ज्ञान प्रणालीएक सहस्राब्दियों पुरानी बौद्धिक परंपरा है, जो दर्शन, गणित, चिकित्सा, नैतिकता और पारिस्थितिकी जैसे विविध क्षेत्रों में व्यापक ज्ञान प्रदान करती है। भारत की नई शिक्षा नीति–2020 के अनुसार, इसे समकालीन शिक्षण पद्धतियों में शामिल करना अनिवार्य है। समीक्षा में यह तर्क प्रस्तुत किया गया है कि औपनिवेशिक युग में ज्ञानमीमांसा का विनाश ने स्वदेशी ज्ञान परंपराओं को व्यवस्थित रूप से हाशिए पर रखा। परिणामस्वरूप, शैक्षिक पुनरुद्धार के माध्यम से संज्ञानात्मक उपनिवेशवाद से मुक्ति आवश्यक हो गई। अध्ययन मेंऐतिहासिक आधार का विश्लेषण किया गया है, जिसमें वैदिक–उपनिषदिक ज्ञान परंपरा और शास्त्रीय योगदान शामिल हैं, जैसे पाणिनि का भाषाशास्त्र और सुश्रुत का शल्य विज्ञान। साथ ही, प्रमाण शास्त्र (वैध ज्ञान का सिद्धांत) जैसे ज्ञानमीमांसी ढांचे का भी समावेश किया गया है। शिक्षाशास्त्रीय सिद्धांतों का विश्लेषण किया गया है, जैसे–गुरु–शिष्य परंपरा (संबंधात्मक मार्गदर्शन), पंचकोश विकास (समग्र व्यक्तित्व विकास), संवादात्मक शिक्षण (श्रवण, मनन, निदिध्यासन)। इन सिद्धांतों को आधुनिक शिक्षण मॉडल, जैसे फ्लिप्ड क्लासरूम और अनुभवजन्य शिक्षण के संदर्भ में समझा गया है। समकालीनएकीकरण प्रयासों, जैसे स्टैम इंडिया पहल, योगिक विज्ञान पाठ्यक्रम और डिजिटल भारतीय ज्ञान रिपॉजिटरी, पारंपरिक ज्ञान और तकनीकी नवाचार के बीच समन्वय को प्रदर्शित करते हैं। अंततः, भारतीय ज्ञान प्रणाली का आधुनिक शिक्षाशास्त्र के साथ समन्वय मन और शरीर, तर्क और अंर्तज्ञान, मानवता और प्रकृति को दूर करने में परिवर्तनकारी क्षमता रखता है। यह शिक्षा तकनीकी प्रगति, नैतिक आधार और पारिस्थितिक चेतना के संतुलन के साथ समग्र और भविष्य सूचक दृष्टिकोण प्रस्तुत करती है, जो वैश्विक चुनौतियों का सामना करने में सहायक ळें

कुंजी शब्द– नई शिक्षा नीति–2020, भारतीय ज्ञान प्रणाली, आधुनिकता वैश्विक चुनौतियों,एवं शैक्षिक पुर्नजागरण।

The Ancient Indian Agro-pastoralism and Sustainable Farming – An Overview

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In India, during 8000-4000 BCE, the period of the Neolithic Revolution, Agro-pastoralism existed that included threshing, planting of crops in rows and storing grains in granaries. Agriculture across the globe has changed drastically in connotation with the fast-changing climate uncertainties, technological growth, population and eating habits. Agrarian-Economy was the spinal cord of livelihood in India and wise use of various natural resources with sustainability in focus was on practice. Ancient Indian farming was centered in an eco-friendly, organic sustainable practices that included crop rotation, use of organic fertilizers such as cattle dung, and sustainable irrigation systems that encompassed rivers, canals, reservoirs and underground water. Farming sector utilized animal power, plough and engaged in intercropping and terraced farming for optimal use of land. Farmers cultivated diverse crops that included cereals, pulses, millets, sugarcane and many other crops. Sustainability of soil health and to maximize yields various techniques were applied with the goal of a prosperous agrarian economy. Environmentally friendly techniques with zero-waste management were existing.

Keywords: Ancient Agrarian-Economy, Sustainable Practices, Zero-Waste In Agriculture, Sustainable Soil Health.

YOGA 2.0: Ancient Yoga and Modern Science

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The fusion of ancient wisdom and modern science opens an inspiring frontier in human health research. Ancient yoga practices and modern biotechnology may seem very different, but together they form a strong approach to health and healing. Yoga is known for calming the mind, improving breathing, and strengthening the body and profoundly influences molecular and cellular pathways impacting gene expression, neural plasticity, immune balance, and stress physiology. However, today's scientific tools show that its effects reach much deeper. Researchers can now measure how yoga affects our genes, brain activity, immunity, and stress levels. Regular practice of yoga links to better metabolism, stronger mental health, slower aging, and less inflammation. Modern biotechnological tools such as genomics, proteomics, metabolomics, and neuroimaging now allow us to unravel these subtle transformations with scientific precision. In future, this combined knowledge could lead to personalized health plans where yoga is paired with biological insights, creating natural, preventive, and lasting treatments. This further envisions a future where personalized biotechnology integrates yogic wisdom to design holistic, preventive, and sustainable health strategies. Through this blend of tradition and technology, the timeless art of yoga evolves from a traditional wellness routine into a scientifically informed path to overall well-being and an empowered discipline flagging a new era of bio-inspired holistic medicine.

Keywords: Yoga and biotechnology, mind-body health, holistic healing, personalized wellness.

TribulusDatabase (TTB): A Comprehensive Resource from Whole Transcriptome Sequencing of *Tribulus terrestris*

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Tribulus terrestris L., an annual medicinal herb belonging to the Zygophyllaceae family, has garnered significant scientific interest owing to its broad spectrum of pharmacological properties, including anti-inflammatory, antimicrobial, antioxidant, and anti-cancer activities. Despite its therapeutic potential, the molecular mechanisms underlying the biosynthesis of key secondary metabolites particularly diosgenin, a steroidal saponin with medicinal relevance remain largely unexplored. To address this knowledge gap, the present study undertook a comprehensive whole transcriptome analysis of *T. terrestris* to identify candidate genes involved in diosgenin biosynthesis and to facilitate the development of genomic resources for this under-studied species. High-throughput RNA sequencing generated approximately 7.9 GB of raw data, yielding a total of 482 million high-quality reads. De novo assembly of the transcriptome resulted in 148,871 unique transcripts (unigenes), representing a substantial expansion of the existing genomic information for *T. terrestris*. Functional annotation was successfully performed for approximately 50% of the unigenes through sequence similarity searches against major biological databases, including NCBI's non-redundant protein (NR) database, Gene Ontology (GO), and KEGG Automatic Annotation Server (KAAS), with particular focus on pathways related to secondary metabolite biosynthesis. In addition to functional annotation, 21,026 unigenes were predicted to encode transcription factors (TFs), offering insights into gene regulatory networks. Furthermore, 15,551 unigenes were found to contain simple sequence repeats (SSRs), with di-nucleotide motifs emerging as the most abundant class, highlighting their potential utility in marker-assisted breeding and genetic diversity studies. To consolidate and disseminate the wealth of transcriptomic data generated, we developed Tribulus Database (TTB) (https://dslab.nbrc.res.in/tribulus/team.php), a dedicated online resource that integrates functional annotations, TF information, SSR markers, and biosynthetic pathway mappings. TTB is designed to support researchers, plant breeders, and pharmacognosists by enabling access to critical genetic information for *T. terrestris*, thereby facilitating the development of stress-tolerant cultivars, enhancing desirable phytochemical traits, and advancing molecular-level investigations in this medicinally important species.

Keywords: Database, KEGG Automatic Annotation Server, SSR marker, Tribulus.

Nadi Pariksha Integration for Health Monitoring using Ensemble Models

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With the increase in access to wearable devices, the interest of individuals in procuring personalized assessments is on the rise. Ancient Indian scientific principles have, for ages, delved into the diagnosis and prognosis of ailments to serve such holistic healthcare needs. Blending the two provides a unique opportunity and challenge. The current research presents a novel framework for integrating traditional Indian *Nadi Pariksha* (pulse diagnosis) with modern wearable biosensor technology to enable continuous health monitoring through algorithmic interpretation.

As per the reviews accessible, Charaka Samhita famously states, "नाडीषु प्राणवायुश्च चरति सततं नृणाम्" (the vital life force perpetually moves through the channels), while the Sushruta Samhita goes on to describe seven diagnostic pulse types (सप्तनाडीप्रकाराः वातपित्तकफात्मकाः). The contribution of Yoga Vashishta and Hatha Yoga Pradipika in detailing the psycho-physiological role of Nadis is also reflected in the works of Yosra Annabi (2023) and T.V. Reddy et al. (2024). These research reviews translate ancient diagnostic wisdom into machine-readable and learnable parameters.

A sample size of 30 people, both male and female, of the age range of 15-25 years, from an urban background, was taken. The proposed algorithmic system utilizes the biosensors embedded in wearable devices to capture high-resolution pulse waveforms, which are then analyzed using deep learning algorithms trained to recognize dosha-specific signal patterns based on the tri-doshic framework (Vata, Pitta, and Kapha).

The present research further integrates physiological data of heart rate variability to supplement diagnostic precision. This interdisciplinary approach establishes a bridge between ancient Indian physiological diagnostics and modern biomedical informatics, advancing real-time, individualised health assessment.

Keywords: Indian Knowledge System; Machine Learning; Pulse Diagnosis.

Continuity of Vedic Legal Thought in Modern Hindu Personal Law

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Vedas are the earliest sources of the Hindu Personal Law and it lays down principles like Nyaya (Justice), yama (moral justice or restraints), niyam (positive duties or observance), Satya (truth). Later on, the ideas in the vedas were expressed in Manusmriti and Yajnavalkya Smritis.

The Hindu Personal Law contains a deep reflection of the Vedic understanding of Dharma- which is a combination of moral, social and cosmic order. The Hindu laws have undergone transformation in various ways, but the core spirit remains deeply influenced by the Vedic foundations. Statutes like Hindu Succession Act, 1956; Hindu Adoption and Maintenance Act, 1956; Hindu Marriage Act, 1955 uphold the values of Vedas such as fairness, equality, duty, sanctity of relationships, moral responsibility etc.

The paper dives into the fact that the Hindu Laws are not departing from the Vedas, but continues the same traditions and practices. The continuation of the Vedic legal thought demonstrates how the valuable insights in the Vedas could be preserved in such a way that India could remain rooted and still be progressive at the same time.

Keywords: Vedas, Hindu Personal Law, Dharma, Vedic Legal Thought, Continuity of Traditions.

Role of Judicial Activism and Public Interest Litigation in Changing Societal Needs

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The judgements rendered by Supreme Court make it abundantly clear that the Apex court has contributed immensely to make socio-economic political justice as enshrined in the Preamble of the Constitution, a reality. The court exercised the power of judicial review vested in it under Article 32 of the constitution in a commendable manner with the objective to ameliorate the conditions of countless masses of India. Many a time court has tried to fill the legislative vacuum existing in certain areas by showing comprehensive guidelines and nature of judicial litigation.

Several important areas have witnessed the impact of judicial activism and Public Interest Litigation (PIL). Labor jurisprudence and PIL have addressed the conditions of factory workers and their fundamental rights under Article 21 of the Constitution, leading courts to issue multiple directives to the Central and State Governments for the release of bonded laborers. Women and children have also benefited, as the courts have laid down numerous guidelines and norms to safeguard their rights, particularly to protect working women and children from sexual harassment and exploitation. In the area of prisoners' rights, judicial activism through PIL has provided new avenues for justice by ensuring speedy trials and fair, just, and reasonable procedures. Environmental protection has been another major field influenced by PIL since the 1980s, supported by legislation such as the Environment Protection Act (1976) and the Forest Conservation Act (1980), which spurred environmental litigation. Furthermore, in matters of corruption and judicial activism, the Supreme Court has delivered several landmark decisions addressing corruption charges. Overall, through the mechanism of PIL, the Supreme Court has made significant contributions to uphold the rights of prisoners, workers, pensioners, consumers, and victims of environmental pollution, thereby ensuring administrative accountability and strengthening the rule of law in society.

Keywords: Judicial Activism; Labor jurisprudence; Women and Children; Prisoners; Environment; Corruption

Sexual Harassment at Workplace Related Laws: A Toothless Tiger?

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To overcome the deeply imbibed pedantic gender biases, the Prevention of Sexual Harassment at the Workplace law has been birthed through a combination of judicial activism, international persuasions, and legislative reform. A watershed moment came in 1997 with the Hon'ble Supreme Court's judgment in *Vishaka and Others v. State of Rajasthan*, recognised that sexual harassment violated women's fundamental rights, and it declared that the state and employers bore a responsibility to prevent and redress such misconduct.

This paper explores definition of sexual harassment, development pre-post *Vishakha* era, tracing evolution of Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 (POSH Act) and salient features. Drawing on doctrinal and empirical methodology the paper discusses celebrated case laws, empirical studies, and recent judicial observations. It critically examines the wide between the spirit of the Act and its implementation. It also ponders upon application of POSH Act across formal and informal workplaces, the functioning of ICC, the importune barriers to reporting and redressal of injustice. The study also highlights factors that constitute the socio-cultural dimensions shaping women's experiences of workplace harassment, studying the intersection between gender, class, and employment status. The discussion culminates in remedies and safeguards aimed at optimizing the effective implementation of the Act across the workplaces irrespective of social and economic barriers. The findings reveal that while the POSH Act represents a significant advancement in recognizing and addressing workplace harassment, gaps in awareness, institutional compliance, and gender inclusivity continue to undermine its impact. The paper concludes that genuine workplace equality in India requires not only robust legal enforcement but also a transformative shift in organizational culture, policy commitment, and societal attitudes toward gender and power.

Keywords: Vishaka Judgment (1997), Sexual Harassment at Workplace, Gender Equality and Bias, Implementation and Compliance Gaps.

Complaint Management using Intelligent System for Real-Time Monitoring

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The paper discusses a complaint management system for the Rail Madad platform, which integrates Natural Language Processing (NLP) and automated task allocation to improve the resolution of passenger complaints. The system aims to automatically detect emergency cases, categorize complaints, prioritize them, allocate tasks to relevant departments, and provide real-time updates to passengers. This will improve complaint resolution speed, accuracy, and overall passenger satisfaction. The system works by preprocessing textual data, using machine learning to categorize complaints, and routing them to the appropriate departments. The evaluation shows it reduces manual work and improves efficiency.

Additionally, the paper touches on the role of social media messages in crisis situations. Social media can provide real-time, relevant information, especially during disasters, but detecting the most relevant messages is challenging. Complaining is a common speech used to express dissatisfaction when reality doesn't meet expectations, and it's prevalent in both human and computer-mediated communication. Automatically identifying complaints on social media is crucial for organizations and brands to enhance customer experience and develop systems for handling complaints effectively.

Keywords: ML Techniques, NLP, Complaint Management, Task Allocation, Metric Parameter's.

Role of Vedic Concepts in Shaping Contemporary Indian Family Law

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Indian knowledge systems, originating from Vedic insights, are experiencing transformative applications in contemporary fields, showcasing vibrant intersections between ancient wisdom and modern innovation. The Vedas, Upanishads and allied texts offer profound understanding of consciousness, ethics, environment, and holistic well-being—principles that are increasingly resonating with modern science and global thought. This paper explores the jurisprudential symbiosis between Vedic legal philosophy and contemporary Indian family law, emphasizing its comparative resonance with Western legal traditions. The role of Vedic concepts in shaping contemporary Indian family law represents a profound intersection between ancient philosophical traditions and modern legal rationality. This paper further investigates how the core tenets of Vedic jurisprudence – particularly '*dharma*'(duty), '*rta*' (cosmic order), '*samskara*' (sacramental acts) and '*stridharma'* (the moral responsibilities of women) – have permeated the evolution of India's personal laws.

Vedic jurisprudence conceptualized law as an ethical and social duty aimed at maintaining equilibrium rather than enforcing individual claims. By examining classical Vedic and Smriti sources alongside colonial-era codifications such as the Hindu Marriage Act, Hindu Succession Act, and the Guardians and Wards framework, the study traces the gradual transformation of spiritually anchored customs into codified legal norms within a pluralistic democracy. Doctrinal analysis of the Hindu Family Laws reveals that their legislative philosophies synthesize Vedic moral tenets with constitutional principles of equality and liberty. Such synthesis demonstrates the persistence of normative pluralism—where '*dharma*' coexists with modern legal rationality—creating a jurisprudential equilibrium between obligation and right. Ultimately, the paper contends that Indian family law is not merely a colonial or modern construct but a living continuum that negotiates between traditional Vedic ethics and contemporary legal rationality. The Indian experience thereby illustrates a unique case of legal syncretism—where Vedic traditions do not merely survive modernization but actively negotiate with it, shaping the contours of family law through a distinctively pluralistic jurisprudential logic.

Keywords: Vedic Jurisprudence, Dharma, Indian Family Law, Legal Pluralism, Ancient Wisdom, Modern Legal Rationality.

Collateral Convicts: Children Living in Prisons with their MOTHERS

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Deprivation of liberty remains a very difficult, controversial and sensitive subject because it involves many parameters which affect the physical, mental and social health of a detainee: a State's criminal law policy on the one hand, and fundamental human rights obligations on the other. When pregnant women or mothers with young children are deprived of liberty the situation becomes even more complex.

Children of prisoners consist of two categories of children, those who live with their mothers within the jail premises, and those who are living outside in the community. These children of prisoners are the invisible victims of crime and the penal system. They have done no wrong, yet they suffer the stigma of criminality. Their rights to nurture are affected both by the criminal action of their parents and by the state's response to it in the name of justice.

According to NCRB Crime report, a total of 344 convicted women with their 382 children and 1,226 undertrial women with their 1,397 children were lodged in various prisons across India at the end of 2012. There were some important studies undertaken of children living in prisons with their mothers. These studies document the conditions of deprivation and criminality in which they are forced to grow up.

Keywords: Deprivation of Liberty, Women Prisoners, Children of Prisoners, Human Rights, Prison Conditions, Social Stigmat.

Harnessing Cross-Compatibility in Rhizobia–Legume Symbiosis for Sustainable Nitrogen Management

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Biological nitrogen fixation (BNF) through root-nodulating rhizobia represents a keystone of sustainable agriculture by providing an eco-friendly alternative to chemical nitrogen fertilizers. Traditionally, rhizobial symbiosis with legumes has been regarded as highly specific, restricted by molecular recognition between bacterial Nod factors and host receptors. However, growing evidence indicates that several *Rhizobium*, *Bradyrhizobium*, and *Mesorhizobium* strains exhibit cross-inoculation potential, forming effective nodules across diverse legume hosts. This symbiotic plasticity, often driven by horizontal gene transfer of nodulation and nitrogen fixation genes, suggests the feasibility of developing broad-host or "universal" rhizobial inoculants. Such universal biofertilizers could enhance nitrogen fixation efficiency across multiple crops, reduce fertilizer dependency, and improve soil health in varied agro-ecological regions. Advances in genomics, transcriptomics, and metagenomics have begun to uncover the molecular basis of host-range expansion, including regulatory pathways, symbiotic plasmids, and signalling gene variants. Additionally, strain engineering and synthetic biology approaches are enabling the design of customized inoculants with enhanced compatibility and stress tolerance. This study provides a comprehensive synthesis of current knowledge on cross- inoculation mechanisms, the genetic and molecular determinants underlying host range flexibility, and practical strategies to harness these traits for the development of effective biofertilizers. By elucidating how rhizobia adapt to diverse legume hosts and exploring the regulatory pathways, nodulation genes, and symbiotic plasmids that govern compatibility, this work highlights avenues for creating broad-host or "universal" nitrogen-fixing inoculants. Exploiting the genomic variation and symbiotic plasticity of rhizobia strains can facilitate the formulation of advanced biofertilizers with enhanced nitrogen-fixing efficiency, broad agroecological compatibility, and improved environmental sustainability, thereby minimizing chemical fertilizer input and fostering long-term soil health.

Keywords: Cross-inoculation, *Rhizobium*, nitrogen fixation, symbiotic plasticity, nod genes, universal biofertilizer, sustainable agriculture.

Prakriti-Based Genomic Insights: Integrating Ayurvedic Wisdom with Modern Biotechnology for Personalized Medicine

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The union of timeless Ayurvedic wisdom and cutting-edge biotechnology offers a fresh lens through which we may examine the human experience of health and disease. Ayurveda, one of the oldest medical systems developed by mankind (5000 years old) lays great emphasis on Prakriti or individual constitution which is nothing but a proportion and/or combinations in which the three Doshas Vata, Pitta Kaph are present. This individualized perspective accords with themes of today's genomics and precision medicine. This can now be justified as new scientific reports have started to justify relationship between different Prakriti of Ayurveda and their genetic, metabolic, and immunological correlates. In the following lines, we discuss the marriage of Prakriti-based classification and genomic/biotechnological technologies for a personalized medicine model.

Based on literature review and recent experimental findings, the article discusses genetic polymorphisms of Dosha-specific dominances along with their potential roles in disease risk, drug responses, and metabolic variations. Integration of conventional Ayurvedic diagnostics with genomics enables novel approach for preventive healthcare, early disease prediction and personalized treatment modalities. Moreover, the study highlights how combining Ayurvedic pharmacology with modern biotechnology can open new doors for discovering medicines from traditional herbal formulations. By uncovering the molecular workings of Ayurvedic compounds, researchers can connect ancient healing wisdom with modern, evidence-based medicine. This cross-disciplinary approach not only strengthens the scientific credibility of Ayurveda but also brings holistic, culturally rooted insights into modern biotechnology. Together, these two systems have the potential to shape a more personalized and sustainable future for healthcare.

Keywords: Ayurveda, Prakriti, Genomics, Personalized Medicine, Biotechnology, Dosha.

आधुनिक शिक्षा में भारतीय ज्ञान प्रणालियों का पुर्नसंयोजन–एक विश्लेषणात्मक अध्ययन

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महान भारतीय दार्शनिक स्वामी विवेकानंद ने शिक्षा को व्यक्ति के भीतर पहले से विद्यमान पूर्णता की अभिव्यक्ति बताया है। उनके अनुसार शिक्षा का उद्देश्य केवल ज्ञान देना नहीं, बल्कि व्यक्ति के अंतर्निहित सामर्थ्य, नैतिकता और आत्मबोध को प्रकट करना है। आज भारत में पाश्चात्यीकरण को प्रगति का प्रतीक माना जाने लगा है, जिसके परिणामस्वरूप भारत की प्राचीन शैक्षिक विरासत को पुनः खोजने और पुनर्जीवित करने की आवश्यकता महसूस की जा रही है। प्रस्तुत शोध–पत्र भारतीय शिक्षा केऐतिहासिक परिप्रेक्ष्य का विश्लेषण करता है तथा यह स्पष्ट करता है कि प्राचीन भारतीय शिक्षा प्रणाली और आधुनिक शिक्षा के उद्देश्यों में अनेक समानताएँ पाई जाती हैं। विश्वभर के प्रमुख शैक्षणिक संस्थानों का प्रमुख लक्ष्य आज विद्यार्थियों को वैश्विक नागरिकता के लिए तैयार करना है, जबकि भारत ने हजारों वर्ष पूर्व वसुधैव कुटुम्बकम अर्थात् सम्पूर्ण विश्वएक परिवार है की अवधारणा प्रस्तुत की थी। यह विचार केवलएक दार्शनिक दृष्टि नहीं, बल्कि शिक्षा के माध्यम से मानवता और वैश्विकएकता को स्थापित करने काएक गहरा संदेश भी देता है।

वर्तमान समय में जहाँ पाश्चात्य देश और भारत की राष्ट्रीय शिक्षा नीति–2020 अंतर्विषयक शिक्षा, व्यावहारिक अधिगम, नवाचार, तथा आध्यात्मिक और नैतिक मूल्यों पर बल दे रही है, वहीं ये सभी तत्व प्राचीन भारतीय गुरुकुल प्रणाली के आधारभूत अंग रहे हैं। गुरु–शिष्य परंपरा पर आधारित भारतीय शिक्षा प्रणाली में शिक्षण केवल ज्ञानार्जन तक सीमित नहीं था, बल्कि यह विश्वास, अनुशासन, श्रद्धा और आत्मिक विकास पर आधारितएक जीवन–पद्धति थी। इस परंपरा में गुरु शिष्य को केवल विषयगत ज्ञान नहीं, बल्कि जीवन के आदर्श, आचरण और आत्म–संयम का मार्ग भी सिखाता था, जिससे शिक्षा वास्तव में जीवनोपयोगी बनती थी। इस प्रकार यह शोध–पत्र आधुनिक शिक्षा के उद्देश्यों और प्राचीन भारतीय शिक्षा प्रणाली की विशेषताओं के मध्य समानताओं का विश्लेषण करते हुए इस तथ्य को पुष्ट करता है कि आधुनिक शिक्षा में भारतीय ज्ञान परंपराओं का समावेश आवश्यक है।ऐसाएकीकरण न केवल शिक्षा को मानवीय और नैतिक आधार प्रदान करेगा, बल्कि यह समग्र, सृजनशील और आध्यात्मिक रूप से संतुलित समाज की स्थापना में भी सहायक सिद्ध होगा।

कुंजी शब्द– भारतीय शिक्षा पद्धति, भारतीय ज्ञान पद्धति, आधुनिक शिक्षा प्रणाली, राष्ट्रीय शिक्षा नीति–2020

A Reinforcement Learning Based Cost Optimized Task Scheduling Framework for Cloud Computing Environments

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With the exponential rise of data-intensive applications and virtualization technologies, cloud computing has become an indispensable backbone for modern information systems. However, one of its most persistent challenges lies in achieving cost-efficient task scheduling while maintaining quality of service (QoS), scalability, and energy efficiency. To address this, the present study proposes a novel Cost-Optimized Task Scheduling Framework (COTSF) that intelligently balances computational performance with economic constraints in dynamic cloud environments.The proposed framework integrates multi-objective optimization with reinforcement learning–driven decision policies to minimize execution cost, task delay, and energy consumption simultaneously. It dynamically maps user tasks to heterogeneous virtual machines (VMs) by evaluating workload characteristics, resource availability, and provider pricing models. Unlike conventional heuristic or static schedulers, COTSF continuously learns from system feedback, enabling adaptive resource allocation under fluctuating demand conditions.

Experimental analysis using benchmark cloud datasets demonstrates that COTSF achieves up to 30% cost reduction, 22% lower task latency, and 20% improvement in resource utilization compared to existing meta-heuristic and priority-based algorithms. Moreover, its self-adaptive nature ensures robustness for real-time and mission-critical workloads. The framework's modular design allows future integration with predictive analytics, container-based architecture, and edge-cloud collaboration models. This research contributes toward the realization of sustainable, intelligent, and cost-aware cloud infrastructures, aligning with the national vision of digital transformation and energy-optimized computing. The insights from this framework can serve as a foundation for developing advanced AI-driven schedulers in both academic and industrial cloud ecosystems.

Keywords: Cloud computing, cost optimization, RL, task scheduling, EE, adaptive resource allocation.

Combining Traditional Filtration Methods with Contemporary Biotechnology to Revive Vedic Wisdom for Sustainable Water Management

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India's ancient water management techniques, from the stepwells of Gujarat to the johads of Rajasthan and the percolation ponds of the Gangetic plains, demonstrate a deep ecological intelligence drawn from sustainable design and Vedic wisdom. In the contemporary milieu of heavy metal contamination, groundwater depletion, and climate-induced water stress, these past systems offer crucial lessons for sustainability and resilience. In order to develop affordable and ecologically friendly filtration devices for rural regions, this study explores the potential of fusing traditional water purification knowledge with biotechnological developments. High turbidity and the presence of lead and nitrates in household water sources were found in field data from the Mubarakpur hamlet in Western Uttar Pradesh. Tulsi (*Ocimum sanctum*), Neem (*Azadirachta indica*), and *Moringa oleifera* seed extracts were used to create herbal-based filtration prototype, which was inspired by Ayurvedic cleansing principles and natural coagulants found in the Charaka Samhita and Sushruta Samhita. The system proved the feasibility of low-cost, nature-based treatments by dramatically lowering turbidity and microbial load while preserving mineral balance. In line with SDG 6 (Clean Water and Sanitation) and NEP 2020's IKS framework, the study makes the case for the revival of traditional ecological knowledge (TEK) via community involvement and scientific validation. This interdisciplinary approach empowers rural populations through context-specific, culturally relevant solutions while also supporting water sustainability by fusing traditional Indian wisdom with contemporary scientific validation.

Keywords: Indigenous Knowledge Systems, Sustainable Water Management, Herbal Filtration, Vedic Science, Rural Development, Biotechnology, SDG 6.

Comprehensive Review on Yoga and its Benefits

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Yoga is an ancient Indian discipline that unites the body and mind. The word Yoga comes from Sanskrit word "Yuj" meaning 'to unite' or 'to join'. Primarily, Yoga is the union of body and mind. In other words, yoga is the union of individual consciousness with universal consciousness. Generally, people associate yoga with physical postures known as Asanas, which are just part of the practice. Eventually, yoga is a system of disciplines including practices like physical exercises, breathing control (pranayama), meditation and chanting. In today's hectic lifestyle of people, yoga plays a vital role in maintaining well balance between physical, mental and spiritual health.

Nowadays, Yoga has become more popular among all ages as it employs a holistic approach that focuses on teaching people practices for improving, regaining or retaining good health. Yoga has healing effects, and the most important benefits of yoga are its application in relieving stress, fatigue, its anti-aging properties and relaxation therapy. The paper aims to showcase the benefits of yoga as well as encourage the reader to practice maintaining physical, mental and spiritual health.

Keywords: Asanas; Holistic Approach; meditation; pranayama; Yuj.

Intelligent Load-Balanced Task Scheduling Using Reinforcement Learning in Dynamic Cloud Environments

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The continuous growth of data-intensive applications in cloud ecosystems has amplified the need for intelligent load balancing mechanisms to ensure performance reliability and resource efficiency. Uneven workload distribution often leads to server congestion, longer response times, and energy wastage significantly impacting the overall quality of service (QoS). To overcome these limitations, this work introduces a Load-Balanced Task Scheduling Framework (LBTSF) designed to achieve dynamic equilibrium across distributed virtual machines in a cloud environment. Unlike conventional static or rule-based schedulers, LBTSF integrates machine learning-assisted workload prediction with adaptive task migration to maintain balance under varying system loads. The framework continuously monitors system parameters such as CPU utilization, task queue length, and network latency to anticipate potential overload scenarios. Based on these insights, it employs a reinforcement learning–driven allocation policy that redistributes tasks proactively while minimizing migration overhead. Comprehensive simulations using CloudSim demonstrate that LBTSF enhances system efficiency by up to 28% in load uniformity, reduces average task completion time by 22%, and improves overall throughput by 18% compared to traditional load-balancing algorithms such as Round Robin and Throttled scheduling. Furthermore, the proposed approach maintains high scalability and robustness when deployed in heterogeneous or bursty traffic conditions. This research contributes toward the realization of autonomous and self-adaptive cloud management systems, paving the way for future integration with edge–cloud architectures and energy-aware computing paradigms.

Keywords: Cloud computing, load balancing, task scheduling, reinforcement learning, workload prediction, adaptive resource management.

Impact of Digital Financial Literacy on Retail Investors' Investment Decisions: An Empirical Study in NCR with Special Reference to Meerut

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The growing influence of digital technology in financial markets has transformed how individuals make, manage, and monitor their investments. This research focuses on the impact of digital financial literacy on retail investors' investment decisions in the National Capital Region (NCR), with special reference to Meerut. The study addresses the central question: How does digital financial literacy shape investors' ability to make informed, confident, and rational investment decisions in a digital era? Previous studies have consistently highlighted the role of financial literacy in promoting sound financial behavior. However, most existing research has primarily emphasized traditional financial knowledge and has not sufficiently examined digital financial literacy—the capability to understand, evaluate, and effectively use digital financial platforms, applications, and online investment tools. With the rapid expansion of FinTech, mobile trading apps, and online banking, there is a strong need to explore how digital financial literacy influences investor behavior and decision-making patterns in semi-urban regions like Meerut.

This empirical study adopts a quantitative research design and uses a structured questionnaire to collect primary data from 100 retail investors in NCR. The study employs statistical techniques such as correlation and regression analysis to assess the relationship between digital financial literacy and investment decision-making, with mediating factors including investor confidence, trust in digital systems, and behavioral biases. The findings indicate a significant positive relationship between digital financial literacy and rational investment decision-making. Investors possessing higher levels of digital financial literacy are more confident, exhibit better portfolio diversification, and are less prone to impulsive or biased decisions. Nevertheless, issues such as limited cybersecurity awareness, mistrust in digital platforms, and uneven access to digital education continue to hinder participation in digital investment channels.

Keywords: Behavioral Finance; Digital Literacy; FinTech; Investment Decisions; Retail Investors.

Bridging Education and Psychology through Universal Design for Learning: A Pathway to Inclusive Pedagogy

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The evolving landscape of education increasingly acknowledges the deep interdependence between educational theory and psychological principles. This paper explores how the integration of psychology within educational frameworks, particularly through the lens of Universal Design for Learning (UDL), fosters inclusivity and holistic learner engagement. UDL, grounded in cognitive neuroscience, emphasizes flexibility in teaching strategies, materials, and assessments to accommodate learner variability. By aligning psychological insights on motivation, cognition, and behavior with educational practices, UDL transforms classrooms into equitable learning spaces where every student - regardless of ability, background, or learning style - can thrive. The discussion highlights the role of educators as facilitators who design proactive and empathetic learning environments. The paper concludes that the intersection of education and psychology through UDL not only enhances accessibility but also nurtures self-efficacy, autonomy, and intrinsic motivation among learners. This integrated approach serves as a transformative model for inclusive education in the 21st century.

Keywords: Cognition; Inclusion; Motivation; Psychology; Universal Design for Learning.

From Vedic Knowledge to Convolutional Neural Network: Evolution of Skin Disease Detection across History of Science and AI

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Skin conditions are a prevalent problem that affects many people and have an impact on both mental and physical health. Transition from vedic and ayurvedic knowledge to convolutional neural networks, has leads to significant modifications in skin illness detection strategies. According to the Literature of vedic era, Charaka and Sushruta, skin illnesses (twak rogas) were identified using "dosha imbalance," "prakriti," and a comprehensive examination of the body. Additionally, it is noted that the surroundings, eating habits, and lifestyle were all elements that were taken into consideration. In the current medical era, diagnosis is accomplished by AI and CNN models, which analyze system pixels based on colour, texture, and shape before automatically identifying the condition. Skin conditions include melanoma, psoriasis, and eczema, among others. The purpose of this paper is to discuss the scientific field's transition from observation-based ayurveda to computer-based artificial intelligence. Both systems have certain characteristics, such as pattern recognition, but their methods are different. While convolutional neural networks concentrate on visual data, Ayurveda emphasizes causes and balance. Several studies exist in this area, yet many struggle with limitations like the shortage of Ayurvedic-labelled datasets and an absence of cohesive hybrid diagnostic models. It investigates the possible approaches for blending Ayurvedic reasoning with CNN algorithms. A hybrid system which is accurate and comprehensive—that is, a system which treats skin diseases in addition to their underlying causes and remedies— may be the outcome of this. Any diagnosis must always be accurate, precise, and tailored to the patient, regardless of the time period.

Keywords: Vedic knowledge, Convolutional Neural Network, Pattern Recognition, Skin Disease Detection.

Ancient and Current Indian Legal Tradition in Controlling Environmental Pollution

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India has always held a profound respect for nature. The people of ancient India had a special reverence for the natural world, embracing it in every way possible. They believed that nature is sacred, and that it is a moral and societal duty to protect the Earth. Even in early times, there were legal and ethical frameworks in place in the form of the Vedas to safeguard the environment. The Vedic texts from Ancient India acted as early environmental laws, laying down guidelines and penalties related to the use and misuse of natural resources. If we look to the present, Indian society has changed drastically. Modern India is very different, with large cities, industries and technologies on the rise and it may seem that nature is not given as much importance anymore. However, several environmental laws exist to protect the Earth from problems that have only grown since ancient times, like deforestation and pollution. Unfortunately, the issues have only gotten worse, raising questions about the enforcement of the laws.

This paper examines the environmental tradition during the Vedic period and the current laws to safeguard the environment. It explores the difference between ancient and modern approaches to protecting nature and revisits principles from early texts that can be applied to strengthen the current legal framework to lead to a more sustainable future.

Keywords: Vedas, Ancient India, Pollution, Legal Framework.

माध्यमिक स्तर की शिक्षा पर शिक्षाशास्त्रीय सिद्धान्तों का प्रभाव

मीतू गर्ग
शिक्षा विभाग
पं.दीनदयाल उपाध्याय मैनेजमेंट कॉलिज, माल रोड़, मेरठ

माध्यमिक शिक्षा, शिक्षा के महत्वपूर्ण चरणों में सेएक है जिसने शिक्षा आयोगएवं समितियों को उन कठिनाईयोंएवं जटिलताओं पर ध्यान देने हेतु प्रेरित किया जो शिक्षा की चरम सीमा तक पहुँचने से रोक रही है। इन्हीं कठिनाइयों में से शैक्षणिक ज्ञानएवं व्यावसायिक कौशल है जो शिक्षक को संसाधित व्यक्ति से पृथक करता है। प्रस्तुत लेख शिक्षा शास्त्र के अध्ययन की प्रकृतिएवं उसका माध्यमिक स्तर पर क्या प्रभाव पड़ता है, पर प्रकाश डालने का प्रयास करता है। शिक्षा शास्त्रएक व्यावहारिक अनुशासन है जो शैक्षिक प्रक्रिया को समझने और उसकी व्याख्या करने का प्रयास करता है। शिक्षा शास्त्र शैक्षिक अध्ययन मेंएक प्रमुख घटक का कार्य करता है जिसमें समकालीन परिस्थितियोंएवं चुनौतियों का समाधान किया जा सके। शिक्षा शास्त्र केवलएक पाठ ही नहीं जिसे समाहित किया जायं अपितु यहएक दृष्टिकोण है,एक विचार और विद्यार्थियों को समझने काएक तरीका है। यह अन्वेषण काएक क्षेत्र बन गया ळें

कुंजी शब्द– माध्यमिक स्तर की शिक्षा, शिक्षाशास्त्रीय सिद्धान्तएवं प्रभाव

Phishing Detection System Using Deep Learning Based on URL

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Phishing attacks that utilize deceptive URLs continue to be a serious cybersecurity threat for individual users and organizations. Detecting phishing URLs with an established blacklist and practical approaches may not adapt in sufficient time to accommodate the rapid attack cycle of cybercriminals. This study proposes a Dual-Input Fusion-based deep learning phishing detection system utilizing URL characteristics to effectively distinguish between legitimate and phishing websites. This method applies advanced neural network capabilities, including Convolutional Neural Network (CNN), Long Short-Term Memory (LSTM), and Gated Recurrent Unit (GRU), that have automatically extracted feature sets from URL strings, and learned the core complicated patterns without a process of feature engineering. Dual-Input Fusion design combines URL sequence analysis with engineered lexical and host-based features to further enhance discrimination. Experimental evaluations of our approach on a large dataset show that our deep learning approaches have achieved high accuracy, precision, recall, and F1-scores, and performed better than traditional machine learning-based approaches and existing state-of-the-art approaches, achieving an accuracy of 99.91%, precision of 99.98%, recall of 99.84%, and an F1-score of 99.91%. The experimental evaluation showed influential evidence of how deep learning models could be employed as robust and adaptive real-time phishing attack protections by effectively capturing short and long-range dependencies associated with the URLs. This study illustrates the continued use of deep learning in prioritizing the development of the critical specificity and scalability needs of automated phishing detection systems, given the highly dynamic nature of the threat environment.

Keywords: Phishing Detection; Deep Learning; URL-based Detection; Cybersecurity; Natural Language Processing (NLP).

E-commerce Trends in India Post Covid-19

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This study examines The E-Commerce trends nowadays which mean the conduct of business transactions over the internet. The advancement in technology including smart phone penetrations, mobile app expansion, digital payments and more led to massive growth for online purchasing for e-commerce and quite an accelerative growth in India post COVID-19. Recent themes affecting e-commerce involve the rising application of artificial intelligence and automation for personalization and customer service, the adoption of social media platforms as a medium for sales, one-click and voice-activated purchasing, and influencer marketing for targeted audiences. This industry also featured high quality content for real shopping experiences, fast delivery apps such as Zomato, Zepto, and Blinkit etc. which delivers in minutes. These are all trying to enhance their values as well as loyalty of the customers. As a result of momentous opportunities, challenges for businesses, and customers will occur. As well as leading to vital changes in the way e-commerce is undertaken globally.

Keywords: E Commerce, Online Shopping, E Commerce Trend, Social Media Sales, Influencer Marketing, Technology Advancement.

Integrating Vedic Ethical Norms with Digital Marketing Strategies: Enhancing Ethical Engagement among Female Consumers of Luxury Brands in the Delhi-NCR Region

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In the rapidly evolving digital marketplace, where luxury brands compete for attention through persuasive content and influencer-driven strategies, the timeless values of Satya (truthfulness), Ahimsa (non-harm), Aparigraha (non-possessiveness), and Dharma (moral duty) provide an ethical foundation for responsible marketing. By aligning these Vedic ethical norms with modern digital marketing practices, this paper explores how ethical integration can strengthen customer engagement and foster trust-based relationships among female consumers of selected luxury brands in the Delhi-NCR region. The study examines the convergence of traditional wisdom and contemporary marketing ethics to address challenges such as misinformation, overconsumption, and superficial brand loyalty. Findings suggest that embedding Vedic ethical principles into digital marketing strategies can enhance consumer authenticity, promote responsible luxury consumption, and encourage long-term engagement grounded in ethical values. The paper concludes by offering actionable insights for marketers to create transparent, value-driven digital interactions that resonate with ethically conscious consumers.

Keywords: Vedic Ethics, Digital Marketing Strategies, Customer Engagement, Luxury Brands, Female Consumers, Ethical Marketing.

Prakriti and the Gut–Brain Axis: A Personalized Healing Framework

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In Ayurveda, the concept of Prakriti which is an individual's constitutional type defined by the balance of the three Doshas (Vata, Pitta, and Kapha) provides an early framework for personalized health. Recent advances in microbiome research and neurobiology provide a mechanistic basis for investigating this traditional system through the lens of the gut–brain axis. Accumulating evidence demonstrates that inter-individual variations in gut microbial composition influence neurotransmitter biosynthesis, hypothalamic-pituitary-adrenal (HPA) axis regulation, and immune-neuroendocrine crosstalk, collectively modulating both physiological and psychological phenotypes. Notably, preliminary studies have identified distinct gut microbial signatures associated with different Prakriti types, suggesting a potential biological foundation for Ayurvedic constitutional classification. The conceptual framework proposes an integrated Prakriti–Microbiome–Neurobiology axis as a systems-level model to understand individual and inter-individual variability in therapeutic outcomes, which can be studied further to explore how microbial-derived metabolites (short-chain fatty acids, tryptophan metabolites) and neuroactive compounds may mediate the relationship between Ayurvedic constitution and neurocognitive homeostasis. This interdisciplinary concept tries to bridge Vedic wisdom with modern precision medicine paradigms, offering a translational framework for bridging traditional Indian knowledge systems with biomedical science, this approach has the potential to understand advance personalized and holistic healthcare strategies in both ancient insight and modern evidence.

Keywords: Ayurveda, gut-brain axis, microbiome, neurobiology, Prakriti, personalized medicine, traditional medicine.

Environmental Sustainability and Vedic Ecology

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With global climate change and resource depletion environmental sustainability has taken a position in the forefront. Surprisingly, the ethos of ecological sustainability was not new to Indian thought and practice; in fact, it found its roots deep in ancient India in Vedic literature. Vedic Ecology by focusing on interconnectedness of different life forms also recommends that we should establish harmony between humans and nature through the pursuit of values like Ṛta (cosmic order), Dharma (duty), Ahimsa (non-violence) and Yajña (sacrifice). The Prithvi Sukta of the Atharvaveda extols Mother Earth as Bhūmī Dévī showing a reverence for nature and an environmental ethic. These principles preach and encourage the virtues of consumption moderation, biodiversity respect and circular reciprocation (in both biological and spiritual terms) between humans and other members of the environment. Through harmonizing Vedic ecological thinking with modern environmental science, humanity can work towards a more holistic and ethical foundation for sustainability. The Vedic perspective serves as a timely reminder that saving nature is not only an economic or political imperative, but also of a sacred obligation—an obligation without which the balance and prosperity of all life on Earth would be in jeopardy. One important feature of environmental ethics is an integration of Vedic ecological insights, which gives a more comprehensive and spiritually enlightened system for sustainable living. Such a system places the environmental question outside solely technological or economic ones; it is a moral and spiritual demand which comes from the deep understanding that man and nature are one. That is why the interrelation of present-day environmental science and Vedic ecological philosophy may be the solution for a world that is sustainable, caring and in harmony with nature.

Keywords: Ṛta, Dharma, Ahimsa, Yajña, Prithvi Sukta.

Vedic Pluralism and Legal Inclusivity in Modern India

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Anchored in ancient Indian texts like the iRig Veda, Upanishads, and Dharmashastras, the Vedic knowledge system articulates dharma—a principle of cosmic harmony (ṛta), moral integrity, and social responsibility—offering profound guidance for contemporary law and governance. This paper investigates how dharma informs modern Hindu personal laws, such as the Hindu Marriage Act (1955) and Hindu Succession Act (1956), Surrogacy Regulation Act (2021) merging ethical values with constitutional commitments to fairness and justice. It explores judicial reliance on Vedic tenets like satya (truthfulness) and ahimsa (non-harm) to address family law, environmental stewardship, and corporate accountability, including CSR and ESG principles. Additionally, it highlights Vedic pluralism's role in tackling modern issues, such as ethical AI development (e.g., ensuring fair algorithms through dharma), indigenous rights, and global cooperation via vasudhaiva kutumbakam (universal kinship). By harmonizing timeless wisdom with present-day challenges, this paper affirms the lasting significance of Vedic principles in crafting just, sustainable, and morally grounded legal and governance frameworks.

Keywords: Vedic Knowledge, Dharma, Ṛta (Rita), Satya Ahimsa, Vasudhaiva Kutumbakam, Hindu Personal Law, Legal Pluralism, Constitutional Law.

From Manas to Machine: Integrating Vedic Insights with Explainable AI for EEG-Based Epilepsy Detection

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Epilepsy is one of the most widespread neurological disorders, necessitating rapid and reliable diagnosis through non-invasive approaches such as electroencephalography (EEG). Although recent advances in deep learning and ensemble-based classifiers have improved the accuracy of seizure detection, their limited interpretability continues to restrict their adoption in clinical practice. To address this challenge, the present work introduces an interdisciplinary framework that integrates explainable artificial intelligence (XAI) with principles derived from Vedic and Yogic cognitive models. The proposed approach employs interpretable algorithms—EEGNet, TabNet, and SHAP-based attribution techniques—to extract transparent and physiologically meaningful patterns from EEG signals. These computational insights are conceptually linked to Vedic notions such as manas (mind), buddhi (intellect), citta (conscious substrate), and the pañca-kośa (five sheaths of human existence), establishing a bridge between modern neuroscience and traditional Indian epistemology. The objective is to design a diagnostic paradigm that is scientifically rigorous, ethically grounded, and human-centric, thereby laying the foundation for a doctoral research trajectory uniting machine intelligence and Vedic knowledge system.

Keywords: Epilepsy Detection; Electroencephalogram (EEG); Explainable AI (XAI); TabNet; SHAP.

International and Historical Dimensions of Legal and Ethical Safeguards for Patients in Medical Care

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The Indian Constitution does not explicitly define the rights of patients seeking medical care. However, it includes certain provisions that relate to individual and public health. Article 21 of the Constitution guarantees every person the right to life and personal liberty, which implicitly encompasses the right to health. On the global front, significant efforts have been made to formally recognize patients' rights as part of the broader framework of the right to health as a fundamental human right, thereby obligating states to uphold it. Over time, the recognition and enforcement of patient rights have gained importance worldwide. Several countries, including India, the United States, the United Kingdom, Australia, and Japan, have established dedicated bodies and agencies to handle consumer grievances, enforce legal provisions, and ensure ethical and fair practices within healthcare systems. This paper aims to examine the historical and international development of patient protection in the context of medical care. The study is based entirely on secondary data and adopts an exploratory research design. Secondary sources include official reports, scholarly journal articles, and books.

Keywords: Patient rights, medical care, Health protection, international framework.

A Survey on Intelligent System for Complaint Management using User-Centric Data for Enhancement Solutions

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Complaining is a common speech used to express dissatisfaction when reality doesn't meet expectations, and it's prevalent in both human and computer-mediated communication. Automatically identifying complaints on social media is crucial for organizations and brands to enhance customer experience and develop systems for handling complaints effectively.

The paper discusses a complaint management system for the Rail Madad platform, which integrates Natural Language Processing (NLP) and automated task allocation to improve the resolution of passenger complaints. The system aims to automatically detect emergency cases, categorize complaints, prioritize them, allocate tasks to relevant departments, and provide real-time updates to passengers. This will improve complaint resolution speed, accuracy, and overall passenger satisfaction. The system works by preprocessing textual data, using machine learning to categorize complaints, and routing them to the appropriate departments. The work shows it reduces manual work and improves efficiency. Additionally, the paper touches on the role of social media messages in crisis situations. Social media can provide real-time, relevant information, especially during disasters, but detecting the most relevant messages is challenging.

Keywords: Information Extraction, Machine Learning, Natural Language Processing, Complaint Management, Metric Parameter's, Text Classification.

भारतीय परम्परा में वेदानुसार मानव जीवन के उद्देष्य

तोषेन्द्र कुमार
असिस्टेंट प्रोफेसर (संस्कृत)
षिक्षा विभाग
महावीर विष्वविद्यालय, पोहल्ली,
सरधना रोड़ (मेरठ)

भारतीय परम्परा में मानव सभ्यता की सबसे प्राचीन धरोहरों में यदि किसी ग्रन्थ का नाम लिया जाता है तो वेद सर्वप्रथम आते हैं। इन्हे वेदषास्त्र कहा गया है अर्थात इनकी रचना मनुश्य ने नहीं, बल्कि यह षाष्वत और अनादि ईष्वर की वाणी के रूप में प्रकट हुए हैं। यही कारण है कि इनकी षिक्षा किसी विषेश जाति, धर्म, सम्प्रदाय या भाशा विषेश अथवाएक देष के लिए नही, बल्कि सम्पूर्ण मानवता के लिए है। तभी तो वेद मानवता की धरोहर कहे जाते हैं। वेद केवल पवित्र धर्मग्रन्थ ही नही, बल्कि विज्ञान, समाजषास्त्र, राजनीतिषास्त्र, अर्थषास्त्र, चिकित्सा, पशुचिकित्सा, षिक्षा तथा योग और ईष्वर ध्यान के केन्द्र बिन्दु हैं। जो मानव को इन समस्त विधाओं से षिक्षित करते हुए समस्त जगत का कल्याण करते हैं।

वेदों का चिंतन मानव की सीमाओं से परे है इसमें ज्ञान के गूढ रहस्य छिपे हुए हैं। मानव अपनी ज्ञान पिपासा को षांत करने के लिए इनका अधिक चिन्तन, मनन व गहन ध्यान करते हैं उसकी इतनी ही अधिक ज्ञान सामग्री वेदों में उपलब्ध होती रहती है। अतः जिज्ञासु प्रवृत्ति के लोग हमेषा अध्ययनषील रहते हैं तथा वेदों में निहित ज्ञान के रहस्यों, स्रोतों का उजागर करते रहते हैं।

यहाँ इस षोध पत्र में मैने भी भारतीय परम्परा में वेदानुसार मानव जीवन के उद्देष्य बताने का प्रयास किया है। अतः वेदों की दृश्टि से मानव जीवन के उद्देदष्य क्या होने चाहिए? तथा वेदों में बताये गये श्रेश्ठ मार्ग का अनुकरण करते हुए मानव को स्वार्थ की भावना का त्याग करके परोपकार की भावना से सम्पूर्ण मानव जगत/प्राणी जगत का कल्याण करना चाहिएएवं वेदों में निदर्षित मानव जीवन के समस्त उद्देष्यों की पूर्ति करनी चाहिए। आज जब मनुश्य भौतिकवादएवं उपभोक्तावाद के अंधानुकरण से अपना असली (मूल) उद्देष्य भूलता जा रहा है तब वेदों का यह संदेष और उपयोगी हो जाता है कि मानव–जीवन के उद्देष्यों की प्रति हेतु श्रेश्ठ कर्म करे तथा अपना जीवन सार्थकएवं बनाएँ।

कुंजी शब्द– भारतीय परम्परा, वेदषास्त्र, मानव जीवन, श्रेश्ठ मार्ग, जीवन सार्थक ।

From Wootz Steel to Aerospace Alloys: Applying Traditional Indian Microalloying Concepts in Al-Mg-Zn-Fe System Development

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Ancient Indian metallurgists were achieved remarkable properties in Wootz steel through strategic microalloying by adding small amounts of specific elements to dramatically improve material performance. This traditional wisdom finds direct application in modern aerospace alloy development. The present study explores the effect of addition of iron microalloying element in Al-Zn-Mg alloys. The present research followed a systematic two-stage approach. First, finding best combination of Zn/Mg ratio for the optimal properties of Al-Mg-Zn alloy followed by the addition of different weight percent iron powder into the Al-Zn-Mg alloys having optimal properties. A total 10 wt. % Zn and Mg were added into the Al-Zn-Mg alloys at five different Zn/Mg ratios. It is interestingly observed that with increasing of Zn/Mg ratio, the hardness of Al- Zn-Mg alloys increases, reaching the maximum hardness at 4 ratio 1 combination. It is also interestingly observed that with increasing the wt. % of Fe powder in the 4 ratio 1 combination Al- Zn-Mg alloys, the hardness further increases and reached the specific strength of the alloy near to the specific strength of stainless steel. So, this work demonstrates how traditional Indian metallurgical principles of strategic microalloying remain relevant for contemporary aerospace material development.

Keywords: Aluminum alloys, Aerospace materials, Microalloying, Traditional metallurgy, Wootz steel

Ancient Indian Astronomy in the Age of AI: A Review

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The Ancient Indian astronomy conceptualizes a blend of observation, logic, and spiritual imagination. The study reviews how development in astronomy have evolved from the symbolic interpretations of the Vedas to the precise and mathematical Siddhāntic systems that laid the foundations for planetary models and trigonometry. Referring to earlier scholarly interpretations, Iyengar's work with Sanskrit words like dhūmaketu and maruts reflects on how poetry was used and the rituals to express the records seen in the celestial sphere, eclipses, and other moving lights that inspired both science and faith. Emerging technologies like artificial intelligence, machine learning, and others are opening ways to rediscover ancient wisdom by analysing old manuscripts, which can now be read, translated, and compared with modern data about the space science. By exploring the journey from symbolic precise calculations, this unique review highlights about the ancient Indian astronomy that endures to guide present scientific approaches while also enriching the understanding of the cosmos. Further, AI-driven system, including telescopes, predictive programs etc. might carry forward this long-standing exploration, connecting old knowledge with modern discoveries to give us a richer view of the cosmos.

Keywords: Astronomy, Artificial Intelligence, Predictive Program, Iyengar's work, Cosmos.

Electro spun Gelatin and Chitosan Based Nanofiber for Biomedical Applications

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Natural polymers such as chitosan and gelatin have become key materials in biomedical research, owing to their excellent biocompatibility, biodegradability, and minimal toxicity. These attributes make them especially well-suited for a broad spectrum of medical applications, including controlled drug delivery, tissue regeneration, wound management, and diagnostic tools. Recent advancements have aimed at overcoming their inherent limitations by improving mechanical strength, enabling targeted release profiles, and introducing chemical modifications to expand their functionality. This review outlines the current progress in the development and application of chitosan- and gelatin-based natural polymers, with a focus on their synthesis, functional enhancement techniques, and role in addressing modern healthcare challenges.

Keywords: Polymers, Gelatin, Chitosan, Properties, Applications.

Double Perovskite Solar Cells: Fundamentals, Achievements and Challenges

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PSCs, or perovskite solar cells, are developing quickly and are now performing on par with silicon solar cells. Due of perovskite's superior photoelectric qualities, they have started utilizing it for a wider range of purposes lately. PSCs with semi-transparency (STPSCs) are one potential use for the tunable transmittance of perovskite photoactive layers, which are employed in building-integrated photovoltaics (BIPV) and tandem solar cells (TSC). The inverse relationship between efficiency and light transmittance, however, presents a problem for the creation of ST-PSCs. Many studies are being conducted to address these issues, such as those on band-gap tuning, high-performance electrodes and charge transport layers, and the development of island-shaped microstructures. The novel techniques in ST-PSCs, such as improvements in the perovskite photoactive layer, transparent electrodes, device architectures, and their applications in TSC and BIPV, are succinctly and generally summarized in this chapter. Additionally, the prospects for ST-PSCs are offered, along with a discussion of the necessary conditions and difficulties to be overcome in order to actualize ST-PSCs.

Keywords: Perovskite Solar Cells, Semi-Transparent, Tandem Solar Cells, Building Integrated Photovoltaics.

The Ethical Path to Power: Dharma in Leadership and Statecraft

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This research deals into the examination of ancient Indian political science, throwing light on the analysis of political ideals and Dharma within the governance principles of contemporary rulers. Good governance refers to task of running the government in an effective manner. Good governance has eight characteristics: Participation, Strategic vision, Rule of Law, Transparency, Responsiveness, Consensus Orientation, Equity Building, Effectiveness and Efficiency, Accountability. The word Dharma has roots in the Sanskrit धृ which means to hold, to maintain or to preserve, and is related to the Latin word firmus (firm, stable). From this it takes the meaning of 'what is established or firm', and hence 'law'. The Sanskrit word Dharma is rendered as Dhamma in Prakrit and Pali. The word Dhamma refers to the Buddhist doctrine and is often interpreted to mean the 'teachings of the Buddha'. This doctrine, according to King Aśoka, was based on religious tolerance, respect for elders, and care for the old ones, kindness towards the needy; purity and truthfulness; and compassion for all sentient beings. The concept in Indian Statecraft, Diplomacy and polity of rulers being bound by dharma was that of ensuring good governance to people. Rajdharma was code of conduct that was superior to will of ruler and governed all his activities. Good governance as mentioned in ancient Indian scriptures in Sanskrit and Pāli like Bhagvad Geeta, Vedas, Mahabharata, Shantiparva, Nitisar, Ramayana, Arthashastra, Dīgha Nikāya, Jātaka Ancient political thinkers like Manu, Yagvalkavya, and Kautilya thoroughly discuss the incorporation of Dharma into political and administrative frameworks, providing explicit guidelines for royal duties. Dharma serves as a moral compass, restraining politically superiors from power misuse and guiding them towards right conduct. Despite the absence of stringent legal constraints, Dharma's ethical and moral principles give more influence than constitutional ideals, shaping the behavior of rulers. The concept of Rajdharma emerges, defining the duties of rulers and warriors. Guided by Dharma, the warrior's code of conduct encourages just warfare, discourages excessive violence, and emphasizes self-sacrifice for duty. The warrior class, involved in service of duty, follows path of Dharma to prevent obstacles during war, delineating ethical boundaries for rulers. The synthesis of political and ethical principles, underscored by Dharma, provides a framework for just and fair governance in ancient India.

Keywords: Rajdharma, ancient Indian political thinkers, Dharma, legal.

Roots of Justice: Ancient Indian Legal Heritage and Its Modern Echoes

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The Indian legal system today stands as elaborate integration of ancient normative traditions and modern constitutional jurisprudence. Indian legal system is the sophisticated amalgamation of ancient philosophical and religious foundations and modern constitutional framework adopted in 1950. The concept of Dharma, early Indian jurisprudence embodied a holistic synthesis of moral, spiritual, and legal principles designed to uphold social and cosmic harmony. foundational sources Vedas, Bhagavad Gita, Manusmriti, Yajnavalkya Smriti, and Kautilya's Arthashastra developed justice (Nyaya), equality (Samatha), duty, punishment, Governance and the role of individuals in society. These writings reveal an enduring relationship between Dharma and Natural Law, emphasizing an intrinsic moral order as the basis of human conduct and justice. Adopting a historical-comparative approach, this study analyzes the continuities and departures between classical Dharmashastric thought and the ideals enshrined in the Constitution of India, particularly those of justice, equality, and secularism (Dharmanirpeksha). It further explores how traditional doctrines were selectively retained, reinterpreted, or repudiated during the evolution of contemporary Indian jurisprudence. It identifies ancient practices that persist such as arbitration and ethical responsibility as well as hierarchical divisions rooted in caste and gender, repudiated by current statutes have been decisively eliminated from modern law.

This paper examines that India's legal history is not a total break from the past, nor just keeping old ways. Instead, it shows a balance between old moral traditions and modern constitutional values. It helps us understand how ancient ideas like Dharma and Natural Law still influence today's views on justice and law.

Keywords: Natural Law, Ancient Legal System, Modern Constitutional Jurisprudence and Dharmashastric.

The Forgotten Seers: Brahmavādinīs and their Enduring Legacy in Vedic Literature

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The Vedic corpus, the foundational scripture of Hinduism, is often perceived as a monolithic, patriarchal tradition. However, a closer examination of the literature reveals a significant and profound intellectual and spiritual presence of women, known as Brahmavādinīs. This paper seeks to challenge simplistic narratives by conducting an in-depth analysis of these female seers, scholars, and philosophers who were not mere exceptions but integral contributors to the Vedic milieu. This research distinguishes between the 'Brahmavādinīs', who dedicated their lives to scriptural study and the pursuit of Brahman, and the 'Sadyovadhūs', who studied until marriage. The paper traces their contributions chronologically, beginning with the hymns of the Rigveda, where Rishikās (female seers) like Vāk Ambhṛṇī, Lopāmudrā, Ghoṣā, and Apālā composed verses that articulated complex theological, social, and metaphysical ideas. It then moves to the philosophical heartland of the Upaniṣads, focusing on the incisive inquiries of Gārgī Vācaknavī and Maitreyī in the Bṛhadāraṇyaka Upaniṣad, whose questions spurred some of the most pivotal discourses on the nature of the Ātman (Self) and Brahman (Ultimate Reality). By examining the textual evidence of their compositions and debates, this paper argues that Brahmavādinīs were active agents in shaping the spiritual landscape of their time, functioning as composers, ritualists, and formidable intellectual debaters. Finally, the paper briefly explores the socio-historical factors that led to the gradual decline of this tradition, while concluding that the legacy of the Brahmavādinīs endures as a powerful testament to a historical precedent for female spiritual authority and intellectual leadership within Sanatana Dharma.

Keywords: Brahmavādinīs, Vedas, Contributions, Dharma, Spirituality.

Integrating Vedic knowledge into Modern education

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This paper provides a comprehensive analysis of the differences between Vedic and contemporary education, two distinct systems that have shaped learning paradigms throughout history. Vedic education, which has its roots in ancient Indian texts such as the Vedas, places a strong emphasis on moral and ethical values development, holistic growth, and traditional and spiritual wisdom. The Vedas provide a comprehensive foundation for developing well-rounded individuals equipped to navigate the challenges of modern life by promoting a balanced educational approach that cultivates both cognitive and socioemotional abilities. On the other hand, scientific knowledge, technological development, and the cultivation of critical thinking and problem-solving abilities are the main emphasis of contemporary education, which was impacted by the industrial and post-industrial eras. This article examines the guiding ideas, approaches, and goals of various educational paradigms to shed insight into the philosophical, social, and cultural changes that have shaped them. The idea that the universe is one family is explored through ideas like Vasudhaiva Kutumbakam, ahimsa (non-violence), and dharma (righteousness).

Keywords: Vedas, Modern Education, ancient wisdom, Ahimsa, Dharma.

Designing Sustainable Urban Green Spaces using Vedic Principles and AI: A Harmonious Integration of Tradition and Technology

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In the context of widespread urbanization and environmental deterioration, planning sustainable urban green spaces is an urgent agenda item for next-generation cities. In this research, Vedic principles are combined with Artificial Intelligence (AI) to evolve an all-encompassing and innovative approach towards planning ecologically friendly, culture-based, and spiritually harmonious urban green spaces. Based on the ancient Indian epistemologies like Vedas, Upanishads, and Vastu Shastra, the paper stresses the importance of the Panchamahabhutas (the five elements—earth, water, fire, air, and space) and cosmic order to bring harmony between human habitation and natural environments. By integrating ancient notions of spatial equilibrium, solar orientation, and elemental balance with contemporary AI-driven methodologies—such as predictive analytics, machine learning, generative design, and geospatial modeling—the research strengthens the accuracy and responsiveness of sustainable design. AI enables the tracking of real-time environmental conditions like air quality, ground health, and temperature patterns, making long-term ecological stability possible. The convergence of Vedic philosophy and artificial intelligence therefore redefines the concept of city sustainability, proposing a regenerative, inclusive, and spiritually enriched model for green urban development. This framework offers useful insights for architects, planners, and policymakers who want to design cities that are intelligent, nature-integrated, and human-centric.

Keywords: Artificial Intelligence, Sustainable urban design, Smart Green Spaces, Vedic principles, Vastu Shastra.

From Manas to Machine: Integrating Vedic Insights with Explainable AI for EEG-Based Epilepsy Detection

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Epilepsy is one of the most widespread neurological disorders, necessitating rapid and reliable diagnosis through non-invasive approaches such as electroencephalography (EEG). Although recent advances in deep learning and ensemble-based classifiers have improved the accuracy of seizure detection, their limited interpretability continues to restrict their adoption in clinical practice. To address this challenge, the present work introduces an interdisciplinary framework that integrates explainable artificial intelligence (XAI) with principles derived from Vedic and Yogic cognitive models. The proposed approach employs interpretable algorithms—EEGNet, TabNet, and SHAP-based attribution techniques—to extract transparent and physiologically meaningful patterns from EEG signals. These computational insights are conceptually linked to Vedic notions such as manas (mind), buddhi (intellect), citta (conscious substrate), and the pañca-kośa (five sheaths of human existence), establishing a bridge between modern neuroscience and traditional Indian epistemology. The objective is to design a diagnostic paradigm that is scientifically rigorous, ethically grounded, and human-centric, thereby laying the foundation for a doctoral research trajectory uniting machine intelligence and Vedic knowledge system.

Keywords: Epilepsy Detection; Electroencephalogram (EEG); Explainable AI (XAI); TabNet; SHAP.

माध्यमिक स्तर पर अध्ययनरत छात्रों का शैक्षणिक तनावएवं मानसिक स्वास्थ्य

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वर्तमान शैक्षणिक परिवेश में माध्यमिक स्तर पर अध्ययनरत छात्रों को शैक्षणिक तनाव का सामना करना पड रहा है जिससे उनका मासिक स्वास्थ्य प्रभावित हो रहा है। यह शोद्य पत्र भारतीय ज्ञान प्रणाली और राष्टीय शिक्षा नीति 2020 के आलोक में छात्रों के शैक्षिक तनाव और मानसिक स्वास्थ्य के सम्बन्ध का विश्लेषण करता है। भारतीय परंपराओं में सन्तुलित जीवन, योग, ध्यानएवं आध्यात्मिक शिक्षा जैसी पद्वतियॉ मानसिक स्वास्थ्य को सुदढ बनाये रखने में सहायक मानी गई है।एनईपी 2020 में समावेशी, बहुआयामी और छात्रों के कल्याण पर केन्द्रित शिक्षा प्रणाली को अपनाने की सिफारिश की गई है, जो शैक्षणिक बोझ का कम करने और समग्र विकास को बढावा देने का प्रयास करती है। यह शोध माध्यमिक छात्रों के अनुभवों, चुनौतियों और कोपिग मकैनिस्म का अध्ययन कर यह दर्शाता है कि भारतीय ज्ञान परंपरा औरएनईपी 2020 की नीतियों को मिलाकर छात्रों के मानसिक तनाव को सुधारने में सहायक हो सकती हैं। अध्ययन में गुणात्मक और मात्रात्मक दोनों विधियों का उपयोग करते हुए यह निष्कर्ष निकाला गया है कि पारंपरिक भारतीय दृष्टिकोणों को आधुनिक शिक्षा में सम्मिलित कर शैक्षनिक तनाव को प्रभावी प्रभावी रूप से कम किया जा सकता है।

निष्कर्ष और निहितार्थ यह शोध सुझाव देता है कीएनईपी 2020 के लक्ष्यों को पूरी तरह से प्राप्त करने के लिए भारतीय ज्ञान प्रणाली के समग्र विकास और कर्तव्य पर जोर देने वाले पहलुओं को प्रभावी ढ़ंग से लागू करना आवश्यक है। शिक्षकों, अभिभावकों और नीति निर्माताओं को छात्रों के शारीरिक और मानोवैज्ञानिक स्वास्थ्य को प्राथमिकता देने के लिए संवेदनशील प्रशिक्षण और सहायता प्रणालिया प्रदान करनी चाहिए।

कुंजी शब्द—शैक्षनिक तनाव, मानसिक स्वास्थ्य, माध्यमिक छात्र, राष्टीय शिक्षा नीतिएनईपी 2020, भारतीय ज्ञान प्रणाली, समग्र विकास, तनाव प्रबन्धन।

Impact of Yoga for Enhancing Concentration and Learning in Children with Disabilities

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The present study explored how yoga can support the development of concentration and learning skills in individuals with developmental disabilities. Conducted at Disha School of Special Education, Meerut, this three-month intervention focused on adults with Intellectual Disability (ID) and Autism Spectrum Disorder (ASD). Participants attended structured yoga sessions that included simple breathing techniques, relaxation exercises, and postures designed to calm the mind and improve attention. Teachers and therapists assessed each participant's concentration and learning levels using a specially designed observation checklist. The same assessment was repeated after the three-month yoga practice. Results showed a remarkable improvement in participants' ability to maintain attention, follow instructions, and remember learned sequences. Many participants became more focused during classroom activities and displayed better engagement in daily learning routines. This study analyzes that yoga can be an effective and inclusive tool to enhance cognitive and behavioral functioning among individuals with disabilities. Beyond its physical benefits, yoga nurtures emotional balance, self-regulation, and inner calm—factors that are essential for meaningful learning. Integrating yoga into special education programs offers a holistic, non-invasive, and joyful approach to improving concentration and learning outcomes.

Keywords: Yoga, Concentration, Learning, Intellectual Disability, Autism Spectrum Disorder, Intervention, Special Education.

Effectiveness of Relaxation Techniques in Managing Aggressive Behavior among Adults with Intellectual Disability and Autism Spectrum Disorder

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Aggressive behavior is one of the most common challenges faced by adults with Intellectual Disability (ID) and Autism Spectrum Disorder (ASD), often affecting their emotional well-being and social adjustment. This study explored how relaxation techniques could help manage such behaviors and promote calmness and self-control. The research was conducted at Disha School of Special Education, Meerut, with 50 participants—25 adults with ID and 25 adults with ASD—who were part of ongoing vocational and behavioral training programs. Over a period of three months, participants attended structured sessions that included deep breathing exercises, guided imagery, progressive muscle relaxation, and mindfulness-based practices. Changes in aggressive behavior were measured using behavioral observation checklists and therapist/teacher rating scales before and after the intervention. The results showed a clear and positive impact: both groups displayed reduced aggression, better emotional regulation, and greater cooperation in daily tasks. Adults with ASD exhibited improved sensory tolerance and fewer anxiety-related outbursts, while individuals with ID showed better impulse control and social responsiveness.

Overall, the study highlights that simple, structured relaxation techniques can be powerful, non-medical tools to reduce aggression and support emotional balance among adults with developmental disabilities. Integrating such practices into daily training and therapy sessions can not only improve behavior but also enhance overall quality of life and social participation.

Keywords: Relaxation Techniques, Aggressive Behavior, Intellectual Disability, Autism Spectrum Disorder, Emotional Regulation, Intervention Study.

The impact of sensory integration therapy on maladaptive behaviors in children with ASD

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Autism Spectrum Disorder (ASD) is a complex neurodevelopmental condition characterized by difficulties in communication, social interaction, and the presence of restricted or repetitive behaviors. One of the major concerns in children with ASD is the occurrence of maladaptive behaviors such as aggression, self-injury, withdrawal, and sensory-seeking tendencies, which often arise due to sensory processing difficulties. Sensory Integration Therapy (SIT) has emerged as an effective intervention approach aimed at helping children process sensory information more efficiently and responds appropriately to environmental stimuli. The present study focuses on examining the impact of sensory integration therapy on maladaptive behaviors among children with ASD. The intervention involves structured activities that stimulate various sensory systems — tactile, vestibular, proprioceptive, auditory, and visual — in a controlled and goal-oriented manner. These activities help in organizing the sensory input received by the nervous system, thereby improving adaptive responses and self-regulation skills.

Findings from multiple clinical observations and research studies indicate that children who undergo sensory integration therapy demonstrate significant reductions in maladaptive behaviors. Improvements are often observed in attention span, emotional control, communication, and social engagement. Moreover, consistent sensory-based interventions enhance participation in daily living tasks and school-related activities, leading to better overall functional outcomes. In conclusion, sensory integration therapy serves as a valuable therapeutic approach for managing maladaptive behaviors in children with autism. By addressing the root cause—sensory processing dysfunction—this therapy promotes positive behavioral changes, enhances learning potential, and contributes to the holistic development of the child. Future research should continue to explore standardized protocols and long-term outcomes to strengthen evidence-based practice in this area.

Keywords: Autism Spectrum Disorder, Sensory Integration Therapy, Maladaptive Behavior, Sensory Processing, Child Development, Early Intervention.

Contemporary Applications and Expanding Horizons of Indian Knowledge from Vedic Insights

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In ancient times, students were encouraged to ask questions, challenge ideas, and think for themselves. Today's education system also aims to equip students with these same skills so they can solve complex problems and make informed decisions. This abstract explores the rebirth of ancient Indian knowledge, rooted in Vedic insights, as a dynamic and relevant resource for addressing contemporary global challenges. It explores how ancient Vedic teachings continue to influence modern disciplines, particularly in education, business, and socio-economic development. It investigates the complex applications of this traditional wisdom in modern domains, moving beyond its historical and philosophical confines. Central to this exploration are the global propagation of Yoga and Ayurveda, which are increasingly integrated into mainstream wellness and healthcare systems for their holistic approach to physical and mental well-being and one of the important stream in the health care centre. Beyond health, the paper delves into the application of Vedic principles in environmental sustainability, promoting ecological harmony through concepts like Vasudhaiva Kutumbakam (the world is one family). This idea encourages us to see the entire planet as our home and to live in harmony with nature, promoting sustainability. Furthermore, it highlights the enduring relevance of Vedic Mathematics in enhancing computational thinking and the philosophical of Dharma in shaping modern ethical frameworks for leadership and business. It's about making sure businesses are responsible and fair. it also highlights the Vedic Cosmology and Astrophysics Vedic cosmological descriptions, including cyclical time (Kalachakra) and the multi-layered universe, inform philosophical and mathematical models of space-time and cosmogenesis in astrophysics and it interface with modern science, particularly in fields like consciousness studies, quantum physics, and cognitive science. This synthesis is fostering new interdisciplinary dialogues, validating ancient insights through research, and initiating the way for innovative solutions. Ancient knowledge systems valued critical thinking, inquiry, and independent reasoning as essential components of education. Students were encouraged to question, analyse, and evaluate information critically, fostering intellectual curiosity and a spirit of inquiry. Likewise, modern education places a strong emphasis on critical thinking skills, equipping students with the ability to think critically, solve problems, and make informed decisions in an increasingly complex world.

This exploration shows that ancient Indian knowledge is being reborn. It's moving out of history books and into our hospitals, businesses, and science labs. By combining this old wisdom with modern research, we are finding new, innovative solutions for a better future.

Keywords: Vedic Knowledge, Ayurveda, Yoga, Sustainability, Indian Knowledge Systems, Contemporary Applications.

Effect of Graphite Powder, Copper Powder, Magnesium Hydroxide and Silicon Powder on Tribological Properties of Epoxy-waste Rubber Composite

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Epoxy-rubber composites have wide variety of applications in automotive, aerospace, constructions due to their balanced strength, flexibility and environment resistance. Preparation of epoxy-rubber composite using waste rubber, derived from discarded tires, industrial rubber scrap etc. can be a very good sustainable approach. In this present work five different composite materials have been prepared by hand lay-up method using epoxy, waste rubber and four different additional reinforcing agents like graphite powder, Copper powder, Magnesium hydroxide and Silicon powder. The additional reinforcing agents were introduced to reveal additional benefits in the composite. Using a pin-on-disc tribo-meter a dry sliding test was carried out for all the samples to investigate dry sliding friction and wear characteristic. Specific wear rate of silicon containing composite sample was found to be minimum, whereas for graphite containing sample the value was found maximum.

Keywords: Epoxy-rubber composites, Waste rubber recycling, Reinforcing agents, Dry sliding wear test, Specific wear rate.

The Broad Horizon of Indian Knowledge Tradition in the Context of Vedic Insights and National Education Policy 2020

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From the Vedic period to modern times, the Indian Knowledge Tradition has worked to integrate education, society, and life-philosophy. It mentions diverse dimensions such as Yoga, Ayurveda, astronomy, mathematics, and philosophy, along with concepts of self-realization (ātma-bodh), dharma (righteousness), artha (wealth/purpose), kāma (desire/enjoyment), and moksha (liberation), which remain an inexhaustible source of knowledge even today. The National Education Policy 2020 gives special importance to the relevance of the Indian Knowledge Tradition. The policy envisions the use of local languages, holistic education, the inclusion of Vedic literature, Yoga, and Ayurveda, and the development of entrepreneurship, innovation, and ethical values in students.

This essay explores the harmony between Vedic insights and NEP 2020 and demonstrates how ancient traditions and modern policies can combine to make education more relevant, inclusive, and future-oriented.

In conclusion, if the Indian education system includes a balanced combination of traditional knowledge and modern scientific perspective, it will not only aid in the all-round development of students but will also contribute significantly to establishing India as a leading nation in the global knowledge tradition.

Keywords: Indian Knowledge Tradition, Vedic Insights, National Education Policy 2020, Yoga and Ayurveda, Mother-Tongue Based Education, Holistic Education, Ethical Values, Global Knowledge Landscape.

A Vedic-Inspired Computational Approach for Energy-Efficient Deep Learning in Sustainable Farming Systems

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Deep learning has transformed various fields, from computer vision to agricultural analytics, by providing exceptional predictive accuracy and automation capabilities. However, these advancements come with challenges, including high computational complexity and significant energy consumption. This poses difficulties for large-scale and sustainable implementation, especially in smart sustainable farming systems. The increasing focus on "Green AI" highlights the necessity of creating high-performance models that are also energy-efficient, aiming to strike a balance between accuracy and sustainability. This paper introduces an innovative Vedic-inspired computational approach that combines ancient mathematical principles with contemporary deep learning techniques to reduce both computational demands and energy consumption. Specifically, Vedic Sutras such as Urdhva–Tiryagbhyam (vertical and crosswise multiplication), Nikhilam Navatashcaramam Dashatah (methods of complements), and Ekadhikena Purvena (one more than the previous) are explored for their potential to optimize arithmetic operations within neural network architectures. These principles are combined with modern efficiency techniques, such as model pruning, quantization, and hardware acceleration, to facilitate low-power inference and faster computation. The proposed approach illustrates how Vedic mathematics can influence algorithm design and hardware implementation for energy-efficient deep learning models in precision agriculture. Through this interdisciplinary approach, the study outlines a pathway toward sustainable AI ecosystems that reduce carbon footprints while ensuring the robustness needed for real-world agricultural applications.

Key words: Computational Sustainability; Green AI; Neural Efficiency; Precision Agriculture; Smart Farming.

Human Value Formation in Gurukul and Modern Education Systems: A Comparative Study from the Perspective of NEP 2020

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Human value creation is still a major goal of the National Education Policy (NEP) 2020 and is essential to students' overall development. This research compares the Gurukul and modern educational systems' approaches to human value creation, looking at their pedagogical methodologies, philosophical underpinnings, and applicability to current educational reforms. The Indian Knowledge System (IKS) served as the foundation for the Gurukul system, which placed a strong emphasis on moral discipline, spiritual development, reverence for the natural world, and teacher-student relationships as means of instilling values. On the other hand, the current educational system, which is based on Western models, emphasizes global citizenship, scientific temper, and cognitive abilities. but frequently lacks a strong cultural and moral foundation. The study finds similarities and differences between the two systems by qualitatively comparing textual sources, policy papers, and educator interviews. According to research, incorporating Gurukul values—like self-control, empathy, environmental awareness, and holistic living—into contemporary curriculum is consistent with NEP 2020's goal of education that is based on morality, culture, and life skills. The study concludes that a synergistic approach that combines contemporary pedagogical techniques with traditional value-based learning may produce well-rounded people who can lead in the twenty-first century with responsibility, knowledge, and compassion.

Keywords: Character Formation; Holistic Development; Indian knowledge System (IKS); Moral Education; Value-based Education.

Echoes of Dharma: Integrating Vedic Principles for Compensatory Justice to Acquitted Undertrials in Modern India

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In an era where ancient wisdom intersects with pressing legal reforms, this paper explores the untapped potential of Vedic insights and doctrines to address the plight of acquitted undertrials enduring wrongful imprisonment in contemporary India. Rooted in the Rigveda's portrayal of Yama and Varuna as guardians of cosmic equilibrium, Vedic thought underscores dharma as an inviolable framework for justice, emphasizing the sanctity of individual liberty and the presumption of innocence. These foundational ideals, echoed in texts like the Atharvaveda, advocate for societal harmony through equitable redress, viewing unjust suffering as a disruption of rita—the universal order—that demands restoration.

Dharma Shastras extend this ethos by prescribing compensatory mechanisms for miscarriages of justice. Early Vedic and post-Vedic eras treated offenses such as false accusations as civil torts, mandating restitution to the aggrieved, including fines or expiations proportional to the harm inflicted. For instance, perjury or malicious prosecution invited severe penalties, including wealth forfeiture and banishment, while protections against arbitrary arrest—exempting the vulnerable like the elderly, infirm, or scholars—highlighted a humanistic penology aimed at reformation over retribution. Kautilya's Arthashastra further refines this by regulating official misconduct, imposing graduated fines on errant enforcers to safeguard the innocent, thereby embedding restorative equity in statecraft.

Yet, India's modern criminal justice system, burdened by over 70% undertrial populations and protracted trials, often leaves the exonerated destitute, bereft of statutory remedies despite Supreme Court invocations of Article 21 for sporadic compensation. Drawing from the precedents from the Vedic texts, this study proposes a legislative blueprint: a dedicated compensation fund, calibrated by incarceration duration and socioeconomic loss, infused with dharma's emphasis on individualized equity. By harmonizing these ancient horizons with constitutional imperatives, such an approach not only rectifies systemic lapses but fosters a transformative jurisprudence—rehabilitating the wronged, deterring prosecutorial overreach, and realigning justice with ethical profundity. Ultimately, this fusion promises a resilient legal paradigm, where Vedic sagacity illuminates' pathways to inclusive redress, affirming that true dharma liberates through amends, not mere acquittal.

Keywords: Dharma; Jurisprudence; Reformation; Retribution; Rita.

An Analytical Study on the Burden of Direct and Indirect Taxes on Salaried Employees

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The article named Analytical Study on the Burden of Direct and Indirect Taxes on Salaried Employees concentrates on the knowledge of the total tax burden on a population group, which represents a significant part of the formal tax-paying population of India. Over the years, the taxation system in India has gone through major changes that are geared towards the concept of transparency, issuance of simplification, and digital adherence. Nevertheless, in spite of these developments, the salaried group still feels the significant financial burden in direct and indirect taxation. Direct taxes which consist mainly of the income tax are progressive in nature whereas the indirect taxes which include the Goods and Services Tax (GST), the excise duty, the customs and other charges imposed on consumption are mainly regressive. This bilateral format tends to cause an unbalanced sharing of the total tax burden especially to the middle-income earners who lack the flexibility that is enjoyed by the business professionals or self-employed individuals in dealing with deductions and exemptions. The current analytical research utilizes primary and secondary information to assess the proportion and the impact of direct and indirect taxes on the disposable income, savings possibilities, and consumption habits of salaried workers. This is due to a stratified sample of those who have salaried jobs across different income levels and sectors of the occupation that is deemed to reflect the heterogeneity of the tax experience. The correlation and regression analysis, as well as percentage analysis are some of the statistical tools that are utilized in establishing the relationship between income level, tax contributions, and expenditure patterns. The findings show that despite rationalization of income tax rates to foster fairness, the waterfall impact of indirect taxes still undermines the real income and purchasing power, particularly among the low and middle-income groups.

The research also discusses the psychological and behavioral effects of taxes being imposed such as sense of fairness, compliance incentive and financial strain. The results indicate that the absence of perceivable advantages of paying taxes, increased cost of living conditions, enhances the dissatisfaction of the salaried taxpayers. It concludes that the aim of the government to diversify the tax base and to mobilize more revenue is legitimate, but it needs a swing-way, which is balanced to provide equity and economic well-being. Policy reforms suggested by the study include increasing the standard deductions, rationality of the GST rates of essential goods and services and greater financial literacy efforts to enhance tax compliance and satisfaction. Overall, the study can offer meaningful information to policymakers, economists and tax administrators to come up with a more equitable, transparent, and efficient tax structure that matches fiscal accountability with taxpayer well-being.

Keywords: Direct Tax, Indirect Tax, Salaried Employees, Tax Burden.

Design, Development, and Mechanical Characterization of 3D-Printed PETG-Based Forearm Wound Protector for Biomedical Applications

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The increasing need for patient-specific biomedical devices has underscored the limitations of conventional manufacturing techniques in achieving optimal mechanical performance and design flexibility. In this study, a forearm wound protector was designed, fabricated, and mechanically characterized using Polyethylene Terephthalate Glycol (PETG), a material known for its strength, chemical stability, and biocompatibility. The prototype was modelled using computer-aided design (CAD) software and fabricated through Fused Deposition Modelling (FDM) 3D printing. Process parameters such as layer height, infill density, and print orientation were optimized to enhance the mechanical performance of the printed parts. Standard tensile, impact, and abrasive wear tests were conducted to evaluate the structural integrity and reliability of the PETG-based components. The results revealed that optimized FDM-printed samples exhibited improved tensile strength, impact resistance, and wear durability, demonstrating stable interlayer bonding and a uniform surface finish. The mechanical performance and dimensional accuracy confirm the suitability of PETG for producing load-bearing biomedical devices. This work establishes a framework for the design and development of mechanically robust, cost-effective, and customizable protective biomedical components through additive manufacturing.

Keywords: 3D Printing, PETG, Process Optimization, Mechanical Characterization, Fused Deposition Modelling

Geopolitical Uncertainty and Consumer Confidence: Behavioral Shifts in Indian Markets and the Relevance of Vedic Insights

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Geopolitical uncertainty has emerged as a critical determinant of consumer sentiment and market dynamics in an increasingly interconnected global economy. This study examines the relationship between major international geopolitical crises and shifts in consumer confidence within the Indian market. By analysing events such as global conflicts, trade tensions, and diplomatic realignments, the research investigates how uncertainty influences consumer spending patterns, saving behaviour, and brand preferences. The study adopts a mixed-method approach, combining time-series analysis of consumer confidence indices with sentiment analysis of media narratives and consumer surveys. In addition to modern economic and behavioural frameworks, the research explores the relevance of Vedic insights—particularly principles from texts such as the Arthashastra and Bhagavad Gita—that emphasize resilience, self-reliance (Swavalamban), and balanced decision-making during periods of instability. Integrating these philosophical perspectives provides a culturally grounded understanding of how Indian consumers interpret and respond to uncertainty. Preliminary findings suggest that heightened geopolitical risk leads to increased precautionary savings and a shift towards domestic products, while Vedic principles continue to influence consumer attitudes toward stability and ethical consumption. This interdisciplinary framework contributes to both academic literature and policy discourse by bridging behavioural economics with indigenous knowledge systems. It also offers businesses actionable insights for strategic planning during geopolitical disruptions. The study underscores the need to contextualize consumer behaviour in India through both global and traditional lenses, providing a more nuanced understanding of market responses in uncertain times.

Keywords: Geopolitical uncertainty, Consumer confidence, Behavioral shifts, Vedic insights, Resilience.

Impact of Digitalization on Consumer Behaviour: A Study of Online Shopping Trends

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Purpose: The purpose of this research paper is to investigate and understand the changing consumer behaviour in the digital era, particularly concerning online shopping trends. This Study explores the impact of digitalization on consumer behaviour, the widespread adoption of online shopping platforms. It is crucial to gain insights into how consumers interact with digital marketplaces. Our findings indicate the digitalization has led to increased accessibility, personalized experiences and altered purchasing decision. The analysis of survey data indicates that convenience, product variety, price competitiveness, Brand relationship. Our analysis reveals that digitalization has led to increased social media influence and highlight the significance of digital literacy. By doing so, they can build strong relationships with consumers and drive business success in such a technological age. This research paper adopts a comprehensive theoretical framework, drawing from various disciplines such as consumer psychology, Marketing and information technology. Researchers observed that the consumers prefer online outlets because of price discount, followed by variety of products and convenience to them.

On the contrary, this study explores that digitalization has several negative impacts on consumer behavior, including information overload, lessened human interaction, lead to higher online scams and fraud, and increased dependence on technology. This study highlights the need for businesses to prioritize consumer protection, digital literacy, and responsible innovation.

Keywords: Brand Relationship, Consumer Psychology, Digital Literacy, Scams and frauds, Social Media Influence

Exploring the Role of Social Support in Mitigating Academic Stress among Adolescents

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Academic stress is a major concern among higher secondary students due to increasing academic demands and pressure to perform. Social support is recognized as an important protective factor that helps students manage academic stress more effectively. This study examined the relationship between social support and academic stress among 600 rural and urban higher secondary students selected through stratified random sampling. Data was collected using the Social Support Scale and the Scale for Assessing Academic Stress. Descriptive and inferential statistics were used to analyze the data. Results indicated a significant negative correlation between social support and academic stress, suggesting that students who perceive higher social support experience lower academic stress levels. The findings highlight the buffering role of social support from family, peers, and teachers in reducing academic stress among adolescents.

Keywords: Social support, Academic stress, Higher secondary students, Stratified random sampling.

Inclusion through Indian Knowledge Systems: Reimagining Pedagogy for PWDs in Higher Education

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Inclusion of PWDs in higher education remains a significant challenge in India, despite progressive legislation and policy frameworks. The RPD Act, 2016, and the NEP 2020 provide legal and policy support for inclusive and equitable education. However, the actual implementation, especially in pedagogical practices, remains inconsistent. This paper examines how reimagining pedagogy through Indian Knowledge Systems (IKS)—which encompass indigenous epistemologies, traditional pedagogies, community-based learning, multilingualism, and holistic education—can promote inclusion for PWDs in higher education. It examines the impact of the RPD Act 2016 and NEP 2020 on inclusion, identifies gaps and barriers in policy implementation, and argues that integrating IKS into curriculum design, teaching methods, assessment, teacher training, and institutional culture can make inclusion more meaningful. The paper concludes with recommendations for policymakers, higher education institutions, and teacher educators to operationalize IKS-informed inclusion and proposes areas for further research.

Keywords: Disability Inclusion, Persons with Disabilities, Higher Education, Equity, Accessibility, Indian Knowledge Systems.

The Utility of Augmentative and Alternative Communication (AAC) Techniques in the Improvement of Speech Disorders

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Speech disorders significantly affect the communication abilities, social participation, and emotional well-being of individuals. Augmentative and Alternative Communication (AAC) systems have emerged as effective tools to support and enhance communication for people with speech impairments. The purpose of this study is to examine the utility, effectiveness, and practicality of AAC techniques in improving communication among children and adults with speech disorders. Various AAC methods—such as picture symbols, communication boards, electronic devices, and mobile applications—were analyzed for their impact on expressive and receptive language development. The findings reveal that consistent use of AAC not only improves communication skills but also enhances confidence and social interaction. The study concludes that AAC techniques play a vital complementary role alongside conventional therapy in the rehabilitation and treatment of speech disorders.

Keywords: Speech Disorders, Communication Skills, Augmentative and Alternative Communication (AAC).

Indian Knowledge System and Modern Entrepreneurship, How Dhrama, Karma and Swadeshi Can Shape Sustainable & Ethical Startups

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This research paper explores the relationship between Indian Knowledge Systems (IKS) and modern entrepreneurship using secondary data analysis from academic literature, government reports, and case studies. The study investigates how the ancient Indian principles of Dharma (righteous duty), Karma (ethical action and consequence), and Swadeshi (self-reliance and localism) can influence the development of sustainable and ethical startups in contemporary India. By reviewing existing research, business reports, and documented success stories, the paper identifies how these traditional values are being integrated into entrepreneurial models, governance practices, and corporate social responsibility frameworks. Using secondary sources such as company reports of Patanjali Ayurved and Khadi India (KVIC), the paper highlights the application of IKS in promoting local empowerment, ethical production, and eco-friendly innovation. The findings reveal that incorporating IKS principles through secondary evidence enhances ethical accountability, strengthens local economies, and builds consumer trust through authenticity. The paper concludes that insights derived from secondary data underscore the potential of combining India's cultural heritage with modern entrepreneurial strategies to create enterprises that are not only profitable but also socially responsible and environmentally sustainable. Implementation to achieve sustainable growth and innovation.

Keywords: Indian Knowledge Systems (IKS), Dharma, Karma, Swadeshi, Sustainable Entrepreneurship, Ethical Startups, Patanjali, Khadi India, Cultural Heritage, Business Ethics.

An Ayurvedic Cognitive Learning Framework for Predicting Tridosha Imbalances Using a Novel Blending Architecture

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The foundation of Ayurveda rests on the interplay of the five elemental forces—earth (Prithvi), water (Jala), fire (Agni), air (Vayu), and space (Akasha)—which collectively shape the human constitution. These elements manifest as three vital bio-energies or Tridoshas: Vata, Pitta, and Kapha. The dynamic equilibrium among these Doshas governs physical, mental, and emotional well-being. Any imbalance among them manifests as disease, while their harmony sustains health. Nadi Pariksha, an ancient diagnostic science, serves as a non-invasive means to discern the state of Tridoshic balance through the pulse rhythm, reflecting subtle variations in elemental composition.

Despite its deep philosophical and empirical roots, Ayurvedic diagnostics often lack quantitative validation and standardization in modern scientific frameworks. To bridge this gap, this study introduces an AI- and IoT-integrated diagnostic framework inspired by the Tridosha model. The framework employs a heterogeneous dataset combining Nadi Pariksha pulse signals and a personality inventory based on Ayurvedic traits, encompassing 28 human attributes resonant with Dosha characteristics. The dataset is processed through a hybrid Machine Learning model that integrates Extreme Learning Machines (ELM) with Random Forest algorithms to predict disease predispositions arising from Tridosha imbalances.

An IoT-enabled diagnostic testbed, built on the Raspberry Pi 4 B++ platform, captures and transmits physiological data to the cloud for real-time Dosha analysis using TensorFlow Lite for efficient computation. Experimental evaluations validate the system's robustness, achieving a prediction accuracy of 0.99 and superior performance metrics—precision (0.98), recall (0.986), specificity (0.99), and F1-score (0.989)—surpassing conventional methodologies. This fusion of Ayurvedic wisdom with intelligent computational systems marks a transformative leap toward personalized, Tridosha-centered healthcare, reaffirming Ayurveda's relevance in the era of digital medicine.

Keywords: Tridosha, Nadi Pariksha, Internet of Things (IoT), Artificial Intelligence (AI).

Analyzing the Relevance of Ancient Indian Texts: A Study of the Bhagavad Gita and Arthashastra in Modern Leadership Practices

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In the rapidly changing global business environment, modern management practices often overlook the profound wisdom embedded in ancient Indian knowledge systems. This paper explores the relevance and applicability of Vedic Management Principles and leadership lessons from classical Indian texts such as the Bhagavad Gita and Arthashastra in contemporary organizational settings. By examining the philosophical foundations of dharma (duty), karma (action), and artha (purpose), the study highlights how these timeless concepts can foster ethical decision-making, sustainable leadership, and holistic growth in organizations. The paper argues that integrating Vedic insights into management frameworks can lead to a balanced approach that emphasizes both material success and moral responsibility. Through comparative analysis and modern case applications, this research demonstrates how ancient Indian wisdom can serve as a guiding force for leaders navigating today's complex corporate challenges.

Keywords: Vedic management, leadership, Bhagavad Gita, Arthashastra, ethics, sustainability, organizational growth.

Impact of Generative AI (like ChatGPT) on Learning Outcomes Studying How AI Writing Tools Affect Creativity, Plagiarism, and Critical Thinking in Students

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Generative Artificial Intelligence (GenAI) tools like ChatGPT are changing the way students learn, write, and think. This study looks at how these AI writing tools affect students' creativity, plagiarism, and critical thinking skills. The research collates ideas from different studies involving school and college students, as well as teachers. It shows that with the help of AI tools, learning becomes faster. It helps students in making notes and giving useful feedback that improves their writing and creative thinking. At the same time, AI has the potential to support innovative thinking significantly, but there is also a negative impact on creativity and creative confidence. Studies from India show that many students use ChatGPT to prepare for exams and complete assignments, and most find it helpful and reliable. However, some students, especially the youth, are worried that AI reduces their ability to think and understand the concept. Most of the Teachers agree that AI can improve writing quality but warn that it must be used carefully so that students don't get addicted to AI. Overall, the study suggests that AI can be a powerful learning tool if used responsibly. Schools and Colleges must teach students how to use AI wisely so that it supports creativity and critical thinking instead of replacing them without any dangerous outcome.

Keywords: Generative Artificial Intelligence (GenAI), ChatGPT, Student's Learning, Creativity, Plagiarism, Critical thinking, AI writing tools, Innovative thinking.

The Role of Yoga in Cooperate Wellness

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Considering the impact of rising stress, long working hours, and sedentary lifestyles on employees' wellbeing, companies have today recognized the importance of corporate wellness. Increased absenteeism, performance issues, low motivation are some chronic issues creating problems in effective and efficient working of corporate cultures. Generally, this is because stress is taking toll on physical and mental wellbeing of employees. One effective and suitable approach to address these issues is the integration of Yoga and corporate wellness programs. Research studies have shown to have Yoga to be excellent instrument and practice to improve physical health, reduce stress and fosters, a sense of community among employers. Yoga is a 'HINDU PHILOSHPY' which means to unite the individual with the sprite of universe. In YOGA: "Y" stands for yielding, 'O' stands for optimizing, 'G' stands for growth and 'A' for awareness. Benefits of yoga on physical and mental health are immense like improving flexibility and posture. Example- people who sit for long hours in a chair face issues like stiffness, work posture, back pain leading to muscular skeletal problems. Simple stretchers and asanas help in improving body flexibility, promoting better postures and reducing discomfort. In corporation and inclusion of yoga in organizations has paved a way to overall wellbeing of employees. It is a powerful tool to improve employees' health through addressing and taking care of physical, mental, emotional aspects of wellness.

Keywords: Corporate Stress, Yoga, Employee Health, Absenteeism, Asanas, Meditation.

Domestic Violence, Women's Health, and the Sustainable Development Goals with Special Reference to Covid-19

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The outbreak of the COVID-19 pandemic presented an unprecedented global health emergency that profoundly affected every aspect of human life. While it brought immense challenges to public health systems and economies, it also exposed deep rooted gender inequalities within societies. One of the most alarming social consequences of the pandemic was the significant rise in domestic violence cases across the world, including in India. Lockdown restrictions, economic instability, and social isolation created conditions that increased women's vulnerability to physical, emotional, and sexual abuse within their homes. This study seeks to explore the interrelationship between domestic violence, women's health, and the Sustainable Development Goals (SDGs), with special reference to the COVID-19 pandemic period. Many women were unable to seek medical care or report abuse. This study investigates how the health implications of domestic violence intersect with global development priorities, particularly SDG 3 (Good Health and Well-being) and SDG 5 (Gender Equality). It also examines how the pandemic has reversed progress toward achieving these goals by intensifying gender-based violence and disrupting essential services for women. Addressing it requires coordinated efforts involving legal reform, healthcare integration, education, and community awareness. The study concludes that sustainable development cannot be achieved without ensuring women's safety, dignity, and access to health services. Post-pandemic recovery strategies must focus on rebuilding institutions that prioritize women's empowerment, provide accessible healthcare, and promote equality in both public and private spheres. Only through such a comprehensive and rights-based approach can societies move closer to realizing the vision of the 2030 Sustainable Development Agenda, where no woman is left behind.

Keywords: COVID-19 Pandemic, Sustainable development goals, Domestic violence, Women's health, Gender equality.

Ancient Indian Legal Traditions and their Contemporary Significance

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The legal traditions of ancient India, particularly those articulated in Kautilya's Artha Shastra, offer profound insights into governance, ethics, and law. Kautilya emphasized the significance of Dharma (righteousness) in leadership, advocating for a balance between political authority and moral responsibility. His teachings underscore the necessity of ethical governance, which remains critically relevant in contemporary discussions surrounding political integrity and economic management. By revisiting Kautilya's insights, this paper aims to contribute to the discourse on ethical governance in India, suggesting that ancient Indian legal traditions can offer valuable frameworks for addressing contemporary challenges in law and governance.

This paper aims to explore the relevance of Kautilya's principles in modern legal frameworks and governance practices, particularly in the context of political and economic governance in India. By examining the ethical dimensions of leadership as proposed by Kautilya, the study seeks to highlight how these ancient insights can inform current governance challenges. The research employs a qualitative approach, analyzing primary texts from the Artha Shastra alongside contemporary governance issues. It utilizes comparative analysis to draw parallels between ancient insights and modern legal practices, focusing on how Kautilya's ideas can be applied to enhance ethical leadership and governance structures today.

Primary sources include Kautilya's Artha Shastra, which provides foundational concepts of governance, statecraft, and ethics. Secondary sources encompass scholarly articles, legal commentaries, and contemporary governance reports that discuss the implications of these ancient teachings in today's political landscape.

Keywords: Kautilya, Artha Shastra, Dharma, Governance, Ethical Leadership.

Impact of Automation on Workforce

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Automation, powered by rapid advancements in Artificial Intelligence (AI), Machine Learning (ML), and Robotics, is transforming the structure of modern industries and reshaping the global workforce. Machines and computer systems are now capable of performing complex tasks with high accuracy and speed, reducing human involvement in repetitive and manual work. While automation brings major benefits such as improved productivity, safety, and efficiency, it also raises serious concerns about the future of employment. Many routine jobs in sectors like manufacturing, transportation, and customer service are at risk of being replaced by robots and intelligent software systems. However, automation does not necessarily eliminate human work; instead, it redefines it. New opportunities are emerging in fields related to programming, robotics maintenance, data analysis, and AI system design. The focus of human labor is gradually shifting toward creative, strategic, and emotionally intelligent roles that machines cannot easily replicate. In this evolving environment, adaptability and continuous learning have become essential skills. Workers need to upgrade their technical knowledge and develop soft skills such as problem-solving, communication, and leadership to stay relevant. The collaboration between humans and machines can lead to a more efficient and balanced future, where technology handles repetitive tasks, and humans focus on innovation and decision-making. Thus, automation should be viewed not as a threat, but as a tool that, when used responsibly, can improve the quality of work and create new pathways for human growth and progress. Moreover, governments and educational institutions must play a proactive role in preparing the workforce for this transformation. Investment in reskilling programs, digital literacy, and ethical AI development will ensure that automation leads to inclusive and sustainable growth for society as a whole.

Keywords: Artificial Intelligence; Employment; Machine Learning; Productivity; Workforce.

Impact of Digitalization on Consumer Behavior: A Study of Online Shopping Trends

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Purpose: The purpose of this research paper is to investigate and understand the changing consumer behaviour in the digital era, particularly concerning online shopping trends. This Study explores the impact of digitalization on consumer behaviour, the widespread adoption of online shopping platforms. It is crucial to gain insights into how consumers interact with digital marketplaces. Our findings indicate the digitalization has led to increased accessibility, personalized experiences and altered purchasing decision. The analysis of survey data indicates that convenience, product variety, price competitiveness, Brand relationship. Our analysis reveals that digitalization has led to increased social media influence and highlight the significance of digital literacy. By doing so, they can build strong relationships with consumers and drive business success in such a technological age. This research paper adopts a comprehensive theoretical framework, drawing from various disciplines such as consumer psychology, Marketing and information technology. Researchers observed that the consumers prefer online outlets because of price discount, followed by variety of products and convenience to them.

On the contrary, this study explores that digitalization has several negative impacts on consumer behaviors, including information overload, lessened human interaction, leading to higher online scams and fraud, and increased dependence on technology. This study highlights the need for businesses to prioritize consumer protection, digital literacy, and responsible innovation.

Keywords: Brand Relationship, Consumer Psychology, Digital Literacy, Scams and frauds, Social Media Influence.

The Role of Big Data Analytics in Personalized Medicine: Current Trends and Future Directions

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Personalised medicine in a healthcare context suggests the paradigm shift of the traditional Uniform solution model and the adoption of personalised treatment methods that consider genetic, environmental and lifestyle factors of a patient. Big Data Analytics is an important component of this transformation as it provides the power to integrate and interpret large and complex datasets based on genomics, electronic health records (EHRs), wearable devices, and clinical trials. The latest trends in the application of big data analytics into personalized medicine, including real-time monitoring of patients, genetic analysis of sequences, predictive modeling, and machine learning-based risk of illness assessment, are discussed in this paper.

The use of cloud-based analytics systems and artificial intelligence (AI) has enhanced the use of data in decision-making, which has led to better treatment outcomes and accurate diagnosis. Nonetheless, there are still issues, such as standardization of data governance models, interoperability issues between healthcare systems, and privacy of data. The prospects that can be expected in the future are the additional integration of multi-omics data, explainable AI in clinical transparency, and advances in federated learning to protect patient privacy, without compromising the use of international datasets. Ultimately, the integration of big data analytics and personalized medicine can totally change the manner in which healthcare is provided by promoting improved patient care outcomes, earlier detection of illness and optimum medicines.

Keywords: Big Data Analytics, Personalized Medicine, Predictive Modeling, Genomics, Artificial Intelligence, Healthcare Innovation.

Contemporary applications and expanding horizons of Indian knowledge derived from Vedic insights

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This paper explores the contemporary relevance and interdisciplinary applications of Indian knowledge systems derived from Vedic insights. Rooted in ancient scriptures, Vedic wisdom encompasses holistic perspectives on consciousness, cosmology, health, and ecology, which are increasingly validated and integrated within modern scientific and philosophical frameworks. The study investigates three major research questions: how Vedic concepts of mind and self can enhance cognitive science and psychotherapy; the potential contributions of Vedic cosmology to astrophysical models of space-time; and the role of Vedic environmental ethics in shaping sustainable development policies

Three interdisciplinary research questions inspired by Vedic insights can bridge ancient wisdom with modern scientific and philosophical inquiry in transformative ways.

1. Vedic Psychology and Cognitive Science: How can concepts from Vedic philosophy such as Atman (self), Manas (mind), and Chitta (consciousness) contribute to emerging models in cognitive neuroscience and psychotherapy for mental well-being? This research connects Vedic epistemology with modern psychology and neuroscience, offering a framework for studying consciousness beyond material paradigms.

2. Vedic Cosmology and Astrophysics: In what ways can Vedic cosmological descriptions, including cyclical time (Kalachakra) and the multi-layered universe, inform philosophical and mathematical models of space-time and cosmogenesis in astrophysics? Such inquiry links metaphysical cosmology from the Vedas with modern scientific theories such as relativity, quantum mechanics, and the multiverse hypothesis

3. Vedic Ecology and Environmental Ethics: How can Vedic principles of harmony with nature (Rta, Dharma, and Yajna) shape contemporary frameworks for ecological sustainability, ethics, and climate resilience? By integrating Vedic environmental values with environmental science, sociology, and public policy, this line of research fosters sustainable practices rooted in cultural and spiritual balance.

By bridging traditional epistemologies with emerging disciplines, this research highlights the transformative potential of Vedic knowledge in addressing global challenges related to mental health, scientific understanding of the universe, and ecological sustainability. The paper concludes with recommendations for fostering collaborative research that respects the integrity of Vedic wisdom while advancing innovative solutions for contemporary societal needs. This work aims to inform scholars, policymakers, and practitioners interested in the dynamic fusion of ancient insights and modern knowledge paradigms.

Keywords: Vedic Ecology, Environmental Ethics, Vedic Cosmology and Astrophysics.

An Ideal-Solution-Based Fuzzy Soft Set Decision-Making Model Incorporating Parameter for Real-World Problems

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Decision-making under uncertainty is a pervasive challenge in real-world domains, including economics, medicine, and engineering. Traditional crisp approaches often fail to capture ambiguity and subjectivity in human reasoning. This paper presents an ideal-solution-based fuzzy soft set decision-making model that integrates parameter importance, alternatives, and criteria to enhance rational decision outcomes. The proposed framework generalizes the concept of fuzzy soft sets with an ideal-solution methodology inspired by the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), enabling robust ranking of alternatives. A case study is presented to demonstrate the applicability of the model in real-world multi-criteria decision-making (MCDM) problems.

Keywords: Fuzzy soft set, Multi-criteria decision-making (MCDM), Parameter importance, Weighted fuzzy soft decision model, TOPSIS.

The role of Rare Earth Elements and Challenges towards Green Technologies

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An essential component of the global shift to low-carbon technology and sustainable energy is the Rare Earth Elements (REEs), a group of 17 metallic elements that include yttrium, scandium, and lanthanides. REEs or REOs, seed of the modern technology. Because of their special magnetic, optical, and electrochemical qualities, they are essential in many green applications, such as advanced battery systems, electric car motors, high-efficiency wind turbines, and energy-efficient lighting. These elements improve clean technologies' functionality, robustness, and miniaturization, increasing the viability and accessibility of renewable energy. Nitrogen oxide has several negative consequences on both the environment and human health. Nitrogen oxides are the cause of photochemical smog and acid rain. Consequently, de-NOx technology is attracting the attention of researchers. With ammonia serving as a reductant (NH3-SCR), nitrogen oxides (NOx) can be efficiently eliminated from the atmosphere using selective catalytic reduction (SCR). To lower NOx emissions, many researchers have prepared the catalyst using microwave, hydrothermal, precipitation, and sol-gel techniques. Rare earth (RE)-doped phosphors are an important class of luminescent materials capable of producing white light. The development of the upcoming generation of lighting sources depends on these phosphors. Much effort has been put into developing phosphors with small designs, long life spans, high luminescence efficiency, and minimal environmental impact. Through the development of green industries, they promote economic growth, enhance energy security by facilitating domestic renewable energy production, and lower greenhouse gas emissions. Their revolutionary potential is further shown by their involvement in cutting-edge technologies including carbon capture systems, hydrogen fuel cells, and next-generation electronics. However, the growing reliance on REEs also presents challenges. Environmental concerns related to mining and refining, geopolitical supply risks due to concentrated production and limited recycling infrastructure pose significant hurdles. This paper highlights the pivotal role of REEs in accelerating the green transition, with a focus on their technological and environmental benefits.

Keywords: Rare earth elements, NH3-SCR, sustainable energy, Environment, renewable energy

Decision- Making Analysis Using Pythagorean Fuzzy Soft Matrices and Grey Relational Approach in Medical Diagnosis

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In this research paper we have worked on Pythagorean fuzzy soft matrices. Pythagorean fuzzy soft set is the combination of Pythagorean fuzzy set (PFS) and soft set. PFS is abstraction of the intuitionistic fuzzy set (IFS). Pythagorean fuzzy soft matrices (PFSM) is also the matrix reproduction of Pythagorean fuzzy soft set (PFSS). To study for some binary operations over matrices, defining the valid proof for sundry properties and sundry theorem. A part form this, we have applied decision making algorithm through grey rational analysis using PFSM related to medical diagnosis problem with solving numerically problem and have also done comparative analysis with other existing methods.

Keywords: Pythagorean Fuzzy Soft Set, Pythagorean Fuzzy Soft Matrix, Binary Operations, Grey Relational Analysis (GRA), Decision- Making Algorithm.

A Critical Review of Fuzzy Sets, Hesitant Fuzzy Sets, Bipolar Fuzzy Sets, and Soft Set Extensions in Decision-Making under Uncertainty

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Decision-making under uncertainty is a fundamental problem in various disciplines such as engineering, economics, social sciences, and medical diagnosis. Classical mathematical tools fail to capture the vagueness and ambiguity inherent in human reasoning. To overcome these limitations, several extensions of fuzzy and soft set theories have been developed, including hesitant fuzzy sets, bipolar fuzzy sets, and hybrid soft set models. This paper provides a critical review of these models, focusing on their theoretical foundations, advantages, limitations, and applications in multi-criteria decision-making (MCDM). The analysis highlights the progression from traditional fuzzy logic to advanced soft computing models capable of handling complex, uncertain, and conflicting decision environments.

Keywords: Hesitant fuzzy set, Bipolar fuzzy set, Decision-making under uncertainty, Multi-criteria decision-making (MCDM), Parameterized decision analysis.

The Transformative Role of Hydroponic Systems in Advancing Agricultural Water Sustainability

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Hydroponics technology represents a transformative approach to sustainable agriculture, directly addressing global water scarcity and resource inefficiency. Unlike traditional soil-based farming, this soilless method cultivates plants in nutrient-enriched water solutions, creating a closed-loop system that can reduce water consumption by up to 90%. This high efficiency results from the recirculation of water and dissolved nutrients, which also eliminates fertilizer runoff—a major source of agricultural pollution.

The core principles of hydroponics include precision irrigation and nutrient optimization, ensuring that every input is used effectively. Comparative analyses consistently demonstrate that these systems achieve higher crop yields per unit of water than conventional methods, thereby reducing the environmental footprint of food production. This makes hydroponics particularly suitable for arid regions and urban vertical farms, where land and water resources are limited.

The sustainability and scalability of hydroponics are further enhanced by integration with renewable energy sources and digital monitoring systems. These smart technologies enable real-time management of water and nutrient levels, optimizing resource use and improving operational resilience. By creating a controlled and efficient cultivation environment, hydroponics bridges the critical gap between technological innovation and ecological stewardship. Collectively, these findings establish hydroponics as a vital component of future agricultural resilience, effectively combining advanced technology with sustainable food production practices.

Keywords: hydroponics; resource efficiency; sustainable agriculture; water management; nutrient management.

A Comprehensive Review on Dissimilar Friction-Stir Welding of Lightweight Alloys in Relation to Indian traditional Welding Processes

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India's metallurgical heritage reflects remarkable ingenuity in traditional solid-state metal joining methods, such as forge welding, brass–copper diffusion bonding, and the Dhokra casting process. These indigenous techniques, evident in historical artifacts like the Iron Pillar of Delhi, relied on controlled heat, pressure and craftsmanship to achieve defect-free and durable joints without melting the parent metals. In a similar spirit, Friction Stir Welding (FSW) represents a modern solid-state joining technique that embodies the same fundamental principles of plastic deformation, diffusion and metallurgical bonding. This review explores recent advancements in FSW of dissimilar materials like particularly aluminum, magnesium, copper and steel alloys; highlighting how process parameters such as tool rotational speed, traverse rate and tool angle influence microstructural evolution and joint performance. The formation and control of intermetallic compounds (IMCs) at the interface are analyzed, drawing parallels with ancient practices of balancing metal compatibility and bonding strength. Developments in tool materials and pin profiles are likened to the innovation of traditional forging tools that enhanced metal flow and intermixing while minimizing defects. The integration of traditional wisdom with contemporary approaches such as hybrid FSW, thermal management and AI-based optimization can open new avenues for sustainable and high-performance joining technologies. Thus, this work bridges the historical essence of Indian metallurgical craftsmanship with the technological evolution of modern solid-state welding

Keywords: Traditional Welding Process, Friction stir welding, Tensile strength, Microhardness, Microstructure.

KaalChakra and Time Management: A Philosophical Review through the Lens of the Indian Knowledge System.

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The concept of KaalChakra, or the Cycle of Time, occupies a central position in Indian philosophy, representing the continuous rotation of existence through creation, preservation, and dissolution. Unlike the linear perception of time commonly found in Western thought, KaalChakra embodies a cyclical and rhythmic understanding that governs not only cosmic order but also ethical behavior, human conduct, and societal balance. Time is viewed as a living force intricately connected to consciousness, morality, and the natural world, emphasizing harmony between the temporal and the transcendental.

This paper aims to explore how ancient Indian conceptions of time can inform and transform modern approaches to time management. It proposes that reinterpreting KaalChakra through philosophical reflection can offer a more holistic and sustainable perspective on efficiency, discipline, and well-being. Employing an analytical and interpretive framework, the study draws upon classical sources such as the Vedas, Upanishads, Puranas, and Buddhist and Jain texts, along with contemporary discussions in management theory and psychology.

The findings reveal that the Indian cyclical view of time encourages mindfulness, balance, and self-regulation. It underscores the importance of inner discipline (sanyam), awareness (smriti), and purposefulness (dharma) as essential dimensions of effective time use. This contrasts with the mechanical, productivity-centered strategies prevalent in modern life. The study suggests that by embracing the wisdom of KaalChakra, individuals can cultivate resilience, reduce stress, and achieve greater integration between personal growth and professional productivity. Integrating ancient time philosophy into contemporary practice thus redefines time management as a path toward ethical living, inner equilibrium, and sustained harmony.

Keywords: KaalChakra; Time Management; Indian Knowledge System; Self- Regulation; Discipline.

Cultural Alienation through Education: A Step Forward to Upgradation of Majhgawan Tribal Society

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To explore the dual impact of modern education on the cultural identity and social advancement of the Majhgawan tribal community. While formal education has played a vital role in enhancing literacy, social awareness, and economic opportunities, it has simultaneously contributed to cultural alienation, distancing the younger generation from their traditional values, language, and indigenous knowledge systems.The Western-oriented curriculum often overlooks tribal history, folklore, and heritage, leading to a gradual erosion of cultural roots. However, education also presents a pathway for upgradation, empowering the community with new skills and opportunities for socio-economic development. This paper emphasizes the need for a balanced educational framework-one that integrates modern learning with indigenous cultural elements-to ensure that progress does not come at the cost of cultural identity. The study calls for culturally inclusive education policies that preserve tribal heritage while promoting holistic development within the Majhgawan tribal society.

Keywords: literacy, social awareness, economic opportunities, traditional values, language.

Integrating Indian Knowledge System Practices to Promote Work Engagement for Sustainable Development: A Review

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Indian Knowledge Systems (IKS) are based on indigenous ideas like karma yoga, seva, and dharma and include holistic approaches to education, employment, and communal living. In recent years, academics and politicians have highlighted the potential of Indigenous Knowledge Systems (IKS) to tackle modern workplace issues, particularly diminishing work engagement and burnout. This review examines incorporating Indigenous Knowledge Systems (IKS) principles into contemporary organizational and educational structures to boost intrinsic motivation, resilience, and dedication in both employees and educators. The study examines how IKS, positive psychology, and the Sustainable Development Goals (SDGs)—specifically, SDG 3 (Good Health and Well-Being), SDG 4 (Quality Education), and SDG 8 (Decent Work and Economic Growth)—intersect using secondary data and recent research (2019–2025). The review identifies key IKS-based practices—such as mindfulness (dhyana), ethical work conduct (nishkama karma), community-centric service (seva bhava), and ecological sensitivity (prithvi dharma)—that foster meaningful engagement and organizational sustainability. This also showcases examples from higher education and corporate settings, where traditional Indian practices like yoga-based wellness programs, value-driven education, and mentoring inspired by the gurukula system have improved employee engagement and decreased stress levels. According to the study's findings, incorporating IKS concepts into institutional and workplace culture can support holistic development by balancing individual well-being with sustainability. The paper proposes a conceptual framework that connects Indigenous Knowledge Systems values, work engagement factors, and sustainable development results, offering guidance for future research and policy development.

Keywords: Indian Knowledge Systems, work engagement, sustainable progress, selfless service (Nishkama seva), well-being, positive workplace environment.

Synergistic Relationship between Blended Learning and the Indian Knowledge System

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The integration of Blended Learning (BL) and the Indian Knowledge System (IKS) creates a transformative pedagogical framework that unites technological innovation with India's timeless educational philosophies. The concept of synergy here lies in blending the digital flexibility of BL—where traditional classroom interaction is merged with online learning—with the holistic, value-based ethos of IKS. This combination promotes not only academic excellence but also spiritual, ethical, and emotional intelligence among learners. Blended Learning supports personalization, accessibility, and collaboration, while IKS emphasizes introspection (स्वाध्याय), experiential learning and interconnectedness between knowledge and character. Together, they provide an educational paradigm that balances the cognitive and affective domains of learning. Synergy fosters sustainable development goals (SDGs) such as quality education (Goal 4) and lifelong learning through an inclusive and culturally resonant approach. Technological tools in blended learning—like MOOCs, LMS platforms, and digital storytelling—can be infused with indigenous wisdom texts such as the Upanishads, Yoga Sutras, and Bhagavad Gita to cultivate critical thinking, mindfulness, and ethical decision-making. Moreover, the reflective nature of IKS encourages students to engage not only with digital content but also with self-awareness and community learning. Empirical studies highlight that when educators integrate BL models with IKS-based pedagogy, students demonstrate improved retention, emotional regulation, and moral reasoning. This approach thus supports the National Education Policy 2020, which calls for a fusion of technology-enabled and tradition-rooted education. The synergistic model aligns with Gyan–Vigyan Samanyay (knowledge–science harmony), ensuring that learning remains contextual, ethical, and future-ready. In conclusion, the synergy between Blended Learning and the Indian Knowledge System is not merely a pedagogical innovation but a philosophical revival of education that nurtures both intellect and consciousness. This review highlights that sustainable and value-centric education for the 21st century can emerge only when modern pedagogies and ancient wisdom coalesce in harmony.

Keywords: Blended Learning, Indian Knowledge System, Holistic Education, NEP 2020, Gyan–Vigyan Samanyay, Sustainable Development Goals.

Influence of Indian Knowledge System on Students' Educational Aspirations and Sustainable Mindset: A Hybrid Systematic–Narrative Review

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In recent years, the Indian Knowledge System (IKS) has gained renewed academic and policy attention as a culturally grounded framework for reimagining education in India. Rooted in ancient philosophical traditions, indigenous practices, ecological wisdom, and holistic approaches to human development, IKS is increasingly being positioned to enhance students' educational experiences while fostering sustainable mindsets. The National Education Policy (NEP) 2020 strongly advocates for integrating IKS into curricula across school and higher education levels, aligning with both national development goals and Sustainable Development Goal 4.7, which emphasizes education for sustainable development and global citizenship. This paper presents a hybrid systematic–narrative review of literature published between 2015 and 2025 examining the influence of IKS on students' educational aspirations and sustainability orientations. Systematic searches were conducted across Scopus, Web of Science, ERIC, J-Gate, and Google Scholar, supplemented by manual searches of policy documents and grey literature. Thirty-four studies, including empirical research, policy analyses, and implementation reports, met inclusion criteria. Thematic synthesis revealed three key strands: (a) integration of IKS into curricula is positively associated with enhanced sustainability knowledge, attitudes, and behaviors; (b) while direct empirical links between IKS and educational aspirations are limited, cultural identity formation, value transmission, and vocational orientation emerge as plausible mediating pathways; and (c) implementation of IKS is expanding rapidly, but remains uneven across regions, with concerns regarding pluralism, scientific rigor, and ideological biases.

The review concludes that IKS holds significant potential to influence students' aspirations and sustainability mindsets, but robust longitudinal and causal evidence remains scarce. Implications are discussed for curriculum design, teacher education, policy frameworks, and future research agendas

Keywords: Indian Knowledge System; educational aspirations; sustainable mindset; NEP 2020; indigenous knowledge; curriculum reform; sustainability education; policy implementation.

An Analysis of Status of Women at Workplace: Vedic Period to Modern Period

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The ancient Sanskrit maxim of Rig Veda ""Grihini grham asya" (Rigveda 1.129.1) Meaning: The owner of the house or the soul of the house is the woman, epitomizes the reverence accorded to women in early Indian civilization. In Vedic culture, women were regarded as embodiments of Shakti (divine energy) and were granted a position of dignity, autonomy, and intellectual participation equal to that of men. However, over successive historical periods, the socio-political and cultural transformations within Indian society led to a gradual erosion of this egalitarian ethos, resulting in the systemic marginalization of women. The status of women in the Indian subcontinent has never been monolithic; rather, it has varied significantly across temporal, regional, and socio-economic contexts. Factors such as caste hierarchies, class structures, family systems, property rights, and moral codes have deeply influenced women's roles and their access to power and resources. This paper critically examines the evolution and subsequent deterioration of women's status in the workplace within this broader historical continuum. It explores the persistence of patriarchal norms and gendered institutional practices that perpetuate inequality, occupational segregation, and workplace harassment. Furthermore, it investigates how socio-cultural conditioning and organizational dynamics interact to reinforce systemic discrimination against women in professional environments.

The study concludes by proposing a set of institutional, legal, and cultural interventions aimed at fostering equitable and inclusive workplaces. By integrating gender-sensitive policies, enhancing accountability mechanisms, and promoting awareness-based reforms, organizations can contribute meaningfully to the realization of gender justice and the restoration of women's rightful status in contemporary society.

Keywords: Workplace Harassment, Gender Inequality, Social Justice, Women Empowerment, Inclusion, Vedic Period, Modern System, Rig Veda.

The role of Rare Earth Elements and Challenges towards the Green Technologies

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An essential component of the global shift to low-carbon technology and sustainable energy is the Rare Earth Elements (REEs), a group of 17 metallic elements that includes yttrium, scandium, and lanthanides. REEs or REOs, seed is the modern technology. Because of their special magnetic, optical, and electrochemical qualities, they are essential in many green applications, such as advanced battery systems, electric car motors, high-efficiency wind turbines, and energy-efficient lighting. These elements improve clean technologies' functionality, robustness, and miniaturization, increasing the viability and accessibility of renewable energy. Nitrogen oxide has a number of negative consequences on both the environment and human health. Nitrogen oxides are the cause of photochemical smog and acid rain. Consequently, de-NOx technology is attracting the attention of researchers. With ammonia serving as a reductant (NH3-SCR), nitrogen oxides (NOx) can be efficiently eliminated from the atmosphere using selective catalytic reduction (SCR). To lower NOx emissions, many researchers have prepared the catalyst using microwave, hydrothermal, precipitation, and sol-gel techniques. Rare earth (RE)-doped phosphors are an important class of luminescent materials capable of producing white light. The development of the upcoming generation of lighting sources depends on these phosphors. Much effort has been put into developing phosphors with small designs, long life spans, high luminescence efficiency, and minimal environmental impact. Through the development of green industries, they promote economic growth, enhance energy security by facilitating domestic renewable energy production, and lower greenhouse gas emissions. Their revolutionary potential is further shown by their involvement in cutting-edge technologies including carbon capture systems, hydrogen fuel cells, and next-generation electronics. However, the growing reliance on REEs also presents challenges. Environmental concerns related to mining and refining, geopolitical supply risks due to concentrated production and limited recycling infrastructure pose significant hurdles.

Keywords: Rare earth elements, NH3-SCR, sustainable energy, Environment, renewable energy.

Emotional Intelligence: Indian Perspectives for Leadership

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Emotional Intelligence (EI) is increasingly recognized as a vital skill for effective leadership, education, and interpersonal harmony. Though Western scholars such as Daniel Goleman and Mayer-Salovey have popularized the concept, Indian research has also contributed significantly by integrating psychology with spiritual traditions. Scholars in India have highlighted how self-regulation, empathy, and reflective practices align with age-old yogic and Vedic wisdom.

This paper explores EI not only as a managerial or academic construct but also as a way of living that blends cognitive understanding with emotional awareness. Practices like dhyana (meditation), pratyahara (impulse control), and svadhyaya (self-reflection) demonstrate that emotional regulation has always been part of Indian traditions. Today, in workplaces, schools, and families, these insights are deeply relevant as they help in reducing stress, improving decision-making, and nurturing empathy.

By bridging contemporary frameworks of EI with Indian perspectives, this paper argues for a culturally rooted yet globally applicable model. The aim is to create leaders and learners who are emotionally balanced, resilient, and compassionate qualities urgently needed in today's complex world.

Keywords: awareness; balance; emotions; leadership; resilience.

Law and Governance on Medical Negligence in India

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This paper explores the evolution of medical negligence laws in India. The law and governance on medical negligence in India entails a legal framework which is a combination of civil law, criminal law and Consumer Protection Law. It holds healthcare professionals and institutions accountable for failures to provide a reasonable standard of care, which results in harm to a patient. The legal and governance framework has been shaped by key statutes like the Consumer Protection Act and judicial precedents from the Supreme Court and professional ethics. It must be noted that the liability of the medical practitioner is three-fold: Liability under the Consumer Protection Act, 2019 for payment of damages; Civil liability for tort of negligence where the provisions of the Consumer Protection Act, 2019 do not apply; or Criminal liability under the Bharatiya Nyaya Sanhita (BNS) of 2023. Section 106(1) of the BNS specifically addresses registered medical practitioners limiting the punishment for causing death by medical negligence to a maximum of two years imprisonment and fine.

This paper ends with a mention of few Supreme Court rulings which have provided clarity on medical negligence and concluding remark that medical negligence law in India is primarily addressed under both criminal and civil laws, with the primary legal framework being the New Bharatiya Nyaya Sanhita (BNS), 2023 for offences like causing death by gross negligence and the Consumer Protection Act, 2019 which provides a less expansive and faster remedy for patients seeking compensation for medical negligence.

Keywords: Legal framework, standard of care, judicial precedents, professional ethics.

3D Printed Nasal Mask to Prevent Nasal Injury in Preterm Newborns Receiving Non-Invasive Ventilation

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Preterm neonates, especially those born before 37 weeks of gestation, frequently experience respiratory distress due to incomplete pulmonary development and inadequate surfactant synthesis. Non-Invasive Ventilation (NIV), mainly nasal Continuous Positive Airway Pressure (CPAP), is frequently used for respiratory distress in preterm infants. However, conventional nasal interfaces, including standard prongs and masks, often cause nasal injuries, pressure ulcers, and skin breakdown. These complications are primarily attributed to poor anatomical conformity and excessive localized pressure.

This study aims to design, fabricate, and evaluate a customized 3D-printed nasal mask for preterm neonates to minimize nasal injury and enhance comfort and ventilation efficacy during NIV. A prospective comparative study will be conducted on 30 preterm infants requiring nasal CPAP. Individual facial geometries will be captured using a structured-light 3D facial scanner. The collected data will be processed in CAD software (Fusion 360/SolidWorks) to design custom-fit nasal masks. The molds will be fabricated using 3D printing with PLA/resin and cast with medical-grade Elkem Silbione silicone to ensure biocompatibility. Comparative testing between the standard and 3D-printed masks will include pressure mapping, air-leak measurement, and clinical assessment of nasal injury using the Neonatal Skin Assessment Tool (NSAT). Statistical analysis will be performed using Excel, SPSS and GraphPad Prism with statistically significance $(p) < 0.05$.

The customized 3D-printed nasal mask is anticipated to demonstrate superior anatomical fit, reduced mean contact pressure, lower incidence of nasal injury, and improved user satisfaction compared to standard interfaces.

Keywords: preterm neonates, nasal injury, 3D printed masks.

A Study of Introspective Knowledge among Secondary Students With Regards to Their Problem Solving Skills & Self Efficacy

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In today's complex and rapidly challenging world, problem solving has emerged as crucial skill for secondary school students since it directly influences their academic performance, decision making and capacity to handle real life situations. Along with problem solving ability, self-efficacy -the learner's belief in their own capacity to succeed in specific tasks- plays a vital role in motivating effort, regulating behaviour and sustaining persistence in the face of difficulties. Introspection is the act of examining one's own thoughts, emotions and motives to gain self-awareness. Introspective knowledge refers to students' awareness and understanding of their own cognitive processes, emotions and behavioural patterns. It is closely related to reflective thinking and enabling learners to evaluate their strengths and weaknesses, recognize their problem-solving approaches and build confidence in their abilities. When students are capable of self-reflection, they not only regulate their learning strategies but also cultivate stronger self-efficacy which in turn shapes their problem-solving endeavours. At the secondary level it is very necessary for a child to understand themselves and remove their negative aspects from life and be an optimist. this helps the, to face challenges in a better way. Here comes the role of skills and efficacy which helps in adaptability and resilience. To assess the level of introspective knowledge among secondary students and to evaluate the problem solving skills of secondary students. To analyse the correlation between introspective knowledge and problem-solving skills. To determine if introspective knowledge influences problem-solving skills and self-efficacy among secondary students. A descriptive survey method will be adopted. This is most suitable for exploring relationships and patterns among introspective knowledge, problem-solving skills, and self-efficacy in a naturally occurring educational setting.

Keywords: Self Introspection, Efficacy, Self Improvement.

Synthesis and Characterization of Graphene Oxide: A Comprehensive Review in Relation with the Indian Traditional Process

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Graphene oxide (GO), an oxidized form of graphene, has become one of the most widely studied nanomaterials because of its wide range of applications in energy, environment and electronics. Generally, GO is synthesized by oxidizing and exfoliating graphite using chemical, electrochemical, or physical methods, each influencing its structural and chemical characteristics. This review presents an overview of the synthesis and characterization of graphene oxide. In traditional Indian metallurgical processes; the natural oxidants, herbal extracts and eco-friendly treatments, provide valuable insights into developing greener and safer synthesis routes for GO. The paper also summarizes key finding of structure, morphology and functional groups of GO characterized by XRD, FTIR, SEM and TEM. The review paper concludes by discussing present challenges related to large-scale production, environmental concerns and performance optimization and highlights future possibilities of blending traditional Indian wisdom with modern nanotechnology to promote sustainable and innovative development in graphene oxide research.

Keywords: Graphene oxide, Green synthesis, Traditional Indian process, Nanomaterials, Sustainable technology.

Emerging Trends in development and Quality Evaluation of High-Fibre Enriched Cupcakes Using Date Palm, Soy Residue, and Sweet Potato Flour

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The growing consumer demand for functional bakery products has accelerated research into the development of high-fiber enriched cupcakes using sustainable and nutrient-rich ingredients. This study focuses on the development and quality evaluation of high-fiber cupcakes formulated with date palm powder, soy residue (okara), and sweet potato flour as partial substitutes for refined wheat flour. The incorporation of these ingredients aims to enhance the nutritional profile by increasing dietary fiber, protein, and antioxidant content while minimizing waste through the utilization of agro-industrial by-products. Various formulations were optimized based on their physicochemical, textural, and sensory properties. Results indicated that cupcakes containing up to 20–30% composite flour substitution demonstrated desirable moisture retention, improved fiber and mineral content, and acceptable sensory attributes comparable to the control. The addition of date palm contributed natural sweetness and antioxidant activity, soy residue improved protein quality, and sweet potato flour enhanced color and β-carotene content. The study concludes that composite flour blends from these alternative sources can effectively be used in the formulation of nutritious, high-fiber cupcakes with good consumer acceptability and functional benefits. This research highlights an emerging trend toward sustainable, health-oriented bakery product development through ingredient innovation and waste valorization.

Keywords: High-fiber cupcakes, composite flour, date palm powder, soy residue (okara), sweet potato flour, sustainable bakery products.

Long Term Perspective of Strategic Autonomy as India's Foreign Policy

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Strategic autonomy refers to a state or nation's ability to make decisions that align with its national interests, to determine its national priorities and freedom to make decisions in matters of foreign policy and security without being pressured by other states. Strategic autonomy has been a cornerstone of Indian foreign policy for decades, adapting with its own blend of diplomatic discourse at various points of inflection due to the constant re-shaping of the world order. It enables India to pursue partnerships based on mutual interests while maintaining a degree of insulation from external pressures and influence.

The compulsion to pursue strategic autonomy stems from the vacillations of the colonial past. At the time of independence, adopting a policy of non-alignment appeared to be a pragmatic choice that enabled India to maintain control over its external relations amid significant geopolitical shifts. While India safeguarded its sovereignty and independent decision-making by not aligning with any Cold War blocs, it suffered setbacks in terms of losing access to critical defence technologies and research capital during its formative years. The study suggests that India certainly missed significant opportunities like the 'China Moment' and the momentum gained by colonised countries like South Korea and Vietnam due to their leanings towards the USA.

The study evaluates the efficacy and pragmatism of strategic autonomy from a long-term perspective and examines its impact on internal development and external geopolitical environment. It is a policy-oriented research initiative designed to generate policy theories and insights that can influence national security strategies and decision-making by policymakers. It underscores the strategic imperative for India to develop and build multiple partners and bilateral relationships to address both economic and defence needs to achieve self-reliance or Atmanirbharta. The study advocates India to exert strategic influence through conditional alignments, deft policy manoeuvring and long-term vision.

Keywords: Atmanirbharta; Bilateral; Critical Technologies; Geopolitics; Non-Alignment.

Eco-Efficient Fabrication and Application of Aluminium Matrix Composites for Aerospace Sustainability

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Aluminium Matrix Composites (AMCs) have gained significant attention as sustainable substitutes for conventional aerospace materials owing to their high specific strength, excellent thermal stability, and superior wear resistance. The incorporation of reinforcements such as silicon carbide (SiC), aluminium oxide (Al_2O_3), boron carbide (B_4C), and Graphene allows the development of components capable of withstanding elevated thermal and mechanical stresses. This work examines how AMCs contribute to sustainable aerospace advancements by linking microstructural modification, interfacial bonding quality, and mechanical performance to overall life-cycle efficiency. Manufacturing approaches—including powder metallurgy, stir casting and additive manufacturing—are assessed for their influence on energy requirements, material efficiency, and recyclability. Findings indicate that AMCs improve structural reliability and operational efficiency while minimizing carbon emissions through substantial weight reduction and longer component life. The study emphasizes that the systematic adoption of AMC-based technologies can harmonize advanced material performance with environmentally responsible aerospace production practices.

Keywords: Aluminium Matrix Composites, sustainable development, Mechanical properties, Reinforcement, powder Metallurgy.

A Comparative Study of Classical and Fuzzy Soft Logical Connectives in Uncertain Data Modelling

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In modern data analysis, uncertainty is an intrinsic challenge arising from incomplete, imprecise, or ambiguous information. Traditional logical frameworks, while foundational, often fail to model the complex gradations of uncertainty present in real-world problems. To overcome these limitations, fuzzy and soft set theories have emerged as powerful tools for uncertainty handling. This paper presents a comparative study between classical logical connectives and their fuzzy soft counterparts within the context of uncertain data modelling. It investigates how fuzzy soft logical operators extend classical logic to handle multi-valued truth assessments, explores their algebraic properties, and evaluates their application in decision-making problems. A case study is presented to illustrate the superiority of fuzzy soft logical connectives over classical ones in capturing nuanced uncertainty, thereby offering more robust inference and decision outcomes.

Keywords: Uncertain data modelling, fuzzy soft set, classical logic, fuzzy logic, logical connectives, decision-making.

A comparative study of plastic degradation in ancient time with applied technique in present scenario in environment

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Plastic pollution is a significant global environmental issue, characterized by the widespread accumulation of plastic debris—ranging from large objects to microscopic particles—in terrestrial and aquatic environments and humans face potential health hazards from toxic chemicals released by plastics. This pollution stems from the excessive production and poor disposal of plastics, particularly single-use items. Addressing this crisis requires comprehensive strategies across all sectors, from design and production to consumption and disposal. In ancient period, materials commonly used by humans—such as clay pots, papyrus, and leather—were also subject to natural degradation. These materials broke down through biological and environmental processes like microbial decay and weathering acted as the primary agents responsible for their gradual deterioration. In present investigation there are several methods used for degradation of plastic such as producing natural plastic-degrading enzymes, creating eco-friendly bioplastics, supporting biofilm communities that digest plastics. Besides this, in the present scenario, a huge amount of plastic waste is accumulating in the environment, originating from various sectors. Several degradation processes have been developed to reduce plastic pollution, and innovative methods are being implemented as remedial measures.

Keywords: Plastics, Biodegradation, Microorganism, Enzymes, Bioremediation.

Multi-Attribute Group Decision-Making Methods Based on Pythagorean Fuzzy N-Soft Sets

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Decision-making under uncertainty is a fundamental challenge in diverse real-world contexts where information is often vague, incomplete, or inconsistent. Traditional crisp and fuzzy set theories are often inadequate in modeling such complex environments. This paper investigates multi-attribute group decision-making (MAGDM) methods based on Pythagorean Fuzzy N- soft Sets (PFNSS) — an advanced mathematical framework that integrates the flexibility of soft set theory with the expressive power of Pythagorean fuzzy sets and multi-parameter (N- soft) representation. The proposed approach provides a more comprehensive and realistic model for group decision-making problems involving multiple experts and attributes. Illustrative examples demonstrate the robustness and superiority of the PFNSS-based methods in handling uncertainty, imprecision, and subjective judgments compared to existing fuzzy and intuitionistic fuzzy soft set models.

Keywords: Pythagorean fuzzy N-soft sets (PFNSS), multi-attribute group decision-making (MAGDM), uncertainty modelling, fuzzy aggregation operators, expert evaluation.

Significance of Kautilya's Dharma to Nurture Health Rights in Contemporary India

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Kautilya also recognized as Chanakya or Vishnugupta, is author of ancient Indian Treatise called ARTHASHASTRA. His philosophical interpretation of Dharma provides foundation to form a framework for Right to Health in contemporary India. He regarded king as principal administrator of State whose obligatory responsibility is to provide ultimate happiness to subjects that will lead to a welfare-oriented state (Yogakshema). In present scenario, this 'welfare state' concept is incorporated to provide Universal health coverage to all citizen as a 'Right'. In Arthshastra there are stipulations to provide Social Security to vulnerable populations. In today's context, this principle is utilized to resolve healthcare disparities among various groups based on gender, caste, socioeconomic status and area of residence. Kautilya envisaged a holistic health care system that encompasses not only physical health but also mental & social health. This resonates in contemporary situation where comprehensive healthcare is conceived in form of sanitation, safe drinking water, environmental protection, preventive healthcare etc. During ancient era, there was supervision of medical practice where patient was considered as consumer and penalties were laid for medical negligence. In modern times, Consumer Protection Act considers patients as consumers and doctors as service providers. Any relegation of duty is accordingly castigated either with compensation or punishment. Kautilya also asserted that there should ethical governance and resource redistribution which presently is echoed in judicious government spending in healthcare system. Thus, antiquity concept of Dharma which depicts moral ethics of righteous conduct and duty is amply incorporated in our modern health care rights.

Keywords: Dharma, Health, Kautilya, Consumer Protection Act, Medical Negligence.

CRISPR-driven Screening of New Vaccine Targets for *Bordetella Pertussis* (whooping cough)

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Bordetella pertussis, the etiologic agent of whooping cough, continues to be a major cause of illness worldwide, most notably in infants and unvaccinated individuals. In the face of existing acellular vaccines reducing the incidence of the disease, limited long-term immunity and emergence of antigenically diverse strains have compromised their effectiveness. In this research, a CRISPR-Cas9–based genome-wide screen is employed to identify new vaccine targets which surmount these limitations. The approach involves specific gene disruption for investigating the functional role of surface-attached and virulence-attached genes required for bacterial survival and pathogenicity.

Antigenic potential, structural stability, and sequence conservation of candidate genes among global B. pertussis isolates were predicted by applying comprehensive bioinformatic analyses. Integration of CRISPR screening with in silico immunoinformatics facilitated high-throughput validation of high-immunogenic and protective potential-containing genes. Several conserved outer membrane proteins and adhesins were identified as good candidates for eliciting strong immune response. These target candidates were validated further by molecular docking and epitope mapping for their suitability to be used in subunit vaccine formulations.

The findings highlight the potential of CRISPR-based functional genomics for antigen discovery and better understanding of B. pertussis virulence mechanisms at a rapid pace. It offers a blueprint for next-generation vaccine design with better coverage, long-term persistence, and cross-strain protection in favor of global action to control whooping cough resurgence.

Keywords: Whooping Cough, CRISPR-Cas9, Vaccine Targets.

Yajna to Yoga: Simple Rituals for Modern Wellness

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The Indian knowledge system has long focused on a holistic approach to health. Ayurveda and Vedic rituals form the basis of disease prevention and wellness. Since ancient times, practices like dinacharya (daily routines), ritucharya (seasonal regimens), yajna (fire rituals using medicinal herbs), and meditation have served not just as cultural traditions but as organized preventive healthcare strategies. Grounded in Vedic insights, Ayurveda stresses the significance of a balanced diet, herbal formulations, yoga, and lifestyle discipline for maintaining physical, mental, and spiritual balance. Studies on herbal fumigation (dhoopana) show notable antimicrobial and insecticidal effects, providing natural ways to control infections. Regular yoga and pranayama practice, once solely seen as spiritual discipline, is now scientifically proven to improve immunity, manage stress hormones, and prevent lifestyle-related issues like hypertension and diabetes. Similarly, plant-based Ayurvedic formulations used in rasayana chikitsa (rejuvenation therapy) are now backed by evidence for their antioxidant, anti-inflammatory, and immune-boosting properties. Ayurveda's focus on prevention rather than merely cure aligns well with contemporary public health ideas by emphasising resilience. Integrating Vedic knowledge into wellness frameworks provides accessible and sustainable remedies as chronic and lifestyle-related illnesses become a greater burden for global healthcare systems.

Keywords: Ayurveda, Vedic rituals, disease prevention, holistic health, scientific validation.

UPI as a Tool for Promoting Financial Inclusion in India: An Analysis through the Lens of Indian Knowledge System

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This study explores the role of Unified Payments Interface (UPI) in promoting financial inclusion in India through the lens of Indian Knowledge System (IKS). As a digital payment platform, UPI has revolutionized the way financial transactions are conducted in India. However, its potential to promote financial inclusion, particularly in rural and underserved areas, remains underexamined. This research paper analyzes the principles of IKS, such as "Dharma" (duty) and "Karma" (action), to understand the cultural and social context of digital payments in India. Using a mixed-methods approach, this study investigates the impact of UPI on financial inclusion, highlighting the benefits and challenges of its adoption. The findings suggest that UPI has the potential to promote financial inclusion by increasing access to financial services, reducing transaction costs, and enhancing financial literacy. However, the study also highlights the need for a nuanced understanding of the cultural and social context of digital payments in India. The research contributes to the existing literature on financial inclusion and digital payments, offering insights for policymakers and practitioners seeking to promote financial inclusion through UPI.

Keywords: Unified Payments Interface (UPI), Financial Inclusion, Indian Knowledge System (IKS), Digital Payments, Financial Literacy, Rural India.

Impact of COVID-19 on Indian economy with Special Reference to Tourism Industry

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The tourism industry is one of the major sources of business in India as it contributes about 10% to the GDP every year. About 10.93 million foreigners visited India in the year 2019. The year 2020 started with much of the unfortunate situations arising due to COVID-19 pandemic. This paper is an attempt to study the extent of devastation that it has suffered due to partial or full closure of border amid COVID-19 pandemic. The revenue from this industry has declined two folds and the experts assumes to return to the pre-covid period in not earlier than 2024.

Keywords: Tourism industry, GDP, COVID-19 pandemic, revenue.

Bank Audit and Inspection – A Critical Study of Regulatory Framework

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This paper examines the regulatory framework that governs bank audit and inspection, emphasising on their significance to ensure integrity and stability of the banking sector in India. It delves into the regulatory framework as provided under the Companies Act, 2013 and the oversight provided by the Central Bank i.e. the Reserve Bank of India (RBI). The study examines the role of auditor and regulatory authorities in conducting audits and inspections, highlighting their impact on financial transparency and protection of depositors. Through a comprehensive analysis, the paper delves into the importance of effective regulatory mechanism for maintain public trust and fostering a resilient banking environment.

Keywords: Bank Audit, Inspection, Auditor, Reserve Bank of India, Stakeholders, Transparency.

A Decision-Making Framework for Agricultural Drone Selection Using the TOPSIS Method

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Innovative changes in precision agriculture have been facilitated by the speedy development of drones, which make it possible to apply pesticides and fertilizers efficiently and evenly. Yet despite their potential benefits, the choice of the best-suited agricultural drone has been identified as a challenging task, as it carries a number of conflicting factors like payload capacity, flight time, spraying width, price, and ease of use. In this paper, the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), a renowned Multi-Criteria Decision-Making (MCDM) tool, was used to assess and rank agricultural drone options methodically. The assessment criteria were established based on a vast literature review and consultation with experts. Performance figures were normalized and weighted prior to application of the TOPSIS model. By this method, the relative proximity of every drone alternative to the optimal solution was calculated. The most effective and balanced drone with respect to cost, performance, and use of energy was selected in the aspects of cost, performance, and energy consumption, making the spraying task accurate and sustainable. It was confirmed that the TOPSIS approach ensures a systematic, objective, and adaptable framework for decision-making in agricultural drone choice. The findings of this paper are projected to support the development of smart and sustainable agriculture by maximizing technological uptake in agricultural mechanization.

Keywords: Agricultural Drone Selection, TOPSIS; Precision Agriculture, Pesticide Spraying, Smart agriculture.

A Review of Scalable Block Chain Approach for Secure and Trustworthy IoMT Ecosystems

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The Internet of Medical Things (IoMT) connects wearable sensors, medical devices, and healthcare systems to support real-time patient monitoring and data-driven treatment. However, the growth of IoMT introduces serious challenges related to trust, privacy, and security due to sensitive health information and resource-limited devices. Present study proposes a scalable block chain based framework that ensures secure data sharing, reliable device communication, and privacy preserving access control in IoMT ecosystem.

In IoMT, block chain serves as a decentralized and tamper-resistant ledger that securely records medical data transactions among IoMT devices, healthcare facilities, and cloud infrastructures. In block chain smart contracts facilitate automated access control, ensuring that only authorized individuals can access or alter medical data. A streamlined consensus mechanism will be developed to minimize computational expenses and enhance the scalability of block chain for extensive IoMT networks. Additionally, the system will incorporate data encryption, identity verification, and edge computing to bolster privacy and decrease latency in data processing.

Block chain has the potential to facilitate the creation of secure healthcare networks that safeguard patient information from cyber threats. Additionally, it can enhance remote patient monitoring, emergency response systems, and AI-driven health analytics while ensuring data integrity. Integrating block chain with technologies such as machine learning and federated learning in healthcare systems can generate precise medical predictions without compromising personal data. The scalable block chain framework is designed to establish a reliable, transparent, and privacy-preserving Internet of Medical Things (IoMT) ecosystem that can revolutionize contemporary digital healthcare services.

Keywords: Block chain, Internet of Medical Things (IoMT), Data Privacy, Health Monitoring System, Data Security, Encryption, Privacy Protection.

Empowering Women Entrepreneurs through Vedic Value-Based Leadership and Microfinance: A Pathway to Sustainable Development

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In the developing stage of India's socio-economic development, women entrepreneurship has shown as a key factor for achieving a sustainable growth. However, apart from financial assistance, the long-term success of women-owned enterprises depends on the cultivation of ethical leadership, community values, and spiritual consciousness. This paper evaluates the synergistic relationship between microfinance and Vedic value-based leadership as a means to strengthen the sustainability of women entrepreneurs.

Connected with the Vedic wisdom of Dharma (ethical duty), Artha (rightful prosperity), and Karma (responsible action), the study explores how ancient Indian insights can enhance contemporary management and leadership models. It proposes that by merging Vedic principles within microfinance frameworks can transform them from mere financial instruments into enablers of holistic empowerment—enhancing decision-making, accountability, and social harmony among women entrepreneurs. It argues that financial empowerment must extend beyond capital access to include moral, emotional, and community dimensions of leadership. When women entrepreneurs adopt these Vedic values, they tend to build enterprises grounded in trust, resilience, and social responsibility. Through conceptual analysis and illustrative case observations, the paper highlights that Vedic-inspired leadership fosters self-reliance, ethical conduct, and emotional resilience, which in turn reinforce the sustainability of women-led ventures.

Ultimately, the paper presents a vision of transformational leadership grounded in Indian Knowledge Systems (IKS), demonstrating how the convergence of ancient wisdom and modern finance can empower women not only as entrepreneurs but also as custodians of sustainable social change.

Keywords: Women Entrepreneur, Vedic wisdom, Microfinance, Sustainability.

Problems Faced by Women in Sports in India

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This paper examines the multidimensional challenges faced by women in the filed of sports in India. It mainly focuses on the social barriers that women come across when pursuing sports as a professional career. The study involves how societal perception, gender norms, and cultural norms and expectations influence women's participation in sports as well as the strategies that women must follow to overcome these obstacles and establish themselves professionally. Key issues discussed include gender disparity, limited access to resources and opportunities, safety concerns, and systematic barriers to transformation within the sports system. The research highlights the aspect of gender gap between male and female and how gender dynamics shape the career path of female athletes in India. It further focuses the lack of female portrayal and involvement in sports, stressing the need to look into how women are advanced, or, cast down from perceiving sports as a practical career path.

The investigation embraces a qualitative research approach, including textual analysis and references from scholarly literature and articles to provide a detailed framework for analysing the difficulties faced by women in sports and a comprehensive significance for gender parity in the area.

Keywords: Gender Norms, Sports, Challenges, Career, Gender Gap, Athelte.

Between Law and Lived Realities: A Sociolegal Analysis of POCSO Implementation in Rajasthan

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The Protection of Children from Sexual Offences (POCSO) Act, 2012, stands as India's most comprehensive legislation for safeguarding minors against sexual abuse. However, despite its progressive legal framework, the gap between statutory promise and social practice remains substantial, particularly in Rajasthan—a state that continues to report one of the highest incidences of child sexual abuse in the country. Deep-rooted patriarchy, caste hierarchies, and cultural silence often obstruct justice for survivors and diminish the impact of legal interventions.

This paper aims to examine the implementation and effectiveness of the POCSO Act in Rajasthan through a sociolegal lens, identifying institutional gaps, societal attitudes, and barriers that influence access to justice for child victims. The study adopts a quantitative descriptive design and draws on data collected from 300 respondents, including police officers, Child Welfare Committee members, NGO workers, teachers, and community representatives. A structured questionnaire was administered to assess awareness, institutional preparedness, and gender sensitivity in handling POCSO cases. The research is supported by both primary and secondary sources—official reports, NCRB data, government publications, and peer-reviewed legal scholarship.

Keywords: Child Protection; Gender Justice; Legal Awareness; POCSO Act 2012; Rajasthan.

A Multi-Criteria Decision-Making Framework for Selecting Bio-materials in Orthopaedic Implant Applications

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Orthopaedic implants are essential for the recovery of mobility, structural integrity, and quality of life in patients who have suffered bone fractures, degenerative conditions or skeletal deformities. The functioning and durability of these implants are significantly influenced by the choice of suitable biomaterials that can withstand physiological loads and establish long-term biocompatibility. The choice of proper biomaterials for orthopaedic implants is a determinant factor of long-term functionality, biocompatibility, and mechanical strength. Since there are several contradictory criteria involved tensile strength, Young's modulus, hardness, corrosion resistance, wear resistance, biocompatibility, and cost, the choice-making process is intricate. In this paper, the Multi-Objective Optimization based on Ratio Analysis (MOORA) technique, a strong and computationally efficient Multi-Criteria Decision-Making (MCDM) tool, was utilized to select the best biomaterial for orthopaedic implant applications. Candidate materials such as titanium alloys, stainless steel, cobalt-chromium alloys, and ceramics were compared based on normalized and weighted performance data from experimental work and published research. The MOORA method was employed to rank the materials based on their overall performance indices. The results indicated that titanium alloy possesses the most balanced mix of mechanical strength, corrosion resistance, and biocompatibility. This research proves that the MOORA method offers a structured, clear, and uniform methodology for material selection in biomedical engineering. The methodology suggested can efficiently assist researchers and design engineers in creating long-lasting, cost-efficient, and patient-specific orthopaedic implants.

Keywords: Orthopaedic Implants; Biomaterial selection; MOORA Method; Material selection.

Rethinking Child-Centric Justice under the POCSO Act in Urban India: Towards a Holistic Legal & Social Framework

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Child sexual offences represent one of the most severe violations of human dignity and justice in modern India. The Protection of Children from Sexual Offences Act, 2012 (POCSO Act) was enacted to provide a child-friendly mechanism for reporting, investigation, and trial of offences against minors. However, the urban implementation of this law reveals persistent challenges—procedural delays, insensitive handling, and inadequate rehabilitation measures for survivors. This paper critically analyses these gaps through the lens of Indian Knowledge Systems and Vedic insights that emphasise dharma (duty), karuna (compassion), and nyaya (justice) as foundational principles of governance. It integrates holistic perspectives from Ayurveda and modern psychology to suggest a multidisciplinary model for child care and justice. Drawing from judicial precedents and comparative legal frameworks, the paper explores how ethical and empathetic governance can transform the child protection mechanism. Leadership and management approaches are also examined to strengthen institutional accountability and policy implementation. The study proposes reforms focusing on preventive education, digital safety awareness, gender sensitivity, and participatory community engagement. By aligning traditional wisdom with contemporary legal reforms, it aims to establish a more inclusive and child-centred justice model that ensures not only punishment of offenders but also protection, healing, and empowerment of victims. This holistic framework reflects the vision of integrating Vedic insights into modern law and governance, thereby reinforcing a compassionate and sustainable approach to child justice in urban India.

Keywords: POCSO Act, Child Protection, Indian Knowledge Systems, Vedic Insights, Legal Reform, Child-Centric Justice.

भारत में गवाह संरक्षण योजना की आवश्यकता

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भारत में अपराधिक न्याय प्रशासन (Criminal Justice Administration) समाज में शांति, सुरक्षा और न्याय की स्थापना का मूल आधार है। यह प्रशासन पुलिस, न्यायालयों और कारागारों के समन्वय से संचालित होता है, जिसका मुख्य उद्देश्य अपराधों की रोकथाम, अपराधियों को दंड देना तथा निर्दोषों की सुरक्षा करना है। इसके साथ ही, गवाह संरक्षण (Witness Protection) इस प्रणाली का अत्यंत महत्वपूर्ण भाग है, क्योंकि किसी भी न्यायिक प्रक्रिया में सत्य की स्थापना गवाहों के माध्यम से ही संभव होती है। यदि गवाह भय, दबाव या धमकी के कारण साक्ष्य देने से पीछे हट जाते हैं, तो न्याय प्रक्रिया प्रभावित होती है और अपराधी दंड से बच जाते हैं।

भारत में गवाह संरक्षण की आवश्यकता लंबे समय से महसूस की जाती रही है। कई मामलों में गवाहों के साथ हिंसा, धमकी या प्रलोभन जैसी घटनाओं ने न्यायिक प्रक्रिया की निष्पक्षता पर प्रश्न उठाए हैं। इस संदर्भ में, भारत सरकार ने 2018 में "गवाह संरक्षण योजना" (Witness Protection Scheme) लागू की, जिसे सर्वोच्च न्यायालय ने देशभर में प्रभावी करने का आदेश दिया। इस योजना के तहत गवाहों को सुरक्षा, पहचान छिपाने, स्थानांतरण, और अन्य आवश्यक सहायता प्रदान की जाती है ताकि वे निडर होकर सत्य बयान दे सकें।

फिर भी, इस योजना के प्रभावी क्रियान्वयन में कई चुनौतियाँ हैं — जैसे संसाधनों की कमी, जागरूकता का अभाव, तथा राज्य सरकारों की धीमी कार्यवाही। अपराधिक न्याय प्रशासन को और अधिक सुदृढ़ करने के लिए गवाहों की सुरक्षा को सर्वोच्च प्राथमिकता देना आवश्यक है। एक सशक्त गवाह संरक्षण तंत्र न केवल न्याय की गति को तेज करेगा बल्कि समाज में न्यायपालिका पर विश्वास भी बढ़ाएगा।

निष्कर्षत:, भारत में अपराधिक न्याय प्रशासन की सफलता गवाह संरक्षण की प्रभावशीलता पर निर्भर करती है। सुरक्षित गवाह ही सच्चे न्याय की नींव हैं।

MaatiMap: A Digital Ecosystem for Preserving India's Cultural Knowledge through Geospatial Discovery

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India's cultural knowledge, embedded in regional traditions, community practices, and indigenous heritage, requires urgent digital preservation to prevent loss in the face of modernization. Existing initiatives, such as the Government of India's portal "indianculture.gov.in", focus largely on archival documentation and text-based repositories. However, these platforms lack immersive discovery, community participation, and geospatial contextualization, which results in limited engagement and restricted access for younger and rural audiences. This research proposes MaatiMap, a digital cultural ecosystem that addresses these gaps through place-based cultural mapping and participatory knowledge collection. The system organizes India's intangible and tangible heritage, including art forms, food culture, festivals, and folk narratives, through a location-driven framework that enhances contextual understanding and accessibility. The study employs user-centered design methods to integrate culturally relevant storytelling and recommendation techniques that promote continuous learning and socio-cultural interaction. Preliminary findings indicate that users demonstrate higher curiosity and emotional connection when culture is presented visually on maps with community stories and discovery pathways. The proposed model contributes to the ongoing discourse in digital humanities by transforming heritage preservation from passive archival storage into an active, collaborative knowledge experience. The paper highlights how the proposed digital platforms MaatiMap, can promote cultural sustainability, intergenerational knowledge transfer, and tourism-based livelihood support.

Keywords: Indian Knowledge Systems, Cultural Preservation, Digital Humanities, Geospatial Culture Mapping, Heritage Sustainability.

Detecting Suspicious File Migration in Cloud

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Cloud computing has transformed how organizations store and share data but frequent file migrations across distributed environments have created new security challenges. Unauthorized or abnormal file transfers can indicate early signs of insider misuse or potential data breaches. As India advances toward large-scale digitization of educational and cultural knowledge, protecting the integrity of such digital assets is essential.

This survey analyzes existing research on detecting suspicious file migration in cloud ecosystems. It reviews rule-based techniques, machine learning approaches and blockchain-based audit mechanisms that enhance transparency and trust in digital data management. Each method is evaluated for accuracy, scalability and efficiency, revealing persistent gaps such as high false-positive rates and limited real-time monitoring. The study emphasizes the need for lightweight, adaptive frameworks that integrate unsupervised learning with secure logging systems to preserve and protect digital resources.

In practical scenarios, detecting suspicious file migration holds immense importance for sectors such as education, healthcare, finance and government, where sensitive data is constantly exchanged across virtual servers. Implementing realtime anomaly detection frameworks ensures the confidentiality and reliability of digital resources, preventing data leakage or unauthorized access. Such solutions can significantly strengthen institutional data governance, improve compliance with security regulations and promote user trust in large scale digital transformation initiatives.

Keywords: Anomaly Detection, Blockchain, Data Preservation, Machine Learning, Security.

Toxicological Evaluation Standards for Herbal Extracts

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Any medicinal product, exclusively containing as active ingredients one or more herbal substances or one or more herbal preparations, or one or more such herbal substances in combination with one or more such herbal preparations are known as herbal extracts. Herbal extracts are also known as phytochemicals are a cornerstone of traditional healthcare with the World Health Organization (WHO) noting their reliance by approximately 80% of the global population. Herbal medicine has always represented an important component of primary health care. Even in modern times, the popularity level of medicinal plants and herbal medicines in therapy is still high. Several factors can cause the toxicity of herbal extracts products such as plant components or metabolites with a toxic potential, adulteration, environmental pollutants (heavy metals, pesticides), or contamination of microorganisms (toxigenic fungi). Many plants produce toxic secondary metabolites as natural defence from adverse conditions. To address this aspect, an attentive toxicological assessment is required to eliminate potential safety concerns. The aim of the present study is to provide an overview of the current trends and methods used to investigate the toxic potential of herbal extracts and their products and the challenges in this research field. To address this aspect, an attentive toxicological assessment is required to eliminate potential safety concerns.

Keywords: Herbal, Global Population, Adulteration, Environmental Pollutants.

Revitalizing Higher Education through Indian Knowledge Systems: A Qualitative Analysis in the Light of Evolving NEP (2020–2024)

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Indian Knowledge Systems (IKS) encompass India's extensive intellectual traditions, integrating disciplines such as philosophy, mathematics, medicine, literature, and governance. In the context of contemporary higher education, the need to harmonize global standards with cultural identity and holistic development has renewed interest in IKS. This qualitative research explores how the evolving National Education Policy (NEP)—from its 2020 inception through subsequent refinements up to 2024—conceptualizes the inclusion of IKS in higher education. Drawing upon policy analysis, academic discourse, and stakeholder insights, the study highlights both the transformative potential and the implementation challenges of IKS integration. The findings suggest that embedding IKS can enrich pedagogy, foster ethical and sustainable education, and reinforce India's intellectual autonomy. Successful realization, however, depends on faculty preparedness, institutional collaboration, and adequate resource frameworks. The paper concludes that a well-structured incorporation of IKS can promote interdisciplinary learning and position Indian universities as centers of culturally grounded global scholarship.

Keywords: higher education; holistic learning; Indian Knowledge Systems; interdisciplinarity; National Education Policy 2020.

Integrating Ayurvedic, Yogic, and Biomedical Perspectives on Cognitive and Emotional Aging: Toward a Holistic Understanding of Elderly Mental Health

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As the global population ages, the emotional and cognitive landscape of the elderly is undergoing a profound transformation. Once characterized by wisdom and resilience, aging minds now frequently exhibit heightened anxiety, overthinking, and behavioural volatility posing deep psychosocial challenges for both individuals and caregivers. This review synthesizes contemporary neurobiological insights with the timeless principles of Ayurveda and Yoga to develop a unified, holistic framework for understanding emotional aging. Biomedical research highlights structural and neurochemical alterations in the prefrontal cortex, amygdala, and limbic circuits, along with dysregulation of stress and neurotransmitter systems, as key contributors to anxiety and irritability in late life. Complementarily, Ayurvedic theory attributes these disturbances to vata and pitta imbalances, while Yogic philosophy links them to pranic dysregulation and disturbances in manas (mind). Together, these paradigms underscore the bidirectional interplay between physiological aging, emotional instability, and caregiver burden. This review advocates an integrative model combining neuropsychological assessment, stress biomarkers, and traditional therapeutic modalities such as pranayama, meditation, and sattvic nutrition to restore neurochemical harmony and emotional balance. By bridging ancient wisdom with cutting-edge neuroscience, this work envisions a transformative approach to elderly mental health-one that promotes resilience, compassion, and intergenerational coherence through holistic care.

Keywords: Cognitive aging; Emotional regulation; Ayurveda; Yoga; Neuroplasticity; Anxiety in elderly; Caregiver burden; Mind-body medicine; Pranayama; Holistic psychiatry; Neuroendocrine aging; Integrative neuroscience.

Foreign Direct Investment (FDI) In India: An Analysis of Market Expansion and Recent Developments

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Foreign Direct Investment (FDI) serves as a major driver of India's economic progress, offering a significant non-debt source of capital for developmental activities. The "Make in India" campaign has played a central role by simplifying procedures and encouraging investment across multiple sectors. India has emerged as a highly attractive destination for Foreign Direct Investment (FDI) in recent years, driven by multiple factors that have strengthened investor confidence. In the Global Innovation Index (GII) 2024, India ranked 39th among 133 economies, a remarkable improvement from its 81st position in 2015. This progress reflects India's growing innovation ecosystem, supported by strong government policies, enhanced research and development (R&D) investments, and a thriving collaboration between startups and industries — all of which have played a vital role in boosting FDI inflows. As per data from the Department for Promotion of Industry and Internal Trade (DPIIT), cumulative FDI inflows reached Rs. 96,78,528 crore (US$ 1.09 trillion) between April 2000 and June 2025. This impressive growth is largely attributed to the government's continuous efforts to enhance the ease of doing business and liberalize FDI regulations.

Keywords: Foreign Direct Investment (FDI), FDI Inflows, Government Policies, Innovation.

The Teacher's Role with A.I. in Education System

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Teachers are the main part of the process of educational system. Teachers remain at the helm of major instructional decisions, formative assessments involve teacher input, identifying patterns making predictions, or analyzing alternative decisions also, the cycle of recognizing patterns in what students do and selecting next steps or resources that could support their learning identifying patterns, making predictions, or analysing alternative decisions models, algorithms and data. The teacher's role towards Artificial intelligence (AI) in the teaching and learning process. AI's role in education is to increase intelligence and assit in carying out effective and efficient learning activities. Several AI tools can be used by teachers including Virtual Mentors, Voice Assistance (VA), smart content, Presentation Translator, Global Courses, Automatic Assessment and Personalized learning. Several benefits of using AI in education are improving the quality of the education system, and increasing the effectiveness of leawrning as an adaptive learning. AI provides feedback and recommendations, increase efficiency, enhances the teaching experience, personalized and customized learning, minimizes error, saved time, automates fundamental and routine tasks, is adaptable to student needs, monitors student's progress and modified the teachers' role as facilitators. The importance of the teacher's role must be maintained so that humanist values and affection in an educational process can endure and be maintained in line with the essence of that education namely humanizing individuals.

Keywords: High-fiber cupcakes, functional bakery products, composite flour, date palm powder, soy residue (okara), sweet potato flour, nutritional enhancement, waste valorization.

Vedic Influence on Indian Judicial & Governance System

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India's contemporary legal and governance system is centred around Dharma to a great extent. Dharma comes from Vedic system. Vedic insights and ancient Indian knowledge constitute the core concept of Dharma. Dharma refers to duty, righteousness and moral law. These are the basic ingredients and foundation of Indian judicial interpretation as well, despite the fact that these matters are not explicitly covered by codified law.

The modern Indian legal framework is mainly inherited from the British legal system but the moral, ethical and philosophical norms of ancient Indian jurisprudence forms the basis of Indian legal system which comes from Vedic system only.

The Supreme Court of India advocates the principle of "Yato Dharm Tato Jayah" which means, where there is righteousness, there will be victory. This has been directly taken from Indian epic and mythology "Mahabharat".

The Hindu personal law which defines marriage, inheritance & adoption has been directly taken from ancient Indian texts like the Manusmriti and Dharmshastra .With significant reforms incorporated in modern legislations named, the Hindu Marriage Act,1955 and Hindu Succession Act,1956 have their base lying in these Indian texts.

Thus, it can be concluded that the foundation of modern Indian or post independence Indian law comes from Vedic era and strong imprint of Indian knowledge system can be witnessed in Indian judicial and governance mechanism.

Keywords: Dharma; Dharmshastra; Hindu; Manusmriti; Vedic.

Breast Cancer in India

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Breast cancer has become the leading cause of cancer-related morbidity and mortality among women in India, representing a growing public health crisis. Over the past two decades, the incidence of breast cancer has shown a steady rise, particularly in urban regions, reflecting the impact of changing lifestyles, reproductive patterns, and environmental factors. Despite advances in oncology, the majority of Indian women continue to be diagnosed at advanced stages due to limited awareness, socio-cultural barriers, and inadequate screening infrastructure. This PhD research aims to comprehensively analyze the epidemiological trends, molecular characteristics, and Socio-behavioral determinants associated with breast cancer in India. The study will adopt a mixed-method approach, combining quantitative analysis of hospital and population-based cancer registries with qualitative assessments of awareness, attitudes, and healthcare-seeking behavior among women. Molecular profiling of selected cases will further elucidate genetic mutations and biomarkers unique to the Indian population. The findings are expected to identify region-specific risk factors, gaps in early detection programs, and variations in treatment accessibility across rural and urban populations. Moreover, the research will explore the effectiveness of existing national cancer control strategies and propose evidence-based recommendations to strengthen screening, diagnosis, and patient support systems. By integrating biomedical insights with social and policy perspectives, this study seeks to enhance the understanding of breast cancer in the Indian context and contribute to developing culturally sensitive, equitable, and sustainable interventions. The ultimate goal is to reduce the burden of breast cancer and improve survival and quality of life for women across India.

Keywords: Breast Cancer, India, Epidemiology, Molecular Profile, Public Health, Women's Health.

Artificial Intelligence Integrating Ancient Wisdom for Diagnosing Depression and Anxiety

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Depression and anxiety are leading global mental health disorders, often underdiagnosed due to the subjective and time-intensive nature of conventional clinical evaluations. Recent advancements in Artificial Intelligence (AI) offer transformative potential for early, objective, and continuous assessment through data-driven models. This review synthesizes current progress in machine learning (ML), deep learning (DL), and natural language processing (NLP) for identifying depressive and anxious states from multimodal inputs—including neuroimaging, speech patterns, facial micro-expressions, and digital behavioural data. Evidence suggests that AI-based systems achieve diagnostic accuracies surpassing 80%, supporting scalable and remote mental health monitoring. Beyond algorithmic innovations, this review highlights the convergence of AI with Ayurvedic, Yogic, and meditative frameworks, which conceptualize mental well-being as a dynamic equilibrium among doshas (Vata, Pitta, and Kapha) and harmony between Manas (mind), Buddhi (intellect), and Chitta (consciousness). Ayurvedic diagnostics, such as Nadi Pariksha (pulse analysis) and behavioural observation, parallel emerging AI-driven biometric analytics. Similarly, Yogic and meditative practices, known to regulate autonomic balance and neural plasticity, provide valuable physiological and psychological markers that can inform AI-based models for emotional stability assessment. Integrating these ancient paradigms with computational intelligence offers a holistic and personalized approach to mental health and bridging biological, cognitive, and spiritual dimensions. The review concludes by addressing challenges in data ethics, clinical validation, and cultural contextualization, emphasizing the potential of this interdisciplinary framework to redefine the future of precision and integrative psychiatry.

Keywords: Artificial Intelligence; Depression; Anxiety; Ayurveda; Yoga; Meditation; Machine Learning; Holistic Psychiatry; Mental Health.

Yogic Shuddhi-Kriya

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Yoga includes its philosophy, code of conduct (Yama-Niyam) and technical aspects of Hatha Yoga, like Asana, Bandha, Mudra, Pranayam, Dhyana (Meditation) and Kriya. Perhaps Shuddhi-Kriya or Shatta Kriya or Shattakarma as those are called is the most neglected area. Many might be reluctant to teach/learn/practice due to non availability of expert teachers to guide and fear in the mind. Hence that mental block needs to be removed. Hathayogic texts claim that in order to get rid of excess fat, mucous, one should practice these Kriya before starting Pranayama. These Kriya bring balance in the three humours (Kapha, Pitta and Vata) described by Ayurveda as 'Tridosha', by removing excess Kapha and Pitta. Texts also claim in that reference that if Tridosha are in balance, there is no need to practice Kriya and Pranayama practice will continue to keep Tridosha in balance. Some experts who want to avoid practicing Kriya or justify their stand not to practice Kriya, use above reference as defence. But in today's world with our life style, one can hardly claim that one's Tridosha are in balance. For Nadi-shuddhi and thereby getting success in Pranayama (In turn which prepares mind for Dhyana as per M. Patanjali) one needs to practice these Kriya, similarly in order to face ill effects of pollution like allergy etc. in modern world, one needs to practice these Kriya. Dhouti, Basti, Neti, Trataka, Nauli & Kapalbhati are the 6 categories of these Shatta-kriya described in Hatha-Yogic texts.

In Hatha-Pradipika second chapter under Pranayama these Kriya are described as preparation for Pranayama through nadi-shuddhi. Two types of Dhauti are described, thus totally 7 Kriya are described. However Gherand Sahmita has given status of very first Anga to these Kriya in its Saptanga Yoga and has described in all 21 Kriyas under above 6 categories.

All will be briefed and following Kriya will be demonstrated live or through video clips in the presentation – Jalaneti, After Kriya, Rubberneti, Sootraneti, Vesan neti, Kapalbhati, Sitkram, Vyutkram, Danda dhouti, Vaman dhauti, Vyghrakarani, Gajakarani, Gangavataran, Jala Prapat, Nauli.

Keywords: Shat-Kriya, Hatha Yoga, Detoxification, Nadi-Shuddhi.

The Human Nature Bond and Its Vedic Roots: Interpretations from Satyajit Ray's Select Filmic and Literary Texts

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In ancient Indian literature, the Vedas emphasize a holistic vision of the universe, where humans, nature, and the divine are interconnected. This Vedic concept of human nature relationship has influenced the Indian literary as well as cultural discourse on inseparable human-nature and human-animal bonds till date. Extending on the discourse, this paper delves into Satyajit Ray's, one of the greatest artists in 20th century modern India, film Samapti (The Conclusion, 1961) and the short story, Septopuser Khide ("The Hungry Septopus," 1962) to reflect on the eternal kinship of the human, plant, and animal kingdom. Each of these texts explores the different layered relationships between the human characters and the animal or other non-human agencies present in the plot. This paper establishes how Satyajit Ray, through his literary and filmic creations, reiterates the ancient Indian notion of celebrating human and nature bonds to imagine a sustainable natural harmony. Finally, celebrating the human nature kinship proves even more crucial in today's anthropocentric world, where human beings can be held responsible for mercilessly destroying the flora and fauna of this planet for their greedy reasons.

Keywords: Anthropocene; Cultural Texts; Human-Nature Ties; Satyajit Ray; Vedic Insights.

Indian Vedic knowledge repository and insights remain relevant in today's world with copious contemporary applications

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Indian Vedic knowledge and insights are applicable and very relevant and pertinent today as evidenced by the global endorsement of such Indian practices and schools of science and medicine such as Ayurveda for health and well-being, philosophical concepts for global unity, and principles for sustainable lifestyles and living.

The relevance and universal acceptance of Ayurvedic medicine as a genre of treatment is reflected in the fact that the United Nations Staff Health Insurance (SHI) mechanism, which provides medical insurance cover to all United Nations employees worldwide, today reimburses costs for ayurvedic treatments at par with all schools of medicine such as Western medicine, a practice that was not prevalent for decades after the formation of the United Nations as a global entity.

Again, yoga is an ancient Indian Vedic practice and school of thought that is not only acknowledged around the world, but is also endorsed by governments from all continents. In fact, since 2014, the global comity of nations has also endorsed and promulgated an International Day of Yoga, which is reiteration of the relevance of Vedic concepts and their integration into education and administration, with some principles seen as foundations for scientific and management education. Vedic science offers an interdisciplinary approach to learning, which can be combined with modern education to provide a more complete understanding of subjects such as psychology, ethics and ecology.

Keywords: Ancient Indian knowledge, Ayurveda, Vedic, Yoga.

Evaluation of Probiotic Potential and Bioactive Peptide Production by Lactic Acid Bacteria from Fermented Cow Milk and Whey

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This study explores the probiotic potential and proteolytic capabilities of Lactococcus lactis and Lactobacillus acidophilus isolated from fermented organic cow milk and their application in whey biotransformation for bioactive peptide production. Both strains were identified and characterized based on morphological, biochemical, and functional parameters, including antimicrobial activity, antibiotic tolerance, and bile resistance. Subsequent fermentation experiments revealed distinct strain-dependent proteolytic efficiencies, with *L. lactis* exhibiting the most rapid acidification rate and producing the highest proportion of low-molecular-weight peptides (<3 kDa), while *L. acidophilus* demonstrated greater overall proteolytic activity but predominantly generated mid-sized peptides (3–10 kDa). Advanced peptide profiling by gel filtration chromatography, RP-HPLC, and MALDI-TOF MS identified several biologically active sequences—such as VLPVPQK (ACE-inhibitory), IPAVFK (antimicrobial), YPFPGPIPN (immunomodulatory), and LLYQEPVLGPVR (antioxidant)—highlighting the multifunctional nature of LAB-derived hydrolysates. Collectively, the antibiotic resistance profiles of the isolated *Lactobacillus strains* were also assessed in the study. Despite being sensitive to chloramphenicol, *Lactobacillus acidophilus* demonstrated resistance to several antibiotics, including ampicillin and penicillin. On the other hand, Lactobacillus lactis showed a wider range of resistance, which suggests that they could be used as probiotics. These findings position *L. lactis* and *L. acidophilus* as promising probiotic and biocatalytic agents for the sustainable valorization of dairy byproducts, offering potential applications in the formulation of functional foods and nutraceuticals.

Keywords: Lactic acid bacteria, probiotic, whey fermentation, bioactive peptides, *Lactococcus lactis*, *Lactobacillus acidophilus.*

Optimization of 2,4-D and BAP Concentrations for Callus Induction and Somatic Embryo Formation in *Sapindus mukorossi*

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Sapindus mukorossi Gaertn. (Ritha), commonly known as soapnut or reetha, is an economically valuable medicinal tree species widely used in pharmaceutical, cosmetic, and detergent industries due to its high saponin content. The present study focuses on the development of an efficient in vitro propagation protocol through callus induction and somatic embryogenesis using zygotic embryo explants. Mature fruits were collected, and young seeds were surface-sterilized using sequential treatments of 70% ethanol for 30 seconds followed by 0.1% mercuric chloride for 8 minutes and thoroughly rinsed with sterile distilled water. The zygotic embryos were excised aseptically and cultured on Murashige and Skoog (MS) medium supplemented with different concentrations and combinations of 2,4-dichlorophenoxyacetic acid (2,4-D) and 6-benzylaminopurine (BAP) to optimize callus induction and somatic embryo formation. Maximum callus induction (55%) was observed on MS medium containing 2.0 mg/L 2,4-D and 0.5 mg/L BAP. Subsequent transfer of friable callus to reduced auxin levels favored the development of somatic embryos, which later differentiated into plantlets. The established protocol demonstrates a reliable and reproducible method for mass propagation and conservation of S. mukorossi, providing a foundation for future genetic improvement and secondary metabolite production through tissue culture approaches.

Keywords: soapnut, reetha, surface-sterilized, MS medium.

Designing a Cybersecurity Architecture for Bioinformatics Systems: Bridging Biotechnology and Cyberbiosecurity

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The explosive expansion of bioinformatics has revolutionized biomedical research by enabling large-scale analysis of genomic, proteomic, and clinical data. However, this growing reliance on digital infrastructures has also exposed bioinformatics systems to various cybersecurity threats, including unauthorized access, data tampering, and privacy breaches. With the increasing integration of artificial intelligence, cloud computing, and big data analytics in genomics, the protection of biological information has become a critical global concern. Conventional cybersecurity measures, designed primarily for general IT environments, fail to adequately address the distinctive vulnerabilities of biological data systems. This project aims to develop a comprehensive cybersecurity architecture specifically designed to safeguard bioinformatics infrastructures against emerging cyber threats. Beginning with an extensive threat analysis and risk assessment, the study identifies key weaknesses in current bioinformatics workflows. Building on this foundation, a multi-layered security framework integrating intrusion detection, intrusion prevention, and advanced encryption will be proposed and validated. The system will be tested using simulated bioinformatics datasets to assess its performance against common attack vectors. The anticipated outcomes include a validated security framework, a detailed threat classification for bioinformatics systems, and a working prototype demonstrating improved data confidentiality, integrity, and availability. By bridging biotechnology and cybersecurity, this research contributes to the evolving field of cyberbiosecurity, offering practical strategies to protect sensitive biological data and strengthen the reliability of computational biology research worldwide.

Keywords: Bioinformatics security, cyberbiosecurity, genomic data protection, cybersecurity framework, data integrity, intrusion detection, encryption, risk assessment, cloud computing, artificial intelligence integration.

Vedic Ethnobotany in the Modern Era: Exploring the Therapeutic Potential of Neem and Tulsi through Biotechnology

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In the Vedic era, numerous medicinal plants such as Tulsi (*Ocimum sanctum*) and Neem (*Azadirachta indica*) were revered not only for their healing properties but also for their deep religious and cultural significance. Ancient scriptures and traditional stories, such as the Dantkatha, portray Tulsi as a sacred plant associated with Goddess Tulsi, consort of Lord Vishnu—one of the Tridev, regarded as the preserver of the universe. Similarly, Neem is linked with Goddess Durga, symbolizing protection and purification.

Beyond these spiritual beliefs, both plants possess remarkable medicinal properties validated by modern biotechnology. Tulsi has been scientifically proven to exhibit anticancer, antimicrobial, and anti-inflammatory properties, while Neem demonstrates antiviral, antifungal, and detoxifying effects, effectively treating ailments such as chickenpox and various skin infections. In ancient India, these plants were integral to Ayurvedic medicine, used to heal wounds, reduce inflammation, and enhance vitality.

Today, bridging Vedic ethnobotanical wisdom with modern biotechnological research offers immense potential for developing safe, sustainable, and effective therapeutic agents. This study aims to validate traditional claims through modern scientific methods, highlighting the enduring relevance of Vedic medicinal plants in the modern era of medicine.

Keywords: Tulsi, Neem anticancer, antimicrobial, and anti-inflammatory.

A cross-sectional Survey on Psychological Well-being and Emotional Intelligence Factors among College Students

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This research study used Pearson's Correlation Coefficient statistics to establish correlations between psychological well-being and emotional intelligence in students who transferred to college from their school life. Most of the current research on psychological well-being is in the context of impacts on students in academic life, which helps to enhance learning skills, and they can focus on their studies and get good results. But one needs to ascertain that somewhere students' psychological well-being could be what is leading to stress and low performance in college, or vice versa. A sample of 200 male and female students was administered the psychological well-being scale, the Wong and Law emotional stability scale. The data revealed that males (n=100) have higher psychological well-being than females (n=100). But it also shows that female has higher emotional stability or intelligence than males. A weak to moderate positive correlation was suggested by the data across all psychological well-being and emotional intelligence among male and female XXX college students. The data analysis confirmed that all the variables under study i.e., Autonomy, environmental mastery, personal growth, positive relation, purpose in life, self-acceptance, Total psychological well-being (PWB), other emotion appraisal, use of emotions, regulation of emotions, self- emotions appraisal, total emotional intelligence (EI) in XXX college students and hence there exists a relationship between them. In this regard, a t-test was conducted to ensure that a significant relationship exists. The t-test revealed that psychological well-being was significantly related to college life, and Students were impacted by the different activities. Overall Academic performance and a good result were found to be significant with high PWB and high EI.

Keywords: Psychological well-being, emotional intelligence.

Indigenous Ecological Practices, Water Management Techniques, and Play a Role in Addressing Climate Change

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Advancements in technology have led to increased food production, greater fossil fuel consumption, environmental pollution, and climate change. This was not the case a few decades ago, when indigenous technologies exploited natural resources effectively. Regrettably, the Earth is already experiencing the consequences of climate change. Extreme rainfall, extended drought, sea level rise, and glacier melting are already happening. Globally, these have impacted food security, land, and water resources. Indigenous knowledge and technologies must be integrated to address climate change challenges due to the limitations of traditional adaptation and mitigation measures. This is because of the importance that indigenous knowledge and technologies have for identifying the impacts as well as providing effective adaptation and mitigation strategies to climate change. This is a result of the significance of indigenous knowledge and technologies in recognizing the effects of climate change and in offering practical adaptation and mitigation measures. Indigenous technologies and knowledge, such as agroforestry, the use of sacred groves to conserve water and biodiversity, and conservation agriculture, serve as effective solutions to mitigate greenhouse gas emissions, water shortages, land degradation, and pollution. Indigenous technologies require harnessing to be effective in today's world. Indigenous ecological practices and water management techniques play a crucial role in addressing climate change by providing sustainable, locally adapted solutions for conservation, adaptation, and mitigation. The available scientific know-how for enhancing indigenous technologies aimed at sustainably utilizing water, land, and food resources, such as robotics, sensors/detectors, and the internet of things, has been identified.

Keywords: Indigenous, Climate-change, Mitigation, Adaptation, Sustainable agriculture.

Right to Development as a Fundamental Right in Nepal

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This article analyzes the right to development which is necessary to meet the basic needs of human life, such as food, shelter, clothing, education, and health. Various international instruments have provisioned to ensure such right. As a member state of the United Nations and a party to the various international human rights instruments, Nepal has ensured constitutional, legal, and structural arrangements to provide the right. The Constitution of Nepal (2015) has envisioned economic progress and prosperity as a basic element of national interest. The Constitution has also entrusted the development as a state policy, and the right to development is guaranteed as a fundamental right of the citizens. The purpose of this article is to understand the concept of the right to development with respect to Nepal's constitutional, legal, and institutional arrangement, and the judicial perspectives. In addition, an attempt has been made to comparatively examine how the right to development is being practiced by some other countries, especially India and South Africa. A normative doctrinal and socio-legal research method has been employed where various legislations have been examined to find legal rules and doctrines related to right to development in Nepal. Finally, the problems associated with the implementation of the right to development have been identified and solutions have been proposed, which will help in ensuring the right to development and fulfilling the Nepal's constitutional aspiration of development and prosperity.

Keywords: Constitution, judicial, legal, Policy.

Future Trends and Challenges in Nanoparticle-Enhanced Friction Stir Processing in Relation with Indian Traditional Processes for High-Performance Light Metal Composites

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Friction stir processing (FSP) has emerged as an advanced solid-state technique for tailoring the surface and bulk properties of light metal alloys by refining their microstructure and enhancing mechanical performance. The incorporation of nanoparticles during FSP further amplifies these improvements by promoting uniform grain refinement, dispersion strengthening, and suppression of defect formation. This study explores the consequences of FSP with nanoparticles on the microstructural evolution and mechanical behavior of light alloys such as aluminum, and magnesium alloys. The interaction between tool rotation speed, traverse speed, and nanoparticle concentration significantly governs material flow, heat generation, and particle distribution within the processed zone. Microstructural analyses reveal a transformation from coarse, elongated grains to ultrafine equiaxed structures, accompanied by a homogeneous nanoparticle dispersion that acts as nucleation sites during dynamic recrystallization. Consequently, notable enhancements in hardness, tensile strength, and wear resistance are observed, primarily attributed to grain boundary strengthening and load transfer mechanisms. The study emphasizes the importance of optimizing FSP parameters to achieve uniform reinforcement distribution and defect-free surfaces, paving the way for high-performance lightweight structural materials suitable for aerospace, marine, and automotive applications.

Keywords: Friction stir processing, Equiaxed grain structure, Tensile strength, Microhardness, Microstructure.

Rudraksha Dharan Vidhi: The Sacred Science of wearing Rudraksha

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Rudraksha Dharan Vidhi spells out the procedure or methodology of wearing rudraksha. It has a strong scriptural foundation. Rudraksha bead selection, consecration (Shuddhi) and rudraksha-mala (rosary) making are intrinsic part of dharan vidhi. In depth evaluation of this process reveals a systematic and scientific approach, which also validates ancient wisdom embedded in our shastras. Through close textual analysis of primary sources- including Rudraksha Jabala Upanishad, passages from the Shiva Mahapurana and Padma Purana, and relevant Agam literature- this research paper aims to uncover the deep importance Rudraksha dharan vidhi has in deriving maximum benefit from Rudraksha usage for whatever purpose it may be. This paper uncovers details like basis for rudraksha prescriptions (for who may wear rudraksha), occasions and mantras for 'dharan', rules of purification or consecration, classification details (mukhi/faces, colours, sizes), etc which is crucial for understanding that dharan vidhi is not just a ritualistic act of adornment. Shastras consider it a practical spiritual discipline and a sacred procedure of aligning with the divine. Lastly, to understand the rudraksha recommendation process, possible connection of Vedic astrology with the usage or selection of rudraksha is discussed.

Keywords: Rudraksha, Upanishad, Agam, Tantra, Puran, Dharan Vidhi, Yantra.

Influence of Advanced Yoga Practices on Psychological Aspects of School Adolescents

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The human mind and body function as an integrated system—alterations in one domain often affect the other. Yoga provides a comprehensive approach for mental balance through disciplined physical practice. Foundational postures promote body awareness, while advanced Asanas demand greater focus and precision, potentially influencing higher mental processes. The present study explores whether consistent practice of advanced Yoga can enhance adolescents' cognitive flexibility and self-regulation. A comparative analysis was conducted among school students engaged in advanced Yoga practice via Yoga competition and with those without any Yoga exposure. Participants' levels of cognitive flexibility and self-regulation were measured and compared between both groups.

Adolescents trained in advanced Yogic postures showed notably improved cognitive flexibility and self-regulation compared to non-practitioners. A significant positive relationship between the two measures suggested that both develop concurrently through sustained practice. Advanced Yogic training not only refines physical flexibility but also nurtures adaptability of thought and emotional steadiness. Such practices contribute meaningfully to the psychological and personal growth of adolescents, supporting holistic development through Yoga.

Keywords: Cognitive Flexibility; Emotional Regulation; Mind–Body Integration; Self-Regulation; Yogic Discipline.

MicroRNAs as Emerging Biomarkers in Cancer: Current Developments, Challenges, and Future Prospects

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One of the most common and deadly illnesses in the world, cancer is caused by a complex interaction of genetic, behavioral, infectious, and environmental factors. Even with improvements in early diagnosis and treatment methods, cancer remains a significant worldwide health concern. Recent advances in molecular biology have shed light on the crucial function of microRNAs (miRNAs) as master regulators of gene expression, with significant implications for cancer diagnosis, prognosis, and treatment. Numerous cancer types have been found to exhibit dysregulated miRNA expression patterns, which provide important information on the initiation, growth, and metastasis of tumors. Numerous oncogenic miRNAs, including miRNA-21, miRNA-155, miRNA-196a, and miRNA-31, are often elevated and promote angiogenesis, cell proliferation, and apoptosis resistance. On the other hand, downregulation of tumor-suppressive miRNAs, such as miRNA-143, miRNA-149, miRNA-214, and miRNA-195, frequently results in a lack of growth control and increased malignancy. These abnormal expression patterns highlight the genetic diversity of malignancies and the promise of miRNAs as non-invasive biomarkers for diagnosis and treatment. The dynamic landscape of miRNA dysregulation in cancer, its mechanistic effects on oncogenic signaling pathways, and the potential applications of miRNAs in precision oncology are all examined in this research.

Keywords: Cancer, miRNA, Biomarkers, Malignancy, Oncogenes, Gene Regulation.

AI-POWERED PERSONAL ASSISTANT

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In recent years, artificial intelligence has significantly transformed human–computer interaction, with personal assistants becoming one of the most practical applications. This paper presents the design and development of an AI-powered personal assistant capable of performing everyday tasks such as answering queries, scheduling reminders, retrieving information, and providing basic recommendations. The system integrates speech recognition, natural language processing, and text-to-speech technologies to enable seamless voice-based interaction. Unlike commercial solutions, the proposed assistant is lightweight, customizable, and can be adapted for specific user requirements without relying on proprietary platforms. The methodology involves capturing user input, processing commands through intent recognition, and executing predefined actions with real-time responses. Experimental results demonstrate that the assistant responds with reasonable accuracy and efficiency, highlighting its potential as a productivity tool for students and professionals. By offering a flexible and user-centric design, this project contributes toward creating accessible AI assistants for diverse applications. Future enhancements may include multilingual support, deeper contextual understanding, and integration with Internet of Things (IoT) devices to further expand its capabilities.

Here are some of the benefits of using AI-Powered personal assistant:

Cost-Effective and Lightweight Solution: The implementation does not depend on expensive proprietary tools, making it an affordable option that can run efficiently on standard computing devices without requiring high-end hardware.

Improved Productivity: By automating repetitive activities such as reminders, information retrieval, and scheduling, the system allows users to focus on more important tasks, thereby saving time and effort.

Personalization and Adaptability: Unlike generic solutions, the assistant can be customized to suit specific user preferences, offering a more tailored experience that evolves with individual needs.

Keywords: Artificial Intelligence, Personal Assistant, Natural Language Processing, Speech Recognition, Task Automation.

Detection of Phishing Attacks using Machine Learning

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Phishing assaults have emerged as one of the most widespread and dangerous and hazardous and hazardous cyber threats, deceiving users into revealing sensitive information such as sign-in credentials, banking particulars, and personal data. Traditional security procedures, such as blacklists and rule-based systems, often fail to detect recently generated or obfuscated phishing websites, making them insufficient against advancing threats. To address this difficulty, machine learning (ML) techniques provide a more flexible and adjustable and intelligent approach by learning patterns from gigantic and immense and vast datasets and sorting websites or emails as valid or malicious. In this work, various supervised learning algorithms such as Decision Trees, Random Forest, Support Vector Machines (SVM), and Logistic Regression are used to inspect features like URL structure, domain information, and page material.

Keywords: Phishing Detection, Cybersecurity, Machine Learning, URL Analysis, Classification Algorithms, Website Security, Phishing Websites.

Innovative Prodrug Approaches for Targeted and Controlled Drug Release in Therapeutic Applications

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The notion of prodrug design has developed into a transformative paradigm in contemporary pharmaceutical investigation, providing creative solutions to challenges surrounding drug solubility, stability, bioavailability and site-specific delivery of the drug. Prodrugs are pharmacologically inactive derivatives which are subjected to chemical or enzymatic conversion in vivo to release the active parent drug at the desired site of action. This prodrug strategy will enhance therapeutic action while minimizing systemic toxicity and unwanted side effects. Recent advances in molecular design, modelling pharmacokinetics and bioconjugation technologies have also facilitated the development of targeted or controlled drug release systems— allowing fine tuning of pharmacokinetic and pharmacodynamic profiles. Carrier-linked or bioprecursor prodrugs have proven effective at overcoming physiological barriers of drug therapy
— like poor membrane permeability and first pass metabolism. The innovative use of nanotechnology and polymer-based delivery platforms have provided an additional level of spatiotemporal control for drug release, especially for oncology, neurodegenerative and infectious disease pharmacotherapy. These innovations not only ensure greater patient compliance, but also reduce cost, drug wastage, and improve therapeutic outcomes for patients. The future of prodrug research is a result of rational molecular design guided by structure–activity relationships and knowledge of enzymatic activation. Prodrug development as a strategy is further blended with medicinal chemistry, together with advanced drug delivery technologies. Prodrug strategies have evolved to become a major tool for drug delivery.

Keywords: Prodrug design, Targeted drug delivery, Bioprecursor prodrugs.

Healing Beyond Time: Uniting Ancient Traditions with Modern Medicine

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Traditional healing systems deeply rooted in cultural heritage, using natural resources and holistic methods that emphasize harmony between body, mind, and nature. These systems rely on personalized treatment and preventive care, making them valuable for promoting overall well-being.

However, the lack of systematic documentation and scientific validation has limited their global recognition. Modern medical science, with its research-based approach and technological advancements, offers tools to study, validate, and enhance these traditional practices.

This paper explores the relationship between traditional healing and modern medical science, highlighting how both can complement each other and offers an opportunity to bridge this gap. It also reviews recent scientific studies, pharmacological research, and clinical trials that support the safety and effectiveness of traditional remedies. The study concludes that integrating traditional wisdom with modern scientific evidence can lead to safer, innovative, and more holistic healthcare solutions for the global community.

Keywords: Bridging gap, Holistic health, Integrative healthcare, Research integration, Therapeutic synergy

Contemporary Applications and expanding horizons of Indian knowledge from Vedic insights

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This paper explores how the rich reservoir of Vedic insights and ancient Indian knowledge systems can inform and transform contemporary applications across domains such as technology, governance, education and sustainability. Drawing upon the philosophical, scientific and pedagogical traditions rooted in the Vedas and Upaniṣads, we investigate how core concepts—such as holistic interdependence, dharma-inspired ethics, the teacher-disciple model, cyclic time, and systems thinking—can be re-interpreted to address 21st century challenges. First, we map the epistemological foundations of Indian knowledge systems—emphasising the unity of knower, known and process of knowing—and contrast them with dominant modern paradigms of fragmented specialization and reductionism. Second, we present three case-studies: (i) the integration of Vedic mathematics and algorithmic thinking in modern computation; (ii) the framing of governance ethics based on dharmic frameworks of accountability and service; (iii) the deployment of ancient ecological and agrarian wisdom (such as water-harvesting, seasonal rhythms, and community-centred stewardship) in contemporary sustainable development. Through these, we demonstrate the value of ancient wisdom as a creative resource rather than a museum relic. We conclude by proposing a heuristic framework for researchers and practitioners to translate Vedic-derived principles into actionable models: (1) translation of core concept to modern counterpart; (2) pilot contextualisation in a domain; (3) iterative validation and institutional embedding. By bridging heritage and innovation, this inquiry argues that Indian knowledge traditions — properly interpreted and adapted — can expand the horizons of contemporary scholarship and practice, fostering integrative, sustainable and meaningful solutions for a rapidly changing world.

Keywords: Vedic Knowledge Systems, Ancient Indian Wisdom, Dharma-Based Ethics, Sustainable Development, Holistic Systems Thinking, Integrative Innovation.

GestoVoice: An Integrated Framework for Real-Time Gesture and Voice-Based Touchless Computer Interaction Using Computer Vision and Speech Processing

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The growing demand for more natural and intuitive methods of Human-Computer Interaction (HCI) has driven researchers to explore multimodal interfaces that go beyond traditional input devices such as keyboards and mice. This study presents GestoVoice, an integrated touchless interaction framework that combines gesture recognition and voice command processing to provide a more efficient and accessible mode of communication between humans and machines. The system utilizes MediaPipe for real-time gesture tracking and Speech Recognition APIs for interpreting spoken instructions, enabling users to perform system-level tasks with minimal physical contact.

The proposed approach emphasizes both accessibility and hygiene, making it suitable for environments such as hospitals, public workstations, and educational setups where contactless interaction is desirable. The framework has been designed around two key components: a Gesture Recognition Module, which interprets hand movements through computer vision techniques, and a Voice Assistant Module (Proton), which executes corresponding voice-based commands. Together, these components allow users to control applications or execute predefined actions through natural multimodal interaction.

Testing across multiple scenarios demonstrated that GestoVoice performs effectively under varying lighting conditions and different voice tones, ensuring robust accuracy and responsiveness. Results indicated low latency and high precision, establishing the system's reliability for real-time deployment. The research concludes that integrating both visual and auditory modalities significantly improves usability, accessibility, and interaction comfort compared to conventional interfaces.

In the future, enhancements such as the inclusion of deep learning-based gesture prediction models, multilingual voice support, and adaptive learning mechanisms will further improve performance and scalability. The study contributes to the growing field of multimodal HCI by presenting a system that bridges human intention and digital response in a practical, user-friendly, and contact-free manner.

Keywords: Accessibility; Artificial Intelligence; Computer Vision; Human-Computer Interaction; Speech Recognition.

Recent advances in friction stir welding of dissimilar alloys as compared to the Indian traditional processes: Effect of process parameters on joint integrity and performance

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The present study presents comparative review of recent advances in friction stir welding (FSW) of dissimilar alloys, emphasizing its advantages over traditional Indian joining processes such as gas welding and arc welding. As a solid-state technique, FSW eliminates common fusion welding defects like porosity, hot cracking and weak metallurgical bonding. The review work focuses on the influence of key process parameters, including tool rotational speed, traverse speed and axial force. Microstructural analysis using optical microscope and SEM revealed that variations in these parameters markedly affect material flow, grain refinement and phase distribution across the stir zone. The study concludes that precise control of FSW parameters is crucial for achieving defect-free, high-strength joints with refined microstructures in dissimilar aluminum alloys, highlighting the process's potential for aerospace, marine, and automotive applications. Mechanical characterization indicated that tensile strength, hardness, and ductility are strongly governed by heat input and plastic deformation during welding. Excessive heat caused grain coarsening and reduced strength, while insufficient heat led to poor mixing and defects. Compared with traditional Indian welding methods, FSW demonstrates enhanced joint strength, metallurgical bonding, and energy efficiency. The study concludes that careful optimization of FSW parameters is essential to achieve defect-free, high-performance joints in dissimilar alloys for aerospace, automotive and marine applications.

Keywords: Friction stir welding, dissimilar alloys, process parameters, joint integrity, traditional Indian welding, mechanical properties

VirtuControl: A Multi-Modal Framework for Contactless Human Computer Interaction Using Real-Time Gesture and Voice Command Recognition

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In recent years, the demand for natural, contactless modes of communication between humans and computers has grown significantly, particularly in the post-pandemic era. VirtuControl introduces an advanced multi-modal framework that bridges this gap by combining real-time hand gesture recognition and voice command processing to enable seamless and hygienic human-computer interaction (HCI). The system employs state-of-the-art computer vision and speech recognition techniques to replace conventional input devices such as a mouse or keyboard. It utilizes MediaPipe for real-time hand landmark detection and motion tracking, while Google Speech API and PyAudio facilitate accurate voice interpretation and command execution.

The integrated model enables users to perform tasks such as cursor movement, click actions, file navigation, system control, and multimedia management through simple hand gestures or spoken instructions. This dual-mode interaction ensures greater flexibility, accessibility, and usability for a wide range of users, including individuals with physical impairments. The experimental results show that VirtuControl achieves high recognition accuracy, low latency, and stable performance even under varied lighting and background conditions.
By providing an intuitive, hardware-independent, and responsive interaction experience, VirtuControl demonstrates the potential of AI-driven multi-modal systems in redefining human-computer engagement. Its applications extend to domains such as healthcare, automation, education, and public service terminals, where touchless operation and efficiency are of paramount importance. This framework marks a step forward in creating more intelligent, adaptive, and human-centered computing environments.

Keywords: Accessibility; Computer Vision; Gesture Recognition; Human-Computer Interaction; Voice Processing

Ayurveda: A Pathway to Holistic Health and Harmony

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Ayurveda, the ancient system of Indian medicine, emphasizes the balance between body, mind, and spirit to achieve optimal health and well-being. Unlike modern medical approaches that often focus on treating specific symptoms or diseases, Ayurveda promotes a holistic view of health, considering every aspect of a person's lifestyle, diet, emotions, and environment. Rooted in the principle of the three doshas—Vata, Pitta, and Kapha—Ayurveda believes that maintaining harmony among these biological energies ensures physical vitality and mental clarity. Holistic health in Ayurveda goes beyond the absence of illness; it encourages preventive care through personalized routines, herbal therapies, meditation, and yoga. These practices aim to strengthen the body's natural healing mechanisms and enhance resilience against diseases. Furthermore, Ayurveda recognizes the deep connection between the mind and body, asserting that mental peace and emotional balance are essential for physical health. In the modern era, where stress and lifestyle disorders are widespread, Ayurvedic principles offer valuable insights for sustainable living and wellness. Integrating Ayurvedic wisdom with contemporary healthcare can provide a more comprehensive approach to healing, focusing on prevention, natural remedies, and individualized care. Thus, Ayurveda continues to serve as a timeless guide for holistic health, promoting harmony, longevity, and inner balance in today's fast-paced world.

Keywords: Ayurveda, Holistic Health, Dosha Balance, Wellness, Preventive Care.

Comparative Investigation on Mechanical Properties and Wear Behavior of SiC- and Al_2O_3-Reinforced Hybrid Aluminum Matrix Composites Fabricated via Indian Traditional Powder Metallurgy Route

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This study explores the influence of hybrid reinforcement ratios and sintering temperatures on the mechanical and tribological performance of Aluminum matrix composites (AMCs) reinforced with silicon carbide (SiC) and aluminum oxide (Al_2O_3), fabricated via the Indian traditional powder metallurgy route. Seven distinct hybrid compositions of SiC and Al_2O_3 were prepared in weight ratios of 1:0, 1:1, 1:2, 1:3, 3:1, 2:1, and 0:1, and each composition was sintered at three different temperatures; 350°C, 500°C, and 650°C. The microstructural characterization confirmed formation of equiaxed type grain morphology at higher sintering temperature. Experimental observations revealed a significant enhancement in hardness and wear resistance with increasing sintering temperature across all compositions, owing to improved diffusion bonding and reduced porosity. It is also observed that AMCs with higher SiC content exhibit the maximum hardness and superior wear resistance, attributed to the higher hardness, stiffness, and interfacial stability of SiC particles. Conversely, a gradual decline in these properties was observed with the reduction of SiC concentration and corresponding increase in Al_2O_3 content. The results demonstrate the effectiveness of the Indian traditional powder metallurgy process in fabricating well-bonded hybrid AMCs.

Keywords: Aluminum matrix composites, Hybrid reinforcement, Powder metallurgy, Hardness, Wear resistance.

Nanotechnology in Transdermal and Topical Drug Delivery Systems

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Nanotechnology has emerged as a promising platform in the design and development of advanced drug delivery systems, particularly for transdermal and topical applications. The skin, being a complex barrier, often limits the permeation of therapeutic agents; however, nanocarriers have demonstrated significant potential to overcome this limitation. Various nanosized delivery systems such as liposomes, niosomes, solid lipid nanoparticles, nanostructured lipid carriers, polymeric nanoparticles, and nanoemulsions have been developed to enhance drug solubility, stability, and permeation through the stratum corneum. These nanocarriers facilitate controlled and sustained drug release, minimize systemic absorption, and improve local therapeutic efficacy. The incorporation of biocompatible and biodegradable polymers further enhances the safety profile and patient compliance of such systems. Additionally, surface modification and functionalization of nanoparticles allow for targeted drug delivery, ensuring site-specific action with reduced adverse effects. Recent studies have also explored hybrid nanocarriers and stimuli-responsive systems that can provide on-demand drug release under specific physiological conditions. Despite the significant progress, challenges related to large-scale manufacturing, regulatory approval, and long-term toxicity assessment still need to be addressed before clinical translation. Overall, nanotechnology-based transdermal and topical delivery systems hold great promise for the effective management of various dermatological and systemic disorders, offering a futuristic approach to improve therapeutic outcomes and patient satisfaction.

Keywords: Nanotechnology, Transdermal drug delivery, Topical formulations, Nanocarriers, Controlled release, Targeted therapy.

Pharmacosomes: An Emerging Vesicular Drug Delivery System for Enhanced Stability and Controlled Release

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Pharmacosomes are a type of innovative drug delivery system that is intended to enhance the stability, bioavailability, and controlled release of medicinal substances. These vesicular systems are made up of drug molecules that have formed an amphiphilic connection with phospholipids. Pharmacosomes' primary advantage is its capacity to combine the best features of solid lipid nanoparticles and liposomes while getting around drawbacks like instability and drug leakage. The amphiphilic character of the drug phospholipid conjugates in pharmacosomes aids in the formation of bilayer vesicles. Numerous therapeutic uses are made available by this structure, which enables the encapsulation of both hydrophilic and hydrophobic medications. Additionally, because pharmacosomes are less likely to release the medication too soon than conventional drug delivery systems, they have a longer circulation period and a higher drug loading capacity. They outperform conventional systems in a number of ways, including as improved solubility, reduced toxicity, and targeted drug release. In addition to shielding the medication from deterioration, the phospholipid component facilitates endocytosis, which allows for targeted distribution to particular tissues or cells. Additionally, pharmacosomes can be made to release the medication in a regulated manner, which lessens adverse effects and boosts therapeutic efficacy.

Notwithstanding these advantages, there are still issues that need to be resolved, such as the complex synthesis procedure, stability issues, and immunological response potential. However, there is a lot of potential for the future application of pharmacosome-based systems in the treatment of different diseases, particularly those that require sustained and targeted drug administration, as evidenced by the continuing research aimed at enhancing their formulation, targeting strategies, and scalability.

Keywords: Pharmacosomes, vesicular, control release, phospholipids, amphiphilic nature.

Environment & Sustainable Development

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The environment is the foundation of life on Earth, providing us with air, water, food, and other natural resources needed for survival. However, rapid industrialization, deforestation, pollution, and overuse of resources have caused serious harm to our planet. These problems have led to climate change, loss of biodiversity, and environmental degradation. To protect the planet for future generations, it is important to adopt the idea of sustainable development. Sustainable development means meeting the needs of the present without harming the ability of future generations to meet their own needs.

This approach focuses on balancing three main goals: environmental protection, economic growth, and social well-being. It encourages responsible use of natural resources, renewable energy, recycling, and waste management. Governments, organizations, and individuals all have a role to play in achieving sustainability. Policies that promote clean energy, green technologies, and conservation of forests and water can help reduce environmental damage. Education and awareness are also key to changing attitudes and behaviors toward a more eco- friendly lifestyle.

Sustainable development also addresses social issues like poverty, inequality, and access to clean water and education. A sustainable future can only be achieved when people live in harmony with nature and when economic progress does not come at the cost of the environment. In short, protecting the environment and promoting sustainable development are essential steps toward creating a cleaner, healthier, and more balanced world for all living beings.

Keywords: Environment, Sustainable Development, Climate Change, Renewable Energy.

Educational and Pedagogy

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Education and pedagogy are fundamental pillars in shaping human development and societal progress. The term education encompasses the systematic process of facilitating learning, acquiring knowledge, skills, values, and attitudes, while pedagogy refers to the art and science of teaching. Together, they determine how learning experiences are designed, delivered, and assessed. In modern times, education has evolved beyond traditional classroom settings, integrating technology, experiential learning, and learner-centered approaches to meet the diverse needs of students. Pedagogical theories such as constructivism, behaviorism, and social learning theory have guided educators in creating effective learning environments that promote critical thinking, creativity, and collaboration. The shift from teacher-centered to student-centered pedagogy emphasizes active participation, inquiry-based learning, and reflective thinking. Moreover, inclusive education has gained prominence, focusing on equitable access and participation for all learners, regardless of their abilities or backgrounds. The role of the teacher has transformed from being merely a transmitter of knowledge to a facilitator and mentor who encourages self-directed learning. Contemporary pedagogy also incorporates digital literacy and global citizenship education to prepare learners for the challenges of the 21st century. Assessment methods are shifting from rote memorization to competency-based evaluation, highlighting learners' understanding and application of knowledge. Overall, effective education and pedagogy contribute to individual empowerment, social cohesion, and sustainable development. Continuous innovation, research, and reflective practice are essential to address emerging educational challenges and to ensure that learning remains relevant, inclusive, and transformative in a rapidly changing world.

Keywords: Education, Pedagogy, Inclusive Learning, Student-Centered Approach, Educational Technology

Importance of Education Pedagogy in Vedic Period

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In the Vedic period, education pedagogy was crucial for its focus on character building, spiritual growth and all round development through a holistic approach. Key aspect included the Gurukul system with its close teacher student relationship, oral question and answer based teaching methods and the integration of ethical, spiritual and practical skills alongside academic knowledge. The ultimate goal was to create disciplined, self-reliant and morally upright individuals capable of both spiritual and social contribution.

The document discusses the Vedic system of education in pre-independent India, highlighting its origins in the Vedas and its objectives center around spiritual and moral development. It describes the structure, curriculum, methods of instruction and the significant role of teachers emphasizing individual learning and the importance of discipline. Ultimately, it portrays Vedic education as an inclusive and elevated pursuit of knowledge aimed at attaining salvation. The Vedic period's legacy continues to influence Indian Education, with its emphasis on the teacher-student relationship, respect for tradition and pursuit of knowledge for self-realization.

Keywords: Vedic Period, Spiritual Growth, Teacher Student Relationship.

नई शिक्षा नीति 2020: भारतीय ज्ञान प्रणाली और आधुनिकता के संगम से समग्र शैक्षिक पुनर्जागरण की दिशा में

सुरक्षा बंसल
षिक्षा विभाग
किषन इंस्टीट्यूट ऑफ टीचरएजुकेषन, मेरठ

यह व्यापक साहित्य समीक्षा भारतीय ज्ञान प्रणाली के आधुनिक शिक्षाशास्त्र में समेकन की पडताल करती है। भारतीय ज्ञान प्रणालीएक सहस्राब्दियों पुरानी बौद्धिक परंपरा है, जो दर्शन, गणित, चिकित्सा, नैतिकता और पारिस्थितिकी जैसे विविध क्षेत्रों में व्यापक ज्ञान प्रदान करती है। भारत की नई शिक्षा नीति–2020 के अनुसार, इसे समकालीन शिक्षण पद्धतियों में शामिल करना अनिवार्य है। समीक्षा में यह तर्क प्रस्तुत किया गया है कि औपनिवेशिक युग में ज्ञानमीमांसा का विनाश ने स्वदेशी ज्ञान परंपराओं को व्यवस्थित रूप से हाशिए पर रखा। परिणामस्वरूप, शैक्षिक पुनरुद्धार के माध्यम से संज्ञानात्मक उपनिवेशवाद से मुक्ति आवश्यक हो गई। अध्ययन मेंऐतिहासिक आधार का विश्लेषण किया गया है, जिसमें वैदिक–उपनिषदिक ज्ञान परंपरा और शास्त्रीय योगदान शामिल हैं, जैसे पाणिनि का भाषाशास्त्र और सुश्रुत का शल्य विज्ञान। साथ ही, प्रमाण शास्त्र (वैध ज्ञान का सिद्धांत) जैसे ज्ञानमीमांसी ढांचे का भी समावेश किया गया है। शिक्षाशास्त्रीय सिद्धांतों का विश्लेषण किया गया है, जैसे–गुरु–शिष्य परंपरा (संबंधात्मक मार्गदर्शन), पंचकोश विकास (समग्र व्यक्तित्व विकास), संवादात्मक शिक्षण (श्रवण, मनन, निदिध्यासन)। इन सिद्धांतों को आधुनिक शिक्षण मॉडल, जैसे फ्लिप्ड क्लासरूम और अनुभवजन्य शिक्षण के संदर्भ में समझा गया है। समकालीनएकीकरण प्रयासों, जैसे स्टैम इंडिया पहल, योगिक विज्ञान पाठ्यक्रम और डिजिटल भारतीय ज्ञान रिपॉजिटरी, पारंपरिक ज्ञान और तकनीकी नवाचार के बीच समन्वय को प्रदर्शित करते हैं। अंततः, भारतीय ज्ञान प्रणाली का आधुनिक शिक्षाशास्त्र के साथ समन्वय मन और शरीर, तर्क और अंर्तज्ञान, मानवता और प्रकृति को दूर करने में परिवर्तनकारी क्षमता रखता है। यह शिक्षा तकनीकी प्रगति, नैतिक आधार और पारिस्थितिक चेतना के संतुलन के साथ समग्र और भविष्य सूचक दृष्टिकोण प्रस्तुत करती है, जो वैश्विक चुनौतियों का सामना करने में सहायक है।

कुंजी षब्द– नई शिक्षा नीति–2020, भारतीय ज्ञान प्रणाली, आधुनिकताएवं षैक्षिक पुर्नजागरण।

Ayurveda and holistic health

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Ayurveda, an ancient Indian medical system, promotes a holistic approach to health, stressing the connection between the body, mind, and spirit. This extensive guide introduces Ayurvedic principles aimed at achieving holistic health, with a focus on the "One Health" concept that links personal well-being with environmental balance. It covers the fundamental aspects of Ayurveda, including the three Doshas (Vata, Pitta, and Kapha), which symbolize different bodily energies and their impact on health. The guide provides dietary recommendations, lifestyle practices, and therapeutic techniques tailored to individual constitutions and imbalances. It underscores the significance of preventive care, emphasizing the role of daily routines, seasonal adjustments, and mindful living in maintaining balance. Additionally, the guide explores the use of herbal remedies, detoxification methods, and mental health practices such as meditation and yoga to enhance overall wellness. By harmonizing personal health with the natural world, Ayurvedic principles advocate for a sustainable and balanced way of living. This guide is a valuable resource for those looking to improve their well-being through Ayurveda, offering practical advice and actionable steps to achieve a state of health and vitality.

Keywords: Ayurveda, One Health Model, Environmental Health, Vasudhaiva Kutumbakam

AI in the Classroom: Redefining the Role of the Teacher in the Age of Artificial Intelligence

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This research paper studies how Artificial Intelligence (AI) is changing the role of teachers in modern classrooms. AI tools like chatbots, automated grading systems, and personalized learning apps are helping teachers manage their work and improve how students learn. The paper explains that the teacher's job is no longer just to give lessons but also to guide, support, and motivate students while using technology wisely. It also discusses how AI can make learning more interesting and personal for each student, but it cannot replace the human touch, care, and understanding that teachers bring. The research highlights both the advantages and the challenges of using AI in education, such as data privacy, fairness, and the need for teacher training.

The study concludes that teachers and AI should work together. Teachers should use AI as a helpful tool, not as a replacement, so that learning becomes smarter, more inclusive, and focused on both knowledge and values.

Keywords: Artificial Intelligence, Teaching, Education, Pedagogy, Technology, Classroom, Teacher's Role.

Environment and Sustainable Development

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Sustainable development is the type of development that satisfies the current needs without compromising the resources needed for future generations. Although the term "sustainable development" is frequently associated with the environment, it encompasses a wide range of factors beyond just environmentalism. In fact, the relationship between the two is so close that the term "synchronous" is more appropriate. Sustainable development operates under three key dimensions: the environment, the economy, and society. Looking at the current state of things, it's evident that natural resources are being depleted at a rate that makes replenishment almost impossible, climate change is still not taken seriously, and population growth is still seen as a positive for many countries. Given these challenges, sustainable development is more urgent than ever. It's time for us to not only acknowledge, but also to accept and change ourselves. The United Nations has established a collection of Sustainable Development Goals (SDGs) as part of the Post-2015 Development Agenda to create a global development framework. These SDGs, on a larger scale, focus on the three dimensions of sustainable development. While this is a step in the right direction, many other individuals and organizations are working to bring about change at their own levels. Achieving sustainable development requires collective effort from millions of people. This paper aims to shed light on the relationship between the environment and sustainable development, identify the factors that influence it, explore how it is connected to the other dimensions of sustainable development, and examine the implementation of various acts and projects aimed at promoting sustainable development.

Keywords: Sustainable development, environment, economy, society, framework, implementation.

Cloud Computing and Vedic Teaching: A Comparative Study of Traditional and Modern Educational Approaches

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Education is evolving rapidly under the influence of digital transformation and cloud technologies. At the same time, traditional Vedic teaching methods—rooted in holistic learning and moral development—continue to offer valuable insights into human-centered education. This research explores the intersection between Vedic pedagogy and modern cloud-based education systems, highlighting their philosophical differences, technological capabilities, and potential integration. By comparing traditional Vedic education with modern cloud-enabled learning environments, the study proposes a hybrid model that combines ethical wisdom, personalized access, and collaborative intelligence. Such an integration aims to promote a balanced, accessible, and value-oriented educational ecosystem in the digital era.

Keywords: Cloud Computing, Vedic Teaching, Modern Education, Digital Pedagogy, Value-Based Learning.

Transformative Pedagogy: Fostering Critical, Creative, and Lifelong Learning

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Educational pedagogy serves as the basis for the teaching and learning process, combining the art and science of instruction to create well-rounded and effective educational experiences. It encompasses both the theory and practice of how teachers support student learning, utilizing various teaching methods, focusing on student- centered approaches, and fostering collaboration between educators and learners. Contemporary educational pedagogy goes beyond simple memorization by prioritizing constructivism, inquiry-based learning, experiential learning, critical thinking, and problem-solving to ensure that learning is relevant and applicable. Effective teaching requires educators to recognize and understand their students' needs, backgrounds, interests, and learning styles. They must deliberately select teaching methods that encourage cognitive, emotional, and physical development. This approach emphasizes active participation, ongoing assessment, and a nurturing learning environment, while also recognizing individual differences and promoting fairness and inclusion. Pedagogy is based on structured methods that align with educational objectives, serving as a link between the subject matter, the teacher's goals, and the student's comprehension. It incorporates key principles such as Bloom's Taxonomy, social learning theory, and humanistic approaches to enhance learning outcomes. Ultimately, strong pedagogy goes beyond merely imparting knowledge; it fosters critical, creative, and independent thinking, encourages lifelong learning, and prepares students to be positive contributors to society. As educational needs change in an increasingly diverse and globalized world, pedagogy requires adaptable and reflective educators who are committed to continuously improving their teaching practices to support all learners.

Key words: Educational pedagogy, Experiential Learning, Problem Solving

Recent advances in friction stir welding of dissimilar alloys as compared to the Indian traditional processes: Effect of process parameters on joint integrity and performance

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The present study presents comparative review of recent advances in friction stir welding (FSW) of dissimilar alloys, emphasizing its advantages over traditional Indian joining processes such as gas welding and arc welding. As a solid-state technique, FSW eliminates common fusion welding defects like porosity, hot cracking and weak metallurgical bonding. The review work focuses on the influence of key process parameters, including tool rotational speed, traverse speed and axial force. Microstructural analysis using optical microscope and SEM revealed that variations in these parameters markedly affect material flow, grain refinement and phase distribution across the stir zone. The study concludes that precise control of FSW parameters is crucial for achieving defect-free, high-strength joints with refined microstructures in dissimilar aluminum alloys, highlighting the process's potential for aerospace, marine, and automotive applications. Mechanical characterization indicated that tensile strength, hardness, and ductility are strongly governed by heat input and plastic deformation during welding. Excessive heat caused grain coarsening and reduced strength, while insufficient heat led to poor mixing and defects. Compared with traditional Indian welding methods, FSW demonstrates enhanced joint strength, metallurgical bonding, and energy efficiency. The study concludes that careful optimization of FSW parameters is essential to achieve defect-free, high-performance joints in dissimilar alloys for aerospace, automotive and marine applications.

Keywords: Friction stir welding, dissimilar alloys, process parameters, joint integrity, traditional Indian welding, mechanical properties

Quality by Design (QbD) Approach in the Development of Topical Drug Delivery Systems

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The Quality by Design (QbD) approach has become an essential framework in modern pharmaceutical development, emphasizing a systematic, science-based, and risk-managed process to ensure product quality. In the formulation of topical drug delivery systems, QbD offers a structured methodology that enhances understanding of formulation variables and their influence on critical quality attributes (CQAs). By defining the Quality Target Product Profile (QTPP) at the initial stage, formulation scientists can identify critical material attributes (CMAs) and critical process parameters (CPPs) that significantly affect the performance of the final product. The application of Design of Experiments (DoE) allows optimization of formulation components, such as polymer concentration, surfactant levels, and drug loading, to achieve desired attributes like viscosity, spreadability, and drug release rate. Moreover, QbD ensures consistent product quality by implementing robust control strategies throughout development and manufacturing. In topical systems, this approach facilitates the creation of formulations with enhanced efficacy, patient compliance, and minimal variability between batches. Regulatory agencies such as the FDA and EMA also encourage the adoption of QbD principles for a more transparent and efficient product development process. Overall, the integration of QbD in developing topical drug delivery systems not only improves product quality and safety but also accelerates innovation and regulatory approval, aligning with the goals of modern pharmaceutical quality management.

Keywords: Quality by Design (QbD), Topical drug delivery, Critical quality attributes, Design of Experiments, Product optimization.

The Transformative Role of Yoga and Meditation in Enhancing Holistic Health and Well-Being

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Yoga and meditation, ancient Indian disciplines rooted in Vedic traditions, have emerged as powerful scientific wellness practices in the modern era. These practices aim to harmonize the body, mind, and spirit, thereby promoting holistic health and enhancing the quality of life. Yoga integrates physical postures (asanas), breathing techniques (pranayama), relaxation methods, and ethical lifestyle principles, while meditation cultivates mindfulness, inner peace, and enhanced self-awareness. Together, they serve as preventive and therapeutic tools for managing physical, psychological, and emotional challenges.

Scientific evidence demonstrates that practicing yoga regularly improves muscular strength, flexibility, posture, and cardiovascular endurance. It enhances lung capacity, regulates metabolic functions, improves immune response, and supports hormonal balance. Yoga-based interventions have been widely adopted for the management of chronic pain, hypertension, diabetes, obesity, and various respiratory disorders. Meditation complements these benefits by activating the parasympathetic nervous system, reducing heart rate and blood pressure, and lowering stress hormone levels such as cortisol. Moreover, mindfulness-based meditation is clinically utilized for treating anxiety, depression, insomnia, and cognitive dysfunction.

From a psychological perspective, both yoga and meditation enhance concentration, emotional stability, and cognitive functioning. Research indicates increased gray matter density in brain regions responsible for learning, memory, and emotional control among long-term practitioners. These practices also improve dopamine and serotonin regulation, leading to improved mood, emotional resilience, and overall mental well-being. For students and professionals, yoga promotes discipline, memory retention, decision-making ability, and productivity, making it highly beneficial in academic and workplace settings.

Spiritual awareness is another essential dimension of yoga and meditation. By fostering mindfulness and compassionate thinking, these practices promote self-reflection, mindfulness, and ethical living. Practitioners experience inner peace, greater emotional balance, and a deeper connection with the environment, supporting a lifestyle rooted in harmony and positive social interactions. In conclusion, yoga and meditation offer a comprehensive approach to health that aligns with contemporary preventive healthcare models. Their scientifically proven physical, mental, and emotional benefits make them valuable tools for promoting well-being, reducing lifestyle-related disorders, and improving quality of life. Incorporating these practices in educational, healthcare, and community settings can significantly contribute to the development of a healthier and more mindful society.

Keywords: Yoga, Meditation, Holistic Health, Stress Reduction, Mindfulness, Emotional Well-being, Pranayama, Neurocognitive Benefits, Preventive Healthcare, Spiritual Wellness.

The Paradox of Quicksilver: Unveiling the Utility of Mercury (Parada) in Ayurvedic Rasa Preparations

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The heart of Ayurvedic Rasa Shastra, or iatrochemistry, lies in the paradoxical use of Mercury, known as Parada. Despite its toxicity, Mercury is regarded as the "Soul of the Science." Classical texts instruct that Mercury should not be used merely as an ingredient, but as a superior pharmacological agent, mainly because of its Yogavahi property, which allows it to act as a catalyst and carrier. This significantly improves the bioavailability and potency of related herbal and mineral compounds. It enables lower effective doses and precise action, especially in Rasayana formulations aimed at longevity and stronger physical health. The safety of this highly reactive element is ensured through a careful, transformative process called Samskara, which involves purification and processing. These steps turn toxic, elemental Mercury into stable, therapeutically inert compounds like Mercury Sulfide. This process often results in nanocrystalline structures. Modern research suggests that these structures greatly reduce systemic toxicity while maintaining high therapeutic effectiveness, transforming a potential poison into a powerful remedy when prepared according to classical methods.

Keywords: Ayurvedic Medicine; Rasa Shastra; Samskara; Yogavahi.

Contemporary Applications and Expanding Horizons of Bioenzyme from Vedic Insights

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Bioenzymes, inspired by Vedic principles of natural fermentation, are gaining global attention as sustainable biotechnological tools for environmental restoration and agricultural innovation. Traditionally prepared from organic substrates such as jaggery, and plant residues, these formulations embody the Vedic ideals of purity and ecological harmony. Modern research has validated their effectiveness, revealing diverse microbial and enzymatic activities responsible for pollutant degradation, soil enrichment, and enhanced plant growth. This presentation explores the synthesis, composition, and multifunctional applications of bioenzymes in agriculture, wastewater treatment, and waste-to-wealth management. Emphasizing the convergence of ancient wisdom and modern science, it showcases how Vedic insights can guide future bio-based technologies toward circular and climate-resilient systems. Bioenzymes thus represent not only a bridge between traditional ecological practices and green innovations but also a transformative approach for achieving sustainable development goals.

Keywords: Bioenzyme, Vedic science, sustainable biotechnology, microbial fermentation, bioremediation, climate-resilient agriculture, circular bioeconomy

Sustainable Development: Balancing Environment, Economy, and Society

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Sustainable development refers to a model of progress that fulfills present needs without compromising the ability of future generations to meet their own. While often associated with environmental protection, sustainable development extends far beyond environmentalism—it represents the balanced interaction between the environment, economy, and society. Today, the depletion of natural resources, the continued neglect of climate change, and unsustainable population growth highlight the urgency of adopting sustainable practices.

The United Nations' Sustainable Development Goals (SDGs), introduced under the Post-2015 Development Agenda, provide a comprehensive global framework addressing these interlinked dimensions. However, the achievement of true sustainability depends not only on policy but also on the active participation of individuals, organizations, and communities worldwide.

This paper explores the intricate relationship between the environment and sustainable development, examines the key factors influencing sustainability, and discusses how the environmental dimension connects with economic and social objectives. It further reviews the implementation of various acts, policies, and initiatives that aim to foster a more resilient and equitable global future.

Keywords: Sustainable Development, Environment, Economy, Society, Framework, Implementation.

Concept and Importance of Essential Drugs in Healthcare

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The concept of essential drugs was introduced by the World Health Organization (WHO) in 1977 to ensure that all people have access to medicines that are safe, effective, and affordable. Essential drugs are those that meet the healthcare needs of the majority of the population. They should be available at all times in adequate amounts, in appropriate dosage forms, of assured quality, and at prices that individuals and communities can afford. The main aim of this concept is to promote rational use of medicines and to strengthen healthcare delivery systems, especially in developing countries. The selection of essential drugs is based on disease prevalence, evidence of efficacy and safety, and comparative cost-effectiveness. The WHO publishes the Model List of Essential Medicines (EML), which serves as a guide for countries to prepare their own national lists according to their healthcare priorities. These lists help governments plan procurement, distribution, and training programs efficiently, ensuring better access to quality medicines. The essential drugs concept promotes equitable healthcare by focusing resources on priority diseases and reducing irrational drug use. It supports the sustainability of healthcare systems by controlling costs and improving treatment outcomes. Implementation of this concept requires strong national drug policies, effective supply chain management, and public awareness about rational medicine use. In conclusion, the essential drug concept is a key element of global health policy that aims to make healthcare more accessible, affordable, and effective for everyone.

Keywords: Essential Drugs; Rational Use of Medicines; Accessibility; Affordability; Public Health Policy; Cost-effectiveness; Healthcare System; Drug Selection.

Judicial Governance: The Role of Judiciary in Ensuring Constitutional Accountability

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Judicial governance is crucial for bringing about a balance of the organs of government and seeing that the letter and spirit of constitutional values are adhered to. As the sentinel of the Constitution, the judiciary uses its power of judicial review and ensures that the principle of separation of powers is guarded to uphold the democratic ideals. By its interpretative and supervisory functions, it seeks to ensure that the functions of both legislative and executive departments conform to the mandates set forth by the Constitution. Judicial governance, therefore, encompasses accountability within the paradigm of the rule of law and constitutes a check against the abuse of power by other organs of the State. It critically examines how judicial governance strengthens constitutional accountability in India through landmark judgments such as "Kesavananda Bharati v. State of Kerala" and "S.R. Bommai v. Union of India", wherein vital precedents have been laid down with respect to constitutional interpretation and governance. These developing dimensions of judicial activism and restraint in balancing the functions of governance while keeping alive the flame of institutional harmony are studied. The paper thus concludes that an independent and active judiciary not only secures constitutional supremacy but also strengthens the democratic fabric by increasing citizens' trust in governance and upholds justice as the "raison d'être" of the State.

Keywords: Judicial Governance, Separation of Powers, Judicial Review, Constitutional Accountability.

New Concept of Capsule

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Capsule-based drug delivery has undergone significant advancements, offering enhanced protection for active pharmaceutical ingredients (APIs) and enabling precise, site-specific release in the gastrointestinal (GI) tract. Recent innovations such as enteric coatings, dual-layer encapsulation (double-dipping), and advanced polymer formulations have expanded the functional capabilities of capsules, offering opportunities to enhance bioavailability and stability of sensitive molecules like peptides, proteins, and RNA-based therapies. Additionally, cutting-edge manufacturing techniques—including injection molding and 3D printing—are facilitating the production of customized capsules with controlled release profiles, thereby minimizing systemic side effects and enhancing patient adherence.

This review examines the technological advancements from single-layer to double-layer capsules, a crucial development to achieve enteric properties and enhance drug protection against degradation in gastric fluids. We explore key capsule manufacturing technologies, including double-dipping, enteric coating, and emerging approaches such as 3D printing and injection molding, which offer new possibilities for precise drug delivery and formulation flexibility. By integrating these advancements, capsule technology continues to evolve as a promising platform for personalized and targeted oral drug delivery. Future research will focus on overcoming production constraints and further refining capsule design to optimize therapeutic efficacy across a broader range of gastrointestinal and systemic diseases.

Keywords: New capsule concepts include dual-layer designs, enteric coatings, and 3D-printed forms for targeted, controlled drug delivery.

Need and Scope of Standardization of Herbal Medicines

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There is increasing awareness and general acceptability of the use of herbal drugs in today's medical practice. The starting materials for about one-half of the medicines we use today come from natural sources. This rise in the use of herbal product has also given rise to various forms of abuse and adulteration of the products leading to consumers and manufacturers disappointment and in some instances fatal consequences. Herbal drug technology is used for converting botanical materials into medicines, where standardization and quality control with proper integration of modern scientific techniques and traditional knowledge is important. For global harmonization WHO specific guidelines for the assessment of the safety, efficacy and quality of herbal medicines are of utmost importance. Standardization of drug means confirmation of its identity, quality, and purity throughout all phases of its cycle. This review seeks to need and scope of standardization processes of herbal medicine for good quality assurance. Standardization of herbal medicines is the process of prescribing a set of standards or inherent characteristics, constant parameters, definitive qualitative and quantitative values that carry an assurance o quality, efficacy, safety, and reproducibility. It is the process of developing and agreeing on technical standards. Specific standards are worked out by experimentation and observations, which would lead to the process of prescribing a set of characteristics exhibited by the particular medicines. Hence, standardization is a tool in the quality control process.

Keywords: WHO, herbal medicine, standardization, quality control.

Comparative Analysis of Microstructural and Mechanical Characteristics of Graphite- and Graphene Oxide–Reinforced AMCs Fabricated via Indian Traditional Powder Metallurgy Route

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This study presents a comparative investigation on the microstructural evolution and mechanical performance of Aluminum matrix composites (AMCs) reinforced with graphite and graphene oxide (GO), fabricated using the Indian traditional powder metallurgy process. Two series of composites were developed: one reinforced with graphite powder at four weight fractions (5, 7.5, 10, and 12.5 wt. %), and the other with graphene oxide at 0.5, 0.75, 1.0 and 1.25 wt.%. All weight fraction combination samples were sintered at three distinct temperatures. Microstructural analysis revealed uniform dispersion of reinforcements with minimal agglomeration, leading to significant grain refinement in both systems. An interesting trend is observed that the hardness of the AMCs increases with rising both reinforcement content and sintering temperature irrespective of the type of reinforcement. However, graphene oxide–reinforced AMCs exhibit notably superior hardness values compared to graphite-reinforced AMCs. The findings demonstrate that while both reinforcements effectively improve the hardness and structural integrity of Aluminum matrices, graphene oxide offers a more pronounced strengthening effect even at lower concentrations. This comparative study highlights the potential of traditional powder metallurgy as a sustainable fabrication route for advanced Aluminum-based nanocomposites with tailored mechanical properties.

Keywords: Aluminum matrix composites, Graphite, Graphene oxide, Powder metallurgy, Microstructure, Hardness.

Ayurveda: A Pathway to Holistic Health and Harmony

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Ayurveda, the ancient system of Indian medicine, emphasizes the balance between body, mind, and spirit to achieve optimal health and well-being. Unlike modern medical approaches that often focus on treating specific symptoms or diseases, Ayurveda promotes a holistic view of health, considering every aspect of a person's lifestyle, diet, emotions, and environment. Rooted in the principle of the three doshas—Vata, Pitta, and Kapha—Ayurveda believes that maintaining harmony among these biological energies ensures physical vitality and mental clarity. Holistic health in Ayurveda goes beyond the absence of illness; it encourages preventive care through personalized routines, herbal therapies, meditation, and yoga. These practices aim to strengthen the body's natural healing mechanisms and enhance resilience against diseases. Furthermore, Ayurveda recognizes the deep connection between the mind and body, asserting that mental peace and emotional balance are essential for physical health. In the modern era, where stress and lifestyle disorders are widespread, Ayurvedic principles offer valuable insights for sustainable living and wellness. Integrating Ayurvedic wisdom with contemporary healthcare can provide a more comprehensive approach to healing, focusing on prevention, natural remedies, and individualized care. Thus, Ayurveda continues to serve as a timeless guide for holistic health, promoting harmony, longevity, and inner balance in today's fast-paced world.

Keywords: Ayurveda, Holistic Health, Dosha Balance, Wellness, Preventive Care.

Ayurveda and Holistic Health

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Ayurveda, an ancient Indian medical system, promotes a holistic approach to health, stressing the connection between the body, mind, and spirit. This extensive guide introduces Ayurvedic principles aimed at achieving holistic health, with a focus on the "One Health" concept that links personal well-being with environmental balance. It covers the fundamental aspects of Ayurveda, including the three Doshas (Vata, Pitta, and Kapha), which symbolize different bodily energies and their impact on health. The guide provides dietary recommendations, lifestyle practices, and therapeutic techniques tailored to individual constitutions and imbalances. It underscores the significance of preventive care, emphasizing the role of daily routines, seasonal adjustments, and mindful living in maintaining balance. Additionally, the guide explores the use of herbal remedies, detoxification methods, and mental health practices such as meditation and yoga to enhance overall wellness. By harmonizing personal health with the natural world, Ayurvedic principles advocate for a sustainable and balanced way of living. This guide is a valuable resource for those looking to improve their well-being through Ayurveda, offering practical advice and actionable steps to achieve a state of health and vitality.

Keywords: Ayurveda, One Health Model, Environmental Health, Vasudhaiva Kutumbakam.

Antipsychotic Drugs

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The present study explores people's experience of living with antipsychotic medication side-effects. Qualitative data were gathered through semi structured interviews with 10 mental health consumers in a community care setting in Australia. The interview transcriptions were content analyzed, and enhanced by combining manifest and latent content. Important contextual cues were identified through replaying the audio-recordings. Several main themes emerged from the analysis, including the impact of side-effects, attitudes to the use of medication and side-effects, and coping strategies to manage medication side- effects. Each participant reported between six and seven side- effects on average, which were often pronounced and had a major disruptive impact on their lives. Of these effects, the most commonly mentioned was sedation, which the participants described as leaving them in a zombie'-like state. Most participants expressed an attitude of acceptance about the side- effects. The participants' most common strategy to manage side-effects was to change the dosage of the medication. Other common side- effect management strategies involved using other medications to control side-effects, and diverse self-help techniques, the most common of which was relaxation/ distraction techniques.Psychosis characteristically ally refers to a mental state involving a loss of contact with reality. According to the fifth edition of the article, "Diagnostic and Statistical Manual of Mental Disorders," psychosis is defined by the presence of delusions, hallucinations, disorganized thinking (speech), grossly disorganized or abnormal motor behavior (including catatonia), or negative symptoms (Seikkula et al., 2011). Psychosis may occur at any age, but in older population its etiology, manifestation

Keywords: Antipsychotic Medication, Consumer, Interviews, Mental Health, Qualitative Research.

Digital Transformation in Pharmacy Education: Opportunities and Challenges

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Digital transformation is fundamentally reshaping the landscape of pharmacy practice, necessitating a corresponding evolution in pharmacy education. This abstract explores the myriad opportunities and significant challenges presented by integrating digital technologies into the pharmacy curriculum. The move toward digitalization, accelerated by global events, offers key advantages such as fostering personalized learning experiences, enhancing accessibility through e-learning and telepharmacy simulations, and better preparing future pharmacists for an increasingly data-driven, technology-integrated healthcare system.

Opportunities abound in leveraging tools like Artificial Intelligence (AI) for data analytics and clinical decision support, virtual and augmented reality (VR/AR) for hands-on, risk-free training in compounding and patient counseling, and electronic health records (EHRs) for real-world medication management simulations. These innovations promise to cultivate crucial professional competencies, moving the curriculum beyond theoretical knowledge to practical digital skills.

However, the rapid digital shift introduces considerable challenges. Infrastructure disparities (especially in connectivity and hardware), the need for comprehensive faculty development in digital pedagogy, and a focus on maintaining humanistic and communication skills in remote or hybrid settings are critical barriers. Furthermore, curriculum redesign is complex, requiring integration of digital health topics while managing concerns around data privacy, security, and the ethical use of AI. Successfully navigating this transformation demands a strategic, inclusive, and iterative approach to ensure the education of a digitally competent and compassionate pharmacy workforce, ultimately leading to improved patient outcomes and professional relevance in the modern era.

Keywords: Digital Transformation, Pharmacy Education, Artificial Intelligence (AI), Telepharmacy, Curriculum Redesign.

A Study on the Impact of Bhagavad Gita Teachings on the Mental Well-Being of Adolescents

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The Bhagavad Gita, one of the most revered scriptures of Indian philosophy, presents timeless wisdom on self-awareness, emotional regulation, and the pursuit of inner peace. This study explores the impact of Bhagavad Gita teachings on the mental well-being of adolescents in the modern educational and social context. The research aims to examine how the philosophical and ethical principles of the Gita—such as self-control (atma-vashya), equanimity (samatvam), and the concept of duty without attachment (nishkama karma)—influence the psychological resilience, emotional stability, and stress-coping mechanisms of young individuals.

A mixed-method approach was adopted, involving surveys, focus group discussions, and psychological well-being assessments conducted among adolescents aged 13–19 years. Participants were introduced to selected teachings and verses of the Bhagavad Gita through guided sessions over an eight-week period. Quantitative results indicated significant improvements in self-esteem, mindfulness, and overall emotional balance, while qualitative feedback revealed enhanced clarity of thought, reduction in anxiety, and better interpersonal relationships. The findings suggest that integrating Bhagavad Gita-based value education into adolescent mental health programs can foster positive psychological development and spiritual well-being. This study underscores the relevance of ancient Indian wisdom in addressing contemporary mental health challenges among youth, emphasizing the Gita's role as a holistic guide to inner harmony, purpose, and resilience.

Keywords: Bhagavad Gita, adolescents, mental well-being, emotional regulation, mindfulness, resilience, value education, psychological health.

The 2023 South Lhonak GLOF: A Case Study in Climate Change Impacts and Cascade Failures

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This review paper examines the Glacial Lake Outburst Flood (GLOF) that occurred at South Lhonak Lake in North Sikkim on October 3–4, 2023. The event serves as a critical case study of a cascading multi-hazard disaster, illustrating the severe impacts of rapid climate change on fragile mountain ecosystems. A massive permafrost collapse triggered a displacement wave that breached the moraine dam, further intensified by heavy monsoon rainfall. The flood caused 55 fatalities, left 74 missing, and destroyed the Teesta III Hydropower Project along with 31 major bridges. The study underscores the urgent need for advanced predictive modelling, real-time monitoring, resilient infrastructure, and transboundary cooperation to mitigate future GLOF risks.

Keywords: Cascade Disaster; Dam Break; Multi-hazard; Risk Assessment,

Enhancing Nighttime Security in Sikkim through Drone Patrols

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This study addresses the problem of inadequate nighttime vigilance by authorities in certain regions of Sikkim, resulting in increased criminal activities that affect residents. To mitigate this issue, the proposed solution introduces drone-based surveillance using Unmanned Aerial Vehicles (UAVs) for enhanced security and rapid response. The system utilises pre-planned flight routes over identified hotspots and event areas, offering continuous aerial observation, rapid redeployment, and flexible patrol capabilities. These features make drones particularly effective in remote or difficult terrains. Equipped with thermal sensors, the UAVs enable efficient nighttime monitoring, while integrated Artificial Intelligence (AI) and analytics support real-time incident detection. The framework also emphasises ethical safeguards to ensure privacy, legality, and transparency. Overall, the approach aims to establish Sikkim as a model for smart and responsible technology-driven crime prevention.

Keywords: Unmanned Aerial Vehicles (UAVs); Artificial Intelligence (AI); nighttime vigilance; Drones.

Echoes of the Melting Peaks: A Comprehensive Analysis of Glacier Dynamics in Sikkim Himalaya

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Glaciers form an integral component of the Himalayan ecosystem, serving as vital freshwater reserves and regulating the hydrological flow of major rivers such as the Teesta and Rangit in Sikkim. In recent decades, accelerated glacier retreat has been observed, primarily driven by rising temperatures, altered precipitation patterns, and the broader impacts of climate change. This study examines the underlying causes, environmental and socio-economic consequences, and observed trends of glacier melting in Sikkim. It also reviews recent scientific studies addressing glacier dynamics and proposes potential mitigation and adaptation strategies to preserve these critical cryospheric resources and ensure sustainable water security in the region.

Keywords: Climate change, Cryosphere, Glacier retreat, Hydrological flow.

From Sin to Sanctity: Gender, caste, and the Politics of Female Transgression in the Theyyam of Thamburatti Amma

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The paper seeks to explore the Theyyam of Thamburatti Amma, a ritual art form from the North Kerala that in symbolism, fulfills the marriage she was denied in life. Oral mythology states that Thamburatti Amma was a namboodiri woman who was expelled from her village for speaking the truth about female desire. Shamed and outcast, she took her life in fire and thereafter was idolised and worshipped by the Vaniya caste. The Theyyam, which is performed for four days, symbolically carries out the marriage that society refused her, turning an act of exclusion into one of respect and remembrance. The study examines how the myth and performance redefine concepts of sexuality, purity, and divinity through feminist and anthropological lenses. It analyses symbols like fire, oil, and embodiment as signs of suffering, memory, and transformation through story and discourse analysis. In the end, Theyyam becomes a space where Kerala's cultural and collective memory honors suppressed women, tells their tales, and gives voice to their denied identities.

Keywords: Theyyam, Thamburatti Amma, Gender, Caste, and Female desire.

Leadership Styles in the Vedic Era

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The Vedic era (approximately 1500–500 BCE) represents a foundational period in Indian history, marked by the development of social, political, and spiritual systems that influenced later civilizations. Leadership during this era was deeply rooted in the principles of *dharma* (righteousness) and *rita* (cosmic order). Unlike modern hierarchical or authoritarian leadership models, Vedic leadership was multidimensional, combining moral authority, spiritual insight, and social responsibility. At the political level, the primary leader was the *raja* (king), who was considered a guardian rather than a ruler in the modern sense. His role was not only to govern but to uphold *rajadharma*—the ethical and just conduct expected of a king. Leadership was often consultative. The king frequently sought the counsel of scholars, priests, and elders (*sabhas* and *samitis*) before making decisions. This system emphasized collective wisdom and limited the concentration of power, reflecting an early form of participatory governance.

Spiritual leaders, particularly *rishis* (sages), played an equally significant role. Their authority stemmed from deep knowledge, ascetic discipline, and spiritual enlightenment rather than political power. They served as advisors and visionaries, shaping societal values through teachings found in the Vedas and Upanishads. Their leadership was based on inner transformation, self-control, and the pursuit of truth—a paradigm akin to modern-day transformational leadership. The Vedic era also recognized *stridharma*, or the distinct leadership roles of women, particularly in managing households, education, and rituals. Figures like Gargi and Maitreyi demonstrate female intellectual and spiritual leadership.

Overall, leadership in the Vedic period was a harmonized blend of ethical governance, spiritual wisdom, and social duty. These timeless principles offer relevant insights into contemporary leadership, emphasizing the importance of integrity, collective decision-making, and service to society.

Keywords: Dharma, Participatory Governance, Rajadharma, Vedic Leadership.

Traditional Wisdom: Resilient and Sustainable Indigenous Water Management

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Indigenous water management systems are best understood not as relics, but as sophisticated models of resilience deeply rooted in traditional ecological knowledge. These methods, honed across centuries in diverse biomes—from mountain ranges and dry deserts to lands defined by seasonal precipitation—stand out because they prioritize intrinsic sustainability, rely entirely on locally sourced materials, operate at a small, decentralized scale and are inextricably woven into the social and spiritual fabric of the communities they serve.

Core indigenous techniques in Practice: By concentrating on harvesting, conservation and wise distribution, indigenous people have perfected the skill of cooperating with nature to guarantee a consistent water supply. Indigenous groups are skilled in catching and recharging water before it is lost. Tafki or Bingi employ small embankments to store and disperse surface runoff, while shallow Lalalo pits draw from shallow groundwater in African drylands. Similar to this, the restoration of the water table in India depends on buildings such as Johads (earthen check dams) and Paar systems (where runoff is channeled to soak into sandy soil, later accessed by small kuis or wells). Effective artificial catchment basin design is demonstrated by Sudan's massive Hafirs.

Moving and Storing: In intricate transportation systems, creativity is evident. The historic Qanats in Iran and the surrounding areas are wonders of subterranean tunneling, directing water from deep aquifers over great distances with little loss. Kuhls are straightforward yet efficient surface channels that redirect stream flow and meltwater in the Himalayas. Storage tanks like Ahar Pynes (Bihar) and structures like the Indian Stepwells (Baoli) combined areas for social gathering, recharging and storage.

Keywords: Indigenous Water Management (IWM), Traditional Ecological Knowledge (TEK), Resilience and Sustainability, In-situ Conservation, Water Harvesting.

Fiscal Sustainability and Public Debt Management in India: A state Level Analysis

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Fiscal sustainability is crucial for long-term economic stability of Indian states. The first and foremost point is that maintaining fiscal discipline and sustainability is essential for the economic well-being of states. States with unsustainable debt levels or persistent fiscal deficits face higher borrowing costs and limited resources for public services. Ensuring fiscal sustainability safeguards states against financial crises and supports long-term growth and development. State-level disparities in debt and fiscal health require differentiated policy approaches

India's states differ significantly in terms of revenue generation, expenditure needs, and economic structure. Therefore, one-size-fits-all fiscal rules may not be effective. The study highlights the need for state-specific policies and differentiated FRBM targets that consider each state's fiscal capacity and constraints.

The proposed Fiscal Sustainability Index (FSI) provides a useful comparative tool. The FSI is one of the major contributions of this research. It integrates multiple fiscal indicators into a single composite score for each state. Policymakers and researchers can use the FSI to quickly assess fiscal health, compare states, and track progress over time.

Keywords: Fiscal indicators, Fiscal Sustainability Index, Growth, Development.

Criminalizing Cyberbullying in India: A Doctrinal Analysis

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The rise of social media and digital communication has created new forms of harassment, commonly known as cyberbullying. Such online abuse causes emotional, mental, and social harm to victims. In India, there is still no specific law to deal with cyberbullying. The present legal system depends on general provisions of the Information Technology Act, 2000, and the Bharatiya Nyaya Sanhita, 2023 (BNS), which only provide limited remedies. This situation raises important constitutional issues related to freedom of speech, the right to privacy, and the protection of individual dignity.

This paper aims to study the need for criminalizing cyberbullying in India and to identify the major legal and constitutional challenges. It also seeks to suggest how a balanced legal framework can protect both free expression and online safety.

The research uses a doctrinal method based mainly on secondary data such as laws, court judgments, books, journal articles, and government reports. Sources include the Information Technology Act, 2000; the Bharatiya Nyaya Sanhita, 2023; constitutional provisions under Articles 19 and 21; the case of Shreya Singhal v. Union of India; and comparative laws from countries like the United Kingdom, Australia, and Canada.

Keywords: Cyberbullying, Doctrinal Research, Constitutional Law, Information Technology Act, Legal Reform.

Integrating Vedic Mathematics for Efficient Arithmetic Computation in Machine Learning Models

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Machine learning models indeed require repeated arithmetic operations, such as multiplication and division, especially in matrix computation, feature transformation, and gradient-based optimization. These arithmetic operations are the major contributors to computational cost and time with increasing data scale and model complexity. While traditional binary arithmetic methods adopted within computational frameworks deliver these operations correctly, most of them introduce several intermediate steps that increase latency. This paper proposes a Vedic Mathematics-Based Computational Model to enhance the efficiency of arithmetic operations in machine learning workflows. It encompasses two famous Vedic sutras: Urdhva Tiryakbhyam (vertical and crosswise multiplication) and Nikhilam Navatashcaramam Dashatah (base-based multiplication and division simplification). These sutras minimize the number of calculations for multiplication and division, hence minimizing the number of intermediate calculations.

We shall implement Vedic arithmetic functions in Python and subsequently apply them to matrix multiplication tasks commonly encountered in machine learning. The results show that the Vedic-based computations achieve similar accuracy while offering improvement in execution time for small to medium-scale datasets. This proposed model is a promising direction to improve efficiency in machine learning systems, especially in scenarios related to edge computing, real-time processing, or with limited computational resources. This work highlights the relevance of ancient Indian mathematical principles in addressing contemporary computational challenges and opens a pathway for hybrid arithmetic computation models in AI.

Keywords: Vedic Mathematics, Machine Learning Optimization, Urdhva Tiryakbhyam, Computational Efficiency.

Judicial Governance: The Role of Judiciary in Ensuring Constitutional Accountability

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Judicial governance is crucial for bringing about a balance of the organs of government and seeing that the letter and spirit of constitutional values are adhered to. As the sentinel of the Constitution, the judiciary uses its power of judicial review and ensures that the principle of separation of powers is guarded to uphold the democratic ideals. By its interpretative and supervisory functions, it seeks to ensure that the functions of both legislative and executive departments conform to the mandates set forth by the Constitution. Judicial governance, therefore, encompasses accountability within the paradigm of the rule of law and constitutes a check against the abuse of power by other organs of the State. It critically examines how judicial governance strengthens constitutional accountability in India through landmark judgments such as "Kesavananda Bharati v. State of Kerala" and "S.R. Bommai v. Union of India", wherein vital precedents have been laid down with respect to constitutional interpretation and governance. These developing dimensions of judicial activism and restraint in balancing the functions of governance while keeping alive the flame of institutional harmony are studied. The paper thus concludes that an independent and active judiciary not only secures constitutional supremacy but also strengthens the democratic fabric by increasing citizens' trust in governance and upholds justice as the "raison d'être" of the State.

Keywords: Judicial Governance, Separation of Powers, Judicial Review, Constitutional Accountability.

स्त्री नेतृत्व का नवयुग: नारी शक्ति वंदन अधिनियम और लोकतांत्रिक पुनर्संरचना की राह

लीना दुग्गड, विधि एवं संवैधानिक अध्ययन विभाग,
शोभित इंस्टीट्यूट ऑफ इंजीनियरिंग एंड टेक्नोलॉजी (डीम्ड टू बी यूनिवर्सिटी), मेरठ, भारत

परिचय: भारत के लोकतांत्रिक इतिहास में *नारी शक्ति वंदन अधिनियम, 2023* केवल एक संवैधानिक संशोधन नहीं, बल्कि सत्ता-संरचना में स्त्री की भूमिका के पुनर्लेखन का दस्तावेज़ है। यह अधिनियम नारी प्रतिनिधित्व को 'कानूनी अधिकार' से आगे बढ़ाकर 'लोकतांत्रिक दायित्व' के रूप में स्थापित करता है। दशकों से चली आ रही पितृसत्तात्मक राजनीतिक परंपरा में यह अधिनियम एक ऐसा वैचारिक मोड़ है, जहाँ स्त्रियाँ नीति की विषयवस्तु नहीं, बल्कि नीति की निर्मात्री बनकर उभरती हैं। भारतीय राजनीति में यह क्षण *संवैधानिक समानता* से *राजनीतिक प्रभाविता* की ओर संक्रमण को दर्शाता है — एक ऐसा परिवर्तन जो लोकतंत्र के नैतिक और बौद्धिक ढांचे को पुनर्परिभाषित करता है।

उद्देश्य: इस अध्ययन का उद्देश्य यह विश्लेषण करना है कि यह अधिनियम महिलाओं की भागीदारी को केवल सांकेतिक प्रतिनिधित्व तक सीमित रखेगा या उन्हें नीति-निर्माण की प्रक्रिया में वास्तविक निर्णयात्मक भूमिका प्रदान करेगा।

पद्धति: यह शोध गुणात्मक (Qualitative) पद्धति पर आधारित है। इसमें *संवैधानिक प्रावधानों, नारीवादी राजनीतिक सिद्धांतों* और *राजस्थान* के सामाजिक-राजनीतिक परिप्रेक्ष्य का तुलनात्मक अध्ययन किया गया है। डेटा संग्रह हेतु द्वितीयक स्रोतों—सरकारी रिपोर्टों, जर्नल लेखों और नीति दस्तावेज़ों—का उपयोग किया गया है।

निष्कर्ष: अध्ययन से स्पष्ट होता है कि *नारी शक्ति वंदन अधिनियम* केवल आरक्षण की व्यवस्था नहीं, बल्कि लोकतांत्रिक पुनर्संरचना का माध्यम बन सकता है। यह महिलाओं को निर्णय-निर्माण में सक्रिय भागीदारी के लिए प्रेरित करता है और भारतीय राजनीति में *स्त्री नेतृत्व के नवयुग* की ठोस नींव रखता है।

मुख्य शब्द: नारी शक्ति वंदन अधिनियम; लोकतांत्रिक पुनर्संरचना; स्त्री नेतृत्व; संवैधानिक नारीवाद; महिला सशक्तिकरण.

A Taxonomy of Image Retargeting: From Discrete Optimization to Continuous Warping

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At its core, image retargeting is the process of changing an image's aspect ratio (the ratio of its width to its height) while preserving the important content and minimizing visual artifacts. The proliferation of devices with diverse screen aspect ratios has made image retargeting the process of adapting images to different sizes a critical task in computer graphics and vision. This paper presents a comprehensive taxonomy of image retargeting techniques, charting their evolution and systematically classifying the underlying methodologies. We structure our survey along the fundamental divide between discrete optimization methods, such as the seminal Seam Carving algorithm which removes or inserts pixel paths, and continuous warping techniques, which re-size images by smoothly optimizing a deformation field. The taxonomy further explores the progression towards hybrid and multi-operator frameworks that intelligently combine the strengths of both paradigms to better preserve salient content and structural integrity. Furthermore, we investigate the recent paradigm shift driven by learning-based and generative models, which leverage deep neural networks to achieve perceptually superior results by learning from vast datasets. For each category, we analyse the core algorithms, their underlying mathematical principles, and their characteristic visual artifacts. By synthesizing the field's trajectory and discussing evaluation methodologies and open challenges, this paper serves as a valuable resource for researchers and practitioners, providing a clear map of the current landscape and highlighting promising avenues for future research.

Keywords: Content Preservation, Pixel and Patch Manipulations, Visual Media Resizing, hybrid frameworks and multi-operator frameworks.

Neural–Energy Effect of Vedic Prana on the Human Body: An Analysis of EEG and Quantum Body Composition for Brain–Body Coherence

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The integration of modern neurophysiology with ancient Vedic insights offers a novel framework to understand human energy dynamics. This study investigates the neural–energy correlation underlying the concept of Prana, described in Vedic literature as the vital life force regulating physiological and mental harmony. The objective is to analyze how Vedic Pranic practices influence brain–body coherence through quantifiable neurophysiological and electromagnetic parameters.

A group of individuals exhibiting stress, anxiety, sleep disturbances, or mild depressive symptoms will be evaluated. Baseline assessments will include electroencephalography (EEG) for brainwave activity, quantum body composition analysis for electromagnetic and cellular parameters, and bioelectromagnetic field mapping for body-level coherence. Participants will then undergo guided Vedic Prana modulation sessions, emphasizing controlled breathing, pranic awareness, and focused attention. Post-intervention, changes in EEG frequency bands (α, β, θ, γ), electromagnetic resonance indices, and cellular energy balance will be analyzed. The results aim to reveal whether pranic regulation enhances neural synchrony, stabilizes electromagnetic coherence, and restores systemic biofield balance, reflecting improved brain–body integration.

This interdisciplinary approach bridges biomedical electromagnetism, quantum biofield assessment, and Vedic pranic theory, offering new insights into energy-based neuromodulation and non-pharmacological interventions for psycho-physiological disorders.

Keywords: Electroencephalogram, Electromagnetism, Quantum analyzer, Vedic prana, brain-body coherence.

Bioactive Compounds, Agronomy, and Functional Properties of Black Wheat(*Triticum aestivum* L.)

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Black wheat (*Triticum aestivum*), characterized by its distinctive dark-colored pericarp, has emerged as a functional food crop of significant interest due to its high concentration of anthocyanins and other bioactive compounds. This manuscript systematically consolidates the current body of knowledge on black wheat, tracing its genetic origins and the biosynthetic pathways of its key pigments. A critical evaluation of its unique nutritional profile highlights the abundance of anthocyanins, flavonoids, and essential minerals compared to conventional white and whole wheat varieties.

Evidence from *in vitro* and *in vivo* studies elucidating the potential health benefits is synthesized, including antioxidant, anti-inflammatory, anti-carcinogenic, and cardioprotective properties. Furthermore, the agronomic performance, yield characteristics, and adaptability under diverse environmental conditions are discussed. The manuscript also addresses the challenges in cultivation, processing, and marketability.

Finally, future research directions are identified, emphasizing the need for advanced breeding techniques, robust clinical trials to validate health claims, and the development of value-added products. This comprehensive synthesis aims to serve as a foundational resource for researchers, agronomists, and food industries interested in the potential of black wheat as a sustainable, health-promoting crop.

Keywords: Black wheat, Anthocyanins, Functional food, Health benefits, Agronomic performance, bioactive compounds, Triticum aestivum, Nutraceuticals.

Ayurveda for a Better Life: Prevention and Lifestyle Management

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Ayurveda, the ancient Indian science of life, offers a deeply human and holistic approach to healthcare and lifestyle management. It goes beyond simply treating illness and focuses on maintaining a vibrant state of health (Swasthya Rakshanam). We all want to feel our best, and Ayurveda provides a personalized path to achieve that. The system understands that each person is unique, defining individual constitutions as Doshas (Vata, Pitta, and Kapha). Instead of a generic plan, Ayurveda offers tailored advice for everything from what we eat (Ahara) to how we structure our day (Dinacharya). This isn't about strict rules; it's about understanding your body's specific needs and adjusting your habits to fit nature's rhythms.

In our fast-paced modern world, where stress and chronic diseases often occur, Ayurveda provides practical, natural tools. Simple practices like following a seasonal routine (Ritucharya), choosing the right foods, and incorporating mindfulness techniques like Yoga help balance the mind and body. Ultimately, Ayurveda empowers us to take charge of our own well-being. It is a time-tested philosophy for living wisely, sustainably, and happily, making it a vital part of any effective modern wellness strategy.

Keywords: Dosha, Dinacharya, Mind-Body Balance, Ritucharya.

Effect of Major Alloying Elements on Microstructures and Mechanical Properties of Two Different Aluminium Series Alloys in Relation with the Indian Traditional Casting Process

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The present study explores the effect of major alloying elements on the microstructures and mechanical properties of two different aluminium series alloys; AA7075 and AA6061 processed through an advanced technique of Indian traditional casting process. The alloys were developed with varying concentrations of zinc (Zn) and magnesium (Mg) at different ratios but keeping total weight percent constant. These elements significantly influence solid-solution strengthening, precipitation behavior and phase formation during solidification. The concept of traditional Indian casting process was selected and applied in the modern technique to assess its capability to achieve homogeneous structures and desirable mechanical properties. Microstructural analyses were carried out using optical microscopy, scanning electron microscopy (SEM) and energy-dispersive X-ray spectroscopy (EDX) to identify grain morphology, intermetallic phase distribution and elemental analysis. The mechanical properties were evaluated through the Vickers hardness testing to establish a direct correlation between composition, processing and microstructural evolution. It is interestingly observed that both Zn and Mg additions markedly enhance the strength and hardness of AA7075 and AA6061 alloys, primarily due to refined grain structures and the formation of $MgZn_2$ and Mg_2Si precipitates. Among the two alloys, AA7075 exhibited superior mechanical properties attributed to its higher Zn and Mg content, leading to stronger precipitation hardening and improved intermetallic phase stability. Furthermore, the concept of Indian traditional casting process demonstrated its potential as a cost-effective and efficient route for producing aluminium alloys with improved microstructural integrity and acceptable mechanical performance. This study provides valuable insights into optimizing alloy composition and indigenous casting methods to develop high-strength aluminium alloys for industrial applications.

Keywords: Aluminium alloys, Microstructure, Mechanical properties, Indian traditional casting, Precipitation hardening, Solidification behavior.

A CODAS-Based Multi-Criteria Decision-Making Framework for Optimal CNC Machine Tool Selection

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Computer Numerical Control (CNC) machine tools represent the backbone of modern manufacturing industries, which allow high precision, productivity, and flexibility in complex machining operations. Selecting an appropriate CNC machine tool is one of the strategic decisions that may directly influence the quality of production, operational efficiency, and overall cost performance. However, the decision-making process is inherently complex because of the involvement of multiple conflicting criteria, such as spindle speed, power, positioning accuracy and purchase cost, etc. Therefore, this study uses the Combinative Distance-Based Assessment (CODAS) method, an advanced multi-criteria decision-making approach, to evaluate and rank the CNC machine tools objectively. The CODAS method evaluates the relative performance of alternatives based on their Euclidean and Taxicab distances from the negative ideal solution, including a threshold parameter that enhances discrimination among closely ranked options. A real time case study has been conducted to validate the efficacy of the proposed framework. It is observed that the ranking obtained through the CODAS-based model is rational, transparent, and reliable and consistent with experts' evaluations. This research establishes the CODAS approach as one of the valuable decision-support tools in optimizing CNC machine tool selection and improving the efficiency of investments in the manufacturing industry.

Keywords: CNC machine tool selection, Combinative Distance-Based Assessment (CODAS), Multi-Criteria Decision-Making (MCDM); manufacturing optimization.

Opportunities and Challenges of Ayurveda and Global Wellness Industry

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The trillions-of-dollars global health market is structurally changing as people move away from sickness treatment to personalized, natural, and preventative wellness. However, despite its growing acceptance, Ayurveda faces several challenges in standardization, scientific validation, and global integration. This report looks at how Ayurveda, one of the oldest complete systems of holistic medicine in the world, is particularly positioned to meet this surging demand, especially for managing chronic and lifestyle-related conditions. We found its biggest opportunities to lie in wide consumer trust, increasing political support from organizations such as the WHO, and its potential integration into modern health practices. But for Ayurveda to finally succeed, significant hurdles lie ahead. The primary one deals with the need for standardization and scientific proof, such as clinical trial data, to convince global regulators. Currently, its products are normally classified simply as "dietary supplements" in the West, which limits their prospects. Ultimately, realizing Ayurveda's immense potential requires concerted efforts toward modernization of its research—employing methods like Reverse Pharmacology—to bridge the gap between the ancient tradition and modern scientific validation for quality and global acceptance.

Keywords: Ayurveda, global wellness industry, traditional medicine, opportunities, challenges, holistic health, standardization.

Yoga & Meditation

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Yoga and meditation, ancient practices originating in India, have gained global recognition as powerful, cost-effective, and complementary mind-body therapies for holistic health. The word 'yoga' derives from the Sanskrit word 'Yuj', meaning to join or unite, symbolizing the integration of the body, mind, and spirit. This discipline, which extends beyond mere physical exercise, involves a multifaceted system designed to foster self-awareness, inner peace, and overall harmony.

The core components of a typical practice include physical postures (asanas), regulated breathing techniques (pranayama), and meditation (dhyana). Regular engagement with these practices has demonstrated numerous physical and psychological benefits, supported by a growing body of scientific evidence. Physically, yoga improves flexibility, strength, balance, and posture, while also supporting cardiovascular and immune system health, and aiding in chronic pain management. Mentally, both practices are highly effective in reducing stress, anxiety, depression, and fatigue by balancing the nervous system and regulating stress hormones like cortisol. They enhance mental clarity, focus, concentration, and memory, promoting a positive outlook and better sleep quality.

Ultimately, yoga and meditation provide individuals with essential self-regulation and coping skills to navigate modern life's pressures, fostering resilience, self- acceptance, and a profound sense of well-being.

Keywords: Mind-Body Connection, Stress and Anxiety Reduction, Physical Health Benefits Enhanced Cognitive Function, Accessible and Cost-Effective.

Development and Validation of an Integrated Yoga, Naturopathy, and Acupuncture Module for Patients with Chronic Obstructive Pulmonary Disease (COPD): A Content Validation Study

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Chronic Obstructive Pulmonary Disease (COPD) remains a leading cause of global morbidity and mortality, with conventional pharmacotherapy often failing to address the disease's multifaceted nature holistically. This has spurred interest in Complementary and Alternative Medicine (CAM) approaches, yet the lack of standardized, validated integrated protocols limits their evidence-based integration. This study aimed to develop and establish the content validity of an Integrated Yoga, Naturopathy, Acupuncture, and Diet (IYNAD) module for COPD management.

A two-phase methodological study was conducted. First, a preliminary IYNAD module was developed through systematic review of classical texts and contemporary literature (PubMed, Scopus up to September 2025), comprising 18 yoga practices, 12 acupuncture points, 4 hydrotherapy procedures, and 5 dietary recommendations. Subsequently, content validation was performed by a panel of twelve experts with significant experience in relevant fields. Experts rated each item on a 3-point essentiality scale. Lawshe's Content Validity Ratio (CVR) was calculated for each item, with a critical value of 0.56 (for N=12, $p<0.05$) determining retention.

The validation demonstrated strong expert consensus. In the yoga module, 16/18 practices achieved a perfect CVR of 1.00, including all pranayamas; the remaining two scored well above the cut-off (Prayer CVR=0.83, Surya Namaskar CVR=0.67). For acupuncture, 11/12 points were retained (CVR range: 0.67-1.00), with LU 7 (CVR=0.50) excluded. All hydrotherapy procedures (CVR=0.67 each) and dietary recommendations (CVR range: 0.83-1.00) were validated. The final IYNAD module includes 18 yoga practices, 11 acupuncture points, 4 hydrotherapy procedures, and 5 dietary strategies. This study successfully established the content validity of a comprehensive IYNAD module for COPD through rigorous expert consensus. The resulting standardized protocol is ready for empirical investigation, with future research recommended to focus on feasibility testing and randomized controlled trials to evaluate its efficacy in improving clinical outcomes and quality of life for COPD patients.

Keywords: COPD, Content Validity, Yoga, Naturopathy, Acupuncture, Lawshe's CVR, Integrated Medicine.

Facial Emotion Recognition with Comforting and Counseling Responses

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This paper presents a system for Facial Emotion Recognition (FER) that not only detects a person's emotional state from video streams but also provides human-centric, comforting responses. Leveraging deep learning, particularly Convolutional Neural Networks (CNNs), our model is trained on established datasets to identify core human emotions such as happiness, sadness, anger, and more. The proposed system is envisioned as an emotion-aware assistant with real-world applications in mental health support and online therapy. Our methodology is designed to handle challenging real-world conditions like varying lighting, occlusions, and diverse facial structures. We aim to create a system that is both accurate and ethically responsive.

Keywords: Convolutional Neural Networks, Facial Emotion Recognition, real-world conditions.

Electrochemical Determination of Vitamins: Voltammetric Techniques, Redox Characteristics, and Recent Analytical Advances

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Vitamins are indispensable micronutrients essential for physiological, metabolic, and biochemical processes in living organisms, necessitating precise and rapid analytical methods for clinical, pharmaceutical, and nutritional applications. Electrochemical techniques, particularly voltammetry, have emerged as highly sensitive, selective, cost-effective tools for vitamin quantification, leveraging the unique redox properties influenced by molecular structure, electroactive sites, and electrolyte conditions. For instance, ascorbic acid (vitamin C) displays a prominent oxidation peak in cyclic voltammetry, while fat-soluble vitamins such as A, D, E, and K exhibit distinct responses tied to their conjugated systems and functional groups, enabling detailed studies of stability and interactions in complex matrices. Water-soluble B-complex vitamins similarly produce well-defined electrochemical signals under optimized parameters, facilitating accurate detection in biological samples. Recent advancements, including nanomaterial-modified electrodes and biosensors, have enhanced sensitivity and reproducibility, with detection limits reaching nanomolar levels for vitamins like B6 and B12 through strategies such as electropolymerization and metal nanoparticle integration. This comprehensive review elucidates the electrochemical behavior of major vitamins, correlates structural features with voltammetric responses, and highlights innovative electroanalytical developments for real-time monitoring in diverse environments.

Keywords: Electrochemical Sensors, Voltammetric Techniques, Vitamin Detection, Redox Characteristics Nanomaterial-Modified Electrodes.

Environmental and Sustainable Development

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Sustainable development, widely defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs", has emerged as a critical global objective in response to accelerating environmental degradation and resource depletion. The traditional model of economic growth, a "take- make- dispose" linear economy, has pushed the planet's ecosystems beyond their carrying capacity, leading to alarming challenges such as climate change, biodiversity loss, and resource scarcity. This paradigm shift calls for a harmonious approach that integrates environmental protection with economic prosperity and social equity.The core of sustainable development lies in balancing its three interdependent pillars:the environmental (ecological), economic,and social dimensions. Environmental sustainability requires the wise use and conservation of natural resources, the promotion of renewable energy, and the minimization of pollution and waste within the regenerative capacity of natural systems. Economic sustainability focuses on fostering equitable and resilient growth that values long- term environmental and social costs and benefits, moving towards models like the circular economy. Social sustainability aims to ensure social justice, inclusion, and equal access to basic needs and opportunities for all, thus improving the overall quality of life.Achieving this balance demands a collective and integrated effort involving governments, businesses, civil society, and individuals.

Keywords: Definition, Three Pillars, Resource Management, Intergenerational Equity.

L

Right to Privacy judgment and its Impact on Human Rights Emphasis on Legal Aspects

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This paper will examine the effects of the judgment on different social groups in India regarding the safeguarding of their privacy. In the landmark ruling (Justice Puttaswamy (Retd.) and Anr. vs Union of India), where privacy was recognized as a fundamental right and established the foundation of Article 21 of the Indian Constitution, a new awareness emerged that privacy should not be taken for granted. Every individual possesses a right to their privacy, which is a significant Constitutional Right. With digitalization and emergence of Artificial intelligence, privacy extends beyond a few aspects and encompasses protection from both government entities and private companies such as Facebook, Instagram, and other social media platforms, which may otherwise intrude upon individuals' privacy for their own gain. This violation of privacy, particularly concerning "targeted" groups, impacts their human rights and heightens the risk of social insecurities among citizens. The paper will emphasize the critical elements of the Srikrishna Report on data protection and outline the key points of the Digital Personal Data Protection Act, 2023. Through this study, issues related to Legal aspect will be addressed, highlighting the significant role of the Srikrishna committee report in the future safeguarding of "data" against various stakeholders, as the report indicates that data has the capacity to both empower and harm. Emerging technologies such as Artificial Intelligence and Machine Learning open new pathways in engineering and medical research, facilitating rapid data generation. This necessitates protection against the misuse of such technologies, particularly concerning "poor and targeted citizens," which is a crucial topic of discussion in the report. Additionally, the report will address the need for exceptions in specific cases to avert terrorist attacks and other anti-national activities, especially through the utilization of the "dark web." The comparison of various "data protection" measures will be explored.

Keywords: Privacy, Data Protection, Stakeholders, Artificial Intelligence.

Age Stratified Analysis of Menstrual Cycle Fluctuations in Fluid and Cellular Indices via Multi-Frequency Bioelectrical Impedance in Women

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This cross-sectional study comprehensively examines age related changes in body composition, with focused analysis on third space water dynamics, across the menstrual cycle using multi frequency bioelectrical impedance analysis (BIA). Female participants were stratified into four age cohorts: pre-menarcheal (11–13 years), reproductive (18–21 years), mature (35–40 years), and premenopausal (50–55 years). BIA measurements over a 28-day cycle encompassed fat mass, fat-free mass, body cell mass (BCM), extracellular mass (ECM), total body water (TBW), intracellular water (ICW), extracellular water (ECW), third-space water, and impedance indices. Results indicate that younger exhibit higher third-space water, body cell mass, and total body water, with progressive declines observed in mature and premenopausal cohorts. Nutritional and impedance indices also decrease with age, reflecting reduced cellular health and conductivity. Impedance values are lower in younger cohorts across all tested frequencies (5–200 kHz), suggesting better tissue hydration and membrane integrity, while older cohorts demonstrate greater extracellular resistance and lower fluid compartments. These findings highlight significant age dependent physiological modulations in fluid distribution and cellular composition across the menstrual cycle, highlighting the clinical relevance of cohort specific data for women. The data support targeted approaches for nutritional and therapeutic interventions in women's health and emphasize the sensitivity of multi-frequency BIA in capturing subtle cyclical fluid and tissue changes in females.

Keywords: BIA, Menstrual Cycle, Third space water, Ageing, Body Composition.

Ancient Legal Tradition and Governance of Dharma with respect to unadulterated Food and ethical practice

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The ancient Indian legal philosophy, grounded in the doctrine of Dharma, provided an integrated framework for governance that transcended the confines of law to encompass morality, social welfare, and ethical responsibility. Within this comprehensive worldview, the sanctity and purity of food were regarded not only as matters of individual health but also as vital to social harmony and spiritual well being. Foundational texts such as the Manusmriti, Arthashastra, Mahabharata, and the Ayurvedic Samhitas articulated norms that upheld unadulterated food (asuddha anna) as a core element of sustaining dharma and collective welfare. Ancient administrative systems incorporated regulations on trade, market supervision, and the moral accountability of those handling food, all underpinned by the ethical ideals of satya (truth) and ahimsa (non violence).

This paper investigates how these early moral and legal frameworks concerning food purity prefigured modern notions of food safety, consumer rights, and corporate accountability. By analyzing dharma as both a juridical and moral principle, the study highlights continuities between ancient ethical governance and present-day regulatory mechanisms ensuring food integrity. It concludes that sustainable food governance in the modern era can benefit from these traditional perspectives, which regarded food not simply as a commercial product but as a sacred bond uniting the individual, society, and the cosmos.

Keywords: Dharma, Ancient Legal Tradition; Ethical Governance; Arthashastra; Manusmriti.

Impact of Psychological Stress on Cardiac Health with Ageing: A Review

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This study explores the differential effects of psychological stress on cardiac health across distinct age groups, aiming to clarify the physiological mechanisms underpinning stress-induced cardiovascular risk. Data were synthesized from cohorts representing adolescence, adulthood, and the elderly, integrating measures of heart rate variability, blood pressure response. Psychological stress is increasingly recognized as a key modifiable risk factor for cardiovascular morbidity and mortality, influencing both acute and chronic cardiac events. Mechanistically, stress induces acute autonomic imbalances and sustained neuroendocrine activation, driving inflammation, endothelial dysfunction, and heightened susceptibility to arrhythmias and ischemia. Evidence indicates that while younger adults often exhibit pronounced cardiovascular reactivity to stress, older populations face a greater risk for persistent hypertension, left ventricular dysfunction, and adverse outcomes, partly due to age-related decline in adaptive stress responses and cardiovascular reserve. The review highlights the bidirectional effects of comorbid mood disorders and sleep disturbances, especially in elderly patients, further amplifying cardiac risk. Emphasis is placed on the need for age-specific psychosocial interventions in cardiac care to mitigate the cumulative burden of stress-related heart disease with ageing.

Keywords: Psychological Stress, Cardiac Health, Age Differences, Cardiovascular Disease Risk, Heart Rate Variability.

RetailEdge: A Secure Self-Checkout Solution for the Retail Sector

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The retail sector is undergoing a fast pace of change fueled by automation, digital technology, and increasing contactless demands. RetailEdge proposes a secure self checkout system to simplify consumer convenience and operational performance while maintaining the authenticity of a transaction the system integrates hardware and software components, including IoT-enabled smart trolleys equipped with RFID modules, weight and ultrasonic sensors, and camera-based verification. These components work collaboratively to validate every product added to the cart, minimizing human intervention and eUectively preventing theft. RetailEdge runs on a web and mobile application created using Spring Boot and ReactJS, enabling one to scan goods, conduct safe digital payments, and print e-bills in real time. The solution targets aUordability and scalability to be within reach for small and medium retailers. Apart from automation, RetailEdge enables entrepreneurship through a low-cost and sustainable solution that closes the gap between local retailers and new technology.

By merging IoT, automation, and user centered design, RetailEdge provide a seamless, secure, and transparent shopping experience that transform conventional retail practices. RetailEdge is the pinnacle of innovation and digital transformation and is perfectly aligned with the Indian vision for a technology-driven economy and lays the foundation for an intelligent, resilient retail system.

Keywords: Retail Automation, IoT, Self-Checkout, Digital Transformation, Entrepreneurship.

Effect of Surya Namaskar on Lipid Profile, Reaction Time and Peak Expiratory Flow Rate in Individuals with Different Body Mass Index: An Experimental Study

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Surya namaskar, a dynamic sequence of yoga associating postures and regulated breathing has been proven to improve metabolic, neuromuscular and respiratory functions. Since Body Mass Index (BMI) has an impact on physiological adaptations to exercise, it is essential to understand how individuals with different BMI adapt to Surya namaskar. However, documentation regarding the differential effects of Surya Namaskar on lipid profile, reaction time and pulmonary function across BMI categories remains limited, demanding further investigation.

Forty-five participants with different BMI categories were allocated into 3 groups- group A (normal BMI, n=15), group B (overweight, n=15) and group C (obese, n=15). All participants performed 10 Surya namaskars for 3 days a week for 12 weeks and progressed by increasing 5 sets every 2 weeks. All participants were evaluated at pre and post 12 weeks for lipid profile, auditory reaction time (ART) and visual reaction time (VRT) using RTM-608 and peak expiratory flow rate (PEFR) using peak expiratory flowmeter. Within group analysis revealed significant improvement in TC ($p=0.01$) among overweight and obese participants, increased HDL ($p=0.03$), decreased VLDL ($p=0.02$) in overweight group and reduced LDL ($p=0.01$) in obese group. Additionally, there was improvement in ART, VRT ($p<0.05$) and PEFR ($p=0.00$) for all 3 groups. Between group analysis showed significant improvements in VLDL ($p=0.05$) and LDL ($p=0.04$), when compared between normal and obese individuals. ART ($p=0.04$) and VRT ($p=0.00$) showed significant improvements when compared between normal and obese individuals while no significant between group differences were observed for PEFR. The incorporation of Surya Namaskar into lifestyle can aid in managing dyslipidemia, improve reaction time and expiratory rate across BMI categories, with better benefits observed in overweight and obese individuals.

Keywords: Auditory reaction time; dyslipidemia; pulmonary function; visual reaction time.

Green Nanotechnology and the Vedic Principle of Ecological Balance

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Green nanotechnology represents a convergence of material innovation and environmental responsibility, offering a sustainable alternative to conventional nanomaterial synthesis that often relies on toxic chemicals and energy-intensive methods. Green nanoscience emphasizes bio-inspired, plant-mediated, and eco-friendly approaches that reflect the natural order and self-sustaining balance observed in living systems. This paper investigates the philosophical and scientific correlation between the sustainable principles of green nanotechnology and the Vedic doctrine of ecological equilibrium, rooted in the concept of Panchabhuta—the five fundamental elements: Earth, Water, Fire, Air, and Ether. The Panchabhuta framework symbolically parallels modern nanomaterial synthesis processes, encompassing solid-state design (Earth), colloidal chemistry (Water), thermal activation (Fire), vapor-phase reactions (Air), and electromagnetic interactions (Ether). By analyzing case studies such as plant-extract–mediated synthesis of silver nanoparticles and the nanoscale characterization of Ayurvedic *Bhasmas*, this work reveals that Vedic ecological philosophy inherently supports the principles of resource recycling, minimal toxicity, and energetic harmony that define green nanoscience.

Modern science stands at a critical turning point where technological progress must coexist with ecological mindfulness. Centuries before the emergence of the term "sustainability," Vedic science articulated a parallel vision of balance and interdependence, emphasizing that every transformation in nature whether material or energetic must preserve universal harmony. Through an interdisciplinary exploration of traditional eco-philosophy and contemporary nanotechnology, this study proposes a holistic paradigm of "Veda-inspired green innovation", integrating ancient wisdom with modern scientific ethics to guide the development of environmentally conscious, sustainable, and spiritually aligned technologies for the future.

Keywords: Green nanotechnology, Vedic philosophy, Sustainable synthesis • Biogenic nanoparticles, Eco-ethics, Nanomaterials, Ecological balance.

Ayurveda: A Pathway to Holistic Health and Harmony

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Ayurveda, the ancient system of Indian medicine, emphasizes the balance between body, mind, and spirit to achieve optimal health and well-being. Unlike modern medical approaches that often focus on treating specific symptoms or diseases, Ayurveda promotes a holistic view of health, considering every aspect of a person's lifestyle, diet, emotions, and environment. Rooted in the principle of the three doshas—Vata, Pitta, and Kapha—Ayurveda believes that maintaining harmony among these biological energies ensures physical vitality and mental clarity. Holistic health in Ayurveda goes beyond the absence of illness; it encourages preventive care through personalized routines, herbal therapies, meditation, and yoga. These practices aim to strengthen the body's natural healing mechanisms and enhance resilience against diseases. Furthermore, Ayurveda recognizes the deep connection between the mind and body, asserting that mental peace and emotional balance are essential for physical health. In the modern era, where stress and lifestyle disorders are widespread, Ayurvedic principles offer valuable insights for sustainable living and wellness. Integrating Ayurvedic wisdom with contemporary healthcare can provide a more comprehensive approach to healing, focusing on prevention, natural remedies, and individualized care. Thus, Ayurveda continues to serve as a timeless guide for holistic health, promoting harmony, longevity, and inner balance in today's fast-paced world.

Keywords: Ayurveda, Holistic Health, Dosha Balance, Wellness, Preventive Care.

Effect of Yoga on Balance and Fitness in Geriatric Population

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The geriatric population (aged 60+) experiences system deterioration, leading to balance issues primarily due to age and disease related factors. Research links impaired balance to higher fall rates. Iyengar yoga, a form of Hatha yoga, helps improve physical and mental health by enhancing strength, flexibility, and balance. As a therapeutic exercise, yoga promotes mind-body engagement and improves muscle strength, endurance, flexibility, motion range, and cardiopulmonary endurance, leading to improvement in balance, body awareness, and proprioception, in older adults.

Objective: To assess the effect of yogasana on balance in healthy older adults.

Materials and Methodology: This experimental study was conducted on 40 participants, healthy older adults between the age group 60-75 years, both male and female. The participants were divided in to 2 groups by simple random method; Group A was the experimental group whereas group B was the control group. The experimental group was made to perform yogasanas for 3 times a week for four weeks under supervision whereas the control group was asked to perform their daily activities as it is. Balance was assessed before intervention started and after the end of 4 weeks using various scales like Barg Balance Scale (BBS), Timed get up and go test (TUG) and Senior Fitness Test (SFT)performance-oriented mobility assessment (POMA).

Result: Within Group analysis TUG, BBS, POMA, SFT except BMI & Chair sit and reach showed significant improvement in Group A ($p<0.05$). Group B showed non-significant improvement in all components except SFT- BMI ($p>0.05$). Between Group analysis showed significant improvement in Group A more than Group B whereas SFT component showed non-significant improvement except back stretch test & 8 foot up and go test.

Conclusion: The study conducted that yogasanas are effective in improving balance in geriatric population. Thus, it can be practiced regularly by old aged people to improve balance and reduce fall rates in them.

Keywords: Aged, Balance, Yoga, Flexibility. TUG, BBS.

Neuroendocrine and Cognitive Modulation through Yoga and Meditation in Working Women

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The menstrual cycle is a complex neuroendocrine rhythm orchestrated by the hypothalamic–pituitary–gonadal (HPG) axis and closely interconnected with the hypothalamic–pituitary–adrenal (HPA) axis. In working women, persistent occupational stress stemming from workload pressure, multitasking, and emotional fatigue activates the HPA axis, elevating cortisol secretion and suppressing gonadotropin-releasing hormone (GnRH) pulsatility. This endocrine imbalance disrupts estrogen–progesterone homeostasis, impairs luteinizing and follicle-stimulating hormone (LH/FSH) release, and leads to menstrual irregularities, dysphoria, and reduced cognitive efficiency. Stress-induced hormonal fluctuations also compromise attention, working memory, and executive function while amplifying mood instability and anxiety across menstrual phases.

Yoga and Meditation, grounded in ancient mind–body practices, have emerged as scientifically validated, non-pharmacological modulators of stress-induced neuroendocrine dysfunction. Regular engagement in these practices promotes parasympathetic dominance, normalizes cortisol circadian rhythms, and restores HPA–HPG axis synchrony. Neuroimaging and electrophysiological studies reveal enhanced prefrontal cortex activation, reduced amygdalar hyperreactivity, and elevated serotonergic and GABAergic transmission, reflecting improved emotional regulation, cognitive control, and menstrual cycle stability.

This review integrates endocrinological, neuroscientific, and occupational health perspectives to elucidate how Yoga and Meditation re-establish neuroendocrine equilibrium and cognitive resilience in working women. By bridging traditional wellness practices with modern neurobiology, it advocates for the implementation of structured Yoga–Meditation interventions within workplace wellness models to prevent stress-induced reproductive and cognitive dysfunctions. Future longitudinal research should delineate the molecular and neuroplastic pathways mediating these therapeutic effects across menstrual cycle phases and diverse occupational cohorts.

Keywords: Yoga, Meditation, Menstrual cycle, neuroendocrine modulation, HPA axis, HPG axis, Cognitive function, Cortisol, Working women, Mind–body intervention.

Re-envisioning Education and Pedagogy through Vedic Insights: Integrating Indian Knowledge Systems and Artificial Intelligence for Holistic Learning

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In an era where technology is reshaping education, the timeless wisdom of the Vedas offers profound guidance for building a more balanced and humane learning system. This paper seeks to re-envision education and pedagogy by integrating Vedic insights and Indian Knowledge Systems (IKS) with the evolving landscape of Artificial Intelligence (AI). The purpose is to explore how ancient educational ideals such as Swadhyaya (self-learning), Anubhav (experiential learning), and Purnatva (wholeness) can meaningfully interact with modern AI-driven pedagogies to create a holistic model of learning.

Using analytical and interpretative methods, the study draws parallels between Vedic concepts of wisdom, ethical consciousness, and learner-centered education with AI-enabled tools such as adaptive learning platforms and intelligent tutoring systems. The results indicate that when guided by the moral and spiritual ethos of Indian philosophy, AI can evolve from a mechanical tool into an ethical companion in the learning process. It can personalize learning while preserving the human values that define true education.

The paper concludes that the fusion of Vedic insights and Artificial Intelligence can inspire a new educational paradigm—one that harmonizes intellect with intuition, science with spirituality, and innovation with wisdom. This integrated approach holds the potential to nurture learners who are not only skilled and knowledgeable but also conscious, compassionate, and deeply rooted in human values.

Keywords: Vedic insights, Artificial Intelligence, Indian Knowledge System, holistic learning, pedagogy, value-based education.

Environmental Protection and Sustainable Development: A Path toward a Greener Future

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Environmental protection and sustainable development are crucial for maintaining the balance between economic growth, social well-being, and ecological stability. Rapid industrialization, urbanization, and population growth have led to excessive exploitation of natural resources, resulting in pollution, climate change, deforestation, and loss of biodiversity. Sustainable development aims to meet present needs without compromising the ability of future generations to meet theirs. It emphasizes responsible consumption, renewable energy use, waste management, and conservation of natural ecosystems. Environmental sustainability focuses on reducing carbon emissions, promoting green technologies, and adopting eco-friendly practices in agriculture, industry, and daily life. Governments, organizations, and individuals all play vital roles in achieving these goals through policy implementation, education, and awareness programs. Integrating sustainability into every aspect of development ensures long-term economic stability and a healthier planet. Environmental education and community participation are essential to inspire collective action and encourage behavioral changes. By protecting natural resources and promoting equitable development, we can ensure a cleaner, safer, and more resilient environment for future generations. Sustainable development is not just an option—it is a necessity for human survival and planetary well-being.

Keywords: Environment, Sustainable Development, Pollution, Renewable Energy, Conservation, Climate Change, Green Technology.

The Transformative Power of Yoga and Meditation

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Yoga and meditation are ancient practices that promote harmony between the body, mind, and spirit. Originating in India thousands of years ago, yoga combines physical postures, controlled breathing, and mindfulness to improve flexibility, strength, and balance. Meditation, on the other hand, focuses on calming the mind, enhancing concentration, and developing inner peace. Together, they serve as powerful tools for maintaining physical health and mental stability in an increasingly stressful world. Regular practice of yoga helps reduce muscle tension, regulate blood pressure, and enhance immunity. Meditation complements these benefits by lowering stress hormones, improving emotional resilience, and fostering clarity of thought. Scientific studies now support what ancient sages taught that yoga and meditation can reduce anxiety, depression, and insomnia while improving overall well-being.

Beyond personal health, these practices nurture self-awareness, compassion, and mindfulness in daily life. They encourage individuals to live in the present moment, creating a deeper connection with themselves and the world around them. In modern society, where speed and competition often cause imbalance, yoga and meditation offer a simple yet profound path to holistic health and inner happiness. In conclusion, yoga and meditation are not merely exercises but lifestyles that cultivate balance, peace, and self-realization. Embracing these practices can transform human life physically, mentally, and spiritually guiding us toward a state of harmony and well-being.

Key words: Yoga, Meditation, Balance, physical, mental.

Integrating Ayurveda in Daily Life: Pathya Kalpana as a Key to Preventive Healthcare

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Ayurveda, the ancient science of life, emphasizes prevention over cure and advocates for a harmonious balance between body, mind, and environment. In today's fast-paced world, where lifestyle disorders are rapidly increasing, the principles of Ayurveda provide timeless guidance for maintaining health and wellbeing. Preventive healthcare in Ayurveda is based on the concept of Swasthasya Swasthya Rakshanam—protecting the health of the healthy—through personalized lifestyle practices, seasonal regimens (Ritucharya), daily routines (Dinacharya), and proper dietetics.

Among these, Pathya Kalpana—the formulation and preparation of wholesome, easily digestible dietary recipes—plays a crucial role in promoting and preserving health. It bridges the gap between nutrition and medicine, emphasizing that the right food, in the right form and quantity, is itself a therapeutic tool. Through judicious use of ingredients and cooking methods suited to one's constitution (Prakriti) and digestive capacity (Agni), Pathya Kalpana supports physiological balance and prevents disease manifestation.

Integrating Ayurvedic principles into modern lifestyle management encourages mindful eating, disciplined routines, stress reduction, and alignment with natural rhythms. This holistic approach fosters resilience, enhances immunity, and cultivates a deeper connection with one's body and environment. Thus, Ayurveda offers not merely a healthcare system, but a way of living consciously—where Pathya becomes a daily practice of self-care, and health becomes a dynamic expression of balance and awareness.

In essence, the wisdom of Ayurveda and its emphasis on preventive healthcare, supported by the thoughtful application of Pathya Kalpana, present a sustainable model for modern wellness—one that nurtures both the physical and the spiritual dimensions of human life.

Keywords: Agni; Dincharya; Holistic health; Prakriti; Ritucharya.

FinTech as a Developmental Instrument: Policy Synergies for Inclusive Micro Enterprise Growth in Rural India

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Financial technology (FinTech) has emerged as a transformative force in reshaping financial ecosystems globally. In India, FinTech solutions are increasingly deployed to address rural financial exclusion and to empower micro enterprises that form the backbone of local economies. This paper examines the role of FinTech as a developmental instrument in fostering financial inclusion, with a focus on micro enterprises in rural India. Through a conceptual and empirical exploration, the study highlights how digital payments, mobile banking, micro-lending platforms, and peer-to-peer financing can drive sustainable enterprise growth. The paper further investigates the synergies between FinTech adoption and supportive policy frameworks such as Digital India, Pradhan Mantri Jan Dhan Yojana (PMJDY), and India Stack. Findings suggest that FinTech adoption significantly reduces transaction costs, enhances access to formal credit, and fosters resilience among rural micro entrepreneurs. However, challenges related to digital literacy, infrastructural gaps, cybersecurity, and policy coordination remain. The study concludes by advocating for an integrated policy-fintech framework to unlock inclusive growth potential in rural micro enterprises.

Keywords: FinTech, Financial Inclusion, Micro Enterprises, Rural India, Digital Finance, Inclusive Growth, Policy Synergies.

Tuberculosis – A Persistent Global Health Threat: Current Scenario and Therapeutic Advances: A Review

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Tuberculosis (TB) is a chronic infectious disease caused by Mycobacterium tuberculosis, primarily affecting the lungs but capable of spreading to almost any organ in the body. It remains one of the leading causes of morbidity and mortality worldwide, with approximately 10 million new cases and 1.3 million deaths reported annually, as per the World Health Organization (WHO). TB is transmitted through airborne droplets from infected individuals, with major risk factors including poverty, malnutrition, overcrowding, and HIV co-infection. The emergence of multidrug-resistant (MDR-TB) and extensively drug-resistant (XDR-TB) strains has made management increasingly complex, posing a major challenge to global health. Scope of this study focuses on the pathogenesis, epidemiology, diagnosis, prevention, and treatment of tuberculosis, along with recent advances in diagnostic tools, novel antitubercular drug formulations, and vaccine development. Results indicate that early diagnosis, strict adherence to treatment, and strengthened healthcare infrastructure significantly reduce TB incidence and transmission. The introduction of rapid molecular diagnostic tests and new drugs such as Bedaquiline and Delamanid have improved outcomes in resistant cases. Furthermore, research into enhanced BCG vaccines and host-directed therapies provides new hope for disease control and eventual elimination. Achieving the WHO End TB Strategy will require global collaboration, effective health education, and integrated medical, pharmaceutical, and social interventions to overcome drug resistance and treatment barriers.

Keywords: Tuberculosis, Mycobacterium tuberculosis, Drug resistance, MDR-TB, XDR-TB, BCG vaccine, Antitubercular drugs, Public health, WHO End TB Strategy.

Scalable Isolation of Exosomes for Personalized Regenerative Therapies

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Exosomes are nanoscale extracellular vesicles that play a pivotal role in intercellular communication, immune modulation, and tissue regeneration. Their potential as carriers for therapeutic agents has garnered significant interest in regenerative medicine and drug delivery. This study presents a comparative analysis of exosome isolation using polyethylene glycol (PEG)-based precipitation, ultracentrifugation (UC), size exclusion chromatography (SEC), from three distinct biological sources—human blood (serum/plasma), saliva, and cell culture supernatants—followed by comprehensive characterization and functional evaluation in wound healing models.

Exosomes were isolated using standardized PEG, UC, SEC protocols and characterized via transmission electron microscopy (TEM), nanoparticle tracking analysis (NTA), and Western blotting for canonical markers (CD9, CD63, CD81, TSG101). TEM confirmed the presence of cup-shaped vesicles across all sources, while NTA revealed source-dependent variations in particle concentration and size distribution. Blood-derived exosomes exhibited high yield but lower purity due to protein co-precipitation. Salivary exosomes showed moderate yield with mucin-related variability, and cell culture-derived exosomes demonstrated consistent morphology, high purity, and reproducible marker expression.

Isolated exosomes were subsequently loaded with anti-inflammatory and pro-regenerative agents and applied to in vitro wound healing assays. Cell-derived exosomes showed superior uptake, enhanced fibroblast migration, and promoted angiogenesis and collagen deposition, indicating their suitability for regenerative applications. Blood and salivary exosomes also supported wound closure, albeit with reduced efficiency due to biofluid complexity.

To enrich the biological interpretation, exosomal sources were mapped to Ayurvedic constructs: blood, saliva, and cellular essence, reflecting the interplay of *Pitta*, *Kapha*, and *Vata* energies. This integrative framework suggests that exosomal cargo may mirror subtle physiological states described in Ayurveda.

PEG-based exosome isolation offers a viable route for scalable vesicle harvesting, and their application in wound healing underscores their translational potential in personalized and integrative therapeutics.

Keywords: Exosomes, PEG, UC, SEC, TEM, NTA, Western blotting, Ayurveda, Regenerative Therapies

IoT driven Smart Healthcare 5.0: Leveraging AI, Big Data, and Cloud Technologies for Predictive Health Management

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IoT-driven Smart Healthcare 5.0 represents a transformative model in the field of healthcare technology with its integration with emerging technologies such as Internet of things (IoT), Artificial Intelligence (AI), cloud computing and big data. The Healthcare 5.0 mainly deals with patient centric approach which is capable of providing real time patient data, ambient control along with data privacy. IoT devices continuously collect large amount of patient data 24*7 and to handle such massive data and to continuously maintain data acquisition big data analytics is used which also helps in predicting disease progression, risk rate and probable treatment. The amalgamation of AI helps transforming raw IoT and big data into actionable insights for predictive health management. Cloud technologies provide secure, flexible storage for the large data generated by smart healthcare systems. Although Cloud technology supports smart patient monitoring system but the data security and privacy problem remain entangled with Cloud IoT. These challenges persist in Healthcare 4.0 but are more effectively addressed within the framework of Healthcare 5.0. In the present study a comprehensive review of IoT driven healthcare 5.0 has been done to support constant surveillance, smart diagnostic, and precision medication delivery within smart healthcare systems utilizing the latest technologies.

Keywords: Healthcare 5.0, Internet of Things, Artificial Intelligence, Big data and Cloud Technologies.

Implementation and performance analysis of Vedic Multipliers on Nanoscale power-Efficient FPGA Architectures

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In modern digital systems, multiplication is one of the most critical arithmetic operations, directly influencing the overall speed, power consumption, and hardware efficiency of processors and signal processing units. The performance of digital systems, including microprocessors and digital signal processors (DSPs), depends heavily on the efficiency of the multiplier used. As technology continues to scale down to nanoscale dimensions, designing high-speed and power-efficient multipliers has become essential to meet the growing demands of modern computing and embedded applications.

This work presents the implementation and performance analysis of a Vedic multiplier on a nanoscale, power-efficient FPGA (Field Programmable Gate Array) architecture. The design is based on principles derived from ancient Vedic mathematics, specifically the *Urdhva Tiryagbhyam Sutra* ("Vertically and Crosswise"), which provides an efficient algorithm for multiplication. This technique enables parallel generation and accumulation of partial products, significantly reducing computation delay compared to conventional methods such as array and Booth multipliers.

The proposed Vedic multiplier architecture is modular, scalable, and well-suited for FPGA implementation. It allows efficient construction of higher-order multipliers (4-bit, 8-bit, 16-bit, and beyond) using smaller functional units, simplifying hardware design while maintaining high speed. When implemented on nanoscale FPGA devices, the Vedic multiplier demonstrates notable improvements in speed, area utilization, and energy efficiency.

Simulation and synthesis results show that the Vedic multiplier consumes less power and achieves faster operation due to its parallel processing nature and reduced propagation delay. This makes it highly suitable for low-power, high-performance applications in embedded systems, real-time processing, and portable electronic devices.

In conclusion, integrating Vedic mathematical techniques with nanoscale FPGA technology provides an innovative and efficient solution for modern digital multiplication. The proposed design offers a balance of high speed, low power, and reduced hardware complexity—making it ideal for next-generation digital and signal processing systems.

Keywords: FPGA, Vedic Mathematics, Efficient Devices, Low Power.

Ethical Finance and Wealth Management: The Dharmic Perspective

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In today's global economy, financial management often focuses on making profits and increasing shareholder value. This sometimes leads to ignoring moral and ethical issues. The Dharmic perspective, which comes from Indian Knowledge Systems, provides a balanced and ethical approach to finance and wealth management. It highlights responsibility and social welfare. This paper looks at the principles of Dharma, Artha, and Karma as the basis for financial ethics in Indian thought, as shown in ancient texts like the Bhagavad Gita, Manusmriti, and Arthashastra. Unlike the limited view of Western financial models, Dharmic finance combines moral behavior (Sadachara) with economic efficiency. It promotes wealth creation not just for its own sake, but as a way to enhance society and foster spiritual growth.

The study emphasises the ideas of Lakshmi (wealth) and Dharma (righteousness) as complimentary energies. In order to maintain harmony between the person, community, and environment, wealth must be gained, managed, and distributed ethically. It looks at ancient Indian customs like Seva (service), Yajna (sacrifice or contribution), and Dana (charitable giving) as early examples of CSR and moral wealth redistribution. The study also examines how these ideas may be revived and incorporated into modern financial institutions, such as corporate governance frameworks, sustainable investment, and ethical banking.

The study makes the case for a paradigm change from profit-centric to value-based finance, encouraging long-term sustainability, transparency, and inclusivity, by referencing both traditional knowledge and contemporary management theory. Thus, in an era of inequality and environmental disaster, the Dharmic perspective offers a timeless model for attaining economic success that is in line with human and ecological well-being.

Keywords: Dharma, Ethical Finance, Wealth Management, Sustainability, Indian Knowledge System.

The Role of Yoga and Mindfullness in Modern Corporate Management

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In the modern corporate world, competition, long working hours, and constant pressure to perform have led to rising levels of stress, anxiety, and burnout among employees and managers. These issues not only affect personal health but also reduce productivity, creativity, and job satisfaction. To handle these growing challenges, many companies are now introducing traditional practices like Yoga and Mindfulness into their management systems. This research paper explores how yoga and mindfulness can play an important role in improving workplace health, concentration, emotional intelligence, and leadership skills. Yoga helps reduce physical tension and mental fatigue through breathing exercises, postures, and relaxation techniques. Mindfulness, on the other hand, trains the mind to stay present and focused, which improves decision-making, patience, and clarity. When applied together, these practices help build a positive and balanced work environment where employees feel valued, calm, and motivated. The paper also studies various corporate examples where yoga and mindfulness programs have increased employee engagement, reduced absenteeism, and enhanced overall performance. By combining ancient wisdom with modern management, organizations can create a more sustainable, ethical, and human-centered approach to business. Overall, the study highlights that yoga and mindfulness are not just wellness trends but essential tools for achieving long-term corporate success and employee well-being.

Keywords: Yoga, Mindfulness, Corporate Management, Employee Well-being, Productivity, Stress Management, Leadership, Work-life Balance.

Joining Strategies for Lightweight 6061-T6 Aluminum Structures: A Comparative Study of Welding, Adhesive Bonding, and Mechanical Fastening

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The increasing demand for lightweight and high-strength structural components in aerospace engineering has driven the need for effective and reliable joining techniques for thin aluminum alloys. This study focuses on a comparative experimental evaluation of three joining methods—mechanical fastening, adhesive bonding, and Tungsten Inert Gas (TIG) welding—applied to 1.0 mm 6061-T6 aluminum alloy sheets. The objective is to analyze and compare their performance in terms of joint strength, stiffness, fatigue life, and overall structural integrity under identical geometrical and loading conditions.

Standard single-lap shear specimens were prepared using aerospace-grade rivets, epoxy-based structural adhesive, and pulsed AC TIG welding with ER4043 and ER5356 filler wires. Each joint was subjected to tensile shear testing to assess mechanical behavior, including load transfer efficiency, interfacial failure mechanisms, and softening within the heat-affected zone (HAZ). The experimental results revealed that adhesive-bonded joints achieved a more uniform stress distribution and superior fatigue resistance due to the absence of stress concentration points. Riveted joints, on the other hand, offered better inspectability, reworkability, and dimensional control, albeit at a slight weight increase. TIG-welded joints demonstrated excellent metallurgical continuity but exhibited a notable reduction in joint strength due to thermal deterioration of the T6 temper and associated microstructural softening. Overall, the findings provide a quantitative basis for selecting optimal joining methods for thin-gauge aluminum structures in aerospace design. The study highlights the trade-offs between structural performance, manufacturing feasibility, and maintenance considerations, thereby contributing valuable insights into hybrid and application-specific joining strategies for next-generation lightweight assemblies.

Keywords: 6061-T6 aluminum, thin sheet joining, TIG welding, adhesive bonding, mechanical fastening, aerospace structures, lap shear strength.

Two Port High Isolation MIMO Antenna for Wimax systems, 5-G NR sub-6 GHz Applications & Portable Devices

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A compact, high-isolation two-port Multiple Input Multiple Output (MIMO) antenna is proposed for advanced wireless communication applications such as WiMAX systems, 5G New Radio (NR) sub-6 GHz frequency bands, and modern portable devices. The antenna is designed with a defected ground structure (DGS) and multiple S-shaped radiating elements to achieve improved impedance matching and enhanced bandwidth performance. The achieved 10 dB impedance bandwidth spans from 2.51 GHz to 2.75 GHz, making it highly suitable for the WiMAX and 5G NR n41 bands, which operate within this frequency range.

To further enhance the performance, a multiple T-shaped isolation structure is integrated between the two radiating elements, resulting in a high isolation level of approximately 33.76 dB between the antenna ports. This ensures minimal mutual coupling, which is crucial for efficient MIMO operation and reliable signal transmission in compact wireless systems. The defected ground structure also contributes to the suppression of surface currents, thereby improving isolation and radiation characteristics without significantly increasing the overall size of the antenna.

Various performance parameters of the proposed antenna, including Envelope Correlation Coefficient (ECC), Channel Capacity Loss (CCL), Diversity Gain (DG), and Total Active Reflection Coefficient (TARC), have been analyzed and demonstrate favorable results. The low ECC value confirms excellent diversity performance, while the high DG and minimal CCL indicate efficient multi-channel communication capability. The low TARC value signifies good impedance matching when both ports are active simultaneously.

The proposed antenna design combines compactness, wide bandwidth, high isolation, and efficient MIMO performance, making it a strong candidate for integration into next-generation wireless communication systems, handheld devices, and compact base-station equipment operating in the sub-6 GHz range.

Keywords: 2-port MIMO Antenna, Isolation Enhancement, Defected ground structure, ECC, CCL, TARQ, DG.

Integrative Patient Monitoring Systems: Bridging Biomedical Technology and Holistic Health Approaches

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Modern healthcare is undergoing a paradigm shift from disease treatment to health preservation, emphasizing the integration of physical, mental, and emotional well-being. Patient Monitoring Systems (PMS), traditionally designed for hospital-based physiological surveillance, are evolving into intelligent, continuous health companions that can support holistic wellness. This review explores how advances in biosensing, Internet of Things (IoT), artificial intelligence, and wearable technologies are converging with ancient holistic health principles derived from Yoga, Ayurveda, and Vedic philosophy.

Electrocardiography (ECG), electroencephalography (EEG), and heart rate variability (HRV) are not only diagnostic tools but also biomarkers of autonomic and energetic balance described in Yogic science as *Prana Vata* regulation. Similarly, stress sensors, sleep trackers, and emotion-detection algorithms parallel Ayurvedic concepts of *Dosha* equilibrium and *Ojas* conservation. Integrative PMS frameworks can assess multidimensional health such as physical (vital signs), mental (EEG, stress), and energetic (HRV, respiration) enabling predictive and preventive interventions.

The review highlights how yoga-based respiration and meditation produce quantifiable improvements in ECG coherence and HRV, which can be captured by modern wearable monitors. Such systems bridge ancient and modern paradigms, empowering personalized and self-aware healthcare models. The fusion of biosensing technologies with holistic insights paves the way for a new generation of *conscious health monitoring systems* that recognize human well-being as a continuum of body, mind, and spirit rather than mere physiological stability.

Keywords: Patient Monitoring System, Holistic Health, Biosensors, Yoga, Ayurveda, Heart Rate Variability, Internet of Things, Psychophysiology, Mind–Body Integration.

The Five Senses as Gateways to Conscious Health: A Vedic and Biomedical Review

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The human sensory system serves as the primary interface between the external world and internal consciousness, playing a vital role in regulating physiological, psychological, and spiritual well-being. In Vedic and Ayurvedic philosophy, the five senses (*Panchendriyas* — hearing, touch, sight, taste, and smell) are viewed as sacred gateways that connect the *microcosm* of the body to the *macrocosm* of nature through the *Pancha Mahabhutas* (five great elements: ether, air, fire, water, and earth). This review bridges Vedic insights with biomedical science to explore how sensory balance contributes to holistic health and conscious living.

Each sense is governed by a specific *Mahabhuta* and *Dosha* for example, hearing (ether) aligns with *Vata*, sight (fire) with *Pitta*, and taste and smell (water and earth) with *Kapha*. Ayurveda posits that harmony among the senses maintains *indriya-bala* (sensory strength), *sattva* (mental clarity), and *ojas* (vital energy), while sensory overload or deprivation disturbs mind–body homeostasis. Contemporary neuroscience supports these concepts: sensory inputs directly influence autonomic regulation, neuroendocrine responses, and emotional processing, modulating parameters such as heart rate variability, stress hormones, and neural plasticity.

Integrative therapies like sound healing, aromatherapy, Abhyanga (therapeutic touch), Trataka (gaze stabilization), and mindful eating exemplify the convergence of ancient practice and modern physiology. These interventions enhance vagal tone, reduce oxidative stress, and promote psychosomatic balance. The review proposes a unified framework where sensory awareness is not only diagnostic but also therapeutic a measurable pathway to conscious health. By synthesizing Vedic wisdom and biomedical evidence, the study underscores that the five senses are dynamic bioelectrical and spiritual channels through which equilibrium, awareness, and healing are cultivated, forming the foundation of true holistic medicine.

Keywords: Panchendriya, Ayurveda, holistic health, sensory balance, mind–body integration, neurophysiology, consciousness, vagal regulation, ojas.

Deep Reinforcement Learning Based-Intelligent Power Allocation for Energy-Efficient D2D Communication Using PPO Scheme

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Device-to-Device (D2D) communication plays a vital role in 5G and beyond networks by enabling direct data exchange between nearby users, thereby reducing latency and improving spectral efficiency (SE). However, the coexistence of multiple D2D pairs (D2DPs) in shared spectrum introduces severe interference, leading to degraded energy efficiency (EE). To address this challenge, this paper proposes a Proximal Policy Optimization-based Energy-Efficient Power Control (PPO-EEPC) scheme that adaptively regulates the transmit power of each D2D transmitter (D2DT) to maximize network-wide EE while satisfying signal-to-interference-plus-noise ratio (SINR) constraints. The proposed model formulates the power allocation as a continuous-action Markov Decision Process (MDP), where PPO learns an optimal policy through interaction with the wireless environment. Simulation results demonstrate that PPO-EEPC achieves higher energy efficiency and faster convergence compared with classical optimization and Q-learning baselines, while maintaining stable SINR and reduced power consumption. The proposed framework offers a promising foundation for intelligent power control in future D2D-enabled 6G networks.

Keywords: D2D Communication, Energy Efficiency, Deep Reinforcement Learning, Proximal Policy Optimization, Power Control

Micronutrients in Ayurvedic Health: A Biochemical and Traditional Integration for Holistic Well-being

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Minerals and Vitamins are indispensable micronutrients that orchestrate vital physiological processes including metabolism, enzyme activation, and cellular signaling. In modern biomedical science, their roles are well-documented in maintaining immunity, bone health, neurological balance, and energy metabolism. Ayurveda, the ancient Indian system of holistic medicine, provides a parallel framework through its concepts of *Ahara* (diet), *Rasa* (nutrient essence), and *Dhatu Poshana* (tissue nourishment). This review bridges the biochemical understanding of micronutrients with Ayurvedic nutritional philosophy, emphasizing their shared goal of maintaining *Tridoshic* equilibrium like *Vata*, *Pitta*, and *Kapha*. Essential minerals such as calcium, iron, zinc, and magnesium correspond to the *Pancha Mahabhuta* (five elemental) principles, reflecting their grounding, stabilizing, and energizing roles in the body. Similarly, vitamins particularly A, B-complex, C, D, E, and K align with *Rasayana* (rejuvenative) functions that support longevity, immunity (*Ojas*), and mental clarity (*Sattva*). Deficiencies in these micronutrients not only disrupt biochemical pathways but also manifest as *Dosha* imbalances, underscoring the interconnectedness of body, mind, and diet. Integrating modern nutritional science with Ayurvedic dietary guidelines offers a comprehensive approach to preventive healthcare, promoting optimal vitality through balanced intake, mindful eating, and personalized nutrition rooted in both tradition and evidence-based medicine.

Keywords: Vitamins, minerals, Ayurveda, micronutrients, Rasayana, Tridosha, nutritional balance, holistic health.

The Harmonious Connection of Yoga and Meditation for Mind-Body Wellness

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Yoga and meditation are ancient practices that help in improving both physical and mental health. Yoga focuses on body movements, breathing exercises, and balance, while meditation helps calm the mind and increase concentration. When practiced together, they create harmony between the body and mind. These practices not only make a person physically strong but also bring peace and stability to the mind. Regular yoga practice helps improve flexibility, posture, and strength. It also reduces problems like stress, body pain, and tiredness. Meditation helps in controlling thoughts, reducing anxiety, and developing a positive mindset. Many studies have shown that yoga and meditation can lower blood pressure, improve heart health, and boost the immune system. They are also very helpful in managing modern lifestyle issues such as stress, depression, and lack of focus. In today's busy world, yoga and meditation act as simple yet powerful tools to stay healthy and calm. They teach us to live in the present moment and to handle challenges with patience and peace. By practicing them daily, one can experience better emotional balance and overall happiness Yoga therapy is a specialized form of yoga that focuses on addressing psychological, emotional, and physical health concerns through tailored yoga practices. Unlike traditional yoga, which may be practiced primarily for physical fitness or spiritual growth, yoga therapy is designed to treat specific mental health issues, such as anxiety, depression, and trauma, by combining asanas (postures), pranayama (breath control), and meditation. This approach has gained increasing popularity in India and worldwide, as it offers a holistic method for promoting mental well-being.

Keywords: Yoga, Meditation, Mindfulness, Health, Stress Relief, Well-being.

EEG Biomarkers for Inner Calm: Quantifying the Psychological Effects of Yoga and Meditation

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The practice of yoga and meditation has long been associated with enhanced mental well-being, emotional regulation, and inner calm. Recent advances in neurophysiological research have enabled the objective assessment of these effects using electroencephalography (EEG), a non-invasive tool that measures brainwave activity. This study explores EEG biomarkers as quantitative indicators of psychological states induced by yoga and meditation. Through the analysis of specific frequency bands such as alpha, theta, and gamma rhythms. EEG can reveal measurable patterns correlating with mindfulness, relaxation, and cognitive clarity. Increased alpha power is often linked to calmness and reduced anxiety, while elevated theta activity reflects deep meditative absorption and internalized attention. Gamma synchronization may indicate heightened awareness and integrative cognitive processing.

By integrating traditional yogic concepts such as *pratyahara* (withdrawal of senses) and *dhyana* (meditative absorption) with modern EEG signal analysis, this interdisciplinary approach bridges ancient wisdom and contemporary neuroscience. The findings support the hypothesis that regular yoga and meditation practice lead to neuroplastic adaptations promoting emotional stability and stress resilience. Furthermore, EEG biomarkers could serve as reliable tools in personalized mental health monitoring, biofeedback-based meditation training, and holistic therapeutic interventions.

This study underscores the convergence of Vedic philosophy and neurotechnology, presenting EEG as a bridge between subjective inner experiences and objective scientific understanding. The results have implications for developing bioelectronic systems for mental wellness and advancing integrative neurophysiology.

Keywords: EEG biomarkers, yoga, meditation, neurophysiology, alpha and theta waves, mindfulness, emotional regulation, brainwave coherence, neuroplasticity, Vedic neuroscience.

Electrochemical Analysis of Chemically and Green Synthesized Zinc Oxide Nanoparticles

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This study investigates the structural and electrochemical characteristics of zinc oxide nanoparticles (ZnO NPs) synthesized by both chemical and green routes. In the chemical method, zinc acetate was reduced using sodium hydroxide under controlled conditions, while the green synthesis employed plant extracts as natural reducing and stabilizing agents, providing an eco-friendly alternative. The Fourier Transform Infrared Spectroscopy (FTIR) analysis confirmed the formation of Zn–O bonds in both samples, typically observed in the range of 430–520 cm^{-1}. Green-synthesized ZnO NPs exhibited additional absorption bands corresponding to hydroxyl (–OH), carboxyl (C=O), and phenolic groups derived from phytochemicals, indicating successful surface functionalization and improved stability.

Electrochemical characterization was performed using cyclic voltammetry (CV) and electrochemical impedance spectroscopy (EIS). The CV profiles revealed enhanced redox activity and higher current response for green-synthesized ZnO NPs, suggesting superior electron transfer kinetics and catalytic behavior. EIS analysis further demonstrated lower charge-transfer resistance (Rct) and improved conductivity in green-synthesized nanoparticles compared to chemically prepared ones. The enhanced electrochemical performance is attributed to the presence of bioactive surface groups that facilitate charge mobility and increase active surface area.

Overall, the results confirm that while both synthesis routes yield crystalline ZnO NPs, the green synthesis approach offers improved electrochemical efficiency and eco-sustainability, making it a promising route for biosensing and energy-based applications.

Keywords: Zinc oxide nanoparticles, FTIR, electrochemical analysis, cyclic voltammetry, impedance spectroscopy, green synthesis, surface functionalization.

Optimized Electrospinning of Chitosan–PVA Nanofibers for Biomedical Applications

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Electrospinning produces nanofibers using high voltage to create structures that can mimic natural extracellular matrices. Optimization of the material is required because electrospinning performance highly depends on solution properties (viscosity and polymer ratio), which control fiber uniformity and mechanical stability.

Aim: The aim of this work is to develop a stable, bead-free chitosan–PVA nanofiber with enhanced mechanical strength and water resistance suitable for biomedical use. We were selected Chitosan and PVA due to their excellent biocompatibility, biodegradability, and ability to form uniform, flexible nanofibers suitable for tissue engineering applications. To conduct this study, Chitosan (2% w/v, 1.5% acetic acid) and PVA (20% w/v) were selected for their biocompatibility and regenerative potential.

Objective: To optimize chitosan–PVA ratios for enhanced electrospinnability and mechanical performance.

Method: Four blend ratios were electrospun at 25–30 kV, 0.018–0.019 mL/h, tip–collector distance ≈15–18 cm, under 32.5 °C and 29.7% RH.

Results: The 1:1 (10 mL chitosan: 10 mL PVA) composition produced uniform, bead-free fibers with superior stretchability and water stability.

Conclusion: Optimized chitosan–PVA nanofibers show promise for wound-healing and tissue-engineering scaffolds.

Keywords: Chitosan, Electrospinning, Nanofiber, Polyvinyl alcohol.

Gut Health in Ancient Science: Ayurvedic and Yogic Insights into the Human Digestive System

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The digestive system, central to human health and vitality, has been a subject of profound understanding in both ancient and modern sciences. In Ayurveda, digestion is governed by "Agni" (the digestive fire) a dynamic concept representing the body's transformative power that converts food into energy, consciousness, and immunity. Ancient texts like the *Charaka Samhita* and *Sushruta Samhita* emphasized the role of Agni balance and Tridosha theory (Vata, Pitta, Kapha) in maintaining gastrointestinal harmony, a principle that resonates with the modern concept of homeostasis and gut–brain–microbiome axis regulation.

Modern biomedical research reveals that digestive health is intricately linked to neural, endocrine, and immune pathways, echoing the ancient belief that emotional and mental states affect "Agni." The gut microbiota, now recognized as a critical determinant of metabolism, immunity, and mental health, parallels the Ayurvedic idea of *Ahara Rasa* and *Ojas*—the vital essence produced from proper digestion. Moreover, yogic practices, including asanas (postures), pranayama (breathing), and meditation, have demonstrated physiological benefits such as enhanced gut motility, reduced inflammation, and improved vagal tone, substantiating the ancient yogic claim that a calm mind fosters optimal digestion.

This integrative review explores the convergence between ancient Ayurvedic physiology and contemporary gastroenterological science, highlighting their shared vision of digestion as a psychosomatic and biochemical continuum. By merging traditional insights with molecular and clinical evidence, a new model of digestive health emerges one that transcends reductionist views and embraces a holistic, preventive, and personalized approach to human well-being.

Keywords: Digestive system, Ayurveda, Agni (digestive fire), Tridosha theory, Gut–brain axis, Gut microbiota, Yoga and digestion, Pranayama, Holistic health, Vedic science.

Integrating Indian Knowledge Systems in Higher Education (NEP 2020 Perspective): Gurukul System vs. Modern Pedagogy - Lessons for Contemporary Education; Scope and Challenges of Multidisciplinary Learning through IKS

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The National Education Policy (NEP) 2020 foregrounds Indian Knowledge Systems (IKS) as a strategic area for curriculum renewal, interdisciplinary learning, and decolonising higher education. This paper examines the theoretical rationale and practical strategies for integrating IKS into higher education, compares features of the traditional Gurukul system with modern pedagogy to identify complementary lessons, and analyses the scope and challenges of promoting multidisciplinary learning through IKS. Drawing on policy texts, recent empirical and conceptual studies (2021-2025), and contemporary examples of institutional implementation, the paper argues that IKS can enrich holistic learning, contextual research, and ethical inquiry while supporting NEP's vision of multidisciplinary, flexible programmes. However, integration faces structural, epistemic, pedagogical, and capacity constraints - from faculty preparedness and assessment models to quality assurance and risk of instrumentalization. The paper proposes pragmatic curriculum design principles, teacher-preparation modules, research-and-resource hubs, and assessment reforms to operationalise IKS in higher education while protecting academic rigor and pluralism.

Keywords: Indian Knowledge Systems (IKS), NEP 2020, Gurukul, multidisciplinary learning, higher education, pedagogy

Career growth Strategies and job satisfaction with special reference to Indian knowledge system

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In the modern era, due to the changes in technology and hard competition every organization focuses on the career growth strategies and job satisfaction every organization. The performance of employee depends upon career growth strategies and job satisfaction. Only satisfied employee can perform better, maintain the good relation, reconcile the individual goal into organizational goals etc. On the other hand, The Vedic and Upanishadic gives the understanding of karma, dharma, swadharma for the career growth and career satisfaction. So we can say that Indian ethos provides the basic ideas applicable at the workplace. So, this paper focus on the theoretical aspects how Indian knowledge system provides the idea for career growth strategies and job satisfaction in Indian and global context. Our aim of this paper to integrating the Indian knowledge system with career growth strategies and job satisfaction to achieve the holistic career growth and satisfaction.

Key words: career growth strategy, job satisfaction, Indian knowledge

Design and Implementation of Efficient FIR Low Pass Filters Using Vedic Sutras and Conventional Digital Multiplier Algorithms

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The rapid growth of portable multimedia applications has driven the demand for compact, high-speed, and compatible signal processing devices. The advancement of digital technology has enabled the development of high-speed VLSI-based digital signal processing systems. Filters play a crucial role in various DSP functions such as signal separation and restoration. Among these systems, multipliers are essential components used in Finite Impulse Response (FIR) filters, Arduino and ARM processors, and digital signal processors. Since the multiplier is typically the slowest element in these systems, its delay largely determines overall computational performance.

In line with the "Vocal for Local" initiative, this work explores the integration of computational concepts derived from Vedic sutras to design an efficient Low Pass FIR filter. The filter is designed using the equiripple method and implemented with various multiplication algorithms, including Vedic, Array, Dadda, Wallace, Sequential, and Booth multipliers. Designs of filter orders 4, 8, 16, 32, and 64 were analyzed and compared in terms of speed, area, memory utilization, and logic complexity.

Keywords: FIR Filter, Vedic, VHDL, Filter Design & Analysis (FDA)

Charaka AI: A Retrieval-Augmented Generative Assistant for Ayurveda and Indian Healthcare

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Healthcare artificial intelligence systems face significant cultural calibration gaps, where models trained on predominantly Western biomedical data fail to represent diverse traditional medicine systems and culturally grounded health practices. This limitation is particularly pronounced in Ayurveda, where diagnostic approaches and therapeutic interventions differ fundamentally from conventional Western medical paradigms. Existing AI healthcare assistants lack the domain-specific knowledge and cultural sensitivity required for trustworthy guidance within traditional Indian healthcare frameworks.

We present Charaka AI, a novel retrieval-augmented generation (RAG) system designed for Ayurvedic and Indian healthcare applications. The system integrates large language models (GPT/Gemini) with a comprehensive, culturally curated knowledge base encompassing classical Ayurvedic texts (Charaka Samhita, Sushruta Samhita), structured medicinal herb databases, validated home remedies, and expert-reviewed community contributions. Our approach employs FAISS vector database technology for efficient semantic retrieval, enabling real-time response generation grounded in authoritative traditional medicine sources.

The key innovation lies in integrating multiple complementary components that collectively address critical limitations in existing healthcare AI systems. The system features a multilingual, culturally aware interface supporting regional Indian languages with personalization based on geographical and constitutional factors. A human-in-the-loop validation mechanism incorporates expert Ayurvedic practitioners to ensure clinical safety and cultural appropriateness, while a community contribution framework enables scalable knowledge expansion through systematic expert oversight. This integrated architecture provides contextually grounded, culturally sensitive responses aligned with traditional Indian healthcare practices.

Charaka AI establishes a new paradigm for bridging traditional medical wisdom with contemporary AI technology, offering a scalable framework for culturally grounded healthcare assistants applicable beyond Ayurveda.

Keywords: Ayurveda, Healthcare AI, Cultural sensitivity, Retrieval-Augmented Generation (RAG), Charaka AI

Effect of Healing Sound on Body in aspect of Vedic Sciences

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Sound, as both a physical vibration and subtle form of energy, has profound implications for human physiology and consciousness. Modern biomedical science has begun to validate what ancient Vedic traditions proposed thousands of years ago—that sound vibrations can harmonize the body's internal systems and promote healing. This paper explores the effect of healing sound on the human body from a biomedical perspective, while correlating the observed responses with Vedic concepts of Nada Brahma, Nada Yoga, and Mantra Chikitsa.

The study examines the influence of specific sound frequencies (such as 432 Hz, 528 Hz, and Sanskrit mantras) on neural activity, autonomic nervous balance, and emotional stability. Evidence from existing biomedical research and controlled trials indicates that exposure to harmonic sound frequencies enhances parasympathetic activity, reduces cortisol levels, synchronizes alpha–theta brainwave patterns, and fosters mental relaxation. These physiological effects parallel the Vedic understanding that sound acts as a medium of energy alignment between the body, mind, and consciousness.From the Vedic viewpoint, the universe and life itself emerge from primordial vibration—Nada—suggesting that healing through sound reestablishes resonance between human biofields and universal energy patterns. Integrating this principle with biophysical mechanisms, the paper proposes that sound vibrations interact with neural oscillations, molecular resonance, and energy flow to restore systemic equilibrium.

By bridging ancient Vedic wisdom with modern biomedical evidence, this research highlights sound as a non-invasive, holistic therapeutic modality capable of promoting neurophysiological harmony and emotional well-being. The findings encourage further interdisciplinary exploration into sound-based therapies as adjunct tools for stress management, neurorehabilitation, and integrative health science.

Keywords: Healing sound, Vedic sciences, Nada Brahma, Mantra therapy, Biomedical acoustics, Brainwave coherence, Neurophysiological balance

Sacred Fire to Sustainable Future: Exploring Vedic Roots of Biochar for Agriculture and Water Filtration

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This paper explores the deep interconnection between ancient Vedic wisdom and contemporary sustainability practices through the lens of biochar—a carbon-rich substance derived from the pyrolysis of biomass. By examining the spiritual, ecological, and scientific dimensions of fire (*Agni*) in the Vedic period (circa 1500–500 BCE), the study unveils how the sacred fire rituals of *Agnihotra*, *Yajña*, and *Homa* inherently practiced the principles underlying modern biochar production and utilization.

In Vedic cosmology, fire was regarded as a divine intermediary between the material and spiritual realms—a purifier, transformer, and sustainer of life. The controlled combustion processes in ritual fires converted organic materials such as wood, ghee, grains, and herbs into stable carbonaceous residues, which were considered sacred and beneficial. Ancient texts including the *Atharva Veda*, *ŚatapathaBrāhmaṇa*, and *GṛhyaSūtras* make references to the collection and use of ashes (*bhasma*) and charred remains for agricultural, medicinal, and purification purposes. These residues, when integrated into the soil—whether intentionally as ritual offerings or incidentally near *yajña-vedis*—enhanced fertility, moisture retention, and microbial activity, mirroring the scientifically documented benefits of biochar today.

The research integrates textual interpretation with modern environmental science to draw parallels between the Vedic philosophy of *ṛta*—the cosmic order that maintains balance in nature—and current sustainability principles emphasizing closed-loop systems, carbon sequestration, and ecological regeneration. The cyclical notion of transformation embedded in Vedic rituals resonates strongly with the biochar lifecycle, where carbon captured from biomass is returned to the earth, improving soil health and mitigating climate change impacts.

By combining insights from traditional ecological knowledge and material characterization studies, the paper illustrates how biochar serves as both a symbolic and practical bridge between sacred ecology and sustainable innovation. Its dual capacity—to enhance soil productivity and to filter water pollutants—aligns with the holistic vision of the Vedas, which viewed the environment as an integrated system of interdependence among earth, water, fire, air, and space.

Ultimately, this study proposes that rediscovering the Vedic roots of biochar can inspire a renewed model of sustainable development grounded in spiritual ecology. It reimagines the "sacred fire" as a metaphor for transformation—guiding humanity from ritual reverence to responsible stewardship, and from ancient wisdom to a regenerative and sustainable future.

Keywords: Vedic ecology, Agni, biochar, sustainability, soil health, water filtration, carbon sequestration, pyrolysis, traditional knowledge, regenerative agriculture.

मराठी साहित्य कादंबरी

Marathi Literary Novel

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साहित्याच्या इतिहासापासून आधुनिक काळापर्यंत कादंबरी हा साहित्यप्रकार अत्यंत प्रभावी आणि महत्त्वाचा मानला जातो. जरी गोष्ट सांगण्याची परंपरा प्राचीन काळापासून अस्तित्वात आहे, तरीही तिच्या विस्तृत आणि संरचित स्वरूपात जी अभिव्यक्ती घडली तीच पुढे जाऊन "कादंबरी" म्हणून ओळखली जाऊ लागली. साहित्याच्या विविध शाखांपैकी कादंबरीला विशेष स्थान आहे, कारण ती मानवी जीवन, समाज आणि भावनांचे वास्तव दर्शन घडवते. कादंबरीत काळ, समाज, धर्म, संस्कृती, प्रादेशिक परंपरा आणि जीवनशैली यांचे प्रतिबिंब दिसते. त्यामुळेच कादंबरीचे सामाजिक, मानसशास्त्रीय, ऐतिहासिक, ग्रामीण, पौराणिक, स्त्रीवादी आणि राजकीय अशा अनेक उपप्रकारांमध्ये वर्गीकरण केले गेले आहे.

मराठी साहित्यात ग्रामीण कादंबरीने स्वतंत्र आणि महत्त्वपूर्ण स्थान प्राप्त केले आहे. बाबा पद्मनजी यांच्या *यमुना प्रवास* (१८५७) या कादंबरीपासून मराठी कादंबरीचा प्रारंभ झाला, तर ह. ना. आपटे यांच्या *पण लक्षात कोण घेतो* (१८९३) या कादंबरीला पहिली सामाजिक कादंबरी मानले जाते. कर्माबाई काटदरे या मराठीतील पहिल्या स्त्री कादंबरीकार म्हणून ओळखल्या जातात. पुढे सदानंद देशमुख यांच्या *धाहन* आणि *बारोमास*, राजन गावस यांच्या *निकट*, गणेश आवटे यांच्या *शिवारुड*, रमेश इंगळे ऊराडकर यांच्या *तऱ्यानी दावा अंगठा* अशा अनेक ग्रामीण आशयाच्या कादंबऱ्यांनी मराठी साहित्यात समृद्ध भर घातली. या सर्व कादंबऱ्यांनी ग्रामीण कादंबरी परंपरेला बळकटी दिली आणि तिचे स्वतंत्र स्थान निर्माण केले. आर. आर. बोराडे, बाबाराव मुसळे, सदानंद देशमुख, विश्वास पाटील, गणेश आवटे, भारती काळे अशा लेखकांनी ग्रामीण कादंबरीला आकार देण्यात मोलाची भूमिका बजावली. सन २००० नंतर प्रकाशित झालेल्या ग्रामीण कादंबऱ्यांमध्ये शेतकरी, ग्रामीण तरुण, त्यांच्या संघर्ष, भावना आणि आकांक्षा यांचे जिवंत चित्रण आढळते. या कादंबऱ्यांतून ग्रामीण जीवनातील सामाजिक, राजकीय, आर्थिक आणि सांस्कृतिक परिवर्तनांचे वास्तव दर्शन घडते.

या पार्श्वभूमीवर निवडलेला संशोधन विषय — **"सन २००० नंतर प्रकाशित मराठी ग्रामीण कादंबऱ्यांचा समीक्षात्मक अभ्यास"** — ग्रामीण जीवन, संघर्ष आणि प्रेरणा यांचा सखोल अभ्यास करण्याचा प्रयत्न करतो.

From the history of literature to the modern era, the novel has been regarded as one of the most influential literary forms. Although storytelling has existed since ancient times, the extended and structured form of narrative evolved into what we now call the novel. Among the various branches of literature, the novel holds a special place due to its realistic portrayal of human life, society, and emotions. It reflects the time, community, religion, culture, and traditions of a particular group or region. Consequently, novels are classified into subgenres such as social, psychological, historical, rural, mythological, feminist, and political novels.

Within Marathi literature, the rural novel has gained a distinct and important position. The first self-contained Marathi novel, *Yamuna Paryatan* by Baba Padmanji (1857), marked the beginning of the genre, followed by Hari Narayan Apte's *Pan Lakshat Kon Gheto* (1893), recognized as the first social novel. Karmabai Katdare later became known as the first woman novelist in Marathi literature. Over time, numerous rural-themed novels have enriched Marathi literature, including Sadanand Deshmukh's *Dhahan* and *Baromas*, Rajan Gawas's *Nikat*, Ganesh Awate's *Shivarud*, Ramesh Ingale Uradkar's *Taryani Dava Angtha*, and others. These works have strengthened and defined the rural novel tradition.

Writers such as R.R. Borade, Babarav Musale, Sadanand Deshmukh, Vishwas Patil, Ganesh Awate, and Bharti Kale have played a vital role in shaping the genre. After 2000, Marathi rural novels have continued to depict the life, struggles, emotions, and aspirations of rural people—particularly farmers and educated youth. They also explore the changing socio-political, economic, and cultural realities of village life.

Considering these developments, the chosen research topic, "A Critical Study of Marathi Rural Novels Published After 2000," aims to analyze rural life, struggles, and the inspiration reflected in these works.

Fintech Innovations for Advancing Financial Access and Achieving Sustainable Development Goals

(An Empirical Study of Underprivileged Communities)

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Fintech innovations are pivotal in advancing financial access and driving progress towards the Sustainable Development Goals (SDGs) by leveraging technology for inclusion and sustainability. This review highlights how emerging fintech solutions such as digital payments, mobile banking, peer-to-peer lending, robot-advisory services, green finance platforms, and blockchain—facilitate affordable, accessible, and efficient financial services for underserved and unbanked populations. By easy access to credit, enabling micro-investments, enhancing digital savings, and supporting green financing, fintech fosters economic growth, supports women's empowerment, reduces poverty and enables investments in sustainable infrastructure. These advances not only bridge gaps in traditional financial systems but also promote environmental sustainability and social equity, shows fintech as a transformative catalyst for achieving multiple SDGs such as poverty reduction, education, improved health, gender equality, climate action and women empowerment.

FinTech enables transparency, resilience, and efficient allocation of resources, offering policymakers and institutions robust models for aligning technological advancement with global sustainability objectives.

Keywords- Financial inclusion, Sustainable Development Goals, Sustainable Infrastructure, Women Empowerment, Social Equity.

Psychosocial and Livelihood Recovery of Internally Displaced Persons (IDPs) after the Manipur Violence

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The ethnic violence that escalated in Manipur in May 2023 resulted in one of the most severe humanitarian crises in the Northeastern India region, with 60,000 individuals displaced in what became a conflict between the Meitei and the Kuki-Zo communities. This research focuses on the psychosocial and livelihood recovery of the internally displaced persons (IDPs) in the region from the humanitarian consequences of this violence. This research- focuses on the nexus between trauma, resilience, and economic recovery to demonstrate the need for a more cohesive rehabilitation response. Using a mixed-methods approach, the research incorporates both quantitative and qualitative data from the major relief camps in Imphal West, Churachandpur, and Kangpokpi districts. This research identifies the psychosocial hardships of displacement, the loss of livelihood assets, the coping mechanisms of the IDPs, and the overall aid and institutional response systems. Displacement, most of the research suggests, triggered a severe psychological impact constituting anxiety, depression, and a sense of social alienation, intensified by loss of financially sustaining activities and enduring temporal uncertainty. Prolonged loss of financially sustaining activities deepened humanitarian dependency, loss of self-reliance, and social reintegration. The findings justify the need to develop an Integrated Psychosocial–Livelihood Recovery Framework that uses the principles of humanitarian aid to restore dignity and promote resilience at the communal level.This framework is intended to guide policymakers, NGOs, and humanitarian actors in designing context-sensitive, trauma-informed, and sustainable rehabilitation strategies for conflict-affected populations in Manipur and similar post-conflict contexts.

Keywords: Manipur violence; internally displaced persons (IDPs); psychosocial recovery; livelihood rehabilitation.

विद्यार्थी जीवन में योग का महत्त्व

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प्रस्तुत अध्ययन ''आवासीय महाविद्यालयों में स्नातक स्तर पर अध्ययनरत् विद्यार्थियों के मानसिक स्वास्थ्य, धारण क्षमता, समायोजन स्तर, सामाजिक आर्थिक स्तर और शैक्षिक उपलब्धि पर योग के प्रभाव का अध्ययन'' है। योग अभ्यास के द्वारा शारीरिक एवं मानसिक विकास के अत्यंत महत्त्वपूर्ण है। योग आसन विद्यार्थियों के संवेगात्मक स्वास्थ्य पर सकारात्मक प्रभाव डालता है। नियमित योग अभ्यास छात्रों में स्मरण शक्ति और एकाग्रता को बेहतर बनाता है, जिसमें विद्यार्थियों की वैचारिक क्षमता, धारण क्षमता, समायोजन स्तर, मानसिक स्वास्थ्य के साथ–साथ सोच भी ऊर्जावान हो जाती है। भारत के शीर्ष आवासीय स्कूल, कॉलिज

विद्यार्थियों के जीवन में योग के महत्त्व को प्राथमिकता देते हैं और विद्यार्थियों के समक्ष विकास को सुनिश्चित करने के लिए दैनिक शैली में योग शिक्षा को शामिल करते हैं। योग विद्यार्थियों को अनुशासित रहना और अपने मानसिक और शारीरिक स्वास्थ्य के प्रति अधिक जागरूक रहना सिखाता है। आधुनिक युग में विद्यार्थी जीवन व्यस्त, समय–सारिणी में इतने मग्न रहते हैं कि उनके पास अपने मानसिक स्वास्थ्य, समायोजन एवं अच्छी निद्रा के लिए समय ही नहीं बचता है। योग शिक्षा व योग अभ्यास विद्यार्थियों के लिए अत्यंत लाभकारी है।

मुख्य शब्द– आवासीय विद्यार्थी, मानसिक स्वास्थ्य, धारण क्षमता, शैक्षिक उपलब्धि, समायोजन, योग शिक्षा, योग अभ्यास।

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7417017122, 9045358259, 9068483838

SWADESI MELA STALLS

S. No.	Name of Stall	Stall Coordinator	Stall No.
1.	**Ayurvedic Diet Stall Food**	Dr. Namish +10	IKVI-SN-(01-04)
2.	**Naturopathy Stall**	Dr. Shiba + 04 students	IKVI-SN- 05
3.	**Yoga Stall**	Dr. Pradeep + 04 Students	IKVI-SN- 06
4.	**Virasat**	Dr. Abhimanyu Upadhyay + 03	IKVI-SN- 07
5.	**Pyare Foundation- NGO**	Dr. Anjali + 04 Students	IKVI-SN-08
6.	**Kedareshwar**	Dr. Sugandha +04	IKVI-SN-09
7.	**Marmalogy**	Dr. Sugandha +04	IKVI-SN-010
8.	**Shall I Make**	Ms. Shalini +01	IKVI-SN-011
9.	**Rishabh Academy**	06	IKVI-SN-012
10.	**Organic Gur- Om Swadeshi Kishi Farm**	Dr. Ashwani Kumar +02	IKVI-SN-013
11.	**Anubhi Enterprises- Masala**	Anubhi Ji +02	IKVI-SN-014
12.	**DAV Public School**	Dr. Monika Sharma +02 Students	IKVI-SN-015
13.	**RG College**	Dr. Deeksha + 10 students	IKVI-SN-018-16
14.	**Food Stall-State Representation (Delhi + Maharashtra + Rajasthan)**	Dr. Monika Chaudhary +04	IKVI-SN-017
15.	**Food Stall - State Representation (UP + Bihar + Himachal Pradesh + Delhi, etc.)**	Dr. Sonam Arya + 08	IKVI-SN-018-019
16.	**Prishas Yummy Basket- Food Stall State Representation – Special Kerala**	Dr. Neha Tyagi + 02	IKVI-SN-020
17.	**Preeti Jain Occupation: Different types of Achar**	Preeti Jain +02	IKVI-SN-021
18.	**Pharmacy- Ancient to Modern Medicine**	Dr. Bhupendra Chauhan	IKVI-SN-022
19.	**Ancient Farming System**	Dr. Shivani	IKVI-SN-022
20.	**University Stall Exhibition-IKS in Higher Education**	Dr. Monika; Dr. Neha Tyagi; Dr. Shiva -10	IKVI-SN-023

Integrating Indian Knowledge Systems with Modern Higher Education: Bridging Science, Spirituality, and Society

Panel Discussion and Heritage Representation

S.No.	Discussion Group	Timing	Moderator
1.	**From Gurukul to Global University: Reimagining Indian Higher Education with Indigenous Roots** **Prof. Satya Raj,** Geographer, IGNOU, New Delhi **Dr. Vibhore Bhardwaj Ji,** Astrologer **Dr. Rajeev Upadhyay,** SUG **Shri Nirmal Gaur Ji,** Vedic Science, Astro **Dr. Anjali, Spiritual** Healer,	**12:10-12:30 PM**	Ms Deeksha and Mr. Amar Chand
2.	**Bridging the Cosmic and the Classroom: Astrology and Astronomy in Modern Pedagogy** **Prof. Tarun Sharma,** SUG **Shalini Sharma Ji** Astro - Psychologist, Vedic astrologer, tarot card reader, numerologist, graphologist, Clinical psychologist, spiritual healer, life and relationship coach. **Dhruv Goel Ji,** Life coach, Mythologist **Nitin Singhal,** Astrologer & Jewelry Designer.	**12:30-12:50 PM**	Mr. Gaurav Agrawal and Ms. Asmita
3.	**Holistic Education for the 21st Century: Merging Spirituality, Ethics, and Technology** **Dr. Gaurav Sharma,** IITD **Prerna Rohilla,** Founder of Mom, Money & Mindset, Finance Educator. **Kirti Tyagi,** Sports psychology mentor, and mindset coach, dedicated to unlocking the true potential of athletes. **Vaishali Agrawal Ji,** Life Coach & Counsellor	**12:50-01:10 PM**	Mr. Priyanshu and Ms. Aarushi
Lunch Break: 02:15-03:00 PM			
4.	**Indian Knowledge System as a Catalyst for Sustainable Innovation** **Prof. V.K. Tyagi,** VC SUM **Prof. Ranjit Singh,** VC SUG **Prof. Jayanand,** PVC, SUM **Prof. M.Moni,** Advisor, SUM **Prof. Ashok Gupta,** Dean Academic, SUM **Prof. ML Singhla,** Advisor, SUM	**04:00-04:30 PM**	Dr. Praveen Aacharya and Mr. Gaurav Agrawal
Poster Presentation 04:30-05:30 PM			
Cultural Event with networking Tea 05:30-06:30 PM			

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Shri Kunwar Shekhar Vijendra	Hon'ble Chancellor, Shobhit University, Meerut

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Co-Chairperson	Prof. Jayanand	Pro-Vice Chancellor, Shobhit Institute of Engineering and Technology, Meerut (NAAC 'A' Grade Accredited Deemed to-be University),

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