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In This Issue

To Sir/Madam, with Respect

Hema V Raghavan*

This article is written to commemorate Teacher's Day on the 5th of September. I look upon Teacher's Day as a Thanksgiving Day to pay respect, express gratitude, and appreciate and acknowledge the hard work of all our teachers in shaping us as human beings to make our humble contribution to society. Teachers' Day, in honour of Hon'ble Sarvepalli Radhakrishnan, deserves to be an everyday celebration, though formally it is a one -day affair to express our gratitude to teachers for their lifelong guidance.

My association with Higher Education is six decades old and is deeply rooted. From my early childhood, I had the tendency to hero-worship those who had qualities and abilities better than mine. Most of those whom I admired were my teachers at different points in time. They made me love books, and this has remained a lifelong passion with me. When I started teaching, I always imagined my teachers listening and nodding in my presence as a teacher in approval as a worthy heir to their profession. It is no exaggeration that I could hear the voice of my university professors echoing their appreciation when I delivered my lectures on Eliot and Yeats and the Romantics. Two of my professors-one who taught Eliot, Yeats, and Modern literature, and the other who taught us the Romantics – opened my mind and enabled me to journey through different literary eras and literary genres that glimpsed the distinct intellectual, linguistic, religious, and artistic influences of the times. Allan Bloom famously said, "The essence of education is the opening of the human mind." Teachers give us education that helps us to expand the boundaries of the human mind- an expansion that extends beyond the classroom and allows us to continue to grow and develop throughout our lives. Michael Forbes, the American politician and the publisher of Forbes Magazine, wrote: "The purpose of education is to replace an empty mind with an open one." I followed this precept that I inherited from my teachers when I took up teaching as my profession, which for five decades remained my single focus. I dedicate this article to all the teachers who were before me, who were with me, and who have come after me.

Looking back on education from my student days, I realize Higher education today is not a continuum of the education we went through in the first decade after independence. It is different, and that is to be accepted and not frowned upon as the present ethos, values, beliefs, and priorities are vastly different from those days. Having lived through the two binary eras, I like to see education anchored to continuity with change.

Let me backspace my reflections to my university days. That was in the mid-50s of the last Century when University education

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* *Former Dean, University of Delhi, Block N, 12 C (Opposite Pushp Vihar) SFS, Apartments, Saket, New Delhi-110 017. E-mail: h.raghavan13@gmail.com*

was not so expensive as of today and was true to the classical tradition. It was meant to enhance knowledge in breadth and depth. I started college in 1955. We were hardly a ten-year-old independent nation at that time. The freedom euphoria was still around, imbuing many of us with a desire to be well educated -not so much for personal success, but to contribute to the building of the nation. In our effort to gain knowledge we were ready to push ourself to the limit in emulation of most of the highly educated political leaders of the time like Pt. Nehru, Sardar Patel, B.R. Ambedkar, Rajaji, Ram Manohar Lohia, J. P. Narain to name just a few. C.V. Raman in science, Homi Bhabha in nuclear physics, JRD Tata in business and aviation, R.K. Narayan, Mulk Raj Anand, and Raja Rao in literature, Siddeshwari Devi, Ravi Shankar, Allaudin Khan, Shambhu Maharaj, Birju Maharaj, Durga Lal, Aminuddin Dagar in performing arts, Amrita Sher-Gil, Raja Ravi Varma, Rabindranath Tagore, Jamini Roy, Nandalal Bose, Tyeb Mehta, M.F. Husain, and Sayed Haider Raza in visual arts were some of the luminaries of this period. We were all inspired by this era of renaissance in arts, literature and culture that featured a galaxy of highly educated and talented individuals, to rise to our potential. What could be the right place other than the University to open our minds, foster personal growth, professional and career progress, and awaken us to social awareness and civic responsibility that are fundamental to economic development? Education was viewed, albeit in an exaggerated manner, as a potential panacea for all social ills. The *mantra* at that time was *education per se education*- looking at education as a value in itself. Today, the purpose of education has a different priority. The new *mantra* is education for employability.

Though the National Education Policy—2020 changed the name of the Ministry from Ministry of Human Resource Development to Ministry of Education to assume education as its broader aim of man-making and not just confine it to developing human resources for the job market, the institutions have not imbibed the essence. A couple of days back, I came across a news item of a new research-based institute to be established in Kolkata with the status of a deemed University, comprising schools for Natural Sciences, for Mathematical and Computer Science, for Environment, Health and Sustainable Studies, for Humanities and Social Sciences, and for Economics. But my heart skipped a beat when I read that the aim was to make students of the new generation better equipped to address the dynamic needs of *the job market*. The end tag relating to the job market defeated the avowed purpose of its initiative to focus on multidisciplinary, fundamental, and translational research across key emerging fields. This is an instance of today's changed priorities for education. The academic rigour of a university, with its aim to generate new ideas, is now handed to the market forces to frame the course syllabus with no other aim than to meet their requirement. Education for widening the mental horizon, enhancing intellectual growth, fostering critical skills towards contributing to societal development, and keeping pace with advanced technological changes has been accorded low or minimal priority for the sole aim of skill training to become job worthy.

Belonging to the Baby Boomers generation of the 1940s, I am deeply conscious of being criticized for suffering from cognitive immobility by living in the past and thinking differently from the successive generations of Gen X, Millennials, and Gen Z. But I muster up courage to institute a comparison between education in the first two decades after independence and education today because learning in our time was founded upon the timeless concept of liberal education as the basis of university education. In his classic work on education, *The Idea of a University*, John Henry Newman made a distinction between knowledge for the sake of knowledge and knowledge for skill training. University education, he said, should be about the mind disciplined for its own sake, very different from its utility for career training. He advocated Liberal arts education that can train the learner for any number of vocations without specific utility purposes, which goes counter to today's Skill Enhancement Courses (SEC).

Our university days were not all glorious, as they focused only on academic rigour, minus skill acquisition. Most of us who got selected for a job went through "on the job" training. Our selection for any job was based on our academic scores. It was assumed that if one had a reasonably good degree from a reasonably good college/university, the candidate could be trained for the job they had been selected for. While the system produced scholars, academics, and researchers of the highest calibre, a large majority of students could not get decent employment due to their mediocre scores.

The NEP–2020 was a step in the right direction to rectify this problem by mandating all institutions to offer skill enhancement courses, but it has unfortunately proved far from satisfactory. There is a palpable restlessness among the youth as they have been denied the excitement of university life, with classes extending till late in the evening. Part of learning excitement comes from self-study and entering a new world of knowledge. But the present cramped programmes offered in the colleges leave the students no time for self-study. Neuroscientists have recently established how synaptic connections can strengthen our skills and our ability to absorb new information, *given time for reflection, learning, and the flow of uninterrupted thoughts*. The act of reflection helps in processing thoughts to get a deeper understanding of the subject. Sadly, there is little time given to students who are cooped up in a classroom from 9 a.m. to 5:30 p.m. As for skill training, the less said the better, as teachers with academic orientation are ill-equipped to give skill training. The NEP structure of the courses -VAC, SEC, and AOC disappoints the student who enters the portals of higher education with an unmatched excitement of becoming a wholesome individual. All that he receives at the end is a piece of paper to stand as a testimony to his 'scholarship' and enhanced skill acquisition, but the three- four years spent in college do not do justice to either of them. The best period of one's life is wasted turning them into zombies hanging out at the malls with *nothing to do, nowhere to go, no one to be or become* (a la Zen Buddhism).

The successive education policies from 1968 to 2020, through 1986 and 1992(known as Programme of Action) have one thing in common- their focus on expanding access and enrolment in schools and colleges. This has resulted in a school enrolment rate of about 98% today. The GER (Gross Enrolment Ratio) in colleges stands at 28.4% with 4.33 crore students in higher education. The aim is to reach 50% by 2035. Adult literacy has also gone up, reaching 81% as per the 2023 statistics. But the question that has to be truly addressed is whether the quality of education has kept pace with the increase in quantity!

Quality and quantity must be in balance to make education a primary tool in the development of the nation. The development of a nation is dependent upon the development of its youth to run along two tiers: academic development and skill development. They are not binaries but go side by side to enhance the growth of the nation. It is wrong to assume that the former is more privileged than the latter, or that the focus is to be more on the latter, in keeping with the present changed priorities on education. The principle of balance is to strike harmony between the two. Equal weightage is to be given to arrive at a perfect balance, which in education means improving both vertically and horizontally-qualitatively and quantitatively. The increased access to education on the horizontal scale is inverted on the vertical scale, as academic development is not everyone's forte. The latter is to be balanced by greater emphasis on high-quality academic research and advanced knowledge, more funding for faculty of highly qualified scholars with subject expertise, and for investing in the most essential resources like teaching materials, technology, infrastructure, and staff development, state-of-the-art laboratories, and well-stocked libraries. The X-axis that represents the horizontal expansion must focus more on skill development than on theoretical learning. The best formula is to give the students three days in college and three days hands on training in industrial/manufacturing units, corporate offices, government sectors where they learn digital marketing, programming languages (Python, Java, JavaScript), graphic design (Adobe Photoshop, Illustrator), data analytics, and artificial intelligence/machine learning, art of communication, leadership, time management, and project management etc. The present policy of one size fits all is far from satisfactory, as it has bred ennui and listlessness arising out of a lack of job-worthy training and a lack of excitement in academic learning. In Mathematics, between the two variables -X and Y axes, there is a proportional relationship which is constant, and that constant is instilling values in both the streams. Both contribute to the development of the individual and that of society. For example, Oxford University's research to discover Covishield and Vaxzevria was to bring research to bear on society. It was assisted by the pharma industries that manufactured, bottled, and marketed the two vaccines. – A good example of production, marketing, and distribution complementing knowledge and research.

Today, we hear Trump's new rant against Harvard with orders to close entry to international

students. This is a good opportunity for India not only to welcome home the return of the students who had gone to the US in search of quality education that is absent in our universities, but also to be home to thousands of international students by providing them an opportunity to receive quality education equal to Harvard, if not better. While there is much talk about making India a USD 5 trillion economy, there is hardly any attempt at making India a global hub of higher education, which is the basic building block of economic development.

What is noticeable is the prevalent smug complacency all around that education has received its share of attention with the introduction of NEP 2020 and its change of focus from cognitive learning to skill training. The 2025 academic session will start the fourth year of NEP, with the choice before the student to exit college after a *three-year stay* (I have deliberately substituted 'study' with 'stay'), without desiring one more year of study to acquire an Honours research degree. Though the percentage of students exiting at the end of the third year is still not out, the choice given to the students to exit or continue raises a few questions. Is 'exit' an index of students' satiation with their academic goal, or that of a deep disappointment with the kind of academic learning they had during the three years, or alternatively, is it one of satisfaction that they have been fully equipped with adequate skills and job worthiness to be absorbed by employers! I hope there is a nationwide survey of students at the end of the three-year stay to measure the outcome of the new educational policy in terms of its enhancement of knowledge, expansion of mental attributes, and acquisition of skills. If reports are to be believed, there is considerable disappointment among teachers and students who feel the students have lost three years of their time, receiving neither the competency to enter the job markets nor the mental acumen to pursue academic research.

I tried to find out what makes Oxford, Cambridge, Harvard, and some of the Ivy League universities stay atop of all academic institutions. Their international reputation is largely due to several factors –focus on academic research, world-renowned faculty consisting of scholars and Nobel laureates, state-of-the-art infrastructure, strong alumni network, international students' admission based on their merit and talent, and excellent student support – all these made possible through large endowments and donations from distinguished alumni and reputed institutions. Harvard has received large endowments from Ratan Tata, Anand Mahindra, and Narayan Murthy for its Business School, Humanities Centre, and Sanskrit Study Centre, respectively. This raises a question of why such philanthropy does not percolate through Indian Universities! It is a fact that though Indian philanthropy is high to religious and charitable institutions, its focus on higher education is relatively low (leaving a few exceptions). Many Ivy League colleges in the US have received donations from their Indian alumni, but back home, these very alumni who had their college education in India before they went to the US have not given anything to Indian universities. *Policy makers have to deliberate on this as to what challenges inhibit philanthropists from contributing to Higher education in India, the lack of which is a major cause of Indian Universities to rise to the status of world-class Universities*. This is a vicious cycle of reciprocal cause and effect in which both aggravate each other, leading to the decline of higher education. Lack of infrastructure makes donors pause in their desire to contribute as they see a limited potential impact of their philanthropic act, while without their large contribution, it is not possible to upgrade infrastructure to make it highly advanced to attract world-class faculty, researchers, and young and highly motivated students to engage in cutting-edge research. There is a need to create a learning environment where donors feel encouraged to contribute.

We may not become world-class overnight. We have to bestow more thought on educational policy that gives equal attention to quantity and quality. Soon after Independence, the government set up premier Higher Institutions and science Centres as the focus and role of education was to develop science research and advancement in Science, Technology, and Culture, and contribute to National development. Prime Minister Nehru said,: "*A university stands for humanism, for tolerance, for reason, for the adventure of ideas and for the search for truth. The object of education is to produce a desire to serve the community as a whole and to apply the knowledge gained not only for personal but for public welfare.*" This laudable declaration-almost Harvardian/Oxonian in intent, has become antiquated and is looked down on as inappropriate to a generation that values money more than anything

else. Education is equated with employability, which translates into money. A vast number of youth enter college for a first degree for two reasons: (1) for want of doing anything better after school, as there is hardly any job for them unless they become gig workers, (2) in hopeful expectation of a good job once they have a two-letter suffix at the end of their name. There is an underlying third reason- to pass the time and enjoy a three-year break after 12 years of school study. A small number (32% as of 2021) with a zest for professional degree work hard to get into one of the STEM courses. The enrollment in colleges is lower, making GER stand at 28.4%. The other 40% struggle for jobs that do not require a graduates. This effectively means India has 60% of youth in search of a degree to get a job, while another 40% in search of a job without a degree. This is the reason for the focus of NEP to increase the number of seats in colleges.

In this new scheme of things under NEP-2020, discipline courses have been tailored to accommodate several Application-Oriented courses, Skill Enhancement courses, Value-added courses, which leave students no time except to go through the quotidian drill of attending classes from 9-5:30 and trek back home only to trek back to college the next morning by 9. Questions are not asked about the utility courses that have displaced knowledge courses! Questions are not asked whether students have become skill-trained and job worthy! Questions are not asked about where they will get their jobs at the end of their graduation! Questions are not asked whether the staff and the students alike are satisfied with NEP? Questions are not asked about whether university education has made any impact on their mental growth! Questions are not asked whether quantity can reconcile with quality! Questions are not asked, but if it is possible, how to reconcile quality with quantity!

The answers are obvious. It is well-nigh impossible to have traditional colleges and universities to accommodate this vast number of 12th pass students. In the recent 2025 school board results, 2,221,636 students have passed the 12th Board examinations. A humongous majority of them will seek college education for various reasons--- there are no clear alternative career paths available for them to get a job and a better standard of living. Everyone, rich or poor, dreams of a good career that they feel is guaranteed by higher education. In a small housing complex I live, I find that all students – not just those living in the apartments, but also the children of the *presswala* (clothes presser), the Dhobi, the maids, the drivers, the men who do the painting and whitewashing of the houses, the gardener and the chowkidar all want their children to have college education with the hope that at the end of graduation the job market will open and absorb them and they will get white collar jobs, far removed from their parents' daily grind. The well-to-do go to coaching centres to get into professional courses or top colleges for their first degree, or go abroad in pursuit of higher learning and employment thereafter.

Both the well-off and the disadvantaged seek higher education for career opportunities with decent emoluments. As for job prospects, graduates after completion of a three-year degree course continue to be in search of employment. NEP's recommendation of skill training courses is good in intention, but suffers from a lack of logistics implementation. NEP must have a re-look at the following points.

i. It has framed a competitive examination as an entrance test to colleges. The Centralized Admission Test (CUET) is an objective test with multiple-choice questions. But it has no descriptive questions that require language skills to articulate, analytical skills to comprehend a given topic, and a flow of ideas to give a logically structured response to it. University students with academic intent must demonstrate their potential to organize information and communicate it with clarity in refined and polished language, where the communication is of high quality both in terms of form and content. The lack of focus in implementation is seen at the very beginning in spreading CUET thin by making it the only decider of eligibility to college admissions. CUET has been drawn on the lines of eligibility to professional courses like IIT, IIM, B. Pharm, MBBS, and BL. The professional courses target only those who have an aptitude and potential for a particular profession, leaving all those who have no interest or a liking for these courses. CUET is open to all students irrespective of their ability or inclination to pursue an academic course. A majority of students love going to college but prefer vocational courses that require high technical skills (coding and programming, web

development, data analysis, digital marketing etc), Creative skills(Graphic Designing, Video Editing and Animation, Content Writing: Write blogs, articles, or scripts Photography), Business and Entrepreneurial Skills(Financial Literacy, Leadership and management Public speaking and Communication, Marketing and Branding besides Bachelor of Hotel Management (BHM), Bachelor of Fine Arts (BFA), Bachelor of Fashion Designing, Bachelor of Tourism and Travel Management,). What is a matter of great concern is that students are not intent on the 12th Boards as Class 12 marks are not directly factored into the CUET score calculation, except that they are essential for meeting the minimum eligibility requirements set by universities. Learning in the final two years of schooling has lost its relevance, and this is something to be addressed urgently. 12th marks should be added to CUET scores to make the final list of applicants to be admitted.

ii. Instead of making CUET compulsory for college admissions, let it be only for those *who do not have* an academic inclination for higher studies but prefer skill training over rigorous academic courses. Students preferring academic studies must be tested on essay writing, case studies, short answer questions, and project-based learning. This involves bifurcating the two courses for a higher degree with two separate entrance examinations for academic learning and research centres for a four-year Honours programme in Pure and Applied Sciences, Social Sciences, Humanities, Arts for the People and Environment, and the other for skill training courses for a three-year B.Sc/B.A degree.

iii. The problem has arisen as CUET has been in operation based on the principle of one size fits all. The clubbing together of the two courses for all the students and admitting all who have secured the cutoff marks as specified by universities has broken colleges at the seams. Colleges affiliated to the Centre and States have classrooms built to accommodate 30-40 students and are now forced to find space for 100+ students who are mandated to earn credits both from discipline-specific courses and from non-syllabus courses like SEC/AOC/VAC, etc. It may serve statistical data of an increase in college-going students, but the more important question is, does it ensure quality to match the quantity? I had earlier posted a few unasked questions relating to the ostentatious claim of turning out employable youths. Some of the courses recommended for the SEC (Skill Enhancement Course) are appalling, making a farce of college education. College faculty trained in an academic discipline cannot be expected to handle skill training beyond peripheral inanities. With students spilling over to the corridors outside the classroom, at best, they can hear a disembodied voice without understanding anything. The unofficial and unwritten mandate for the teachers is to pass them through Internal Assessment--- yet another farce. At the end of three years' stay, who can in all honesty say s/he is ready to be employed?

iv. Higher education institutions must provide the gateway to research and innovation, leading to international opportunities. Though India boasts of the highest number of educational institutions, very few have the infrastructure and potential to meet the aspirations of the burgeoning number of 12th-pass students. NEP has to turn its focus on the infrastructure of the institutions towards research and innovation.

v. Research must stay with universities. The present policy of having research centres for different Sciences (Physics, Chemistry, Biology, Marine Biology…), Humanities, Agriculture, etc, depletes the research grant to the universities. There has to be a relook to make our universities like those in Oxford and Cambridge, Harvard and Berkeley, by making Universities the Umbrella Institute for Research in different disciplines, except Space and Satellite centres, Oceanography, High altitude research, Aeronautics, etc.

vi. The quality of a university is mirrored by its pioneering research publications and the number of doctorates it produces annually. While India's number stands at 29,000, it is behind China (56,000) and the US (71000); the quality of our research is much to be desired. It is distressing to learn about the quality of our publications seen in the low citation rates, as compared to other countries. That apart, intellectual theft seen in plagiarism and fabrication of research data, is embarrassing, and all these are further compounded by publishing in poor-standard and predatory journals that lack even peer review. Over 1000 research papers have been retracted on account of ethical misconduct. Funds should be given for University Publications that must evolve into premier world-class Journals.

vii. Time is of the essence as timing is important to bring about a qualitative change in Higher education. I write this on the strength of my long innings centred on academics. Higher education in terms of academics should become more dynamic and approximated to Cardinal Newman's idea of Liberal education, with emphasis on critical thinking, effective communication, developing social responsibility and civic engagement, and a broad understanding of different subjects, and weave them through the Web of Education

viii. Let there be two separate streams- for academic learning and skill training, with no hierarchical privilege or status given to either. Make meritocracy the benchmark for the selection of academics and scholars.

ix. Teaching strategies must change, as in the era of AI-sponsored Chat GPT, students don't need answers. They need problems to exercise their minds–problems that Chat GPT cannot solve. In today's Age of Information overload, teachers have to devise ways to make lectures stimulating and interesting. For example, in one of the classes I attended in the US, in a large lecture hall with graded rows where each row is slightly elevated above the one in front, one hundred students with desk microphones could watch and listen to the Professor standing on the platform below. The subject was Euthanasia. The students listened to the presentation by four professors– from Psychology, Sociology, Medicine, and Law to discuss the theory and implications of Euthanasia. At the end, there was a screening of a short film about a young person in a wheelchair who speaks about his personal encounter with a fatal accident and how he preferred euthanasia to living a physically challenged existence, and the counselling he had from four different persons on the legal, medical, psychological, and sociological implications of Euthanasia. Students were free to ask questions through the desk mike and were given an assignment on Euthanasia for submission a week later.

This transformative approach that involves architectural infrastructure to accommodate 100 students with desk mikes and a joint session with professors from different disciplines is what is needed today to mesh quality with quantity. The approach has to be made dynamic with the aid of advanced technology and well-thought-out lectures in an interdisciplinary mode to have a vital catalytic role in higher education

NEP–2020 has given the lead. The lacunae in implementation cannot be addressed unless the policymakers take remedial measures, and the institutions implement them in a true sense of the term. Most importantly, the teachers ought to assert their role as true educators!

An opportunity has now opened to make India the hub of world-class universities. Let us not lose the momentum. *Momentum begets momentum, and the best way to start is to start* (Gil Penchina). ❑

UNIVERSITY NEWS

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A HAPPY

TEACHERS' DAY

The Concept of 'Lord Ganesha' as Perceived through the Oriental Literature and Modern Science: An Attempted Synthesis

Anil Vishnu Moharir*

The physicist Leo Szilard once announced to his friend Hans Bethe that he was thinking of keeping a diary: 'I don't intend to publish. I am merely going to record the facts for the information of God'. Don't you think God knows the facts? Bethe asked. 'Yes', said Szilard. 'He knows the facts, but he does not know this version of the facts.

    Hans Christian von Baeyer, Taming the Atom

"Nothing splendid has ever been achieved except by those who dared believe that something inside them was superior to circumstances."

    Bruce Barton

The concept of Lord Ganesh as a 'Deity of knowledge, wisdom, protector from obstacles and bestow success in any kind of work', with his characteristic head of an elephant, four arms and large pot-belly, has been a part of the human psyche in the mind of every Indian, for thousands of years. Ganesh is depicted with or without wearing his crown headgear- '*Mukut'* on his head. Blessing and grace of Lord Ganesh, as a non-sectarian deity, is sought and prayed for by every sect of the Hindu community (*Shaivites, Vaishnavites, Jains, Sikhs, and Buddhists*) before the start of his/her day and any new work in hand for its successful accomplishment. Lord of creation-Bramha and all other deities also, first pay homage to Ganesh before commencing their work. Idols of Ganesh adorn the entrance door of practically every household, palace, or temple on the Indian sub-continent, to ward off all the ills from entering within. Ganesh idol, also an essential component of a designated place of worship and prayer rooms in all Hindu households. Ganesh has been called, described, and known by several names such as; *Vighneshwara*- God of obstacles; *Siddhidata* -- God of success; *Vruddhidata*-- God of success and wealth; *Gajanana or Gajamukhi*- God with elephant face; *Lambodara*- God with a pot-belly; *Vakratunda*-God with bent mouth (trunk); *Ekdanta*- God with one full tooth (tuskar); *Ganadhisha or Ganapati*-God of the people; *Vinayaka*- Great leader or the Lord, and as – God who removes all obstacles in achieving success. Sculptors, painters, and other artists have subjectively created and presented Ganesh in innumerable forms, shapes, moods, and actions. Figure 1 depicts the most popular form of Ganesha.

The maximum number of temples in the world has been erected and devoted to the worship of Ganesh. Because, irrespective of the outer façade of religious gowns people wear, everyone aspires for success in personal life. Perhaps, no other deity enjoys such huge popularity amongst people as Ganesh. No surprise, Lokmanya Bal Gangadhar Tilak, the fiery freedom fighter from Maharashtra, used this popularity in starting socio-cultural public worship of Ganesh from 1893 AD every year, and used those occasions to spread his message of *'Purnaa-Swarajya',* self-rule, complete freedom from the British colonizers in India. Idols of Ganesh are not only found on the Indian peninsular sub-continent but in the entire north-eastern (Tibet and China) and south-eastern parts of the world, including Japan in the far-east. In Japan, Ganesh is known as Ganabachi or Binayaka-Ten or Kangiten God and worshipped as the God of remover of obstacles and good fortune. In Muslim Indonesia, in opposition to radical dogmatic Islamic ideology, Ganesh idol has been installed, at the mouth-edge

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*Former Professor and Head, Division of Agricultural Physics, Indian Agricultural Research Institute, New Delhi. Resi: 202, Gloriosa, Nyati Exotica Co-Op Housing Society, Nyati County, Pune-411060, Maharashtra. E-Mail: anil.moharir@gmail.com

Figure 1. Idol of Lord Ganesh in its Most Popular Form

of their most notorious volcano, to ward off its abrupt violent eruptions (Figure 2) and when the international parity value of their currency was deteriorating, the Indonesian government had even printed images of lord Ganesha on their currency notes, as symbol of prosperity and good fortune but withdrew it in 2008-2009 when its currency value stabilized.

Historic Mention of Ganesha in the Vedas and Puranas

None of the four Vedas, the oldest scientific texts known to humankind, explicitly mentions any elephant-headed deity as Ganesh. However, in Rigved (2.23.1) and Yajurveda (16.25) there is mention about *'Ganapati'* with reference to as the Lord/leader of Ganas (people or a group of people) possessing wisdom, knowledge and skills or a mighty protector, as are required for successful leadership and in Atharvaveda as *'Dantin (the tusked one)'* and as *'Hastimukha (elephant-faced)'* but certainly not as the portrayal of an elephant-headed deity'. The Rigvedic deity is also equated with '*Brahmanaspati'*, associated with prayers and sacred hymns. These Vedic references of Ganapati, perhaps refer it to some kind of divine principle, rather than to the specific anthropomorphic figure, as a deity with the head of an elephant. The explicit introduction and mention of Ganesh as the elephant-headed deity, the son of Shiva and Parvati, and remover of obstacles, and interesting stories about his creation have, however, appeared in various *'Puranas'*, which were composed much later after the Vedas.

The *Skanda-Purana* ascribes the creation of Ganesh by Parvati, the better half of Lord Shiva, out of the scrubbed impurities of her body, while

Figure 2. A 700-year-old Idol of Lord Ganesha Sits at the Mouth of Mount Bromo, a Volcano in Indonesia. People here believe that Ganesha Protects them from the Volcanic Eruptions

bathing in the river Ganga. The *Matsya Purana* repeats, almost the same legend, adding that Ganesh, with the face of an elephant, came to life after his immersion in the Ganga, and Parvati adopted him as her son. *Linga Purana* (150.4, 6) mentions that Shiva specifically created Ganesha to checkmate and destroy the *Asuras / Daityas,* who were causing injuries to the *Devas. Varaha Purana* says that Ganesha was a very handsome boy who sprang up from the aroused desire of Parvati and the laughter of Lord Shiva. *Vaman Purana,* on the other hand, describes that Ganesha was created by Parvati alone from her body filth while bathing in Ganga, and for that reason this Purana also describes Ganesha as '*Mal Purusha (Born out of filth)'.* In Nepal, a traditionally Hindu country, the popular belief is that Ganesha is a *'Swayambhu'- self-manifested deity* and not created by either Shiva or Parvati. They describe him as *'Surya Vinayaka'*. We therefore see that *Puranic* descriptions about Ganesha are highly diverse, unsystematic, improbable, imperceptible, and unpalatable to any scientific logic and reason. Some scholars suggest that the Vedic Ganapati refers to a more general divine figure and not necessarily the popular elephant-headed Ganesha, who finds mention in the *Puranas*. But the followers of the Ganapatya tradition make no distinction between the Vedic Ganapati and Puranic Ganesha, and emphasize the deity's role as the remover of obstacles and that of a patron, who bestows intuitive acumen, information, comprehensive knowledge, wisdom, analytical skills, and provides directions for physical actions for success in accordance. The discussions on the differences between Vedic Ganapati and Puranic Ganesha have almost vanished, and the elephant-headed Ganesh has universally come to stay and is accepted as the first divine deity, to be worshipped before the start of any venture, for seeking protection against obstacles, and to bestow knowledge, wisdom, and guidance for its successful accomplishment. Human beings, irrespective of location on earth, ethnic origin, religious faiths, educational background, and colour of skin, have always feared the fury of natural forces, ever since their coming into existence on earth. And they have always struggled to harness such natural forces to their advantage, to the extent, and within the means of resources and physical capacity. At the same time, they have always been praying to the natural forces in their minds, from the bottom of their hearts, to be saved from their wrath. Thus came the emergence of various kinds and forms

of Deities, representing the disastrous forces, and the emergence of various socio-religious and socio-cultural community rituals as practices to propitiate those Deities.

Evolution of the Universe, Emergence of Biological Life Forms and Human Beings, Enlightened Civilizations, and the Adoption and Use of Symbolism in Philosophical Descriptions

It is now believed that the visible cosmic material universe, as a recycling interplay of plasma, matter, and energy system, emerged about 13.5 billion years ago, with an unimaginably forceful explosion *('Big-Bang') at unimaginably high temperature, pressure, and heat,* from an equally unimaginably dense and invisible primordial matter. The visible material universal cosmos, even today, constitutes only five percent of the estimated size of the universe, and ninety-five percent of that continues to remain invisible or hidden, and is therefore called dark matter or dark energy. Whereas the nature and constitution of the dark matter or dark energy continues to baffle scientists, the visible universe is almost certainly made of electrically charged, extremely hot, gaseous plasma and extremely massive, highly condensed material objects, made of the primary elemental matter of only 118 different kinds. The elemental matter came into being as the hot 'Big Bang' universe gradually cooled down, with the auto-emergence of various universal physical constants and their mutually dynamical adjustment and stabilization, with precise numerical values. It is believed that, but for the precise values of these universal physical constants, the emergence of the visible material universe would have been almost impossible. We have no knowledge, how and why these universal physical constants with their precisely constant values came into being in the scheme of universal creation. But they are there, and we have no option but to accept them as they are. The elementary matter of 118 *kinds (found in solid, liquid, and gaseous forms in nature)*, starting from the lightest gaseous element, hydrogen, to the heaviest uranium, has been listed and classified into a table called the 'Periodic Table of Chemical Elements', which forms the first lesson in the study of chemistry as a subject. Today, we know that every inanimate and animate material in the universe and especially on the earth, is made from the chemical combination of one or more than one element atoms of only these 118 kinds, in different proportions. All the chemical combinations of atoms in the formation of various compounds are fostered by either sharing or donation of one or more electrons from the external electron orbits around the atom of one element to the other atom under specific conditions of temperature and pressure. And, with any drastic changes of the specific conditions of their formation, the electron bonds between atoms of compounds, break, and elements, constituting that compound, fall apart, to be recycled in making new combinations of compounds in nature. Nobody knows the origin of the so-called amino acids and protein biomolecules with essential components of hydrogen, nitrogen, oxygen, and carbon atoms in their compositions. The presence of such precursor bio-molecules has also been found in samples of meteorites and tails of comets, indicating their origin, formation, and existence in some intergalactic space. However, the origin of bio-organisms, with the ability to reproduce, independent movement, and multiple functional organs for food consumption, digestion, and excretion, has so far been found only on the Earth. Although, possibility of the existence of such or a similar kind of life, familiar to us, has also been predicted by cosmologists and exo-biologists on any of the sixty billion habitable planets present in our universe.

Life on the planet Earth is believed to have originated in its oceans. The earliest scientific description of the origin of life, is found in the Vedas and Puranas in the stories about the *'Samudra Manthan* (Churning of the primordial Ocean')* and the *ten* a*vatars* (incarnations) of Lord Vishnu, beginning in order, from *Matsya (Fish)* as the first ever description of the origin life from ocean and the way, life evolved and came into being on earth. And mind it, all these explanations were described and explained, at least, about 15,000-20,000 years ago by the Rishis in Bharat, before Charles Darwin came out with his modern scientific theory of evolution in the 'Origin of Species'. Personally, to me, the identity of the ocean, i.e. the *'Samudra'*, mentioned in the Puranic story of *'Samudra Manthan'* is not very clear. Generally, people feel that the *'Samudra'* here refers to the existing ocean on the earth. However, Moharir (2022), in his innovative and scientifically logical interpretation, has described and likened '*Samudra Manthan'*, to the chaotic cosmic churning of the early universe and its condition that existed immediately after the 'Big-Bang' occurred. The *Devata* and the *Asura,* who churned this cosmic ocean using the '*Meru'*

Mountain and a giant serpent 'Vasuki' as a rope, were the personified forms of the kind of natural forces involved in the creation and annihilation *(matter and antimatter)* of the material universe. So also, the serpent Vasuki has been identified by Moharir (2022) to be nothing but the coiled streams of electrically charged plasma, what we know today as the intergalactic 'Kristian Birkland electric currents' at billions and billions of volts. Space is made up of electrically charged plasma! Nebulas are a plasma. Lightning is a plasma. The northern and southern lights are a plasma. We are all factually living in an electrically charged plasma environment. We do not just breathe in oxygen, we, factually breathe in electricity into our lungs too! Each oxygen molecule carries four free electrons (*negatively charged fundamental particles*), which bind themselves to the iron atoms in the haemoglobin of our blood and are then transported by means of veins, vesicles, and capillaries to be dropped off at seventy trillion cells, to provide them with a constant flow of electrical juice, for maintaining and running our body systems.

In these attempts, the origin of human beings as the pinnacle of evolution and the most advanced intelligent animal makes an interesting story, but not without pointing to several missing links and raising big questions against it. There are even proponents who claim human beings to have possibly descended down to earth as such, from some other cosmic source *(indicatively pointing to the constellation of Ursa Major)*. And perhaps, the description of the origin of the fourteen jewels; Lakshmi, Kaustubh, Kalp-vruksha, Sura or Varuni, Dhanwantaari, Chandra-the Moon, Kamadhenu-Wish-granting cow, Airavaat-the while elephant, Rambha-the feminine angles, Uchhaishvara-the seven headed horse, Halahaal- the deadly poison, Hari-Dhanu, Shankh-the counch and finally the Amrut- the immortalizing liquid Nectar in the story of *'Samudra Manthan'*, indicate the possibility of the cosmic origin of the basic primordial seeds of all life-forms, were formed during the initial process of cooling and stabilization of the early universe after the 'Big-Bang'. And identification of amino acids *(the precursor molecules for all life forms)* in comet tails and meteorites does not rule out such a possibility. *In this respect, it would be worth probing the possibility of the extraterrestrial origin of the most complex, primordial human cell– the Sperm or Spermatozoa, and its adaptation on earth.* "The sperm cell is incredibly well-packaged," says Adam Watkins, associate professor in reproductive and developmental physiology at Nottingham University in the UK. "We typically thought of the sperm as a bag of DNA on a tail. But as we have started to realise that – there's a lot of [other] genetic information in there." The sperm, which are made inside the testes of the human male, start as just a round cell that looks pretty similar to anything else. Then, it undergoes a dramatic change where it becomes a sperm head with its characteristic wagging tail. No other cell, within the body, changes its structure, its shape, in such a unique way. It takes sperm about nine weeks to reach maturity within the male body. The sperm does not just pass the father's chromosomes on, but also the history of its epigenetic information, which directs how and when the genes passed on to the female egg cell should be used, and how the embryo should progressively develop and mature. In short, the sperm potentially generates the life-long trajectory of the offspring. *I personally feel that our ancient Vedic concept of 'prarabdha karma (the karma carried forward by everyone from its past)' described in the 'Theory of Karma', is probably hidden here.* This means that males only keep their heredity up, and what factually drives the system is the female evolution".

It may be an obvious question here: what do all these descriptions have to do with the concept of the Lord Ganesha? And that is because the personified deity 'Ganesha', whom we believe to be bestowing knowledge, information, cognition, and conscious self-awareness to us, and also the one who connects us to the external and internal environments, technically and scientifically, resides in the spinal cord of the human body. And all knowledge comes to us only with the help of the sensory organs of our body system, connected to our nervous system, as a unitary part of the brain and the spinal cord. Understanding the origin, structure, and functions of the spinal cord is therefore essential. The fountain head source of the energy, within our nervous system, that gathers all information about our conscious existence and determines our strategy for survival, in a perpetually changing epigenetic environment, surrounding us, is most logically, the place and origin of what we describe as the 'Lord Ganesh'. Therefore, 'Ganesha' is certainly not any physical individual, but a personified deity of the very energy that is responsible for our existence and experiences, from where we emerge as a conscious individual and get connected to the universal

consciousness. And such awareness comes to us by means of the *sushumna nadi*, lying along the spinal cord. The *sushumna* is also the energy conduit to all the organs of the human body. Therefore, *sushumna*, or in other words, the spinal cord, is our life jacket. Any damage, deformity, or functional disability in the spinal cord a cause serious consequences for life. Therefore, whether we believe it or not, consciously understand or unconsciously ignore, every kind of prayer, offered by human beings, in any form, in any way practical, in any religion, and in any language, is essentially and factually directed to the healthful functioning and well-being of the spinal cord *(in short, the nervous system)*. And mind it, that it was not the lack of his muscular might but his shaky nervous system, which was preventing the great archer Arjuna from picking up his arms and fighting on the battlefield of Kurukshetra.

Thus, Ganesha exists in the mind of all those who pray to him with conviction. He does not exist in a form, one can see or feel like every other material thing. And, like the imaginary figures, perceived by our star-gazing ancestors for the twelve zodiacal sun signs; Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Sagittarius, Capricorn, Aquarius and Pisces, as the symbols, for the various constellations of stars

Figure 3a & 3b. The Symbolic Figures, Perceived, and the Arbitrarily Visualized in the Spread of the Stars within the Twelve Constellations as Zodiac Signs
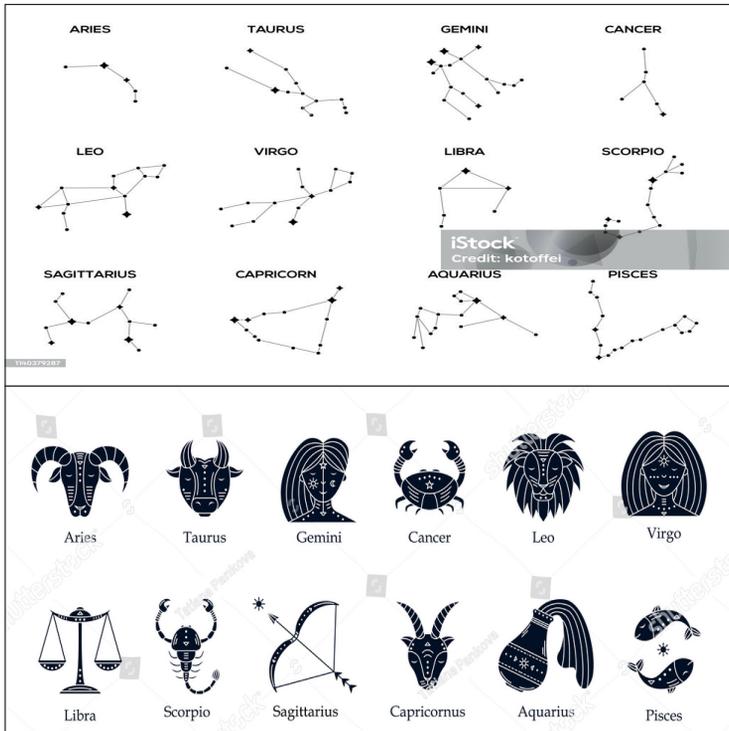
across 360^0 rotation of the earth in the sky (Figure 3a & 3b*)*, so also the symbolic figure of the deity of our cognition, knowledge, wisdom, was visualized with the head of an elephant and given the name as 'Gajanan or simply as Ganesha' Figure 1. Why only the head of an elephant selected for this and not that of any other animal? The reasons for this would be made clear in the latter part of this article.

The position of Ganesh, his shape, looks, and location, within the human body, was analytically examined and recognized to be, at the base of the spinal cord, called simply as the *'Muladhar' or 'Muladhar Chakra,' in the 'Atharva-shirsha'-the chants written in praise and invocation of the blessings of Ganesha.* In this article, we are going to explore and possibly identify the reasons, importance, relevance, and philosophical and scientific basis to do so, by gradually building arguments with appropriate scientific relevance. And before we come to that, we need to look into some more of the fundamental processes as follows, for joining the ends together, and finally identify the location of Lord Ganesha.

Developmental Biology of the Human Being, Spinal Cord, and *Nadis* as Conduits for the Flow of Ionic Electric Currents

Experimental observation on the development of human or animal embryo with time from the moment of fertilization has been of considerable interest to both geneticists and medical embryologists. In view of practical difficulties encountered in observing the same developing embryo, from its inception to birth as a child, considerable variations in the descriptions of all sequential events during such development have been reported in the literature. And, there appears to be no sequential common understanding, for obvious reasons. Perhaps, it may also be that many developmental processes may be Simultaneously going on in parallel, and therefore the reason for some overlapping descriptions in the literature. Still however, Dame Madame Su Black (OBE) in her recent, celebrated book-'All that remains in death', very clearly brings out that the first structure to develop after fertilization of the female egg cell with the sperm being the emergence and development of the

brain and the entire network of nerve and neuron cell infrastructure of the body to be (Figure 4). This is followed by the development of the bone-skeleton structure and then by the development of various organs of the human body (Figure 5). To me, from my logical deduction, it appears that the entire framework of the so called, *nadis* (described in the Ayurveda) as the conduits for transport of ionic electric currents within the entire body, are also built and laid down simultaneously, simply because, without efficient movement of ionic currents, the development of a healthy body from the embryo would be impossible. And more so because these *nadis* can never be seen under any kind of high-power microscope. The existence of *nadis*, like that of the 'electron', has to be deduced only through logical analytical arguments.

Although the concept of *nadis* has not so far been accepted by Western medical science, because

**Figure 4. The Total Network of the Brain and Nerve Cells in Human Body**

Figure 5. Microscope Image of the Formation and Development of the Brain and Neural Network, Followed by the Formation of Different Organs in the Human Zygote

Figure 6. The Origin of the *'Sushumna' Nadi* is from the Confluence of the *'Ida'* and *'Pingala' Nadis* meeting at the *Muladhar Chakra* located at the base of the Spinal Cord. Circulating the three Nadis are the Ionic Current fields (Most Possibly the Enigmatic *Nadis*).
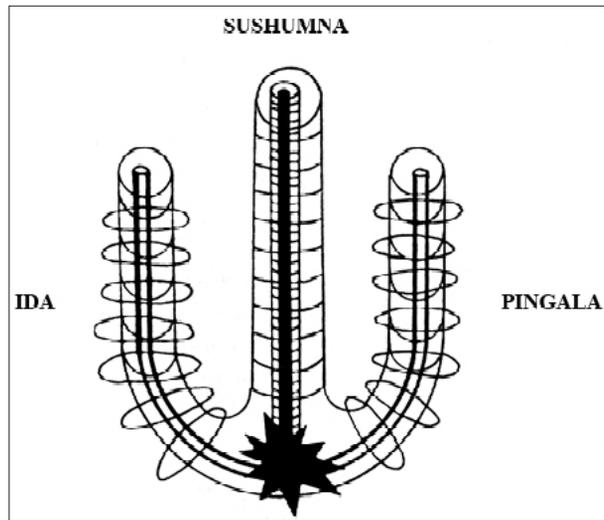
nadis are not some kind of material structures like the nerves. Since time immemorial, *nadis* have been in use in India and accepted to be an invisible but most essential component of the human body as an arrangement to maintain an electric potential gradient and conduct ionic electric currents, parallel to the nerves from the brain. Although there are 3,50,000 *nadis* in a full-grown human body, only seventeen of them are the principal ones, and the rest are secondary. These seventeen *nadis* have been named in the Sanatan Ayuredic literature as: *(1) Sushumna (2) Ida (3) Pingala (4) Gandhari (5) Hastijeevha (6) Koohu (7) Saraswati (8) Pusha (9) Shankheeni (10) Payaaswini (11) Varunee (12) Alambusha (13) Vishwodara (14) Yashasweeni (15) Vaajra (16) Chitra, and (17) Bramha.* And there are no equivalent names for them in English or any other world languages.

From amongst these seventeen, only three *nadis,* namely, *ida, pingala,* and *sushumna* are the principal important in practical yoga, and the three have been described in Ayurveda literature to run parallel along the spinal cord of the body. There is again some confusion about the relative direction of flow of energy through *ida, pingala,* and *sushumna.* Whereas many authors are silent on this aspect, some describe energy traveling vertically up in these *nadis* from the *muladhar chakra* towards the crown chakra in the head. This seems unacceptable because it clearly implies that

all three *nadis* originate from the common source, the *muladhar*. Some other authors describe energy flows vertically down in *ida* and *pingala,* which meet at the *muladhar chakra* and give rise to excite the *sushumna*, which flows vertically up from the *muladhar* to the crown. These authors also describe that energy flows both ways in the *ida* and *pingala.* This statement puts the source of i*da* and *pingala* at the *muladhar* in doubt. No simultaneous flow of energy through any system can take place unless there is an alternating difference of potential gradient across the two ends of its length and unless a process of ionisation is involved there. On account of this confusion, several authors generally believe that energy flows through *ida* and *pingala* in both directions (Up and down), without critically resolving or rather ignoring the issue on logical grounds.

The two books-'Yoga Vidnyan' Part-I, published by the Peetambara Peeth, Datia in Madhya Pradesh, and 'Theories of the Chakras: Bridge to Higher Consciousness' by Hiroshi Motoyama, published by the New Age Books however describe in clear details the origin of the *ida* and *pingala nadis*, their course through the body, and meeting at the *muladhar,* where they collectively give rise to the vertically flowing energy channel called the *sushuna nadi.*

In my considered opinion, electrically charged plasma energy continually received from the Moon and Sun on Earth flows independently through the left and right nostrils, respectively, along with the life-supporting oxygen gas. *i.e.,* the *ida (Chandra)* and *pingala (Surya) nadis* to the *muladhar,* located near the base of our spinal cord, where they combine to convert the plasma energy into most likely electromagnetic type to excite what is called the Kundalini. Therefore, Kundalini is factually a confluence of the plasma energy from the Sun through our left nostril *(ida nadi)* and that of the plasma energy from the Moon through our right nostril *(pingala nadi)*. And this confluence of the *ida* and the *pingala nadis* as the first energy centre, becomes the *muladhar* or *muladhar chakra*. The excited energy from the *muladhar chakra* flows into a third channel, called the *sushumna nadi,* which runs parallel to the spinal cord from the *muladhar* to its final destination, the *sahasrasar chakra*, sequentially tracing its course from *svadhishthana, manipua, anahata, vishudhi,* and *ajnya* or *adnya chakras* in between.

Manifestation and regulation of the flow of energy within the entire human body and more particularly through the various organs is mediated through the six energy centres called the *'chakras'* and various important glands, which lie along the spinal cord, in unison and in perpetual connection with the universal cosmic energy by means of these three *Nadis* called the *'Ida', 'Pingala'* and *'Sushumna'.*

The chakras, as energy (grid) centres in the body, correspond to specific organs and glands. Sequentially describing, the *muladhar chakra* is linked to the lower base of the spine, pelvic floor, adrenal glands, kidneys, colon, and rectum. The *svadhisthana chakra* is connected with the lower abdomen, reproductive organs, ovaries/gonads, kidneys, bladder, and lower back. The Manipur chakra is connected to the digestive system, upper abdomen, pancreas, liver, and gallbladder. The *anahata chakra* is associated with the functioning of the heart, lungs, thymus gland, and blood and energy circulatory system. The *vishuddha chakra* is linked to the functioning of the throat, thyroid, vocal cords, trachea, and essophagus. *Ajnya* or Adnya chakra, positioned between the eyebrows, is connected to the functioning of the pituitary glands and the brain. And finally, the Sahasrasar chakra, located at the top of the head, is associated with the pineal gland, the entire nervous system, and to higher functions of the brain.

Smooth flow of energy through the six chakras is regulated by the frequency and depth of breathing. And since the six chakras regulate the flow of energy through various organs, glands, and other parts and regions of the human body for physical action, any obstruction to the flow of energy in between the *chakras* is reflected in the form of some kind of ailment, malfunction, or disease of an organ, under the control of those particular chakras.

The Description of the Spinal Cord

The Spinal cord is a cylindrical bundle of nerve tissues that runs from the brain to the lower back. The spinal cord carries nerve signals from the brain to the rest of the body and *vice versa*. These signals help the body to feel sensations, move from one place to another, and keep breathing. Any damage to the spinal cord or to any nerve within it can lead to partial or total immobilization of any or several organs of the body, including loss of self-identity.

The spinal cord constitutes a bundle of nerves that has been divided into five groups, namely: *Cervical* with 8 nerve pairs; *Thoracic* with 12 nerve pairs; *Lumbar* with 5 nerve pairs; *Sacral* with 5 nerve pairs; and *Cauda equina*, a bundle of spinal nerves, located at the end of the spinal cord, resembling a horse's tail. It primarily functions to transmit motor and sensory information to and from the legs, bladder, rectum, and perineum, ending at the upper Lumbar (L1-L2). And below this point, individual nerve-roots extend downwards within the spinal canal, which is called the Cauda equina. The cauda equina nerves carry signals related to the lower body movement, sensation, and the control of autonomic functions of the bladder and bowel. The spinal cord, extending from the *medulla oblongata in the lower brainstem to the lumbar region of the vertebral column (backbone), makes up the central nervous system.* This spinal nervous system is of two kinds, namely the 'Sympathetic' and 'Parasympathetic' types as components of the autonomic nervous systems, and both these have complementary roles. Whereas the sympathetic nervous system prepares the body for action, in response to stress or danger for survival by increasing heart rate and blood pressure, the parasympathetic type calms the body and attempts to conserve energy by reducing blood pressure, stimulating digestion, contracting pupils, increasing saliva secretion, promoting urination and defecation, and stimulating tears through the eyes. That is the reason the sympathetic type is often called the 'fight-or-flight" system and the parasympathetic as the "rest-and-digest" system in the language of the neurologists. In humans, the spinal cord is a continuation of the brainstem and anatomically begins at the occipital bone, passing out of the foramen magnum and then entering the spinal canal at the beginning of the cervical vertebrae. From here, it extends down to between the first and second lumbar vertebrae, where it tapers down to become cauda equina *(horse tail-like structure)*. A bony vertebral column, about 45 cm in length and 15 cm in diameter, protects the spinal cord in the thoracic region.

The spinal cord primarily functions in the transmission of nerve signals from the motor cortex to the body, and from the afferent fibers of the sensory neurons to the sensory cortex. It is also a center for coordinating many reflexes and contains reflex arcs that can independently control reflexes. It is also the location of groups of spinal interneurons that make up the neural circuits known as central pattern generators. These circuits are responsible for controlling motor instructions for rhythmic movements such as walking, etc.

The Principal *Nadis Ida, Pingala,* and *Sushumna*

The bundle of nerve tissues that receives plasma energy received from the Moon through the left nostril of the nose is very cool and provides soothing effects to the human body. The energy through the ida flows for 1440 seconds *(equal to one Ghati or Ghadi of time according to the Hindu way of time scale)* at a stretch before switching over to the pingala. Plasma energy from the Sun, on its part, also flows through the pingala nadi for 1440 seconds at a stretch before switching over to the ida nadi. And this cycle of exchange continues perpetually, from the first breath at birth to the last breath in human life. During the process of inhaling the plasma energy from both the moon and the sun, together with the oxygen gas from the atmosphere, there is a continual build of ionic concentrations around *ida* and *pingala nadis*, gradually reaching a saturation level during *nadi-shodhan* yoga practice. In normal breathing, however, there is no such buildup. The ionic buildup around the *nadis* leads to a considerable increase in the pranic (oxygen level) energy in the body, which leads to the ability to maintain a higher level of physical harmony, stamina, and mental alertness, besides building immunity against most diseases. When the ionic concentrations around ida and pingala build up to the maximum limit, and are almost equalised or homogenized, *sushumna nadi* acts as a dielectric, and is discharged through the *sushumna nadi* with the following consequent effects;

1. Both nostrils begin to flow equally, and there is no dominance of one over the other, but both remain equally open.

2. *Sushumna* becomes active.

3. The ionic charge around the spinal cord reaches its maximum.

The energy or *prana* in both ida and *pingala* also reaches their peak level, meaning that the mental functions perform at their maximum potential levels.

It can be observed from here why it is so important to be able to remain in such a state of condition and why, by means of regular meditation,

the sushumna should remain ever active. Concentration of the ionic fields is accomplished by voluntarily performing asanas, pranayam, concentration, and meditation in a clean, serene, and noise and pollution-free environment, preferably at higher altitudes (above 1000 to 5000 feet above sea level, where the concentration ratio of positive and negative ions in the atmosphere is almost equal (1.2 to 1.0). At polluted places, there is often an excess of positive ion concentrations. The presence of a large number of electronic and electrically operated gadgets or large metallic objects around the place for practicing meditation must be avoided because this equipment holds a directive influence on the natural ionic concentrations present in the surroundings. In sum and substance, all human beings are perpetually bathed and influenced by three composite fields around: (1) ionic and pranic elements; (2) magnetic and electromagnetic elements; and (3) mental and psychic field elements. And all these three influencing fields are perpetually exist in every part of the body and mind. They sympathetically respond to all our actions and reactions. All three of them are capable of being affected by the environment, body, mind, and presence of any other individual around. All three energy fields are capable of expanding outside the body (*what we call as aura*) to a distance depending upon the relative strengths of the energies of the three fields. It has been recorded in history that when Mahatma Buddha walked the path, his aura was felt within a radius of several miles around. And lastly, all the tree fields have the property to align themselves along fixed or changing forced fields.

In conclusion to this part of the section, it can be seen that the sushumna nadi is the most important of all the nadis. It is the primary conduit for connection to the universal consciousness, and the primary objective of Rishis and Yogis is to ever attempt to remain in unison with the *sushumna,* for a profoundly blissful experience. All three *nadis, ida, pingala,* and *sushumna* are the conduits of the body consciousness (prana), and the Moon, Sun, and Agni (*Electricity*) are their Deities respectively. And as mentioned earlier in this article, sushumna begins its course from the muladhar chakra, and while sequentially passing through *svadhishthana,* manipura, anahata, vishudha, ajnya, or adnya chakras to reach its destination, the sahasrasara chakra. And in passing over this course, it energises all the body organs on its way through the six

chakras, to which are connected the sympathetic and parasympathetic nerves from the individual organs and various glands that secrete vital biochemicals to essentially maintain the integrity of the body system in totality.

Connections of the Nerves with the Structural Regions of the Spinal Cord

Figures 7a & 7 b are the diagrammatic representations of the location of the chakra energy centres along the spinal cord and the organs under their influence and control through the sympathetic and parasympathetic nervous system shown in Figure 8.

Figure 7 a & 7b. Diagramatic Sketch of the Positions of the Chakras and the Organs under their Influence and Control
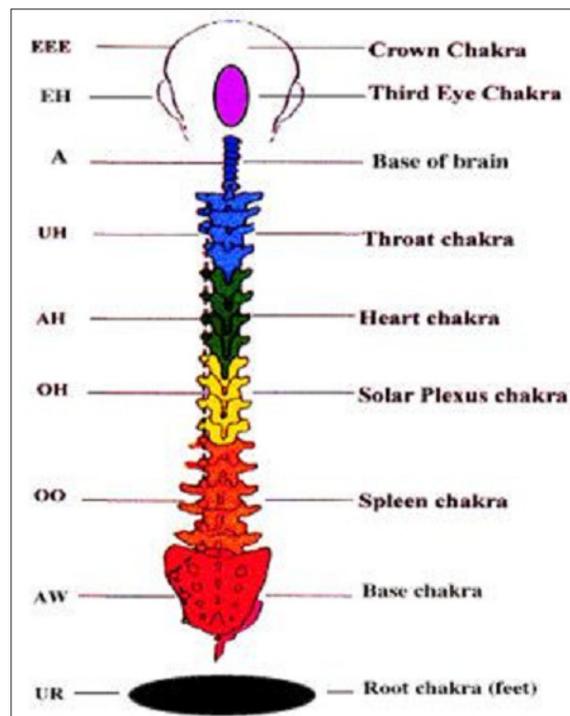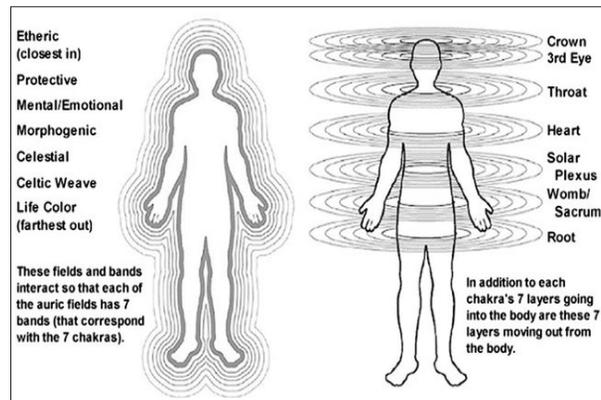
**Figure 8. The Sympathetic and Parasympathetic Autonomic Nervous System and the organs under their command**

Figures 9 a & 9 b, below are the diagrammatic representations of the anterior, posterior, and lateral views of the bottom end of the normal healthy lumbar spine **(9 a),** and the top most end of the spinal cord where it connects to the medulla oblongata in the lower brainstem to the lumbar region of the vertebral column (backbone) to make up the central nervous system **(9 b).** Perceptive figurative images of Lord Ganesha have been drawn and superimposed in Figure 9a, and placed adjacent to the top end of the spinal cord in Figure 9 **b**, for easy comparison**.** *If we look at both ends of the spine, only and only figurative perception of an elephant head can be perceived and not that of any other animal or organism. But since the mantras in Sanskrit- 'Shri Atharvashirsha' written in praise of Ganesha clearly mention the position of Ganesh at the base of the spine, it would be more appropriate to pinpoint this place to be the authentic location of the existence of Shri Ganesh on the spine. That factually confirms why the perceived and personified figure of Ganesha, the 'deity of wisdom and knowledge was selected by the Rishis of Bharat from the Vedic times.*

Conclusion

Taking an overall critical view of all the related matters discussed above in this article, which is admittedly only partial and by no means totally comprehensive. And yet, it indicatively suggests and brings out the absolute importance and place of the Spinal Cord, Spinal Nerves, and Brain (together called the nervous system) in the emerging human being as a conscious individual. It is the spinal cord that connects us to the cosmic consciousness and to remain cosciously alert, provides all important information regarding surrounding and internal body environments, involuntarily

Figure 9a & 9b. Pelvic Bone in Anterior, Posterior, and Lateral views (a) and the Top end of the Spinal Cord Passing out of the Foramen Magnum with the Junction Medulla Oblongata in the Lower Brainstem and Joining the Lumbar Region of the Vertebral Column, Occipital Bone. Mark the artist's Perceptive Visualization of the Elephant-like face of Ganesha here. And similar perception of Ganesha can be Visualized by looking at the Posterior View of the Sacrum and Coccyx of the Pelvis
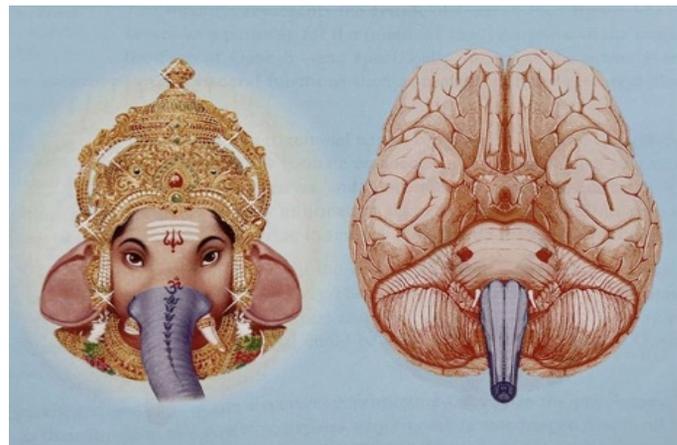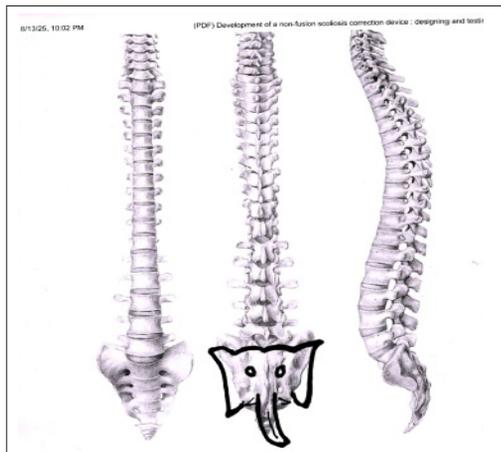
activates sympathetically the glandular secretions, organizes physical and physiological mechanisms to creat protective environment within body system as a survival strategy, forewarns about the functioning of any of body's organs and systems, grants intellegence to crically observe the internal and external environmental changes and wisdom to organize our body to combat all threats to safeguard for survival. And if all these functions are being performed by one single system called the 'Nervous System', comprising the brain, the spinal cord, and spinal nerves, then in comparison with all the attributes which we have been assigning and ascribing for thousands of years to our perceived and personified deity, called the GANESHA, it clearly brings out the following conclusion. *The entire nervous system, and principally the spinal cord and spinal nerves, are performing all the functions of 'Ganesha' in our practical life.* In praying to Ganesha, we are, factually are invoking continued safety, health, uninterrupted energetic survival of the spinal cord along with its spinal nerves. Our physical life and mental faculties, ability to do physical labour for a living, go smoothly, only on the survival and functioning of healthy spinal nerves in the Spinal Cord. Spinal cord by means of its nerves bestows human beings with; concentration and control over mind and thoughts, freedom from fear in mind, urge for knowledge and wisdom, inflames to seek and realise the universal truth, physical, mental, physiological and metabolic hygiene, acquisition of multiple abilities and faculties, and finally ability to connect the body system to the universal consciousness to realse that – "Aham Bramhasmee" - I am the *Bramha* – the Ultimate Soul.

No surprise, and believe me or not, the perceived and personified deity 'Ganesha' for seeking protection from all kinds of obstacles in life is none other than our most profound – The Spinal Cord, The Spinal Nerves Along With Brain, and that collectively means the 'Nervous System'.

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To Our Readers

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communications should, however, be brief and to the point.

Attention Readers!

In the Convocation Address published in the University News Issue Vol. 63, No. 32, dated August 11-17, 2025, the date of delivery of the address in the citation appeared as September 18, 2025, instead of September 18, 2024. Regretting this inadvertent printing error, the Convocation Address of Shri Vinai Kumar Saxena, Hon'ble Lieutenant Governor of Delhi, published in the Issue was reprinted in the University News Issue Vol. 63, No. 34 dated August 25-31, 2025 with the title, *New Era of Healthcare: Envisioning India@2047.* The correct citation may be read as:

Vinai Kumar Saxena, Hon'ble Lieutenant Governor of Delhi, delivered the Convocation Address at the 3rd Convocation Ceremony at the North Delhi Municipal Corporation Medical College on September 18, 2024.

Editor

Digital and Performance-based Assessments in Teacher Education

Kavita Rani* and Kiran Lata Dangwal**

Classrooms are becoming more dynamic and technology-driven so the way educators are trained and evaluated must also adapt. Traditional assessment methods, which often focus on written exams and theoretical knowledge, are giving way to more interactive and competency-based approaches that better reflect the realities of modern teaching. This shift ensures that future educators are not only knowledgeable but also skilled in applying their knowledge in real-world classroom settings.

Digital and performance-based assessments both play a crucial role in this transformation. Digital assessments use the technology to evaluate both theoretical understanding and practical teaching skills. These include online quizzes, AI-powered grading systems, e-portfolios, and other digital tools that offer instant feedback and track progress over time. By providing real-time insights into a teacher candidate's strengths and areas for improvement, digital assessments support personalized learning experiences and continuous professional growth. Performance-based assessments, on the other hand, focus on evaluating future educators in real teaching scenarios. These assessments may include lesson planning exercises, simulated classroom teaching, video-recorded teaching demonstrations, peer reviews, and student feedback mechanisms. Unlike traditional tests, which often measure rote memorization, performance-based assessments emphasize the application of pedagogical strategies, classroom management techniques, and adaptability in diverse educational environments. These hands-on evaluations ensure that aspiring teachers develop the practical skills necessary for success in today's classrooms.

The integration of digital and performance-based assessments offers several key benefits. First, digital tools enable more flexible and scalable evaluation methods, allowing educators to be assessed in a way that aligns with their unique learning styles and professional needs. Learning Management Systems (LMS), artificial intelligence-driven analytics, and other digital platforms help instructors monitor student engagement, comprehension, and skill development more effectively than conventional paper-based tests. Immediate feedback and data-driven insights enable teacher candidates to self-reflect, set learning goals, and make necessary adjustments to their teaching practices.

Another significant advantage is the promotion of self-regulated learning. By using digital platforms that provide instant feedback and analytics, future educators can take ownership of their progress, identify strengths and weaknesses, and continuously refine their teaching approaches. This develops a culture of lifelong learning and professional development, which is essential for educators navigating the ever-evolving landscape of education.

Despite these benefits, integrating digital and performance-based assessments into teacher education comes with challenges. Access to technology, digital literacy, and the need for well-structured assessment frameworks are critical considerations. Institutions must ensure that digital tools are accessible to all learners and provide adequate training to help educators effectively utilize these technologies. Performance-based assessments also require clear rubrics and guidelines to maintain consistency and fairness in evaluation. As education continues to evolve, adopting these approaches will be essential in fostering skilled, adaptable, and reflective educators for the 21st-century classroom.

Revolutionizing Teacher Education: The Shift to Digital and Performance-based Assessment

Digital assessment tools are becoming an integral part of modern education, revolutionizing the way student learning is evaluated. These tools offer a wide range of possibilities, from simple online quizzes to advanced simulations that assess complex cognitive and practical skills (Mallik & Sruti et al., 2023). The adoption of digital assessments aligns with the broader trend of educational digitalization,

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*Associate Professor, Guru Kashi University, Talwandi Sabo, Bhatinda, Punjab-151302. E-mail: dr.kavitabatra11@gmail.com

** Associate Professor, Department of Education, University of Lucknow, Uttar Pradesh-226007. E-mail: kldangwal@yahoo.co.in

driven by the increasing availability of technology in classrooms and the growing need to prepare students for a technology-driven world (Starkey, Louise, 2019).

In teacher education, digital assessments provide a dynamic and interactive approach to evaluate pre-service teachers' competencies. Unlike traditional paper-based tests, digital assessments offer real-time evaluation, allowing for immediate feedback that enhances learning and encourages self-reflection. This instant feedback mechanism enables students to identify their strengths and areas for improvement, developing a more personalized and self-directed learning experience. Moreover, the automation of grading in many digital assessment tools reduces the administrative burden on educators, allowing them to focus on more meaningful instructional and mentoring activities (Ifenthaler, Dirk et al., 2022).

Along with digital assessments, performance-based assessment also known as authentic assessment is gaining attraction in teacher education. This approach evaluates students based on their ability to apply theoretical knowledge to practical, real-world situations. Performance-based assessments require teacher candidates to demonstrate their competencies in meaningful ways, such as designing lesson plans, conducting teaching demonstrations, developing professional portfolios, and engaging in action research projects (Cydis, Susan, 2015). By assessing students through hands-on tasks, these assessments provide a more accurate measure of their readiness to enter the teaching profession.

Performance-based assessments encourage deeper learning by challenging students to engage in critical thinking, problem-solving, and reflective practice. Instead of merely recalling information, teacher candidates must apply their knowledge to authentic teaching scenarios, making learning more relevant and applicable to their future careers (Sweat-Guy, Retta & Buzzetto-More, Nicole A., 2007).

As both digital and performance-based assessments continue to evolve, their integration in teacher education programs presents significant opportunities to enhance teaching and learning. By using digital tools for efficient evaluation and incorporating authentic assessment methods that emphasize practical application, teacher education institutions can better prepare future educators for the complexities of the modern classroom. However, for these assessments to be effective, institutions must ensure that they are aligned with learning objectives, provide equitable access to technology, and offer adequate training and support to both students and educators.

Bridging Innovation and Evaluation: Integrating Digital Technologies into Performance-based Assessment

The integration of digital technologies into performance-based assessment offers significant opportunities to enhance the evaluation process, providing teacher candidates with innovative ways to demonstrate their skills and knowledge. By using digital tools, pre-service teachers can create multimedia presentations, develop interactive lesson plans, and design online learning modules, all of which serve as authentic assessments of their teaching competencies (Nilsson, Pernilla, & Karlsson, Gran, 2018). These digital artifacts can be assessed using pre-determined criteria and standards, ensuring alignment with learning objectives and professional teaching competencies.

One of the most powerful tools for incorporating digital technologies into performance-based assessment is the e-portfolio. An e-portfolio is a digital collection of student work that showcases their skills, knowledge, and professional growth over time. This dynamic repository provides a comprehensive record of student learning, allowing teacher candidates to demonstrate their development as educators through lesson plans, teaching reflections, classroom activities, and instructional materials (Sweat-Guy, Retta & Buzzetto-More, Nicole A., 2007). E-portfolios not only serve as a tool for assessment but also facilitate *self-reflection and peer feedback.* By reviewing their own work and that of their peers, students can critically evaluate teaching practices, identify areas for improvement, and engage in constructive dialogue about effective instructional strategies (Şimşek, Meliha R., 2020). E-portfolios also provide a valuable resource for job placement, as they can be easily shared with potential employers to present a well-rounded view of a candidate's teaching abilities and professional qualifications (Saykılı, Abdullah, 2019).

Another effective method of integrating digital technologies into performance-based assessment is video-based assessment. By recording teaching demonstrations, teacher candidates can receive detailed feedback on their instructional skills, lesson delivery, and classroom management techniques.

These videos can be analyzed by instructors, mentors, and peers, offering a richer and more nuanced assessment of teaching performance compared to traditional evaluation methods (Codreanu, Elias, Sommerhoff, Daniel, Huber, Sina, Ufer, Stefan, & Seidel, Tina, 2020).

Video-based assessment also supports self-reflection, enabling teacher candidates to review their own teaching practices and identify areas for growth. Unlike written reflections or observational feedback alone, video captures the complexity of classroom interactions, student engagement, and instructional techniques in a way that other assessment methods cannot. This makes it a valuable tool for developing teaching proficiency and improving instructional effectiveness (Sliwka, Anne, Klopsch, Britta, Beigel, Janina, & Tung, L.L., 2023).

By incorporating digital technologies such as e-portfolios and video-based assessment into performance-based evaluation, teacher education programs can provide more comprehensive, interactive, and personalized assessments. These methods not only enhance the accuracy and fairness of evaluations but also promote professional growth, self-directed learning, and career readiness for future educators.

Benefits of Tech-powered Assessments for Better Teachers

The integration of technology into assessment practices offers a range of benefits that contribute to the development of more effective teachers. Digital platforms not only streamline the evaluation process but also enhance the ability of instructors to monitor student progress and engagement through data-driven insights. By collecting and analyzing real-time data, educators can adjust their teaching strategies to better support student learning, leading to more personalized and effective instruction (Ifenthaler, Dirk et al., 2022).

One of the key advantages of digital assessments is their ability to increase student motivation and engagement. Unlike traditional paper-based exams, digital assessments can be designed to be interactive, incorporating multimedia elements such as videos, animations, and gamified components to enhance the learning experience (Ad, Süleyman Nihat & Özer, Niyazi, 2019). This interactive nature of digital assessments encourages active participation, making the evaluation process more engaging and less intimidating for students.

With digital assessments, performance-based assessment provides a more authentic and holistic measure of student learning. Unlike multiple-choice tests that focus primarily on knowledge recall, performance-based assessments evaluate a student's ability to apply their knowledge and skills in real-world contexts (Darling-Hammond, L., 1994). This method enhances deeper learning by requiring students to engage in higher-order cognitive processes, such as critical thinking, problem-solving, and creativity.

Performance-based assessments are also more meaningful and relevant to students, increasing their motivation and investment in the learning process. By allowing students to demonstrate their skills in authentic teaching scenarios, such as lesson planning, classroom simulations, and instructional design projects, these assessments help build confidence and a sense of self-efficacy (Şimşek, Meliha R., 2020).

Tech-powered assessments provide valuable feedback that guides student learning and professional development. Unlike traditional assessments that offer only a final score, digital and performance-based assessments provide detailed feedback on areas of strength and improvement. This formative feedback allows students to refine their skills, bridge knowledge gaps, and develop as reflective practitioners (Uribe, Samantha N., & Vaughan, Michelle D., 2017).

Empowering Educators with Digital Skills for Smarter Assessments

One of the key challenges in the integration of digital assessment tools in education is the necessity for teachers to acquire and develop essential digital skills. In order to effectively implement these tools within their instructional practices, educators must be proficient in both the technical and pedagogical aspects of digital assessments (Perifanou, Maria, Economides, Anastasios A., & Tzafilkou, Katerina, 2021). Achieving this requires comprehensive professional development programs that focus on enhancing teachers' digital literacy, developing their ability to navigate and utilize digital platforms, and equipping them with the knowledge to integrate these tools in a meaningful way within their curriculum. Without adequate training, teachers may struggle to effectively leverage digital assessment tools, limiting their potential benefits for student learning.

Teacher training, is imperative to carefully design digital assessments to ensure their validity

and reliability. A well-constructed digital assessment should accurately measure student learning outcomes, align with predefined educational objectives, and provide meaningful insights into student progress (Nortvedt, Guri A., & Buchholtz, Nils, 2018).

Another significant challenge in digital assessment implementation arises with performance-based assessments. Unlike traditional multiple-choice or standardized tests, performance-based assessments require students to demonstrate their knowledge and skills through complex tasks, such as problem-solving activities, hands-on projects, or real-world applications. While these assessments offer deeper insights into students' abilities and encourage higher-order thinking, their implementation is often hindered by the substantial time and resources required for their development, administration, and grading (Hilbert, Sven, Coors, Stefan, Kraus, Elisabeth, Bischl, Bernd, Lindl, Alfred, Frei, Mario, Wild, Johannes, Krau, Stefan, Goretzko, David, & Stachl, Clemens, 2021).

Issues in Implementing Digital and Performance-based Assessments in Teacher Education

Equity and Access in Digital and Performance-based Assessments

When implementing digital and performance-based assessments in teacher education, it is crucial to address issues related to equity and access to ensure that all teacher candidates have the necessary resources and support to participate effectively (Darling-Hammond, L., 1994). Equity in assessment means providing fair opportunities for all students, regardless of their socioeconomic background, geographic location, or individual circumstances. This requires proactive measures to eliminate barriers that could prevent some students from fully engaging in digital and performance-based assessments.

One of the primary concerns is ensuring that all teacher candidates have equitable access to the technology required for participation. Many students may not have personal access to essential digital tools, such as computers, reliable internet connections, or specialized software. Without these resources, they may be at a significant disadvantage compared to their peers who have continuous and unrestricted access to technology. To mitigate this issue, teacher education programs should implement strategies such as providing loaner laptops, offering internet stipends, and ensuring technical support services are

available to students in need (Voogt, Joke, Erstad, Ola, Dede, Chris, & Mishra, Punya, 2013). Institutions must also consider the potential for disparities in digital infrastructure, particularly for students from rural or low-income communities, and work toward bridging this gap through institutional support and policy interventions. Beyond access to hardware and connectivity, it is equally important to ensure that digital assessments are designed to be inclusive and unbiased. Assessments should not disadvantage students based on their socioeconomic status, linguistic background, or familiarity with digital tools. Digital assessment platforms should adhere to accessibility standards to accommodate students with disabilities, ensuring that features such as screen readers, alternative text, and adjustable font sizes are available as needed. Providing accommodations, such as extended time or alternative formats for assessments, is essential to fostering an inclusive learning environment.

Another critical aspect of equity in digital assessments is addressing the digital literacy gap. While some students may be proficient in using technology, others may struggle due to limited prior exposure. A lack of digital skills can create an additional barrier to success, making it imperative for teacher education programs to offer targeted training and support to students who need assistance in navigating digital platforms and assessment tools (Perifanou, Maria, Economides, Anastasios A., & Tzafilkou, Katerina, 2021). By incorporating digital literacy training into teacher preparation programs, institutions can help ensure that all candidates develop the competencies necessary to engage effectively in digital assessments and, later, integrate technology into their own teaching practices.

It is essential to recognize that technology has the potential to exacerbate existing inequities if not implemented thoughtfully. For instance, students from underprivileged backgrounds may face additional challenges in adapting to new digital tools, leading to performance disparities that are not reflective of their true capabilities. To prevent technology from deepening educational inequalities, institutions should continuously assess the effectiveness of digital and performance-based assessments and make necessary adjustments to ensure fairness and accessibility.

Ensuring equity and access in digital assessment practices requires a multi-faceted approach that

includes providing technological resources, designing fair and inclusive assessments, addressing digital literacy gaps, and mitigating potential disparities. By prioritizing these factors, teacher education programs can create a more equitable learning environment that supports all students in their academic and professional development.

Designing Fair and Unbiased Assessments

Ensuring fairness and eliminating bias in assessments is a critical component of teacher education programs. To achieve this, programs must carefully consider multiple aspects of assessment design, including content selection, assessment format, and scoring criteria. A well-designed assessment should provide an accurate and equitable evaluation of student learning, free from cultural, socioeconomic, or linguistic biases (Nortvedt, Guri A. & Buchholtz, Nils, 2018).

One of the primary challenges in designing fair assessments is minimizing cultural bias. Assessment tasks should be developed with diverse student backgrounds in mind, avoiding language, references, or scenarios that may advantage certain groups while disadvantaging others. To mitigate this, educators should review assessments through an equity-focused lens, ensuring that tasks are relevant and accessible to students from various cultural and educational backgrounds. This process may include consulting diverse educators, piloting assessments with varied student populations, and incorporating feedback to refine test items.

Teacher education programs should employ multiple measures of assessment to capture a more comprehensive and accurate picture of student learning. Relying on a single form of assessment—such as standardized tests—may not effectively capture all aspects of a student's abilities. Instead, incorporating a combination of formative and summative assessments, performance-based tasks, self-assessments, and peer evaluations can provide a more holistic understanding of student progress. By using diverse assessment methods, educators can accommodate different learning styles and ensure that all students have an equitable opportunity to demonstrate their knowledge and skills.

As technology continues to advance, teacher education programs must remain adaptable and open to innovations in assessment practices. Digital tools offer opportunities to enhance assessments by providing real-time feedback, adaptive testing, and data-driven insights into student performance (Schleicher, Andreas, 2018). However, integrating these tools effectively requires continuous evaluation and refinement to ensure that they contribute to fair and unbiased assessment practices. Programs should also prioritize accessibility, ensuring that digital assessments are user-friendly and inclusive for all students, including those with disabilities or limited technological proficiency.

Beyond technological advancements, fostering a culture of collaboration and knowledge-sharing among faculty members is essential for improving assessment practices. Faculty should actively engage in discussions about best practices, share experiences with different assessment models, and collaboratively refine assessment strategies to enhance fairness and effectiveness (Hansen, Cecilie, & Wasson, Barbara, 2016). By creating opportunities for professional dialogue and development, teacher education programs can ensure that assessments remain relevant, equitable, and aligned with evolving educational needs.

Designing fair and unbiased assessments requires a multi-faceted approach that includes careful content selection, diverse assessment methods, technological innovation, and faculty collaboration. By addressing these key areas, teacher education programs can create assessment systems that accurately measure student learning while promoting equity and inclusivity.

The Importance of Clear and Consistent Rubrics

One of the key challenges in implementing performance-based assessments is ensuring that they are evaluated fairly and reliably. To achieve this, the use of well-defined scoring rubrics is essential. A rubric provides a standardized framework for assessing student work, outlining clear criteria and performance levels to guide both students and evaluators (Stoddart, Trish, Abrams, Robert H., Gasper, Erika, & Canaday, Dana, 2000). However, developing and implementing effective rubrics is a complex and time-consuming process that requires careful planning and alignment with learning objectives.

A well-constructed rubric should clearly define the specific skills, knowledge, and competencies being assessed. It must include detailed descriptors for each performance level, ensuring that students

understand the expectations and that evaluators can apply the rubric consistently. Without clear criteria, assessments may become subjective, leading to inconsistent grading and potential bias in scoring. To mitigate this, educators should involve multiple stakeholders—including faculty members, assessment specialists, and even students—in the rubric development process to ensure its relevance, clarity, and fairness. Professional development opportunities should focus on training educators to interpret and apply rubrics with consistency, engage in calibration exercises to align scoring judgments, and refine assessment criteria based on student performance data (Schildkamp, Kim, Kleij, Fabienne Van Der, Heitink, Maaike Christine, Kippers, Wilma Berdien, & Veldkamp, Bernard P., 2020).

The successful implementation of rubrics in performance-based assessments requires a structured approach that includes careful rubric design, comprehensive teacher training, and ongoing refinement. By addressing these challenges, educational institutions can enhance the reliability and fairness of their assessments, providing students with meaningful feedback that supports their learning and development.

Implications for Teacher Education

The integration of digital and performance-based assessments in teacher education represents a fundamental shift in curriculum design and instructional strategies. This transformation requires teacher education programs to move beyond traditional assessment methods and embrace innovative approaches that align with contemporary teaching and learning needs. Institutions must adopt blended learning models that combine face-to-face instruction with technology-enhanced teaching practices, fostering experiential and inquiry-based learning opportunities that prepare future educators for the evolving educational landscape (Vaughan et al., 2013).

To successfully implement these new assessment methods, faculty training must be prioritized. Teacher educators need to be equipped with the necessary skills to design, implement, and evaluate digital and performance-based assessments effectively. This includes training in digital literacy, assessment design, data interpretation, and the use of technology-driven evaluation tools. Without adequate professional development, educators may struggle to adapt to new assessment practices, limiting their

effectiveness in preparing teacher candidates for real-world classroom challenges.

Beyond institutional efforts, policy reforms are essential to ensure that digital and performance-based assessments are aligned with national education standards and professional teaching competencies. Clear guidelines must be established to define the role of these assessments in teacher preparation, ensuring consistency, fairness, and validity across programs. Policymakers, educational institutions, and technology developers must collaborate to create sustainable assessment frameworks that enhance teacher preparation and support long-term educational goals (Wyatt-Smith et al., 2021).

Looking ahead, the future of assessment in teacher education will likely be characterized by the continued integration of digital technologies and a growing emphasis on performance-based measures. This shift will require teacher education programs to continuously adapt their curricula and assessment practices to keep pace with technological advancements and emerging pedagogical trends. Teacher candidates must be prepared to navigate a rapidly evolving educational landscape where digital tools, data-driven instruction, and competency-based assessments play an increasingly central role. Ongoing research and development are critical to identifying and evaluating effective assessment strategies. Institutions must invest in studies that examine the impact of digital and performance-based assessments on teacher preparation, student learning outcomes, and instructional effectiveness. By leveraging research insights, teacher education programs can refine their assessment models to ensure they remain relevant, equitable, and effective in measuring teaching competencies (Hilbert, Sven, Coors, Stefan, Kraus, Elisabeth, Bischl, Bernd, Lindl, Alfred, Frei, Mario, Wild, Johannes, Krau, Stefan, Goretzko, David, & Stachl, Clemens, 2021). The successful integration of digital and performance-based assessments in teacher education requires a multifaceted approach that includes curriculum innovation, faculty training, policy development, and ongoing research. By embracing these changes, teacher education programs can better equip future educators with the skills, knowledge, and adaptability needed to thrive in 21st-century classrooms.

Conclusion

Digital and performance-based assessments are reshaping teacher education, providing

innovative ways to evaluate student learning and prepare future educators for the demands of 21st-century classrooms. These assessment methods offer opportunities for more comprehensive, authentic evaluations of teaching competencies, moving beyond traditional exams to measure practical skills, critical thinking, and real-world application. However, their implementation comes with challenges, including issues of equity, technological access, faculty training, and the need for reliable and fair assessment frameworks. Despite these challenges, the benefits of digital and performance-based assessments are substantial. When implemented effectively, they enhance teaching and learning by providing meaningful feedback, enhancing student engagement, and better preparing teacher candidates for the realities of modern education. The key to maximizing their impact lies in a strategic and thoughtful approach that integrates these assessments with learning objectives, ensuring that they align with broader educational goals and professional teaching standards (Vaughan, Norman, Cleveland-Innes, Martha, & Garrison, D. Randy, 2013).

To fully harness the potential of these assessment methods, teacher education programmes must prioritize innovation while addressing concerns related to equity, accessibility, and training. Institutions should invest in faculty development, provide necessary technological resources, and create a supportive learning environment for both teacher candidates and educators. By fostering collaboration among faculty, policymakers, and technology developers, institutions can build sustainable assessment models that remain relevant in an evolving educational landscape (Murcia, Karen, Campbell, Coral, & Aranda, George, 2018). The successful integration of digital and performance-based assessments depends on a balanced approach—one that embraces technological advancements while ensuring fairness, inclusivity, and pedagogical effectiveness. By committing to continuous improvement and innovation, teacher education programmes can equip future teachers with the skills and competencies needed to thrive in diverse, technology-driven learning environments.

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Promotion of Indian Knowledge System through Teacher Education

S K Yadav* and Saroj Bala Yadav**

India is a land of Gyan Bhumi & treasure of knowledge. In the ancient period, India was known as Akhand Bharat, which was spread from Burma to Afghanistan, Takshila and Gandhar with a rich knowledge system. This indigenous system of Knowledge evolved in India over centuries, needs to be preserved, researched, and transferred to the next generation <u>for</u> solving the contemporary and emerging problems of India and the world, and making our country a *Viksit Bharat*. Now the question arises, how to transfer and disseminate it on a wider scale? For this, such knowledge needs to be integrated into the teacher education programme because professional teachers for school and higher education are prepared through this system, and the responsibility lies on their shoulders to prepare the future generation of the country. The policy also supported this view and states that "Teacher education is vital in creating a pool of school teachers that will shape the next generation. Teacher preparation is an activity that requires multidisciplinary perspectives and knowledge, formation of dispositions and values, and development of practice under the best mentors. Teachers must be grounded in Indian values, languages, knowledge, ethos, and traditions, including tribal traditions, while also being well-versed in the latest advances in education and pedagogy." (para 15.1 of NPE-20) The teacher education programmes, therefore, will promote a culture of ancient heritage, holistic development through arts, sports, and extracurricular activities, hands-on learning, develop language proficiency, exposure to international perspectives, instil an entrepreneurial mindset, and make environmental consciousness and a sense of responsibility toward the ecosystem among student teachers and other stakeholders. A culture of continuous and lifelong learning will also be created through teacher education programmes, among them.

Indian Knowledge System (IKS)

Indian Knowledge System (IKS) covered the history, culture, literature, community practice, research, and innovations of the last 5000 years. The philosophy of IKS is Jnan (Knowledge), Pragyaa (wisdom), Satya (truth), and Jeevan Darshan, which is based on the Vedic literature, the Upanishads, the Vedas, and the Up Vedas. The Vedic system includes four Vedas, namely, *Rigveda, Yajurveda*, *Samaveda,* and *Atharvaveda.* These are earlier sources of knowledge comprising hymns, rituals, and philosophical discussion. The *Rigveda* contains 1028 hymns (*sukta*) praising various deities, reflecting early spiritual, social, and philosophical thoughts of ancient Indian civilisation. The *Yajurveda* focuses on instructions for religious rituals and sacrifices. *Samaveda* is primarily a collection of chants and hymns sung during religious ceremonies and sacrifices. Atharvaveda contains spells, charms, and prayers, offering a glimpse into the daily life and practices of the Vedic period. Upanishads explore the ultimate truth, self-knowledge, and the purpose of life. There are over 200 Upanishads, but the major ones include the Isha Upanishad. Katha Upanishad and *Mundaka* Upanishad. Besides these, IKS is also based on the *Mahabharata, Ramayana, Jainism*, *Bhagavad Gita, Manusmriti, Buddhism, Purana*, etc. IKS is available in the languages of *Sanskrit, Prakrit*, and *Pali.*

Ancient Indian Scholars and Philosophers

The great ancient Indian scholars and philosophers made a lot of contributions to the world of knowledge in diverse fields and disciplines. Aryabhata introduced the concept of zero and the place value system. *Brahmagupta* developed algebraic concepts and the quadratic equation. Maharishi Kanada was intimately linked with chemistry and metallurgy. *Bhaskaracharya* dealt with planets and spheres, respectively. The game of Chess originated with Chaturanga during the Gupta Empire. Charak Acharya was an ancient Indian physician. Ubhash Kak and Raja Ram Mohan Roy brought out some interesting aspects of physics described in various Vedas. *Varahamihira* contributed in astronomy. Chanakya Niti is known for leadership and administration. Nagarjuna prepared the doctrine of emptiness. Buddhism was the creation of Siddhartha Gautama. Maitreyi was a philosopher in ancient Sanskrit literature. Gargi Vachaknavi wrote many hymns in the Rigveda. Srimanta Sankardev was a poet and known for the Bhakti movement in Assam.

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*Former Professor of Education, NCERT, New Delhi, Res: House No. 70-P, Sector: 15 (Part-1), Gurugram-122001, Haryana. E-mail:writetosatish51@gmail.com
**Former Dean Academic, NCERT, New Delhi, Res: House No. 70-P, Sector: 15 (Part-1), Gurugram-122001, Haryana E-mail:saroj.npep@gmail.com

Panini's *Ashtadhyayi* contributed to Sanskrit grammar. Chakrapani Datta, Charak Acharya, and Sushruta Samhita made significant contributions to the field of medical science and surgery, and Ayurveda. Rishi Patanjali gave us *Ashtang yoga*, consisting of Yama (ethical restraints), *Niyama* (observances), *Asana* (postures), Pranayama (breath control), *Pratyahara* (sense withdrawal), *Dharana* (concentration), *Dhyana* (meditation), and *Samadhi* (absorption or enlightenment. Patanjali is often considered the father of yoga. Upanishads have their roots.

Challenges of the Indian Knowledge System

- The present Indian education system is largely based on the Macaulay system, which does not match our values and culture.

- There is a lack of awareness among the stakeholders about the importance of IKS.

- Most of the Indian Knowledge is generally available in non-literary form, and it has been passed orally from one generation to another.

- There is no clear-cut curriculum for IKS. Therefore, it becomes difficult for educational institutions to develop and implement IKS-based courses.

- Many stakeholders see Indian Knowledge as irrelevant or outdated, and therefore, there is resistance to change.

- Indian Knowledge is available in different languages, which creates barriers to those who are not well-versed in these languages.

- There is also a shortage of well-qualified teachers and other resources to teach the Indian Knowledge, as it is not widely adopted yet.

- Ensuring the authenticity of the literature available.

Efforts Made by the Ministry of Education to Promote Indian Knowledge -IKS Cell

Ministry of Education (MoE) has established the Indian Knowledge System (IKS) Cell in October 2020 at AICTE, New Delhi, with the objective to preserve, spread, and disseminate the ancient rich heritage to the people of this country. The function of this Cell is to promote more research for inventing new knowledge from different ancient disciplines, namely, arts and literature, agriculture, basic sciences, engineering & technology, architecture, and also to create a database of individuals and organisations who have contributed by way of research, teaching, and publications. The work done by various institutions in India and abroad on IKS will be facilitated, coordinated, and financially supported by this Cell. At present, IKS has 29 IKS research centres, 17 IKS Teacher Training Centres, and 7 IKS *Bhasha Kendras*. These institutions are organising various programmes, including training and research in Indian Knowledge.

IKS through Teacher Education

As stated in the policy, IKS can be strengthened and made functional in the country by making it a part of teacher education. Necessary knowledge, attitude, and skills related to it can be inculcated among student teachers, policy makers, administrators, community leaders, curriculum developers, teacher educators, and teachers by integrating Indian Knowledge in the teacher education programme, both in pre-service and in-service. This integration will help not only in nurturing educators academically competent but also emotionally stable and culturally sensitive. At present, 16000 teacher education institutions, universities, and colleges are offering many programmes of teacher education in the country.

IKS through Pre-Service Teacher Education (PSTE)

Various programmes of PSTE, such as Bachelor of Education (B.Ed.), Master of Education (M.Ed), B.Ed.- M.Ed (Integrated 3-Year Course), a four-year integrated Teacher Education Programme (ITEP) is running in the country. These programmes have four major components, namely, theory courses including curriculum and materials, pedagogy, practical activities, field engagements and internship. Therefore, different issues of IKS can be made part of these components for their implementation in schools and higher education institutions. Integrating this knowledge will make the existing teacher education more appropriate, comprehensive, practical, and culturally based.

Curriculum and Theory Papers

Various theory papers like contemporary India and education, philosophical and sociological perspectives in education, knowledge and curriculum, teaching and learning, gender and society, and inclusive education are taught as part of the PSTE programme. IKS philosophy related to *Vedanta, Upanishads, Buddhism, Jainism, Bhagavat Gita,* and other concerns, such as Vedic mathematics, astronomy, ayurveda, yoga, classical music, etc., can be integrated into all these papers. Ethical case studies of Ashoka, Chanakya, and Vivekananda for self–reflection and character education can be included in the course. A course in educational psychology can integrate yoga and meditation for enhancing attention, dealing with anxiety, and emotional management. Tribal knowledge can also be included in the PSTE course. The NEP-

2020 also recommends the incorporation of the Indian Knowledge Systems (IKS) into curricula at all levels of education. University Grants Commission (UGC) has brought out Guidelines for Training/Orientation of Faculty on Indian Knowledge Systems and advised that 5 per cent of a student's total credits should be in IKS courses at the undergraduate and postgraduate levels.

Curricular Activities

Curricular activities such as quizzes, debates, essay competitions, and physical and social events create a favourable environment for the promotion of IKS in teacher education institutions. These activities create awareness about IKS among student teachers, curriculum developers, teacher educators, teachers, and parents. Mass media and electronic media also create awareness among students, teachers, and other functionaries. Therefore, these activities should be organised regularly.

Projects and Assignments on IKS

The projects and assignments on topics like yoga, classical music, Vedic mathematics, Buddhist stories, Hitopadesha stories, and value education should be assigned to student teachers for enhancing their professional capacities on IKS. Case studies of great ancient scholars, namely, *Aryabhata, Brahmagupta,* and *Siddhartha Gautama*. Maitreyi and Gargi will also promote the IKS philosophy among them. Projects & practicals will enhance their experiential learning, whereas yogic activities (meditation, pranayama, breathing exercises) will reduce stress and regulate emotional feelings among them.

Pedagogical Approaches

The ancient educational philosophy of learning. Approach of *Shravana, Manana, Nidhidhyasana* and *Achara* to be followed during the teaching learning process for promotion of IKS.The *Gurukal* system pedagogy of personalised instruction and other methods such as storytelling, *shastrarth, prashnottari*, and meditative learning can also be used for transacting the curriculum of PSTE.

Internship on IKS

During an internship, student teachers get the opportunity to try out their theoretical concepts and ideas about IKS in institutions and colleges. Various issues of IKS can be discussed by them in the classroom and outside the classroom in these institutions with students, teachers, teacher educators, and other functionaries by using different pedagogical approaches such as arts, music, *mudras, prashnottari,*

dhyana, sutras. Oral ancient technique can be used for memorisation and help them to connect with the oral tradition of IKS. Organisation of a field visit to nearby IKS-related prominent places such as Gurukuls, Historical sites, Arts & Crafts communities, Ayurvedic Healing Centres, and Astronomical Observatories (*Jantar Mantar*) will enable student teachers to appreciate the various manifestations of IKS. A few sessions on Yoga, Meditation, Ayurveda, and Classical Music should be arranged to give them some grounding in the experiential aspects of IKS

IKS through In-service Teacher Education

Our country has adequate mechanisms for providing in-service education to the faculty of higher education and school education for their professional growth and development. Orientation programmes, faculty induction programmes, research methodology courses and other such programmes are organized on regular basis by many institutions and universities namely, Colleges of Teacher Education (CTEs), Institutes of Advanced Studies in Education (IASEs), National Council of Educational Research Training (NCERT), National Institute of Educational Planning and Administration (NIEPA), Malviya Mission Teacher Training Centres (MMTTC), Inter University Centre for Teacher Education and School of Education. Such programmes are also organised for policy makers, administrators, community leaders, curriculum developers and teacher educators. NEP-2020 also recommended such programmes for their professional development and stated that the faculty is required to attend a mandatory induction program and periodic refresher courses for their continued professional advancement.

Guidelines for Training/Orientation of Faculty on Indian Knowledge Systems by UGC

UGC has come up with Guidelines in 2023 for Training of Faculty on IKS to familiarise and to incorporate it into their specific classroom teachings and integrate it into modern subjects. As per the guidelines of UGC, faculty of recognised institutions are required to attend a mandatory induction program (175 hours) and periodically attend the refresher courses, which may include subject-specific courses. The guidelines for the induction programme suggested three modules, namely Overview of IKS, Case studies, and pedagogy related to IKS. For Refresher courses, multidisciplinary, discipline-specific, and specialised courses are to be designed to provide in-depth and comprehensive knowledge of IKS. Tribal knowledge related to ethno-medicinal practices, forest

management, and organic and natural farming will be part of these programmes. The purpose of UGC guidelines for teacher training during the induction program and refresher courses is to provide a roadmap to familiarise and enthuse faculty about the Indian Knowledge Systems (IKS) and identify strategies to incorporate IKS into their specific classroom teachings. Teachers and Learners will acquire the concept of the Indian Knowledge System and apply it in real life for the advancement and creation of knowledge. Various in-service programmes need to be revised in the light of NEP-20 recommendations and UGC Guidelines on IKS.

Conclusion

By way of conclusion, it can be stated that Indian Knowledge and wisdom based on Vedic literature, the Upanishads, and other Vedas can be promoted through teacher education programmes. These programmes will create critical thinking, creativity, moral values, mental well-being, and emotional intelligence among student teachers, teacher educators, and other functionaries. Besides these, specialised professional development courses on various themes of IKS will inculcate hands-on learning experiences, enrichment of India's rich heritage, holistic development, preserving linguistic diversity, environmental awareness, and global exposure among them. It shows that NEP-2020 recommendations related to IKS can be implemented through teacher education programmes, which will create a culture of lifelong learning among them. Inclusion of IKS will empower teacher educators and teachers, who in turn the students and the large community with India's rich educational treasure. Integrating indigenous Knowledge in the present teacher education will enable teachers and young learners to sharpen their competencies, cultural awareness, and become better human beings.

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Science and Technology as Catalysts for Economic Development

Abhay Karandikar, Secretary, Department of Science and Technology (DST), Ministry of Science and Technology, Government of India, delivered the Convocation Address at the Convocation Ceremony at the Birla Institute of Technology and Science (BITS), Pilani, K K Birla Goa Campus on July 27, 2025. He said, *"Forge your path, dream big, and embrace challenges. Your journey has just begun, filled with opportunities to contribute to Viksit Bharat 2047 missions and shape a better future for all. Strive for excellence, believe in yourself, and remember that success is not just about academic achievements, but about navigating life's challenges with resilience and determination."* Excerpts

The graduation ceremony is more than just a formal event; it is a celebration of goals achieved and a starting point for future pursuits. Each of you has worked hard to reach this moment, overcoming challenges, taking advantage of opportunities, and pushing yourselves beyond your limits. Today is a testament to your hard work and commitment, and I am indeed delighted to share this important occasion with you. As you close this chapter, I extend my heartfelt congratulations to all graduating students for your accomplishments and commend your families for the support they have provided throughout this journey.

The experiences you have gained here have equipped you with the knowledge, skills, and, most importantly, the confidence to succeed in a world increasingly influenced by technology. Today, we come together to recognise and celebrate the determination and dedication that have brought you to this significant point in your lives.

A Campus of Growth and Excellence

Standing here today, in this vibrant campus that has in just two decades become a hub of excellence, I am filled with admiration for the legacy you are creating. The K. K. Birla Goa campus, born out of a vision to create an oasis of knowledge and future thinking, has truly lived up to its promise. From its humble beginning in 2004 with 600 students to now housing over 4500 students, supported by 245 faculty members and 270 staff, the transformation has been extraordinary. Even more impressive is the fact that 500 of these students are pursuing their PhDs, reflecting the institute's deepening commitment to research and advanced scholarship. It is a matter of pride that this campus, nestled along the Konkan coast, has become synonymous with innovation, entrepreneurship, and intellectual leadership—not only in India but increasingly across the globe.

Innovation at the Heart

The achievements of BITS Goa reflect a powerful blend of academic excellence and entrepreneurial vision. The BITS BioCyTiH Foundation, supported by the Department of Science and Technology, has emerged as a lighthouse for deep tech innovation in the field of Bio-Cyber Physical Systems, with ? 31 crores in funding and 30 supported startups, is driving deep tech innovation in Bio-Cyber Physical Systems. State-of-the-art labs in biosensors, IoT, and device development signal bold investment in the future. As India rises to become the third-largest economy, startups are key to addressing unemployment, creating jobs, and powering India's *Amrit Kaal* journey through inclusive innovation. Remember that true innovation is not just about creating new technologies but also about making a meaningful impact on society.

With 97 new sponsored projects worth ? 25.60 crores, the research ecosystem here is vibrant and impactful. The creation of a Centre for Research in Quantum Information and Technology, collaborations with global leaders like IBM Research, and proposals under the National Quantum Mission demonstrate this campus's active role in shaping India's future in quantum science and technology.

Development-Led Economy and the Role of Science

The vision of a development-led economy is one where science and technology are harnessed to address the nation's most pressing challenges—be it in healthcare, agriculture, infrastructure, or environmental sustainability. As India aspires to

become a $5 trillion economy, the role of science and technology will be central to achieving this goal. The government's initiatives to boost innovation and entrepreneurship, such as the Start-up India program and the *Atmanirbhar Bharat*, are creating a fertile ground for science-led economic development. These initiatives are not just about fostering growth but also about ensuring that development is inclusive, sustainable, and beneficial to all sections of society. Your contributions, as graduates, will be crucial in driving this agenda forward. By leveraging your scientific and technological knowledge, you can develop solutions that improve the quality of life, create jobs, and contribute to the nation's economic prosperity.

Women-led Development through Science and Technology

Today, we must also recognise the crucial role that women play in the development of science and technology. Women-led development is not just a slogan but a reality that is shaping the future of our nation. The participation of women in STEM fields is steadily increasing, and this is a trend that must be encouraged and supported. The government has launched several initiatives to promote gender equality in science and technology, including the Women Scientists Scheme and the Gender Advancement for Transforming Institutions (GATI) initiative. These programs are designed to provide women with the resources, mentorship, and opportunities they need to excel in their scientific careers. As you step into your professional lives, I urge the women graduates to embrace the challenges and opportunities that lie ahead. Your contributions will not only drive innovation but also inspire future generations of women to pursue careers in science and technology.

Contribution to the Economy through Science, Technology, and Innovation

The government is committed to creating an enabling environment for young innovators and researchers. From the Start-up India initiative to the Atal Innovation Mission, from the expansion of research parks to the creation of innovation hubs, there is a concerted effort to integrate innovation into the fabric of our nation. Today, we stand at the intersection of academia and entrepreneurship, envisioning a future where innovation becomes integral to our education system. As graduates, you have the potential to be the entrepreneurs who will

not only create wealth but also address some of the most pressing challenges facing our society.

In recent years, India has emerged as a global innovation hub. The country known for IT and IT-enabled services and traditional businesses now boasts the third-largest startup ecosystem in the world. Today, the number of registered startups in India has risen to more than one lakh seventy thousand. More than 100 Indian Unicorns (companies with a valuation of more than US$1 billion) are flourishing in the fast-paced and dynamic economy today. We are witnessing the emergence of the third wave of entrepreneurship in India. The first wave established India as the IT services destination; with the proliferation of Internet and Cellular mobile systems, the second wave, drove the creation of a multitude of e-commerce and digital tech businesses, the third wave is seeing India produce game-changing innovations – building products and solutions across all areas of engineering - electronics, space, defence, AI/ML, manufacturing, semiconductors, climate-tech, fin-tech, electric vehicle, new battery solutions, Quantum technologies, Hydrogen fuel, biomanufacturing etc. This third wave has the potential to establish India as an engineering and technology innovation hub for the globe, creating translational ventures and leveraging unrivalled scale economies that come with India's status as the world's fastest-growing economy.

Looking Ahead: *Viksit Bharat* 2047

This progress aligns closely with the national aspiration of Viksit Bharat 2047—a vision for an India that leads not merely by population size, but by progress, equity, and sustainability. A century after independence, the nation aims to be technologically confident, socially just, environmentally conscious, and economically robust. Achieving this will require strong foundations in science, technology, research, and innovation. S&T-based Entrepreneurial infrastructure and strong support mechanisms created by the Government, such as TBIs, seed funding for acceleration, assistance in raising external funding, have provided seamless opportunities to students and innovators to take up entrepreneurship as a career and own innovative startups.

But change does not happen with knowledge alone—it needs action. Research must move from labs to the lives of people. Think about how UPI, DigiLocker, and Ayushman Bharat Digital Mission

have changed things for millions. These are examples of how technology in the service of society can remove barriers, open doors, and include everyone.

The guiding philosophy is simple yet profound: "Science in the service of the nation." This is not a slogan—it is a strategic commitment to apply knowledge for social transformation. Scientific expertise is not a private treasure but a public good. Whether the goal is to improve food security, combat climate change, or enhance water management, the talents of engineers, researchers, designers, and analysts must serve the greater collective interest.

Atmanirbhar Bharat: Building a Self-reliant Research Ecosystem

Recently, the Government has established Anusandhan National Research Foundation (ANRF), which aims to seed, grow and promote Research and Development (R&D) and foster a culture of research and innovation throughout Indian universities, colleges, research institutions, and R&D laboratories. India's premier academic and research institutions in STEM have a critical role to play in this third wave of 'deeptech' innovations from India. As India focuses on deep-tech innovations and self-reliance in key technology areas, Indian academia, top institutes of excellence, and innovators have a greater role to play.

Deep-tech requires significant research and development, and as has been proven globally, it requires dedicated effort to 'translate' technologies being developed in academia or research institutions into commercially viable products. ANRF will help catalyse seeding this research in our academia and research labs.

As it has been globally established, deep-tech innovations require patient capital, strong access to technical infrastructure and strong technical talent. Realising the need for patient capital, the government has announced setting up Research Development and Innovation (RDI) Fund has been recently approved by the Union Cabinet. This initiative aligns with India's vision of becoming a global science leader and achieving *Viksit Bharat* @2047.

Institutions like BITS Pilani K K Birla Goa Campus stand at the heart of this transformation—

by equipping students with the curiosity to ask bold questions and the skills to find real solutions. This campus not only nurtures deep scientific thinking but also cultivates entrepreneurship. The fact that BITS Goa has produced not one, but 3 Unicorns, is a remarkable feat. And even beyond those unicorns, some alumni have featured in the Forbes 30 under 30 list, led pioneering ventures such as Postman, Thinkerbell Labs, Mobile Premier League, and shown what's possible when deep knowledge meets deep commitment.

The knowledge and skills you've gained here will help drive India's leadership in science, technology, and sustainability. As you begin your careers, remember—the nation's future rests in your hands. Your ideas, dedication, and excellence will shape not only your own path but also contribute to a developed, innovative, and self-reliant India. As you graduate from BITS Pilani K K Birla Goa Campus, remember you are part of a legacy of BITS alumni who have left their mark across the world. Forge your path, dream big, and embrace challenges. Your journey has just begun, filled with opportunities to contribute to *Viksit Bharat* 2047 missions and shape a better future for all. Strive for excellence, believe in yourself, and remember that success is not just about academic achievements but about navigating through life's exams with resilience and determination.

India's strength lies in its youth, and you hold the key to transforming it into a global technological and economic power. As ambassadors of BITS Pilani K K Birla Goa Campus, I urge you to give back to society the fruits of your learning—by becoming job-givers, not just jobseekers. Embrace your social responsibility, strive for excellence, and create a lasting impact. Let this moment mark the beginning of a new chapter—filled with innovation, collaboration, and purpose. Uphold the legacy of your *alma mater* by working for the nation that nurtured you. Your stories are just beginning, and I have full confidence that you will unfold stories of progress, innovation, and ingenuity.

Swami Vivekananda stated, "All the power is within you; you can do anything and everything. Believe in that."

Jai Hind.

CAMPUS NEWS

Faculty Development Programme on Advanced Practices and Emerging Technologies

A three-day Faculty Development Programme on 'Advanced Practices and Emerging Technologies in the New Era Libraries' was organised by the Knowledge Centre, CHRIST University, from April 09-11, 2025. A total of 55 librarians, research scholars, and library professionals from various institutions, colleges, and universities attended the event. The welcome address was followed by the traditional lamp-lighting ceremony and invocation song by the library team, symbolising the illumination of knowledge. The inauguration session was presided over by Dr. Fr. Jose C C, Vice Chancellor, CHRIST University, Dr. Nagappa B, Head, Department of TCS, Dr. Fr Varghese K J, Director, Library and Chief Finance Officer, CHRIST University, and Mr. Sree Kumar Nair, University Librarian, CHRIST University. The Presidential Address was delivered by Dr. Fr. Jose C C, Vice Chancellor, CHRIST University. Dr Fr. Jose underscored the significance of embracing digital transformations in research and learning. Drawing from his interdisciplinary expertise and leadership experience, he encouraged participants to remain adaptive, innovative, and intellectually curious in navigating the future of libraries. Mr. Sree Kumar Nair, University Librarian, introduced the theme of the event. His remarks highlighted the programme's focus on hands-on learning and its aim to equip participants with the skills to tackle challenges in contemporary library environments.

Dr. Nagappa B, Head, Information Resource Centre, Tata Consultancy Services (TCS), Bangalore, delivered the Keynote Address. Dr. Nagappa's session mapped the technological evolution from mechanisation to personalisation, highlighting the role of libraries in adapting to technological shifts. He emphasised how big data and sentiment analysis could be used ethically in libraries to enhance personalised services. Focusing on AI, quantum computing, and human-machine synergy, he discussed their implications for libraries and the evolving role of librarians as strategic knowledge managers. Dr. Nagappa stressed the importance of combining technological skills with user empathy and analytical thinking to meet the challenges posed by digital fatigue, infrastructure gaps, and resource optimisation.

A special message was shared by Dr. Fr. Varghese K J, Director, Library and Chief Finance Officer, who, through his deeply motivational words, urged participants to approach uncertainties with innovation and to rekindle their passion for librarianship. His message reaffirmed the importance of purpose-driven leadership in the academic ecosystem. The inaugural session concluded with a vote of thanks.

Dr. Jayapriya, Professor, CHRIST University, explored the role of AI in transforming libraries, emphasising the need for libraries to stay relevant in the digital age. She discussed various AI tools like Connected Papers, Research Rabbit, and Napkin AI, illustrating how they can assist in literature reviews and content creation. She also introduced tools like Google Docs' Voice Typing to promote inclusivity and reduce plagiarism. Dr. Jayapriya encouraged the audience to balance AI's efficiency with ethical considerations, ensuring AI tools serve as collaborators in research rather than replacements for human intelligence.

Dr. Jayakanth, Senior Scientific Officer, Indian Institute of Science, Bangalore, focused on 'Content Management Systems (CMS) and DSpace-CRIS', emphasising their role in transforming libraries into digital ecosystems. He outlined how digital libraries enable global access to knowledge and preserve cultural heritage. DSpace-CRIS was presented as a powerful tool for managing research content and metadata, supporting greater interconnectivity and research visibility. Dr. Jayakanth highlighted benefits such as long-term preservation, metadata harvesting, and integration through APIs, showcasing real-world applications like ePrints@IISc, and concluded that adopting platforms like DSpace-CRIS helps libraries evolve into vibrant, research-driven environments.

The session by Dr. Akhandanand Shukla, Professor, Department of Library and Information Science, Central University of Tamil Nadu, emphasised the critical role of libraries in NAAC accreditation, focusing on their contribution to quality enhancement in higher education. He outlined the eligibility criteria and core key indicators for libraries, such as automation, e-resource subscriptions, and usage statistics. Dr. Shukla provided practical advice on documenting evidence for NAAC, emphasising the importance of templates and records. He also discussed how libraries contribute to non-core indicators

through workshops, soft skills programs, and cultural events, positioning libraries as active stakeholders in the accreditation process that enhances institutional visibility and quality.

Mr. Sree Kumar Nair, Librarian, CHRIST University, provided a detailed overview of the CHRIST University Library system, highlighting its evolution from a modest collection in 1969 to a modern digital library. He introduced the adoption of KOHA in 2009 and the transition to a fully digital service model. Mr. Nair showcased the library's digital infrastructure, including e-books, databases, and tools for plagiarism detection. He discussed operational features like KOHA, Omeka, and CORAL, which support user engagement and resource management. The session concluded with a campus tour, allowing participants to explore the library's facilities and services firsthand.

Dr. Vijay Kumar Verma, Assistant Librarian, IIT, Delhi, highlighted the importance of lifecycle management for electronic resources in modern libraries, emphasising tools like CORAL for evaluating and managing resources. He discussed key considerations in agreements, such as access scope, DRM restrictions, and COUNTER-compliant usage statistics. The session also addressed the challenges of preservation, with initiatives like CLOCKSS and Portico providing some solutions. Dr. Verma emphasised the need for modular, interoperable systems and outlined the obstacles in India, including high costs and a lack of infrastructure. The session also featured a hands-on demonstration of CORAL's Organisation and Resource Modules, showcasing their functionality in electronic resource management.

Dr. Suresh Jange, Librarian, Gulbarga University, Gulbarga explored Karnataka's implementation of the NEP-2020 and its implications for academic libraries. The policy's five pillars—Access, Equity, Quality, Affordability, and Accountability—were discussed, emphasising the need for libraries to support education in regional languages and address the underutilisation of e-resources. Dr. Jange also highlighted the concerns about library budgets, staffing, and the lack of visibility for librarians in NEP implementation. He concluded by stressing the importance of adequate resources, training, and strategic planning to fulfil NEP's goals in library systems.

Dr. Vimal Kumar V, Assistant Librarian, M G University, Kottayam, conducted a practical session on Koha, covering hardware selection, installation procedures, and system configurations for optimal performance. He recommended hardware with at least 16 GB RAM, SSD, and Intel Core i5 for reliability. The session included demonstrations of Koha installation on Linux OS, configuring Google App Passwords, and securing the system with SSL certificates. The session also addressed customising Koha's interface with JQuery, enabling libraries to manage their digital infrastructure effectively. Dr. Kumar provided valuable insights on managing Koha installations independently.

Dr. Fr John Neelankavil, Librarian, Dharamaram Vidya Kshetram, emphasised the evolving role of libraries, which must transform into vibrant spaces for creativity, research, and reflection. He discussed modern library designs that combine technology with nature, creating flexible zones for various activities, from silent contemplation to digital exploration. Dr. Neelankavil used St. Joseph's College Library, Devagiri, Calicut, as a case study, showing how thoughtful space design can support holistic learning. He concluded by urging libraries to adopt designs that inspire curiosity and engagement, positioning them as central hubs of education and innovation.

The next day started with a session on the National Digital Library of India (NDLI). Dr. B Sutradhar, Librarian, IIT, Kharagpur, provided a comprehensive overview of the NDLI, highlighting its role in supporting the National Education Policy (NEP)-2020. NDLI offers 24/7 access to academic resources in multiple Indian languages, including regional ones like Kannada. He discussed NDLI's resources for students preparing for competitive exams, metadata schema, and robust infrastructure ensuring uninterrupted access. The session also covered NDLI's collaboration with projects like SWAYAM and NPTEL, with future AI and Big Data initiatives to enhance user experiences.

Ms Manali Choudhury Sengupta, Project Officer, NDLI, focused on NDLI Clubs and their alignment with NEP-2020, emphasising their role in fostering technology-based education. She shared statistics on club proliferation across India, particularly in Maharashtra and Karnataka, and outlined the registration process for clubs. The session underscored the benefits for institutions, including enhanced student engagement and visibility through collaborative events.

Dr. Sridevi R and Dr. Helen K. Joy, Professors, CHRIST University, delivered a hands-on session on Leveraging Artificial Intelligence for Data Analytics in Libraries. The session demonstrated how AI can

analyse user data, predict reading patterns, and improve library service efficiency. Participants engaged in practical exercises to explore AI tools that aid in intelligent resource discovery and optimise digital library systems. The session provided actionable insights into how AI can be integrated into library operations to enhance user experience and operational effectiveness.

Dr. S. Kumar Chandar, Professor, CHRIST University, explored the integration of Open Science principles with Generative AI technologies in libraries. He discussed the transformation of libraries into dynamic, collaborative research hubs through AI technologies like ChatGPT. Dr. Chandar introduced platforms utilising AI for summarisation and prompt engineering and highlighted initiatives like *data.gov.in* and *osf.io*. He emphasised the importance of developing digital library infrastructures and recommended key readings to understand the changing landscape of knowledge access and technological disruption in the field of library science.

Dr. Fr. Biju K, C, Professor, CHRIST University, presented the potential applications of Augmented Reality (AR) and Virtual Reality (VR) in libraries. He explained VR concepts, including different degrees of freedom in virtual environments, and demonstrated VR devices such as PlayStation VR and Oculus Quest. The session highlighted how AR/VR can enhance user engagement in libraries through immersive experiences. Dr. Fr. Biju also addressed concerns related to user safety and health in VR environments, ensuring a balanced perspective on the technology's opportunities and challenges for library professionals.

The Valedictory Session, led by Dr. Ramesha B., Professor, Bangalore University, thanked speakers, organisers, and participants for the programme's success. Dr Ramesha highlighted the importance of emerging technologies in libraries and encouraged continued engagement with digital transformations. Dr. Ramesha reaffirmed the role of librarians as knowledge custodians and change agents. Mr. Sree Kumar Nair concluded with a Vote of Thanks, followed by participants' feedback and certificate distribution, marking the successful completion of the event.

National Conference on Sedimentology

A three-day National Conference on Sedimentology with an Emphasis on the 'Impact of Deccan Volcanism on Sedimentation, Stratigraphy, Climate and Tectonics' is being organised by the Department of Geology, Savitribai Phule Pune University, Pune from November 06-08, 2025. The experts, scientists, researchers, academicians, and industry professionals from various sub-disciplines of sedimentology may participate in the event to discuss the nuances of sedimentary processes, environment and energy resources; and facilitate the exchange of innovative ideas for a better future.

Sedimentology plays a pivotal role in understanding the Earth's history, origin and evolution of life. The recent cataclysmic shifts in trends in the energy and mineral sectors, environmental issues, geological hazards, and geotechnical infrastructure development require great feedback from the experts in sedimentology. The impact of Deccan Volcanism on sedimentary processes demands special attention. New approaches and new data in isotope geology, geochronology, provenance tracking, and geochemical terrain have enriched Indian sedimentology in recent years, which needs to be discussed and proliferated. The themes of the event are:

- Pre-Syn and Post-Deccan Sedimentation.
- Facies Analysis and Sequence Stratigraphy.
- Sedimentology and Basin Evolution of Potential Hydrocarbon-bearing Basins.
- Role of Sedimentology in Sustainable Development.
- Expert & POK.
- Quaternary Sedimentation and Geoarchaeology: Climate, Tectonics, and Sea-level Changes.
- Recent Developments in Sedimentation, Stratigraphy and Geochronology.
- Sediment Records of Extreme Events.
- Tethyan Sedimentary Sequence and Carbonate Sedimentology.
- Basin Inversion: Causes and Signatures.
- Evolution of Soils and Paleosols.
- Modern Sedimentary Environments.

For further details, contact the Organising Secretary, Dr. D P Mohanty, Department of Geology, Savitribai Phule Pune University, Pune – 411007, Maharashtra, Mobile No: 09404859095, E-mail**:** *ias2025sppu@gmail.com.* For updates, log on to: *www.indiansedimentologists.com*

National Conference on Challenges in Biochemical Engineering and Food Technology for Sustainable Development

A two-day National Conference on 'Challenges in Biochemical Engineering and Food Technology

for Sustainable Development' is being organised by the Department of Chemical Engineering, Faculty of Engineering and Technology, Annamalai University, Tamil Nadu from September 12-13, 2025. The event aims to bring together academic and industrial researchers into fruitful deliberations on advanced technologies that aim at successful handling of the challenges in these areas for improving the quality of life.

As mankind becomes more sophisticated and ambitious, the natural resources are overused and we face a number of problems such as hunger in different parts of the world, pollution and pollution-related diseases, global warming and the one that has a more direct effect on lives, the unavailability and cost of fuels. Breakthroughs in biochemical engineering and food technology help address a few of these problems and understand others. There are genetically engineered crops with improved yields and better pest resistance, biofuels that would replace the depleting fossil fuel supplies, sans environmental hazards by maintaining the carbon balance, enzyme-based detergents that replace the conventional chemicals that pollute the water bodies and so on. Research on marine biotechnology gives ideas on drug discovery, new materials, raw materials for processing industries and increasing the productivity of seafood. Extension of these research findings from the laboratory to the industry poses a number of problems that should be tackled successfully and efficiently. Scientists working in the field of biochemical engineering and food technology have the vision for a world free of hunger, diseases and pollution. The themes of the event are:

- Agricultural Biotechnology.
- Biodiversity Conservation.
- Bioenergy and Environment.
- Biomaterials and Biocatalysts.
- Bioprocess Engineering.
- Bioreactors and Bio-kinetics.
- Bio Thermodynamics.
- Biotechnology Applications in Medicine.
- Enzymes and Protein Engineering.
- Food Chemistry and Biochemistry.
- Non-thermal Processing of Food.
- Bio-environmental Engineering
- Food Processing and Preservation
- Green Energy and Bioenergy.
- Marine Biochemicals.
- Mathematical Modelling and Simulation.

- Microbiology and Anti-microbials Production.
- Applications of Nanotechnology.
- Food Safety, Toxicology and Packaging.
- Bioprocess Instrumentation and Control.
- Ecological Role of Bioactive Compounds.
- Marine Ecosystem.

For further details, contact Dr. P Mullai, Professor, Department of Chemical Engineering, Faculty of Engineering and Technology, Annamalai University, Annamalainagar - 608002, Tamil Nadu, Mobile Nos: 09486918357 / 09442521795 / 09489229327 / 09443668381, E-mail: *cbsdauchem@gmail.com.* For updates, log on to: *www.annamalaiuniversity.ac.in*

Survey on Employment Conditions of Law Teachers

The Centre for Transparency and Accountability in Governance, National Law University(NLU), Delhi, is conducting an online survey to explore and explain the impact of employment conditions on the quality of teaching and research among law teachers across various institutions. This empirical research has been designed to critically examine the impediments and constraints, including pay scales, teaching and administrative assignments, among others, faced by law teachers at various institutions, and to propose effective solutions to these constraints.

NLU invites interested participants to contribute to the enhancement of the quality of teaching and research, as well as the protection and promotion of the legitimate interests of law teachers in India. The Centre for Transparency and Accountability in Governance emphasises that the survey does not require any personal identification from participants, ensuring that feedback will remain anonymous and treated solely as data. The feedback received is likely to contribute to policy changes, the creation of new policies, or litigation aimed at promoting legal education and research.

The National Law University, Delhi, appeals for the support of the legal academic community in this important endeavour to safeguard and promote the legitimate interests of law teachers in India. For those interested in sharing their experiences, the questionnaire is accessible through the link: *https://forms.gle/MfifSTtVbdRnkZ1W6. F*or updates and detailed information, contact Dr. Jeet Singh Mann, Faculty, Legal Education and Research, National Law University, Delhi. E-mail: *jsmann@nludelhi.ac.in* ❑

THESES OF THE MONTH

HUMANITIES
A List of doctoral theses accepted by Indian Universities
(Notifications received in AIU during the month of June-July, 2025)

Geography

1. Debnath, Tapan. **Morbidity profile and access to public health care services of ageing population in Koch Bihar District: A geographical study**. (Prof. Ranjan Roy), Department of Geography and Applied Geography, University of North Bengal, Darjeeling.

2. Nayam, Onam. **The belief system of Tagin Tribe of the Upper Subansiri District, Arunachal Pradesh**. (Prof. Nishamani Kar), Department of Geography, Rajiv Gandhi University, Itanagar.

3. Roy, Barsha. **Assessment of quality of life of working age population of Uttar Dinajpur, District, West Bengal**. (Prof. Ranjan Roy), Department of Geography and Applied Geography, University of North Bengal, Darjeeling.

4. Saha, Arpita. **A spatio-temporal analysis of well-being and development among the rural population in Maldah District, West Bengal**. (Dr. Prabir Kumar Kundu), Department of Geography and Applied Geography, University of North Bengal, Darjeeling.

5. Singh, Sushmita. **A geographical study on rural tourism in the hill sub-divisions of Darjeeling District, West Bengal**. (Dr. Arindam Basak), Department of Geography and Applied Geography, University of North Bengal, Darjeeling.

History

1. Devhuns, Nikita. **Ratlam Jile ke shilpiyoan ka sanskritik adhyayan (Biswi shatabadi ke vishesh sandarbh mein)**. (Dr. Rashimi Thakur), Department of History, Vikram University, Ujjain.

2. Dhadhal, Hina Govind. **Economy and its effects of first class indigenous States of Saurashtra [Junagadh and Bhavnagar] 1857 A D to 1947 A D**. (Dr. Nilaben S Thaker), Department of History, Saurashtra University, Rajkot.

3. Gohil, Bhakti Kishor. **Understanding culture environment interactions in western and central India during the Holocene: A micromorphological approach**. (Prof. K Krishnan), Department of Archaeology and Ancient History, M S University of Baroda, Vadodara.

4. Monika Rani. **Selected nationalist historiography on the Quit India Movement**. (Dr. Amarjit Singh and Dr. Kusum Lata), Department of History, Kurukshetra University, Kurukshetra.

LANGUAGES & LITERATURE

English

1. Anita Kumari. **Thematic diversification of Walt Whitman's poetry**. (Prof. Awadh Kishor Pandey), Department of English, Jai Prakash University, Chapra.

2. Bhat, Nadeem Jahangir. **Self representation and Arab women writers: A study of select novels of Fadia Faqir and Leila Aboulela**. (Prof. Iffat Maqbool), Department of English, University of Kashmir, Srinagar.

3. Bhattacherya, Mandakini. **Musings of the other: A comparative analysis of select women poets of African-American and dalit origin**. (Dr. Jagdish Joshi), Department of English, Gujarat University, Ahmedabad.

4. Dirchi, Bomter. **Contextualising the Gothic in the Galo narrative tradition**. (Dr. Doyir Ete), Department of English, Rajiv Gandhi University, Itanagar.

5. Dolon, Champa Das. **Designing a model professional development framework for teachers of English in the secondary schools of Arunachal Pradesh**. (Dr. Dhriti Sunar Gupta), Department of English, Rajiv Gandhi University, Itanagar.

6. Ghosh, Soumyadip. **Looking with a difference: Anti-poetry and select contemporary Indian poets**. (Prof. Zinia Mitra), Department of English, University of North Bengal, Darjeeling.

7. Goyal, Shilpi. **Jurgen Habermas's Theory of Communicative Action and the works of Charles Olson: A study in Symbiosis**. (Dr. Manjinder Kaur Wratch), Department of English, Maharishi Markandeshwar University, Ambala.

8. Hussein, Kadhim Zamil. **Feminism in the Middle East: An analytical study of select novels in English translation**. (Dr. Kavita Patel), Department of English, Gujarat University, Ahmedabad.

9. Kamlesh Kumari. **Voicing the voiceless: A comparative study of autobiographies of Baby Tai Kamble and Urmila Pawar**. (Dr. Jyoti Syal and Dr. Seema Rani), Department of English, Maharishi Markandeshwar University, Ambala.

10. Khan, Shaista Shafi. **Hidden morality in the works of R K Narayan**. (Dr. Reena Devi), Department of English, Shobhit Institute of Engineering & Technology Deemed to be University, Meerut.

11. Mayyadah, Hashim Ahmed. **Muslim women: Loss and quest for identity in selected novels by Hanan AI Shaykh, Fadia Faqir and Leila Abouzeid**. (Dr. Rupel Patel), Department of English, Gujarat University, Ahmedabad.

12. Pradeepkumar, S. **Civil war and ethnic conflict: A study of select Srilankan fiction**. (Dr. Rama Prasad B V), Department of English, Kuvempu University, Shankaraghatta.

13. Sahu, Brijesh Kumar. **Formation of systems and philosophy through dialogues with special reference to Srimad Bhagavad Gita and Abhijnanashakuntalam (From the select English translated texts)**. (Prof. Naveen Kumar Mehta), Department of English, Sanchi University of Buddhist-Indic Studies, Bhopal.

14. Sarkar, Anik. **Living under watchful eyes: An analysis of Surveillance societies in select Dystopian novels**. (Prof. Ranjan Ghosh), Department of English, University of North Bengal, Darjeeling.

15. Sharma, Sumedha. **Feminist voices in the novels of Manju Kapur and Shobha De**. (Dr. Sumitra Huidrom), Department of English & Modern European Languages, Gautam Buddha University, Greater Noida.

16. Shukla, Astha. **Voices of correction in B G Tilak's Geeta Rahasya and T S Eliots's the Wasteland**. (Dr. Naveen Kumar Mehta), Department of English, Sanchi University of Buddhist-Indic Studies, Bhopal.

17. Trivedi, Grishma Manishbhai. **Body, desire and femininity in Hindi cinema: The representation of the CIS-woman in the twenty-first century**. (Prof. Deeptha Achar), Department of English, M S University of Baroda, Vadodara.

18. Varde, Hirenkumar Balvantbhai. **Representation of memory, identity and historicity in the select fiction of Elif Shafak**. (Dr. Darshana Bhatt), Department of English, Gujarat University, Ahmedabad.

19. Yadav, Simran. **Significance of background and beliefs in the select novels of O V Vijayan**. (Prof. Naveen Kumar Mehta), Department of English, Sanchi University of Buddhist-Indic Studies, Bhopal.

Gujarati

1. Prajapati, Bhumi Arunbhai. **A critical study of selected political novel**. (Prof. Bharat Pandya), Department of Gujarati, M S University of Baroda, Vadodara.

Hindi

1. Chourasia, Prachi. **Nasira Sharma ke katha sahitye mein istri samvedna**. (Dr. Rahemat Ali Saiyad), Department of Hindi, Gujarat University, Ahmedabad.

2. Damor, Maheshkumar Shankarbhai. **Bhishm Sahani ke natkaoan ka samajshastriye adhyayan**. (Dr. Girish V Veliyat), Department of Hindi, Saurashtra University, Rajkot.

3. Gaikwad, Thakshashila. **Hindi dalit mahila aatmkathaoan mein yatharthwad**. (Dr. V Parvathi), Department of Hindi, Telangana University, Nizamabad.

4. Khan, Anjum. **Manjur Ehtesham ke katha- sahitya mein samvedna aur shilp: Ek anusheelan**. (Dr. C L Sahrma and Dr. Jagdish Kumar Sharma), Department of Hindi, Vikram University, Ujjain.

5. Khede, Anju. **Lok devta sambandhi Nimadi lok sahitya evam sanskriti ka samagra anusheelan**. (Dr. Aruna Dubey and Dr. Jagdish Kumar Sharma), Department of Hindi, Vikram University, Ujjain.

6. Mihu, Chebi. **Arunachal Pradesh ke Hindi sahitya mein abhivyakat samajik sanskritik pariprekshya samasyayen aur chunautiyan**. (Dr. Abhisek Kumar Yadav), Department of Hindi, Rajiv Gandhi University, Itanagar.

7. Mithun Kumar. **Jain sanskriti mein nari: Ang Janpad ke vishesh sandarbh mein**. (Dr. Bihari Lal Choudhary), Department of Hindi, T M Bhagalpur University, Bhagalpur.

8. Ninu, Jumken. **Hindi upanyasoan mein kinnar vimarsh (Yamdeep, Mein Bhi Aurat Hoon, Gulam Mandi, Post Box No 203, Nala Sopara aur Main Payal.... ke vishesh sandarbh mein)**. (Prof. Oken Lego), Department of Hindi, Rajiv Gandhi University, Itanagar.

9. Palas, Harshiddhaben Parsingbhai. **Dasve dashak ke Hindi upanyasoan mein vyakat nari patroan ka manovaigyanik adhyayan**. (Dr. Girish V Veliyat), Department of Hindi, Saurashtra University, Rajkot.

10. Parmar, Pushpa Manharbhai. **Hindi kee pragatisheel kavita mein prakarti: Ek anusheelan (Nagarjuna, Trilochan aur Kedarnath Agarwal ke vishesh sandarbh mein)**. (Dr. Samantbhai B Makwana), Department of Hindi, Saurashtra University, Rajkot.

11. Pertin, Kayin. **Arunachalee Hindi-sahitya mein istri-jivan: Ek vivechnatamak anusheelan**. (Dr. Rajeev Ranjan Prasad), Department of Hindi, Rajiv Gandhi University, Itanagar.

12. Prajapati, Dolly. **Hindi yatra vritat parampara aur vishnu prabhakar**. (Dr. Jagdish Kumar Sharma), Department of Hindi, Vikram University, Ujjain.

13. Rawtale, Vimala. **Bareli lokkathaoan ka samgre anusheelan**. (Dr. Jagdish Kumar Sharma), Department of Hindi, Vikram University, Ujjain.

14. Sangawat, Vishnu Prasad. **Ramcharit Manas: Ek anusheelan (Sunderkand ke vishesh sandarbh mein)**. (Prof. Manas Ranjan Panigrahi Dr. Avadhesh Kumar), School of Arts and Humanities, Sangam University, Bhilwara.

15. Yadav, Santosh Kumar. **Hindi kee lambi kavita ka pravartan aur Nirala:Ek adhyayan**. (Dr. Rajkumar Upadhyay), Department of Hindi, Sant Gahira Guru Vishwavidyalaya, Sarguja.

16. Yapera, Techi. **Trishi lok geetoan ka Hindi anuvad aur unka vyaktireki vishleshan**. (Prof. Shivam Chaturvedi), Department of Hindi, Arunachal University of Studies, Namsai.

Kashmiri

1. Rather, Imtiyaz Ahmad. **The tradition and experiment in Kashmiri Gazal: A critical study**. (Dr. Shafqat Altaf), Department of Kashmiri, University of Kashmir, Srinagar.

Marathi

1. Wadekar, Ranjana. **Sathottari aadiwasi kavita: Ek chikitsak abhyas**. (Dr. Sunil Ramteke), Department of Marathi, S.N.D.T. Women's University, Mumbai.

Persian

1. Ahmad, Mumtaza. **Women's identity discourse in contemporary in Iran: A study of Razia Tujaar**. (Dr. Abid Gulzar), Centre of Central Asian Studies, University of Kashmir, Srinagar.

Punjabi

1. Gurdeep Kaur. **Panjabi nari navalkaran de navalan vich nari pachhan de vibhin pasaar (Chandan Negi, Baljeet Kaur Bali, Balbir Kaur Sanghera ate Farkhanda Lodhi de navlan de vishesh parsang vich)**. (Dr. Kuldeep Singh), Department of Panjabi, Kurukshetra University, Kurukshetra.

Sanskrit

1. Acharya, Nitinkumar Balvantbhai. **Purandharmashaastrayoho Govigyaanasameekshanam**. (Dr. Suresh Patel), Department of Sanskrit, M S University of Baroda, Vadodara.

2. Barot, Jagrutiben Devndrabhai. **Vishnupurane acharmimansa**. (Dr. Madhaviben Upadhyaya), Department of Sanskrit, Gujarat University, Ahmedabad. ❏

New Education Society, Lanja's
Nana Vanjare Vidhyanagari
SHRIRAM KUSUMTAI SADASHIV VANJARE COLLEGE, LANJA

(Arts, Commerce and Science College, Lanja)
Zapde Kante Road, Tal. Lanja. Dist. Ratnagiri- Pin – 416701

APPLICATIONS ARE INVITED FOR THE FOLLOWING POST FROM THE ACADEMIC YEAR 2025-26:

(AIDED)

Sr. No.	Cadre	No. of Post	Category
1	Principal	01	01-OPEN

The advertisement is approved subject to the final decision in the Writ Petition No. 12051/2015. The above post is open to all, however, candidates from any category can apply for the post. Reservation for women will be as per **University Circular No. BCC/16/74/1998 dated 10th March, 1998. 4% reservation shall be for the persons with disability as per University Circular No. Special Cell/ICC/2019-20/05 dated 05th July, 2019.**

Candidates having knowledge of Marathi will be preferred.

"Qualifications, Pay Scales and other requirement are as prescribed by the UGC Notification dated 18th July, 2018, Government of Maharashtra Resolution No. Misc-2018/ C.R.56/18/UNI-1, dated 8th March, 2019 and University Circular No. TAAS/ (CT)/ICD/2018-19/1241, dated 26th March, 2019 and revised from time to time".

The Government Resolution & Circular are available on the website: mu.ac.in.

Applicants who are already employed must send their application through proper channel. Applicants are required to account for breaks, if any in their academic career.

Application with full details should reach the **CHAIRMAN, New Education Society, Lanja's Nana Vanjare Vidhyanagri, Shriram Kusumtai Sadashiv Vanjare College, Lanja (Arts, Commerce & Science College, Lanja) Zapade Kante Road, Tal. Lanja, Dist. Ratnagiri - 416701 within 15 days** from the date of publication of this advertisement.

This is University approved advertisement.

CHAIRMAN
New Education Society, Lanja

Sant Dnyaneshwar Shikshan Sanstha, Islampur

Hon. Shri. Annasaheb Dange Arts, Commerce and Science College, Hatkanangale Tal. – Hatkanangale,

Dist.- Kolhapur – 416 109 (Maharashtra) (Affiliated to Shivaji University, Kolhapur) (Permanently Granted)

WANTED

Applications are invited from eligible candidates for the following post:

Sr. No.	Name of Post	Vacant Post	Reservation
1.	Principal	01	Open to All - 01

Please send your application on the following address Sant Dnyaneshwar Shikshan Sanstha Islampur C/O Annasaheb Dange College of Engineering & Technology (ADCET) Ashta, Tal-Walawa, Dist- Sangli -416301.

Place : Ashta

Secretary,

Date : 24/08/2025.

Sant Dnyaneshwar Shikshan Sanstha, Islampur

Note: For detailed information about post, qualifications and other terms and conditions please visit university **website : www.unishivaji.ac.in.**

ST. TERESA'S COLLEGE (AUTONOMOUS)

ERNAKULAM – 682 011

Affiliated to M.G. University, Kottayam
www.teresas.ac.in, E-mail: principal@teresas.ac.in
0484-2351870, 6282402318

No. STCAU/TS/136/2025   Date: 20.08.2025

Notification

Applications are invited from eligible candidates for the post of Assistant Professors in the following permanent vacancies.

[**Home Science**: Open-1, Community – 1], [**Physics**: Open -1] [**Mathematics**: Open-1], [**Botany** - Community- 1, PWD-1*Category b- deaf & hard of hearing], [**French** - PWD- 1*Category c- locomotor disability including cerebral palsy, leprosy cured, dwarfism, acid attack victims and muscular dystrophy],

[**Statistics**: Open – 1, Community - 1], [**English**: Community -1]

Age, Pay and Qualifications are as per the norms of the UGC, Govt. of Kerala and M.G University. The vacancies reserved for Persons with Disabilities (PWD) are as per G.O.(MS) 242/2022/ H.Edn dated 18.05.2022 and G.O.(MS) 684/2023/H.Edn dated 08.12.2023.

*Eligible candidates may apply online through the college website (**www.teresas.ac.in**) by paying an application fee of Rs.2000/-. Printout of the completed application form, along with copies of all required documents, must reach '**The Manager, St. Teresa's College (Autonomous), Ernakulam – 682 011**', within 30 days from the date of publication of this notification. The appointment will be subject to the sanction from Govt. of Kerala and M.G. University, Kottayam. Incomplete applications will be summarily rejected. PWD category applicants need not pay the application fee.*

Manager

विश्वभारती
বিশ্বভারতী
VISVA-BHARATI

A Central University and an Institution of National Importance

Advertisement No. 05/2025 dated 27.08.2025

1) Librarian (Granthagarika) (UR - 01)

2) Deputy Registrar (SC – 01)

3) Deputy Registrar (UR – 01)

4) Estate Officer (UR – 01)

5) Junior Engineer (Civil) (SC – 01)

**Last date of submitting online application:
30.09.2025 at 11:59 P.M.**

For details login to **www.visva-bharati.ac.in**
Apply through the portal:
https://visvabharatint.samarth.edu.in

MARATHWADA LEGAL & GENERAL EDUCATION SOCIETY

Samarth Nagar, Chhatrapati Sambhajinagar - 431 001 (Maharashtra)

CORRIGENDUM (WANTED)

Applications were invited from eligible candidates for the Post of **Principal** in **Marathwada Legal and General Education Society's, M.P. Law College and Dr. I.B.P. Mahila College, Chhatrapati Sambhajinagar (Open to All),** as per the Advertisement Published in University News 63(32), August 11–17, 2025, and in other Leading Newspapers.

In continuation of the said Advertisement, this Corrigendum is issued by which the last date for Submission of Applications, earlier stipulated as Fifteen (15) days from the date of publication of the original advertisement, is hereby extended by an additional Fifteen (15) days from the date of this Corrigendum.

All other Terms and Conditions shall remain unchanged. Interested candidates are requested to refer to the original Advertisement for detailed information.

Adv. D.S. Kulkarni   **Adv. (Dr.) Kalpalata Patil- Bharaswadkar**
    Secretary   President

Marathwada Legal & General Education Society, Chhatrapati Sambhajinagar.

VINAYAKA MISSION'S RESEARCH FOUNDATION

(Deemed to be University under section 3 of the UGC Act 1956)

Sankari Main Road (NH-47), Ariyanoor, Salem, Tamilnadu.

Admission Notification for Ph.D. Programme October 2025 Session

Applications are invited from the eligible candidates for admission to Ph.D. Programme (Full Time / Part Time) for the following Faculty

Medicine, Dentistry, Homoeopathy, Physiotherapy, Nursing, Pharmacy, Allied Health Sciences, Engineering & Technology, Rehabilitation & Behavioural Sciences, Management, Physical Education, Arts & Science and Interdisciplinary Studies and Law.

➢ **University Research Fellowships available upto Rs.25000/- per month For UGC / NET etc., cleared candidates, Fellowship shall be Rs.30,000/- per month. Fellowship is only for deserving candidates as per the University norms.**

➢ **NRI/Foreign students also can apply for the Full Time Programme**

Admission is subject to the availability of Supervisors & Vacancies
Last date to submit the filled in application is 30.09.2025

For application form, Eligibility Criteria and further details please visit the University website : **www.vmrfdu.edu.in**

☎ 0427-2529700 (Extn.1158/1161/1162)
✉ vmu.phd@vmu.edu.in   — REGISTRAR

புதுவைப் பல்கலைக்கழகம் पाण्डिच्चेरी विश्वविद्यालय

PONDICHERRY UNIVERSITY

(A Central University)

Accredited by NAAC with 'A+' Grade (5th Cycle)

Dr. B. R. Ambedkar Administrative Building,
R. V. Nagar, Kalapet, Puducherry - 605014

Advt.No: PU/RC/2025/50   **Dated: 11.08.2025**

RECRUITMENT OF REGISTRAR
(RE-NOTIFICATION)
(Reference: Notifications dated 20.08.2024)

Pondicherry University hereby re-notifies the vacancy of **Registrar** and invites fresh online applications.

For details of the post, Minimum Eligibility Criteria, Experience, General instructions, terms & conditions etc., visit the University website: **www.pondiuni.edu.in.**

The Last date: **10.09.2025 at 5.00 PM (IST).**
The last date for receipt of Hard Copy:
17.09.2025 at 5.00 PM (IST).

REGISTRAR (i/c)

GOVERNMENT OF INDIA

Ministry of Education
Department of Higher Education, Technical Section – I

Invitation of Applications for the post of Director, IIT Ropar

Applications are invited for appointment to the post of Director of Indian Institute of Technology Ropar. The Director of an IIT is the academic and administrative head of the Institution. He/she is expected to have a minimum of 5 years' administrative experience and leadership qualities to head an Institute of National importance. The candidate/ person should be a Ph.D. with first class or equivalent at the preceding degree, preferably in a branch of Engineering. In exceptional cases, candidates with Science, Mathematics or Management degrees may be considered. He/she should have an outstanding academic record throughout and a minimum of 10 years teaching experience as a Professor in a reputed Engineering or Technology Institute or University and should have guided Ph.D. students. The applicant should preferably be less than 60 years of age on the last date of receipt of the applications. The post carries a fixed pay of Rs. 2,25,000/- (Revised) per month, with allowances as per rules.

2. Interested individuals may apply giving their detailed resume in the prescribed format clearly bringing out research, teaching, industry-academia collaborations and administrative achievements, along with a two-page justification in support of their candidature, a two-page vision statement for the institution and contact details of at least two distinguished individuals well acquainted with their work. The application typed in the prescribed format along with enclosures may be sent by Registered/Speed Post to **The Under Secretary (TS.1), Department of Higher Education, Ministry of Education, Room No. 428 "C" Wing, Shastri Bhawan, New Delhi-110001** so as to reach the Ministry **on or before 30th September, 2025.** The detailed advertisement and the format of application is available on the website.

URL: **https://www.education.gov.in/sites/upload_files/mhrd/files/advertisment/dir_iit_ropar2526.pdf**

SAURASHTRA UNIVERSITY
RAJKOT

Employment Notice No. Esta/A/2513773   **Dt:-22/08/2025**

Saurashtra University, Rajkot invites applications for the following posts in prescribed performa from the qualified Citizens of India:

No	Name of Post	Tenure	No. of Post	Category	Pay Scale As per the 7th Pay
1	Librarian	Permanent	1	UR	67700-208700 (Level-11)
2	Director of Physical Education	Permanent	1	UR	144200-218200 (Level-14)
	UGC pay scale 144200-218200 (Level 14) will be applicable, if pay scale is approved by the State Government.				

UGC pay scale 144200-218200 (Level 14) will be applicable, if pay scale is approved by the State Government.

Application form along with details of essential qualifications, experiences, pay scale, general terms and conditions etc. can be downloaded from the University **website: www.saurashtrauniversity.edu. Last Date for online application: 22/09/2025 upto 23:59 hours.**

Uploaded application with all relevant testimonials in two (02) copy should reach by Personally / RPAD/Speed post/Courier to "The Registrar, Establishment Section-A, Saurashtra University, Rajkot - 360005" on or before Date 26 /09/2025 up to 18:00 hours.

REGISTRAR

TEZPUR UNIVERSITY
(A Central University)
Tezpur – 784 028 (ASSAM)

ADVERTISEMENT NO. 17 / 2025

Applications (through **SAMARTH Portal** only) are invited from eligible candidates for one (01) post of **Medical Officer**. Details of the advertisement, other terms and conditions are available in the University website **www.tezu.ernet.in**. **Last date** for submission of filled-in applications through **SAMARTH Portal** is **12.09.2025 (Till 11.55 PM, IST)**.

Registrar i/c

तेजपुर विश्वविद्यालय
(एक केंद्रीय विश्वविद्यालय)
तेजपुर–784028 असम

विज्ञापन संख्या. 17 / 2025

चिकित्सा अधिकारी के एक (01) पद के लिए योग्य उम्मीदवारों से आवेदन (केवल **SAMARTH** पोर्टल के माध्यम से) आमंत्रित किए जाते हैं। विस्तृत विज्ञापन, अन्य शर्तें विश्वविद्यालय के वेबसाइट www.tezu.ernet.in में उपलब्ध हैं। **SAMARTH** पोर्टल के माध्यम से विधिवत भरे गए आवेदन पत्र जमा करने की अंतिम तिथि **12.09.2025 (Till 11-55 PM, IST)** है।

प्रभारी कुलसचिव

APPOINTMENTS

Ajintha Education Society, Chhatrapati Sambhajinagar

Applications are invited from eligible candidates for the following full time **Non-granted and Permanent Non-granted** posts to be filled in Ajintha Education Society's Sant Dnyaneshwar Mahavidyalaya, Soegaon, Dist. Chh. Sambhajinagar, Pandit Jawaharlal Nehru Mahavidyalaya, Chhatrapati Sambhajinagar and Late Baburaoji Kale Mahavidyalaya, Ajintha Tq. Sillod Dist. Chh. Sambhajinagar affiliated to Dr. Babasaheb Ambedkar Marathwada University, Chh. Sambhajinagar.

Sr. No.	Name of the Post	Subject	No. of Posts		Category
1	Principal	--	01		Open
			UG	**PG**	
2	Assistant Professor	English	03	-	S.C. - 07,
3	Assistant Professor	Marathi	02	01	S.T. - 05,
4	Assistant Professor	Hindi	02	-	V.J. (A) - 02,
5	Assistant Professor	History	02	01	N.T. (B) – 02,
6	Assistant Professor	Economics	02	-	N.T. (C) – 03,
7	Assistant Professor	Political Science	01	01	N.T. (D) – 01
8	Assistant Professor	Sociology	02	-	S.B.C. – 01,
9	Assistant Professor	Drama	01	-	O.B.C. – 12,
10	Assistant Professor	Music	01	-	E.W.S. – 06
11	Assistant Professor	Public Administration	01	-	S.E.B.C. – 08
12	Assistant Professor	Psychology	01	-	Open – 07
13	Assistant Professor	Geography	-	01	
14	Assistant Professor	Chemistry	03	01	
15	Assistant Professor	Physics	03	01	
16	Assistant Professor	Zoology	03	01	
17	Assistant Professor	Botany	03	01	
18	Assistant Professor	Microbiology	02	-	
19	Assistant Professor	Computer Science	02	-	
20	Assistant Professor	Environment Science	01	-	
21	Assistant Professor	Electronics	01	-	
22	Assistant Professor	Mathematics	03	-	
23	Assistant Professor	B.C.S.	04	-	
24	Assistant Professor	Commerce	01	01	
25	Director of Physical Education	-	01	-	

Conditions & Qualification:

For Principal : Professor/Associate Professor with a total service/experience of at least fifteen years of teaching/research in Universities/ Colleges and other institutions of higher education.

For Other Posts:

1) Candidates must have secured at least 55% at the Master Degree level in a relevant subject and Passed NET/SET or who are or have been awarded a Ph. D. Degree in accordance with the University Grants Commission (Minimum Standards and Procedure for Award of M.Phil./Ph.D. Degree) Regulations, 2009 or 2016 and their amendments from time to time as the case may be exempted from NET/SET. Relaxation of 5% at the Master Degree level will be provided to the candidates of reserved category.

2) Other conditions are applicable as per the norms of U.G.C., Govt. of Maharashtra and Dr. Babasaheb Ambedkar Marathwada University, Chh. Sambhajinagar as modified from time to time.

3) Candidates already in service should send their applications through proper channel.

4) Reserve category students must send one copy of the application along with attested documents to The Deputy Registrar, Special Cell, Dr. Babasaheb Ambedkar Marathwada University, Chh. Sambhajinagar **within 15 days** from the date of publication of this advertisement.

5) "आर्थिकदृष्ट्या दुर्बल घटकांना १०% आरक्षण देण्यात येणार असल्याने, खुल्या प्रवर्गातून करण्यात येत असलेल्या भरतीच्या पदांमध्ये आर्थिकदृष्ट्या दुर्बल घटकांसाठी आरक्षण ठेवण्याची प्रक्रिया पूर्ण झाल्यावर त्या अनुषंगाने त्यामध्यील १०% पदे यासाठी आरक्षित होऊन अराखीव प्रवर्गाच्या पदांमध्ये बदल होऊ शकतो."

6) Applications with certified true copies of certificate, testimonials should reach within fifteen days from the date of publication of this advertisement to "**The President, Ajintha Education Society, Pandit Jawaharlal Nehru Mahavidyalaya, Shivaji Nagar (E), Garkheda Parisar, CIDCO, Chhatrapati Sambhajinagar– 431009.**

      SECRETARY   **PRESIDENT**

Shri Shivparavati Saravajanik Vikas Trust's
GREENFINGERS COLLEGE OF COMPUTER AND TECHNOLOGY

Shankarnagar-Akluj 413 118, Ph. No. : (02185) 223225,
Email: gfcct.akluj@gmail.com, gfc_akluj@yahoo.com
Tal-Malshiras, Dist-Solapur (Maharashtra)
(Affiliated to Punyashlok Ahilyadevi Holkar Solapur University, Solapur)

Permanent Unaided

Applications are invited form eligible candidates for the following Posts of Assistant Professor:

Sr. No.	Subject Designation	No-Objection Certificate given by Govt. of Maharashtra Vacant Post	No-Objection Certificate given by Govt. of Maharashtra Posts Reservation
01	English	01	6- Open (Female 2), 3- SC (Female-1), 2-ST (Female-1), 1-VJ-A, 1-NT-B, 1-NT-D, 5-OBC (Female-1), 3-EWS (Female-1), 3-SEBC (Female-1)
02	Computer Science	19	
03	Statistics	02	
04	Mathematics	01	
05	Electronics	01	
06	Liberian	01	
	Total Post	**25**	

Instructions:-

1. Open post is open to all; however, candidates from any category can apply for the post.
2. Educational Qualifications, Service Conditions & Pay Scale will be applicable as per existing rules prescribed by the UGC Notification dated. 18th July 2018, Govt. of Maharashtra Resolution No. Misc 2018/ C.R.56/18 UNI-1 dts.8th March 2019 and University Circular No. PAHSUS/Estt/7th pay /2019/2285/dtd. 25th March 2019.
3. A relaxation of 5% shall be allowed at the Bachelors as well as at the Masters Level for the candidates belonging to SC/ST/OBC (Non-Creamy Layer)/Differently-abled for the purpose of eligibility and Assessing good academic record for direct recruitment.
4. Reserved candidates, who are domiciled out of Maharashtra State, will be treated as Open Category candidates.
5. Reserved candidates should also send a copy of their application to the Deputy Registrar, Special Cell, Punyashlok Ahilyadevi Holkar Solapur University, Solapur.
6. Application received after the last date will not be considered. The College will not be responsible for postal delay, if any.
7. Reservation for PWD, Women and Disabled persons will be as per the Govt. norms.
8. Reserved category candidates shall produce the Caste Validity Certificate as per the directives issued by the State Government vide Circular No.BCC-201/Pra.Kra.1064/2011/16B dated 12-12-2011.
9. Reserved category candidates (except SC/ST) shall produce Non-Creamy Layer Certificate at the time of interview.
10. Reservation for VJNT Categories is internally transferable.
11. Applicants who are in service must send their application through proper channel.
12. Applicants are required to account for breaks, if any, in their academic career.
13. T.A., D.A. will not be paid for attending the interview.
14. Applications with full details should reach through the channel **Secretary, Shri Shivparvati Saravajanik Vikas Trust's Greenfingers College of Computer And Technology Shankarnagar-Akluj within 30 days from the date of publication of this advertisement.**
15. Incomplete applications will not be entertained.
16. All the Terms & Conditions are applicable as mentioned in the NOC letter No. JDHE Solapur /NOC/2019/3 dated 17.01.2023 from Hon. Deputy Secretary, Higher and Technical Education Dept, Govt. of Maharashtra, Mumbai and letter No. DJD/HE/SDS/2O23/138 dated 24.01.2023, Hon. Deputy Director of Higher Education, Solapur Division, Solapur.
17. All the Terms & Conditions are applicable as mentioned in the GR Dated 12.11.2021 from Higher and Technical Education Department of Government of Maharashtra.
18. Please note that the recruitment procedure initiated by this advertisement subject to decision by Hon. Bombay High-court, Aurangabad Bench on write petition No. 12051/2015.
19. This is University approved advertisement.

Applications with full Bio-Data are invited from Indian Citizens for the POST OF **PRINCIPAL** (Unreserved Category) to be filled in Government Aided College from the Academic Year 2025-2026 onwards:

The required minimum qualifications for the post of Principal as laid down in statute 16.4.1(IV) A of Goa University are as follow:

A) Eligibility

i) Ph.D. degree

ii) Professor/Associate Professor with a total service/experience of at least fifteen years of teaching/research in Universities, Colleges and other institutions of higher education.

iii) A minimum of 10 research publications in peer reviewed journals as approved by Goa University from time to time OR UGC-listed journals out of which at least two should be in Scopus/Web of Science Journal.

iv) A minimum of 110 Research Score as per Appendix II, Table 2.

B) Tenure

A College Principal shall be appointed for a period of five years, extendable for another term of five years on the basis of performance assessment by a Committee appointed by the University, constituted as per these Statutes.

Scale of Pay: As prescribed by UGC, Goa University, Directorate of Higher Education, Govt. of Goa from time to time.

Service Conditions: As prescribed by the UGC, Goa University, Directorate of Higher Education, Govt. of Goa and other competent authorities.

Application complete in all respects along with self-certified photocopies of statements of marks of all public examinations from SSC onwards, API Score sheet and other certificates should reach the **President, Devi Sharvani Education Society's V. M. Salgaocar College of Law P. O. Caranzalem, Miramar, Panaji, Goa, 403 002 within 20 days** from the date of publication of this advertisement by super scribing on the envelope **"Application for the post of Principal"**. No TA/DA will be paid for attending the interview. Persons who are already employed shall send in their applications through proper channel.

Date: 21/08/2025 President
Place: Panaji – Goa Devi Sharvani Education Society

INDIRA GANDHI INSTITUTE OF DEVELOPMENT RESEARCH

(A Deemed-to-be University, Established by the
Reserve Bank of India)
Film City Road, Santosh Nagar, Goregaon (East), Mumbai – 400065

Advt No: IGIDR/Faculty/2025/02   Dated : 14.08.2025

Recruitment for the Faculty Positions

IGIDR invites online applications for the following faculty positions from qualified Indian nationals, including Persons of Indian Origins (PIOs) and Overseas Citizens of India (OCIs):

Sr. No	Position	Gen	SC	ST	OBC-NCL	EWS	PwBD (a)	Total
1	Professor	02	–	–	–	–	–	02*
2	Associate Professor	01	–	–	01	–	–	02*

Note :- The Institute reserves the right to fill additional positions of Professor and Associate Professor beyond those mentioned in this advertisement as per the Institute's requirement identified during the selection process.

Specializations:

Any of the following fields of economics:

Corporate Finance and Governance, Econometrics (Time Series), Development Economics (Health, Education, Industry, Labour), Empirical Industrial Organisation, International Trade (theory and empirics), Law and Economics, Monetary Economics, Microeconomic Theory (Information, Market Design, Network), Public Finance.

Salary and Perks: IGIDR adheres to the pay scales established by the Seventh Pay Commission for IITs and IIMs. In addition to competitive salaries, the Institute offers various other benefits, including on-campus housing, leave travel concessions, medical insurance, education allowance for children, contribution towards CPF, group medical insurance, group term insurance, and group personal accident insurance. The Institute also has a Professional Development Scheme (PDS) that provides a three-year block research grant of INR 4 Lakhs.

For detailed information, Qualification & Experience, please visit the Institute website http://www.igidr.ac.in/careers/

Deadline: The Last date for the receipt of Online Application is **15th September 2025**.

Sd/- Registrar

INDIRA GANDHI INSTITUTE OF DEVELOPMENT RESEARCH

(An Advanced Research Institute Established by the Reserve Bank of India)
Gen. A. K. Vaidya Marg, Goregaon (E), Mumbai – 400065
Website: www.igidr.ac.in

No.1/NT/2025   Date : 18.08.2025

ADVERTISEMENT FOR VARIOUS NON-TEACHING STAFF ON DEPUTATION/CONTRACT BASIS

Applications are invited from eligible Indian Nationals for the following non-teaching positions on a Deputation/Contract basis.

Sr No	Name of the Position	Pay Level (as per the 7th CPC)	Total Vacancy	Age (preferably below)
1.	Human Resources Officer	Level 10 (₹56100-177500)	01	40 years
2.	Research Grants & Project Officer	Level 10 (₹56100-177500)	01	40 years
3.	Academic & Student Affairs Officer	Level 10 (₹56100-177500)	01	40 years
4.	Law Officer	Level 10 (₹56100-177500)	01	40 years
5.	Assistant System Analyst cum Software Engineer	Level 10 (₹56100-177500)	01	40 years
6.	P.S. to Director	Level 07 (₹44900-142400)	01	35 years
7.	Assistant Administrative Officer (Administration)	Level 07 (₹44900-142400)	01	35 years
8.	Assistant Administrative Officer (Students & Academic Affairs)	Level 07 (₹44900-142400)	01	35 years
9.	Assistant Administrative Officer (Accreditation & Outreach)	Level 07 (₹44900-142400)	01	35 years
10.	Assistant Electrical Engineer	Level 07 (₹44900-142400)	01	35 years
11.	Assistant Civil Engineer	Level 07 (₹44900-142400)	01	35 years
12.	Campus Safety & Security Officer	Level 07 (₹44900-142400)	01	35 years
13.	Hostel Superintendent	Level 06 (₹35400-112400)	01	35 years
14.	Professional Assistant (Library)	Level 06 (₹35400-112400)	01	35 years
15.	Library Assistant	Level 04 (₹25500-81100)	01	35 years

Notes:
1. Maximum Age is to be reckoned as on the closing date of applications.
2. The age limit for Deputation will be up to 56 years
3. The number of vacancies indicated is tentative and subject to change without prior notice.
4. The Institute reserves the right to cancel/restrict/enlarge/modify the recruitment process without assigning any reason.

Application Window: Opens on 21st August 2025
Last Date for Receipt of Applications: 15th September 2025
For all the further details like eligibility, qualifications, pay scales, age limits, job profile, and application procedure etc, please visit: www.igidr.ac.in/careers

Sd/- Registrar

INDIRA GANDHI INSTITUTE OF DEVELOPMENT RESEARCH

(A Premier Research Institute and Deemed to be University of the Reserve Bank of India)
General A.K. Vaidya Marg, Goregaon (East), Mumbai - 400 065

CoRe - 2025: IGIDR PhD. Colloquium
CALL for APPLICATIONS

We're excited to host CoRe 2025! The Indira Gandhi Institute of Development Research (IGIDR) invites applications from Ph.D. scholars to participate in its Eighth Conversations on Research (CoRe) Ph.D. Colloquium, 2025. We look forward to an enthusiastic response from Ph.D. scholars across the country to make the Colloquium a vibrant and engaging experience. The Colloquium is being organized as part of the institute's overall mandate to foster excellence in research by stimulating interactions and facilitating collaborations among young researchers.

CoRe aims to provide doctoral students of Economics, Energy & Environment, and Development Studies:

(a) a platform to present their ongoing research and gain valuable feedback,

(b) an opportunity to meet doctoral students from other parts of the country

(c) a forum to discuss and resolve emerging issues that concern both theoretical and empirical researchers,

(d) guidance on increasing publication success, and how to address challenges faced during Ph.D.

(e) guidance on post-Ph.D. career options.

Date and Venue: Wednesday, October 29, 2025 – Friday, October 31, 2025. Institute's Campus, located on Gen. A. K. Vaidya Marg, Goregaon (East), Mumbai 400065, INDIA.

Format:

a) Full Paper Sessions: **Ph.D. scholars** who are in the advanced stage of their doctoral work will be invited to present a paper from their thesis. This will be followed by a discussion led by the chair/discussant. Two slots are earmarked for candidates who made poster presentations in CoRe 2024 subject to their meeting acceptable quality standards.

b) Poster Presentation Sessions: **Ph.D.** scholars who are in the initial stages of their Ph.D. will be invited to present an overview of their thesis in poster presentations. The three top posters will be awarded prizes which include a CoRe citation and book awards.

c) Panel Discussions: There will be a plenary talk and two Panel Discussions: (i) *Meet the Editors* (attendees will get an opportunity to interact with editors of leading national and international journals), (ii) *Life After Ph.D.* (Ph.D. students who have recently graduated will provide guidance on post Ph.D. career options).

Financial Support: 3rd AC train fare by the shortest route, free accommodation on a twin-sharing basis from October 28 – November 1, 2025, and full boarding.

Application Procedure:

All Ph.D. scholars registered with a university are eligible to apply. Applicants need to register on the IGIDR website www.igidr.ac.in/CoRe2025, following which they have to upload (1) their latest CV and (2) a completed paper to be considered for the Full Paper Sessions or an overview of the thesis to be considered for Poster Sessions. Selected candidates may be required to send a scanned copy of their bona-fide certificate.

Deadlines:

The deadline for receiving applications is **September 21, 2025**. Selected candidates will be informed by **October 03, 2025**.

CoRe Website: www.igidr.ac.in/CoRe2025   **CoRe Secretariat:** Sayli Charatkar

CoRe Email: core2025@igidr.ac.in

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Applications are invited for the following positions

POSITION	EXPERIENCE
Professor CSE | AIML | DS	Ph.D in CSE and minimum of 10 years teaching/research/industry experience
Associate Professor CSE | AIML | DS	Ph.D in CSE and minimum of 08 years teaching/research/industry experience
Assistant Professor CSE | AIML | DS | Maths	First Class PG and minimum 02 years teaching experience. Preference will be given to Ph.D candidates

Preferred Areas of Specialization

Artificial Intelligence & Machine Learning, Data Science, Full Stack Development, IoT, Programming (Python, Java etc.), Cybersecurity, Cloud Computing, Quantum Computing

Interested candidates can send their detailed resume to
careers.soe@aurora.edu.in
Only shortlisted candidates will be called for the interview.

AURORA HIGHER EDUCATION AND RESEARCH ACADEMY
(Deemed-to-be-University, Estd. u/s.03 of UGC Act 1956)
Bhongir, Yadadri, Telangana
www.aurora.edu.in +91 7780799629