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# UNIVERSITY NEWS

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# Research and Innovation in 21<sup>st</sup> Century Indian Higher Education: Way Forward

Neeru Snehi\*

Higher education institutions across the world are increasingly attempting to adapt themselves to face the pressures arising from the globalisation, internationalisation, and increasing global ranking demands. Apart from other initiatives, the universities have responded by enhancing the initiatives for improving the quality and capacity of research. Hammad (2021) observes that “different approaches to capacity building have been adopted in the institutions, but they usually include elements such as establishing the infrastructure necessary for conducting research, recruiting, developing, and motivating staff members investing in affiliation and partnership programs, promoting internal and external research collaboration, in addition to increasing research funding and mapping out national research priorities. Further, capacity building in educational areas and institutions is considered very important as it proposes to address the shortcomings and gaps in educational research and help researchers produce valid knowledge, and respond to the needs of policymakers and practitioners.

In fact, research and capacity building for research is gaining significance due to the growing criticisms of the current educational research practices and outcomes. Although there is no agreed definition of research capacity building or what it should entail, Researchers view it as a process aimed at developing research skills and equipping researchers with sound research methodologies that enable them to carry out and produce high-quality research. In this context, in general, research capacity building implies a continuous process for developing and strengthening the skills of all the stakeholders in the institution, which will have an impact on the institution. At the same time, Huenneke (2017) was of the view that “universities pursue specific strategies for building research capacity; expanding research, however, can cause tensions with traditional expectations for teaching, service, and outreach; increasing research focus also presents challenges in managing risk and regulatory compliance for institutions; positive outcomes of investment in building research capacity are by no means assured”. Conventional approaches to increasing research activity in the institutions include engagement in research as a professional activity, critical reflection on professional experience, and interaction with fellow researchers. A collaborative approach to capacity building has also been proposed where researchers and other concerned stakeholders collaborate during the research process and international collaboration through North-South partnerships is also a means for extending research activity. Further,

*\*Professor, Department of Higher and Professional Education, National Institute of Educational Planning and Administration, 17B, Sri Aurobindo Marg, New Delhi - 110016. E-mail: neerusnehi@niepa.ac.in; neerusnehi@gmail.com*

capacity building must become a mandatory focus for every institution and its individuals. Therefore, higher education institutions require research capacity building at the individual researcher (faculty, student) and the institutional level.

### **Enhancing Research Capacity in Indian Universities and Colleges**

Traditionally, in the post-independence period, the mechanism of expanding higher education included the establishment of small standalone specialised institutions for areas like engineering (IITs), management (IIMs), medicine, law, social sciences, sciences, etc. Thus, the higher education system developed over seven decades is highly fragmented. This fragmentation of the system leads directly to severe suboptimality on various fronts: resource utilisation, the range and number of programmes and disciplines, the range and number of faculty, and the ability to carry out high-quality multidisciplinary research (NEP 2019). Reviewing the higher education system, it is evident that there is a dichotomy in the research sector vis-a-vis the large national research sector and the higher/university education sector. The major chunk of scientific research takes place in this large number of national research institutions that are outside the higher education sector. Higher/University education institutions play a limited role in producing research. This dichotomy gets further enhanced as only a very small share of government funding goes to higher education while the national research institutions are largely supported. This is also reflected by the huge gap in terms of research contribution from the universities and specialised research & development (R&D) institutions. Consequently, universities and their affiliated colleges have largely remained teaching-oriented (Snehi, 2013). This has impacted on two fronts, firstly, “so many members of the academic community of the country not conducting (and not incentivized to conduct) scholarly research is an enormous lost opportunity for research and innovation in the country. Secondly, on the education side, it is difficult to have outstanding higher education and teaching in an environment where knowledge creation is not taking place; indeed, how can students be taught to innovate in a location where innovation is not on the agenda” (NEP 2019). The NEP 2020 highlighted that there is “lesser emphasis on research at most universities and colleges, and lack of competitive peer-reviewed

research funding across disciplines”. Therefore, the Policy has recommended institutional restructuring and consolidation envisioning a new conceptual perception/understanding of what constitutes a higher education institution i.e., a university or a college- allowing for research-intensive universities and teaching incentive universities. It is expected that in 21<sup>st</sup> century, holistic and multidisciplinary education is needed and this approach will also improve and enhance the research. This is in keeping with the globally successful approach of setting up multidisciplinary research universities.

### **Enhancing Research at the Institutional Level**

Developing of research-intensive university is not only significant for improving scholarly research but it also provides a sound research base and informs policy and planning of the services in the country. There are several strategies that universities and colleges can use to increase their research capacity in India. Some of them are discussed here.

#### ***Promote Research Culture***

Universities and colleges need to promote a research culture to increase research capacity and output. Conducive research culture of an institution takes time, and it entails careful planning and constant process of development. The research culture includes strategies such as providing incentives for researchers to conduct quality research, such as research grants, promotions, and recognition (by organising seminar, workshops, conferences). It also includes creating a culture of providing encouragement and time that enhances the research capacity of researcher and promotes research and innovation. Research culture is highly dependent on the administrative mechanism in the institution. The mindset of the personnel at the helm of providing infrastructural and financial support is very important for the smooth conduction of research activities. The institutions can take initiatives to provide research capacity building opportunities in diverse disciplines by mentoring, nurturing and supporting young talents.

Angom (2022) emphasised that very few higher education institutions have elements of research culture i.e., fairness, inquiry, and conscientiousness. Other reasons cited for failing to promote good research culture were: faculty’s emphasis on short-term research as it is now linked to academic promotion i.e., earning points for promotion/

publication; institutions having few research projects/opportunities; inadequate infrastructural facilities; low motivation for research; inadequate fund/grants for research initiatives, lack of interdisciplinary research avenues and indifferent attitude and lack of support from the administrative support.

At the institutional level, it would be a valuable strategy that every institution develops and implement a research excellence framework. Thus, it is of utmost significance to develop a research environment/research ecosystem in the institution to increase research capacity.

### ***Increase Funding for Research***

Funding is cited by the institutions and researchers as the most significant aspect of the research support to the researchers. To increase research capacity, universities and colleges need to receive adequate funding for research. The government and private organizations need to invest more in research to provide universities and colleges with the necessary resources to conduct quality research. Financial support, research grants, incentives such as conference attendance grants, and publication rewards go a long way in motivating the researchers and contributing to the development of research cultures in institutions. However, the researchers from universities and colleges reveal that funded projects help significantly in building the capacity of researchers but delays in receiving funds from the agency and or university administration hamper the research outcomes. Especially, colleges do not receive government grants for research if they get funds from industry or funding organisations for specific research.

### ***Infrastructure Development***

Universities and colleges need to invest in infrastructure development to provide researchers with the necessary facilities to conduct quality research. This includes well-equipped laboratories, libraries, and other ICT facilities required for research. Research literature reflects the inadequate availability of libraries and equipped laboratory facilities in the universities and colleges in a large number of institutions. On the contrary, many university departments, centrally funded institutions, and colleges have cutting-edge, good, and adequate resources for research. Resources for developing the infrastructure need to be mobilised for enhancing research and innovation in higher education institutions.

### ***Building the Research Capacity of Faculty/ Researchers***

Huenneke et al. (2017) observe that there is broad recognition that faculty members represent one of the most important elements of research capacity for an institution and that university policies, practices, and resources greatly shape the productivity of researchers. Universities and colleges need to invest in human resource development to enhance the research capacity of their faculty. This includes providing training and support for researchers to enhance their research skills. It also includes providing incentives for researchers to conduct quality research, such as research grants, promotions, and recognition. The strategies such as partnerships, research teams, and collaborations for research capacity building have been utilised in many universities.

Collaboration between universities and colleges can help increase research capacity. This includes collaboration between universities and colleges within India and with other research institutions globally. Many institutions, e.g., IITs, reputed central and state universities, the institutions of eminence are already using these initiatives. Another strategy is to encourage interdisciplinary research in universities and colleges to increase research capacity. This includes encouraging researchers from different disciplines to work together on research projects. Interdisciplinary research can lead to new insights and discoveries, which can contribute to the development of knowledge.

Capacity building activities, by and large, include the following: Periodical Training, Re-skilling and Upskilling, Continuous learning, relevant development activities, knowledge enhancement, caching, and teaching. Integrating the research-oriented activities with the above-mentioned set of attributes would enhance the research productivity of the faculty members.

### ***Assessment of Research Management Practices***

Promoting research in the institution is not a singular activity, it includes planning the research agenda/policy of the institution and its implementation. The management of the research going on in the institution involves decisions related to the kind of research projects and their approval process, the funding pathways, networking and collaboration, recruitment of research staff,



laboratories, workload/time management, and research output and its dissemination, patent, etc. There is a need to have a specialized cell/committee to look after these research practices introduced in the institution. Therefore, it is imperative to regularly assess the research management/ administrative practices in place for building research capacity in any institution. It is expected that “the establishment of Research and Development Cell in HEIs will enable attainment of targets of *Atma-Nirbhar Bharat* and is expected to play a pivotal role in catalysing research culture mandated in NEP 2020. The purpose of these guidelines is to put in place a robust mechanism for developing and strengthening the research ecosystem within HEIs, aligned with the provisions of NEP-2020. The essential elements of such an ecosystem, viz., generation of knowledge and facilitation of research, innovation, and technology development for industrial & societal benefits, are addressed by human resource, intellectual capital, governance and financial resources, information management system, research promotion & guidance, Integrity and ethics, capacity building and research monitoring. The Guidelines are to create a conducive environment for enhanced research productivity; to encourage collaboration across industry, government, community-based organizations, and agencies at the local, national, and international levels and to facilitate greater access to research through mobilization of resources and funding” (UGC, 2019).

### ***Building Research Capacity of the Undergraduate Students***

Sengupta (2019) in her study on improving undergraduate research reported that the Council on Undergraduate Research (CUR) defines “undergraduate research” (UR) as “an inquiry or investigation conducted by an undergraduate student that makes an original intellectual or creative contribution to the discipline.” Typically, an undergraduate student in any discipline assists a faculty, researcher, graduate student, and/or other undergraduates in research in areas of similar interests. Undergraduate students support collaborative research by either pursuing their research ideas or joining established research projects. Resultantly, The Course-based Undergraduate Research Experiences (CURE) were integrated into Undergraduate courses in the USA to enhance student learning. The institutions having research-supportive curricula expose students to the importance of

research and even if they do not participate in research in the future, it helps them gain an “appreciation for research methodology in their area of study”. Taking a cue from CURE, Sengupta (2019) opined that in India UG research needs to be embedded in programmes in such a way that it complements the current system of teaching, rather than disturbs it... Moreover, given the large number of students in the higher education institutes, CURE will offer a more inclusive system of research and education by giving opportunities to a larger group. Given the typical characteristics of a CURE, such courses will need capable instructors. In India, such instructors can be faculty, PhD students, or post-doctoral students. A valuable way of involving external instructors is from specialised research institutes in India such as IISERs, IISc, and Tata Institute of Fundamental Research (TIFR) among others.... this segregation of research and teaching institutes fades out and makes way for the blending of high-quality research in specialised institutes, and university teaching. The same has also been recommended by the 2009 Yashpal Committee Report on ‘Renovation and rejuvenation of higher education’. However, it was reported that UG research is not completely absent in India. The problem is that it is not being practiced in a structured, systematic way in universities and affiliated colleges thus far. These initiatives are taking place in science programs but research in social science is lacking (Sengupta, 2019).

The curriculum for the Four-Year Undergraduate Programme is the instrument through which the inculcation of the research culture at the undergraduate level is initiated. There is a need to develop a curriculum that includes research methodology. Other courses include - philosophy of research methods, Courses in the realm of Logic of reasoning and argument, Encouragement of reasoning, argument, and innovation, along with the scientific temper. Courses in the History of Scientific Thought, Designing Research, Logic of Inquiry, Reasoning, and Quantitative and Qualitative Research methods would allow for the researchers to hone their skills. This experience can be enhanced through starting student journals in the literary and scientific lone, creating student societies, and equal assistance to all the courses undertaken. Further, the provision of research to one and all should be made. Students can associate with the faculty in their research work to get the experience. Mentoring is another way through

which research experiences can be transmitted to students.

All undergraduate students want to experience Internships and research opportunities with local industry as well as research internships with faculty and researchers at their own or other HEIs or research institutions. It is hoped that a multidisciplinary and liberal approach to higher education will serve to enhance not only undergraduate programmes but also postgraduate programmes and research in HEIs. This will make research by faculty and graduate students more interdisciplinary and locally relevant. It will encourage collaboration across departments and institutions to tackle issues relating to the improvement of research performance at their institutions.

Thus, enhancing the initiatives for research capacity building of all the stakeholders in the institution would enhance the quality of research output and teaching. This would contribute to accessing better research opportunities for the development of the national economy.

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# Defining Programme Educational Objectives for Enhanced Quality and Effectiveness in Graduate Programmes: Crafting Clear Pathways

Yogeshchandra Sharma\*

Accreditation of degree programmes has emerged as a pivotal mechanism for enhancing the quality, credibility, and acceptance of educational institutions. Various accrediting bodies, such as the National Medical Council (NMC), Indian Council for Agricultural Research (ICAR), National Board of Accreditation (NBA), National Accreditation Board for Hospitals and Healthcare Providers (NABH), and National Accreditation Board for Education and Training (NABET), specialize in accrediting institutions within specific fields. The National Assessment & Accreditation Council (NAAC) evaluates and accredits Higher Educational Institutions in India to integrate quality assurance into the operational framework of accredited entities.

For educational institutions, Programme Educational Objectives (PEOs) hold significant importance as they serve as the ultimate measure of programme quality. PEOs are directly linked to curriculum delivery and student outcomes within a degree programme. This work proposes a comprehensive set of guidelines for defining and assessing programme educational objectives, along with their correlation with Programme Outcomes, Programme Specific Outcomes, and Course Outcomes. Drawing from practical experiences acquired during the NAAC Accreditation process of multifaculty and multidisciplinary universities encompassing fields such as Medical (both UG & PG), Pharmacy, Nursing, Allied Health Sciences, Physiotherapy, Life and Basic Sciences, Engineering, Law, Hotel Management, Education, Language & Literature, Business Management, Media, Fashion Design, Social Sciences, and Computer & System Sciences, the author provides relatable examples and insights.

In academia, accreditation stands as a peer-reviewed and voluntary process aimed at assessing and evaluating the quality of degree programmes

*\* Professor of Physics, Director, Research and Academic Development, Director, IQAC and NEP Coordinator, Jaipur National University, Jaipur- 302 017, Rajasthan, E-mail: yogeshchandra.sharma@gmail.com*

offered by institutions. In India, the National Assessment and Accreditation Council (NAAC), established by the University Grants Commission (UGC) in 1994, has emerged as a leading authority in accrediting colleges and universities. Guided by its vision “to encourage self-evaluation, accountability, autonomy, and innovation in Higher Education,” NAAC diligently pursues its objectives.

NAAC’s methodology of Assessment and Accreditation (A&A) mirrors the practices embraced by accreditation bodies such as JABEE in Japan, ABET in the USA, ABEEK in South Korea, and global agencies like Quacquarelli Symonds (QS) and Times Higher Education World University Rankings (THE), among others. This approach hinges on a combination of self-assessment by the institution and external peer assessment by a distinguished panel of academicians appointed by NAAC.

The Indian Higher Education System stands as the world’s largest and most diversified, yet the rise of privatization and increased autonomy has raised concerns. Additionally, the wide expansion of higher education, technological advancements, shifts in educational delivery methods, and the influence of globalization have prompted a transformation in core values. In response, NAAC has developed a Quality Assurance (QA) process grounded in a value framework tailored to the Indian context.

NAAC’s academic framework is anchored in five core values, ensuring both external and internal validity and credibility. The framework comprises seven criteria, encompassing not only the academic and administrative facets of institutional functions but also addressing emerging issues. In any educational institution, the Curricular Aspects serve as a central component, contingent upon the administrative setup of the institution. The University envisions appropriate programmes, designs curricula, regularly revise and updates them, and ensures the attainment of outcomes defined by its academic bodies. To formulate a programme,



the Academic Council, based on recommendations from the respective Board of Studies, appoints a Programme Assessment Committee (PAC) which is tasked with delineating Programme Educational Objectives (PEOs), Programme Outcomes (POs), Programme Specific Outcomes (PSOs), and Course Outcomes (COs).

PEOs hold significance as they project the achievements students are expected to attain several years after graduation, thereby reflecting the relevance and success of a degree programme. Additionally, PEOs are not only the ultimate judgment of the programme but also have a direct correlation with POs, PSOs, and COs. The successful implementation and delivery of curricula, along with the targeted achievement of outcomes, prepare students to meet PEOs. Thus, any deficiencies in outcome achievements may result in the non-attainment of PEOs. Consequently, curriculum designers must prioritize the careful design of PEOs, ensuring that both the curriculum and outcomes align with the attainment of PEOs.

The work provides a general framework for defining and assessing PEOs followed by an explanation and discussion of the guidelines used to identify relevant PEOs for the M.Sc. (Physics) programme as an example, along with a provided list of defined PEOs and POs, PSOs & COSs (for 2 courses only). The relationship between institutional mission and PEOs, along with mapping between them has also been discussed. The linkage between PEOs and outcomes (POs, PSOs, and COs) within the curriculum and the mapping between them has also been discussed. Further, the assessment of PEO attainment and its correlation with assessment instruments and processes has also been explained.

## **Design, Assessment, and Revision**

### ***A. Design of PEOs***

Designing PEOs for a particular academic programme typically involves understanding the goals of the educational programme and how they align with the needs of stakeholders such as students, faculty, parents, employers, and professionals. PEOs are statements that describe the expected accomplishments of graduates of the programme within a few years after graduation. The process of designing PEOs for a programme could be delineated as follows:

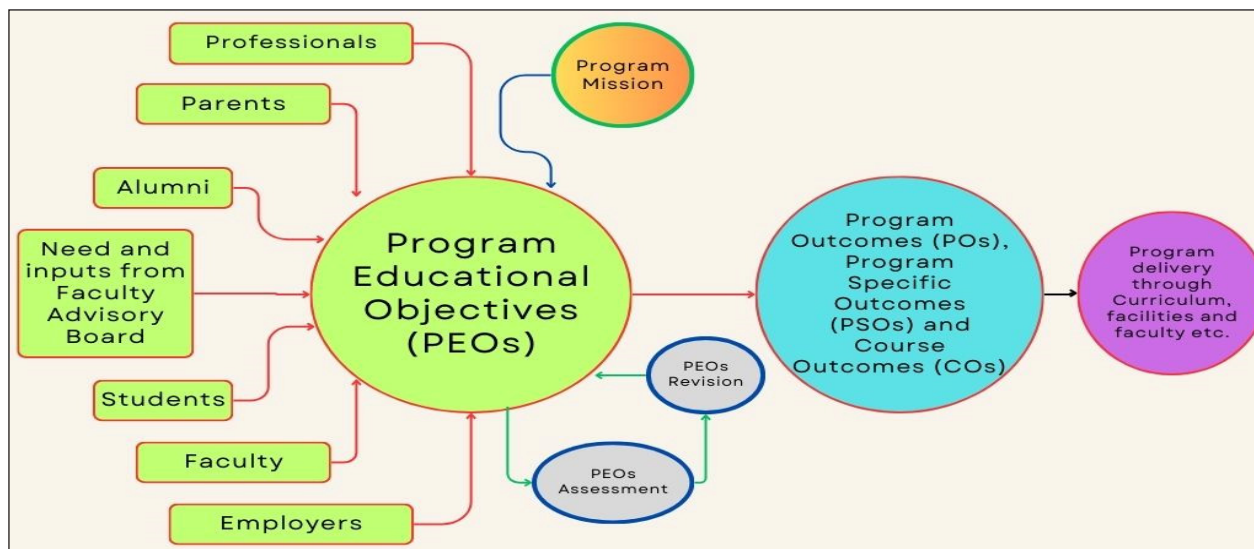
- i. PEOs are crafted through department-level discussions led by the PAC, comprising faculty and stakeholders.
- ii. Initial discussions focus on outlining PEOs, identifying targeted achievements for graduates.
- iii. Input and feedback from stakeholders like students, alumni, employers, and industry professionals refine proposed PEOs.
- iv. An advisory board, including industry professionals and alumni, may guide objectives and curriculum.
- v. PAC, with advisory board input, defines programme Mission, Goals, and specific objectives.
- vi. Stakeholder feedback is integrated to ensure PEOs align with needs and expectations.
- vii. Desired outcomes in terms of knowledge, skills, and attributes are determined, and aligned with programme goals and stakeholder needs.
- viii. A second draft of measurable, achievable, and relevant PEOs is developed based on identified outcomes.
- ix. Finalized PEOs serve as guiding principles for curriculum and assessment, ensuring graduates' readiness for careers.
- x. Finalized PEOs undergo approval from relevant authorities before being incorporated into curriculum and planning processes.

The whole process can be understood through the flow chart provided in figure 1.

### ***B. Assessing PEOs***

- i. PEOs involve determining criteria, metrics, and assessment methods like surveys, exams, and employer feedback.
- ii. Data gathering includes student performance data (grades, projects, internships) and feedback from employers and stakeholders.
- iii. Analyzing collected data evaluates PEO achievement, identifying trends and areas for improvement.
- iv. Results are interpreted within programme goals, industry standards, and stakeholder expectations.
- v. Strengths and weaknesses are identified based on assessment areas.
- vi. Strategies for improvement are developed, including curriculum revisions and faculty development.

**Figure 1: Process for the Design Development and Assessment of PEOs**



- vii. Improvement strategies are implemented into curriculum, instruction, and policies.
- viii. Continuous monitoring of changes' impact on student outcomes and PEO achievement, adjusting strategies as needed.
- ix. Documentation and analysis of assessment findings and improvement efforts are communicated to stakeholders.
- x. Integration of assessment data and stakeholder feedback into ongoing programme evaluation and refinement enhances effectiveness in measuring PEO achievement.

### C. Revising PEOs

This collaborative process ensures PEOs remain relevant by revisiting them every two to three years, aligning with industry standards and stakeholder expectations. Here's the compact version:

- i. Periodic review of PEOs involves assessing results and gathering stakeholder input for revisions, aligning with external guidelines.
- ii. Stakeholder feedback shapes revised PEOs to reflect the collective vision.
- iii. Final revised PEOs undergo review by the Board of Studies and Academic Council for approval.
- iv. Approved PEOs align with the institution's strategic direction after review by the Board of Management.

Ensuring visibility, PEOs are published in handbooks, websites, and social media, fostering awareness among stakeholders.

### Alignment between Programme Educational Objectives (PEOs) and Institutional Vision

Ensuring alignment between PEOs and institutional vision is vital for coherence and direction. Here's a compact breakdown of the steps:

- i. Develop PEOs in line with institutional mission and goals to contribute to overall mission fulfillment.
- ii. Disseminate mission statements widely across all levels (institutional, school, department, programme) *via* website, social media, and student handbooks.
- iii. Increase stakeholder awareness of mission statements through orientation sessions and regular reminders.
- iv. Integrate mission statements into academic processes like curriculum development and programme assessment.
- v. Implement feedback mechanisms to assess effectiveness and gather stakeholder input for continuous improvement.

Linkage and alignment of mission statements can ensure coherence and direction within an academic institution:

- i. The programme mission should contribute to the departmental mission, aligning objectives. For example, a programme focused on producing high-quality physicists aligns with a department's mission of high-quality education and community service.

- ii. Departmental missions, emphasizing teaching, research, and community service, should align with school missions. For instance, a department focused on knowledge-based society development aligns with a school preparing creative minds for community service and environmental conservation.
- iii. School missions, centered on specific disciplines and community service, should align with the university mission. For example, a school preparing minds in physical sciences for community service aligns with a university's mission of advancing learning and sustainability.

Hence the mission statements are ultimately serving the mission of the University and the mission of national development.

Considering the mission statements the PEOs for M.Sc. (Physics) may be defined as in Table 1.

**Table 1: Statements Defined for Programme Educational Objectives of MSc (Physics) Programme**

S. No.	PEO	Statement
1	PEO 1	Equip graduates with skills in excellence, critical thinking, creativity, inventiveness, and self-motivation for lifelong learning, facilitating their success in diverse interdisciplinary environments.
2	PEO 2	Prepare graduates for global professional roles in government, corporate, and research sectors, while fostering entrepreneurial skills crucial for success.
3	PEO 3	Cultivate graduates with advanced proficiency in Physics, empowering them to tackle complex scientific challenges effectively.
4	PEO 4	Develop graduates who can ethically lead or collaborate within teams to achieve organizational goals and contribute to societal advancement.
5	PEO 5	Empower graduates with research and innovation skills to excel as proficient researchers.

The major efforts indicated by the mission statement are towards the development of self-reliant and sustainable society. The defined PEOs of the M.Sc. (Physics) programme are insisting on professional skills, teamwork, ethical behavior,

continuous learning, leadership, and graduate studies. An example of how the correlation between the mission statements at different levels and the PEOs can be represented through an illustration in the Table-2.

**Table 2: Correlation between Various Mission Elements and PEOs of MSc (Physics) Programme**

Mission Level	Mission Element	Programme Educational Objective				
		1	2	3	4	5
University	Societal Contribution	H	H	M	M	L
	Ethical Leadership	H	M	M	H	H
	Global Professionalism	M	H	M	M	L
College/School of Physical Sciences	Research Skills	H	M	H	M	H
	Excellence	H	M	H	H	M
	Environmental ethics and values	H	H	L	L	L
Department	Technical Mastery	H	H	H	M	H
	Creativity	H	H	H	M	H
	Inventiveness	H	H	H	M	H
Programme	High-Quality Physicists	H	H	H	H	H
	Contribution to Scientific Development	H	H	H	H	H
	Problem-solving	H	H	H	H	H

Programme Outcomes (POs) are attributes of the graduates of the programme that are indicative of the graduates' ability and competence to work as science professional upon graduation. A list of sample POs of M.Sc. Physics programme may be as in table 3.

**Table 3: Statements defined for Programme Outcomes of MSc (Physics) Programme**

S. No.	PO	Statement
1	PO 1	Students will acquire comprehensive knowledge in Physical Sciences and will be equipped to successfully compete in national-level tests such as UGC-CSIR NET, JEST, GATE, etc.

S. No.	PO	Statement
2	PO 2	Graduates will be prepared to tackle challenges as globally competitive physicists and researchers across various domains of theoretical and experimental physics.
3	PO 3	Graduates will possess advanced technical and analytical skills required to pursue further studies in their chosen field.
4	PO 4	Graduates will demonstrate a strong sense of academic and social ethics in their professional endeavors.
5	PO 5	Graduates will have the capability to pursue higher studies with an interdisciplinary approach, recognizing the importance of multidisciplinary knowledge.
6	PO 6	Graduates will acknowledge the necessity of continuous learning and professional development throughout their careers.

While Programme Specific Outcomes (PSOs) are specific statements that describe the professional career accomplishments that the programme is designed for. A list of sample PSOs of M.Sc. The physics programme may be as in Table 4.

**Table 4: Statements Defined for Programme Specific Outcomes of MSc (Physics) Programme**

S. No.	PSO	Statement
1	PSO 1	Demonstrate proficiency and apply comprehensive domain knowledge in physics, astronomy, and astrophysics effectively in teaching, industrial settings, and research endeavors.
2	PSO 2	Cultivate and practice effective academic and creative written and oral communication skills, along with proficient presentation abilities, specifically tailored to the field of physics.
3	PSO 3	Develop the ability to comprehend, investigate, and assess concepts from various disciplines, including physical, biological, and social sciences, and adeptly correlate course content with real-world societal challenges.

To understand and establish which PO and PSO are contributing towards achieving a particular

PEO, mapping metrics should be prepared as shown in Table 3. The correlation between PEOs, POs, and PSOs of MSc (Physics) programme is detailed in Table 5.

**Table 5: Correlation between PEOs, POs and PSOs of MSc (Physics) Programme**

Programme Educational Objectives (PEOs)	POs	PSOs
PEO 1: Obtain good knowledge in Physical Sciences and compete in national-level tests successfully	PO 1	PSO 1, PSO 2, PSO 3
PEO2: Take up challenges as globally competitive physicists/researchers in diverse areas of theoretical and experimental physics	PO 2	PSO 1, PSO 2
PEO 3: Be technically and analytically skilled enough to pursue further studies	PO 3	PSO 1
PEO 4: Have a sense of academic and social ethics	PO 4	PSO 3
PEO 5: Be capable of taking up higher studies of interdisciplinary nature	PO 5	PSO 3
PEO 6: Recognize the need for continuous learning and development throughout their professional career	PO 6	PSO 2

#### **Alignment between Programme Educational Objectives (PEOs), Programme Outcomes (POs), and Course Outcomes (COs)**

Aligning PEOs, POs, and COs ensures curriculum coherence and effectiveness in a suggestive compact methodology:

- i. Identify common goals reflecting desired knowledge and skills.
- ii. Map PEOs to POs for broader programme objectives.
- iii. Link POs to COs for specific course outcomes.
- iv. Ensure progression and coherence in alignment.
- v. Develop assessment strategies for measuring attainment.
- vi. Regularly review alignment for relevance and effectiveness, adjusting curriculum as needed.

By following these steps, institutions can ensure that their PEOs, POs, and COs are closely aligned, providing a coherent and structured framework for student learning and assessment throughout the academic programme.



For example, we will discuss two courses taught in the MSc Physics programme. The suggestive COs of the courses are given and their mapping with POs and PEOs have been given in the table. Two courses “Quantum Mechanics” and “Mathematical Physics” taught in the M.Sc. Physics programme, along with their Course Outcomes (COs) and their mapping with Programme Outcomes (POs) and Programme Educational Objectives (PEOs) have been discussed to understand the mapping of PEOs with POs and COs.

### **Course 1: Quantum Mechanics**

#### ***Course Outcomes (COs)***

1. Understand general formalism and Dirac notation in quantum mechanics.
2. Master the applications of quantum mechanics in one- dimensional and three-dimensional physics problems.

#### ***Mapping with Programme Outcomes (POs)***

PO 1: Students will acquire comprehensive knowledge in Physical Sciences and will be equipped to successfully compete in national-level tests such as UGC-CSIR NET, JEST, GATE, etc.

PO 2: Graduates will be prepared to tackle challenges as globally competitive physicists and researchers across various domains of theoretical and experimental physics.

#### ***Mapping with Programme Educational Objectives (PEOs)***

PEO 1: Equip graduates with skills in excellence, critical thinking, creativity, inventiveness, and self-motivation for lifelong learning, facilitating their success in diverse interdisciplinary environments. PEO 2: Prepare graduates for global professional roles in government, corporate, and research sectors, while fostering entrepreneurial skills crucial for success.

### **Course 2: Mathematical Physics**

#### ***Course Outcomes (COs)***

1. Understand the concepts of tensors, differential equations with varying coefficients, integral transforms, and series and complex variables.
2. Master the fundamentals of numerical methods, computer algorithms and programming languages.

#### ***Mapping with Programme Outcomes (POs)***

PO 1: Students will acquire comprehensive knowledge in Physical Sciences and will be equipped to successfully compete in national-level tests such as UGC-CSIR NET, JEST, GATE, etc.

PO 3: Nurture graduates who demonstrate technical mastery in Physics and possess the ability to devise solutions for complex scientific challenges.

#### ***Mapping with Programme Educational Objectives (PEOs)***

PEO 1: Equip graduates with skills in excellence, critical thinking, creativity, inventiveness, and self-motivation for lifelong learning, facilitating their success in diverse interdisciplinary environments. PEO 3: Cultivate graduates with advanced proficiency in Physics, empowering them to tackle complex scientific challenges effectively. In this example:

- For both courses, the COs focus on understanding fundamental principles and applying mathematical techniques to solve physics problems.
- The mapping with POs emphasizes acquiring comprehensive knowledge in Physical Sciences and developing advanced technical and analytical skills.
- The mapping with PEOs aligns with obtaining good knowledge in Physical Sciences and being prepared for further studies or challenges in physics.
- This alignment ensures that the courses contribute to the broader objectives of the M.Sc. Physics programme, providing students with the necessary knowledge and skills to succeed in their academic and professional endeavors.

#### **Assessment of Programme Educational Objectives**

Assessing PEOs ensures graduates meet programme objectives and guides corrective actions if needed; a concise breakdown of the steps may be as follows:

- i. Define measurable indicators specific to student achievement.
- ii. Gather data from multiple sources on student performance.
- iii. Align assessment methods with PEOs for direct measurement.



- iv. Employ formative and summative assessments for ongoing feedback and final evaluation.
- v. Use direct and indirect assessment techniques to evaluate performance.
- vi. Develop rubrics for consistent evaluation of student work.
- vii. Analyze aggregated data to identify strengths and areas for improvement.
- viii. Provide feedback to stakeholders and recommend curriculum revisions based on findings.
- ix. Track longitudinal data to assess changes in student achievement over time.
- x. Use assessment results for continuous programme evaluation and improvement.

PEOs will not be assessed for the same level of attainment but these will have different levels as given in column 4 of Table 6.

Systematic assessment ensures programmes meet student and stakeholder needs while maintaining academic quality and adapting to evolving standards. By systematically assessing Programme Educational Objectives, institutions can ensure that their programmes are meeting the needs of students and stakeholders, maintaining academic quality, and continuously improving to address changing educational and professional standards.

Designing a questionnaire for the assessment of Programme Educational Objectives (PEOs)

**Table 6: Satisfactory Target Level of Various PEOs of MSc (Physics) Programme**

S. No.	PEO number	Statement	Satisfactory target level
1	PEO 1	Equip graduates with skills in excellence, critical thinking, creativity, inventiveness, and self-motivation for lifelong learning, facilitating their success in diverse interdisciplinary environments.	80%
2	PEO 2	Prepare graduates for global professional roles in government, corporate, and research sectors, while fostering entrepreneurial skills crucial for success.	70%
3	PEO 3	Cultivate graduates with advanced proficiency in Physics, empowering them to tackle complex scientific challenges effectively.	40%
4	PEO 4	Develop graduates who can ethically lead or collaborate within teams to achieve organizational goals and contribute to societal advancement.	50%
5	PEO 5	Empower graduates with research and innovation skills to excel as proficient researchers.	20%

**Table 7: A Questionnaire for the Assessment of PEOs of the MSc (Physics) Programme.**

S. No.	PEO number	Targeted Achievement	Targeted Achievement			
			Exemplary	Proficient	Basic	Below Basic
1	PEO 1	Graduates' proficiency in excellence, critical thinking, creativity, inventiveness, and self-motivation, evaluating their ability to navigate diverse interdisciplinary environments and engage in lifelong learning effectively				
2	PEO 2	Graduates' readiness for global professional roles in government, corporate, and research sectors, including their proficiency in entrepreneurial skills essential for success				
3	PEO 3	Graduates' technical mastery in Physics and their capacity to devise solutions for complex scientific challenges				
4	PEO 4	Graduates' ability to ethically lead or collaborate within teams to achieve individual and organizational objectives, while contributing to societal betterment				
5	PEO 5	Graduates' acquisition of research and innovation skills to assess their proficiency as researchers.				

involves crafting questions that gather feedback from stakeholders about their perceptions of student achievement in relation to the stated educational objectives. A sample questionnaire template has been provided in Table 7.

Overall, to what extent do you believe the MSc Physics programme has been successful in achieving its stated Programme Educational Objectives?

Please provide any additional comments or suggestions for improving the assessment of Programme Educational Objectives in the MSc Physics.

This questionnaire can be distributed to various stakeholders, including current students, alumni, faculty members, employers, and industry professionals, to gather diverse perspectives on the achievement of Programme Educational Objectives. Adjustments can be made to the questionnaire based on specific programme goals and objectives. Additionally, incorporating open-ended questions allows respondents to provide qualitative insights, which can complement quantitative ratings.

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# Issues in Creating Cluster Universities

R T Bedre\* and Manisha Sasane\*\*

Taking note of the recommendations of various committees and commissions on higher education in India, the National Knowledge Commission headed by Sam Pitroda (2006-09), the preceding commission of National Education Policy –2020 (NEP—2020), had underlined the need for small universities and more universities in the country to address the issues of affiliation. It goes like this:

We need to create more appropriately scaled and more nimble universities. The moral of the story is not only that we need a much larger number of universities, say 1500 universities nationwide by 2015 but also that we need smaller universities that are responsive to change and easy to manage (NKC, p.69.).

## Observations in the RUSA

Later, the offshoot of the NKC recommendations, Rashtriya Uchchar Shiksha Abhiyan (RUSA- now known as PM USHA launched in 2013 had detailed the issues of the affiliation system along with many others and suggested a path to bring reforms in the affiliation system. While talking about the issues of the state universities regarding the affiliation system and its nature, RUSA observed:

Apart from limited finances, state universities also have to grapple with the bureaucratic process, inefficient administration, lack of accountability, the burden of the affiliation system, and political interference....

From the perspective of the state university, the affiliation system is a lucrative option of raising funds as it brings affiliation fee and examination fees. However, the rampant rise in number of colleges affiliated to universities has deteriorated the quality of higher education significantly. The active university resources and systems are diverted towards management and conduct of exams with consequent dilution of focus on academic quality and research (RUSA, pp.66-67).

\* Professor-Director of UGC-MMTTC, Dr. Harisingh Gour University, Sagar, Madhya Pradesh-470003. E-mail: agnivarsha2260@gmail.com

\*\*Head, Department of English, Lokmanya Tilak Mahavidyalaya, Wadwani, Beed, Maharashtra

Ways Suggested by RUSA to Deal with Affiliation Issues

In light of the above issues of the affiliation system and its adverse impact on the state universities, the RUSA had suggested some paths to bring reforms, to cite a few:

- i) Limit the number of colleges to be affiliated with any university to 100. However, this would mean establishing more affiliating universities than the present numbers.
- ii) Establish campuses of existing universities to better serve colleges in their physical proximity. In this case, all academic and administrative responsibilities regarding colleges will fall on the offices of the various campuses.
- iii) Large autonomous colleges can be encouraged to develop into universities.
- iv) Create (college) cluster university by clustering a minimum of 3-5 colleges in the area surrounding a city or in a district giving the university its independent establishment, degree-granting powers, and governance.
- v) A number of colleges could be encouraged to merge, to create a larger institution. It is likely that this larger institution would have the capacity to become autonomous. This would also ensure inter- disciplinary and cross-disciplinary learning. (p. 111).

## Pro-active Approach of the State Government of Maharashtra

The State Government of Maharashtra seems to be pro-active as it has taken the lead in establishing autonomous colleges and taken initiatives in establishing cluster universities in the state. It has already brought two special amendments in its Maharashtra State Public Universities Act 2016 as 'Norms and Procedures for Grant and Continuation of Status of Empowered Autonomous Cluster Institutions, Constitution of Authorities and Bodies, and Powers and Functions of the Empowered autonomous Cluster Institutions Uniform Statute, 2023' and 'Norms and Procedures for Grant and Continuation of Status of Empowered Autonomous Colleges, Constitution of Authorities and Bodies,

and Powers and Functions of the Empowered Autonomous Colleges Uniform Statute, 2023' in its Gazette on 22 May 2023.

Under these unique initiatives, the Higher and Technical Education Department of Maharashtra State has introduced four plans:

***Empowered Autonomy:*** A provision to grant autonomy to colleges to award joint degree in collaboration with the universities.

***Empowered Autonomous Cluster Institutions:*** A provision to facilitate collaborations among the autonomous colleges/ institutions of the state.

***Clustering of Colleges:*** A step to cluster non-autonomous colleges (govt. colleges in the city of Aurangabad, Nagpur and Amravati).

***Cluster Universities:*** A provision in accordance with the RUSA guidelines, to bring transformative reforms in academics, administration and governance while reducing the burden of the affiliating universities.

To implement the last initiative, the State Govt. earlier developed draft guidelines for establishing cluster universities in the state. It takes pride in stating that:

Maharashtra has emerged as a pioneer by becoming the only state in India to secure approval for the establishment of cluster universities under the aegis of Rashtriya Uchatar Shiksha Abhiyan. Today, three cluster universities are functioning in the state (Dr Homi Bhabha State University, already mentioned, HSNC University, Mumbai Dr Karmveer Bhaurao Patil University, Satara).

The colleges in the first were all run by the state government in Mumbai, in the second were earlier run by Hyderabad-based Sind National Collegiate Board, and the colleges in the last were run by Rayat Shikshan Sanstha, Satara (both were the private managements).

### **Issues in Establishing Cluster Universities of Colleges/Institutes of Private Management**

In the draft guidelines circulated for suggestions, the Higher and Technical Education Dept of Maharashtra expects many more things while describing eligibility of the applicant institutions in terms of institutional requirements (the standing of the institution in years, minimum enrolment, physical

proximity of the constituent institutes, availability of land and built-up area), academic standards (higher grade in accreditation by NAAC or NBA), research capacity and potentials) and availability and mobility of funds. In addition to these, it expects the availability of digital infrastructure, industry collaboration, readiness to adapt themselves to NEP 2020 requirements, and mandates commitments of the applicant institutes for various things, some feasible and some difficult. (In fact, some of the state universities do not have these commitments fulfilled.) It also expects the HEIs to submit a Detailed Project Proposal/ Report.

### ***Financial Concerns***

The Government Resolution of Higher and Technical Education Dept of Maharashtra dated 29 Nov 2023, talks about paying Rs. 1 Crore per annum as financial assistance from the state government to the cluster university to meet the salary of seven statutory posts of Vice Chancellor, Registrar, Finance and Account Officer, Director of Examination and Evaluation, Director, Information Source Centre, Director, Innovation, Research and Collaboration Board, and Director, Student Development and other administrative expenses. However, it expects the cluster university to be financially self-dependent to meet these expenses. (G R. p. 8) It expects the institutions to mention 'the additional infrastructure, manpower, and other resource requirement, along with the five-year financial projections mentioning the provisions for the mobilization of the financial resources required for the proposed cluster university (p, 9).

The amount of Rs. 1 crore per annum as financial assistance from the state government to the cluster university to meet the salary of seven statutory posts is too small to meet even the salary of these posts. All these posts are entitled to Academic Level 14 (144200 – 218000). The eligibility required for these posts will be at par with the professors. In the case of the Vice Chancellor, the required experience is 10 years as a professor or in a similar post. It means that almost all of these posts will draw a salary more than a newly appointed or promoted professor, not to mention here all allowances and facilities. By this thumb rule, the amount of Rs. 1 crore per annum will meet the expenses of only two posts. It is to be seen whether the cluster university has any sound means of generating revenue to meet the salary of the other five posts (and other administrative expenses). These



expenses can be managed only when all these seven statutory posts are filled from within the eligible employees working there as the Govt. Resolution in this regard assures retaining the grant in aid status (salary expenses of the existing staff) of the units of the cluster universities.

This is a discouraging move to the institutes aspiring for cluster university status. Already many institutions do not come forward to apply for even autonomous status as they fear that once they become autonomous, they will be asked to meet all expenses including salary with their means. The state should come forward to incentivize such colleges/ institutes volunteering for cluster university status to meet the infrastructure and manpower requirements likely to increase. It appears that the state government seems to be developing a mechanism to free itself from the financial bindings in the name of promoting autonomy, a culture of innovation, multi-disciplinarity, and flexibility to students. The institutes need to be encouraged to go for autonomy and cluster university status to phase out the existing affiliation system. To meet the expenses, these cluster universities may be given the freedom to affiliate with nearby colleges as a new avenue for fund generation.

### ***Issue of Physical Proximity among These Colleges***

The second thing that may appear as the common obstacle in establishing cluster universities out of the institutes run by the private management is the physical proximity of these colleges. In very few cases, the managements have 2 to 5 institutes in the proximity of 25 kilometres as expected in these draft guidelines. The RUSA guidelines of 2013 say, '3-5 colleges in the area surrounding a city or in a district' is more conducive than the limit of 25 KMs given these draft guidelines.

### ***Role of the Private Managements in the Appointment of the Key Positions***

Another significant issue that remains unaddressed is the role of private managements in the appointment of the key positions in the proposed cluster universities Vice Chancellor, Registrar, Finance and Account Officer, Director of Examination and Evaluation, Director, Information Source Centre, Director, Innovation, Research and Collaboration Board, and Director, Student Development (7 in number). So far, the state has, as stated earlier, established three cluster universities-first, clustering the government-run institutions in

Mumbai, and other two, with institutes previously run by the private managements. There will be no issue, as expected, in the appointment of the said posts in case of state cluster university, but the recent notification for the appointment of VC for Karmaveer Bhaurao Patil University, Satara shows that the management is not going to have any say in the recruitment.

In the deemed-to-be universities and state-private universities, the private managements seem to have their say in these appointments. If these managements do not have any say in this case in the proposed cluster universities, they will be least interested in going for cluster university status.

### **Conclusion**

To conclude, the State Government of Maharashtra tries to develop a perception of 'creating a favorable environment and ecosystem for collaborative and quality education' with these provisions. No doubt, these guidelines open opportunities to establish cluster universities which were absent so far in the colleges and institutes of the state except that of gaining autonomous status. However, the state government attempts to gradually withdraw its financial support which is very much crucial and essential to encourage autonomous colleges and cluster universities. It needs to be supportive and encouraging instead of being escapist.

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# A Layman's Observations on Science of Sports

Pintu Modak\*

A person who has little knowledge about a particular subject may have many queries to know about the subject. Similarly, if we expect people expertise with in science and technology to contribute to the development of sports technology they may also have some queries such as What is science in sports? Why the science is important in sports? How exactly the science and technology can help sports? Let me explore a new dimension to the subject.

Sports is not only about participating in a game and I will not say, "it is not a rocket science". One has to toil through the years to become an elite athlete. As we know sports is a multidisciplinary approach that addresses every aspect of performance professionally and launches an athlete as a complete package to grab medals and the science makes it happen.

Science in sports is an academic subject popularly known as "*Sports Science*" that focuses on the study of science applied to the field of sports. It is so that can help in enhancing performance and reduction of injuries in sports. Sports itself means performance-oriented activities that focus on demonstrating competence relative to others. Even a child knows how to walk, run, jump, push, pull, throw, etc. as we call them *Fundamental Movements (Motor skills)*. But how one performs it matters. We may generally be incurious to know that we perform them by overcoming external fundamental forces act upon us every day like gravitational force, normal force, air resistance, tension, and friction (as *the study of external biomechanics*). However, the fundamental movements form a sports skill such as sprinting, long jump, high jump, kicking a ball, etc. In sports we try to perform a skill at a high level of consistency over time which requires well-tuned coordination and strength almost the same way every time and we call it *Performance*. How efficiently one can run faster, jump higher, and longer by manipulating the body segments to have less effect of external forces on the body is called a *Technique*. However, there are internal and external

factors that affect performance in Sports. Sports science takes care of internal factors and improves the physical prowess as well as mental prowess (intellectual in regard to games) of an athlete in a specific sport. Whereas Engineering deals with the external factors to make the playing environment conducive for athletes to give their fullest in the event with accuracy and consistency safely we call it *Sports Engineering*. A conducive environment means having synthetic flooring, sports attires, sports shoes, sports equipment, etc. as designed by Engineers keeping in mind that external factors will have less effect on the athlete while performing the skills. It is therefore engineering expertise is important to make the playing environment conducive for participants to win the game.

Besides, we know that the ground is the primary base that generates power/motion as required for every athlete to perform any physical activities. It is obvious that without ground support/force no body movement/motion (displacement) takes place as force is the physical quantity that causes a change in the state of motion in a body. When an athlete initiates to run or jump he/she has to apply force into the ground. As Newton's third law states with every action, there is an equal and opposite reaction, so the ground returns the force onto the athlete as motion. The motion then travels through every segment of the athlete and transfers to a desired point such as kicking a ball, throwing a basketball, etc. The motion travels through the segments and is called as *Kinematic Sequence* (mechanics of motion). This kinematic sequence will determine if your movement or skill is correct. If the sequence is correct your movement or skill is correct as it is considered that the execution followed the right biomechanical window to achieve peak skill performance. It is because your body has maximized the amount of ground force that is transferred through to your desired point as we can also call it *Coordination*. If the sequence is offline or not correct, it will lead to inconsistency, inaccuracy, injury, and overall poor performance.

On the other hand, how you push the ground will dictate your movements. How do you apply force to the ground? At what angle do you apply

(contd. from pg. 25)

\* Senior Physical Education Officer, SWD, Physical Education, Birla Institute of Technology & Science, Pilani, Rajasthan-333 031. E-mail: [pintu@pilani.bits-pilani.ac.in](mailto:pintu@pilani.bits-pilani.ac.in)

# Design Thinking as an Innovative Pedagogical Approach in Higher Education

Jenis Swati Topno\* and Elizabeth Gangmei\*\*

Universities are centre for knowledge construction, dissemination, and ultimately a pillar of nation-building. Aligned with this idea of 'universities as the cornerstone' of nations' development the universities of India have evolved in a remarkable way. The mutual relationship between the nation, state, and society shapes the higher education of the country. All India Survey on Higher Education Report (AISHE) 2020-2021 illustrates that the number of universities has increased by 70 as well as the enrollment of students by 28.80 lakh from the year 2019-2020. Kurup and Singhai (2017) state that, in the last twenty years higher education in India has noticed a paradigm shift, an increased diverse student population profile coupled with complexities in varied dimensions necessitated the researchers in the realm of higher education and call for reform in the pedagogy of higher education.

In spite of India being placed as the largest in terms of a number of institutions and second in enrollment, the Ministry of Labor and Employment (2015) states that there is a higher unemployment rate for graduates and those with higher degrees, above the age of 18-29 years which was recorded 28% during 2013-2014 survey. Similarly, Joshi and Ahir (2016) state that, Indian higher education is facing challenges like equity, quality, and efficiency and needs effective intervention policies along with it, the changing profile of learners in terms of their needs, learning and thinking styles, understanding level, gender, geographical locations, socio economic conditions, language diversity, and different cultural practices, etc. which forms the complex education group hence, the responsible actors face a variety of problems to tackle the difficult situation and to cater their needs. Dey and Srivastava (2023) admit that India needs a transformative education system with a re-imagined curriculum and pedagogical practices which leads to acquiring 21<sup>st</sup> century skills as the country lacks skill-based education. Moreover, Mittal et al. (2020) state that poverty, gender-related

factors, and the poor state of school education also aid in the poor access to higher education and can be managed by linking higher education with skills and employability through blended pedagogy, innovative curricula, contemporary pedagogical practices and quality teachers. The National Education Policy (2020) recommended for rebuilding the existing education system by integrating inquiry-based, value-based, arts-based, discovery-based, discussion-based, analysis-based, learner-centered, experiential, and holistic learning to develop competent individuals with 21st-century learning skills. For achieving this goal there is a dire need to revamp the pedagogy and rebuild it accordingly.

## What is Design Thinking?

Design thinking is defined as an approach to solving an ill-structured problem that emphasizes a human-centered perspective and involves empathizing with users, defining problem statements, generating creative solutions, prototyping, and iteratively refining ideas based on user feedback. Yu et al. (2015) have defined design thinking as a process and mindset that claims to solve the problems related to everyday life collaboratively as the problems one encounters are usually ill-structured and complex, which leads to students' inability to solve problems outside the classroom. James (2017) states that design thinking is meant for two basic concepts--- for methodology and a set of cognitions. It is called so because of its capability to stimulate skills and nurture curiosity, the ability to empathize, communicate, decision-making, and learn from failure as well as promote the learning of social thinking skills. In the future, design education will harness the potential, abilities, and knowledge of learners by providing purpose-driven and practice-based learning (Dutta and Vijaychandra, 2023). It is a process and mindset for understanding the world through different levels of creative knowledge, skills, and mindsets hence, it can be considered as a learning model.

## Origin of Design Thinking

Design thinking is gaining popularity all over the world because of its unique features in

\* Junior Research Fellow, Regional Institute of Education, Bhubaneswar- 751022, Odisha. E-mail: swatijns13@gmail.com  
\*\*Professor, Department of Education, Regional Institute of Education, Ajmer, Rajasthan-305004. Email: elizabethgangmei@gmail.com

varied fields. Its origin was traced back to the 20<sup>th</sup> century and the idea of design thinking emerged with the work of Herbert Simon in 1969, where he enlightened ‘design’ as science in his seminal work *‘The sciences of the artificial’*. In the 1960s Horst Rittle works in the same field known as participatory design. Two decades later in the 1980s four researchers—Bryan Lawson, Nigel Cross, Donald Schon, and Donald Norman—focused their attention on user-centered design, particularly on cognitive reflections. Then a decade later, Richard Buchanan, William Rouse, and Ezio Manzini were among the researchers who saw design as a process or a method. The idea of design thinking as ‘design service’ emerged. From the year 2010 till now ‘the design thinking’ is perceived as a change to a mindset which is a human-centered design and interestingly in 2004, David Kelly established the Hasso Plattner Institute of Design or d.School with a focus on producing individuals who can make an impact with design which paved the way to integrate it in the field of education and other areas. Design thinking is often applied in business and product development designs but it has also shown light in the field of education which is emerging rapidly (Henriksen, Richardson, and Mehta, 2017).

### **Design Thinking in Higher Education**

Carl Rogers’s states- *‘adults should not be taught but should be helped in learning’* therefore learning needs to be tuned to experiential-based pedagogy and providing a conducive learning environment for nurturance of feeling and practices of lifelong learning. Although the HEIs have developed quantitatively they still lack in qualitative terms due to the teacher-centered education, which focuses only on disseminating information but not on learning and utilizing the knowledge. Ivan Illich in his book *Deschooling Society*, enlightens about the same issue where he suggests preferring the learning model for the transmission of knowledge and skills furthermore, he suggests building a learning environment where, skill exchange, free inquiry, peer matching, and liberated learning must be practiced. Pedagogies should be ever-evolving, modified, and updated to meet the needs of 21st-century skills requirements. Learning needs to focus on enhancing students’ understanding of relevant knowledge and linking it with real-life situations. Guidelines for Innovative Pedagogical Approach and Evaluation Reforms (2020) states “The pedagogy used in a

classroom must reflect the inclusive approach so that learners can relate what is taught in the class with the multiple perceptions and realities they experience”. Kurup and Singai (2017) also mentioned that a culture of open pedagogy transforms learners from passive to active by involving them in questioning, restructuring, and reconstructing knowledge.

Understanding the present education system which fails to develop competencies and abilities in learners, NEP (2020) has suggested employing new pedagogies (in para 4.24 to introduce design thinking subjects for developing the various important skills among the learners) for capacity building and meaningful learning. Aiding to this, Para 4.4 includes a specific set of skills and values to be incorporated in each stage of learning from preschool to higher education. Furthermore, Para 4.23 incorporates various skills like innovativeness, creativity, collaboration, teamwork, problem-solving, logical reasoning, oral and written communication, adaptability, and productivity, etc. which are mentioned to be developed in the students. Similarly, Para 9.3 (d), Para 11.6, Para 12.1, Para 12.2, and Para 12.6, envisions innovative pedagogical approaches and their role in higher education. Hence, the a need for suitable Pedagogical approaches to cater to the four domains--- cognitive, affective, social, and psychomotor domains for fulfilling the graduate attributes namely; comprehensive knowledge, procedural knowledge, skill, complex problem-solving, critical thinking, creativity, communication skill, research-related skills, coordinating/ collaborating skills and leadership skills are necessary. Therefore, the incorporation of design thinking in HEIs might change the perspective of the present status of higher education in India.

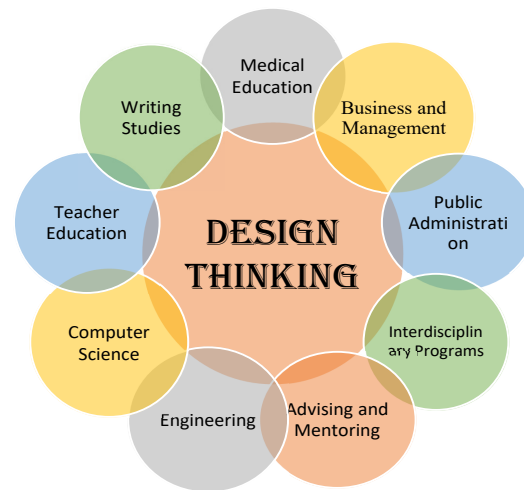
The question arises what does design thinking do and how? Many studies have been conducted to answer this question which lies in the findings of studies by researchers that elaborate about its potential in higher education. According to Johansson-Sköldberg, Woodilla, and Çentinkaya (2013) initially in the 1970s designers taught ‘what design thinking is’ and ‘why it matters’ and then integrated it into an academic field to assist management academics and practitioners. The fact that teachers are using human-centered design techniques is to understand their students better and making learning more engaged in the changing learning environment (IDEO, 2012). Earlier, in Inquiry-based approach, problem-based learning

(PBL) and project-based learning (PjBL) was in trend but recently design-based learning (DBL) emerged which is a more flexible and innovative way allowing an integrated learning, real-life problem solving, exploration by applying both design thinking and design practice (Mehalik & Schunn, 2006). Design thinking in the teaching and learning process culminates skills like- creativity, innovation, decision-making, idea generation, divergent and convergent thinking, problem-solving moreover, the need of design thinking curriculum was acknowledged by the teachers for making learning more effective and meaningful (Abidin et al, 2022). Moreover, Bush et al. (2018) advocates for design thinking framework, a trans-disciplinary approach to bring meaningful solutions to problems which provide a space for various inter-linked knowledge of different disciplines. Dutta and Vijaychandra (2023) suggested integrating a design mindset at all levels to bring creativity-based learning which is based on future thinking. According to Cengiz et al. (2023) using a design thinking framework enhances the creative thinking of physical and sports teachers when measured in creativity scales. Chapman et al. (2016) indicated that design thinking helped student teachers to think creatively and suggested that open-ended, authentic, self-guided, design-oriented tasks are meaningful and useful tools to support students' understanding and application of design thinking. Design thinking is a model of thinking that is essential for students in the 21<sup>st</sup> century as it provides ample opportunities and facilitates meaningful learning (Li et al. 2019). Ganachari (2023) advocates for rejuvenating learning approaches and planned curriculum implementation for strengthening outcome-based learning and quality improvement in higher education hence, design thinking can be utilized for the very purpose as it is flexible, human-centered, and employs thinking out of the box culture and thought-provoking methodology. Dutta and Vijaychandra (2023) unfold that, Design education is considered as an evolving concept that can be remodeled as per the need of the society to meet the expectations of humankind, industry, and nation.

Design thinking has been studied not only as a complex and integral part of the design process in engineering (Dym et al. 2005) and school education (Strimel et al. 2019) but also as a general cognitive process involving creation, experimentation,

feedback collection, and redesign that can take place in many different fields (Razzouk and Shute 2012) including business (Dunne and Martin 2006) and instructional design (Cook 2006). There is a great demand for graduate students to possess skills like-innovation, problem-solving, complex reasoning and idea generation which help industries and real-world problem complexities. The potential cognitive and behavioral benefits of Design thinking show positive cognitive and behavioral changes for learning and decision-making (Wrigley and Straker, 2017).

**Fig-1: Scope of Design Thinking in Higher Education**



Another question is how to implement Design thinking in education? There are many design thinking frameworks which can be applied in education to inculcate the set of skills and capacities in an individual, few are mentioned below retrieved from (Dam and Siang, 2020).

The above frameworks/models emphasize on empathizing, observation, decision making, bringing concrete entity from abstract ideas, and implementing in real situations after evaluation. All these processes are iterative rather than linear and focus on the head, heart, and hand which can develop the ability to listen, observe, identify, and define, decisions making, brainstorming, visualization, learning and much more.

### **Present Status of Design Thinking in India**

- The NEP 2020 mentioned design thinking as a pedagogical initiative to develop skills and capacities among the learners in relevant stages at all levels (NEP 2020). Various skills mentioned by NEP 2020 namely, creativity and innovation, collaboration and teamwork, problem-solving



**Table 1: Learning Frameworks/ Models of Design Thinking**

a) <i>The 5-Stage Design Thinking Process- d. School</i>
b) <i>The Early Traditional Design Process- Herbert Simon</i>
c) <i>Head, Heart And Hand- AIGA</i>
d) <i>Deepdive<sup>™</sup> Methodology- IDEO</i>
e) <i>3-Stage Design Thinking Process- IDEO</i>
f) <i>Design Kit: The Human-Centered Design Toolkit- IDEO</i>
g) <i>The “Double Diamond” Design Process Model- Design Council</i>
h) <i>Collective Design Toolkit (Cat)- Frog Design</i>
i) <i>Designing For Growth – Jeanne Liedtka And Tim Ogilvie</i>
j) <i>The Luma System of Innovation- Luma Institute</i>

and logical reasoning, convergent and divergent thinking, empathy, etc. can be developed through the design thinking approach.

- The Ministry of Education (MoE), Government of India has developed the MoE’s Innovation Cell (MIC) to promote an innovative culture throughout all institutions of higher learning, innovating and entrepreneurship-related activities like idea-generation and brainstorming, problem-solving, proof of the development of the concept, design thinking, Intellectual Property Right, project handling, and management at the pre-incubation and incubation stages for a significant number of teachers, students, and staff members. The School Innovation Council programs (SIC) will form a bridge between innovation and entrepreneurship ecosystem of higher education and schools’ education through the initiatives of MIC in higher education.
- Industrial Design Centre (IDC) School of Design in IIT Bombay offers various courses of design namely- B.Des, M.Des (Mobility and vehicle design, Interaction design, communication design, Animation) and Ph.D. to improve the quality of life through design education which encompasses the collaboration, critical thinking, problem identification, and solution as well as to develop knowledge, skills, aptitude and abilities among students. It is also working to build a synergetic relationship between academic, industry, and

government bodies (<https://www.idc.iitb.ac.in/abouts/vision-mission>).

### Challenges and Suggestions

1. Bush et al. (2018) state that while practicing design thinking in the classroom teachers must guide the students to understand and feel the needs of the users through empathy which comes through practice and different methods like visiting the site, keen observation, discussion, etc.
2. Design thinking requires an open open-ended way of teaching, thus having multiple entry points and hence needed flexibility. This encourages the lifelong learning among the students (Bush et al. 2018)
3. Wrong Priorities and Shallow Ideas- Gestwicki and McNely (2012) mentioned in their study that during the design process, many shallow ideas emerge which leads to unproductive directions.
4. The process and projects of design may lead students to anxiety and frustration until they get used to it and the ideas that emerge might make some patterns and develop a prototype (Glen et al. 2015).
5. Taheri et al. (2016) stated that, mostly in design thinking workshops the non-expertise may not give proper feedback and guidance regarding skill-based outcomes hence, slow development of skill-based learning is observed which’s why neglecting skill-based outcome lead to creative over-confidence.
6. Goldman et al. (2014) investigated team dynamics in design design-thinking team of students and they confessed conflicts seem endemic in groups. Aflatoony et al. (2018) found in a study that lack of leadership, problems with sharing tasks equally, and the size of the teams are a few main reasons for teamwork conflicts.

### Conclusion

The intention of Higher Education Institutes (HEI) is to restructure HEI for a resilient and learner-centered ecosystem. Hence, there is a need to incorporate vocational and nonvocational education at the college level for the development of skills, employability, and entrepreneurship. Moreover, effective pedagogy must be introduced to fulfill the requirements of the present learners’ Design thinking is an effective methodology that involves idea generation and leads to different types of thinking



and empathy which can inculcate communication, better understanding, and observation ability in the practitioner, logical framing of problem and its solution iteratively and collaboratively, decision making and the growth mindset to tackle future problems and developing innovativeness and creativity as well as creative confidence among the learners which will connect them directly to the skillful workplace for the betterment of themselves as well as the nations. Therefore, its incorporation in higher education brings the abilities and in-depth understanding of the concept by linking it with other disciplines and its application in real-life situations.

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(contd. on pg. 19)

the force into the ground and how quickly? How much force is applied to the ground? This is called a *Kinetic Sequence* (action of force). This is how your body absorbs the ground force and transfers it to the next segment of your body. Your body’s ability to transfer this motion/energy in a specific way plays a huge role in the successful execution of your skills

It is important to know that every skill demands a unique kinetic and kinematic sequence. However, they are not visible to the naked eye. So, the reasons the coaches need the support of *Engineering Analyzing Devices* using the computer (Video analysis/Motion capture technology) to track the correct sequence and understand the sequence patterns that lead to successful execution. We call it quantitative analysis

(objective) in which mathematical and statistical techniques are used in order to evaluate performance and make better decisions for improving desired performance in Sports.

The bottom line is that it is not rocket science if Sports Science and Engineering fraternities come together, Sports can become a safe place where athletes can participate and compete in healthy and supportive surroundings. Also, indigenous sports technology can track and record athletes’ motions during training or competitions as this data can then be analyzed to identify areas for improvement, correct technique, and prevent injuries in sports as a whole.

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## *Suviksit Bharat @2047*

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**Acharya Arun Diwaker Nath Bajpai, Vice Chancellor, Atal Bihari Vajpayee University, Bilaspur, Chhattisgarh delivered the Convocation Address at the Convocation Ceremony of the Ram Krishna Dharmarth Foundation (RKDF) University, Bhopal on May 04, 2024. He said, “It is very dangerous to be devoid of values in education. Values give direction to education. Education devoid of values becomes directionless. This is the reason why today the tendency of crime is more conspicuous among educated people. In a well-educated India, the provision of useful education to everyone is expected. Such education which is capable of imparting values and employment. Such education which meets national and international standards. Such education which can also give self-respect to the mother tongue.” Excerpts**

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Dear students! You know that India has a long and rich tradition of convocation. Actually, India has given the concept of university to the whole world. There were universities like *Nalanda, Takshila, Ujjaini, Avantika* in India where thousands of students used to get education and training in 16 subjects and 64 arts. In this context, it would be relevant to mention about the System of Gurukuls. The academic culture of India has been based through out on these Gurukuls.

Every student, having become proficient in his/her own specialisation, on the last day, (which we today call the Convocation) the Student used to assemble together in front of his Guru and the Guru used to give them mantras, sermons to become full of human virtues,. The important among them are: *Satyam vad, dharmam chara, svadhyayanma pramadah, Matri Devo Bhav, Pitra Devo Bhav, Acharya Devo Bhav, Atithi Devo Bhav etc.*

These are extensively mentioned in *Taittiriyo Upanishad*.

We are still carrying those rich traditions even today. But the fundamental difference between these two systems is that our ancient tradition was completely spontaneous and self-driven whereas today’s system is very formal and mechanical.

I have deliberately chosen the topic for today’s address, i.e. *Suviksit Bharat @ 2047*”.

Verily, You all have heard about Viksit Bharat @ 2047’. I have simply added the adjective ‘su’ to it which encompasses many dimensions.

Actually, whosoever is born, grows and ultimately dies, but there are some elements like *earth, water, air, fire, sky*, these five elements keep transforming, they don’t die. There are two elements viz. air and sky whose transformation is difficult but the sky is the only element which never transforms, means remains as it is.

This concept is also applicable in the context of formation of nations. The nations are also born, grow and die. Here growth includes the assimilation, merger, colonization or forceful occupation ,everything. This is the process of the formation of the most of the nations in the world. If we pay attention to the process of formation of the nations of the world, we will know that there were tribes of people who kept moving from one place to another, kept fighting with each other and the one who was victorious became the owner of that place. They used to do farming for food and make weapons for protection. Population and geography have been changing over time. This is called ‘Geo Political’ approach.

The psychology of these nations has always been expansionist and imperialist. They have no attachment to their motherland. This is the reason why the most migratory tendency is found in western countries. Because people of different mentalities and tendencies living together led to mutual hatred and conflict, that is why there was a need for a constitution, a judiciary and because every body can not be involved in decision making process so they had to elect their representatives.

In this way, their countries were governed by a system in which there are elected representatives, whether it is the Assembly or Parliament, the constitution, the high and supreme courts for justice, the penal code, etc. The same system is in place even today. For the formation of every nation, a date/year and the name of a creator figures in the history.

As far as the question of the formation of Bharat varsh is concerned, neither has it been created by any person nor can anyone ca tell when it was born. Bharat varsh existed even before 1947, it existed even before the arrival of the British, it existed even before the arrival of the Mughals and the Turks. It has emerged from a spontaneous power.

Nobody has settled habitation, hence a mother-son relationship has been established with it. We call it Bharat Mata. We declared “*Mata Bhumi Putroham Prithviah*”. Along with this, motherly feeling has also developed with humans and non-human species and from this all the life values, philosophy, knowledge traditions, customs, festivals, celebrations etc. have originated which are still continuing. Life and life values like sustainability, universality and all-inclusiveness are included in this. In this, proper classification of the three elements of *Sat, Raj, Tam* has been made. Its four *purusharthas* - *Dharma, Artha, Kama, and Moksha* have been included into the purposes of life. In short, the plan for the development of India should be based on India’s own philosophy, thinking and traditions and not on any imported model or life values.

In my address some parameters of *Suvikshit Bharat* are being presented as follows:

#### ***Surakshit Bharat (Safe India)***

The first priority is the security from the point of view of development. Both external and internal security. India’s geographical boundaries are connected with 9 countries - Pakistan, China, Bangladesh, Myanmar, Bhutan, Nepal, Sri Lanka, Afghanistan and Maldives. From diplomatic point of view, China and Pakistan, together have been opposing India but anti India voices are also heard in the rest of the neighbouring countries as well.

Apart from this, even the far-flung developed nations some times speak against India. Therefore, the first requirement is that India should keep its external boundaries completely safe. For this, on one hand, it will have to be fully equipped with modern defence power, on the other hand, diplomatic relations will also have to be strengthened. Diplomatic relations are as important as military power. Apart from the neighboring countries, strong diplomatic relations should also be maintained with the developed nations. To predict the future challenges related to India’s security in 2047, it is necessary to form a special study group and prepare an action plan accordingly.

The question of internal security is equally relevant. The fierce war that has just broken out between two groups in Manipur and the violence by Naxalites in Bastar raise questions on India’s internal security. Apart from this, increasing crime, insecurity of women, scams, etc. are also a matter of serious concern.

I believe that for a *Suvikshit Bharat*, a completely safe India is an extremely important pre-requisite.

#### ***Sahbhagi Bharat (Participative India)***

Optimum participation of every individual, region, etc. in building a *Suvikshit Bharat* is essential. If a \$5 trillion economy is the target then what is the way to achieve it? The strategy should be such that the contribution of the present 144 crore population of India is ensured and not of only 1% or 10% of the richest people. Similarly, it is necessary to ensure women’s participation. In economics, per capita income is often talked about, but not the Per Capita Contribution. If possible, Gross Domestic Product or Gross National Product should be substituted by Gross Domestic Contribution and Gross National Contribution.

Similarly, there are about 6.5 lakh villages, 776 districts and 20-30 metropolitan cities in India. At present these 20-30 cities dominate the economy. For a *Suvikshit Bharat*, it is necessary to ensure proper participation of all the 6.5 lakh villages and 776 districts of India. Proportional participation of rural and urban areas should be ensured. Participation of North-Eastern Province, coastal, Himachali and plain areas should be ensured. Even the participation of its entire 32,87,263 square km. Every square kilometer of India should participate in building a *Suvikshit Bharat*.

Similarly, there should be proportionate participation of each sector in the economy. There are three main sectors of the economy – primary, secondary and tertiary or agriculture, industry and services. In early fifties, the primary sector contributed about 51%, services about 20% and the remaining by industrial sector. Today, the contribution of service sector has reached about 55% and that of agriculture/primary sector is about 18%. This sudden transformation is not appropriate because the density of the population is still very high in agriculture and primary sector. It means that there should be a balance in the contribution of agriculture-industry-services in India, otherwise it will lead to lopsided development.

#### ***Sushikshit Bharat (Well-educated India)***

The National Education Policy 2020 is now-a-days being discussed everywhere. It has set target to achieve 50% GER in higher education and 100% in school education by 2030/2035. It is evident from this that even after 75 years of independence,



India has not been able to educate every youth who is eligible to get education. In the name of education, literacy and valueless/useless education also dominates. The curriculum being given to the students in education has nothing to do with India's history, culture, religion, life values. In a blind race, students are moving towards IT, Engineering, Medical, Management etc. Subjects of humanities, social sciences, arts are being ignored to a great extent.

It is very dangerous to be devoid of values in education. Values give direction to education. Education devoid of values becomes directionless. This is the reason why today the tendency of crime is more conspicuous among educated people.

Education is being run like a business. The cost of education in the private sector is high but students/parents get caught in the vicious circle of anticipation of future benefits.

In a well-educated India, provision of useful education to everyone is expected. Such education which is capable of imparting values and employment. Such education which meets national and international standards. Such education which can also give self-respect to the mother tongue. Another purpose of NEP-2020 is to include *Indian knowledge systems* in all the subjects and to make Bharat a global super power in education. I think we should work in this direction at a fast speed. This will certainly motivate our researchers also for undertaking original researches.

### ***Swasth Bharat (Healthy India)***

Today every person is suffering from some or the other disease. Diabetes, blood pressure, heart disease, cancer, etc. have become very common. The number of mental patients is also increasing. The main reason for this is the disorder in the lifestyle. People are interested in health but they are addicted to allopathic medicines. Medicine, which should be a medium of service and worship, has become the most profitable business today. Under the scheme of healthy India, every citizen of India aims to be completely disease free through yoga, Ayurveda, naturopathy. To organize the proper lifestyle, balance in work and rest hours, balance in food and exercise, balance in sleep and wakefulness all are necessary. For this, a deliberate attitude should be adopted. There is an urgent need for a holistic health policy. All efforts should be made to increase the immunity

of individuals. Efforts should be made in advance to combat such calamities like the one the entire world has gone through during Covid-19.

The number of mentally sick people is increasing rapidly. The main reason for which is that they set more ambitious goals than their capabilities. This can be overcome by connecting with Indian culture and life values.

Similarly, 'addiction' has become part of the modern lifestyle and efforts should be made to free the young generation from it. Properly educated and healthy India are the foundational pillars of *Suvisit Bharat*.

### ***Samaras Bharat (Harmonious India)***

People of many religions and castes live in India. Among the religions, there are many religions originating from *Sanatan Dharma* like Hindu, Buddhism, Jain, Sikh and *non-Sanatan religions* like Islam and Christianity. As far as Sanatani religions are concerned, harmony is easily established in them. Disputes do occur but they are easily resolved. But there is a problem in establishing harmony with non-Sanatan religions. Therefore, it is necessary that a *minimum common program* should be made with them.

Religious fundamentalism leads to wastage of precious resources and time of the nation. It is possible that the *Uniform Civil Code* may take some initiatives in this direction. There is also a caste system in Indian society. Caste, which was an important instrument for uniting the society has now become a weakness. One section of the society belongs to SC/ST/OBC and the other one to some other. There appears a caste divide in the society. This will have to be completely vanished to establish a harmonious society. The Communist thinkers have fanned this fire a lot. Understanding this in the right perspective, using the examples of ancient India, all citizens should be ensured the right to live and enjoy together.

### ***Sushaasit Bharat (Well-governed India)***

Today the discussion about good governance has become quite common. Good governance ministries have also been created in many states. Good governance does not just mean running the administrative system efficiently. For this, it is necessary to take decisions according to the basic culture of India in which the sentiments of the



common citizen are reflected. A smooth balance is necessary between the three main pillars of democracy: legislature, executive and judiciary. There is no hesitation in saying that all three of them sometimes violate their limits. Some laws of the legislature, some decisions of the judiciary do not match the sentiments of the people, but what is the most needed is a sensitive executive. The British had made the policy of *Divide and Rule*. Today the administration is also following the policy of *distance and administration*. There is a need for change in this psychology. The formula of *Unite and Cooperate* should replace the formula of *Divide and Rule*.

There are many examples in which the administration acts at the behest of the ruling political parties and mediates for them. This is not appropriate. For a well-developed India, there is a need to bring about a radical change in the mindset of the judiciary, legislature and executive. It is also important here that this change is not possible through laws only but is possible only through mutual dialogue and cooperation.

### ***Swadeshi Bharat (Indigenous India)***

India achieved Independence with the Swadeshi mantra, Gandhiji was its pioneer but Aurobindo, Vivekananda, Tilak, Gokhale, Sardar Patel, Dattopant Thengadi, Deendayal Upadhyay all have accepted the importance of Swadeshi. But at present thinking of India, foreign western culture dominates. There is a desire to adopt foreign language, culture, lifestyle, ideology, ideals and even to become like America and Europe. This is not right. India should be proud of its language, lifestyle, religion, economy and society. India has its own rich culture, traditions of festivals, customs, which can altogether solve the problems of distribution and economic development. Therefore, it is necessary to have *Bharat centeric* approach for overall development.

Decentralization is at the centre of Swadeshi. Today education, health, industry, courts, capitals, business centers, entertainment centers, etc. are all concentrated in big cities, There is an urgent need for their effective decentralization. This decentralization should extend to the remote villages of India. Similarly, Swadeshi should not be merely limited to manufacturing Khadi, handicrafts, clay, bamboo, honey etc. In fact, in the modern era, this

mentality has to be changed. Today people in every village use WhatsApp, Google, social media etc. and people have also acquired technical training. Therefore, manufacturing of spare parts for big industries should be allowed in a decentralized manner. For example, the process of manufacturing ships, aeroplanes, computers etc. can be easily decentralized to village to village. The goal of 'self-sufficient and self-reliance' can be easily achieved by producing goods and services using indigenous skills and using indigenous resources. *Swadeshi Bharat* does not mean a closed Bharat but an open Bharat, a global Bharat.

### ***Samposhaniya Bharat (Sustainable India)***

Sustainability is an essential prerequisite for a well-developed India. In the Indian lifestyle, the interrelationship between nature and man has been woven in such a way that neither one is experienced in abundance nor in scarcity. This relationship continued for years without any interruption but the modern system has broken this sequence. Therefore, it is necessary that India should try to re-establish its ancient system and keep its rivers, land, mountains, animals and entire environment alive and sustainable. Today's chemical based agriculture is destroying the natural fertility of the land, for that we will have to return to natural farming and organic farming.

Due to ruthless use of water, water bodies are drying up. In the concept of development, nature is being mercilessly exploited. The consumption style of a privileged society impacts the misuse of natural resources. No one cares about the limited availability of resources. It is imperative to mention that the materialistic life style arising from excessive monetarism, consumerism and materialism is unsustainable. The unnecessary race for economic growth has disturbed the balance of resources and needs.

Keeping the interests of future generations the present consumption patterns shall have to be attuned with *Bhartiya jivan darshan i.e. ishavasya Drishti*. Through this only the goal of sustainability can be achieved.

These were some of my thoughts which will be helpful in establishing our Bharat as a *Suviksit Bharat* (well developed India) in 2047'.

Thank you all for listening patiently.

*Vande Mataram.*



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## CAMPUS NEWS

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### **National Seminar on Teacher Education**

The one-day National Seminar on 'Teacher Education in India: A Perspective on Quality with Special Reference to NAAC and State Level Meeting of Special Interest Group on Environmental Education' was organized by the Gopal Chandra Memorial College of Education, Kolkata, West Bengal, recently. The Convener of the event, Dr. Shreyashi Paltasingh, Principal, Gopal Chandra Memorial College, and Joint Secretary, AIAER (WB Chapter) and Covener of Special Interest Group on Environmental Education delivered the Welcome Address where she stated that the event aimed to offer insights and experiences on the latest trends in teacher education based on the recommendations of NEP--2020. She also expressed her gratitude and appreciation to all the experts, eminent guests, and the teaching, and non-teaching staff as well as the students of the college for their valuable contribution in making the seminar successful.

The programme was inaugurated by the President of the Governing Body, GCM College of Education, and Minister in Charge (Finance), Government of West Bengal, Ms Chandrima Bhattacharya with the illumination of the lamp. In her Presidential Address, she assured her unceasing support for the all-round development of the college.

In the technical session, Guest Speaker, Prof. Ramakanta Mohalik, Department of Education, RIE (NCERT) made his insightful deliberation on the topic, 'Quality Teacher Education through NAAC in the Context of NEP-2023', where he talked about Integrated Teacher Education Programme, recommendations, visions and changes in NEP- 2023, and inclusive and equitable education. He brought forth the importance of mother tongue and regional languages with a special focus on experiential learning strategy and multidisciplinary approach in education. The presentation was followed by an interactive session with the audience.

Prof. Tushar Kanti Ghara, Joint DPI, Department of Higher Education, Government of West Bengal and State Nodal Officer, AISHE gave an informative presentation on 'A Data Orientation for Teacher

Education Institutes towards NAAC Accreditation'. Prof. Ghara delved deep into the discussion of technological advancement and data orientation and explained the strategies for systematic documentation of data for NAAC assessment and accreditation. The lecture was followed by an interactive session with the participants.

Swami Tattwasarananda, Principal, Probationer's Training Centre, Belur Math made his thought-provoking deliberation on 'Maintenance of Quality in Teacher Education regarding NAAC'. Swami Ji provided valuable guidance on the parameters of NAAC and how institutions can work innovatively to fulfill the parameters constructively. The lecture was followed by an interactive session with the audience.

The next session was based on Paper Presentations in four parallel sessions chaired by Dr. Debashis Dhar, Former TIC, GCM College of Education, Dr. Rajiba Lochan Mohapatra, Assistant Professor, Department of Education, Burdwan University, Dr. Lalit Lalitav Mohakud, Assistant Professor, Department of Education, Jadavpur University, and Dr. Bhaswati Ghosh, Principal, Sailajananda Falguni Smriti Mahavidyalaya.

Prof. Debi Prasad Mishra, Director, NITTR and President AIAER (West Bengal Chapter) spoke on 'Role of National Assessment and Accreditation for Improving Quality of Education'. He actively interacted with the participants and enriched the audience with his innovative insights.

Dr. Bijan Sarkar, Professor, Department of Education, University of Kalyani, and General Secretary, AIAER, West Bengal Chapter enriched the participants with his priceless presentation on 'Environmental Education'. He also delineated the themes of BTAE (Better than Average Effect) and SSB (Self-serving Bias) in the course of his deliberation. He concluded his lecture by suggesting a book titled 'How Much Should a Person Consume' for developing sustainable environmental temperament within everyone present.

Prof. Sarkar's deliberation was followed by a State Level Meeting of the AIAER Special

Interest Group (Environmental Education). In the Valedictory Session, the participants and paper presenters received their certificates from Dr. Monoj Das, Former Professor, NITTR and Active Member of AIAER (WB Chapter). Finally, Dr. Paramita Bandopadhyay, Associate Professor proposed the Vote of Thanks and expressed her heartfelt gratitude on behalf of the college to all experts, participants, staff members, and students of the college. The Seminar concluded on a solemn note with the singing of the National Anthem.

### **International Conference on Psychology Learning and Teaching**

A three-day International Conference on 'Psychology Learning and Teaching' is being organized by the Department of Psychology, CHRIST (Deemed-to-be University), Bengaluru in association with the Society for the Teaching of Psychology (STP), Division 2 of the American Psychology Association (APA) and the International Council of Psychology Educators Incorporated (ICOPE Inc). from August 01-03, 2024.

Psychology is a growing discipline with new fields and branches in the past decade. Global changes, including the pandemic, technology, and globalisation, directly impact psychology teaching and learning. The specific issues of a community, location, or nation place demand on psychologists to respond with sensitivity to the community's culture, ethnicity, and needs. Hence, psychology education is pushed to innovate and develop competent training and teaching models. The discipline requires pedagogies and assessment models to teach and assess students' knowledge, skills, values, and attitudes. The need to build foundational competencies and foster personal and professional development places a huge emphasis on the need for trained faculty. There are no formal educator training programmes for faculty in higher education. Most faculty members develop their skills through experience and experimentation within their careers. Psychology educators apply principles of psychology and education to their teaching, learning, and assessment practices. There is a growing need to document, test, and validate these practices and create evidence-based and culturally competent models that are replicable and sustainable. Psychology teaching covers teaching-learning practices in high schools to doctoral-level

programmes. The Themes and Tracks of the event are:

#### ***Teaching-learning and Assessment Models in Psychology***

- Teaching Models, Supervision, Mentoring, Competency-based Model.
- Signature Pedagogies- Research-informed Teaching, Case-based Teaching, Experiential Learning, Participative Learning, and Problem-solving Methodologies.
- Evaluation and Feedback Methods -Use of Rubrics and Open-book Exams, Designing Assessments.
- Curriculum Design and Development.

#### ***Teaching Psychology at Different Levels (High School-Doctoral Level)***

- Teaching Introductory Psychology, Research Methods, Foundational Knowledge, Attitude and Competencies. Domain/course-Specific Methods -Counsellor Education, Developmental, Social, Organisational, Clinical, Cognitive, Neuropsychology, Health, Educational Psychology, Experimental Psychology, Research Methods, and Assessments.

#### ***Psychology Educators' Experience, Perceptions and Challenges***

- Challenges to Psychology Education.
- Training and Professional Development for Educators.
- Community of Practice.
- Personal and Professional Development.
- Educator Mental Health and Well-being.

#### ***Psychology Student's Engagement and Experiences***

- Internship, Apprenticeship, Service Learning, Professional Development.
- Student Mental Health and Well-being.
- Positive and Challenging Experiences in Classrooms.

#### ***Leadership, Governance and Policies in Psychology Education***

- Policies and Programmes, Benchmarking, Internationalization.

- Licensure and Certification, Role of International and Local Organizations.
- Ethical Practice in Teaching and Learning.

### ***Current Trends and Future Directions in Teaching Psychology***

- Decolonising Psychology Education, Indigenous Psychology.
- Cultural Perspectives, Psychological Literacy.
- Teaching for Sustainability, Peace, Inclusivity.
- Role of Artificial Intelligence and Technology.

For further details, contact Conference Chair, Dr Aneesh Kumar, Department of Psychology, CHRIST (Deemed-to-be University), Hosur Road, Bengaluru- 560029, Karnataka, E-mail: [iplat.conference@christuniversity.in](mailto:iplat.conference@christuniversity.in). For updates, log on to: <https://icplt.christuniversity.in/>

### **International Conference on Tribal Livelihood Patterns, Issues and Strategies**

A two-day International Conference on ‘Tribal Livelihood Patterns, Issues and Strategies for Empowerment’ is being organized by the Department of Political Science, Dr. B.R. Ambedkar Open University Hyderabad, Telangana State from August 08-09, 2024. The event aims to address the challenges faced by tribal communities worldwide and explore effective strategies to empower them. It delves into various aspects including socio-economic disparities, cultural preservation, land rights, education, healthcare, and political representation; Historical and contemporary challenges faced by tribal communities, such as marginalization, discrimination, and loss of land and resources; The importance of cultural preservation and indigenous knowledge in fostering resilience and identity; Strategies for promoting socio-economic development and improving livelihood within tribal communities, including sustainable resource management and income generation initiatives; Advocacy for land rights and legal frameworks to protect indigenous territories and natural resources; Enhancing access to

quality education, healthcare, and social services for tribal populations; Empowering tribal leadership and fostering participatory decision-making processes; Building alliances and partnerships between tribal communities, governments, NGOs, and other stakeholders to address common challenges. Overall, it serves as a platform for dialogue, exchange of ideas, and collective action towards advancing the rights and well-being of tribal peoples. The Subthemes of the Event are:

- Community Development and Economic Empowerment.
- Cultural Preservation and Revitalization.
- Historical Context and Indigenous Rights.
- Programmes and Policies for Tribal Development
- Explore of Issues, Challenges, and Impediments of Tribal Development.
- Democratization in Tribal Areas and Challenges.
- Land Rights Movements – Land Alienation in Tribal Areas.
- Education among Tribes – Problems, Policies and Perspectives.
- Livelihood Issues – Displacement, Relocation and Rehabilitation of Project Affected Tribes.
- Forest Policy and Tribal’s.
- Land Rights and Environmental Justice.
- Impact of Globalization on Tribal Communities.
- Political Empowerment and Self-governance.

For further details, contact Conference Director, Prof. Gunti Ravinder, Department of Political Science, Dr. B.R. Ambedkar Open University Hyderabad, Telangana State-500033, Mobile No: 09440009191, E-mail: [drbraoupoliticalscience@gmail.com](mailto:drbraoupoliticalscience@gmail.com). For updates, log on to: [www.braou.ac.in/events/](http://www.braou.ac.in/events/)



### AIU Fraternity Congratulates Dr Pankaj Mittal

Dr Pankaj Mittal re-assumed the office of Secretary General, AIU for a second term of five years after completing the first term of five years commendably on 26<sup>th</sup> June 2024. Under the vibrant leadership of Dr. Mittal, AIU initiated many new activities and brought laurels and luminescence to the organisation.

Immediately after joining in 2019, Dr Mittal undertook the activity of digitisation of AIU and redesigning of AIU Website in collaboration with INFLIBNET. The AIU Building was renovated with conference facilities and guest house for member universities. To enhance and facilitate student mobility and catch up with international trends, AIU has shifted to a credit-based approach for providing the *equivalence of degrees*, rather than insisting only on the duration of the programme. This has led to a larger number of beneficiaries who can come to India for higher education or jobs. For this, the exercise of credit mapping over various nations is being undertaken by AIU.

To promote internationalization in higher education, AIU launched *Indian Network for Internationalization of Higher Education (INIHE)* as an independent, autonomous, Pan-India consortium dedicated to the advancement of internationalization of higher education at all universities/institutions in India. The INIHE aims to share its resources for quality research, capacity building, information sharing, and advocacy to ensure that Indian institutions can appreciate and avail the benefits of internationalization, and to ensure that a better understanding of Indian higher education is enabled internationally. It will be the leading think tank/advisory body on all matters related to the international dimension of higher education in India. The creation of INIHE also results in a bigger role for AIU to engage with the national and international community. *AIU Collaboration Portal* wherein all the member universities of AIU can showcase their best departments/centres/facilities where they wish to collaborate nationally or internationally has been setup to help the partner institutions to decide on the university to collaborate with in specific subject domains. AIU also signed MoUs with many International Organisations like ANUIES,

British Council, Universities Australia, Universities Canada, Universities UK International for promoting internationalization. The Anveshan--National Student Research Convention organized every year to identify and nurture the young talents and budding researchers in Indian Universities has now been digitalized and internationalized.

A thrust was also given to the capacity building of faculty and staff on use of technology for teaching-learning research and governance through the establishment of Academic and Administrative Development Centres (AADC) in various member universities. The focus of these centres is to provide training to faculty for online/blended mode of teaching-learning, developing e-content, and using technology for continuous assessment and evaluation and research collaboration along with programmes on effective management using technology in governance and administration of universities.

In the field of Sports, AIU elevated its events to the banner of Khelo India University Games. AIU has successfully conducted Khelo India sports events for the last four years in collaboration with Sports Authority of India (SAI). Each Khelo India event is inaugurated by the Hon'ble Prime Minister of India. Along with it, AIU for the first time is organizing the Asian University Games and World University Games in India. At the 31<sup>st</sup> World University Games, Indian athletes return with a record-breaking haul of 26 medals! Our best performance ever, it includes 11 Golds, 5 Silvers, and 10 Bronzes. India's rank has risen from the 29<sup>th</sup> position in the overall medal tally during the 2019 edition to the 7<sup>th</sup> position in the world medal standings at the Chengdu edition of the World University Games. Indian Universities have been participating in the World University Games since 1959 and has altogether secured only 18 medals in the last 60 years, whereas under the vision and dynamic leadership of our Hon'ble Prime Minister, the Indian contingent bagged 26 medals in one World University Games.

**Hon'ble Prime Minister of India, Shri Narendra Modi ji inspired University Youth with motivational tweet** "*A sporting performance that will make every Indian proud! At the 31st World University Games, Indian athletes return with a record-breaking*

*haul of 26 medals! Our best performance ever, it includes 11 Golds, 5 Silvers, and 10 Bronzes. A salute to our incredible athletes who have brought glory to the nation and inspired upcoming sportspersons.”*

AIU also initiated the AIU National Moot Court Competition; National Women Youth Parliament during last five years.

AIU was very active during COVID-19 pandemic period. Some of the significant activities of AIU during the COVID-19 pandemic period includes meet the doctor series, use of digital platforms for online meeting and conferences, mental counselling session, WhatsApp group of Vice-Chancellors of member universities, online workshops for training the faculty on “How to teach Online” in collaboration with QASPIR, Online campaign “Kuch Artistic Karo-Na”, online demonstration session of Microsoft Team was arranged which is now available free of cost to all HEIs. Many more online events were organized for AIU member universities during COVID.

Visibility of AIU was increased by installing AIU Signboards and through AIU Twitter Handle. AIU has also launched Consultancy Services for the AIU member universities.

For the first time, AIU also organized Bharat-Nepal Higher Education Summit from 15<sup>th</sup> to 17<sup>th</sup> February 2024 at Kathmandu University, Nepal, which was much appreciated by member universities. More such summits in different countries are planned in coming times.

During these five years, the higher education landscape in India was in continuous flux due to the COVID-19 Pandemic, the launch of NEP—2020, the need for expediting UNSDGs, Government initiatives like the declaration of *Azadi ka Amrit Mahotsav*, Onset of *Amrit Kaal*, move towards *Atmanirbhar Bharat*; etc. AIU stood as a pillar to support the Government and the baton of the universities by organising Seminars, Symposiums, Awareness Programmes, Consultative Meetings, etc., to provide input to the government for taking required action and toolkits to the universities to show direction to the universities to implement NEP—2020 and UNSDGs.

In order to promote NEP—2020 and the Agenda 2030 for Sustainable Development, a special initiative of the United Nations, AIU held year-long deliberations with Vice Chancellors in zonal and national conferences.

Some of the major publications of the AIU are:

## Books

- Reimagining Indian Universities.
- Implementing National Education Policy 2020: A Roadmap.
- Indian Higher Education Heritage.
- Realizing Sustainable Goals through Higher Education Institutions.

## Reports

- National Education Policy 2020: Proposals & Suggestions for the Implementation.
- Indian Higher Education Profile

Overall, AIU acquired new vitality and vivacity under the leadership of Dr Pankaj Mittal. AIU Fraternity congratulates her on the completion of the first term and wishes her the best for her second tenure.

## Workshop on Artificial Intelligence

A five-day Workshop on ‘Artificial Intelligence for Social Science’ (Level II workshop) was organised by the Association of Indian Universities (AIU), New Delhi—Academic and Administrative Development Center (AADC), Chhatrapati Shahu Ji Maharaj (CSJM) University, Kanpur from April 16-20, 2024. The purpose of the event was to provide an understanding of the concept and importance of Artificial Intelligence (AI). The event focussed on data visualisation, sophisticated AI tools, and the possible effects of AI on humanities, with a particular emphasis on how AI may influence future professions and society. It was inaugurated by Dr. Brishti Mitra, Dean, Academics and Dr. Anuradha Kalani, Dean, Research and Development, CSJMU, Kanpur. Various other dignitaries were also present during the event.

Dr. Brishti Mitra noted that such events have gained popularity in the Science and Engineering fields, but to talk about AI and advanced technologies in a social science field is an exceptional feat. She urged students to take advantage of this opportunity and learn as much as possible about the new technologies. Dr. Anshu Singh in her welcoming speech pointed out the importance of such programmes. She also informed the audience that all programmes of the School of Arts, Humanities, and Social Sciences at CSJMU, Kanpur now have a paper on advanced technologies that may be opted for by the students. She also talked about the new

diploma course in Digital Humanities being offered to the students.

Dr. Amritantanshu Pandey gave an overview of cutting-edge artificial intelligence techniques and data visualization's significance in the AI practical workshop on 'Utilizing AI Tools for Data Visualization'. Students indulged in real-time practice of AI tools where they focused on the reception of prompts. Students asked specific questions related to their fields of interest where they tried to use art as an expression of their disciplinary backgrounds.

Dr. Anurag Shukla spoke on 'Culture and AI, Culture Mapping, and Digital Humanities'. Dr. Shukla discussed the relationship between AI and culture methodologies and techniques for AI-assisted culture mapping and artificial intelligence in digital humanities. He talked about various tools that are currently in use like Pixler, Freepik, and Gencraft. He mentioned that the production of art is a subjective process where people can use their perspectives on various types of cultural ideas and turn them into art or writing. He was dedicated to the cultural production of stories, symbols, and various other artifacts related to the local ideas of Indian roots.

Dr. Anshu Singh, CSJM University spoke on 'Academic Writing in Humanities'. Dr. Anshu discussed AI tools for improving humanities study and writing, AI integration in academic writing, and some pointers for efficient academic writing in the modern digital world. Students had hands-on practice and learned LATEX for their academic writing. All the participants used latex with the instructions. All students were asked to share their respective screens so that the trainer might be able to see their progress. All the students were informed that they needed to produce a LATEX document about their work progress in the workshop as the final assignment for their final assessment.

Dr. Mayurakshi Chaudhari, Flame University, Pune, Maharashtra discussed the topic 'Artificial Intelligence and Sociological Thinking in the Digital Age'. According to Dr. Chaudhari AI can make already-existing societal injustices worse. Algorithms frequently reproduce the prejudices found in the data that they are trained on, producing biased results concerning loan approvals, hiring practices, and law enforcement. Further, sociologists are studying how these prejudices appear and the

steps that might be taken to lessen them. Important considerations in this regard are algorithmic bias and equity and access.

Dr. Jyothi Kumar, Programme Coordinator for a Ph.D. training program funded by the National Science Foundation (NSF), Michigan State University spoke on the topic 'Adapting to Change: Navigating Career Opportunities in the AI Landscape'. Dr. Kumar described the most recent developments in vocations relating to AI, perceptions on how artificial intelligence will develop in business and academics, and advice on how to get ready for a profession in artificial intelligence.

Titiksha Vashist, Pranava Institute talked about 'AI for Bharat: Unpacking what AI Means for India through a Systems Perspective'. Titiksha Vashist discussed What is AI. How can we interpret the excitement and promise surrounding this new technology? Considering India's development trajectory in particular, what are the potential and problems presented by AI systems? How can we use this technology to further our careers and create new fields such as AI for Indian languages and Indigenous AI?

Mr. Nirmal Patel, Playpower Labs talked about how AI can be used to address societal issues, Exhibition of social impact AI projects and activities, and Techniques for utilising AI to bring about constructive social change. He talked about his experience as a social activist who works in spaces where only the internet has its reach. This has helped him immensely in designing his programmes through AI for the good of people. As an assessment assignment, all the participants were asked to prepare a LATEX document on their feedback for the whole workshop. This assignment along with daily assessment forms was formed as a basis for the certification of the participants.

During the networking session, participants connected, and the speakers asked questions and engaged in conversation. The valedictory session was attended by various dignitaries. Participants talked in detail about the new things that they have learned. The Vote of Thanks was proposed by the Dean, Research and Development. Dr. Anshu Singh gave a brief overview of the event, she thanked the participants, and AIU for their constant support throughout the programme.

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# THESES OF THE MONTH

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## HUMANITIES

A List of doctoral theses accepted by Indian Universities  
(Notifications received in AIU during the month of April-May, 2024)

### Geography

1. Ali, Ershad. **Livelihood conditions of census town dwellers of Jalpaiguri District, West Bengal.** (Dr. Bipul Ch Sarkar), Department of Geography and Applied Geography, University of North Bengal, Darjeeling.
  2. Gaikwad, Balika Prabhakar. **Role of irrigation in the development of agriculture in Latur District (M.S.) (2000 to 2015).** (Dr. O V Shahapurkar), Department of Geography, Swami Ramanand Teerth Marathwada University, Nanded.
  3. Karmakar, Sangita. **A study on socio-economic conditions of women beedi workers in Tufanganj Subdivision of Koch Bihar District, West Bengal.** (Prof. Ranjan Roy), Department of Applied Geography, University of North Bengal, Darjeeling.
  4. Mondal, Subrata. **Impact of climate variability and human activities on alteration of runoff in South Koel River Basin, Eastern India.** (Dr. Rupak Kumar Paul), Department of Applied Geography, University of North Bengal, Darjeeling.
  5. Poddar, Debapriya. **A socio-economic study on arsenicosis affected inhabitants in Maldah District, West Bengal.** (Dr. Sarbari Mukhopadhyay), Department of Geography and Applied Geography, University of North Bengal, Darjeeling.
  6. Sarkar, Abhisek. **Impact of soil properties on agricultural land use pattern in Siliguri Sub-division, West Bengal.** (Prof. D K Mandal), Department of Geography and Applied Geography, University of North Bengal, Darjeeling.
  7. Singh, Kiran Virendra. **The study of land degradation process in Pali District of Rajasthan using geospatial technology.** (Dr. Shital H Shukla), Department of Geography, Gujarat University, Ahmedabad.
  8. Tabiyar, Jagdishbhai Dhuljibhai. **Assessing the changes in agricultural pattern in tribal district: A case of Aravalli District, Gujarat.** (Dr. Shital Shukla), Department of Geography, Gujarat University, Ahmedabad.
2. Jalaluddin. **Ajmer-Merwara ke rajnitik, samajik va arthik pariprekshey mein padosi rajyoan se sambandhoan ka adhyayan.** (Dr. Sunita Sinha), Department of History, Bhagwant University, Ajmer.
  3. Jandu, Chanderpal. **Mewar ka aitihasik mahatav: Ek adhyayan.** (Dr. Seema Verma), Department of History, Tanta University, Sri Ganganagar.
  4. Kamsi, Minoo. **Livelihood practices among the Galos of Arunachal Pradesh: From early times of 1947.** (Prof. Sarah Hilaly), Department of History, Rajiv Gandhi University, Itanagar.
  5. Pertin, Mijina. **Tibetans and the Adis: A study of cross culture interaction (1870-1962).** (Prof. Prasanta Kumar Nayak), Department of History, Rajiv Gandhi University, Itanagar.
  6. Solanki, Sangeeta. **Rao Amar Singh Rathore (Nagaur, Rajasthan) ke itihas evam sanskritik pariprekshey mein yogdan.** (Dr. Sunita Sinha), Department of History, Bhagwant University, Ajmer.
  7. Sushila. **Study of culture of Marwar in a historical perspective.** (Dr. Seema Verma), Department of History, Tanta University, Sri Ganganagar.

## LANGUAGES & LITERATURE

### Assamese

1. Roy, Chakradhar. **Abibhakta Goalpara Jilar Koch-Rajbongshi Janagosthir sadhukatha: Ek pariveshtantarik adhyayan.** (Dr. Ratul Deka), Department of Assamese, Bodoland University, Kokrajhar.
2. Roy, Sewali. **Kokrajhar Aru Chirang Jilar Koch Rajbangshi Janagosthir samajik lokachar: Ek bishlesanatamak adhyayan.** (Dr. Daisy Rani Deka), Department of Assamese, Bodoland University, Kokrajhar.

### English

1. Amardeep. **Representations of past in the novels of Graham Swift: A postmodernist study.** (Dr. Brajesh Sawhney), Department of English, Kurukshetra University, Kurukshetra.
2. Das, Rupanjit. **The discourse of nationalism in Assam: Re-reading Sankardev and Harekrishna Mahanta**



- 21st century.** (Dr. Debajyoti Biswas), Department of English, Bodoland University, Kokrajhar.
3. Makwana, Ajaybhai Lalabhai. **Exploring Diasporic consciousness and sensibility in select South Asian Diaspora writers.** (Dr. Rakesh Damir), Department of English, Gujarat University, Ahmedabad.
  4. Manbir Singh. **Marriage infidelity and matrimonial slavery: A critical analysis of selected novels of Shobha De, Shashi Deshpande and Arundhati Roy.** (Dr. Shivani Vashist), School of Media Studies & Humanities, Manav Rachna International Institute of Research and Studies, Faridabad.
  5. Modi, Vandeepra Prahladbhai. **Experiences of migration and womanhood in select works of Panna Naik and Rupri Kaur.** (Dr. Darsha Jani), Department of English, Gujarat University, Ahmedabad.
  6. Nakum, Khushbu Bharatbhai. **The selected novels of V S Naipaul and M G Vassanji: A postcolonial study.** (Dr. Kamal Mehta), Department of English, Saurashtra University, Rajkot.
  7. Nisha. **The scope and prospects of Naga literature in India.** (Prof. Gunjan Agarwal), Department of English, Shobhit Institute of Engineering & Technology, Meerut.
  8. Patel, Preksha Upendrabhai. **Issues, identity and language: Exploring English prose and fiction by select Gujarati literati.** (Dr. Rucha Brahmabhatt), Department of English, Gujarat University, Ahmedabad.
  9. Prem Kumar, G. **Migration and identify: A study of African Diaspora in select Afro European novels.** (Dr. Dattatreya M), Department of English, Kuvempu University, Shankaraghatta.
  10. Priyanka. **The matrix of power: A study of the selected novels of Chitra Banerjee Divakaruni.** (Prof. Anu Shukla), Department of English and Foreign Languages, Chaudhary Devi Lal University, Sirsa.
  11. Soni, Parul. **Search for identity in the select fiction of N Scott Momaday, Leslie Marmon Silko and Louise Erdrich.** (Dr. Brajesh Sawhney), Department of English, Kurukshetra University, Kurukshetra.
  12. Sunil Kumar. **A comparative study of autobiographies of Mahatma Gandhi and Nelson Mandela.** (Dr. Jyoti Syal), Department of English, Maharishi Markandeshwar University, Ambala.
  13. Venkata Ramana, K. **Exploration of traumatic experiences in the works of Svetlana Alexievich.** (Dr. Ch B Jacob and Dr. V B Chithra), Department of English, Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.
- Hindi**
1. Kavita. **Samkaleen vimarshoan kee drishti se Bhalchandra Joshi ke katha sahitye ka adhyayan.** (Dr. Krishna Devi), Department of Hindi, Maharshi Dayanand University, Rohtak.
  2. Rani Devi. **Madhu Kankriya ke katha-sahitye mein nari jeevan ka samajshastriy adhyayan.** (Dr. Kamraj Sindhu), Department of Hindi, Kurukshetra University, Kurukshetra.
  3. Richa Shree. **Rajasthan kee mahila kahanikaroan ka sameekshnatamak adhyayan-Neelprabha Bhardwaj kee kahanioan ke vishesh sandarbh mein.** (Dr. Pooja Dhamija), Department of Hindi, Tanta University, Sri Ganganagar.
  4. Shekhaliya, Ranjan Ambabhai. **Krishna Sobati ke katha sahitye ke patroan ka manovaigyanik adhyayan.** (Dr. B K Kalasva), Department of Hindi, Saurashtra University, Rajkot.
- Marathi**
1. Gaikwad, Maroti Govindrao. **Anna Bhau Sathe yanchya sahyateel Ambedkari prerna.** (Dr. Balaji Kharabe), Department of Marathi, Swami Ramanand Teerth Marathwada University, Nanded.
- Sanskrit**
1. Acharya, Rohit Kumar. **Gorakshpadhtihathyogprad-  
ipikayoah Tulanatamakmadhyayanam.** (Prof. Mar-  
kandey Nath Tiwari), Department of Sankhyayoga, Shri  
Lal Bahadur Shastri Rashtriya Sanskrit Vidyapeetha,  
New Delhi.
  2. Anand, Ashish. **Srimadbhagwatmahapurane samu-  
palbadhgeetanam parisheelanam.** (Dr. Mamta Pan-  
dey), Department of Sanskrit, Kameshwara Singh Darb-  
hanga Sanskrit University, Darbhanga.
  3. Bhatt, Khushbu. **Panyopahwasey Shribhagwatipras-  
adasey padyarchananam sadkalanam sampadanam  
samikshanam cha.** (Dr. Kamleshkumar C Chokashi),  
Department of Sanskrit, Gujarat University, Ahmeda-  
bad.
  4. Chaturvedi, Gopeshwar. **Shrimadbhagvatasthbhak-  
tisandarbhnam bhaktishastriyegunatya samik-  
shanam.** (Prof. Shitla Prasad Shukla), Department of  
Puranetihas, Shri Lal Bahadur Shastri Rashtriya San-  
skrit Vidyapeetha, New Delhi.
  5. Choudhary, Upendra Kumar. **Acharya Shyamanand  
Jha kritinanam samikshanatamakmadhyayanam.**  
(Prof. Renuka Sinha), Department of Sanskrit, Kamesh-

- wara Singh Darbhanga Sanskrit University, Darbhanga.
6. Jha, Shyamchander. **Chandercharsey samikshanata-makmadhyayanam.** (Dr. Ganganath Jha), Department of Sanskrit, Kameshwara Singh Darbhanga Sanskrit University, Darbhanga.
  7. Meena, Ram Kuwar. **Yogasutrasamadhipadasya Shattikanaam samikshanam.** (Prof. Markandey Nath Tiwari), Department of Sankhyayoga, Shri Lal Bahadur Shastri Rashtriya Sanskrit Vidyapeetha, New Delhi.
  8. Prashant Kumar. **Sanskritasey vikasey panditgadgeshmishresey yogdanam.** (Prof. Laxminath Jha), Department of Sanskrit, Kameshwara Singh Darbhanga Sanskrit University, Darbhanga.
  9. Sharma, Rahul Kumar. **Shuklayajurvedeeyamadyandinasamhitoktapravargyayagasya samikshanatamakamadyayanam.** (Prof. Sunder Narayan Jha), Department of Shuklayajurveda, Shri Lal Bahadur Shastri Rashtriya Sanskrit Vidyapeetha, New Delhi.
  10. Shukla, Prabhaskar. **Puraneshu vratopvasyogaabhyasiah Rogopcharamikshanam.** (Prof. Shitla Prasad Shukla), Department of Puranetihas, Shri Lal Bahadur Shastri Rashtriya Sanskrit Vidyapeetha, New Delhi.

#### PERFORMING ARTS

##### Fine Arts

1. Bhatti, Gurinder Singh. **Evolution of new media trends in advertising: A study.** (Dr. Pawan Kumar), Department of Fine Arts, Kurukshetra University, Kurukshetra.
2. Kachhawa, Rhythm Singh. **Surrealism in advertising: With special reference to advertisements involving animals.** (Dr. Ujjvala M Tiwari), Department of Fine Arts, IIS University, Jaipur.

##### Music

1. Chauhan, Neha. **Khyal Shaili ke bandishoan ke sanrachnatamak vikas me vibhinn aadhyatmik vichardharaon ka prabhav: Vishleshanatmak adhyayan.** (Dr. Harwinder Singh), Department of Music, Kurukshetra University, Kurukshetra.
2. Devender Kumar. **Paschimiuttar Bhartiye Sufi sangeet ke kalakaroan ka yogdan: Ek vishleshnatamk adhyayan.** (Dr. Bhupender Malhotra), Department of Music, Maharshi Dayanand University, Rohtak.

3. Rakesh. **Sant Kabir ke rachnaon ke prachar-prasar mein sangeet ke bhumika: Ek adhyayan.** (Dr. Vimal), Department of Music, Maharshi Dayanand University, Rohtak.

##### Philosophy

1. Ramchiary, Arpana. **Women's subjectivity through embodiment: A feminist approach by Judith, Butler and Luce Irigaray.** (Prof. Prasenjit Biswas), Department of Philosophy, North Eastern Hill University, Shillong.

##### Religion

##### Jainism

1. Jain, Sonu Bhagchand. **Jain religion and philosophy as depicted in Mahapurana by Pushpadanta.** (Dr. Saloni Joshi), Department of Prakrit, Gujarat University, Ahmedabad.
2. Shah, Vaishali Kiritkumar. **A philosophical study of Pannavana Suttam.** (Dr. Dinanath Sharma and Dr. Prakash Pandey), Department of Prakrit, Gujarat University, Ahmedabad. □



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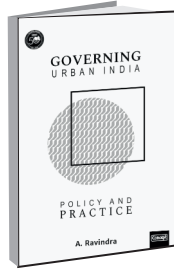
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**Secretary**

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Subject	Category	No of Vacancy
Economics	1 (PWD – reserved for visually impaired)	1
Commerce	1 (Community)	1
Mathematics	1 (Open)	1

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(Non Grant)

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Applications are invited from eligible candidates for the following posts:

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Date :

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(Approved by Central council of Indian Medicine,  
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#### CORRIGENDUM

In continuation to the advertisement in University News Vol 62. No.23. in June 03-09, 2024 on page No.34 for an additional post of Professor in Panchakarma is now advertised.

For all other requirements, terms and conditions please refer above advertisement.

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FROM THE ACADEMIC YEAR 2024-2025

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**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.

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Candidate having knowledge of Marathi will be preferred.

**“Qualification, Pay Scales and other requirement are as prescribed by the UGC Notification dated 18<sup>th</sup> July, 2018, Government of Maharashtra Resolution No.Misc-2018/C.R.56/18/UNI-1, dated 8<sup>th</sup> March, 2019 and University Circular No.TAAS/(CT)/ICD/2018-19/1241, dated 26<sup>th</sup> March, 2019 and revised from time to time”. The Government Resolution & Circular are available on the Website [mu.ac.in](http://mu.ac.in)**

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Application with full details should reach the **GENERAL SECRETARY, The Bharat Education Society's SANT GADGE MAHARAJ COLLEGE OF COMMERCE & ECONOMICS, 12<sup>th</sup> Lane Khetwadi, Opp. Shri. Bhausaheb Palkandwar Chowk, Girgaon, Mumbai-400 004 within 15 days** from the date of publication of this advertisement. **This is University approved advertisement.**

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Candidate having knowledge of Marathi will be preferred.

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Phondaghat Education Society, Phondaghat

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PhD Programme	Master degree in Economics/Development Studies/Statistics/ Environmental Science/ Operations Research/Physics/Mathematics/ Management/Engineering/Relevant or allied subject	55%	50%
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Note: GEN is General, GEN-EWS is General-Economically Weaker Sections, OBC-NCL is Other Backward Classes-Non-Creamy Layer, PwD is People with Disability, SC is Schedule Caste, ST is Scheduled Tribe.

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				EWS - 01

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02	Handicapped candidates	01
03	Sport candidates	01

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Physics	03	
Botany	02	
Zoology	02	
Mathematics	02	
Computer-Science	02	
Commerce	03	
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  2. Beside fulfilling the above qualifications the candidate must have cleared the NET/SLET. Or Ph. D. (with minimum standards & procedure according to regulation 2009).
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Indian nationals under the age of thirty (as on July 01, 2024), who have completed at least 1<sup>st</sup> year of MD or PhD in Biomedical or Pharmaceutical Sciences are eligible to apply. Those who have completed their MD, or PhD and above the age of thirty, as on date July 01, 2024 are not eligible to apply. The applicant should have completed a Research Project and should be willing to present his/her research work in front of knowledgeable assessors.

The applicants should submit:- (1) detailed CV with photograph (2) copy of their detailed research work (3) letter from the supervisor certifying that the research work under reference has actually been done by the applicant (4) a citation (brief summary) on his/her research work. (5) forwarding letter from the Head of the Department or Institution, giving justification for nominating the applicant (6) A voluntary declaration from the applicant that they would work in the public or private funded academic/research based organizations for a minimum period of two years after completion of his/her studies. The applicant should also submit the following testimonials.

- Aggregate marks obtained in PCB/PCM in Class XII, and Bachelor's/ Master's Degree
- Proof of age
- Copies of the publications, if any
- Merits/Fellowships/Scholarships received, if any
- A letter stating that the project submitted for the fellowship has received ethical clearance,
- A statement duly signed by the nominee and the supervisor/co-author that the thesis has no-conflict of interest academically or financially.

The applicants should submit their nominations online at Sun Pharma Science Foundation's website [www.sunpharmasciencefoundation.net](http://www.sunpharmasciencefoundation.net) from **July 01, 2024 to August 31, 2024**. Also required to send a print copy of the nomination, to the office of the Foundation **by September 15, 2024**.

Detailed nomination procedures of the Fellowships are available on Sun Pharma Science Foundation's website.

For further information, please contact :

The Office of Sun Pharma Science Foundation

8C, 8<sup>th</sup> Floor, Hansalaya Building, 15-Barakhamba Road, Connaught Place, New Delhi : 110 001 (India)

Tel.(91-11) 23721414; 23721415 : E-mail : [sunpharma.sciencefoundation@sunpharma.com](mailto:sunpharma.sciencefoundation@sunpharma.com)

Website : <https://www.sunpharmasciencefoundation.net>



## WANTED

### Shri Shivaji Mofat Education Society, Kandhar

#### Shri Shivaji Law College, Kandhar Tq. Kandhar Dist. Nanded

Applications are invited for the post of Principal to be filled in Shri Shivaji Mofat Education Society's Shri Shivaji Law College, Kandhar Tq. Kandhar Dist. Nanded (Maharashtra) (Granted), Eligible candidates should submit their application along with all necessary documents **within Fifteen days** from the date of publication of the Advertisement by Registered post only.

Sr. No.	Name of the Post (Designation)	No. of Post	Reservation
1	Principal	One (01)	Unreserved

#### Educational Qualification: -

##### A. Eligibilities:

1. A Master's Degree with at least 55% marks (or an equivalent grade a point scale wherever grading system is followed) by a recognized University.
2. A Ph.D. Degree in concerned/allied/relevant discipline (S) in the institution concerned with evidence of published work and research guidance.
3. Professor/Associate Professor with a total experience of fifteen years of teaching/research in Universities, College and other Institutions of Higher Education.
4. A minimum of 10 research publication in peer reviews or UGC journals.
5. A minimum of 110 research score as per Appendix II, Table 2 of UGC regulations 2018.
6. Academic Eligibility and other rules regulations as per UGC Regulation 18 July, 2018 and Govt. Resolution No Misc-2018/C.R.56/UNI-I Date 08 March 2019.

##### 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 Rules.

#### Salary & Allowances:-

Pay Scales as per the UGC, State Government & Swami Ramanand Teerth Marathwada University, Nanded Rules from time to time.

#### Note:-

1. Prescribed application form is available on the University website([www.srtmun.in](http://www.srtmun.in)).
2. No. T.A.D.A. will be paid to attend the interview.
3. Eligible Candidate those who are already in services should submit their application through proper channel.
4. All attested Xerox Copies of certificates and other relevant documents should be attached with the application form.
5. The vacant posts are being filled under the decision of Hon'ble High Court, Aurangabad Bench Petition No. 12051/2015.
6. The original certificates must be provided at the time of interview.

**Note: Applications should be submitted within 15 days from the date of publication of advertisement.**

#### Correspondence Address:

The President,  
Shri Shivaji Mofat Education Society, Kandhar  
Tq. Kandhar Dist. Nanded (M. S.) 431714

President  
Shri Shivaji Mofat Education Society,  
Kandhar Tq. Kandhar Dist. Nanded

**Sonopant Dandekar Shikshan Mandali's**  
**SONOPANT DANDEKAR ARTS, V. S. APTE COMMERCE AND**  
**M.H. MEHTA SCIENCE COLLEGE**

**At. Kharekuran Road, Palghar (W), Tal. & Dist. – Palghar 401 404**

APPLICATIONS ARE INVITED FOR THE FOLLOWING POSTS FROM THE ACADEMIC YEAR 2024-25.

**UN-AIDED (SELF FINANCE)**

Sr. No.	Cadre	Subject	Total No. of Post	POST RESERVED FOR							
				SC	ST	DT(A)	NT(B)	OBC	SEBC	EWS	OPEN
1	Assistant Professor	Biotechnology	12	02	01	01	01	02	01	01	03
2	Assistant Professor	Information Technology	13	02	01	01	01	02	01	01	04
3	Assistant Professor	Computer Science	08	01	01	01	--	01	01	01	02
4	Assistant Professor	B.Com. (Financial Markets)	02	01	--	--	--	--	--	--	01
5	Assistant Professor	B.Com. (Accounting and Finance)	04	01 SC/ST		01	--	01	--	--	01
6	Assistant Professor	B.Com. (Banking and Insurance)	04	01 SC/ST		01	--	01	--	--	01
7	Assistant Professor	Bachelor of Management Studies	06	01 SC/ST		01	--	01	01- SEBC/ EWS		02

**For Assistant Professor (Horizontal Reservation)**

**Persons with Disability Total Posts – 02 (A Group – B./LV.-01 Post), (B Group – FD/HH.- 01 Post),  
Sportsmen – 02**

The posts for the reserved category candidates will be filled in by the same category candidates (Domicile of State of Maharashtra) belonging to that particular category only.

Reservation for women will be as per University Circular No. BCC/16/74/1998 dated 10<sup>th</sup> March, 1998. 4% reservation shall be for the persons with disability as per University Circular No. Special Cell/ ICC/2019-20/05 dated 05<sup>th</sup> July, 2019.

Candidates having knowledge of Marathi will be preferred.

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

The Government Resolution & Circular are available on the website : [mu.ac.in](http://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.

Applications with full details should reach the **PRINCIPAL, S.D. ARTS, V.S. APTE COMMERCE, M.H. MEHTA SCIENCE COLLEGE, PALGHAR, Kharekuran Road, Palghar (W), Tal. & Dist. – Palghar 401 404 (Mgmt. Office) within 15 days** from the date of publication of this advertisement. This is University approved advertisement.

**CA Sachin G. Kore**  
President

**Dr. Kiran J. Save**  
Principal

**Sonopant Dandekar Shikshan Mandali's Law College, Palghar**  
**At – Kharekuran Road, Palghar (W), 401404, Dist. & Tal. Palghar, Maharashtra**  
**Phone -9359223350**

**APPLICATIONS ARE INVITED FOR THE FOLLOWING POSTS FROM THE  
ACADEMIC YEAR 2024-25**

**UN-AIDED**

Sr. No.	Cadre	Subject	Total No. of Posts	Post Reserved for							
					OPEN	SC	ST	DT (A)	NT(B)	OBC	EWS
1	Principal	Law	01	01	0	0	0	0	0	0	0
2	Assistant Professor	Law	10	02	01	01	01	01	02	01	01
3	Librarian	Law	01	01	0	0	0	0	0	0	0

**For Assistant Professor (Horizontal Reservation)**

**Sportsmen – 01**

The posts for the reserved category candidates will be filled by the same category candidates. (Domicile of State of Maharashtra) belonging to that particular category only.

Reservation for women will be as per **University Circular No. BCC/16/74/1998 dated on 10<sup>th</sup> March 1998**. **4% reservation shall be for the persons with disability as per University Circular No. Special Cell/ ICC/2019-20/05 dated 5<sup>th</sup> July 2019**.

Candidates having knowledge of Marathi will be preferred.

**“Qualification, Pay Scale and other requirements are as prescribed by the UGC Notification dated 18<sup>th</sup> July, 2018, Government of Maharashtra Resolution No. Misc-2018/C.R.56/18/UNI-1, dated 8<sup>th</sup> March, 2019 and University Circular NO. TAAS(CT)/ICD/2018-19/1241, dated 26<sup>th</sup> March 2019 and revised from time to time”**

**The Government Resolution and 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.

Applications with full details should reach the **PRESIDENT, SONOPANT DANDEKAR SHIKSHAN MANDALI's LAW COLLEGE, PALGHAR, Kharekuran Road, Palghar (W) 401404, Tal. and Dist. Palghar within 15 days** from the date of publication of this advertisement. **This is University approved advertisement.**

Sd/-  
**PRESIDENT**



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