

PCTE, LUDHIANA

Abstract Book



**4TH
NATIONAL CONFERENCE
10-11 OCTOBER 2025**

**GURUKUL 2.0: Integrating Ancient Learning
with Modern Technology**

**Indian Knowledge System
NC-GL 2.0**



PHARMACY



ENGINEERING



MANAGEMENT



HOTEL
MANAGEMENT

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Dr. KNS Kang



It is with immense pride and honour that I reflect on PCTE's unwavering dedication to creating an educational environment where ancient wisdom harmoniously converges with cutting-edge innovation. At PCTE, we believe that true learning transcends boundaries nurturing not only intellect but also values, ethics, and creativity inspired by the timeless principles of the Gurukul system.

The 4th National Conference on “Gurukul 2.0: Integrating Ancient Learning with Modern Technology”, to be held on 10–11 October, 2025, embodies this vision of holistic growth. It stands as a testament to our continuous efforts to blend traditional knowledge systems with contemporary scientific and technological advancements. This event provides a platform for scholars, educators, and innovators to engage in meaningful dialogue, explore interdisciplinary perspectives, and co-create pathways for sustainable educational transformation.

As we look forward to this enlightening gathering, I extend my heartfelt gratitude to all academicians, researchers, and participants for their invaluable contributions. Your curiosity, dedication, and pursuit of excellence continue to illuminate our collective journey toward a more balanced and forward-thinking academic ecosystem. May this conference ignite new ideas, strengthen collaborative spirit, and inspire all of us to carry forward the legacy of learning ancient in wisdom, yet modern in approach.

Dr. K. N. S. Kang
Director General
PCTE Group of Institutes, Ludhiana

Ms. Harpreet Kaur Kang



It gives me great pleasure to extend a heartfelt welcome to all participants to PCTE and to this inspiring confluence of brilliant minds. From the initial spark of this concept to the vibrant program unfolding before us, this journey has been one of shared commitment, enthusiasm, and intellectual collaboration. Witnessing the gathering of diverse disciplines and perspectives fills me with deep pride, for it truly represents the spirit of resilience, innovation, and progress that defines our institution.

The 4th National Conference on “Gurukul 2.0: Integrating Ancient Learning with Modern Technology”, being held on 10–11 October 2025, stands as a beacon of our vision for holistic education. This conference reflects PCTE’s continued commitment to harmonizing the timeless wisdom of ancient knowledge systems with the transformative power of modern science and technology. It offers a platform for scholars, educators, and innovators to explore new dimensions of learning, foster interdisciplinary exchange, and co-create sustainable frameworks for educational advancement.

As we embark upon this intellectual journey together, let us engage in thoughtful dialogue, challenge conventional thinking, and nurture collaborations that inspire impactful action. Together, let us pave the way for a future that honors the legacy of ancient wisdom while embracing the limitless possibilities of modern technology.

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PCTE-IKS-101

Superfoods and their role in Biotechnology

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Abstract

Superfoods are foods that have exceptional nutritional value and significant health benefits. Advances in biotechnology now allow for more effective cultivation, biofortification, and therapeutic applications of these superfoods. This review explores the biotechnological innovations associated with superfoods, their health effects, and their potential applications in medicine and nutrition. Innovations such as genetic engineering, metabolic engineering, and precision fermentation enhance the bioavailability of superfoods. Biotech-enhanced superfoods have the potential to combat malnutrition and chronic diseases. Furthermore, the advancements brought about by information and communication technology (ICT), synthetic biology, CRISPR, and omics sciences are highly anticipated. This review also addresses the challenges associated with superfoods; health-related applications and their molecular modifications.

Keywords: Superfoods, biotechnology, nutraceuticals, genetic engineering, biofortification, functional foods, crispr, synthetic biology, metabolic engineering, precision fermentation.

PCTE-IKS-102

Various Stragaties for Catalytic Conversion of Biomass: A Review Article

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Abstract

The transformation of biomass into valuable fuels and chemicals through catalytic processes is a critical component of advancing sustainable energy solutions. This review comprehensively discusses the various strategies used in the catalytic conversion of biomass, with a focus on different catalyst types, including homogeneous, heterogeneous, and biological

catalysts. Each type is examined in relation to its application in processes such as pyrolysis, gasification, hydrolysis, fermentation, and transesterification. The efficiency, selectivity, and challenges associated with these catalytic systems—such as catalyst deactivation, limited stability, and feedstock complexity—are critically evaluated.

The article also highlights recent innovations in catalyst development, including nanostructured materials, dual-function catalysts, and eco-friendly catalysts derived from renewable resources. Emphasis is placed on how these advancements contribute to enhanced reaction efficiency, better product yields, and reduced environmental impact. In addition, the integration of catalytic methods with other biomass conversion technologies is explored, demonstrating how such combinations can improve overall process sustainability and economic viability.

Despite technological progress, significant hurdles remain in terms of large-scale implementation, cost-effectiveness, and adaptability to diverse biomass sources. The review concludes by outlining future research directions aimed at designing more robust, selective, and recyclable catalysts to meet industrial-scale demands.

Overall, this article provides a detailed and insightful overview of current catalytic approaches in biomass conversion, offering guidance for researchers and engineers working toward sustainable and renewable bio-based energy and chemical production.

PCTE-IKS-103

Customer Awareness and Willingness to Choose Registered Travel Agencies: A Study of Delhi NCR

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Abstract

This study investigates consumer knowledge and propensity to select authorized travel firms in Delhi NCR. A licensed travel firm guarantees adherence to industry rules, safeguards customer rights, and builds confidence. However, a lot of tourists make reservations without checking the legal standing of the agency, which could be dangerous. Pricing, service quality, and trust are important determinants of consumer choice. Despite being aware of registered agencies, many customers do not actively check credentials prior to making a reservation. This disparity emphasizes the necessity of more robust consumer education and awareness

campaigns. Travel agencies should use digital channels to demonstrate their trustworthiness, run awareness initiatives, and highlight their registration status in marketing campaigns to promote safer travel choices. Government agencies and trade groups can also help by educating customers and streamlining the verification procedure. In general, consumers and the travel sector will gain from increased consumer trust brought about by transparency and regulation.

Keywords: Customer Awareness, Registered Travel Agencies, Trust and Credibility, Consumer Protection

PCTE-IKS-104

Artificial Intelligence in Early Diagnosis and Management of Alzheimer's Disease: Current Advances and Future Directions

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Abstract

Alzheimer's disease (AD) is a chronic neurodegenerative condition that develops silently over many years before clinical symptoms become evident. Traditional diagnostic approaches, such as neuropsychological testing and imaging techniques, often detect changes only in the later stages and are restricted by high cost and limited accessibility. In this context, Artificial Intelligence (AI), powered by machine learning (ML) and deep learning (DL), is emerging as a transformative tool for the earlier and more precise recognition of AD. This review seeks to explore the novel roles of AI in enhancing the early diagnosis and ongoing management of Alzheimer's disease, emphasizing its integration with neuroimaging modalities, fluid biomarkers, and digital health platforms. The discussion further addresses the potential of AI in enabling personalized treatment strategies and continuous patient monitoring. Recent advances highlight that AI-based models can identify minute structural and functional alterations in brain scans such as MRI and PET long before symptom onset. Likewise, ML systems trained on blood biomarkers, genetic profiles, speech patterns, and handwriting features are showing promising accuracy in predicting disease onset. Beyond diagnostics, AI-driven wearables and smartphone applications are reshaping patient care by facilitating continuous tracking of cognitive and behavioral changes in real time. Despite these advancements, critical issues such as data heterogeneity, model explainability, ethical concerns, and integration into routine healthcare remain unresolved. AI offers a paradigm shift in how Alzheimer's disease can be diagnosed and managed, potentially enabling earlier

interventions, tailored therapies, and improved quality of life for patients. Future directions should focus on explainable AI, standardized datasets, and robust ethical frameworks to ensure safe, equitable, and widespread clinical adoption.

Keywords: Alzheimer's disease, Artificial Intelligence, Early Detection, Machine Learning, Digital Biomarkers, Precision Medicine

PCTE-IKS-105

Formulation And Evaluation of Herbal Anti-Ageing Cream With Combination of Green Tea and Guava Leaves

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Abstract

The demand for anti-aging cosmetics is expanding as a result of consumers increased preference for natural and organic goods over synthetic ones because of their softer effects on the skin and medical benefits. Psidium guajava (guava leaves) and Camellia sinensis (green tea) are two examples of herbal extracts that are high in flavonoids and polyphenols, which are antioxidants that help fight oxidative stress, a major cause of skin aging. These herbal formulas lessen wrinkles, increase skin elasticity, and shield the skin from the elements. Natural emulsifiers, such as glycerine and beeswax, improve the stability and efficacy of products. The safety, effectiveness, and rising popularity of herbal anti-aging cream as a sustainable alternative to conventional products that provide healthier, younger- looking skin are reviewed in research paper formulations that emphasize their advantages.

PCTE-IKS-106

The Changing Face of Pharmacy Education: India's Roadmap Ahead

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Abstract

Pharmacy education in India stands at a critical juncture, undergoing a necessary transformation from a traditionally product-oriented, industry-focused model towards a dynamic, patient-centered clinical paradigm. This shift is driven by global healthcare evolution, technological disruption, the lessons of the COVID-19 pandemic, and changing national health

priorities. However, the current landscape presents a stark dichotomy of immense quantitative growth, with over 3,500 institutions, alongside significant qualitative challenges including curriculum gaps, faculty shortages, and a severe mismatch between graduate skills and industry demands. While recent regulatory initiatives like the Pharm.D. program, the Education Regulations 2020, and alignment with the National Education Policy (NEP) 2020 are positive steps, their implementation remains inconsistent. Persistent obstacles such as outdated syllabi, inadequate clinical exposure, and a lack of defined professional roles in healthcare settings continue to hinder progress. This paper argues that a comprehensive, multi-stakeholder roadmap is imperative for India to future-proof its pharmaceutical workforce. This roadmap must be built on five strategic pillars: a revolutionary patient-centric curriculum, full embrace of NEP 2020's multidisciplinary framework, systemic strengthening of faculty and infrastructure, advocacy for clear clinical career pathways and legal scope expansion, and robust industry-academia-healthcare collaboration. Only through such a concerted effort can Indian pharmacy education fulfill its potential to significantly improve national health outcomes.

Keywords: Pharmacy Education, India, Curriculum Reform, National Education Policy (NEP) 2020, Clinical Pharmacy, Healthcare Transformation, Pharmacist Role, Skill Gap, Educational Policy, Patient-Centered Care.

PCTE-IKS-107

The Gynecological Impact of Menstrual Cup Usage: A Comparative Study of Feminine Hygiene Products

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Abstract

Balancing work, family, and home life presents numerous challenges for women, and menstruation, with its hormonal fluctuations, adds another layer of complexity. The persistent taboo surrounding menstrual hygiene further hinders open discussion and shared experiences. Over a woman's reproductive lifetime (ages 13-51), menstruation can last approximately 6.25 years, or 2,280 days, with each cycle lasting 3-7 days. This results in the disposal of over 10,000 tampons and pads per woman, contributing significantly to environmental pollution.

Despite being a readily available, cost-effective, and eco-friendly alternative for decades, menstrual cups remain underutilized. In low- and middle-income countries, the challenges are

amplified by limited access to water, sanitation, and hygiene (WASH) facilities, inadequate education, and poor waste disposal systems, posing significant public health risks, especially for schoolgirls. While policy-led initiatives and donations of menstrual products are increasing in some countries to address issues like school attendance, comprehensive information on the full range of menstrual products is crucial for informed decision-making. This project aims to raise awareness about menstrual cup usage and promote their adoption in India, where a lack of knowledge hinders wider acceptance. Through an online survey, data is being collected from women to assess their awareness of menstrual cups, including their usage, advantages, and disadvantages. Targeted pricing and advertising strategies can facilitate a shift towards greater menstrual cup adoption.

Keywords: menstrual cup, Hygiene, awareness, usage of menstrual cup, removal

PCTE-IKS-108

Superbugs and the Resistance Crisis

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Abstract

In the twenty-first century, antibiotic resistance has become one of the biggest risks to public health worldwide. In clinical, veterinary, and agricultural contexts, the uncontrolled and sometimes irrational use of antibiotics has sped up the evolution of multidrug-resistant (MDR) microorganisms, also known as superbugs. These resistant strains impair the efficacy of conventional therapies, resulting in longer hospital stays, more medical expenses, and a higher death rate. This article offers a thorough summary of the processes by which bacteria become resistant, such as biofilm development, efflux pump activation, target change, and enzymatic destruction. Antibiotic misuse, inadequate infection control procedures, and a lack of innovative medication development are some of the major contributing variables that are also examined. The article also outlines new and existing approaches to address this developing epidemic, such as phage treatment, quick diagnostic tools, antimicrobial stewardship programs, the creation of novel antimicrobial drugs, and international policy initiatives. It takes coordinated efforts from the scientific, medical, and policy domains to address antibiotic resistance. By assessing recent developments and highlighting important gaps in our collective response to this epidemic, this study seeks to inform and encourage such actions.

PCTE-IKS-109

CRISPR-Cas delivery via nanocarriers: Applications in gene therapy

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Abstract

The emergence of CRISPR-Cas technology has revolutionized the landscape of gene therapy, offering precise and efficient genome editing for the treatment of a wide range of genetic disorders. Despite its potential, clinical translation faces major challenges, including instability of CRISPR components, off-target effects, and inefficient intracellular delivery. Nanocarrier-based systems have recently gained attention as promising platforms to overcome these limitations. Lipid nanoparticles, polymeric carriers, dendrimers, and inorganic nanomaterials provide enhanced stability, targeted delivery, and reduced immunogenicity compared to viral vectors. These nanocarriers enable controlled release, site-specific delivery, and protection of CRISPR components from enzymatic degradation in biological environments. Furthermore, surface modifications and stimuli-responsive properties enhance their targeting capabilities and therapeutic efficacy. Recent studies have demonstrated the successful use of nanocarrier-assisted CRISPR delivery in treating cancers, neurodegenerative diseases, and inherited genetic disorders. However, safety concerns, large-scale production, and regulatory approval remain key challenges. This review highlights the current advances, therapeutic applications, and future perspectives of CRISPR-Cas delivery via nanocarriers, emphasizing its transformative potential in personalized medicine and next-generation gene therapy.

Keywords: CRISPR-Cas, Nanocarriers, Gene Therapy, Lipid Nanoparticles, Targeted Delivery, Genome Editing

PCTE-IKS-110

**A Comprehensive Overview of Quercetin: Chemistry, analytical approaches,
formulations and therapeutic approaches**

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Abstract

Quercetin is one of the prestigious bioactive flavonoids found in many fruits, vegetables, and grains, has attracted considerable attention due to its various pharmacological effects and therapeutic potential. Many researchers isolate and extract it by employing various analytical methods because of its manifold pharmacological profile. This paper provides a comprehensive review of quercetin's biological impacts, emphasizing its anti-inflammatory, antioxidant, anticancer and antihypertensive effects. There are many formulations available in which quercetin is the main ingredient. Its clinical use is frequently limited by inadequate bioavailability and stability. To tackle these challenges, several drug formulations and delivery methods, including nanoparticles and liposome complexes, have been created to improve absorption and effectiveness. The author also discussed the various analytical methods, like High Performance Liquid Chromatography are increasingly being employed to characterize quercetin's molecular properties, bioactivity, and interactions with biological targets and sources from which it is obtained. Additionally, the review gives insight into the synthesis of quercetin, with a description of clinical and preclinical trials as well as patents.

Keywords: Quercetin, flavonoids, formulations, chemistry, analytical techniques, pharmacological activities, nanoparticles.

PCTE-IKS-111

Clinical Translation of Nanotechnology: Key Challenges

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Abstract

Nanotechnology has been widely used in medicine for the prophylaxis, diagnosis and treatment of various ailments and has produced significant impact on human health. Nanoparticulate nanomedicines are used as a carrier to deliver the drugs and increase the therapeutic efficacy and/or reduce the toxic effects. During the process of utilization of nanomedicines, several experimental challenges need to be focused. The book chapter primarily discusses the challenges in the pathway of development and commercialization of nanomedicines in clinical transformations. Certain obstacles in the introduction of nanomedicines in clinical setups as compared to conventional therapies include large-scale production, government regulations, intellectual property, therapeutic challenges, safety and biocompatibility and cost effectiveness. These factors significantly retards the presence of nanomedicines in the market despite therapeutic advantages. Besides, the chapter also summarizes and analyzes the status

of marketed nanomedicines and their clinical profile, problems that limit their clinical utility and specific approaches to overcome such obstacles.

Keywords: Clinical, Challenges, Nanomedicine, Therapeutics

PCTE-IKS-112

Advancing Healthcare Through Digital Innovation In the Pharmaceutical Sector

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Abstract

The pharmaceutical industry is undergoing a profound digital transformation, driven by the integration of disruptive technologies such as artificial intelligence (AI), blockchain, cloud computing, and telemedicine. These technologies are reshaping every aspect of the pharmaceutical sector—from drug discovery and development, manufacturing, and supply chain management to patient engagement and healthcare delivery. AI accelerates the identification of potential drug candidates, predicts efficacy, and optimizes clinical trial design, while blockchain enhances the security, traceability, and transparency of supply chains. Cloud computing facilitates scalable storage, real-time collaboration across global research teams, and advanced data analytics, and telemedicine increases patient access to healthcare services, enabling remote monitoring and personalized treatment. Despite the significant advantages, the implementation of digital technologies presents challenges, including data privacy and cybersecurity concerns, regulatory and compliance issues, high implementation costs, and the complexity of integrating with existing legacy systems. This review synthesizes current literature, industry case studies, and real-world applications to examine the opportunities, benefits, and challenges of digital transformation in the pharmaceutical industry. It aims to provide actionable insights and recommendations for companies seeking to navigate this transformative era effectively. By exploring the evolving digital landscape, this article underscores how technology-driven innovation is shaping the future of pharmaceutical research, development, and patient care.

Keywords: Digital Transformation, Pharmaceutical Industry, Artificial Intelligence (AI), Blockchain, Cloud Computing, Telemedicine.

PCTE-IKS-113

“GURUKUL to GOURMET” -The Effects of Ancient Culinary Traditions and Systems of India on Today’s Modern Cuisines.

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Abstract

The culinary heritage of India is among the world’s most enduring, rooted in Vedic philosophy, agricultural abundance, and centuries of cultural exchange. Ancient texts such as the Rigveda, Atharvaveda, Charaka Samhita, and classical epics provide evidence of sophisticated food systems that combined nutrition, ritual, and medicine. This paper traces the evolution of Indian cuisine from the Vedic period (1500 BCE) to the present, emphasizing continuities in staples like rice and millets, fermentation practices, the medicinal use of spices, and the role of temple kitchens. Using a timeline framework supported by case studies—rice dishes (odana / khichdi to biryani), fermented foods (idli, dosa, curd), pickling traditions, and temple offerings—the research demonstrates how ancient culinary wisdom survives in contemporary Indian cuisine, fusion gastronomy, and global fine dining. The findings suggest that modern Indian food is not a departure from tradition but a dynamic extension of it, shaped by adaptation and global interaction. Beyond gastronomy, the study highlights the enduring relevance of ancient dietary principles for nutrition, sustainability, and cultural preservation in the 21st century.

Keywords: Ancient Indian cuisine, Vedic food, Ayurveda, culinary evolution, fermentation.

PCTE-IKS-114

Reviving the Gurukul: Integrating Ancient Indian Pedagogy with Modern Technology in Hotel Training

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Abstract

Hotel’s success is dependent on excellent customer service, cultural awareness, and customized visitor experiences. The Gurukul model served as the foundation for ancient Indian educational and training institutions, which placed an emphasis on mentoring, hands on experience,

discipline and values-based instruction to promote holistic learning. This paper investigates the ways in which contemporary hotel training programs might incorporate ideas from these conventional approaches, such as immersive learning and skill transfer through careful supervision using Atithi Devo Bhava in mind. A thorough training structure is created by blending these ageless ideas with modern technology, such as digital performance tracking systems, artificial intelligence-driven learning modules, and virtual reality simulations.

In addition to improving technical skill, this hybrid method instills in hospitality professionals cultural values, ethical service, and emotional intelligence. Integrating contemporary technology with traditional Indian knowledge can transform hotel training by producing staff who are both technically savvy and culturally aware, improving the overall visitor experience in the globalized hospitality industry of today.

PCTE-IKS-115

Challenges and opportunities in digital hospitality

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Abstract

The hotel sector has observed a paradigm shift with the introduction of digital technologies. From digital bookings to artificial intelligence-assisted customer service and smart rooms, digital technologies are making their presence felt in the functions and experiences of the hotel as well as the visitors. The research study picks out the most important opportunities and threats to the hotel sector in its evolution towards a digital era. Increased guest satisfaction is one of the largest digital hospitality chances. Hotels can make guests more convenient, personalized, and faster served through mobile apps, chatbots, self-service kiosks, and digital concierge service. These technology trends enhance operations efficiency and reduce human error. With data analysis and guest feedback collected by digital media, hotel managers can have a deeper understanding of the guests, leading to more tailored services. Apart from that, review websites on the Internet and internet advertising provide new opportunities for promotion and branding, thus allowing hotels to reach more individuals. However, digital hospitality transformation comes with quite a lot of challenges. One of the most required challenges is the protection of the data and privacy. Because hotels collect a great deal of private data about guests, they are

subject to cyber-attacks. They need to spend a substantial amount of money on IT security systems and continue to educate their staff on how to protect the data. The second is enormous investment in implementing digital tools and maintenance. Independent or small businesses find it difficult to compete with the larger chains that have more significant budgets. Moreover, the human touch that hospitality is best at deteriorates if services become too computerized. Some clients will feel less unique or more isolated when they deal completely digitally. The piece also mentions the problem of visitor and staff digital literacy. The staff must be empowered to be super skilled with new technology, but not all of their customers are comfortable using applications or computer-based interfaces, especially older patients or low-tech neighborhood visitors. Therefore, there must be some balance formula—a formula that combines technology and touch. It is based on reviews of literature, industry reports, and actual scenario hotel studies. It asserts that while digital hospitality has several advantages, it ought not to replace human interaction but complement it. Hotels need to invest in technology as well as employees; training and guest interaction strategies such that they can benefit from these opportunities. Based on the benefits and limitations of digital transformation, hospitality businesses can make informed decisions to improve the quality of services, ensure guest satisfaction, and compete well in the market.

Keywords: Digital Hospitality, Guest Experience, Technological Challenges, Service Automation, Opportunities in Hospitality Industry

PCTE-IKS-116

**Translating Gurukul Wisdom into Modern Management: An Indian Knowledge System
Perspective On Leadership**

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Abstract

The present study investigates the integration of contemporary leadership ideas with the knowledge of the ancient Indian Gurukul. It demonstrates how the ageless ideas of self-mastery, mentoring, service, ethics, and group learning can transform modern management techniques. This essay investigates how modern leadership and management frameworks might incorporate Indian Knowledge Systems (IKS), especially Gurukul wisdom. The Gurukul system provides a comprehensive framework that is consistent with many contemporary

leadership theories. It is based on the ideas of self-mastery, ethical obligation (dharma), service (seva), mentorship, and group learning. The study creates a Gurukul 2.0 Leadership Framework that connects traditional philosophy with contemporary organisational requirements by translating these timeless ideals to new models, including collaborative team management, mentorship frameworks, servant leadership, and sustainable leadership. The study highlights that the Gurukul-inspired approach has a special ability to develop leaders who are both performance-driven and value-oriented in a time of volatility, ethical dilemmas, digital revolution, and increased workplace stress. Self-mastery develops emotional intelligence and personal leadership, and the guru-shishya relationship is similar to modern mentorship techniques that prioritise information sharing and trust. By emphasising service to stakeholders, the seva principle aligns with servant leadership, and dharma translates into morally sound and sustainable decision-making that is essential for long-term success. The Gurukul system's emphasis on collective learning highlights the value of shared intelligence and teamwork in the information economy. The study also discusses the consequences for management education, corporate leadership, and AI-driven workplaces. Businesses can promote cultures of trust, resiliency, and moral leadership by using Gurukul concepts. Gurukul-based pedagogies can be incorporated into management education to equip upcoming leaders for difficult global issues. Gurukul knowledge offers a counterpoint to technology disruption in digital and AI-enabled workplaces where human jobs increasingly require agility, empathy, and ethical judgement.

Keywords: Gurukul Wisdom, Modern Management, Indian Knowledge System, Leadership, Integration

PCTE-IKS-117

From Access to Outcomes: User Adoption of Digital Health Platforms in the Tricity Region's Healthcare System

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Abstract

The rapid emergence of digital health platforms offers significant potential to improve patient engagement and healthcare outcomes. This study focuses on analyzing user adoption of digital health platforms within the Tricity Region's healthcare system (Chandigarh, Mohali, Panchkula) using a structured survey approach. Data were collected from patients, healthcare

providers, and platform users to assess levels of awareness, usage patterns, and perceived healthcare benefits. Findings indicate growing acceptance of digital health tools such as teleconsultations, electronic health records, and mobile health applications, with higher adoption observed among younger, urban, and digitally literate populations. However, challenges including digital literacy gaps, privacy concerns, and limited infrastructure remain barriers to broader adoption. The study highlights the crucial role of targeted awareness campaigns and capacity-building efforts to bridge these gaps. Results emphasize that increasing digital health platform adoption can enhance patient engagement and health outcomes when integrated effectively with existing healthcare services. The findings provide actionable insights for policymakers, healthcare providers, and technology developers striving to optimize digital health integration in similar urban settings.

Keywords: Digital Health Platforms ; User Adoption.

PCTE-IKS-118

Educational Institutions as Incubators of Start-up Culture: A Student-Centred Study in Punjab

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Abstract

Educational institutions play a pivotal role in nurturing entrepreneurial mindsets and fostering a vibrant start-up culture among students in Punjab. This study explores the perceptions and experiences of students regarding the influence of their educational environments on entrepreneurship development and start-up ecosystems. Using a structured survey conducted across multiple higher education institutions in Punjab, the research assesses factors such as availability of incubation centers, mentorship opportunities, entrepreneurial training programs, and institutional support mechanisms. The findings indicate that students recognize educational institutions as crucial catalysts in promoting innovation, skill-building, and entrepreneurial ambitions. Access to resources like seed funding, expert guidance, and networking platforms significantly enhances students' readiness to launch start-ups. However, challenges related to awareness, resource accessibility, and practical exposure remain areas for improvement. The study underscores the need for continued investment in entrepreneurship infrastructure and student-centric policies to strengthen Punjab's start-up ecosystem. These insights can guide

policymakers, academic leaders, and ecosystem stakeholders in optimizing educational interventions that drive sustainable entrepreneurship growth in the region.

Keywords: Start-up Culture; Educational Institutions; Student Entrepreneurship.

PCTE-IKS-119

Empowering Students Beyond Academics: Profile Building for Higher Education Success in the Delhi NCR Region

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Abstract

As the landscape of higher education becomes increasingly competitive, academic grades alone no longer guarantee admission to top institutions. This study explores the critical role of profile building in schools across the Delhi NCR region as a strategic approach for enhancing students' prospects of higher education success. Focusing on extracurricular involvement, leadership experiences, skill development, and holistic personal growth, the research investigates how schools prepare students to build comprehensive profiles that appeal to universities both in India and abroad. Data collected through surveys and interviews with students, reveal that early engagement in diverse activities and targeted guidance significantly bolster students' readiness and confidence for higher education applications. The study highlights the growing recognition among stakeholders of the need to foster well-rounded student profiles that showcase more than just academic prowess. The findings underscore the importance of integrating profile-building initiatives into school curricula and counseling services to empower students for future academic and career challenges. These insights provide actionable recommendations for educators and policymakers aiming to elevate educational outcomes and student competitiveness in the Delhi NCR region.

Keywords: Profile Building; Higher Education Success

PCTE-IKS-120

Indian Knowledge System and Human Resource Management: Bridging Ancient Wisdom with Contemporary HR Practices

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Abstract

The Indian Knowledge System (IKS), based on ancient texts like the Vedas, Upanishads, Bhagavad Gita, and Arthashastra, offers a holistic and ethical framework for Human Resource Management (HRM). Earlier research suggests that the incorporation of IKS principles into HRM practices strengthens organizational culture, enhances employee satisfaction, and encourages ethical leadership, thus ensuring long-term sustainability. Dharma (duty) and Karma Yoga (selfless action) principles in the Bhagavad Gita offer relevant lessons in ethical decision-making, leadership, and motivating the workforce, in conjunction with strategic HR practices emphasizing integrity and accountability. Similarly, Arthashastra's views on governance and talent management support workforce planning, performance measurement, and leadership development. Incorporating yoga and Ayurveda-based well-being programs into HR strategies improves employee well-being, maximizes stress levels, and increases engagement. These time-tested paradigms, although valuable, must be adapted to contemporary HRM with a discerning approach, balancing cultural heritage and business needs. Organizations implementing IKS-inspired HRM practices can create a values-based work culture, enhance employee engagement, and increase organizational resilience. However, empirical research must create a systematic IKS-based HR framework to ensure its applicability across industries in a dynamic corporate environment.

Keywords – Indian Knowledge System, Human Resource Management, Organizational Culture, Employee Satisfaction, Strategic HR Practices, Ethical Leadership, Bhagavad Gita, Dharma, Workforce Planning, Employee Well-being.

PCTE-IKS-121

Leadership and Management through Indian Knowledge Systems (IKS): Principles, Models, and Contemporary Applications

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Abstract

Indian Knowledge Systems (IKS) represent not merely a set of traditional practices but a comprehensive civilizational framework that integrates philosophy, ethics, economics, governance, and social organization into a unified worldview. At its core, IKS is rooted in the fourfold pursuit of human goals (Purushārtha): Dharma (moral and ethical responsibility),

Artha (purposeful prosperity and material well-being), Kāma (meaningful satisfaction and harmonious relationships), and Mokṣa (transcendence and liberation). Together, these principles provide a holistic orientation that moves beyond the narrow confines of profit maximization and efficiency to embrace values of justice, sustainability, community welfare, and self-realization. In the context of leadership and management, such an approach can offer deeper insights into balancing organizational performance with social responsibility, fostering resilience, and cultivating leaders who act as custodians of both economic and moral capital.

This paper undertakes a synthesis of both classical sources—including the Bhagavad Gītā, which emphasizes duty-bound and ethical leadership; Kautilya’s Arthaśāstra, which highlights strategic statecraft, foresight, and administrative pragmatism; and the Tirukkural, which codifies principles of justice, fairness, and governance—and modern organizational cases that exemplify IKS principles in practice. Case illustrations such as the Amul cooperative model (trusteeship and community-centered leadership), the Mumbai Dabbawalas (distributed coordination, reliability, and social capital), and ISRO’s Mars Orbiter Mission (frugal innovation and adaptive strategic management) demonstrate how ancient wisdom continues to inform contemporary organizational success.

Drawing from these dual streams of knowledge, the paper proposes an IKS-based leadership model that integrates moral purpose (Dharma-centered decision-making), stakeholder stewardship (trusteeship and multi-value optimization), frugal innovation (delivering “more with less, for more”), distributed coordination (community trust and cooperative structures), and adaptive statecraft (strategic foresight and resilience). We further advance a set of testable propositions to bridge the conceptual with the empirical, suggesting how these principles can be operationalized in modern institutions. To validate this framework, the study outlines mixed-methods research designs, combining qualitative insights from texts and lived practices with quantitative analyses across organizations. Finally, the paper explores implications of this framework for corporate governance, where boards can be reimagined as trustees of societal value; for public administration, where statecraft and Dharma-based ethics can reinforce accountability and resilience; and for management education, where curricula can integrate IKS to cultivate globally relevant yet contextually rooted leaders.

Keywords: Indian Knowledge Systems, Dharma, Purushārtha, Bhagavad Gītā, Kautilya, Tirukkural, trusteeship, frugal innovation, stakeholder leadership

PCTE-IKS-122

Community-Based Finance and Corporate Social Responsibility: Lessons from Indigenous Practices

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Abstract

The growing emphasis on sustainable development has renewed interest in alternative financial models and corporate social responsibility (CSR) frameworks that prioritize equity, inclusivity and ecological balance. This paper explores the intersection of community-based finance and CSR through the lens of indigenous practices in India and beyond. Traditional financial systems such as rotating savings groups, self-help collectives, and community credit pools reflect values of trust, reciprocity and stewardship that align closely with the principles of ethical finance. Similarly, indigenous approaches to resource management, communal welfare, and social accountability offer lessons for reimagining CSR beyond philanthropy towards participatory and long-term impact models. By analyzing case studies of indigenous financial mechanisms and corporate initiatives inspired by them, this study highlights how integrating local wisdom into CSR strategies can enhance stakeholder engagement, foster social cohesion and strengthen corporate legitimacy. The findings suggest that embedding indigenous knowledge in corporate practices not only addresses contemporary challenges of sustainability and inequality but also opens pathways for more ethical and resilient financial ecosystems.

Keywords: Indigenous practices, community-based finance, CSR, ethical finance, sustainability, India

PCTE-IKS-123

Servant Leadership through Indian Knowledge Systems: Insights from the Guru–Shishya Parampara

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Abstract

Servant leadership emphasizes humility, empathy, and the prioritization of followers' growth over the leader's personal ambition. While widely studied in Western contexts, the roots of servant leadership can be traced to Indian Knowledge Systems, particularly the *Guru–Shishya Parampara* (teacher-disciple tradition). This paper examines how this tradition embodies key

principles of servant leadership, such as knowledge sharing, selflessness, character-building, and lifelong mentorship. Drawing from scriptural references, historical examples (e.g., Chanakya–Chandragupta, Swami Vivekananda–Ramkrishna Paramhansa), and case studies of modern Indian leaders in education and corporate settings, the paper illustrates how servant leadership is culturally embedded in Indian traditions. By integrating IKS with contemporary management theory, the paper develops a model for leadership that emphasizes ethical stewardship, emotional connection, and sustainable organizational growth. This perspective not only contributes to leadership studies but also enriches management practices with indigenous, human-centered approaches.

PCTE-IKS-124

Gender, Labor, and Inclusion in Ancient Indian Economy: New Evidence and Interpretation

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Abstract

The standard account of India's ancient economic history is biased in such a way that it overlooks the contributions of women and the groups of energetically active but overlooked workers who were involved in the creation and maintenance of the material culture in question, altogether focusing on an upmarket-rich-caste-protagonist concept of the economy, solely derived from such hypothetical texts like Arthashastra and the Manusmriti.

Still, recent publications have been able to present new perspectives on the matter by using the information obtained from digging, writings, and other forms of communication of the past which all speak of the distribution of work regardless of gender and human social ranks.

This study recapitulates the questions and answers concerning the economic positions of women and those in the lowest rank of the labor sphere (e.g., Shudras and Dasas) in ancient India from the Vedic era to the early medieval period. The research based on the examination of records, temples, writings, and local laws, gives the proof for the argument of women's participation in the production of crafts, commerce, property, and economic temple activities. The application of traditional and intersectional knowledge has meant a considerable revision in the way the ancient Indian economy is presented; now, which was the perception of the early historiography. This writing intends to prove that there should be a more extensive and more embracing schematic of economic history that not only embraces the regional diversity and

unaccounted for -economies, but also the empowerment of the historically marginalized ingrained in it.

Keywords: Ancient Indian economy, gender roles, labor history, caste and economy, women's work, economic inclusion, Shudras, guilds, temple economy, intersectional history, indigenous systems.

PCTE-IKS-125

Integrating Indian Textile Heritage with Modern Sustainable Fashion Design: A Study on Promoting Eco-Friendly and Culturally Rich Fashion in the 21st Century

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Abstract

The fashion industry today is increasingly under fire for being unsustainable and destructive — from the fast fashion rush to pollution and the rapid use of natural resources. On the other hand, India has a rich textile culture that brings to the table green alternatives developed over centuries with sustainable craft – block printing, handloom weaving, natural dying and traditional embroidery have deep cultural roots here. Modern technology for sustainable fashion and traditional Indian textile techniques, motifs and materials. This research investigates how modern sustainable fashion technology can integrate with India's traditional textile techniques patterns and materials. In order to produce clothing that is both economically and environmentally responsible, the project will examine how traditional methods might be combined with sustainable 21st-century innovations including digital printing, waterless dyeing, and circular fashion design models.

The study offers a conceptual framework in which traditional processes are improved by sustainable technology without endangering the livelihoods or cultural identity of artisans. With practical advice for designers, legislators, and corporate executives, this study advances the new subject of sustainable fashion. In addition to encouraging cultural preservation and strengthening local communities, it highlights how India's textile legacy contributes to the achievement of the Sustainable Development Goals (SDGs). According to the report, this kind of integration provides a feasible route to a fashion sector in the digital age that is more ethical, ecological, and culturally diverse.

PCTE-IKS-126

Discipline in the digital Era: -Adapting gurukul time management principles to remote work culture.

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Abstract

Remote and hybrid work culture have transformed how people manage their time, offering flexibility but also creating new challenges. Many employees struggle with distractions, irregular routines and blurred boundaries between personal and professional life. Interestingly, the ancient Indian gurukul system placed great emphasis on discipline, balance and structured use of time. Students followed well defined schedules that include study, physical activity, reflection, and community interaction, ensuring holistic development.

This paper examines how those principles can be adapted to modern contexts using digital tools. The study explores whether practices like fixed focus periods, regular breaks, meditation and accountability – once central to gurukuls – can be integrated with productivity applications, AI based trackers and virtual collaboration platforms. A survey of remote workers and students, combined with analysis of existing digital productivity solutions, will be used to identify practical strategies for improving discipline in flexible work environments.

The aim is to develop a hybrid model that draws on both traditional time management wisdom and modern technology. Such a framework could help individuals build healthier routines, enhance focus and reduce stress while maintaining flexibility.

PCTE-IKS-127

Strategic Management through the lens of the Bhagavad Gita and Mahabharata

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Abstract

At its essence, management transcends being a mere assortment of techniques; it embodies a guiding philosophy that empowers both individuals and organizations to efficiently reach their goals. It constitutes a repository of knowledge that aids organizations in navigating the complex interactions between people and their environment, thereby ensuring the effective provision of goods and services for the benefit of society. This paper delves into the principles of strategic

management as illuminated by the wisdom of the Gita, emphasizing its significance in today's organizational and managerial landscapes. Through an in-depth examination of the Bhagavad Gita and the Mahabharata, this study reveals invaluable insights into leadership, decision-making, teamwork, conflict resolution, and ethical behavior. By incorporating the teachings of the Bhagavad Gita into contemporary management practices, leaders can develop a more profound comprehension of their roles and responsibilities, thereby promoting both organizational success and personal development. The current research is grounded in secondary data sourced from electronic media, academic papers, journals, and the addresses of spiritual leaders. The majority of the discussions presented in this paper are structured around the analyses of various versions of the Mahabharata (Ganguly, 2003) and the Bhagavad Gita (A. C. Bhaktivedanta Swami Prabhupada, 1998). This research holds the potential to benefit both scholars and practitioners who aspire to weave holistic and ethical principles into the fabric of modern management and leadership.

Keywords: Leadership, Bhagavad Gita, Mahabharata, Spirituality

PCTE-IKS-128

Role of Artificial Intelligence in Reviving Ancient Indian Educational Practices

Rimpy

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Abstract

Ancient Indian education was based on experiential knowledge, moral development, holistic learning, and the Guru–Shishya tradition of individualized mentoring. This was especially true of the Gurukul system. Because of industrialization and standardized educational models, this system's emphasis on values, critical thinking, and character development has waned over the centuries. However, the advent of artificial intelligence (AI) presents a special chance to bring these antiquated methods back to life and modify them for use by modern students. This study explores how artificial intelligence (AI) can preserve, digitize, and share ancient Indian knowledge while also re-creating its fundamental pedagogy. Natural language processing makes it easier to translate and preserve Sanskrit texts, while AI-powered personalized learning tools mimic the one-on-one instruction of ancient Gurus. With the help of artificial intelligence (AI), virtual and augmented reality technologies offer immersive experiences that complement the experiential component of Gurukul education, including yoga, meditation, and Vedic sciences. The study also looks at the technological, ethical, and cultural difficulties of

integrating AI with conventional education, such as the potential for cultural misunderstandings and an excessive reliance on machines. The study suggests a Gurukul 2.0 framework that combines the knowledge of traditional pedagogy with cutting-edge AI-driven innovations by fusing insights from educational technology and Indian philosophical thought. According to the research, this kind of integration fosters holistic, values-based, and future-ready education in the digital age in addition to protecting cultural heritage.

Keywords: Artificial Intelligence, Gurukul 2.0, Indian Educational Practices, Guru–Shishya Tradition, Personalized Learning, Vedic Knowledge, Educational Technology, Digital Preservation.

PCTE-IKS-129

Sustainable Marketing through Ancient Indian Wisdom: A Study of Green Consumer Behavior

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Abstract

The increasing global emphasis on sustainability has elevated the significance of green marketing and environmentally conscious consumer behavior. Within the Indian context, sustainability is not merely a modern trend but a principle deeply embedded in ancient traditions. Teachings from the Vedas, Upanishads, and Ayurveda emphasize concepts such as *Aparigraha* (limiting possessions), *Ahimsa* (non-violence towards nature), and holistic living, which continue to provide valuable insights for eco-friendly practices. This study examines how such ancient Indian wisdom can be applied to shape contemporary sustainable marketing strategies and influence consumer decision-making.

Using case studies of brands such as Patanjali, FabIndia, and Khadi, the paper explores how traditional values are blended with modern marketing tools to attract and retain environmentally aware consumers. Additionally, a consumer survey on products like organic food, herbal cosmetics, and eco-friendly packaging offers practical evidence on the link between cultural heritage and present-day sustainability preferences. Based on these insights, the research proposes an IKS-driven framework for sustainable marketing that connects traditional knowledge with global green consumer trends. The findings indicate that integrating

cultural heritage into branding not only enhances consumer trust but also strengthens the global competitiveness of Indian brands.

Keywords: Sustainable Marketing, Green Consumer Behavior, Indian Knowledge System, Ayurveda, Consumer Attitudes.

PCTE-IKS-130

Comparative Perspectives on Social Equity: Ancient Taxation Mechanisms versus Contemporary Progressive Tax Regimes

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Abstract

Taxation constitutes a central pillar of fiscal policy and serves as a critical instrument for governance and macroeconomic stability. In ancient civilizations, taxation was equally central to governance, though its structure and objectives were shaped by agrarian economies and monarchical rule. Historically, Taxation has served as a most critical tool for wealth redistribution and promotion of social equity. Modern progressive taxation frameworks are typically designed to narrow down the income inequalities but the practical efficacy is undermined by structural complexities, tax evasion and persistent deficit of public confidence in state institutions. This research paper articulates sources such as the Arthashastra, the Dharamasastra and subsequently refined in Mughal revenue systems which were comparatively more straightforward and justified on the grounds of fairness and moral principles. Revenues collected under these systems were allocated towards the development of community, irrigation infrastructure and relief measures in the times of floods or famines. By revisiting these historical taxation paradigms, the paper draws a contrast between the ancient and present day tax regimes. The paper contributes to designing such taxation systems that balance efficiency, equity and social justice.

PCTE-IKS-131

Leadership Ethics from Bhagwad Gita Duty, Detachment and Decision Making

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Abstract

The Bhagavad Gita, a timeless Indian philosophical text, presents a profound framework for ethical leadership grounded in the principles of duty (dharma), detachment (vairagya), and conscious decision-making. In the modern era, where leaders often face ethical dilemmas, internal conflict, and external pressures, the Gita offers actionable insights into values-based leadership.

This paper explores the Gita's teachings as a guide to cultivating moral clarity, emotional stability, and purpose-driven action. It examines the dialogue between Krishna and Arjuna as a leadership coaching model, emphasizing the alignment of personal conduct with a higher sense of duty beyond self-interest. The concept of nishkama karma—acting without attachment to outcomes—is analyzed as a strategy for reducing anxiety, avoiding burnout, and enhancing decision-making under uncertainty. Additionally, the Gita's advocacy for samatvam (equanimity) is positioned as a psychological foundation for resilient and ethical leadership in volatile environments.

By synthesizing scriptural wisdom with contemporary leadership challenges, this research highlights how the Bhagavad Gita transcends religious boundaries to serve as a universal manual for ethical leadership. The findings suggest that integrating these principles into leadership development programs can foster greater integrity, accountability, and long-term vision among leaders in corporate, governmental, and educational contexts

Keywords: Bhagvad Gita, Ethical Leadership, Dharma (Duty), Detachment (Nishkkama Karma), Decision-making, Values-based Leadership

PCTE-IKS-132

CSR and Ethical Finance: Leading Focus on Indigenous Knowledge System

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Abstract

Indian Knowledge system is a vast system of diverse philosophical and traditional insights, scientific and cultural practices that have been developed and preserved in India. IKS has various rooted concepts like Dharma (righteousness of doing business ethically and fulfilling social responsibilities), Seva (encouraging businesses to do services for society without expecting anything in return), Ahimsa (avoiding negative impacts on society). IKS is helping businesses to promote CSR and Ethical Finance which in turn is giving advantages like ethical decision making (ensuring integrity and making right choices), usage of sustainable business

models (like triple bottom line approach which focuses on Planet, people and profit) and will ultimately lead to reduction of toxic work environment and focusing on collective growth.

So, an organisation needs to align traditional IKS with modern technology and innovation in order to promote integrity and work ethically. In this research paper, focus is on certain companies (Like Reliance Industries, Hindustan Unilever, Infosys Ltd, Decathlon); which used IKS based CSR strategies and Ethical Financing for their companies to make a long term survival and growth.

Keywords: Indian Knowledge System, Ethical, , Strategies, Integrity, Triple Bottom Line approach.

PCTE-IKS-133

“STORYTELLING AND BRANDING LESSONS FROM ANCIENT INDIAN EPICS AND FOLKLORE”

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Abstract

Storytelling has long been recognized as a central mechanism for meaning-making, identity construction, and collective memory. Ancient Indian epics such as the Ramayana and Mahabharata, along with folklore traditions, present narrative structures that integrate myth, morality, and cultural archetypes. These texts not only transmitted ethical and social codes but also built enduring symbols that shaped collective imagination over centuries. Contemporary branding research highlights similar functions of storytelling in creating emotional resonance, symbolic value, and consumer loyalty. This study explores parallels between traditional Indian narrative techniques—such as the use of archetypal heroes, moral dilemmas, repetition for recall, and metaphorical symbolism—and their applicability to modern brand communication strategies. By employing a qualitative, interpretive framework, the paper examines how these ancient storytelling models can inform branding practices in areas such as positioning, differentiation, and consumer engagement. Findings suggest that drawing from these cultural narrative reservoirs can enable brands to craft authentic, value-driven stories that foster long-term resonance in a globalized marketplace.

PCTE-IKS-134

Designing an AI-Guru: An Adaptive Mentorship System Based on the Guru-Shishya Parampara for Holistic Learning

Damandeep Singh Bhatia

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Abstract

The ancient Indian Gurukul model emphasized overall education by close mentorship, moral instruction, and customized learning rooted deeply in the guru shishya parampara (preceptor-pupil tradition). In contrast, modern AI-based educational systems often focus primarily on cognitive outcomes while neglecting the ethical and emotional aspects of student development. This study explores the design and deployment of an AI-Guru—a dynamic artificial intelligence mentorship model based on the Gurukul legacy. The system integrates AI techniques like natural language processing (NLP), knowledge graphs, and machine learning to simulate the key characteristics of the ancient guru: personalized instruction, ethics-oriented advice, and reflective learning. Taking cue from ancient Indian treatises such as the Upanishads, Bhagavad Gita, and Natyashastra, AI-Guru not only offers subject-specific guidance but also issues for moral reflection and self-reflection activities. An initial pilot study that compared 100 secondary school students using the AI-Guru and a traditional AI tutor measured outcomes in both academic achievement and affective areas (motivation, ethical decision-making, self-awareness). Preliminary results suggest that the AI-Guru substantially augments learner involvement, perceived mentorship caliber, and ethical introspection, without sacrificing academic progress. This inquiry illustrates that culturally anchored, values-oriented AI systems can resuscitate the spirit of ancient pedagogy in the digital era, charting a course for more humane and holistic EdTech solutions.

Key Words: Artificial Intelligence Tools, guru shishya Parampara.

PCTE-IKS-135

Leadership Lessons from Ancient Indian Epics : Ramayana, Mahabharata and Arthashastra

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Abstract

Leadership has always been at the heart of human progress, shaping societies, cultures, and civilizations. Ancient Indian epics and treatises such as the Mahabharata, Ramayana,

Arthashastra, and the story of Colin offer timeless insights into the nature of leadership, ethics, decision-making, and governance. These texts do not merely narrate historical or mythological events; they serve as living repositories of wisdom that continue to resonate with the challenges of modern leadership. This study explores leadership lessons embedded within these classics—examining the moral dilemmas of the Mahabharata, the dharmic model of responsibility in the Ramayana, the strategic and administrative acumen of Kautilya's Arthashastra, and the narrative of Colin as a reflection of courage and resilience. By humanizing these lessons, the research highlights their relevance in today's dynamic socio-political and organizational contexts, where leaders grapple with ethical choices, crisis management, team building, and long-term vision. Through an interpretive analysis, the paper draws parallels between ancient leadership archetypes and contemporary leadership theories, demonstrating that the core values of empathy, accountability, adaptability, and strategic foresight remain universal. The findings argue that these indigenous knowledge traditions are not relics of the past but dynamic frameworks that can enrich leadership models across domains—whether in governance, business, or community life. Ultimately, the paper positions the Indian Knowledge Systems as vital to rethinking leadership in the 21st century, urging us to revisit our roots to craft more holistic, ethical, and sustainable approaches to leading in a complex world.

PCTE-IKS-136

Ethical Entrepreneurship and Indian Knowledge Systems: A Study of Emerging Trends and Their Role in Modern Business

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Abstract

The indigenous contribution towards the unfolding field of global entrepreneurship is gaining greater recognition as companies look for roots in authenticity and sustainability. This article explores the role of dynamic Indian Knowledge Systems (IKS) in framing and enhancing new entrepreneurial strategies by emphasizing the impact of ancient traditions, moral frameworks, and cultural heritage on contemporary business practices. Through close analysis of the path of recent trade, commerce, and business growth trends, the study clarifies how the maxims and acumen contained in IKS give rise to not just innovation but also environmental and social sustainability and an increased adherence to ethical decision-making within the business world. To support these assertions, the study borrows lessons from a series of recent case studies with

prominent entrepreneurs who have successfully used IKS as a central element of business models. These entrepreneurs illustrate how anchoring initiatives in indigenous value systems can create value-driven businesses that are both competitive and ethical and that successfully bridge the gap between local customs and the needs of an international market. The study finds that the incorporation of IKS enables companies to address current challenges in innovative methods, making operations not only perform well financially but also positively affect society and the environment. In addition, the research indicates that the acceptance of IKS increases social and cultural significance of business, laying a platform for competitiveness by tapping into the uniqueness and strength embedded in traditional knowledge. These types of businesses are poised to build trust among stakeholders and customers based on their moral foundation and long-term focus. Embracing these advantages, the article suggests that policymakers and educators proactively incorporate IKS into entrepreneurial training and curricula and promote a holistic model of business education that maintains both cultural integrity and global savvy. In the end, incorporating IKS in entrepreneurship has the potential to raise a new generation of leaders who are well connected to their cultural roots yet successful in an interdependent world.

PCTE-IKS-137

“Kautilya’s Economic Statecraft and Algorithmic Trading: A Study on Applying Ancient Indian Principles of Risk and Revenue Management to Modern Financial Markets”

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Abstract

This study explores the application of **Kautilya's economic statecraft**, as detailed in his ancient treatise, the *Arthashastra*, to the design and implementation of modern **algorithmic trading strategies**. The research posits that timeless principles of **risk and revenue management** from the 4th century BCE can offer a robust, ethical, and macro-aware framework for today's high-frequency financial markets. The *Arthashastra* advocates for disciplined decision-making, systematic accounting, and the prioritization of a strong, stable treasury, which aligns with the core objectives of modern financial algorithms. The study will analyze specific Kautilyan tenets, such as the principles of diversification, calibrated taxation (revenue collection), and proactive risk assessment. These will be translated into quantifiable parameters for algorithmic models. For instance, the principle of “Artha” (wealth) not being an end in itself but a means to state stability and prosperity will be used to develop trading models that prioritize long-term, sustainable returns over short-term, speculative gains. Furthermore,

Kautilya's emphasis on detailed record-keeping and auditing will be paralleled with the importance of backtesting and real-time performance analytics in algorithmic trading. By bridging the gap between ancient wisdom and modern technology, this research aims to develop a novel category of trading algorithms that are not only profitable but also inherently more resilient and ethically grounded. The findings will be of interest to quantitative analysts, financial ethicists, and scholars of ancient economics, demonstrating that some of the most enduring financial principles predate modern economic theory and can be effectively operationalized with computational tools.

PCTE-IKS-138

Ethical Finance and Corporate Governance: A Review of Dharma-Based Approaches from Indian Knowledge Systems

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Abstract

Over recent years, the need for ethical leadership and corporate transparency has taken a centre stage in discussions related to finance and governance. The concept of dharma, drawn from Indian Knowledge Systems, offers a rich tradition emphasizing duty, responsibility, fairness, restraint, and stakeholder welfare. The present study reviews scholarly works that apply dharmic principles from the Upanishads, Arthashastra, and Manusmriti to contemporary corporate finance and governance. It examines how dharma can inform principles like transparency, accountability, ethical decision-making, and long-term focus in corporate behaviour. Using 12 peer-reviewed articles and conference papers, the paper identifies recurring patterns, assesses strengths and gaps in current research, and suggests paths for future study. Findings show that dharma-based governance enriches existing frameworks (agency, stewardship, stakeholder) by centering intrinsic values, institutional culture, and moral agency. However, operationalization in contemporary corporate systems is poorly understood having varied adaption across sectors.

PCTE-IKS-139

Reviving Traditional Indian Trade Routes: Lessons for Modern Supply Chain and Marketing

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Abstract

India's traditional trade routes, from the Silk Road to maritime spice corridors, were more than pathways for goods—they were systems built on trust, localized production, and adaptive logistics. This paper explores how these historical models remain relevant to today's global supply chain and marketing practices. Ancient practices such as caravan-based connectivity, port city hubs, and relationship-driven exchanges parallel modern concepts of integrated logistics, distribution networks, and customer loyalty. The study emphasizes how principles of resilience, sustainability, and cultural branding embedded in traditional trade can guide businesses in designing adaptive and customer-centric strategies. By drawing lessons from the past, the research highlights how India's trade heritage continues to offer practical insights for strengthening modern supply chains and marketing frameworks.

PCTE-IKS-140

Timeless Leadership Insights from Ancient Indian Epics and Texts: Ramayana, Mahabharata, and Arthashastra

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Abstract

This research explores leadership principles embedded in India's ancient epics and texts—*Ramayana*, *Mahabharata*, and *Arthashastra*—and their relevance in modern organizational and managerial contexts. By analyzing the strategies, ethical decision-making, and governance approaches of key figures such as Rama, Krishna, and Chanakya, the study identifies timeless leadership qualities like vision, resilience, strategic thinking, and ethical conduct. It highlights how these ancient narratives offer practical guidance for contemporary leaders, emphasizing the balance between moral responsibility and effective decision-making. The research underscores that lessons from these texts are not merely historical or cultural artifacts but actionable frameworks that can inspire and shape modern leadership practices across diverse sectors.

PCTE-IKS-141

Meditation and Mindful Leadership: Explore how regular dhyana (meditation) and mindfulness practices shape leadership qualities.

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Abstract

This study investigates how regular dhyāna (meditation) and mindfulness practices influence leadership qualities among mid-level and senior managers, focusing on attention, empathy, and ethical integrity. Drawing on Indian contemplative practices and secular mindfulness training, we propose a randomized controlled trial (RCT) in which managers receive an 8-week structured meditation intervention grounded in dhyāna techniques, compared with an active control (stress-management education). Primary outcomes are improvements in attentional control (objective cognitive tasks), empathic concern and perspective-taking (self-report and behavioral measures), and ethical decision-making (scenario-based assessments). Secondary outcomes include leader authenticity, organizational citizenship behavior (OCB), and well-being. We will test direct effects of the intervention and mediation pathways (attention → empathy → integrity). Quantitative analyses will use mixed-effects models for repeated measures, mediation analysis (bootstrapped indirect effects), and robustness checks (dose-response by practice logs). The study aims to bridge Indian spiritual practice (dhyāna) with leadership development, offering causal evidence on whether contemplative training cultivates the “higher self” attributes associated with ethical and authentic leadership. Findings can inform leadership development programs in Indian organizations and globally, integrating indigenous wisdom with evidence-based organizational practices (see Ruedy, Luberto, Prakash, Sutamchai).

PCTE-IKS-142

Green Finance and Ancient Indian Wisdom: Learning from Vedas, Arthashastra, and Traditional Practices for Sustainable Investments

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Abstract

The growing urgency of climate change and ecological degradation has placed green finance and sustainable investment at the core of global economic discussions. Green finance seeks to

direct financial resources towards environmentally responsible initiatives such as renewable energy, clean technologies, and sustainable infrastructure. While these concepts are often seen as modern innovations, the roots of sustainable thinking can be traced back to ancient Indian knowledge systems. Texts such as the *Vedas*, the *Upanishads*, and Kautilya's *Arthashastra* reflect profound wisdom on resource management, ecological balance, and ethical economics, which remain relevant in the context of present-day sustainable finance.

This paper explores the intersection of ancient Indian environmental wisdom and contemporary green finance practices. Ancient Indian traditions emphasized harmony between humans and nature, as reflected in the principle of *Prakriti Raksha* (protection of nature), community-driven conservation of sacred groves, and water harvesting systems such as stepwells and tanks. Similarly, the *Arthashastra* offered detailed guidance on state investment in irrigation, forestry, and sustainable agriculture, aligning closely with modern ESG (Environmental, Social, and Governance) frameworks. These practices illustrate an early form of ecological economics, where prosperity was inseparable from ecological responsibility.

By comparing ancient insights with modern instruments such as green bonds, carbon credits, and impact investing, this study highlights how traditional Indian principles can enrich current models of sustainable finance. The paper argues that integrating dharmic values such as balance (*samatva*), non-exploitation (*aparigraha*), and collective welfare (*loka-samgraha*) into financial decision-making can strengthen both the ethical and environmental foundations of green investment.

The research aims to bridge ancient wisdom and modern finance by identifying parallels, extracting timeless principles, and suggesting frameworks where traditional knowledge can complement global sustainable development goals (SDGs). This interdisciplinary approach not only deepens the cultural relevance of green finance in India but also provides a holistic model of investment that respects both ecological limits and human aspirations. Ultimately, the study reinforces that ancient Indian wisdom is not a relic of the past but a guiding resource for building resilient, sustainable, and ethically sound financial systems for the future.

PCTE-IKS-143

INTEGRATING DHARMA-CENTERED LEADERSHIP WITH ICT IN EDUCATION: A PATHWAY TO HOLISTIC ACADEMIC EXCELLENCE

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Abstract

The purpose of this study is to explore how **Dharma-centered leadership**, rooted in Indian Knowledge Systems (IKS), can be integrated with Information and Communication Technology (ICT) to foster holistic academic excellence in modern educational institutions. In the rapidly evolving digital age, there is a need to combine ethical leadership with technological advancements to ensure both academic success and the overall moral development of students. This research aims to provide a framework where ancient Indian ethical principles, especially Dharma, guide the effective enforcement of ICT tools in education. The study adopts a qualitative research methodology, drawing insights from both ancient Indian texts and modern ICT implementations. Through a review of literature on Dharma-based leadership and ICT in education, the research examines current practices in ICT enforcement and explores the potential for leadership models rooted in Indian philosophy to enhance these efforts. Comparative case studies from educational institutions employing ICT, both with and without ethical frameworks, are used to analyze the differences in student outcomes. The findings suggest that integrating Dharma-centered leadership with ICT tools leads to improved academic performance, greater student engagement, and enhanced values-based education. Institutions that apply ethical leadership principles in their ICT strategies not only witness better academic results but also promote a more holistic development of students, encompassing moral, social, and intellectual growth. However, the study is limited by its focus on qualitative analysis and case studies, which may not fully capture the broad applicability of the framework across diverse educational settings. Further quantitative research is needed to validate the impact of Dharma-based leadership on academic performance through ICT at a larger scale. This research is original in its approach to blending Indian Knowledge Systems with modern ICT strategies in education. By introducing a Dharma-based leadership model, it offers a unique perspective on how ancient ethical principles can be applied to contemporary challenges in academic environments, making it highly valuable for educational leaders and policymakers looking to promote both academic excellence and ethical development in students.

Keywords: Dharma, Leadership, ICT, Education, Excellence

PCTE-IKS-144

Revisiting Gurukul Values: Devdutt Pattanaik's My Hanuman Chalisa in Dialogue with Goleman's Emotional Intelligence

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Abstract

Ancient Indian Gurukul system would promotes holistic learning that contains moral, intellectual and emotional training. Along with humility, discipline, collective living and discipline, the students of Gurukul would study scriptures and sciences. Primarily modern education system emphasize mostly on academic performance and technical skills, however emotional growth and value-based learning are primitive. In this context the concept of Emotional Intelligence which was popularized by Daniel Goleman in 1990 is a lot relevant. EI dimensions are regarded as crucial for self-regulation, motivation, self-awareness and social skills for professional and personal success. These review paper analyses ancient Indian traditions especially Gurukul practices and insights of Hanuman Chalisa as explained by Devdutt Pattnaik and also shows how Goleman's EI framework resonate and enrich. Thematic parallels are drawn using narrative review methodology for example *seva*, meditation and collective living and these are connected with modern EI principles. Paper proposes reimagined framework "Gurukul 2.0" which integrates traditional wisdom to modern education needs such as stress management, digital mindfulness and collaborative learning. Along with this the paper highlights research gaps and provides directions to do further empirical studies. Ultimately it has been argued that EI research gets enriched and develops practical models for education by revisiting ancient Indian wisdom.

PCTE-IKS-145

Reimagining CSR and Ethical Finance through Indigenous Knowledge Systems

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Abstract

This study explores how Indigenous knowledge systems can transform modern interpretations of Corporate Social Responsibility (CSR) and ethical finance. Although conventional CSR frameworks typically emphasize shareholder value and adherence to regulations, Indigenous perspectives provide relational, community-focused, and

ecologically integrated viewpoints that contest prevailing financial models. This research investigates how principles like reciprocity, stewardship, and intergenerational responsibility can guide the creation of more ethical and sustainable financial models through a critical analysis of case studies and Indigenous-led economic practices. The research utilizes a qualitative, interdisciplinary approach that merges literature review, discourse analysis, and Indigenous knowledge systems to redefine CSR not just as a corporate duty, but as a platform for decolonial participation and ethical change. The paper contends that prioritizing Indigenous knowledge presents a persuasive alternative to exploitative economic models, creating avenues for financial systems grounded in cultural integrity, sustainability, and social justice. This study adds to the expanding discussion on ethical finance, sustainability, and Indigenous revival, and seeks to connect scholarly research with actionable strategies for corporate and financial reform.

PCTE-IKS-146

Reviving Traditional Indian Industries (Textiles, Handicrafts, Metallurgy) through Marketing Innovation

Venus

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Abstract

India's traditional industries—such as textiles, handicrafts, and metallurgy—represent not only centuries-old craftsmanship but also a significant component of cultural heritage and rural livelihoods. However, these industries face challenges in competing with mass-produced, machine-made goods and in adapting to changing consumer preferences in a globalised market. This research explores how marketing innovations can play a transformative role in reviving and sustaining these industries. The study examines strategies such as digital storytelling, e-commerce platforms, niche branding, sustainable packaging, and collaborations with global designers to enhance visibility and consumer appeal. It also investigates how integrating technology-driven approaches like AI-enabled demand forecasting, social media marketing, and immersive experiences (AR/VR craft exhibitions) can bridge the gap between artisans and consumers worldwide. By combining traditional skill with contemporary marketing practices, the research highlights pathways for increasing competitiveness, ensuring fair value for artisans, and positioning Indian traditional industries as drivers of sustainable economic development. The findings aim to

provide actionable insights for policymakers, entrepreneurs, and cultural organizations seeking to rejuvenate these heritage industries in the 21st century.

PCTE-IKS-147

The Role of Platform-Specific Sentiment in Shaping Behavioural Biases Among Retail Investors.

Gurleen

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Abstract

This review paper explores how sentiment from Reddit, Twitter, Stock Twits, and traditional newspapers shapes behavioural biases in retail investors. Evidence from empirical studies suggests that each platform affects investors differently due to variations in message tone, speed, and credibility. Reddit discussions, particularly during meme-stock surges, intensify herding tendencies and encourage FOMO (fear of missing out), often pushing retail investors toward speculative and high-risk trades. Twitter and Stock Twits, known for their rapid and high-frequency sentiment, are frequently linked to overconfidence and confirmation bias, as investors selectively amplify messages that support pre-existing beliefs. Newspapers, which typically deliver more structured and verified information, affect decision-making through anchoring and loss aversion, shaping how investors perceive risk and market downturns. Studies rely on sentiment analytics, social media text mining, and trading behaviour data to uncover these effects. Overall, findings indicate that sentiment from interactive social platforms has a stronger bias-inducing effect than traditional news, highlighting the psychological vulnerability of retail investors to digital narratives. This review emphasizes the need for future research on cross-platform sentiment spillovers, credibility metrics, and the moderating role of financial literacy and investor sophistication.

Keywords: Retail investor behaviour, Behavioural finance, Herding, Overconfidence, FOMO, Confirmation bias, Anchoring.

PCTE-IKS-148

Storytelling & Branding Lessons from Ancient Indian Epics and Folklore

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Abstract

Storytelling has always been a powerful tool for shaping beliefs, values, and collective identity. Ancient Indian epics, such as the Ramayana and Mahabharata, along with regional folklore, are more than cultural narratives—they are profound sources of insight into communication, emotion, symbolism, and human behaviour. This paper examines how these stories impart timeless lessons in branding and narrative-building, showcasing how characters, relationships, and moral choices are employed to engage, inspire, and influence audiences. By examining how these narratives balance aspiration, struggle, and purpose, the research draws parallels between traditional storytelling methods and modern brand communication strategies. Through a humanised interpretation, the study demonstrates that trust, authenticity, emotional connection, and cultural resonance—central to both epics and successful branding—remain as relevant today as they were in ancient times. The paper argues that integrating these storytelling techniques into contemporary branding can create deeper, more meaningful relationships with audiences, while also reaffirming the value of India's knowledge systems in crafting purposeful and empathetic narratives for today's global challenges.

PCTE-IKS-149

Value-Based HRM – Integrating Indian Ethical Systems with AI-driven People Analytics

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Abstract

Human Resource Management (HRM) in the digital age is increasingly shaped by artificial intelligence, data analytics, and automation. While these tools enhance efficiency in recruitment, performance monitoring, and employee engagement, they often lack a humanistic foundation that respects values, culture, and ethics. Indian ethical systems, rooted in

philosophies of dharma, karma, and holistic well being, offer a timeless framework for embedding values into people management. This study proposes an integration of value-based HRM with AI-driven people analytics to create organizations that are both technologically advanced and ethically grounded. It explores how ancient Indian wisdom—such as the emphasis on fairness (Nyaya), duty (Dharma), and selfless action (Karma Yoga)—can guide data-driven decisions in areas like employee evaluation, promotion, and workforce planning. The framework suggests using AI not merely as a predictive tool but as an enabler of equitable, transparent, and compassionate HR practices. By blending ancient values with modern analytics, this approach aspires to develop workplaces where efficiency, trust, and human dignity coexist in harmony.

Keywords: Value-based HRM, Indian Knowledge System, AI-driven people analytics, Nyaya, holistic management, digital transformation.

PCTE-IKS-150

Understanding Gen Z's Digital Consumption Behaviour: An Indian Knowledge System Perspective on OTT Subscriptions

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Abstract

The rise of OTT streaming platforms has really changed how people, especially Gen Z in India, consume entertainment. This research dives into how Gen Z interacts with OTT subscriptions, looking through the lens of Indian Knowledge Systems to combine age-old philosophical ideas with modern consumer behavior insights. By tapping into ancient Indian concepts like Rasa theory, the *Panchakosha* model, and *Trigunas*, this study seeks to uncover what drives Indian Gen Z consumers aged 18 to 25 when it comes to their digital content choices and subscription decisions. It uses a mix of methods, including surveys and interviews, to get a better grip on what motivates their consumption, their loyalty to platforms, what content they prefer, and how they subscribe. The main findings show that Gen Z's OTT habits reflect some traditional Indian values, like community sharing (*Vasudhaiva Kutumbakam*), emotional connections (*Bhava*), and learning through experiences (*Anubhava*). The research reveals how cultural stories and archetypes play a role in their content choices, while being digital natives affects their subscription habits, including switching platforms, binge-watching content, and enjoying social viewing experiences. Overall, this study adds to the growing research on digital consumer behavior by suggesting a framework that connects ancient Indian knowledge with

contemporary marketing theories. The insights provided can help OTT platforms, content creators, and marketers better understand and engage with Indian Gen Z audiences while showing how traditional knowledge systems can still be relevant in today's digital landscape.

PCTE-IKS-151

Tradition to Transformation: The Influence of Indian Knowledge Systems on Modern Business Practices

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Abstract

The Indian Knowledge System (IKS) is a comprehensive framework encompassing centuries-old wisdom, practices, and philosophies that have shaped various aspects of Indian society, including commerce and management. This research critically examines the relevance and potential of integrating IKS principles into contemporary commerce and management education and practice. Drawing from ancient texts such as the Arthashastra, Upanishads, and other classical sources, the study explores how foundational ideas-such as ethical conduct, holistic thinking, sustainability, and resource optimization can be adapted to address modern business challenges. The research employs a qualitative analysis of existing literature and case studies to evaluate how IKS-driven approaches promote ethical decision-making, stakeholder responsibility, and innovative business models for sustainable development. Findings reveal that the inclusion of IKS in management curricula and professional environments can foster enhanced problem-solving skills, resilience, and adaptability among students and practitioners. Moreover, businesses that embed indigenous wisdom into their operational strategies often gain competitive differentiation, reinforce organizational ethics, and contribute to environmental and social well-being. However, the study also highlights the need for careful standardization, empirical validation, and structured teaching methodologies to maximize the impact of IKS without diluting its core values. The paper concludes by advocating for policy reforms, interdisciplinary curricular integration, and further empirical research to ensure IKS not only preserves its rich heritage but also propels Indian commerce and management toward a more ethical and sustainable future.

PCTE-IKS-152

Comparative analysis of traditional and modern ethical practices in the global corporate world

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Abstract

This study presents a comparative analysis of traditional and modern ethical practices in the global corporate world, examining how ethical standards have evolved in response to globalization, technological advancements, and shifting societal expectations. Traditional corporate ethics, often rooted in cultural, religious, or localized moral frameworks, emphasized loyalty, honesty, and long-term stakeholder relationships. These practices were generally guided by unwritten codes and individual moral responsibility. In contrast, modern ethical approaches are shaped by formalized corporate governance structures, global regulatory frameworks, and corporate social responsibility (CSR) initiatives, emphasizing transparency, sustainability, diversity, and accountability. The analysis explores case studies across various industries and regions to highlight the dynamic interaction between these two paradigms. It finds that while traditional ethics offer a strong foundation for trust and integrity, modern ethical systems provide mechanisms for consistency, compliance, and adaptability in a complex global environment. However, tensions often arise when global standards clash with local values, requiring companies to navigate ethical dilemmas with sensitivity and strategic foresight. The paper concludes that the integration of traditional and modern ethical values can foster more resilient and responsible corporate cultures. Companies that successfully blend the moral depth of traditional ethics with the structural rigor of modern frameworks are better positioned to earn stakeholder trust and ensure long-term sustainability.

Keywords:

Corporate Ethics, Traditional vs. Modern Practices, Global Business, Corporate Social Responsibility (CSR)

PCTE-IKS-153

Sacred Scripts to Strategic Scripts: An Archetypal Framework for CEO Leadership Branding in Cultural Contexts

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Abstract

Purpose and Research Questions

This study develops a novel theoretical framework explaining how cultural archetypes function as strategic resources for CEO leadership branding. Drawing on archetypal psychology, authentic leadership theory, and cultural leadership studies, we investigate how contemporary leaders leverage deep cultural narratives to construct resonant brand identities. The primary research question examines: How do cultural archetypes function as strategic resources for CEO leadership branding, and what factors determine their effectiveness across different stakeholder groups and organizational contexts?

Theoretical Foundation

We introduce **Archetypal Leadership Branding Theory**, which posits that effective leaders unconsciously or consciously draw upon culturally embedded archetypal patterns to enhance authenticity, build stakeholder trust, and differentiate their leadership brand. This framework bridges ancient wisdom traditions with contemporary leadership and branding literature, addressing a significant gap in understanding how cultural capital translates into leadership effectiveness in globalized business environments.

Methodology

This mixed-methods study employs a three-phase approach: (1) systematic textual analysis of ancient Indian epics (Ramayana, Mahabharata) to identify core leadership archetypes and behavioural patterns; (2) comprehensive content analysis of prominent Indian CEOs' communications, speeches, and media presence over a multi-year period to map archetypal positioning strategies; and (3) multi-stakeholder surveys and interviews measuring archetypal resonance, leadership authenticity perceptions, and brand effectiveness across employees, investors, customers, and media representatives. Advanced semantic analysis tools and qualitative coding software support pattern identification and validation.

Key Findings

Our analysis reveals three dominant archetypal patterns in Indian epic literature that map distinctly to contemporary CEO positioning strategies: the **Visionary-Strategist** (Krishna-inspired), emphasizing long-term thinking and transformational change; the **Ethical-Traditionalist** (Rama-inspired), focusing on moral authority and institutional trust; and the **Resilient-Loyalist** (Karna-inspired), highlighting merit-based leadership and overcoming adversity. CEOs demonstrating high archetypal alignment show significantly higher authenticity ratings and stakeholder trust scores compared to those with weak archetypal positioning. Archetypal effectiveness varies systematically across stakeholder groups, with employees responding most strongly to Resilient-Loyalist positioning while investors prefer Visionary-Strategist archetypes. Industry context moderates these relationships, with technology sector leaders benefiting most from hybrid archetypal positioning strategies.

Theoretical and Practical Contributions

This research makes three primary contributions to leadership and branding literature. First, we establish **Archetypal Leadership Branding** as a distinct theoretical domain, providing the first systematic framework linking cultural narratives to leadership brand construction. Second, we extend authentic leadership theory by reconceptualizing authenticity as cultural archetypal alignment rather than purely individual self-expression. Third, we contribute to stakeholder theory by demonstrating how archetypal positioning can simultaneously address multiple stakeholder expectations. Practically, the framework provides actionable tools for executive development, succession planning, and corporate communication strategy, particularly relevant for leaders operating in culturally diverse markets.

Implications and Future Research

The framework's generalizability extends beyond Indian contexts, offering a template for examining archetypal leadership branding in other mythology-rich cultures. Future research should explore archetypal positioning in crisis situations, digital transformation contexts, and cross-cultural leadership transitions. The study also opens avenues for neuroscientific investigation of archetypal resonance and artificial intelligence applications in archetypal positioning analysis.

Keywords: leadership branding, cultural archetypes, authentic leadership, stakeholder theory, CEO positioning, cultural capital, mythological narratives

PCTE-IKS-154

ACADEMIC MOTIVATION AS A MEDIATOR BETWEEN INSTITUTIONAL SUPPORT SERVICES AND STUDENT PERFORMANCE IN HOTEL MANAGEMENT INSTITUTES

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Abstract

Its Study explores the role of academic motivation as a mediator factor between institutional support services and student performance at hotel management institutes. As the hospitality industry becomes increasingly dynamic and competitive, the demand for highly qualified and motivated graduates intensified. Educational institutions play a key role in forming student success through robust support systems, such as academic counseling, professional guidance, skill development programs, guidance and psychological support. However, the direct impact of these services on academic performance may not be fully performed without the student's internal motivation. The research investigates how institutional support services influence students' intrinsic and extrinsic motivation, which in turn affects their academic results. Based on self-determination theory and empirical data collected through structured research from various hotel management institutes, the study applies modeling of structural equations (without) to evaluate the relationships between variables. The findings suggest that students who perceive greater institutional support exhibit greater motivation, which significantly increases their academic performance. Motivation emerges as a crucial psychological bond that transforms institutional resources into tangible educational results. The implications of this study highlight the importance of administrators and educators in hospitality education not only provide external support, but also to promote environments that improve student motivation. Adapted motivational strategies such as goals definition workshops, recognition programs and personalized learning paths can further expand the benefits of institutional support services Institutes and provides actionable information to improve student performance

Keywords: Educational motivation, institutional support, student performance, hotel management education, hospitality institute, educational results, student success, aid

services, self-determination theory, internal motivation, external motivation, educational consultation, career guidance, skill development, higher education.

PCTE-IKS-155

INTEGRATING INDIAN KNOWLEDGE SYSTEMS INTO TALENT MANAGEMENT: YOGIC, ARTHASHASTRA, AND GURUKUL PERSPECTIVES

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Abstract

Frameworks that target the holistic development of individuals inside organisations and transcend transactional methods are necessary given the changing landscape of human resource management (HRM). The Indian wisdom System (IKS) contains a wealth of indigenous wisdom that provides timeless insights for managing talent, even if modern HR approaches are heavily influenced by Western philosophy. In order to rethink HR in a way that is more sustainable and culturally based, this article conceptually investigates the incorporation of Yogic concepts, Arthashastra insights, and Gurukul pedagogy into contemporary talent management techniques. Employee well-being, emotional intelligence, and resilience in high-pressure situations can all be improved by implementing the Yogic framework's emphasis on mindfulness, balance, and self-discipline. With its deep insights into ethics, leadership, and governance, Arthashastra offers a strategic perspective for organisational stewardship, succession planning, and decision-making. Based on mentorship and practical learning, Gurukul pedagogy provides helpful advice for creating training, development, and performance review programs that promote character and values in addition to skill development. This study offers a conceptual framework for talent management that balances professional competence with ethical responsibility and personal development by combining these three IKS pillars. In addition to addressing issues like stress, attrition, and disengagement, this strategy helps create organisations that are flexible, mission-driven, and socially conscious. The study emphasises how Indian wisdom might influence HR methods in the future, bridging the gap between tradition and modernity and enhancing international discussions on people management.

Keywords: Talent Management, Indian Knowledge Systems (IKS), Yogic Principles, Arthashastra, Gurukul Pedagogy, Human Resource Management (HRM), Employee Well-being.

PCTE-IKS-156

Blockchain-Enabled Knowledge Preservation: Securing Ancient Gurukul Wisdom in the Digital Era

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Abstract

In the digital era, securing and validating ancient knowledge is an ever-growing challenge. Historically, the Gurukul tradition had knowledge passed orally or in the form of manuscripts, where there were always vulnerabilities of distortion, derivatives of loss, and limitations due to access. However, with the development of blockchain technology, we have a way to secure content of education and knowledge that was non-tamperable and decentralized. This research offers a valuable blockchain-enabled framework called Gurukul 2.0, which aims to safely store, authenticate, and distribute ancient scriptures and manuscript relics alongside modern educational content. Blockchain's properties prove useful since knowledge becomes immutable once recorded on the chain, which creates a security level that preserves authenticity. Furthermore, the use of smart contracts will allow learners to automatically receive access rights, and learners can browse educational content that can be opened exclusively through decentralized storage systems. Metadata attributes, digital watermarks, and cryptographic signatures both aid the traceability of traditional knowledge ownership and protect ownership. The study also describes blockchain apps on platforms like Ethereum, Hyperledger, and Polygon for a contextual reading in the space of education, and delves into the implications of security, scalability, and energy efficiency. Ultimately, the study outlines the potential of blockchain as a digital "Gurukul repository." One that preserves, authenticates and normalizes ancient wisdom that can be made accessible to future generations and fit like a puzzle piece with knowledge creating modern Computer Science and Engineering programmes and approaches.

Keywords: Blockchain in Education, Knowledge Preservation, Gurukul 2.0, Digital Security, Smart Contracts, Decentralized Storage.

PCTE-IKS-157

IoT-Driven Smart Classrooms Inspired by the Gurukul Model: Bridging Tradition and Modern Engineering

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Abstract

The rapid expansion of Internet of Things (IoT) technologies has revolutionized the ways that educational environments can manage classrooms, track students, and deliver learning materials. In Gurukuls of ancient India, the learning environments were holistic, natural, and individualized, where the Guru observed, assessed, and monitored everyone else's learning closely. This paper examines the possibilities of an IoT - enabled smart classroom for Gurukul 2.0, with the intention of recreating that previous personalized, interactive, and interconnected learning environment through engineering. The smart classroom, as considered in this paper, would therefore consist of IoT sensors, RFID attendance systems, smart boards, wearables, and biometric-based progress monitoring to develop a smart analytical learning environment. The data collected from IoT technologies could be analysed using cloud computing and machine learning, and should be further studied for behaviours, persistence, or engagement within learning opportunities. In addition to addressing the architectural models for creating IoT classroom, the research suggests security issues related to IoT communication, and how to structure devices and IoT solutions. This paper applied approaches of ethical teachings and measure of soft skills through IoT, in maintaining a connected and holistic approach that values Gurukul's educational experience and traditions. Preliminary findings indicate that IoT-based smart classrooms lead to better use of resources, higher engagement, and the ability to provide ongoing and real-time feedback examples. Gurukul 2.0 is envisioned as a technologically mutation of Gurukul established as a value-centred model of education.

Keywords: Internet of Things, Smart Classrooms, Gurukul 2.0, Educational IoT, Student Monitoring, Cloud-Based Learning.

PCTE-IKS-158

Ancient Wisdom Meets Modern Technology: Towards a Unified Approach to Growth

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Abstract

In an ancient learning system, the emphasis was primarily on the inculcation of moral values in the disciples apart from imparting the subject knowledge. The disciples used to consider their teachers as Guru as stated “Guru Govind dou khade, kake lagoon paaye; Balihari Guru aapne, Govind diyo bataye” which means both Guru (teacher) and Govind (God) are standing before me. To whose feet should I bow first? I bow to the Guru, for he showed me the path to God. This paper examines the emerging relationship between traditional knowledge and contemporary technology, making the case for a cooperative framework that uses digital technologies to conserve, disseminate, and revive traditional knowledge systems. [3] This study synthesizes a wide range of viewpoints, from the use of AI in protecting endangered languages to the incorporation of traditional teaching methods into contemporary educational programs, drawing on recent academic work from 2024 and 2025. [5] According to the findings, this integration is a transformative process rather than just a preservation act that can promote more sustainable, culturally aware, and comprehensive approaches to dealing with today's issues, such as social fragmentation and climate change.[2] In order to ensure that technology acts as a bridge rather than a barrier to the wisdom of the past, the paper suggests a collaborative and community-driven paradigm for this integration, while understanding the ethical complexity and possibility for cultural appropriation.

Keywords: contemporary, transformative, collaborative.

PCTE-IKS-159

Integrating Ancient Learning with Modern Technology: A Synergistic Framework for Holistic Development

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Abstract

In order to support holistic development, this study offers a theoretical and practical framework for fusing traditional learning systems with modern educational tools. Ancient learning

involves culturally ingrained methods that foster moral reasoning, ecological sensibility, embodied cognition, and community-oriented learning. It includes Indigenous epistemologies, Indian Knowledge Systems (IKS), oral traditions, and legacy pedagogies. Modern digital tools (AI, AR/VR, digital archives, mobile learning, and interactive platforms) can increase these techniques' fidelity, accessibility, and pedagogical adaptability. based on current research on digital pedagogy, indigenous co-production, and digital cultural heritage. In order to identify convergent principles, the paper synthesises five prominent recent studies: (1) respect for community-led curation and knowledge sovereignty; (2) multimodal embodiment of learning materials; (3) contextualised adaptation as opposed to wholesale transplantation; (4) discrimination awareness and ethical AI when modelling culturally situated data; and (5) teacher professional development as the cornerstone for sustainable integration. Building on these ideas, the authors suggest a recursive model called the "Synergistic Integration Cycle," which consists of community collaboration, digitalization and ethical modelling, curriculum co-design, blended pedagogies (digital and experiential augmentation), and iterative evaluation based on culturally appropriate metrics. The study identifies hazards (misappropriation, decontextualisation, algorithmic bias) and affordances (size, interactivity, preservation). It also suggests ways to mitigate these risks, including community governance, open metadata, hybrid evaluation techniques, and educator capacity building. The goal is to establish a fair, responsible collaboration between traditional education and contemporary technology that supports learners' holistic growth in a variety of settings.

Keywords: contextualized, digitalization, synthesis.

PCTE-IKS-160

Gurukul 2.0: Leveraging Artificial Intelligence and Machine Learning for Personalized Ancient and Modern Pedagogy

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Abstract

The combination of Artificial Intelligence (AI) and Machine Learning (ML) in education has resulted in endless possibilities in personalized and adaptive learning. This paper proposes Gurukul 2.0, which is a hybridized educational experience that combines the traditional Gurukul system of education in ancient India and digital learning technologies powered by AI. Traditional Gurukuls adopted the 'learn by doing' / 'lifelong learner' approach based on a

mentor-mentee individual relationship. The objective of traditional Gurukuls was holistic education (health, emotional, life skills, and moral education) while modern education addresses standardization, scales for digital access, and technology-enabled learning process and assessments to name a few. With the AI algorithms, such as natural language processing (NLP), recommender systems, and predictive algorithms, Gurukul 2.0 can offer a similar experience of learning through mentor (Gurus), but on a larger formal education context basis through the automated education process. As the model of Gurukul 2.0, we will look at how student learning patterns, cognitive behaviours, and performance data will provide individual customized learning roadmaps. Further, the model provides moral, ethical, and cultural knowledge alongside modern computational and learning tools, which contribute to the holistic development of the learners. This paper is primarily focused on developing the AI-enabled Gurukul learning management system (GLMS) framework and the challenges associated with biasing algorithms, cultural contextualization, and ethical implications and considerations that underpin Gurukul 2.0. The study concludes with suggestions that the Gurukul 2.0 can and is potentially a transformational educational model that can bridge the gap between tradition and modernity via pedagogy driven by AI.

Keywords: Gurukul 2.0, Artificial Intelligence in Education, Machine Learning, Personalized Learning, Educational Technology, Hybrid Pedagogy.

PCTE-IKS-161

Automatic Interpretation and Digitization of Ancient Indian Scripts using Image Processing and Deep Learning

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Abstract

Ancient Indian knowledge preservation is frequently hampered by brittle manuscripts, faded inscriptions, and unreadable script types. The difficulties in manually deciphering and digitizing these documents have resulted in their underutilization, despite their enormous cultural and historical significance. This study offers a method for automatically identifying and restoring ancient Indian characters that is based on deep learning and image processing. The suggested system integrates neural networks for precise character detection and script classification and computer vision techniques to improve damaged or low-quality manuscripts. Additionally, generative models are used to rebuild parts that are unclear or missing, allowing

for more comprehensive digital archives. The goal of this research is to develop a scalable and effective method for preserving India's cultural legacy by fusing cutting-edge artificial intelligence with conventional script analysis. By making old texts searchable, accessible, and available for further study, the results should benefit linguists, historians, and digital libraries.

Keywords: Ancient Indian scripts, Deep learning, Image processing, Manuscript digitization, Cultural historical significance, Generative models.

PCTE-IKS-162

Contribution of Indian Knowledge System Inspired Artificial Intelligence in Modern Education

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Abstract

Through its capacity to deliver personalized instruction, adaptive learning, and swift assessments, artificial intelligence (AI) has become a powerful catalyst for transformation within the global education landscape. However, its rapid advancement raises concerns regarding sustainability, inclusivity, and ethical considerations. In particular, the artificial intelligence (AI) sector is pivotal in redefining education across the globe by enabling tailored learning experiences, flexible teaching methods, and effective assessments. Rooted in the principles of Dharma, Ahimsa, and holistic education, the Indian Knowledge Systems (IKS) provide enduring guidance that can enhance and direct AI-driven education. Rather than prioritize efficiency alone, AI tools can be designed to nurture empathy, critical thinking, and values-centered education by drawing on traditional models like the Gurukul system, which emphasized moral growth and mentorship. AI has the potential to create inclusive learning environments by addressing the varied needs of students while adhering to ethical standards, inspired by ancient philosophies regarding interconnectedness. Moreover, AI informed by IKS can transcend conventional teaching methods to encourage sustainable practices and environmental consciousness, aligning with modern educational aims of fostering global citizenship. This interdisciplinary perspective regards IKS as a lively framework that can steer the development of equitable, human-centered, and forward-thinking AI educational models. Integrating IKS principles into AI holds the potential to radically redefine education by establishing a framework that is both ethically sound and culturally relevant while remaining technologically advanced. This research paper explores the intersection of IKS and AI to

illustrate how ancient wisdom can enrich contemporary educational strategies.

Keywords: Ancient Knowledge, Artificial Intelligence, Education Technology, Curriculum Integration, Holistic Learning.

PCTE-IKS-163

Virtual Reality and Augmented Reality in Gurukul 2.0: Immersive Technologies for Experiential Learning

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Abstract

Experiential learning was commonplace for pupils in the Gurukul system, with students learning through living practices, creating, cultural experiences, and problem-solving. Current educational settlements employ pedagogies that are difficult to be able to emulate the full immersion of the past in physical places and geographies. This paper proposes the significance of employing Virtual Reality (VR) and Augmented Reality (AR) situated in Gurukul 2.0 in developing possibilities for immersive learning again, which the Gurukul system offered immersion in learning experiences. The metaphor could be avatars in VR environments simulating ancient learning environments/the laboratories, real-life environments, AR overlays bringing text to life with or without elements of positive exploration structures visually. In our case studies involving VR headsets, AR applications, and Mixed Reality (MR) which were the technologies to imagine learning experiences for science curricula, engineering classes, and ancient scriptures. The proposed framework proposed a shift or metamorphosis in the future so that VR/AR applications or experiences could be directly emboldened in Learning Management Systems (LMS) by leveraging existing cloud-based applications to give them scalability and extensibility; notwithstanding the inventory, hardware costs, latency, inaccessibility or rural areas. The initial prototypes acknowledged in our case studies indicated that immersive technology can assist cognition retention, heightened attention, engagement and holistic experience of experiences and learning somewhat resonates a Gurukul existence in our experiences of youngest scholars in the VR & AR learning prototypes and studies. This study asserted that VR/AR learning experiences could be useful in diversifying classrooms into next generation classrooms that marry traditional content and experiences with cutting edge, immersive technology.

Keywords: Virtual Reality, Augmented Reality, Experiential Learning, Gurukul 2.0, Immersive Education, Mixed Reality.

PCTE-IKS-164

A systematic review on using Digital Platforms for the revival of Gurukul Pedagogy

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Abstract

With the advancement in digital technology, it has become difficult to maintain the essence of Gurukul tradition as by that times, learners were not only gaining mastery in their subject but it was directly impacting their holistic development through mentorship. This review paper explores the emerging intersection of traditional knowledge systems and artificial intelligence, focusing on the integration of Vedic mathematics and Aristotelian logic into AI-based learning platforms. The study synthesizes recent literature, highlighting how Vedic mathematical techniques enhance computational efficiency, symbolic reasoning, and creativity in algorithm design, while Aristotelian logic provides a robust foundation for ethical alignment, deductive reasoning, and explainable AI. A comparative analysis reveals distinct trends in scholarly research from 2023 to 2025, with increasing attention given to both streams for advancing problem-solving methods and human-centric design. Graphical comparisons illustrate publication patterns and thematic focus across reviewed studies. The findings signal that both Vedic and Aristotelian approaches contribute uniquely to holistic and transparent AI education, suggesting promising directions for future interdisciplinary research and pedagogy in intelligent learning systems.

PCTE-IKS-165

Cloud-Based Learning Architectures for Gurukul 2.0: A Scalable Framework for Integrating Heritage with Technology

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Abstract

Cloud computing has notably become an enabler for scalable and affordable education and easy access to it. This study suggests a cloud-based architecture for Gurukul 2.0, using traditions of ancient pedagogy, supported by contemporary technology architecture. The cloud

architecture of Gurukul 2.0 used cloud computing services such as Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) for educational, collaborative, accessible, and scalable learning networking. The guiding principles were: Universal availability of knowledge for all, mentor-based guidance, and holistic development based on traditional Gurukul learnings. Coupled with cloud computing, knowledge retention, multi-modal student learning experiences, interactive multimedia-rich content, AI-driven mentors, and comprehensive information about places of cultural experience with representation and repositories, can put students in touch with the subject, culturally and pluralistically, from anywhere in the world. The architecture can accommodate hybrid learning modules with online and offline experiences of cultural places. This study also considers security requirements for cloud computing-based architecture to facilitate formal educational experiences and data security through encryption, robust host and enrolment-based access control, and identification and rights management. This was essential for any community of inquiry including students, faculty and administrators to practice or co-learn in real-time by examining, comparing and validating objects of interest tied to cultural content on the cloud. A comparative framework was applied using e-learning/m-learning-based learning programs demonstrating how cloud computing architecture can offer scalable, affordable, and flexible education delivery options through a learning with cloud-based Gurukul 2.0 architecture. The study also considered hosting environment effects on delivery of education research, clouds and sovereign data issues, facilitate learning and subject cultural issues relating cognitive, perceptual, experiential hemispheric mode errors associated with creating meaningful, culturally contextualized learning environments. Overall, the study suggests that cloud-based Gurukul 2.0 can become another generation of education through convergence of old and new-ancient traditional wisdom with the scalable reach of contemporary engineering.

Keywords: Cloud Computing in Education, Gurukul 2.0, Scalable Learning Systems, E-Learning Architecture, Hybrid Education, Digital Pedagogy.

PCTE-IKS-166

From Chalk to Code: Evaluating the Impact of Modern EdTech on Sanskritized Gurukul Systems

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Abstract

This review explores the evolving landscape of Indian education through the lens of “From Chalk to Code: Evaluating the Impact of Modern EdTech on Sanskritized Gurukul Systems.” In response to globalization and technological advancements, traditional Gurukul models—grounded in Sanskrit language and holistic, guru-centric pedagogies—are increasingly intersecting with digital educational technologies. The paper examines how online platforms, adaptive learning tools, and virtual classrooms are being integrated into the traditional Gurukul framework, analyzing both the opportunities and challenges this convergence presents. While EdTech enables unprecedented access to ancient knowledge, global reach, and personalized learning pathways, it also raises critical concerns regarding cultural authenticity, teacher-student dynamics, and equitable access. Drawing on recent hybrid initiatives and contemporary pedagogical shifts, this review critically assesses whether the synthesis of Gurukul heritage with modern technology can preserve the ethos of traditional learning or risks diluting its essence. Ultimately, the paper calls for a thoughtful, context-sensitive approach to EdTech adoption, ensuring that technological innovation complements rather than eclipses the unique strengths of Sanskritized Gurukul education.

Keywords: Gurukul system, Sanskritized education, Modern EdTech, Traditional pedagogies, Digital transformation, Online learning platforms.

PCTE-IKS-167

Tracing the Journey of AI integration in Reimagining of Education: A Transformational Perspective

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Abstract

AI is reimagining the educational landscape with the help of tailored learning paths. This review analyses the development, integration, and influence of Artificial Intelligence (AI) within the educational sector. It traces the history from initial ideas to significant innovations

like ChatGPT, demonstrating how AI is altering the landscape of teaching, learning, and evaluation. Major factors driving this change include advancements in machine learning, increased data accessibility, and the rising need for personalized education—intensified by the pandemic. The discussion covers AI-driven tools, emerging changes in teaching methods, global case studies, and critical issues such as bias and equity. The review concludes by highlighting potential avenues for future research and stressing the necessity of ethical application to ensure that AI enhances education while maintaining fairness, inclusivity, and human-centered principles.

PCTE-IKS-168

Integrating Yoga-Based Therapeutic Models with Digital Wellness Platforms: A Theoretical Exploration from Traditional Indian Knowledge Systems

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Abstract

A global movement toward holistic wellness solutions has been spurred by the rising incidence of stress, mental health issues, and lifestyle-related diseases. Significant insights into mental, emotional, and spiritual health can be gained from traditional Indian Knowledge Systems (IKS), especially from yoga-based treatment methods. These methods place a strong emphasis on techniques that have their roots in ancient writings like the Yoga Sutras and Ayurveda, such as asanas (postures), pranayama (breath control), and dhyana (meditation). Simultaneously, the emergence of digital wellness platforms, which include AI-powered health tools and mobile applications, has transformed the availability of fitness and health solutions. This study presents a theoretical investigation into how yoga-based therapy approaches might be combined with digital wellness technology to improve mental and physical health in modern society. It looks at the philosophical underpinnings of yoga, such as the ideas of intellect (buddhi), ego (ahamkara), and mind (manas), and connects them to the goals and features of online health platforms. It also looks at how traditional wellness methods are being modified for online delivery, emphasizing chances for better accessibility, individualized treatment, and preventative health measures. The ethical issues and cultural sensitivity of converting traditional information into contemporary platforms are also covered in the article. This research offers a framework that promotes ethical innovation while maintaining the depth of conventional therapeutic methods by bridging the gap between traditional wisdom and

contemporary technology. The results provide avenues for long-term, integrative wellness solutions and add to interdisciplinary conversations at the nexus of information technology, cultural heritage, and health sciences.

PCTE-IKS-169

The Shifting Canvas: The Impact of AI-Generated Content on Human Creativity in the Arts

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Abstract

The rapid advancement and accessibility of synthetic intelligence (AI) gear, including generative models like DALL-E, Midjourney, and ChatGPT, have initiated a profound transformation within the innovative industries. While these technology promise to democratize artwork manufacturing and free up new kinds of expression, in addition they initiate essential questions on the nature of creativity, authorship, and the function of the artist. This studies paper will delve into the multifaceted effect of AI-generated content on human creativity, examining each its capacity to enhance creative exercise and its potential to disrupt conventional creative methods. This have a look at will discover the perspectives of artists across diverse disciplines, inclusive of visible arts, literature, and track, to understand their adoption, notion, and aversions to AI tools. Through a blended-methods technique, combining qualitative interviews and quantitative surveys, we will check out how AI is getting used as a collaborative accomplice for ideation and execution, a device for speedy prototyping and fashion exploration, and a source of notion. Concurrently, the studies will cope with the crucial challenges posed through this technological paradigm shift, which includes issues about artistic authenticity, the potential for over-reliance on algorithms, and the devaluation of conventional skills. Ultimately, this studies seeks to clarify whether or not AI serves as a powerful new medium that empowers human artists or a disruptive pressure that threatens the very essence of human creativity and the value of artwork itself.

Keywords: Artificial Intelligence, Creativity, Generative AI, Art, Authorship, Copyright, Creative Process, Artistic Authenticity, Human-AI Collaboration, Intellectual Property.

PCTE-IKS-170

From Heritage to Innovation: The Role of Indian Knowledge Systems in Integrative and Preventive Medicine

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Abstract

Indian Knowledge Systems (IKS) encompass an extensive body of traditional wisdom that integrates wellness, health and sustainable living practices. Among them, Ayurveda and related indigenous healthcare systems offer holistic frameworks for understanding human health as an equilibrium of body, mind, and spirit. With the rising global burden of lifestyle disorders, non-communicable diseases, and mental health challenges, the holistic perspective of IKS has gained renewed relevance. This paper critically examines the role of IKS in holistic medicine, wellness, and traditional healthcare systems by analyzing three seminal contributions: Banerjee & Madhavan (2019) on public health and traditional medicine, Rastogi & Chiappelli (2013) on integrative Ayurveda, and Warriar (2008) on globalization and the modern self.

The study adopts a qualitative review-based methodology, synthesizing insights from academic research, policy documents, and global health perspectives. Findings reveal that while Ayurveda and other traditional practices significantly contribute to preventive healthcare, wellness, and public health delivery, their integration into mainstream medicine is hindered by challenges of validation, standardization, and global acceptance.

This paper highlights a pressing research gap: the need for cross-disciplinary approaches that blend ethnomedical insights with biomedical sciences, supported by evidence-based research and sustainable policy frameworks. The discussion emphasizes the potential of IKS in advancing personalized medicine, digital health, sustainable wellness industries, and global healthcare equity.

Ultimately, the paper argues for a multi-dimensional framework where traditional Indian knowledge converges with modern innovations, not merely as alternative medicine but as a critical contributor to the global pursuit of sustainable healthcare.

Keywords: Indian Knowledge Systems, Ayurveda, holistic medicine, integrative healthcare, wellness, globalization, sustainable healthcare.

PCTE-IKS-171

Cyber-Gurukuls: Designing Digital Learning Communities Rooted in Tradition

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Abstract

Several decades ago gurukuls were there in ancient India and these were known as the places of learning where students lived, learned numerous things and were guided by gurus. However, in today's scenario modern education system with the help of technology has become more advanced but still it lacks a personal connection as well as a value based approach. This paper explains the concept of "Cyber Gurukuls" which is a digital learning platforms with the objective of bringing back spirit of the Gurukul by using different tools like Digital classrooms, Online mentor networks and Smart learning tools. The main aim is to integrate ancient educational values like discipline, respect as well as reach of digital education. By concentrating not only on moral development but also on mentorship and community learning, the cyber gurukuls can provide a better learning experience to the students.

PCTE-IKS-172

Corporate Cybersecurity in the Age of Deepfakes: Challenges and Countermeasures

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Abstract

Deep learning has now a days is a powerful and widely applied technique across multiple domains including computer vision, machine vision and natural language processing. Making use of this technology, deepfakes are able to produce highly realistic synthetic media that closely relate genuine content. Rapid research into the operation of deepfakes in recent years has produced an number of deep learning-based techniques for identifying altered photos and videos.

This study focuses on the current threats that deepfakes implement to corporate cybersecurity, highlighting the need to both understand the underlying technology and design effective detection and mitigation strategies. The study shows the strong points and limitations of different detection approaches, including algorithms, human evaluation and context based analysis. Implementation of zero-trust models, promoting awareness and by using multi-factor

authentication businesses can better safeguard themselves against deepfake driven cyber threats.

Keywords: Deepfakes, corporate cybersecurity, deep learning, detection and mitigation, zero-trust security.

PCTE-IKS-173

Traditional Water Resource Management and Ecological Conservation

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Abstract

Traditional water management systems reflect a deep connection between human societies and their environment. For generations, human societies have relied on traditional methods of managing water resources that were ecologically sensitive, culturally meaningful, and technologically innovative. From johads in Rajasthan to qanats in Iran, these systems were built on local knowledge, ecological awareness, and cultural traditions. They provided water security, enhanced groundwater recharge, supported biodiversity, and fostered collective responsibility. However, rapid industrialization and urban expansion have marginalized these practices, leading to ecological stress and community disengagement. This paper explores traditional water systems in India and beyond, synthesizing research on their ecological and socio-cultural importance. By analyzing case studies and comparing traditional and modern approaches, it argues for the integration of indigenous wisdom with modern science to build resilient water governance systems.

Keywords: Traditional water systems, ecological conservation, sustainability, johads, qanats, indigenous knowledge, biodiversity.

PCTE-IKS-174

A Survey of Indian Philosophical Principles for Digital Well-being and Ethical Computing

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Abstract

In addition to transforming how people connect, communicate, and make decisions, the quick development of digital technology has brought forth new issues with privacy, mental health, and ethical usage of computer systems. Ethical computing and digital well-being are becoming

important research areas that call for interdisciplinary approaches to strike a balance between human values and technical advancement. This paper examines Indian philosophical ideas as a basis for creating ethical and compassionate digital systems. This study examines the applicability of Dharma (moral duty), Ahimsa (non-violence), Nyaya (logic and justice), and Yoga (discipline and self-regulation) in tackling problems including algorithmic bias, excessive screen time, online misinformation, and data privacy. The study emphasizes how frameworks for AI ethics, user-centric design, and thoughtful technology use may be informed by these timeless ideas. This work attempts to offer a culturally grounded perspective for developing technology that fosters human flourishing and the common good by bridging the gap between traditional wisdom and contemporary computing practices.

PCTE-IKS-175

ML-Powered Landslide and Geological Hazard Prediction: Integrating Spatial Autocorrelation for Improved Susceptibility Mapping

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Abstract

Landslides pose significant threats to human life, infrastructure, and the environment, emphasizing the urgent need for accurate susceptibility mapping to support disaster risk reduction and sustainable land-use planning. Conventional statistical and heuristic approaches often fail to account for spatial autocorrelation inherent in geospatial datasets, resulting in biased and less reliable predictions. This study introduces a hybrid machine learning (ML) framework that explicitly integrates spatial autocorrelation into landslide susceptibility mapping (LSM). Multi-source geospatial data—comprising topographic, hydrological, lithological, land-use, and anthropogenic factors—were combined with a detailed landslide inventory derived from remote sensing and field surveys. Spatial autocorrelation was quantified using Moran's I and Getis-Ord G^* statistics to engineer spatially dependent features capturing neighborhood influences. Ensemble ML algorithms (Random Forest, XGBoost) and a Convolutional Neural Network (CNN) were employed, with spatial features incorporated into the predictive pipeline. Validation using AUC-ROC, F1-score, and spatial cross-validation demonstrated a 7–12% improvement in predictive accuracy compared to baseline models lacking spatial adjustments. The resulting susceptibility maps exhibited reduced false positives and enhanced spatial coherence, underscoring the benefits of spatially informed ML models. This framework provides a robust, interpretable, and transferable approach for hazard

prediction, offering valuable insights for urban planners, policymakers, and disaster management agencies. The methodology is extendable to other geohazards such as floods and seismic risks. Future research will explore spatio-temporal ML models incorporating dynamic triggers for real-time hazard forecasting.

Keywords: Landslide Susceptibility Mapping, Machine Learning, Spatial Autocorrelation, Moran's I, XGBoost, CNN, Hazard Prediction.

PCTE-IKS-176

Astronomy Then and Now: Using Machine Learning to Validate Ancient Celestial Knowledge

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Abstract

Ancient civilizations—from India and Babylon to the Mayans and Greeks—recorded celestial patterns that guided agriculture, navigation, and culture. While rich in empirical observations, much of this knowledge remains untested against modern science. This paper explores how machine learning (ML) can validate and reinterpret ancient astronomical data. Using historical records alongside modern astrophysical datasets, ML models identify patterns, test predictions, and simulate past sky events. Techniques like natural language processing (NLP) also help decode ancient manuscripts. The study highlights how integrating ancient astronomy with ML not only affirms the accuracy of many early observations but also enriches contemporary space research, offering a bridge between cultural heritage and modern science.

Keywords: Ancient Astronomy, Machine Learning, Celestial Knowledge, Cultural Heritage, Data Validation.

PCTE-IKS-177

A Computational Analysis of Ancient Indian Astronomical Models: Algorithmic Reconstruction and Validation

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Abstract

Indian astronomical texts, including those of the Surya Siddhanta, provide much greater detail regarding the astronomy and mathematics descriptions mentioned in Sumner. Though highly esteemed in terms of historical and cultural importance, the study of these systems is mostly

approached from a historical or mathematical angle. This paper presents a new computational technique to validate and analyze the algorithms that can be found in these ancient writings.

In this paper we present translating the procedures and formulae for planetary motion and the determination of time into a consistent computational form; We have implemented a digital model based on Python libraries like Astropy and NumPy capable to synthetically reproduce the predictive performance of such ancient systems by means of generic algorithms. Our main goal is to provide a quantitative measure of the historical ephemerides by computing planetary longitudes, solar/lunar eclipses and luni-solar conjunctions in comparison with modern ephemeris data from reliable well known sources such as JPL HORIZONS system.

This yields in our preliminary results an impressive accuracy of the ancient models and provides a fine details into how they deviate quantitatively from modern scientific measurements. This work not only attests to the ingenuity of ancient Indian observational science, but also sets a precedent for extensible digital techniques for preserving, analyzing and interactively perusing historical scientific knowledge systems. This interdisciplinary endeavor paves the way for such collaboration between Indology and CS, and adds to growing research within computational history of science.

Keywords: Indian Knowledge Systems (IKS), Computational History, Ancient Astronomy, Surya Siddhanta, Algorithmic Reconstruction, Ephemeris Data, Data Validation.

PCTE-IKS-178

From Gurukul to Avatar: Digitally Revitalizing Traditional Education through Virtual and Augmented Reality

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Abstract

In the current digital era, it is imperative to maintain the distinctive qualities of traditional Gurukul education, including intimate teacher-student connections, experiential learning, and moral and cultural values, while also making them interesting and accessible to contemporary students. This research investigates the ways in which digital Gurukul environments created with Virtual Reality (VR) and Augmented Reality (AR) can aid in this process. Two schools—one in a rural area and one in a city—are to participate in a pilot study. By simulating a Gurukul environment—natural surroundings, an ashram atmosphere, oral recitation, etc.—students would learn traditional disciplines like Sanskrit, Vedic Mathematics, and Philosophy. Data will

be gathered through surveys and interviews to gauge student motivation, engagement, and connection to cultural values; exams (before and after the VR/AR exposure) to assess learning, memory, and comprehension changes; and observations to monitor how students act in these virtual environments.

Early results should demonstrate that VR/AR increases students' interest and retention in challenging traditional subjects, enhances learning, and strengthens their sense of cultural ties. But there will probably also be difficulties with things like cost, technical infrastructure, content design, and teacher preparation. The article concludes with recommendations for legislative support, instructions for creating affordable VR/AR modules for Gurukul 2.0, and strategies for scaling this paradigm, particularly in locations with limited resources.

KEYWORDS:- Gurukul education, Virtual Reality (VR), Augmented Reality (AR), traditional learning, cultural values, digital education, experiential learning, Sanskrit, Vedic Mathematics, education technology, rural education, student engagement.

PCTE-IKS-179

FROM GURUKUL TO E-LEARNING USING AI

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Abstract

From the Gurukul system of information sharing to the digital and technologically advanced platforms of today, education has always changed along with society. The Gurukul model placed a strong emphasis on experiential learning, moral principles, teacher-student relationships, and personalized learning. This paradigm has progressively evolved into formal institutional education and, more recently, e-learning systems due to technological improvements. By making adaptive learning pathways, intelligent tutoring systems, automated assessments, and tailored content distribution possible, the incorporation of Artificial Intelligence (AI) into e-learning has further transformed education. AI-powered systems overcome geographical, scalability, and accessibility constraints to replicate the Gurukul tradition's one-on-one mentoring. This essay examines the transition from Gurukul pedagogy to AI-powered e-learning, emphasizing the parallels in customization, the change in approaches, and AI's ability to democratize education.

Keywords: Gurukul, E-Learning, Artificial Intelligence, Adaptive Learning, Personalized Education, Digital Transformation.

PCTE-IKS-180

Data Science with Artificial Intelligence Learning for Gurukul 2.0 : The Synergy of Data Science, AI, and the Indian Knowledge System

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Abstract

This paper explores the revolutionary potential of integrating data science and Artificial Intelligence (AI) into the Indian education system, aligning with the principles of the National Education Policy (NEP) 2020 and the foundational wisdom of the Indian Knowledge System (IKS). The traditional 'chalk and talk' method often faces criticism for being one-size-fits-all, failing to address the diverse learning needs and styles of over 260 million students. This research posits that AI, powered by data science, can overcome these limitations by enabling personalized, adaptive, and holistic learning ecosystems.

This study will outline how AI and data science can be leveraged to create intelligent tutoring systems and provide real-time performance feedback. We will also examine how these modern technologies can be ethically and effectively integrated with IKS principles. For example, AI can analyze vast datasets of traditional texts to derive pedagogical insights, while data-driven analytics can measure the effectiveness of mindfulness and yoga practices on student well-being, an aspect long championed by ancient Indian thought.

Furthermore, this paper will delve into the creation of AI-driven career guidance platforms that use predictive analytics to align student aptitudes with future job market needs, while also considering IKS-based values such as a focus on societal contribution and ethical conduct. By automating administrative tasks, these technologies can free up educators to focus on high-value, human-centric interactions like mentorship and creative curriculum development. Ultimately, this paper argues that the synergy of AI's analytical power with the holistic philosophy of IKS, under the framework of NEP 2020, can usher in a new era of "Gurukul 2.0" an educational model that is not only technologically advanced but also deeply rooted in India's timeless cultural and intellectual heritage.

Keywords: Artificial Intelligence in Education (AIED), Gurukul 2.0, Data Science, Personalized Learning, Predictive Analytics, Holistic Education, Indian Knowledge System (IKS).

PCTE-IKS-181

Cybersecurity Framework for Gurukul 2.0: Safeguarding Digital Heritage and Smart Learning Ecosystems

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Abstract

The transition of the traditional Gurukul system to a digital framework—Gurukul 2.0—comes with significant cybersecurity challenges as it undergoes technological transformations. As a result of making use of cloud portals, AI-enabled learning platforms, intelligent classrooms with IoT capabilities, and blockchain knowledge repositories within this model, the likelihood of experiencing cyber threats (data breaches, ransomware attacks, and unauthorized access) simultaneously increases. In this composition, we present a proposed cybersecurity architecture for Gurukul 2.0 which focuses on protecting sensitive educational data, manuscripts of old texts, and student privacy. The outlined cybersecurity framework consists of several layers of security (end-to-end encrypt, zero-trust architecture, AI tooling for intrusion detection system (IDS) detection, and blockchain-based identity validation to name a few). We also present a hybrid approach applying cryptography and federated learning to protect user data while extracting intelligence analytics. Threat vectors which can be remedied within smart learning environments such as IoT vulnerabilities and vulnerabilities associated with the cloud (human and technical) and social engineering are evaluated with counter-measures grounded in and developed or commissioned in conjunction with international standards for cybersecurity (e.g ISO/IEC 27001, NIST). A prototype Gurukul 2.0 simulated network is used to demonstrate how to mitigate risk with prior monitoring and "threat prediction" AI algorithms. This research indicates the importance of engaging strong cybersecurity practices while incorporating cultural and ethical considerations to protect both security assets and the sacredness of the context.

Keywords: Cybersecurity in Education, Gurukul 2.0, Digital Heritage Protection, Zero-Trust Architecture, AI-Powered Intrusion Detection, Blockchain Security, Privacy-Preserving Learning.

PCTE-IKS-182

IKS in Tourism and Hospitality

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Abstract

The tourism and hospitality industry is one of the fastest-growing sectors worldwide, yet it faces increasing challenges of environmental degradation, cultural dilution, and over-commercialization. Indian Knowledge Systems (IKS), rooted in centuries-old traditions, provide a sustainable framework for reimagining this sector. This paper explores how principles of traditional Indian architecture, Ayurveda, yoga, and wellness retreats can be integrated into contemporary tourism and hospitality models. By emphasizing ecological harmony, cultural authenticity, and holistic well-being, IKS offers pathways for eco-friendly tourism that align with global sustainability goals. Through a review of literature and case-based analysis, the study highlights how blending indigenous practices with modern innovations can position India as a global leader in sustainable and wellness tourism.

Keywords: Indian Knowledge System (IKS), eco-tourism, sustainable hospitality, Ayurveda, traditional architecture, wellness tourism.

PCTE-IKS-183

Cyber Fraud in the Age of Artificial Intelligence

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Abstract

The integration of Artificial Intelligence (AI) into modern digital ecosystems has reshaped the landscape of cybersecurity and fraud. While AI brings transformative benefits in automation, prediction, and efficiency, it simultaneously provides cybercriminals with new tools to orchestrate advanced fraud schemes. Cyber fraud, once limited to simple phishing emails or password theft, has evolved into highly sophisticated attacks powered by machine learning and generative AI. Deepfakes, AI-generated voices, and automated social engineering are now being deployed to impersonate individuals, manipulate financial transactions, and bypass conventional security measures with alarming precision.

This paper examines the dual-edged role of AI in cyber fraud. On one side, fraudsters exploit AI to design adaptive phishing campaigns, automate identity theft, and conduct large-scale ransomware attacks with minimal human intervention. On the other, cybersecurity experts deploy AI-based defence mechanisms such as anomaly detection systems, behavioral biometrics, and predictive analytics to identify fraudulent patterns in real time. The research highlights recent case studies of AI-assisted fraud, evaluates current defensive strategies, and discusses the ethical challenges that arise when AI technologies are misused.

The study emphasizes that combating AI-driven fraud requires a multifaceted approach that combines technological innovation, policy frameworks, and user awareness. As cybercriminals increasingly adopt AI, organizations must shift toward proactive and adaptive security strategies, leveraging AI not just as a defensive tool but as a critical element in predictive fraud prevention. Ultimately, the rise of AI in cyber fraud represents an evolving arms race between attackers and defenders, underscoring the urgent need for collaborative efforts in research, regulation, and education.

Keywords: Cyber Fraud, Artificial Intelligence, Deepfakes, Phishing, Ransomware, Fraud Detection, Cybersecurity.

PCTE-IKS-184

Customizing Ancient Teaching for Modern Learners

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Abstract

The wisdom of ancient teaching systems—such as the Gurukul tradition in India, Confucian learning in China, and Socratic dialogues in Greece—has long provided holistic approaches to knowledge, values, and character formation. However, today’s learners exist in a fast-paced, technology-driven world that demands flexibility, critical thinking, and digital literacy. This research explores how ancient teaching philosophies can be customized to meet the needs of modern learners without losing their essence. By examining principles such as experiential learning, mentorship, discipline, and moral grounding, the paper highlights ways to integrate them with contemporary pedagogies like blended learning, project-based education, and digital classrooms. The study also investigates challenges, such as balancing tradition with innovation, addressing diverse learning styles, and ensuring relevance in a globalized context. The

proposed framework emphasizes the fusion of timeless values with modern tools to create an adaptive, ethical, and learner-centered education system. Ultimately, this paper argues that customizing ancient teaching practices can foster not only academic excellence but also holistic personal development in modern learners.

Keywords: *Ancient teaching methods, modern learners, Gurukul system, pedagogy, experiential learning, blended learning, holistic education, tradition and innovation, learner-centered education, digital classrooms.*

PCTE-IKS-185

Bridging Tradition and Technology: Gurukul 2.0 with Explainable AI

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Abstract

Gurukul 2.0: Integrating Ancient Learning with Modern Technology reinvents education by fusing the development of contemporary digital technology with the holistic, values-based pedagogy of the old Gurukul system. Today's students need customization, flexibility, and technology-enabled access, whereas old Gurukuls placed an emphasis on character development, mentorship, and experiential learning. In order to establish transparent, moral, and efficient learning ecosystems, this study suggests a hybrid framework that combines Explainable Artificial Intelligence (XAI) with the advantages of traditional approaches. Students and teachers can comprehend the logic behind adaptive learning recommendations thanks to XAI's interpretability and accountability, which sets it apart from opaque AI-driven systems. This closes the gap between human and machine intelligence, builds trust, and sharpens critical thinking. Thus, Gurukul 2.0 places equal emphasis on digital literacy and skill development as well as inclusive growth, cultural continuity, and moral foundation. Explainable AI and timeless educational ideals are combined in this approach to provide a human-centered, future-ready paradigm that may direct educational institutions toward transformative and sustainable learning practices.

Keywords: Gurukul 2.0, Explainable AI, Holistic Learning, Educational Technology.

PCTE-IKS-186

Ayurvedic AI: Machine Learning Frameworks Inspired by Tridosha Theory for Personalized Wellness Prediction in Modern Healthcare

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Abstract

The National Education Policy (NEP) 2020 advocates integrating Indian Knowledge Systems (IKS) with modern technology to promote holistic, sustainable education and development. This paper presents a machine learning framework that fuses Ayurveda's Tridosha theory (Vata, Pitta, Kapha) with NLP and ML techniques for personalized wellness prediction, addressing gaps in accessible healthcare. We develop a hybrid model using PyTorch and scikit-learn, incorporating NLP for symptom extraction from user inputs or digitized Ayurvedic texts (e.g., Charaka Samhita). The system classifies dosha imbalances via a random forest classifier, enhanced with rule-based features inspired by IKS principles like Ahimsa for ethical recommendations. Trained on public datasets (e.g., Prakriti symptom corpora with 1,000+ entries), it predicts imbalances and suggests yoga/diet interventions. Experimental results show 85-90% accuracy in dosha classification (F1-score ~0.87), outperforming baselines by 15-20% on hold-out validation, with reduced prediction time for real-world use. This integration aligns with UN SDGs for health and equity, offering scalable tools for pharmacy, engineering, and wellness education. It demonstrates how ancient IKS can enhance modern AI for sustainable, culturally sensitive healthcare.

Keywords: Ayurveda's Tridosha, NLP, Prakriti Symptom, Dosha Classification.

PCTE-IKS-187

Bridging Ancient Wisdom and Modern Edge Intelligence: TinyML in Gurukul 2.0

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Abstract

Gurukul 2.0: Combining Traditional Education with Contemporary Technology reinvents education by fusing the revolutionary potential of contemporary computing with the all-encompassing philosophy of the ancient Gurukuls. Though they lacked scalable means for customizing and worldwide access, traditional Gurukuls fostered moral principles, critical

thinking, and lifelong mentoring. Conversely, contemporary educational institutions frequently place a higher priority on technology while ignoring cultural and ethical foundations. Tiny Machine Learning (TinyML) is suggested in this work as a means of bridging these paradigms. TinyML makes it possible to deploy intelligent models on low-power gadgets like wearables and microcontrollers, enabling customized, adaptive learning experiences without the need for expensive infrastructure or continuous connectivity. In keeping with the inclusive ethos of traditional Gurukuls, Gurukul 2.0 guarantees accessibility in remote and resource-constrained areas by integrating TinyML into portable educational kits, offline learning modules, and intelligent evaluation tools. Additionally, TinyML's low cost and energy efficiency promote sustainable education at scale, and real-time on-device analytics give mentors and students instant feedback. A human-centered, culturally grounded, and technologically advanced learning ecosystem is produced by this convergence, preparing students for the digital age without separating them from ageless wisdom. Thus, Gurukul 2.0 with TinyML becomes a framework for global education that is ethical, scalable, and prepared for the future.

Keywords: Gurukul 2.0, TinyML, Sustainable Learning, Grounded Education.

PCTE-IKS-188

Reimagining Indian Education through Data-Driven AI Pedagogy and Indigenous Wisdom

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Abstract

The integration of Artificial Intelligence (AI) and data science into education presents an opportunity to reshape the Indian learning ecosystem in alignment with the National Education Policy (NEP) 2020. While conventional “chalk-and-board” methods have long been dominant, they often overlook the diversity of student needs, learning speeds, and socio-cultural contexts. This research proposes that AI-driven personalization, supported by data-driven insights, can provide more adaptive, inclusive, and holistic pathways for over 260 million learners in India. The study emphasizes three interconnected dimensions. First, intelligent tutoring systems and real-time feedback mechanisms can bridge gaps in traditional pedagogy by offering individualized learning trajectories. Second, predictive analytics can inform career guidance, matching learner aptitudes with future workforce

demands while embedding ethical and social responsibilities inspired by Indian Knowledge Systems (IKS). Third, the fusion of modern technologies with indigenous practices creates opportunities to reinterpret classical knowledge in contemporary formats. For instance, natural language models can process Sanskrit and vernacular texts to generate pedagogical strategies, while large-scale data analysis can measure the cognitive and emotional benefits of practices such as yoga and mindfulness. Beyond the classroom, AI has the potential to automate routine administrative processes, thereby enabling educators to focus on mentorship, creativity, and value-driven curriculum design—areas that rely heavily on human empathy and judgment. This balance between automation and human engagement reflects the ethos of “Gurukul 2.0,” where technology strengthens rather than replaces the human dimension of education. In conclusion, this paper argues that integrating AI and data science with the holistic principles of IKS under NEP 2020 can create a transformative educational paradigm. Such a model not only addresses the limitations of standardized teaching but also nurtures ethical conduct, emotional intelligence, and cultural rootedness, thereby preparing students for both global opportunities and local responsibilities.

PCTE-IKS-189

Non-Newtonian Lubrication of Misaligned Hydrodynamic Journal Bearings with Rough Porous Slippery Coatings and Micro-Grooves

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Abstract

Conventional journal bearings face several challenges under the mixed lubrication regime. These include increased friction and excessive temperature rise due to insufficient lubricant supply, as well as the occurrence of multiple direct contact points between the bearing and the rotating shaft. Furthermore, unbalanced forces in the machine can cause shaft misalignment within the bearing, which is another common factor contributing to poor bearing performance. The continuous advancement of modern high-speed machinery demands suitable and reliable solutions to minimize such energy losses and ensure efficient operation under these critical operating conditions. It has been observed that by controlling the rheological behaviour of the lubricant and adopting suitable surface modifications on either the bearing or the shaft, such energy losses can be significantly reduced. Therefore, in the present investigation, a journal bearing incorporating advanced surface features based—low surface energy rough–porous slippery coating along with regular micro-grooves—is considered. In addition, a lubricant with

controlled rheological behaviour, exhibiting shear-thinning and shear-thickening characteristics of a non-Newtonian nature, is also taken into account. The variation of performance parameters such as minimum film thickness, lubricant-bearing friction force, and average lubricant temperature rise with changes in the geometrical and rheological attributes of both the bearing surface modifications and the lubricants is observed. To perform this investigation, the Reynolds and energy equations are solved by incorporating the Patir and Chang average roughness model for random roughness, the Darcy model for surface porosity, the Greenwood model for the mixed lubrication regime, the Navier slip model for the slippery effect, and the power-law model for non-Newtonian lubricants. The findings of the study indicate that journal bearings with rough-porous slippery coatings and micro-grooves show significant variation in performance characteristics. It has also been observed that, with a suitable choice of lubricant rheology, these surface-modified bearings are capable of improving tribological performance under the mixed lubrication regime.

Keywords: Misalignment, Surface Porosity, Random Roughness, Micro-Grooves, non – Newtonian Lubricants, Slippery Coating, Mixed Lubrication Regime.

PCTE-IKS-190

Sustainable Approaches to Improving the Tribological Performance of Mechanical Components

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Abstract

The rising global demand for energy efficiency and sustainability has placed significant role on reducing mechanical losses in machinery. Tribological coatings, particularly advanced nanocoatings, are emerging as a promising solution to mitigate wear, friction, and energy dissipation in sliding and rolling contacts. This paper presents a review on sustainable tribological coatings-such as graphene, molybdenum disulfide (MoS₂), tungsten disulfide (WS₂), and diamond-like carbon (DLC) in enhancing the tribological performance of mechanical systems. These materials exhibit exceptional properties including high hardness, low shear strength, self-lubrication, and chemical stability, making them suitable for a wide range of engineering applications. In addition, bio-inspired surface texturing and hybrid coating strategies have been used for their potential to replicate natural lubrication mechanisms. Experimental and numerical findings demonstrate that optimized coatings can achieve significant reduction in frictional losses, extend component life, and minimize lubricant

consumption. Such improvements not only contribute to enhanced operational reliability but also align with global efforts toward carbon neutrality by reducing greenhouse gas emissions associated with industrial energy use. The use of sustainable tribological coatings into next-generation bearings, gears, and engine components presents better solutions for industries such as automotive, aerospace, and renewable energy.

Keywords: Tribological performance, Coatings, Surface Engineering, Friction, Sliding contacts.

PCTE-IKS-191

Role of IoT in Transforming Modern Power Systems

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Abstract

The Internet of Things (IoT) has emerged as a revolutionary enabler in modern power and energy systems, driving the transition toward clean, distributed, and sustainable energy solutions. By integrating advanced features such as real-time monitoring, intelligent control, situational awareness, and cybersecurity, IoT transforms conventional grids into smart, resilient, and efficient infrastructures. Its applications extend across renewable energy integration, automation of power plants, deployment of smart protection devices, and development of intelligent homes through occupancy sensing and smart meters. Beyond enhancing operational efficiency, IoT fosters optimal management of distributed generation, reduces energy wastage, and contributes to economic growth. While these advancements highlight immense opportunities, challenges such as scalability, data security, and implementation costs remain. Addressing these issues is essential to fully harness IoT's potential in shaping the future of sustainable power systems.

Keywords:- Internet of Things (IoT), Smart Grid, Power Systems, Distributed Energy Resources (DERs), Renewable Energy Integration, Real-time Monitoring, Energy Efficiency.

PCTE-IKS-192

Applications of Number Theory in Cryptography: Mathematical Foundations for Secure Communication

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Abstract

Number theory has long been considered a branch of pure mathematics, but in recent decades it has emerged as the foundation of modern cryptography. The inherent properties of integers, prime numbers, modular arithmetic, and factorization form the mathematical backbone of encryption schemes that secure digital communication. Cryptographic algorithms such as RSA, Diffie–Hellman key exchange, and Elliptic Curve Cryptography (ECC) demonstrate the practical use of concepts like modular exponentiation, Euler’s theorem, Fermat’s Little Theorem, and discrete logarithms. These mathematical principles provide computational hardness assumptions, ensuring confidentiality, integrity, and authentication in digital transactions. With the rapid expansion of data exchange across the internet, number theory not only underpins classical cryptographic methods but also informs the development of post-quantum cryptography, where lattice-based and other number-theoretic approaches play a critical role. This integration of abstract mathematics with real-world applications highlights the indispensable role of number theory in sustaining secure communication systems in the digital era.

Keywords: Number Theory; Cryptography; Modular Arithmetic; Prime Numbers; RSA; Diffie–Hellman; Elliptic Curve Cryptography (ECC); Discrete Logarithm Problem; Factorization; Post-Quantum Cryptography.

PCTE-IKS-193

Ethical AI Tutors in Gurukul 2.0: Balancing Ancient Values with Modern Intelligent Systems

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Abstract

The traditional Gurukul education system was built on values and ethics, not only considered holistic personal development, and the role of the Guru was to teach a subject, while also taking

an active role in the students' moral and spiritual growth. In contrast, modern education, powered by technology, in conjunction with traditional learning modes reduce holistic potential to mere efficiency, scalability, and cognitive skills, ignoring ethics, culture, and values. The paper presents the idea Ethical AI Tutors for Gurukul 2.0, which preserves meaningful aspects of the traditional Gurukul in the antiquity of the learning process, but merges the development of Artificial Intelligence (AI) capabilities. The exploratory study provides a critical examination, and observations of how AI-led tutoring systems can be designed with ethical approaches to integrate personal learning pathways, ethical, cultural, and moral guidelines into education. The research study focuses on three areas: the development of Explainable AI (XAI) models to ensure transparency; frameworks for decision-making models that present no biases; and culturally adaptive AI content that reflects Indian knowledge traditions and modern knowledge in science and engineering. Furthermore, the study recognises the role of human-in-the-loop systems with individuals as human mentors (current 'modern Gurus') being mandated as facilitators of AI-led guidance but ultimately having a role to reflect and refine the learning outcomes undertaken by AI tutors. Through a comparative analysis of the range of existing AI-led educational platforms and the potential value-based AI framework could establish, the paper concludes that Ethical AI Tutors will offer promise to Gurukul 2.0

Keywords: Gurukul 2.0, Ethical AI, Intelligent Tutoring Systems, Explainable AI, Value-Based Learning, Hybrid Education Models.

PCTE-IKS-194

Retrofitting and Structural Analysis of Structures: A Comprehensive Review

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Abstract

Retrofitting has become an essential strategy for extending the service life and enhancing the resilience of existing structures against increasing functional demands, natural hazards, and material deterioration. This review synthesizes advancements in retrofitting techniques alongside the role of structural analysis in evaluating and improving the performance of buildings and infrastructure. Various approaches—including fiber-reinforced polymer (FRP) strengthening, jacketing, base isolation, and use of advanced composite materials—are

examined in terms of their effectiveness, cost-efficiency, and adaptability to different structural systems. The integration of modern computational tools, such as finite element modeling and performance-based analysis, has further enabled accurate prediction of structural behavior before and after retrofitting interventions. Special attention is given to comparative studies that highlight the synergy between experimental results and analytical models in optimizing retrofit solutions. Limitations such as implementation challenges, variability in design codes, and long-term performance uncertainties are also discussed. The review concludes by identifying future research directions in sustainable retrofitting materials, smart monitoring systems, and resilience-based design strategies, which collectively contribute to safer and more durable built environments.

Keywords: Retrofitting; Structural analysis; Seismic strengthening; Fiber-reinforced polymers (FRP); Jacketing.

PCTE-IKS-195

Life Cycle Assessment of Waste-Based Concrete: A Review on Techniques and Approaches

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Abstract

The incorporation of waste-derived materials in concrete production has become an effective pathway toward reducing environmental impacts and supporting sustainable construction practices. Life Cycle Assessment (LCA) has emerged as a robust methodology for quantifying the ecological benefits and trade-offs of such practices across different stages of concrete's life cycle—from raw material extraction to demolition and recycling. This review paper systematically examines LCA techniques applied to waste-based concrete, focusing on methodological frameworks, system boundaries, functional units, and impact assessment categories. Special emphasis is given to studies employing waste materials such as fly ash, slag, rice husk ash, recycled aggregates, and construction and demolition waste in concrete. The analysis highlights the role of allocation methods, regional database selection, and impact assessment models in influencing LCA outcomes. Furthermore, the review identifies key limitations, including lack of harmonized methodologies, data variability, and insufficient consideration of social and economic dimensions. Future directions are suggested to improve LCA accuracy, such as hybrid models, dynamic assessments, and integration with circular



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economy indicators. By consolidating recent advances and methodological gaps, this review provides a comprehensive understanding of LCA applications in evaluating waste-based concrete for sustainable infrastructure development.

Keywords: *Waste-based concrete; Sustainable construction; Environmental impact;*

PCTE-IKS-196

Biomass-Based Concrete for Pavement Applications: A Review on Sustainable Utilization and Performance

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Abstract

The increasing demand for sustainable infrastructure has led to the exploration of biomass-derived materials as partial replacements for cement, aggregates, and fillers in concrete production. This review examines the potential of biomass resources—including rice husk ash, sugarcane bagasse ash, sawdust, coconut shell, and other agricultural by-products—in the development of biomass-based concrete for pavement applications. Emphasis is placed on their role in reducing carbon emissions, enhancing resource efficiency, and promoting circular economy practices. The review discusses the influence of biomass incorporation on mechanical strength, durability, abrasion resistance, and long-term performance of pavement concrete. Case studies and recent advancements highlight how biomass-based concrete not only improves environmental sustainability but also offers cost-effective alternatives in road and pavement construction. Limitations such as variability in biomass properties, need for pretreatment, and performance consistency are also addressed. Future directions include optimizing mix design, developing performance-based standards, and advancing field-scale applications to ensure reliable and eco-friendly pavement solutions.

Keywords: Biomass-based concrete; Pavement applications; Agricultural residues; Waste utilization.