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In This Issue

Reforming the Affiliation System in Higher Education: Challenges of Transforming the Idea into Action

Furqan Qamar*

Convinced that the large affiliation system leads to low standards of undergraduate education, the National Education Policy–2020 (GOI, 2020) proposes to phase out the affiliation system by 2035 by converting colleges into 'autonomous degree granting institutions' or by integrating them into universities as 'constituent colleges'. To facilitate the process, the affiliating universities would mentor their colleges to achieve benchmark standards in academic, administrative and financial matter and progress gauged through mandatory accreditation of colleges by one of the many accrediting agencies licensed for the purpose by the National Accreditation Council (NAC), a vertical of the new regulatory architecture envisaged by the new policy.

The National Policy on Education of 1986 (GOI, 1998) too had admitted that the experience with the affiliation system was mixed and had provided for promoting autonomous colleges in large numbers until the affiliation system was replaced by a freer and more creative association of universities with colleges. Additionally, it had also argued for stricter guidelines for granting affiliation to ensure certain minimum level of facilities in colleges and also for providing financial support for strengthening the non-viable colleges and using them for alternative purposes like vocational education.

So has been the National Education Policy of 1968 (GOI, 1998) which had also felt concerned about the deteriorating quality of higher education due to uncontrolled expansion of enrolment in colleges and had sought to determine the number of whole-time students admitted to a college with reference to their facilities and faculty. It had, thus, moderated the University Education Commission of 1948 (GOI, 1950) which had argued for stringent affiliation rules and disclosure norms to check deterioration in standards of higher education and limiting the intake of students in colleges to a maximum of 1500. Way back in 1902, the Indian Universities Commission too had urged for stricter monitoring of affiliated institutions by the universities.

Colleges in India predate universities by decades. In fact, the modern higher education in India began with them. Until the beginning of the 20th Century, universities in India had no corporate existence and were merely a body to control courses of study and set examination for the pupils of the affiliated colleges. Until after

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the Sadler Commission (Calcutta University) in 1919 (GOI, 1920), the teaching was the function of the colleges alone and the role of the universities were just confined to affiliation, examination and conferring degree. Such was their indispensability that Hartog Committee in 1929 felt that even though the standard of education in affiliated colleges would be lower than that of the teaching universities, but it was the only way to meet the increasing demand for higher education.

Since their inception, colleges have not only multiplied in number from 578 in 1950 to 42,345 in 2020 (GOI, 2020) but have also grown in significance as far as the provision of higher education to a large mass of people are concerned. Most higher education in India, at the undergraduate as well as at the postgraduate level, is provided by colleges. They account for 72 per cent of the total enrolment in higher education and their share goes up to 81.52 per cent if we take out the enrolment in distance mode. With close to 80 per cent the teachers in higher education being in the colleges, they are also the largest job creators in higher education. With 61 per cent of them being rural and another 11 per cent exclusively for women, they serve the underserved, marginalised and deprived sections of the society.

On the flip side, they are not uniformly spread across the length and the breadth of the country. The college density, measured by the number of colleges per 1 lakh population in the age group of 18-23, varies from 7 in Bihar to 53 in Karnataka with the national average hovering at around 28. Generally speaking, less-developed states with large population have poorer access to higher education. Further, the proportion of government and government aided colleges now stands at 22.2 and 13.5 per cent respectively and an overwhelming 64.3 per cent of them now operate as self-financed private colleges (GOI 2019).

Collegiate system in India is characterised by the dominance of a large number of small institutions. About 81 per cent of the colleges have less than a thousand students on their roll. It is further revealed that 16.3 per cent of the colleges have less than 100 students; 48 per cent with 100-500 students; and 16.7 per cent with 500-1000 students). Merely 4 per cent of the colleges have enrolment size of more than 3000. Being small in size, they are least equipped to offer quality higher education across disciplines. This in view the NEP–2020, proposes that all institutions of higher education must become multi-disciplinary higher educational institutions with a minimum enrolment of 3,000 students. Obviously, as of now only 4 per cent of the colleges would qualify to meet the criteria. What happens to the remaining 96 per cent is only in the realm of guess.

These colleges are presently affiliated to 298 universities - mostly the public-funded state universities. The affiliation burden is, however, not shared uniformly by all the affiliating universities. Latest data indicates that while 227 universities have less than 200 colleges (of which 168 having less than 100), only 36 universities affiliate between 200-300 colleges; 12 between 300-400; 10 between 400-500. As of now, only 13 universities affiliate more than 500 colleges. This has been the outcome of the persistent purgation of the last one decades of policies impressing the need to restrict the number of universities to 200 colleges which must be bought down to a maximum of 100 at the earliest. Affiliating universities in return for their supervision and examination generate huge sums of money in the form of examination and affiliation fees. With most colleges on temporary affiliation, these are the recurring source of income for the affiliating universities.

Given their size and importance, colleges are critical for improving the overall quality of higher education in the country. However, giving effect to the formulation of the NEP–2020, the task might prove arduous and easier said than done. Look at the sheer magnitude of the size and the associated problems in its context. Most colleges survive on temporary affiliation either because the affiliating universities do not want to admit them to permanent affiliation or they do not meet the minimum prescribed requirements for getting permanent affiliation.

Section 2(f) of the UGC Act 1956 had mandated recognition of all colleges offering, UG, PG or one year Diploma courses to ensure that they are organised as a society or a public trust or a body corporate by law and are affiliated to an empowered university. More than six decades down the line, over 68.34 per cent colleges operated in the country without such recognition. AISHE (2020) lists 42,345 colleges in the country of which only 12,641 are recognised under section 2(f) of the UGC Act 1956. Additionally, no more than 25.32 per cent of these colleges are recognised under Section 12(B) of

the UGC Act meaning thereby that 74.68 per cent colleges are not eligible to receive government grants.

Similarly, no more than 8,166 colleges, a mere 20.45 per cent, are accredited by the National Assessment and Accreditation Council (NAAC) as on date. Another 1,080 colleges offering higher education in domains like Engineering, Management, Computer Application and Pharmacy have been accredited by the National Board of Accreditation (NBA). Some domain specific colleges, like teacher training, agriculture, medicine, etc may have remained unaccredited because NAAC is yet to evolve or implement accreditation framework for such domain. Even discounting for these, over 70 per cent of the colleges remain unaccredited. And this is much to do with the ability of these colleges to meet the minimum prescribed benchmark for accreditation and not because of the inability of the accrediting agencies to handle the sheer number. Amongst the accredited colleges, merely 1,697 (20.78 per cent) are accredited as A Grade while 5482 (64.13 percent) and 987 (12.09 percent) are accredited as B and C Grades respectively (Table 1).

Table-1: Status of College Education in India

Growth in the Number of affiliated Colleges	578 in 1950; 42,345 in 2020
Type of Colleges:	Government: 22.2%; Government Aided: 13.5%; Self-financed Private: 64.3%
Number of UGC Recognised Colleges	Under Section 2(f): 12,641 (31.66%) Under Section 12(B): 10,110 (25.32%)
Enrolment in Colleges (as a percentage of total enrolment in higher education)	Total (Regular & Distance): 72% Regular Mode: 81.52%
Number of Colleges Accredited by NAAC	Total: 8,166 (20.45%) .. of which: **A Grade**: 1, 696 (20.78%); **B Grade**: 5482 (64.1%); **C Grade**: 987 (12.09%)
College density (Number of colleges per 1 lakh population in the age group 18-23)	Lowest: 7 in Bihar Highest: 53 in Karnataka National Average: 28
Colleges with Enrolment Size of:	Less than 100 Students: 16%; 100-500 Students: 48%; 500-1000 Students: 16.7% **[Thus 81% college's have 1000 or less students]** 1000-2000 students:11.3%; 2000-3000 students: 4.0%; More than 3000 students:4.0%
Location of Colleges	Rural: 60.53%; Urban: 39.47%
Other Salient Features of Colleges	Exclusively women colleges: 11.04% Colleges offering PhD Programme: 2.5% Colleges offering PG programmes: 34.9% Colleges with a Single Programme: 34.8%
Number of Universities to which these colleges are affiliated	298
Universities with the number of colleges affiliated to them:	168 with Less than 100 Colleges; 59 with 100-200 colleges; 36 with 200-300 colleges; 12 with 300-400 colleges; 10 with 400-500 colleges; 13 with more than 500 colleges

Presently, the UGC ACT, 1956 accords degree granting power to universities and other university level institutions established by the Act of parliament or State Assemblies. The only alternative to empowering colleges to award degrees is by declaring the higher educational institutions as deemed universities. Under NEP 2020, UGC Act is slated to be repealed and replaced by Higher Education Commission of India (HECI) Act. Expectedly, this legislation would provide for a mean and method of establishing and recognising a higher educational institution with power to confer degree. Whatever be that formulation, it is likely to be akin to the provision of the deemed university route. Given the past experiences that rapid rise in such degree granting institution leads to deterioration in quality, or at least the perception of deterioration in the quality, the path shall have to be treaded very carefully.

Accreditation is surely a desirable way of ensuring compliance and adherence to the minimum prescribed benchmarks and standards, it too has to be tested too carefully, particularly because the NEP —2020 envisages multiple accrediting agencies - an idea that has not been tested in a large system like ours.

Most colleges would be unable to expand their size and programme offerings because of the resource constraints. if compelled to close down or consolidate with other institutions may seriously impact on the affordable access to higher education by the social group that these colleges have so far been catering to. It appears that most of the bigger colleges, close to 1600 having more than 3000 enrolment, might be tempted seek university status. This would mean that there shall be sudden growth in universities Cluster university idea would be another recourse, the beginning of which has already been made.

Presently, we have large number of poor quality colleges making it incumbent upon the regulatory authorities to ensure that the correcting the situation must not lead to a large number of poor to very poor universities. Further, the Student Teacher Ratio (STR) in the colleges at over 30 is way too high. Technological advancements in teaching-learning notwithstanding, teachers play critical role in imparting quality higher education. It is also proven that institutions catering to largely the first-generation learners drawn from the poorer and marginalised sections of the society need to invest more in teachers and teaching-learning resources as these students require far focussed attention to overcome what their families are unable to provide for.

Finally, the number of colleges in the country have been rising too rapidly leading to their mushroom growth. The expansion is largely driven by the private initiatives and the number of government and government-aided colleges have been declining as a proportion. Even though there have been some consolidation lately leading to closure and winding up of college, we are still seeing on an average 3 to 4 colleges being established every day. Such a mushroom growth is neither desirable nor viable academically and economically. While no one can argue for a moratorium on new colleges for new colleges shall still be needed to mitigate regional disparities and thus to widen equitable access but the time has come to focus on qualitative expansion and consolidation.

It may be wrong to assume that colleges in India are concerned only with the undergraduate education. In fact more than 60 per cent of the higher education at the postgraduate level is provided by the colleges. Reforming the affiliation system has the potential to disrupt nearly three-fourth of the higher education system in the country and thus warrants to be treaded carefully.

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Reforms in Research, Innovation and Community Engagement and National Education Policy—2020

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Higher Education is a knowledge enterprise which creates archives and disseminates knowledge. Knowledge creation is the function of research and other development activities in terms of consultancy, community development activities and human resource development leading to economic development and ultimately to national development. A university is a place where scholars and teachers participate for the advancement, acquisition, and communication of knowledge in a liberal spirit and thus prepare students for their chosen profession and other life skills. Besides disseminating knowledge, Universities also create knowledge in theoretical, practical, managerial and technological arena, and consequently provide platforms for updated learning based on existing as well as new knowledge through research. Therefore, universities and higher education institutions and their faculty are expected to engage as much in research as in teaching. Any system that promotes one activity at the cost of the other weakens the university performance.

Some of the world's most famous discoveries like internet, telegraph, discovery of aids, research in stem cells, etc., have been made through research in Higher Education Institutions (HEI). Research is an active, diligent and systematic process of inquiry in order to discover, interpret or revise the facts, events, theories or to make practical applications with the help of such facts, laws or theories. Universities and colleges are primarily responsible for knowledge creation and knowledge dissemination. Therefore, the value of research cannot be overemphasized in the performance of Higher Education Institutions. Ranking of higher education institutions across the globe are based mainly on research performance and innovation. Therefore, we need to develop some robust measures for assessing the quality of research and innovation in higher education institutions.

The quality of higher education is the most crucial factor for deciding the future of any country and it is therefore necessary for constant review of the research status both in terms of quantity and quality and relevance especially in a developing country like India. In global ranking and research matrices of Higher Education Institutions, Indian higher Education Institutions are found to be lagging as compared to some of the universities in other countries. In the Global Innovation Index, India stands 48th among the 131countries. The recent publication of the ranking of the World Universities places greater focus on research and innovation mainly knowledge creation. In the Global Innovation Index, USA and China are in the first and second position and India has secured only the 52nd position. The first and second positions are secured for USA and China in the case of number of publications and India has reached only the 5th position. Ranking in the H Index, USA and China again secured the first and second position and India only the 21st position. In the index for Intellectual property rights, Finland got the first position followed by USA. India again is lagging to secure the 52nd position. As far as collaborations with Industries, USA is number 1 and India is 23rd in the list. As far as expenditure on research is concerned, USA ranks first with an expenditure of 476,5 billion dollars, while India spend only 48.1billiondollars. For the fifth year running, Stanford University tops the Reuter's ranking of the world's most innovative Universities, a list that identifies and ranks the educational institutions doing the most to advance science, invent new technologies and power new markets and industries, Number 2 and 3 are MIT and Harvard University respectively. Innovation relies on strong institutions. It is not enough to come up with a new idea. Success depends on getting help to patent, publish, produce and market the product/ service to get the appropriate economic value .

Comparison of India's Research and Innovation investments with the International standards shows huge gap in India's Research and Innovation investments; We are far below the benchmark as far as this parameter is concerned. This is apparent from the fact that in the review of accreditation of Higher Education Institutions, Research and Innovation has the lowest score among all the 7 parameters under

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the National Assessment and Accreditation Council (NAAC) review. (Varghese et al 2021) In the global ranking, the score for research is the primary factor for consideration, which explains the reason for the low rank for India compared to institutions of other developed and developing countries.

India persistently lags in the number of patents and quality publications per institution, per faculty and the aggregate number. Among the important functions of Higher Education Institutions is to address the complex problems of society by its curriculum reforms based on research and review. Higher Education Institutions have to engage the academic faculty and students and it entails far reaching interaction amidst and beyond disciplines from a real life problem–based perspective to conquer artificial boundaries between disciplines. It encompasses trans-cultural values and creates border less, transdisciplinary, and transcultural research. There is an ever increasing need for thought provoking multi-disciplinary research for creating new knowledge ecosystems in this country of great diversity of all types.

The transdisciplinary approach is essential for the harmony of knowledge beyond disciplines, and it entails far reaching interaction amidst and beyond disciplines. It encompasses transcultural values and creativity to infuse the concept into the curriculum demands and borderless transdisciplinary approach in the system.

Rationale for Reforms

In reforming the system of Research, Innovations and Community Engagements, the main purpose is to promote quality, transdisciplinary research pertinent to national development by the education system through faculty and students. Secondly, to inculcate innovative thinking for the creation of ground breaking knowledge and thereby inspire the teachers. Another purpose is to enable faculty to evolve as eminent academicians. Innovations extend creativity and creativity and its implementation lead to generation of values. Lack of innovation in our system is due to lack of knowledge, limited access to capital, lack of leadership and other skills, cultural changes and also not able to know or predict the market opportunities.

There is an apprehension that funding high impact national network projects in the identification through research in Arts and Humanities, Science and indigenous knowledge is risky and do not assure any return on investments. With the aim of transforming higher education research with the revolutionary idea of transdisciplinary research, UGC introduced the Scheme for Transdisciplinary Research for India's Developing Economy. The scheme promotes quality research by faculty and students to promote the identification, creation and application of new knowledge: - innovative and cognitive and also improve the quality of doctoral research. The scheme aims to reinforce the research culture and innovation in Higher Education system and inspire students and faculty to contribute to the overall human advancement meaningfully for the national progress. STRIDE an initiative developed by University Grants Commission (UGC) has the thrust on research capacity building and transdisciplinary studies facilitating national growth and high impact research in the thrust areas of Arts, Humanities, Indian languages, and knowledge system. The Scheme supports comprehensive innovation related to the conception, development and assimilation of new ideas, inception and practices for public good in supporting civil society. Transdisciplinary research for national development focuses on solution driven efforts, addressing the needs and requirements of local/regional communities. For example, STRIDE supports basic applied and transformational action research for national progress to attain Sustainable Development Goals. We face some issues in this context. The percentage of research articles published in predatory journals is high in unethical practices leading to poor quality publications. Research and innovations involve rigorous scientific effort in search for truth in the creation of new knowledge contributing to socio-economic benefits for global good. It is important to prevent plagiarism in academic writing among students, faculty, and other researchers. Responsible conduct of research and safeguarding ethics, academic integrity in scientific research is critical. It is advisable to have a Consortium for Academic and Research Ethics to identify and continuously monitor a reference list of quality journals across disciplines.

Initiatives of University Grants Commission (UGC) and Ministry of Education (MoE)

There are some initiatives UGC has proclaimed for improving the quality of Research and promote innovations in the Higher Education System. The first initiative is CARE.

Consortium for Academic and Research Ethics (CARE) lists websites, citing the useful resources as relevant publications audiovisual materials-CARE promotes quality research, academic integrity and publication ethics in HEIs besides promoting high quality publications in reputed journals. It also provides a methodology for the identification of good quality journals. It creates a UGC CARE reference list of quality journals for all academic purposes. Additional schemes to promote research in Indian Universities and Institutions launched by MoE include:

- IMPRINT - for impacting Research Innovations and Technology
- IMPRESS-Impactful Policy Research in Social Sciences
- SPARC – Scheme for Promotion of Academic and Research Collaboration
- STARS - Scheme for Transformational and Advance Research in Fundamental Sciences

These policy initiatives are not known to many Higher education Institutions and hence not implemented by the community.

Most of the research studies in universities are theoretical in nature and is planned from the library and the finished works also go the library shelf. They are not known to the community or the society since they are not understood by the community and may not be relevant also. Except the research students and the guides and the examiners, others do not get and any idea from this vast amount of literature adorning the library.

Idea Centers

UGC has most recently initiated another initiative to establish Idea Centers in universities and colleges where they can develop new ideas leading to innovations from various disciplines and discuss about them to arrive at relevant Science and Technology projects as well as some innovative action projects relevant to the local community or society. In fact, the plan is to set up 100 Idea centers across the country where the youngsters are motivated to discover new products/ processes which enable the students to exercise their analytical and creative thinking to be able to result in innovations. Total outlay for this scheme is 30 crores.

Other Policy Level Initiatives to Reform the Research and Innovations

Government of India had earlier declared 2010-2020 as the decade of innovation. It came out with Science and Technology Innovation Policy in 2013 which aimed to strengthen the innovation ecosystem and give a boost to the development of innovation led entrepreneurship in India. The guiding vision of aspiring Indian STI enterprise is to accelerate the pace of discovery and delivery of science-led solutions for faster sustainable and inclusive growth and strong and viable Science, Research and Innovation system for high technology led path.

The policy announced an increase in the gross expenditure from less than 1% to 2% of the GDP. This would attract more investments through PPP initiatives which will accelerate Innovation. There is a separate fund for innovation for social inclusion. There will be measures for strengthening the linkages between stakeholders. The policy calls for special and innovative mechanisms for strengthening the industry institution linkage and also facilitate the move of professionals from industry to institutions and vice versa.

NEP–2020 has laid out a policy plan for improving the quality of Research and Innovations through the National Research Foundation (NRF) which will work towards seeding, funding, coordinating and monitoring research. It aims to promote a strong research culture and building research capacity across higher education. The NRF will identify research-focused universities and help to develop their state-of the-art research facilities to enable researchers to undertake highly advanced innovative and pioneering research according to the NEP–2020 document.

In reforming and improving the Research and Innovations, the following agenda will be followed:

1. Induct capable faculty to enhance the capacity to do research besides teaching thereby improve the capacity building of the faculty to be able to do quality research.
2. Increase the funding for research.
3. Enhance the infrastructure for optimum functioning.
4. Training in Research project proposals and conducting quality research.

We have moved through different waves of innovations in the past and currently traversing across the 5th wave of innovation like digital networks, biotechnology, information and software technology. At present, the goal is to move with the sixth wave

of innovation–towards sustainability, radical resource productivity, whole system design, green chemistry industrial sociology, industrial psychology, renewable energy, green nano technology and many indigenous technologies.

Capacity Building for Conducting Quality Research

It is important to identify talented students who has an inquiring mind to pursue new knowledge and are inspired and motivated to acquire new knowledge after completing their preliminary courses. The courses in research methodologies and statistics would help as tools once they identify the problem/ project they want to work on. In this context, awareness about writing good proposals is absolutely necessary. Many times, proposals are rejected by the academic experts because of lack of clarity or relevance or not knowing what are the possible outcomes and the appropriate methodological approaches. All these can be tackled through capacity building workshops which train faculty to play the role effectively. There were instances in the past when such exercises were undertaken, the number of good quality proposals increased significantly. The grants also got utilized meaningfully.

Different countries go through different stages of innovation and we need to collaborate with others who have matured fast in this process of evolution One way is to adopt or accept mentor model for developing research capabilities and incentivize international institutions to collaborate for research. In this model, a leading international university with strong research capabilities can mentor some selected research focused institutions in India to help them develop their research capabilities, framework, policies, governing structures etc. This would provide Indian universities access to global knowledge and help them to become world class research-focused institutions. This would include joint research programs and other research collaborations between top tier international institutions and Indian higher education institutions across diverse themes which are of mutual interest. Interaction and exchange of knowledge would lead to improvement in the quality of research-based activities and generate greater interest in research and innovation.

Infrastructure for Research

Another initiative is to provide adequate infrastructure funds to institutions for conducting research. The institutions are far from well-equipped for research in this digital era. Despite several schemes by UGC and other agencies to refurbish the infrastructure and equipment, support continues to be meagre in comparison to the needs. Teachers interested in research do not know how to write good proposals. Orientation programs need to be organized for faculty regarding effective research project proposals and what could be obtained from Government and International Agencies and industries which would enhance the infrastructure and equipment for each institution.

Even regarding the funding, there are huge disparities between University and College funding and the funds allocated to IIT, IIM and other Technical Institutions. The government should substantially increase the Research and Development fund to promote quality research and innovation. For this purpose NEP–2020 has introduced STEM which has a cohesive, interdisciplinary and applied approach. Contemporary research in STEM (Science, Technology, Engineering and Mathematics) disciplines is highly dependent on investment intensive facilities and manpower. In order to improve the infrastructure in Universities and Colleges, several special schemes have been incorporated earlier, eg. DRS, DSA, SAP, CAS, COSIST, UPE and DST. Department of Biotechnology also provide special funds for research. In the New Education Policy–2020, there is significant provision for research funds in Higher Education Institutions especially Research Intensive Universities through NRF

Man Power Requirements

To undertake research in frontal areas, Higher Education Institutions require competent manpower. The competent manpower include faculty as well as students who learn and through mentoring at the same time support research. The research students receive appropriate guidance and motivation to continue the task through mentoring. However, the large number of aspiring students continue to face the denial of wholesome education. Reservations of all types add to the frustration of many meritorious students. Teaching suffers and research becomes a casualty. The mediocracy prevailing at every level does not promote an ambience of excitement and enquiry, instead it leads the institutions in the direction of diminishing returns. It is encouraging to note that adequate grants will be given by way of

scholarships and fellowships to research students as per NEP–2020.

The selection and meeting of faculty and support provided to them greatly influence the research output. Teaching ability and competence of independent research of the future faculty must be evaluated rigorously prior to their selection. Academic performance prescribed by the UGC and NAAC placed greater emphasis on quantity than quality. Now UGC has taken cognizance of that and through the NEP–2020, it is stated that discipline-specific parameters should be used to assess the creative and teaching ability of potential teachers rather than assuming everybody can be absorbed into teaching profession and research work regardless of their competence.

The use of performance indicators to benchmark University research performance in many countries has become a standard practice through interaction amidst and beyond the faculty. The decisions on fund allocation as well as conferring awards and patents for research and innovations should be determined based on quality of research and its impact. Very often, Universities rely on the following indicators like, the research funds generated, publication output, citation index and impact factor.

Micro Level Initiative for Improving Quality of Research

There are essentially two categories of performance indicators in research: quantitative-referring the number of publications and qualitative which refers to the importance of the research publication and its impact. Both these dimensions are important since they are complementary to each other. Ultimately, the performance index should enable organizations to go through the continuous improvement cycle. A survey of literature shows that there are 4 main criteria used in the evaluation of the quality of research.

1. Subjective Evaluation (peer review).
2. Number of Publications.
3. Research Productivity.
4. Citations.

Subjective Evaluation

Peer review is the most widely used method to judge the quality of research in a variety of contexts including research funding applications, articles submitted for publication and job applicant's selection. The criteria used may include the factors of significant and original contribution to the knowledge, the extent to which the research fits into an overall program/framework of research, or is concerned with certain priority areas, or the social, economic or technological merit of the research in terms of discovery and innovations.

Peer Assessment has a value and one must appreciate the opinions of people who actually understand the research thrust and the outcome in terms of productivity. Getting the right expert to do this complex job is always a challenge. The advocates of peer review maintain that it is the disciplinary expert who is best placed to make judgments about quality in his/her area of expertise. Peer review is a fundamental aspect of the academic process and it is the internal professionals who must ultimately judge and be held responsible for the quality of the knowledge they create and manage. Bibliometrics actually incorporates the peer review process in that before an article is published in a refereed journal, its contribution to the knowledge is assessed by peers. Funding agencies usually make their decisions based on peer review.

Number of Publications

This is a quantitative parameter indicating the productivity of the institution in terms of the quantum of research produced. Number of Articles published by the Institution as a whole and the number of articles per faculty member as well as by different disciplines and by individuals, the student publications etc. are also considered. Some also consider the number of articles published in top journals.

Research Productivity

Research contribution in terms of innovations and new discovery becomes an important criterion for assessing the quality of research. It could be in terms of technological breakthrough, basic science research findings, for industrial applications and productivity as well as methodological innovations. Nobel laureates in an Institution is a feather on the cap for the institution's innovation index.

Research Income

Research Income is another important measure of research productivity. It not only facilitates the conduct of the research and building and maintaining the infrastructure facilities, but also help the

young researchers to find their research career and development.

The number of graduate students and research students in the University is another measure of the research productivity since their cumulative contribution will amount to substantial research output.

Citation Index

Citation index and Impact factor are important considerations for assessing the quality of research. The number of highly cited research articles will be an important and objective parameter to consider. However, the same should not be used across the disciplines for comparisons. Perhaps a three factor formula based on research outcome may be used.

a. The number of research students of the highest degree completion.
b. A discipline based index based on:
    - The research activity of the staff
    - Quality of the publications
    - Quality of supervision and supervisory training
    - Skill courses undertaken by the students
    - Teaching/guiding experience
c. The number of major research grants and the total value

Measurement of Quality or Excellence

Measurement of quality or excellence in research should:

- be fair, equitable and recognize diversity;
- it must have the confidence of the public as well as the stakeholders;
- it must be established with reference to social and economic objectives;
- research output measures to be emphasized;
- may include peer review of reputation and creativity; and
- the research training performance reflect the quality of students, their experience, publications and skills.

When the parameters and the methodology are in place for assessing the quality of research, we can measure the quality gaps, thereby identifying strengths and weaknesses and learn how to improve the quality. We also find a way forward to adopt or adapt best practices from other institutions/organizations to gain momentum in the quality race in research.

Research and Teaching go hand in hand. Research plays a vital role in creating an environment in which optimum teaching and learning processes occur, and in which staff and students are stimulated by the interplay of new ideas and the spirit of enquiry. This is an area where core indicators will reflect more of outcomes. Institutions differ in their research culture and the ambience they create for research, consultancy and extension. Higher education institutions should cater to research and development both in terms of knowledge creation and methodical approaches and eventually to the scientific advancement and thereby national development.

Research Culture

Research should be central to a higher education's mission and vision. The participation of researchers in the process of developing an advanced knowledge-based society requires clear and dedicated efforts to foster research and technological development crucial to the development of the country's innovative capacities. We will have to imbibe the best practices to have research of global standards in order to prove worthy of carrying the brand image of an institution of higher learning.

In view of the fact that creation of new knowledge and also the quick communication for the end users is imperative in the current scenario. Institutions of higher learning have a great role to play in creating new knowledge and disseminating the same. That is the reason why all teachers have to be good researchers also and be abreast of the latest developments in his/her field of specialization and can function as a super conductor for elucidating and transmitting knowledge not only to the current students, but also to the society in general.

In addition, it is also necessary that the faculty and students do not confine themselves to their ivory towers of learning, but reach out to address vital societal needs through extension and research publications. Linkages and interactions with industries and community add relevance to higher education, as they ensure graduates to acquire knowledge to make them as job providers as well as job seekers.

Research Agenda

A crucial goal pursuant to any organization's research scheme is to advance the reputation and

performance of the organization and to strengthen its role as a centre of advanced research. An institution should value and strive to nurture research initiatives of quality and excellence across a broad diversity of research whether it is basic or applied , across scholarly disciplines to support quality teaching and learning programs. In particular, it should aim to stimulate high impact multi and interdisciplinary research. An institution of higher learning should strengthen its research through focused, innovative and enterprising approaches and interactions.

Inculcating Research Culture

Maintenance of a productive research requires a conducive research environment and a pool of talented researchers. To improve research quality and output, it is vital to recruit staff of the highest caliber. Faculties/Centers will be expected to lead research initiatives designed to build staff expertise so as to enhance the quality of educational outcomes. It shall conduct various training programs through workshops aimed at improving the quality of research-quality supervision, clearly defined projects, sufficient resources and opportunities for developing generic skills. Various initiatives which could be undertaken to nurture the research culture such as:

- Proper research performance appraisal system by defining acceptable research field benchmarks.
- Establish a Research Evaluation Framework
- Improve the quality of its services:- laboratories and computer data analysis
- Introduce a number of incentives to promote staff and student research
- Use various channels both within and outside the college including an increased use of internet-based dissemination
- Encourage multi-disciplinary research and research likely to contribute to wealth creation, policy formulation and transfer of technology or for the environmental, social and cultural development of the country.
- Observe highest standards of ethical and regulatory compliance for all its research activities undertaken by staff and students
- Strengthen research policies in conformance to the best practices of meritorious institutions.

Strategies for Inculcating Research Culture at Individual level

Admission of best students should be done especially at the post graduate level. It provides the strongest foundation to initiate research even at the undergraduate level, early realization of pangs of ignorance instills a desire to seek the unknown. There is much truth in the saying that the mind of an adult can build only as high as the foundations constructed in youth will support. Therefore, the golden rule in research is: catch them young. Isidore Rabi, a winner of Nobel Prize for physics, was asked how and why he became a scientist. His reply was: “My mother made me a scientist without ever knowing it. She used to ask Izzy, did you ask a good question today? Inquisitiveness may prove to be the golden key for research and many other good practices. Inculcation of the spirit of openness forms one of the strongest practices known in research. Minds are like parachutes; they function only when they open. A malleable mind is the most valuable asset for good research. We are very prone to quick reflex conditioning, fixing blinkers on our eyes, development of mental groves or calcified mental barriers. Francis bacon said: “Read not to contradict and confute, nor to believe and take for granted, but to weigh and consider”

Rigorous culture of experimentation coupled with intense concentration and long hours of intellectual incubation are extremely essential for research. Keen power of observation enables a researcher to catch hold of the minutest details, so valuable for successful research. In fact, history of brilliant discoveries teach us that before communication of research, several distinct steps, tasting, testing, collecting, selecting, analyzing, absorbing, assimilating, retrieving synthesizing and owning etc., sequentially constitute practices on a ladder culminating in the dazzling lighthouses of research.

Strategies for Inculcating Research Culture at Individual level

Strategies for the inculcation of research at the Institutional level can be through various initiatives. This can be through the institutional strategic plan for Knowledge Creation, Knowledge diffusion. Investing in Resources, Quality Culture and good governance, National, Regional and International Collaborations.

Knowledge Creation

All faculty members and students should be encouraged to the mission of knowledge creation

through various initiatives. This can be done by invigorating pure and applied research and acting like think tank on regional and national Issues.

Research output has to be enhanced to meet the challenges of becoming a world class institution with strong collaborative linkage with industry and other research organization. As research provides an education that is informed by leading edge concepts, the institution envisages bringing a paradigm shift towards fostering a positive research climate by having such a policy, framework and infrastructure. The different strategies will include:-

- Encouraging team research and multi-disciplinary collaboration
- Invest in collaborative research projects with industry to ensure relevance to local challenges and to develop intellectual advances and resources
- Provide incentives for engaging in research
- Reduce teaching and administrative load to active researchers
- Increase and diversify budget and improve research infrastructure
- Introduce research induction programs and mentoring schemes
- Recognition for publications in referred journals
- Recognizing and rewarding outstanding research performance
- Create and maintain an e-database of research output and promote dissemination
- Encourage staff to seek diverse funding to support their research activities
- Increase M.Phil /Ph.D student enrolment and output.

As a leading institution, having a high pool of intellectual resources and talents, the institution can serve as a platform to raise public awareness and promote discussion of social, economic and political issues and public policies. The institution can draw expertise from outside also for this purpose.

Knowledge Diffusion

Knowledge diffusion can be achieved by increasing student access, promoting emerging sectors including science and technology, inculcating entrepreneurial flair and promoting life long learning and continuous professional development and fostering Innovative e-learning systems. Higher education institutions all over the world are under pressure to integrate technologies in their teaching and learning, in response to the urgent need to reduce delivery costs, increase access, improve the quality of learning materials and ensure relevance to meet the requirements of the new breed of learners in terms of independence, autonomy, flexibility and development of critical and reflective thinking. E learning as a novel approach assumes a preeminent position in any technological/computer mediated human interaction

Investing in Resources

Investing in competent human resources and infrastructural and material resources become another important factor for promoting research. This is achievable by recruiting, retaining and rewarding quality People. An institution has to ensure sustainable staff, professional development, enriching Campus life experience, increasing provision for State of the Art Technologies, developing and optimizing infrastructure and exploring sources of funding.

Quality Culture and Good Governance

During recent years, quality in higher education has gained increasing importance since students would like to join the best institutions**.** Through the Accreditation processes, one gets to know the research strength and the capabilities of the faculty. Therefore, it is essential to promote effective leadership at all levels, recognize and reward quality achievement, involve people in all quality initiatives, optimize use of human, financial and material resources and enhance public relations and communication functions within and outside the Higher education institutions.

Regional, National and International Cooperation

This can be done by reinforcing networking role. Networking is a vital mode of knowledge exchange: a powerful vehicle for productive engagement with the business community, private and public sector organizations. A diverse range of approaches and structures will be required to build such connections. In this world of border less and changing educational environment, a variety of strategic partnerships should be developed for greater global involvement and visibility.

The affiliating system has fragmented research and teaching under the assumption that they are mutually exclusive. What is more, ideal research per se has been pedestalized as an ivory-tower monopoly of

Universities and is considered above that of teaching. Teaching, extension and consultancy by themselves can be the launching pads of research-industry nexus, research-service integration, research-education technology interdependence. This synergy is also justified by needs of development of countries.

Quality of Research is usually assessed by the research productivity which is an important parameter. In analyzing the outcome of accreditation ,it was found that Research is the weakest factor in any of the Higher education institution because we do not see much of research productivity in terms of publication, development of new product or improvement of quality of services. It is necessary to identify different types of research publications like:

1. Professional books
2. Edited books
3. Research monographs/Reports
4. Research papers in journals
5. Research Reports of funded research projects
6. Research papers in e journals
7. Research papers in seminar/conferences proceedings
8. Development of an innovative product
9. Development of media artistic objects etc

A variety of indicators are being used to evaluate the quality of research. The core indicators are the institution's efforts to promote research, Research &Publication output in terms of knowledge creation ,Publication in reputed refereed journals, Citations, Impact factor, h-index etc, Honours and awards, peer review, sources and size of funding, Patent and patent registration.

The micro indicators are research facilities in terms of laboratory equipment, journals, incentives, research culture, collaboration with other research agencies, faculty recognition for guiding research, research committees, research centres, faculty involvement in research, Major and Minor Research projects, research grants-internal and external, Ph.D & M.Phil students contribution of research to industry and society, MOU with Academic/NGO/Industrial organizations etc.

It is worthwhile to clarify the points regarding publications since a researcher, the faculty and the management always seem to be confused about quality of research in terms of publications. Number of publications by itself may not be an adequate measure. An important factor is Impact factor which is an important measure of evaluating research publications. Impact is a measure of the influence of the publication on fellow workers and can be quantified by using the Impact Factor analysis [Harris R.W.] Quality and importance are subjective and value based measures that cannot be estimated by bibliographic means. Number of publications by itself may not be an adequate measure. A publication in a peer reviewed journal cannot be compared with that in a seminar proceedings or a newspaper article. While evaluating the quality of research publication, it is necessary to find out the reputation and recognition of the journal. Publications with a high citation index and impact factor should be considered. Citation index can be used to determine the number of times a study has been referred by other scholars as an index of impact of authors, articles and journals. Therefore, it provides an objective quantifiable index of quality assessment. The only limitation for citation index is that all journals are not indexed and covered by citation facilities. This is particularly true for social sciences and articles published from small places. Impact factor indicates the number of citations of recent articles published in a journal. Impact factor is calculated annually starting from 1975 for the journals indexed in the Journal Citation Report. Journal Citation Report can be referred for the impact factor of all journals indexed. One can also google Impact Factor of journals in 'the area of specialization'.

h-factor is a method of quantifying scientific research output of a scholar. Index h refers to the number of papers with citation number has a useful index to characterize the scientific output of a researcher. The h index is calculated by extrapolating four sets of data, namely number of papers published over certain number of years, number of citations of each paper, the journals where papers were published and their impact factor. It simultaneously measures research productivity and impact on fellow scholars in the field. The h-index can be found in Web of Sciences, Scopus and Google Scholar.

Quality and Benchmarking in Research

Man comes to grips with his environment and understand the nature through experience, reasoning and research. Research is a systematic, controlled, empirical and critical investigation of hypothetical

proposition about the presumed relations among natural phenomenon. It is a combination of both experience and reasoning and must be regarded as the most successful approach to the discovery of truth. It is a process of arriving at dependable solution to problems through planned and systematic collection, analysis and interpretation of data.

Universities and colleges are primarily responsible for knowledge creation and knowledge dissemination. Therefore, in the performance of Higher education institutions the value of research cannot be overemphasized. We face problems in assessing the quality of research done in universities and colleges. With the publishing of knowledge commission report and the ranking of higher education institutions across the globe based mainly on research, we need to develop some robust measures for assessing the quality of research in higher education institutions.

The use of performance indicators to benchmark University research performance in many countries has now become a standard practice. The decisions on fund allocation as well as conferring awards and patents for research and innovations are determined on the basis of quality of research and its impact. Very often, Universities rely on the factors like the research funds generated, publication output, citation index and impact factor.

Community Engagements

The aspect of education, which emphasizes community services are called extension activities or community engagements. These are often integrated with the curricula as extended opportunities, intended to help, serve, reflect and learn. The curriculum-extension interface has an educational value, especially in rural India

Community Engagement by the Higher Education Institutions in the Indian context, unlike in the case of advanced countries is still at modest in scale and often not a formal component of academic training of students. In the advanced countries, institutional orientation to community engagement is systematic, while in India, though the topic is frequently discussed among colleagues in the field, it is still at an evolving stage.

Community involvement in the realm of higher education institution is one of the three functions already recognized and promulgated by the University Grants Commission. There is a need to give concrete shape to institution community partnership since both higher education and Community play important roles in modernizing a country's human resources and their interests have a natural affinity.

If Higher Education institutions have a significant role in human resource development and capacity building of individuals, to cater to the needs of the country as a whole, then all disciplines should be able to contribute to the national development. Mentally, physically and emotionally healthy family is the basic unit of society. People cannot be productive if they are unhealthy due to unhygienic, personal and environmental conditions; children cannot learn if they are malnourished, or scarred from abuse and neglect, people cannot work if upset by family turmoil and resource management problems or when preoccupied with family rejection or violence. Conversely, human beings whose development occur in positive home surroundings with nurturing relationships, good nutrition, access to basic amenities for health, safety and hygienic living conditions can become more happily and fruitfully productive.

Through community engagements, the society should benefit for more development and the students should learn the service domain and the citizenship responsibilities. All disciplines should have a community engagement dimension in their curriculum and research thrust which will encompass cognitive, affective, and behavioral domains as well as physical and health concerns for individuals, families and society in general.

Goals

If the goal of higher education is mainly for National Development, then the philosophy of all disciplines should have an extension component which should enable students in helping families to improve the quality of their daily lives through a diversity of situations such as:

- working with families for improving the quality of living;
- educating future family members within business community and government agencies;
- promoting programs which support and strengthen families;
- research on problems relevant to the individual and family wellbeing;

- perceive the family as a unit in constant exchange, on the one hand between family members and on the other, between the family and the agencies and services (governmental, private, industry etc. in the larger society;
- practice an integrated approach to the family– attempting to recognize the inter-relationships required to manage all these exchanges effectively;
- recognizes the speed with which changes take place for families seeking to satisfy their needs for emotional and material resources; and
- functions in a preventive (rather than therapeutic) mode and therefore seeks to assist people to develop their own skills to acquire and manage the financial, material and emotional resources.

Thus, we have a role as practitioners who will work directly with families to assist them to acquire and manage their resources. We should advocate for families to work for governmental and nongovernmental agencies that support and enhance the quality of lives in the home and the community. The role of academic institutions in the context of the commitment to the well being of the family is to examine and review the curriculum and evolve an agenda for action and research. This is in the interest of the discipline being simultaneously service oriented and competitively professional.

The conceptual exercise can be viewed as an ongoing interdependent process that addresses the needs of the times and the context of dynamically changing professional perspectives. The challenge before academic bodies is to infuse fresh insight into the profession as part of the broader social and economic changes and movements to take Higher education beyond the discipline and extend the boundaries to perceive and help the community as the larger arena and take on the reform agenda for families and individuals at risk or disadvantage and enhance the potentialities of people through optimum development in physical, intellectual and psycho social-emotional areas.

The Task

The need for curriculum restructuring and professionalization emerges not only to meet the private/personal challenges confronting individuals and families, but also for the professional and specialized needs of institutions and organizations catering to welfare, productive markets, training of trainers, community workers, researchers and above all policy makers and program functionaries. Identification of research needs with focus on policies and intervention, evolving multi-centraland multi-disciplinary networking for research and a holistic approach to produce and disseminate the cumulative body of knowledge and information is imperative ,urgent and timely. The need to develop a depository of resources and context specific references in India is of equally important for academic and research activities.

Unmet Needs and Challenges

Literacy and Education

Higher education Institutions in the country have an obligation and responsibility to get involved in the development of the community and contribute to the overall development of the nation by improving the quality of living of its people. The Higher Education Institutions today primarily function as centers for transmission of knowledge and generation of new knowledge. The 900 +Universities and 40000 Colleges put together cater today to merely 12 million students. Large number of eligible youngsters are deprived of any tangible benefits of the educational system. Consequently, illiteracy social and cultural deprivations and poverty are on the increase. Around 40% people live below the poverty line. We rank 131 in the human development index out of 189. countries. Unless our educational system/human resource development rightly focus programs for the total population, our efforts will be only limited to the creamy layers and not for the socio-economic development of the country.

In this context, if the mission of Higher Education is also focusing on extension education, we have a responsibility to reach out to the large number of deprived communities. The most important role we can play as Higher education professionals is to restructure the curriculum to give enough focus on community engagements for various sections of the population. We should make use of Technology as a tool and also conduct various programs which are user friendly to the people.

If the unmet needs and challenges of our population below the poverty line can be addressed through service oriented programs, higher education

professionals definitely can make their contribution very visible for the core value of national development. One can encourage families to make household production a viable proposition for all families, using appropriate technologies for the household especially in the energy sector etc. If every Department formulate courses for service delivery to the lower income group of families, the number of admissions from this sector also will increase. In this connection, the Agricultural Universities do a marvelous job of field work which directly relates to their work and living. The same thing could be adopted by the Conventional Universities as well . If every College can adopt a neighboring village/slum for field work application, a lot can be done to improve the quality of living of the families. There are nearly 32000 habitations in the country with a population of 300 or more that do not have a school within a distance of 1 km. As a result, regional disparities in literacy are very sharp. Seventy percent of India's illiterate are in 7 states and 50% in 4 States.. Nearly half the students who enter class 1 drop out before they reach class V and 2/3 rd of the children drop out before they reach class 7. The drop out ratio for girls is very high. For every 100 rural girls in class 2, only 1.44 reach class 12. Thirteen percent of the primary schools had kachha building and 13.5% had no building at all., I have seen one college in Tamil Nadu, where the faculty and students spend their afternoon and evening hours teaching children and adults of the neighborhood village. These little drops of nourishment the villagers got from the college has had a great impact over a period of time Imagine the cumulative effect of all the work done through these colleges year after year.! Even now, it is not too late to revamp our curriculum and practical experiences to make it more relevant. Investment in human capital is very important for a country like India to convert them to valuable human resource and in turn enhance productivity and economic growth.

Unemployment and Child Labour

Unemployment and underemployment are serious social and economic problems facing the country. More than 40 million children of the age group of 5-15 are at present in the work force. Along with literacy programs, What type of programs can be planned by Higher Education System to create more jobs? There is ample scope in each of the specialization for entrepreneurial development. Using computer literacy as a vocational subject a number of these children can become competent to acquire jobs at a later time. All these will be possible through the extension programs of each department..

Health and Nutrition

Of every 1000 children born in India, nearly 80 die before they reach the age of 1 year. Although life expectancy has increased, infant mortality remains unacceptably high as does the population growth. Preventable and the newer diseases also take the toll. More than 40000 children in India become blind each year due to lack of vitamin A.

If some departments in the Higher Education System take this as a challenge to promote health and nutrition among the children and women and for the community as a whole through Action Research in partnership with Government and Non-governmental agencies, the visibility of the purpose of such a program will get wide acceptance and popularity.

Population

While poverty remains a major reason why health has not improved adequately, India is hindered by sheer numbers—the principal challenge that the country faces in the provision of 'Health for All' is simply that it must provide health for too many. This is true for education and employment as well. Some sections of Higher Education can do the proactive measures which will help the government machinery for assisting families to achieve the social and economic development which will eventually help India's population stabilize.

Diversity

Diversity of various types exist in India. Managing diversity and facilitating the integration of different social groups and creating communal harmony and national integration is another challenge Higher Education can achieve through action research.

System Inconsistencies

The present system include serious lapses in terms of contradictions and inconsistencies between stated goals and actual policies and stated goals and resource allocations. The system does not move rapidly enough in the right direction. An example of a case in Mumbai, where Urban Basic Services for the poor was introduced, The Municipal Commission was supposed to implement the same through community Participation. The concept of community participation

was and still is alien to the beurocratic approach. It was some departments of Home Science and social work made it work and a scheme was then made which became part of the government system. Education for the masses should be a factor of social change and technological progress. If Swaminathan Foundation and Tata Consultancies have evolved novel approaches through technology we should benefit from such approaches by collaborating with them and implementing actions in the field.

A vast majority of Higher Education Institutions have lost their chance of becoming focal points in social change movements. Objectives such as equity, justice and quality of all human beings and essential parameters like empowerment; reflection and social vision are missing. A strong commitment to social change focus should be there in Higher Education in general. People in the community need to become socially sensitive to carry out the extension activities. Policy framework should facilitate to place extension as an integral part of all Departments .which will cater to the vast majority of our people. There should be provision for materials necessary for fieldwork as required. Those who conduct the programs and the fieldwork need to make a breakthrough by having new ideas, new programs and new experiments to motivate the beneficiaries. The objective of restructuring a curriculum has to be viewed as curriculum for change instead of a changing curriculum. It is important for Higher Education System to capture the vision of reaching the unreached through a broader network with programs with a judicious mixture of learning and skill upgradation, all higher education professionals have a responsibility to bring science to people, removing superstition, working on environment, health and a whole lot of local issues.

Mission of Community Engagement

The objectives could be:

- To cater for individual interest of students for promoting personal development, which ultimately help in the overall educational development of the society.
- To empower people at different socio-economic and educational levels with marketable skills appropriate to the market demands both in rural and urban areas.
- To upgrade living standards and life styles of citizens to an accepted level of development including the disadvantaged community.
- Developing and enriching the potential of local resources so that they can effectively participate in the development process and become change agents
- To increase the knowledge and awareness and improve functional skills of the local population in areas which affect them (environment, food, shelter, population education etc.)
- Achieve total literacy in the areas for which the Colleges assume responsibility.

All these are possible through conceptual clarity and organizational effort and operational details. Periodic reviews and monitoring will be required while implementing the programs. A partnership deal has to be formulated and struck with appropriate government and non-government agencies for the successful implementation of the programs for the benefit of the families, the community and the nation at large. Actually research and extension should be able to contribute to economic, social and national development of the country if every input and the human potentials are managed and optimized .

Promotion of Research, Innovation and Community Engagement in Higher Education Institutions

Just like industrial revolution in business enterprises, our generation is witnessing knowledge revolution resulting in Knowledge Economy and Information Explosion. Knowledge creation is the responsibility of Higher Education Institutions. Knowledge has already become the key to productivity, competitive strength and economic development. Knowledge has become the primary industry, the industry that supplies the economy the essential and central resources of production. The knowledge Economy Index is the average of the performance scores of a country or region in all four knowledge economy pillars: economic incentive regime, education, innovation and information infrastructure.

Research plays a vital role in Knowledge Economy which in turn develop a country's economy. In developing economies, we find research is lagging behind because of inadequate funding and the low priority given to research. In developing countries, the major obstacles facing research are: paucity of funds and faulty channelization of available funds, lack of production and availability of research materials and resources and the difficulties

encountered in accessing required equipment, non-availability or networking of up-to-date information, lack of advanced training to scientists, lack of financial support to attend conferences, seminars, workshops and training programs to update your knowledge and new developments., lack of proper transfer of technology by advanced training of scientists in major institutions, lack of adequate exchange programmes in institutions where related research activities have been conducted, erratic release of funds for sanctioned and ongoing research, lack of research and development tie-ups and activities with industries, which results in overall disinterest in research, National Assessment and Accreditation Council in their evaluation reports state that Research is the weakest link and the major gap in the quality of higher education.

We have to therefore think about how we can build an economy based on innovation. An essential condition for such an economy is a good research base .We need to get more people interested in research and make them passionate about it. Then only we can get more people participate in research activities. It is not enough to increase the number of research projects, but also think about improving the quality of research. Therefore Higher Education Institutions and Human Resource Development Ministry should be actively involved in promoting research activities by identifying the real bottle necks and countering the problems by the active involvement of all stakeholders by:

- coordinating research projects on relevant problems between institutions within and outside the country. Perhaps we need to co-ordinate the activities with the Library information system for the production and prompt distribution of research materials;
- Establishment of specialized instrumentation centres with financial resources; and
- Participation/organization of regional/ national and international forum for interaction, cooperation and mutual assistance in all matters connected with research in science beyond the socio-cultural periphery.

All these can be accomplished only by having a vision for research promotion which leads to further action. We need to focus on getting a political commitment to get the necessary financial and political support. The political system need to be convinced about the benefits of the research agenda the institutions are planning and wanting to implement. We also need to get the cooperation from all the stake holders. Let us see the thrust areas we need to focus on:

- Promote research activities in science;
- Implement research and development projects;
- Focus on emerging areas;
- Support research through infrastructure provisions;
- Motivate teachers to reach beyond the regional boundaries in search of genuine problems;
- Establish Industry HEI Interaction; and
- Create Information Communication systems.

The envisaged University-Industry Linkage System will take a long start up time. There is a need to evolve a shared way of looking at and understanding the problems. There is need to have discussions for identifying the priority areas. The benefits should be mutually acceptable .Legal aspects of industrial collaboration has to be considered. There has to be some mutual agreements regarding the cost as well as returns for the partners involved. We need to have interactive collaboration at every stage either with Industry. University ,government or NGO whomsoever we are partnering with.

There are different types of collaborations within the discipline, between disciplines, etc. There can be organizational collaborations between university teachers, between faculty and students and between university and industrial researchers.

The process

- Establish a process to get work defined, assigned and accomplished by meetings with various stakeholders and share related readings lists and discussion for further work.
- One needs to frame long term goals and short term goals to subdivide research into manageable pieces.
- Involve all possible partners including students in this exercise.

The Linkages

The possible areas of Linkages are:

1. The University-industry linkages can range consultancy from simple consultation or visits to in depth research.

2. Consultancy (University staff and industry).
3. Teaching and curriculum development.
4. Sponsored Research- providing funds as well as experts from industry for consultation.
5. Joint Publication.
6. Sponsor conference, seminars, participation in exhibition and sponsorship of students.
7. Internship with research focus.

Research culture have to be promoted by the University authorities by:

- Facilitating faculty participation.
- Providing budget for research (budgetary provision for research, seed money etc).
- Research Fellowships for students.
- Initiating linkages for research.
- Provide latest information and information sources.
- Research orientation to students and Faculty.
- Research Training as part of staff development.
- Provide adequate infrastructure facilities.
- Have a Research Committee to guide the research agenda.
- Information dissemination about major and minor research projects sponsored by different agencies.
- Special opportunities for students and staff for enhancement of research activities.
- Ensure there are enough research scholars and JRFs.
- Ensure there are adequate Ph.D scholars.
- Ensure the institution gets adequate major and minor research projects.
- Total outlays for research and development should be adequate.
- All patents have to be registered.
- Encourage Departments to get UGC/SAP.
- Encourage linkage with National Research Organizations ,International Universities and Research organizations.
- Industry linkage for research.
- Encourage publication of research findings in national and international refereed journals.
- No of research papers published in international refereed journals.
- Citation Index/ Impact Factor.
- No of books published by the faculty.
- Consultancy services and the contribution made to Industry/government/NGOs.
- Finances generated from external sources.
- Promotion of need based extension activities in the locality.
- NSS Activities.
- NCC Activities.
- Adult &Continuing Education.
- Participation of Faculty in need based community research activities.
- Involving students in community engagements.
- Collaborative work with Govt & NGOs.
- National & International linkages.
- Membership in professional organizations.
- Enhancing Library resources for research and Networking.
- Advanced research facilities for different kinds of research.
- Introduction of research methodology in curriculum and Teaching.
- Inculcate critical thinking and spirit of enquiry through participative learning.
- Exposure to eminent research scientists through extra-mural lectures.
- Contribution to knowledge creation, dissemination and application.
- Use of IT in research.
- Encourage innovation in research.

By improving the Knowledge Index through innovation as well as upholding our national heritage, we need to make a mark for ourselves in national development and get an elite position in the world ratings.

Conclusion

Since we realize that knowledge is the real wealth for the future generation, we need to invest in the Building Blocks of Indian Innovations by creating strong R&D Base and build a leadership. Government has increased the budgets for key science

agencies for educating the next generation with knowledge and skills while creating a world class work force. This must start by improving teaching and learning in class 12 onwards. There is a need to expand access to higher education and training. We also need to promote student achievements and careers in Science, Technology and Mathematics. We need to develop an Advance Information Technology Ecosystem, by expanding access to broadband, which is a key input for rural economic development. Internet is the ultimate level playing field making possible the widest and most lucrative variety and entrepreneurial activity and innovation that the world has ever seen. It is imperative that we support research for next generation in information and communication. We should not lag behind in the next wave of innovation through ICT revolution dealing with Cognitive radios, Quantum computing, Cyber physical systems. We also need to identify cyber security as natural priority to ensure that digital communication infrastructures is sufficiently resilient and trustworthy. We need to encourage innovation through game changing Research and Development strategies by skilling, reskilling and upskilling our future work force.

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Implementation of National Education Policy—2020: Preparedness of Karnataka?

Inchara P M Gowda* and J Madegowda**

Education plays a stupendous role in the overall development of not only mankind but also of different sections/sectors of the economy. This is for the reason that the educational sector provides/ supplies necessary and qualified human resource to different sectors of the economy. This is true even in the case of higher education.

During the last one year, much has been discussed and debated over the relevance, utility, flaws, difficulties, etc., of National Education Policy, 2020 (NEP—2020)which replaces the National Policy on Education, 1986.No doubt, it is a comprehensive policy document, with a few limitations, covering wide range of issues ranging from elementary to higher education besides vocational training. It also outlines the vision of the country's new education system.

Although it (NEP–2020) was approved by the Union Cabinet on 29 July, 2020, no state/union territory was able to implement the NEP–2020 from 2020-21 academic year. One of the reasons was COVID-related lockdown and also the time required to make the necessary preparations for its implementation. Even after one year, there are no reports from different states and union territories about the implementation of NEP–2020 even from 2021-22 academic year. However, Karnataka state is an exception as it has launched the implementation of NEP–2020 (on 23 August, 2021) from this academic year (2021-22) itself in higher educational institutions (HEIs). In fact, Karnataka is the first state in the country to implement the ambitious NEP–2020. However, implementation confines to higher education. The Government of Karnataka has instructed all universities and colleges to offer their higher educational programmes in accordance with NEP (2020) framework from 2021-22 academic year.

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This announcement has resulted in heated discussion among political parties and healthy discussion among different stakeholder-groups of higher education focusing more on the practical difficulties in the implementation of NEP–2020 besides the benefits. Of course, the arguments favouring and opposing the new policy is expected as one can find similar types of arguments whenever the changes are brought in to the existing system/ scheme.

In the above backdrop, an attempt is made in this paper to highlight and delineate some of the practical issues which the Government of Karnataka should have addressed and the preparations that should have been made for the smooth and successful introduction and implementation of NEP–2020. Therefore, the paper also serves as blueprint and guiding principles for other states and union territories about the preparations they should make before the implementation of NEP–2020 in future say, from 2022-23.

2021-22: Opportune Time?

As shown by many studies, timing for the launch of new product, new course, new programme of study, etc., assumes importance. However, from any count/consideration, 2021-22 is not an appropriate academic year for the implementation of NEP–2020 and to offer the higher educational programmes under the framework of new policy. This is for many reasons including the extended 2020-21 academic year owing to COVID-19 related lockdown.

Most of the universities and colleges in the state, as in other parts of the country, are yet to complete the classes and examinations of previous academic year, 2020-21. Classes for even semester students (of previous year, 2020-21) are in progress (at least till the end of this month) and the examinations are to be conducted after the end of the semester term (say, in the month of October 2021). And the evaluation of answer scripts takes another 15 days (up to mid-November, 2021).

At this juncture, when the Higher Educational Institutions (HEIs) are loaded with lot of backlog

work, it does not look appropriate to introduce the new scheme (and without timely and necessary preparations). It may be noted here that by this time (mid-November), the odd semester classes of 2021-22 academic year would have been completed. However, due to COVID-19 related disruptions, the academic activities have been continued to be disrupted and mess-up even in 2021-22. This is one of the reasons as to why 2021-22 is not the right time to implement NEP–2020.

Confusion

The HEIs (i.e., colleges and universities) in the state are under confusion about various aspects including admission. Till now, the admissions for different Under-Graduate (UG) programmes were done at the college level. Even for 2021-22, some colleges started admitting students (soon after the announcement of results of PUC i.e., +2 on 20 July 2021) and a few colleges even started online classes as reported in the press. Then came the announcement by the Government of Karnataka that the admission for all programmes of studies in all colleges (and universities) in the state for the academic year 2021-22 will be on-line through, Unified University and College Management System (UUCMS). Based on this announcement, the colleges stopped admission and also the online classes. However, there were a few teething troubles with this System (UUCMS) and therefore, after a few days, the government announced that, for this academic year (2021-22), admission for UG programmes will be as earlier at the college level. This has created lot confusion not only among colleges but also among students. This confusion is due to the last minute preparations instead of making all necessary preparations in advance.

Academic Regulations - Yet to Draft!

Whenever the changes are introduced, it is necessary, initially, to amend the existing academic Regulations governing the Bachelor's Degree Programmes. However, offering UG Programmes under NEP framework needs a completely new Regulations specifying or spelling out, among others, structure of programme of study, mode of teaching and examination/ evaluation, min-max marks for pass, exit procedure, credit transfer, option for students to take up a few courses from other institutions, institutions which are eligible for registration with the Academic Bank of Credits, inter-university/institution transfers, lateral entry, etc. Surprisingly, the authorities concerned are yet to draft such Regulations which needs to be approved by the university bodies and then by the Chancellor of universities in Karnataka who is the Governor of Karnataka. Only after the government communicates the assent of the Chancellor for the Regulations to the universities, they (i.e., universities and colleges) can offer their programmes of studies under the new Regulations drafted in accordance with the Provisions of NEP–2020. Without the Regulations, it is not possible/advisable to offer any programme of study under the new scheme.

Curricula – Yet to be Prepared

Now, for most of UG programmes of studies in the state, the subject-wise expert committees have prepared the structure of programmes of studies spelling out the names of courses, credits, weekly hours of teaching, tutorial and practical, examination duration, nature of course, etc. But the detailed course inputs are yet to be drafted and finalized. This needs a few rounds of discussions including workshops involving at least teachers wherein thorough discussion is required about the course inputs (syllabi), question paper pattern, etc.

Of course, in the case of programmes of studies like B.Com, BBA, etc., there is no substantial change in the structure except two – (i) inclusion of a skill enhancement course in each of the semesters, and (ii) an open elective course in each of the first four semesters. But in the case of BA, B.Sc., etc., substantial changes are proposed. And the teachers, during the curricula-related workshops, have to deliberate on all these issues followed by the preparation of draft curricula.

And the draft curricula should be reviewed and approved by the Boards of Studies, Faculties and Academic Councils of universities followed by notification by the universities. It may be noted here that, one of the important functions of Board of Studies (BoS) is to prepare and approve the curricula of programmes of studies in its ambit/domain. Of course, the Boards recommend the curricula to the Faculties concerned for their consideration and approval. Further, the curricula approved and recommended by the Faculties are considered and approved by the Academic Councils of universities. Only after the completion of all these formalities, the universities notify the new curricula stating the academic year from which they are effective (Figure – 1).

The above processes need and take some time. In this situation, how can the government ensures offering UG programmes under NEP framework from this academic year (2021-22) itself. This should be given a serious thought by the authorities concerned.

Till now, each university had its own curricula. And the colleges affiliated to universities were required to teach these curricula. But now, the stand of the Government of Karnataka is that the structure and curricula are common and mandatory for all universities and colleges in the state. This is against the Provisions of Karnataka State Universities Act, 2000 and the Statutes framed by each university under the Act. Most importantly, this amounts of encroachment on the academic autonomy of universities which is not only undesirable but also unsolicited. This is for the reason that the role of academic bodies of the universities viz., Boards of Studies, Faculties and Academic Councils will be curtailed to only the ratification of the curricula sent by the government.

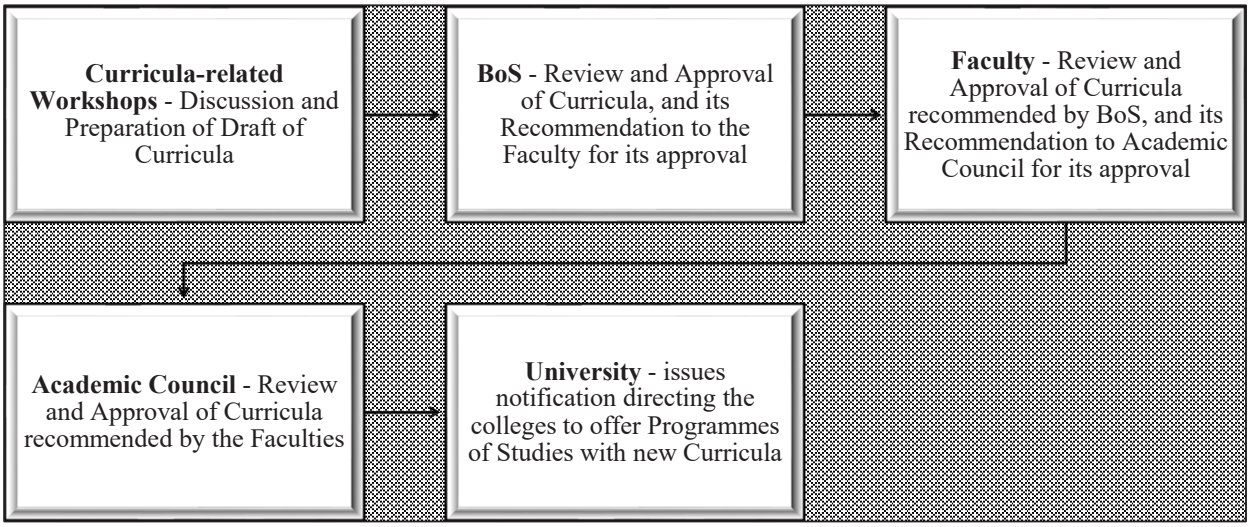
Orientation for the Faculty Members

In the case of affiliate-type of universities, the course curricula are designed by a small group (i.e., by the members of BoS) but taught by thousands of teachers in affiliated and constituent colleges for lakhs of students. In some cases, one can find the difference between the perception of board members (about certain course inputs) and that of teachers. Therefore, whenever, curricula are revised thoroughly, as in the extant case, it is necessary to organize course-wise workshops atleast for a day orienting the teachers about what to teach in each new course, chapter, concept, etc. Otherwise, it results in different teachers teaching the same chapter in different ways. For example, if a concept, 'working capital management' is included in the course inputs of 'Financial Management' course, then one teacher may teach only the meaning and definitions, another teacher may teach not only meaning and definitions of working capital management but also 'working capital cycle', the third teacher may discuss a few illustrations on the calculation of working capital requirements, etc. As a result, the students of all colleges, except one or two, become the losers. In order to avoid this, it is necessary to provide adequate orientation to the teachers. This is yet to take place in Karnatakaand it should be completed before the commencement of classes of first semester of UG programmes under NEP–2020 framework.

Inadequacy of Teachers

It is an irrefutable fact that the success of any scheme, programme, etc., depends, to a greater extent, on the teachers – adequate number of qualified teachers. Unfortunately, most of the universities and colleges do not have adequate number of qualified teachers appointed on regular basis. Consequently, major portion of teaching work-load is handled by the Guest Lecturers who have been working on purely temporary basis for the last few years – ranging from one year to more than 10 years for meagre salary and for just 8 – 10 months a year. Unfortunately, this is true even in the case of government colleges

Figure – 1: Curricular Aspects – Sequential Steps



and state universities which were expected to be the model employer-institutions.

Recently (3 September, 2021), the Union Education Minister, Sri. Dharmendra Pradhan, advised the vice-chancellors of all 54 central universities to fill up 6,229 vacant posts before the end of October, 2021. These vacant posts account for about a third of all sanctioned faculty positions. If this is the fate of central universities in the country, one can imagine the situation with state universities. And this is a reflection of acute shortage of teachers in many universities and colleges which is true even in the case of Karnataka. And this is impairing the quality of education imparted by the HEIs.

Without teachers, no scheme can be implemented successfully. It is, therefore, necessary for the Government of Karnataka to fill and/or permit to fill all vacant teaching posts. The faculty recruitment should be based on the current teaching work-load of the institutions but not on the basis of posts sanctioned when the institutions were established. This is because of the reason that the institutions, over the years, have diversified their academic programmes by offering new programmes of studies, additional batches of the existing programmes of studies, new courses, etc. This requires more number of teachers than originally sanctioned.

Adding to the woes, a few universities are planning to offer even the UG programmes from their PG Departments. It may be noted here that most of the PG Departments of universities are offering only PG programmes besides the Doctoral programmes. Now, some of these Departments are asked by their universities to offer, besides their PG and Doctoral programmes, three/four-year UG programmes. This increases the number of teachers gradually. However, although there are arguments for and against this move, the basic issue is, when there are no qualified teachers in adequate number working on regular basis to teach PG programmes, how can they offer UG programmes.

But the idea of Visvesvaraya Technological University (VTU) appears to be good. It is proposing to the Government of Karnataka to allow it to permit 60 of its affiliated engineering colleges to offer four-year B.Sc (Hons) Degree programme sync with NEP, 2020 with Science, Technology, Engineering, Arts and Mathematics (STEAM) subjects. The Science and Engineering Departments of Engineering Colleges will conduct the classes of B.Sc (Hons) in their campuses. Even the open electives, project work and internship which constitute parts of B.Sc (Hons) are proposed to be STEM-centric and from engineering background. As these colleges/institutes are focusing more on Bachelor's Degree programmes (like, B.E., B.Tech., etc), there is a sense in this proposal. But in the case of PG Departments of universities, this logic is missing. However, the problem of shortage of teachers aggravates.

There is also a move/suggestion (of course, this suggestion is not by the Government of Karnataka but by the apex body of HEIs) to the effect that, 40% of the expected/required credits can be earned by the students for a Degree, Certificate, etc., through online medium. Recently, the University Grants Commission has doubled the credit limits for online courses from 20% to 40%. This enables the students to attend the online courses and get returns just like while attending physical classes. The authors personally feel that this suggestion/ move is notin the right direction as on-line classes are not perfect substitutes for off-line (physical) classes.

Conclusion

The above are some of the issues that should have been addressed by the authorities before the launch of implementation of NEP–2020. If it is implemented without making necessary preparations, it may end up with failure. However, as the Higher Education Minister of Karnataka, Dr. Ashwathnarayan, is working hard for the successful introduction and implementation of NEP–2020 by putting all his efforts, it is necessary, at least now, to make the necessary preparations on the above lines at the earliest.

Besides, other states and union territories can start the preparations on the lines suggested above so that they will be ready with all preparations before the commencement of next academic year (2022-23) to launch the implementation of NEP–2020. ❑

Quality Enhancement of Higher Education Academia through 'Veil of Ignorance'

Jagdish Rai* and Jayanti Dutta**

Several persistent measures have been taken by the Ministry of Education and University Grants Commission to push the Higher Education Institutes (HEIs) in the league of the world's top universities including special attention to quality parameters of research, pedagogy, and human resource development. However, one of the significant aspects of a quality institute- creation and sustenance of productive work culture in the HEIs- has escaped the attention of all stakeholders. An unjust, non-collegial, toxic ecosystem buttressed by a feudal mindset of the academic players is one of the deep rooted maladies and is largely responsible for the rot which has set in, in our HEIs. Though an 'elephant in the room' this issue is hardly discussed at any level of academia or administration, let alone it being addressed strategically.

This unjust ecosystem manifests itself in the form of rigid hierarchy, lack of team spirit, infighting, lopsided resource allocation, blatant discrimination, inequality, harassment, and unnecessary litigation. Though on the face of it, such things appear to be petty and having a negligible impact, but the high prevalence of such incidents make a huge dent in the productivity, perception, and potential of the university and becomes reason enough for the institute to lose its competitive edge. Following the establishment of our HEIs, we have failed to evolve checks and balances and create mechanisms to counter these negative forces which though intangible have a direct bearing on the quality of research and teaching and the overall ranking of the institute.

A faculty entering such a non-collegial hostile environment has to face injustice and discrimination in the hands of senior colleagues and peers, instead of being nurtured and mentored into the profession. Such discrimination is usually in the form of denial of use of physical space, equipment, lab facilities; withholding information, wrongfully obstructing research and growth opportunities, undue blocking financial and other service benefits, adverse reports, and false complaints. A teacher confronted with such toxicity has two choices, either to opt-out by moving to greener pastures abroad or to represent to the University for the redress of their grievance. In the second case, the universities often make committees of senior professors for taking various decisions. Though this appears to be a fair mechanism, but it is hacked by picking and choosing specific committee members who are ready to take unjust decisions and sign on the dotted lines without application of mind. The committee members, who usually belong to the same silo come to the table with pre-determined mindsets, biases, agenda and have their own axe to grind. They play the cards of gender, region, religion, parochialism, and the like. Often, the same committee members are part of all committees of the HEI and exploit the vulnerability of the junior colleague. These committee decisions have become a sham in the name of the democratic process where wrongdoings are justified sans accountability. In such an unjust situation, the ideas of facilitation, colleagueship, and welfare of the university are nowhere in the priority list of the committee members. Unable to get justice and holding on to the grievance, the faculty soon loses steam for vibrant academic contribution, and acquires a low morale. He/she may fall prey to some unconstitutional middlemen, and start paying direct or indirect favors. Both the scenarios translate into zero sum game for the institute.

John Rawls (1971) has propounded a theory of justice according to which, 'a well ordered society needs a concept of justice as a basic requirement and such a concept can be developed by putting individuals behind a 'Veil of Ignorance' about their own position which would ensure equal rights for all'. This concept of 'Veil of Ignorance' can be applied in higher education academia to counter the nexus of rogue committee members lobbying on identity issues, favouritism, and petty political gains.

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To ensure that these committees truly represent the community and remain fair, the Veil of Ignorance' can comprise a list of all faculty members of the institute and a system of random picking of 4-5 names to act as committee members to look into a grievance.

This randomly selected committee rather than a carefully selected committee will ensure that each of its members will be interested in dispensing justice instead of indulging in unethical practices because the culture of justice and fair play that he/she contributes to creating is also the one through which justice is ensured to his/her own self also. In ignorance, a person will consider the equal probability of being anywhere anytime in the system. Therefore, he/she will design the system to be efficient/ productive as well as not causing unnecessary injustice/ inequality. If the faculty knows the committees are randomly selected then it is in fact a 'Veil of Ignorance' and various identities, positions or other factors will not affect the sense of justice. A system thus based on the political philosophy of John Rawls ensures equality and justice. Consequently, nobody has to worry too much about networking and politics and instead can focus on productivity for the sake of a stronger nation. This randomness in selection brings all faculties on equal ground and kills the scope of manipulation. The random selection of members in committee to deliberate on various issues has the added benefit of being able to give the minorities the rightful share of voice and authority.

John Rawls's political philosophy of the instrument of distributive justice has to be leveraged with tools from information technology to make it hack-proof. For example, the list of potential members and random number generation has to be done by a computer, all the committee meetings should take place virtually through discussion on an internal blog or under a web camera with video stored on institute servers. Thus, the digital application of 'Veil of Ignorance' can help to demolish the feudal culture, which promotes identity conflicts, corruption, and unjust resource distribution, and the academic institutions, free of the encumbrance of unending grievances and low motivation will be able to attain new heights of excellence.

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The Application of New Knowledge Contributes to One's Growth

M Venkaiah Naidu, Hon'ble Vice President of India delivered the second Annual Convocation Address at the Convocation Ceremony of Dr Rajendra Prasad Central Agricultural University, Pusa at its Piprakothi Campus (East Champaran), Bihar on November 07, 2021. He said, "The developed world is already reaping benefits from the use of Artificial Intelligence in agriculture and India too must harness its potential to help improve farm income. Greater use of technology in food management is needed to ensure food security for all. I urge the University to work on the Impact Assessment of Technologies and also evaluate alternative farming techniques and their sustainability." Excerpts

It gives me immense pleasure to be a part of this second Annual Convocation of Dr Rajendra Prasad Central Agricultural University in this historically important land of Champaran. This is the place that became the initiation centre of Mahatma Gandhi Ji's Satyagraha movement in support of farmers, in the year 1917. I pay homage to all the Satyagrahis who fought against the tyrannical laws of the British government. This is also the land that gave Mahatma Gandhi Ji the name that he loved the most, Bapu. I feel privileged and honoured to stand on this pious soil and address you from here.To begin with, I would like to congratulate all students who have been awarded degrees and medals and graduated today with flying colors. Today, as you graduate and feel the sense of pride along with your parents, it is important for each one of you to look back and convey your gratitude to all the teachers who had shaped your educational career since primary education. Like parents, your 'Guru' is also irreplaceable. Dear students, as you embark on your new journey, I am confident that you will strive to excel in your chosen domain and contribute towards the growth and development of the country. Let me also convey my appreciation to the faculty members, the non-teaching staff and other employees of this institution on this occasion.

I would also like to congratulate Shri Radha Mohan Singh ji, Member of Parliament and the former Union Minister of Agriculture and Farmers' Welfare, for transforming this hallowed land into a centre of agricultural education, research and extension. His efforts are in tune with Mahatma Gandhi's vision of placing farmers' interests above everything else. It is due to his tireless efforts that Piprakothi has become home to multiple farmer-centric institutes, such as Pandit Deen Dayal Upadhayay College of Horticulture and Forestry and the Centre of Excellence in Embryo Transfer Technology. I am confident that all these institutes and centres will play a crucial role in alleviating the problems of small and marginal farmers of the region. While no country or sector remained unaffected by COVID-19, the agriculture sector in India registered a positive growth. This was the first time since 2013-14 that agriculture regained this economic prominence.

Dear students, Agriculture is one of the main pillars of the Indian economy and as young agri-professionals, you will have a bigger role to play ahead. Be proud of your alma mater which has achieved multiple milestones in agricultural research, education, and extension since its inception as a Central Agricultural University in the year 2016. In the past, Nalanda and Vikramashila made Bihar a source of inspiration and enlightenment and played a pivotal role in making India a Viswaguru. I am told that this university is continuously evolving its research and pedagogy and has taken significant steps to prepare students to meet the challenges of the future. I am happy to note that it has very recently introduced post-graduate diploma courses in agricultural journalism and mass communication, agro-tourism management, and agricultural warehouse management. I am also told that the University is planning to start more technical and entrepreneurship-oriented courses in mushroom production and post-harvest processing of agricultural produce. The University's start-up incubation center will help students start their own business enterprises. I was also informed that the University is promoting agro-based tourism which will boost farm economy and will also act as a detox therapy for urban tourists by letting them experience natural beauty of the place, ethnic food, unique flora and fauna.

Dear sisters and brothers, India's growth strategy is focused on sustainable development. The sustainable

development goals focus on maintaining food and nutritional security by addressing social, economic, and ecological components. I am happy to learn that the 'Sukhet Model', an innovative idea of the University linking Government of India's objectives of 'Clean India Campaign' and 'Ujjawala Yojana', has been applauded by Hon'ble Prime Minister Shri Narendra Modi ji in 80th episode of 'Mann ki Baat'. I am told that this model will help create a circular economy/ bio-economy in the village and establish a self-reliant village. I am sure that the efforts of the university through knowledge partnership will help this novel idea reach many more Panchayats across Bihar and rest of India. As agriculture is characterized by marginal and small farmers with fewer resources, increasing the income of farmers through various sources, including improved resource use efficiency, is of utmost importance. The developed world is already reaping benefits from the use of Artificial Intelligence in agriculture and India too must harness its potential to help improve farm income. Greater use of technology in food management is needed to ensure food security for all. I urge the University to work on the Impact Assessment of Technologies and also evaluate alternative farming techniques and their sustainability. As you all are aware, small and marginal farm holdings constitute the core of Indian agricultural production systems. The Farmer Producer Organizations can immensely help small and marginal farmers with forward and backward linkages in the Food Supply Chains; backward in terms of input and extension services and forward in terms of processing, marketing, selling and export. There is a need to promote FPOs, and I am happy to learn that the University is also initiating training programmes in this regard. Handholding and Capacity building is important for FPOs and I urge the University to encourage farmers in the region to form collectives. While many people from towns are forced to migrate to cities in search of work, mostly in the unorganized sector, we have also witnessed reverse migration during the COVID-19 pandemic. This calls for the need to develop more employment opportunities in the rural regions, especially in the farm sector. Agro-based industries can flourish in rural areas where labor is abundant and inexpensive. Entrepreneurship in agriculture can immensely benefit Indian economy by generating employment opportunities for rural youth and reducing the migration from rural to urban areas.

I have been told that this university came up with slew of technologies suitable for migrant labourers, including women and trained them under PM Kisan Kalyan Yojana. I must compliment the university for coming out with technologies for monetization of agro-waste such as banana pseudostems, pigeon pea stalks, maize cobstones, litchi stones, turmeric leaves and waste vegetables. The value-added products from these agro-wastes can generate employment in rural areas. It is also heartening to note that the robust research is supported by an equally strong extension base through a network of 18 Krishi Vigyan Kendras which are functioning as Knowledge and Resource Centres. I am happy to learn that the technology developed by the university has been adopted in various micro-farming situations, with special focus on major crops of the state like paddy, wheat, maize, sugarcane, potato, sweet potato, turmeric, banana, mango and litchi. I would also like to compliment the University for having provided digital solutions in the wake of the pandemic to each farmer to deal with soil management, pest and diseases management and post-harvest management, among others. I am happy to learn that the University's extension support system has played its part to minimize the impact of the COVID-19 by reaching out to more than 1.28 lakh farmers through video conferencing hubs at Krishi Vigyan Kendras for webcast of training programs.

Dear Sisters and Brothers, Knowledge is a powerful agent of change. The application of new knowledge has contributed to the growth of agriculture and thereby to the welfare of the farmers. It is heartening to learn that the University is involved in 'Paramparagat Krishi Vikas Yojana' and 'Attracting Rural Youth to Agriculture' by providing vocational courses to rural youth and in promoting 'Climate Smart Agriculture' practices for overall increase in productivity. I appreciate the efforts of the University in these directions. COVID-19 has affected the education system badly as the institutions had to shift to online teaching. It was a new experience both for teachers as well as students. I am happy to know that this university shifted from class room teaching to online seamlessly and conduct examination successfully. In the end, let me salute our soldiers, farmers and scientists-- Jai Jawan, Jai Kisan, Jai Vigyan! I once again congratulate the students on the successful completion of their studies at this great institution. My wishes to all of you for your future endeavours!"

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Capacity Building Workshop on Accreditation

A seven-day Online Capacity Building Workshop on 'Accreditation: Different Aspects and Key Points' was organised by the Internal Quality Assurance Cell, Hindu Kanya College, Kapurthala, Punjab, recently. During Inaugural Function, in his Keynote Address, Prof. M M Goel, former Vice Chancellor, Professor and a known Needonomist from Kurukshetra expressed that all have to develop the power of observation as art by devoting time on what, why, when, where for whom to work without worries and take small but significant steps instead of big-bang approach for NAAC accreditation. The SWOT analysis of an institution with best practices adopted can help to know the performance level, said Prof. Goel.We need to change our perception in the society as teachers called national assets on two days only including Teachers' Day and National Education Day and opined that continuous introspection on the role of teachers in the society throughout the year, believed Prof. Goel. He stressed on the use of Google form for data collection for feedback from the stakeholders including students and teachers with alertness, awakening, and awareness of the misuses of artificial intelligence.

Dr B Anirudhan, Principal, Nehru Arts and Science College, Coimbatore, Tamil Nadu spoke on the Scope of Curricular Aspects in Accreditation and how to score maximum in this by affiliated colleges. Dr Anirudhan cited the need of bringing transparency and clarity in handling the curriculum aspects of the colleges. "It is the sole criteria which can help to score 90% weightage to most of the colleges. NAAC only expect proper documentation of the claims made by colleges and uploading of relevant information on the websites," he said. Dr Anirudhan also cited the importance of Energy Audit, Green Audit and Hygiene Audit for colleges. It can certainly acclaim applauds and good scores from assessors, he said. He also cited the need of daily updates on college's website. He also encouraged teachers to offer value added courses relating to their subject to students in consultation with market experts.

Prof. Ujjwal K Chowdhury, Pro-Vice Chancellor, ADMAS University, Kolkata stated that pandemic has created many learning opportunities for teaching community of the country. "The days of traditional teaching methods are over now. In future, it is going to be digitised teaching or blending teaching and for that teachers have to be verse with technology and various software applications," he said. He also gave tips and techniques to all participants to make their teaching more effective and innovative. Making emotional as well as professional connect with the students, who are more or less not worried about their future, is the biggest challenge for all teaches, he added. Prof. Chowdhury also put light on the different techniques of evaluation that can be used by educational institutions to adjudge and check students. He expressed concern over non-seriousness of different governments in allocating budget for education. "It is on their least priority and a common man should raise this issue with their leaders at different platforms," he said. Dr B K Virk, Principal, MR Government College, Fazilka stated the need and importance of SWOT (Strengths, Weaknesses, Opportunities and Threats) Analysis for every institution. Addressing the gathering he said, strengths and weaknesses are internal to any organisation but threats and opportunities are external. Every institution should invest in conducting effective SWOT analysis to survive in the market. Dr. Singh cited the examples of Nokia and Motorolla, who were once market leaders in mobile phone market. After the arrival of smartphones, these brands failed to survive, he said, adding that, effective and unbiased SWOT analysis can help institutions to cope up with the market changes. Dr. Virk also suggested that SWOT analysis should be a regular feature for organisations and managements should take the help of expertise from the markets to make it more effective and purposeful. He also discussed the methodology, key-factors to be kept in mind while doing SWOT analysis and dos and don'ts with all participants.

Dr Ajay Lakhanpal, Former Principal, PSR Government College, Baijnath, Kangra, Himachal Pradesh highlighted the need and importance of budgetary provisions for research and extension in colleges. It shows research culture of the college, he

said "Colleges should come forward with incentives to promote research and extension activities. Whatever colleges do in extension activities should be community oriented and must have benefits for society," he said. Dr. Lakhanpal also suggested colleges to note down every small effort for records and try to bring improvements in these efforts with pass of time. He also answered queries raised by participants relating to research, innovation and extension activities.

Prof. Yogender Verma, Pro-Vice Chancellor, Central University of Himachal Pradesh, in his address, cited the need of sustainable quality and how it can be achieved. "Only quality can bring distinctiveness to any educational institute for achieving quality, one has to put on consistent efforts," he said. Prof. Verma put light on different issues relating to seventh criteria of NAAC Self Study Report for affiliated colleges and highlighted the key points which can help to bring good weightage. He also appealed all colleges to adopt for Green Auditing, Energy Auditing, Rain Water harvesting, E-waste Management and generating energy through alternative resources. NAAC has chalked out parameters so intelligently that nobody can fake the data and activities now, he said adding that, one has to generate proper evidences to substantiate their claims.

On the concluding day, Principal of Hindu Kanya College, the host college, Dr Archna Garg, said that all colleges are required to setup effective support services and systems for benefits of the students. "These are the real backbone of colleges and if maintained and documented effectively, can attract more students as well as good score from ranking agencies," she said. In her address, Dr. Garg suggested the colleges to make their services related systems more transparent and accessible through portals. If done so, students can be benefitted in large numbers from these services, she further said, "Every college should have proper track of all those who have been educated from the college. Constant touch with them can help effective and beneficial contribution from alumni for working and finance of college." Dr. Garg also gave tips on different key points relating to Criteria-5 of the Self Study Report to be submitted by colleges to NAAC for accreditation. Proceedings of each day of the workshop, started with a different musical prayer, prepared by students, faculty members and alumni member. Through each prayer, it was prayed to keep people healthy, safe and cheerful in the stressful times of pandemic.

Webinar on Sustainable Urban Living in Developing Nations

A two-day Webinar on 'Sustainable Urban Living in Developing Nations: Integrating Inherent Strengths and Opportunities with Learnings from Developed Economies' is being jointly organized by the Ranbir and Chitra Gupta School of Infrastructure Design and Management, Indian Institute of Technology Kharagpur and School of Natural and Built Environment, Queens University Belfast, Northern Ireland, United Kingdom during December 20-21, 2021. The event is being sponsored by the SPARC initiative of the Ministry of Education, Government of India.

Developing nations are urbanizing at a rapid pace, placing extraordinary stress on the existing supply of infrastructure and at the same time requiring enormous investment in developing new infrastructure to meet the growing demand. Urban areas are today marred with issues including deteriorating quality of housing and mobility infrastructure, lack of affordable housing leading to overcrowding in temporary and unsafe structures, declining quality of life, increased vehicular movements leading to congestion along streets, and expanding urban sprawl, etc. Such unwanted outcomes often overshadow the positive aspect of urbanization, i.e., access to employment opportunities, improved quality of life, poverty alleviation, etc.

Taking cognizance of the externalities, several private and public initiatives are being executed that include, integrating transit and land use by implementing Transit-oriented Development (ToD), development of a range of affordable housing solutions, developing micro-mobility schemes such as bicycle sharing, Rejuvenation of Heritage Cities through Provision and augmentation of basic infrastructure, enhancing non-motorized transport infrastructure, etc. In order to achieve the maximum benefits out of these solutions, the developing urban areas around the globe need to share their experiences by learning from each other and also from the developed nations' practices, where many of these solutions may have been tested or implemented. The themes of the event are:

- Livability Driven Housing Affordability.

- Sustainable Neighborhood Planning and Accessibility.
- Livable Urban Space: Role of Infrastructure.
- Public Space Networks: Existing Patterns of Development.
- Neighborhood Design in Traditional Development vs ToD.
- Affordability and Livability in ToD.

For further details, contact Organising Secretary, Indian Institute of Technology Kharagpur, West Bengal-721302, E-mail: *kalyanps@aero.iitkgp.ac.in /ictacem@aero.iitkgp.ac.in/ g.ellis@qub.ac.uk/ ankhi@infra.iitkgp.ac.in/ akgoswami@infra.iitkgp.ac.in/ D.Adlakha@qub.ac.uk.* For updates, log on to*: www.iitk.ac.in.*

Workshop on Statistical Techniques for Research Methodology

A five-day Online Workshop on 'Statistical Techniques for Research Methodology' is being organisd by the SQC and OR Unit, Indian Statistical Institute, Mumbai during December 14-18, 2021. The Research Scholars and Faculty Members of Engineering and Management stream of University/ Institute and Scientists of Research Organizations may participate in the event.

Applied research is a systematic and objective process of gathering, recording and analyzing data for taking appropriate and meaningful decisions. In order to carry out applied research, the researchers need to design the study based on appropriate Hypotheses, gather necessary data and analyze it, and make decisions. The analysis and inference has to be made by using appropriate statistical techniques. To keep pace with the recent advancements in any discipline, one has to be well versed with the latest developments in statistical analysis. Keeping in view the importance of statistics in research methodology, the event aims to provide knowledge on statistical techniques to the research scholars. The event is planned for the research scholar pursuing research in various engineering and management stream. The Topics of the event are:

- Research Methodology and Statistical Techniques.
- Types of Data.
- Descriptive Statistics.
- Sampling Strategies.
- Probability and Probability Distribution.
- Variation and Modeling Variation Using Probability Distribution.
- Hypothesis Testing like t-test, F-test, ANOVA, ANCOVA.
- Categorical Data Analysis: Contingency Tables, Odds and Odds Ratio.
- Predictive Modeling Using Simple, Multiple Linear and Logistic Regressions.
- Multivariate (PCA, Factor and Cluster) Analysis.

For further details, contact Programme Director, SQC & OR Unit, Indian Statistical Institute, Room No, 320, 3rd Floor, Old CGO Bldg. 101, Maharshi Karve Road, Mumbai- 400 020, Phone No: 022 – 22014588/98692 42240, E-mail: *sarkar.ashok@gmail.com/ sqcbombay@gmail.com*. For update, log on to: *www.isimumbai.co.in*

Faculty Development Programme on FEM and Modal Analysis in Engineering

A five-day Online Faculty Development Program (FDP) / Short Term Course on 'FEM and Modal Analysis in Engineering' is being organized by the Department of Mechanical Engineering, Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, Punjab during December 24-28, 2021. The faculty members, students from Engineering Institutes/Colleges/Polytechnics and Practicing Engineers and Researchers from Industries and R&D institutions may participate in the event.

Finite Element Method (FEM) is the most powerful method for the analysis of engineering problems. It is capable of handling geometry complicated domains, a variety of boundary conditions, non-linearity and coupled phenomenon those are common in real life problems. The physical knowledge of method enhances the analysis skill and provides a greater understanding of the problems being solves. Commercial software packages based on the finite element method are often used in industrial, research and academic institutions for the solution of engineering and scientific problems related to solid mechanics, fluid mechanics, heat transfer, and structural dynamics. The intelligent use of these software packages and correct interpretation of the output is often predicted on knowledge of the basic concept of FEM.

Modal analysis is the study to predict and measure the dynamic characteristics of a structure. The spatial model, modal-model and a response model can be measured by using the experimental mod-al analysis technique. Finite element method is one of the important tools to predict the above models. Experimental modal analysis is carried out by using the transducers and the FFT analyzers. FEM and experimental modal analysis results are compared and the discrepancies between the results may be reduced by using the finite element model updating techniques. Nowadays the application of the finite element model updating technique is widely used in the aerospace industry, automobile industry, electronics, etc.

- Fundamental of FEM and FEM for Solid Mechanics Problems.
- FEM for Solid Mechanics Problems (1D and 2D) and Non Linear Solid Mechanics Problem Using ABAQUS/ANSYS.
- FEM for Impact and Contact Mechanics Problems.
- FEM for Composite Material and MICRO FEM of Composite and its Application Using ABAQUS/ ANSYS.
- Introduction to Non Linear FEM (Elesto-plasto non-linear FEM).
- Fundamental of Modal Analysis and its Applications.
- State Space Methods for Modal Analysis.
- Introduction to Modal Testing and Applications Using FEM.

For further details, contact Coordinator, Dr. Manoj Kumar, Assistant Professor, Department of Mechanical Engineering**,** Dr. B. R. Ambedkar NIT Jalandhar -144011 (Punjab), Mobile No:+91-9793557548, E-mail*: kumarm@nitj.ac.in.* For updates, log on to: *www.nitj.ac.in*

Online Outreach Programme on Trading in Equity

A two-day Online Outreach Programme on 'Trading in Equity' is being jointly organized by the School of Humanities, Social Sciences, and Management, Indian Institute of Technology Bhubaneswar, Odisha and National Institute of Securities Market for the finance executives from public and private organizations, faculty members, and research scholars of the universities and other academic institutions across the country during December 20-21, 2021. The programme aims to provide useful insights to the understanding *vis-a-vis* the hands-on practices to do trading in equity. The programme will be delivered in an online web-based format. The Topics of the event are:

- Overview – Financial Markets, Market Operations-Trading, Clearing and Settlement Process.
- Trading Products, Cash Market, Trading Rules.
- Margins and Risk Management – Client Level.
- Technical Analysis – Moving Averages, Candlesticks, Bollinger Bands & RSI.
- Back Testing of Technical Indicators.

For further details, contact Coordinator, Dr. Naresh Chandra Sahu, School of Humanities, Social Sciences and Management, Indian Institute of Technology Bhubaneswar, Jatni, Khordha, Odisha-752050, E-mail: *naresh@iitbbs.ac.in*. For updates, log on to: *www.iitbbs.ac.in*

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THESES OF THE MONTH

SCIENCE & TECHNOLOGY
A List of doctoral theses accepted by Indian Universities
(Notifications received in AIU during the month of August-September, 2021)

AGRICULTURAL & VETERINARY SCIENCES

Forestry

1. Kaneria, Manendra. **Studies on taxonomy of family encyrtidae (Hymenoptera chalcidoidea) of Chhattisgarh, Jharkhand and Madhya Pradesh**. (Dr. Sudhir Singh), Department of Forest Entomology, Forest Research Institute, Dehradun.

2. Bano, Shabnam. **Phenological, morphological and molecular studies on male and female tress of *Ailanthus excelu* Roxb**. (Dr. U K Tomar and Dr. J C Tewari), Department of Forest Biotechnology, Forest Research Institute, Dehradun.

3. Chakraborty, Sandeep. **Studies on parasitism and host-plant relationship in sandalwood (*Santalum album linn*)**. (Dr. Syam Viswanath and Dr. M S Sheshshayee), Department of Forest Ecology and Environment, Forest Research Institute, Dehradun.

4. Mishra, Akhilesh Kumar. **Taxonomic study of the family coccinellidae (*Insecta: coleoptera*) from Punjab, Haryana and Uttarakhand**. (Dr. Mohd Yousuf), Department of Forest Entomology, Forest Research Institute, Dehradun.

5. Patasaraiya, Maneesh Kumar. **Assessing resilience of dominant tree species for effective management strategies to climate change in Satpura Tiger Reserve**. (Dr. Bhaskar Singh, Dr. Sameer Saran and Dr. R K Jaiswal), Department of Forest Ecology and Environment, Forest Research Institute, Dehradun.

6. Sinha, Sanjiv Kumar. **Upscaling photosynthesis processes using fluorescence measurement and satellite data**. (Dr. Hitendra Padalia and Dr. N R Patel), Department of Environment Management, Forest Research Institute, Dehradun.

7. Yadav, Sadhana. **Evaluation of polarimetric and interferometric SAR for forest biophysical parameters retrieval**. (Dr. Hitendra Padalia), Department of Forest Ecology and Environment, Forest Research Institute, Dehradun.

BIOLOGICAL SCIENCES

Bioinformatics

1. Sathya, B. **Discovery of a new class of selective Janus kinase inhibitors: A combination of pharmacophore based virtual screening, chemical optimization and molecular dynamics**. (Dr. Thirumurthy Madhavan), Department of Bioinformatics, SRM University, Kattankulathur, Chennai.

Biotechnology

1. Abiram, K R. **Surfactant-aided bioremediation of Polycyclic Aromatic Hydrocarbons contaminated soil**. (Dr. V. Vinoth Kumar), Department of Biotechnology, SRM University, Kattankulathur, Chennai.

2. Amuluri, Kanaka Raju. **Assessment of pattern recognition gene polymorphisms of CD14, TLR4, and TLR2 in innate immune responses in aetiology of bronchial asthma from coastal Andhra Pradesh, India**. (Dr. K Sunita), Department of Biotechnology, Acharya Nagarjuna University, Nagarjuna Nagar.

3. Ballichatla, Suneel. **Identification and molecular characterization of complete panicle emergence mutants of Samba Mahsuri (BPT 5204)**. (Dr. M Sheshu Madhav), Department of Biotechnology, Acharya Nagarjuna University, Nagarjuna Nagar.

4. Savita. **Prevalence, Identification and molecular characterization of gastrointestinal nematode parasite of goat**. (Prof. Kamal Jaiswal), Department of Applied Animal Sciences, Babasaheb Bhim Rao Ambedkar University, Lucknow.

Life Science

1. Choudhary, Ankita. **A study of multifold ecological benefits of agroforestry systems in semi-arid areas with particular reference to soil nutrient dynamics, biodiversity assessment and microbial analysis**. (Dr. Shilpi Rijhwani), Department of Botany, IIS University, Jaipur.

Marine Science

1. Anil Kumar, K. **Internal waves: Their characteristics, dynamics and application with special emphasis on Indian waters**. (Dr P V Hareesh Kumar), Department of Marine Sciences, Cochin University of Science & Technology, Kochi.

2. Anupama, K M. **Studies on the life history traits of Malabar puffer fish, C*arinotetraodon travancoricus* (*Hora and Nair*, 1941) inhabiting Pampa and Chalakkudy Rivers, South India**. (Dr. M Haikrishnan),

Department of Marine Science, Cochin University of Science & Technology, Kochi.

3. Remisha, O. **Calcium bentonite clay mineral as dietary supplement in reducing aflatoxin B1 toxicity and its effect on growth, biochemical and histopathological changes in Nile tilapia, Oreochromis niloticus (Linnaeus, 1758)**. (Dr. Saleena Mathew), Department of Marine Sciences, Cochin University of Science & Technology, Kochi.

Microbiology

1. Prabha, N. **Biological activities of peptides identified and chemically synthesized from innate immune molecules of freshwater teleost**. (Dr. A. Jesu Arockia Raj), Department of Applied Microbiology, SRM University, Kattankulathur, Chennai.

Zoology

1. Kritish De. **Studies on assemblage of spiders (Arachnidal: Araneae) in different Riparian Zones to the river Ganga**. (Dr. V P Uniyal and Dr. Manju Silliwal), Department of Wild Life Science, Forest Research Institute, Dehradun.

EARTH SYSTEM SCIENCES

Environmental Science

1. Greeshma, P. **Foraging ecology of selected birds in Kole Wetlands of Thrissur, Kerala, India**. (Dr. E A Jayson), Department of Environmental Studies, Cochin University of Science & Technology, Kochi.

2. Singh, Shailja. **Biodegradation of Low Density-Polyethylene (LDPE) biosurfactant producing bacterial isolated from plastic polluted dumpsites**. (Prof. Shikaha), Department of Environmental Science, Babasaheb Bhim Rao Ambedkar University, Lucknow.

ENGINEERING SCIENCES

Biotechnology

1. Saikia, Kongkona. **Biochemical conversion of renewable carbohydrates to furanic building blocks**. (Dr. V. Vinoth Kumar), Department of Biotechnology, SRM University, Kattankulathur, Chennai.

Civil Engineering

1. Arun, Sija. **Distribution, sources, risk assessment of selected antibiotics in different environmental matrices of Chennai Cityand effective removal using biochar**. (Dr. Paromita Chakraborthy), Department of Civil Engineering, SRM University, Kattankulathur, Chennai.

2. Gopinath, S. **Enhanced process for resource leveling problem using precedence diagram method**. (Dr. T. Ch. Madhavi), Department of Civil Engineering, SRM University, Kattankulathur, Chennai.

3. Prakash, M. **Studies on the progressive collapse behavior of three dimensional R.C. frames with and without infill**. (Dr.V. Thamilaras U and Dr.K S Satyanarayana N), Department of Civil Engineering, SRM University, Kattankulathur, Chennai.

Computer Science & Engineering

1. Bhuvan, Nikhila T. **Design and implementation of a multimodal learning to rank model for ranking web pages**. (Dr. Sudheep Elayidom M), Department of Computer Science & Applications, Cochin University of Science & Technology, Kochi.

2. Gullipalli, Tirupathi Rao. **Evolutionary particle swarm optimization techniques using nature inspired algorithms**. (Dr. Bhanu Prakash Battula), Department of Computer Science & Engineering, Acharya Nagarjuna University, Nagarjuna Nagar.

3. Jayanthi, E. **Efficient trust based certificate revocation for mobile ad hoc networks**. (Dr. Md Ali Hussain), Department of Computer Science & Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

4. Motupalli, Ravi Kanth. **Systematic modelling of smart home big data for behaviour analytics and activity patterns**. (Dr. O Naga Raju), Department of Computer Science & Engineering, Acharya Nagarjuna University, Nagarjuna Nagar.

5. Peddada, Venkateswara Rao. **A framework for minimising the search space on large scale dataset using hybrid mapreduce skyline computation**. (Dr. Md Ali Hussain), Department of Computer Science & Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

6. Qutaiba, Humadi Mohammed. **A novel hybrid framework for predicting Parkinson's disease using machine learning and data mining techniques**. (Prof. E Sreenivasa Reddy), Department of Computer Science & Engineering, Acharya Nagarjuna University, Nagarjuna Nagar.

7. Rajkumar, R. **Bio-inspired brain computing interface learning style inventory to increase the e-learning efficiency**. (Dr. V. Ganapathy), Department of Computer Science & Engineering, SRM University, Kattankulathur, Chennai.

8. Renjith, Shini. **An autodidactic algorithm for enhancing the performance of review-based recommender systems**. (Dr. A Sreekumar and Dr. M Jathavedan), Department of Computer Science & Applications, Cochin University of Science & Technology, Kochi.

9. Shanthi, R. **Automatic and efficient early diagnosis of glaucoma disease in retinal fundus image**. (Dr. S. Prabakaran), Department of Computer Science & Engineering, SRM University, Kattankulathur, Chennai.

10. Sindhu, C. **Aspect level sentiment polarity classification using sequence - attention mechanism with amplified intelligence**. (Dr. G. Vadivu), Department of Computer Science & Engineering, SRM University, Kattankulathur, Chennai.

Electrical & Electronics Engineering

1. Krithika, V. **Fuzzy and neural network based energy management strategy for hybrid electric vehicle**. (Dr. C. Subramani), Department of Electrical & Electronics Engineering, SRM University, Kattankulathur, Chennai.

2. Maheswaran, G. **An adaptive resistance perturbation based maximum power point tracking algorithm for photovoltaic systems**. (Dr. K. Vijayakumar), Department of Electricals and Electronics Engineering, SRM University, Kattankulathur, Chennai.

3. Majumder, Irani. **Solar power prediction and local energy management in microgrid using machine learning techniques**. (Dr. Niranjan Nayak and Prof.P K Dash), Department of Electrical Engineering, Siksha O Anusandhan University, Bhubaneswar.

4. Marri, Krishna Chaitanya. **An advanced control strategy implementation for an efficient solar inverter to grid connected applications**. (Dr. Gudapati Sambasiva Rao), Department of Electrical & Electronics Engineering, Acharya Nagarjuna University, Nagarjuna Nagar.

5. Suresh, K. **Non-isolated three-port DC-DC converters for EV applications**. (Dr. N.Chellammal), Department of Electrical & Electronics Engineering, SRM University, Kattankulathur, Chennai.

Electronics & Communication Engineering

1. Anumothu, Murali. **Efficient on chip debugging framework for reconfigurable SOC architectures**. (Dr. K Hari Kishore), Department of Electronics & Communication Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

2. Jain, Dharmendra. **Nano porous carbon material with redox additive electrolytes for the development of hybrid supercapacitor**. Department of Electronics & Communication Engineering, Jaypee Institute of Information Technology, Noida.

3. Kotra, Sankar Rajasekhar. **Analysis of dermoscopic images multiresolution transform and convolution neural networks**. (Dr. Tummala Ranga Babu), Department of Electronics & Communication Engineering, Acharya Nagarjuna University, Nagarjuna Nagar.

4. Nanda, Anuja. **An automatic insulin infusion system based on adaptive control algorithms**. (Dr. Akshaya Kumar Patra), Department of Electronics & Communication Engineering, Siksha O Anusandhan University, Bhubaneswar.

5. Prithiviraj, R. **Investigation and design of radiation hardened voltage control oscillator for phase lock loop**. (Dr. J Selvakumar), Department of Electronics & Communication Engineering, SRM University, Kattankulathur, Chennai.

6. Radha, Nainvarapu. **Development and performance evaluation of multi-focus image fusion algorithms for visual sensor networks using image transforms**. (Dr T Ranga Babu), Department of Electronics & Communication Engineering, Acharya Nagarjuna University, Nagarjuna Nagar.

7. Randive, Santosh Nagnath. **Development of computer aided diagnostic for detection and classification of diabetics retinopathy**. (Dr. Ranjan Kumar Senapati), Department of Electronics & Communication Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

8. Sandhya, Ch. **Analysis and simulation studies on the application of space polarisation frequency reuse techniques of antennas for the performance enhancement of Mobile Ad-hoc Network (MANETs)**. (Prof. Govind R Kadambi), Department of Electronics & Communication Engineering, M S Ramaiah University of Applied Sciences, Bangalore.

Genetic Engineering

1. Moorthyjanani, Dakshina. **Familial whole exome sequencing to identify genetic variants associated with polycystic ovarian syndrome in Indians**. (D R. B. Usha), Department of Genetic Engineering, SRM University, Kattankulathur, Chennai.

Mechanical Engineering

1. Rajasekar, V. **Study on the reduction of nitric oxide and smoke emissions in jatropha biodiesel fuelled CI engine using various techniques**. (Dr. B. Nagalingam and Dr. M. Leenus Jesu Martin), Department of Mechanical Engineering, SRM University, Kattankulathur, Chennai.

Nanotechnology

1. Mullapudi, V Jyothirmai. **First-principles identification of quaternary chalcogenide based solar absorber materials**. (Dr. Ranjith Thapa), Department of Nanotechnology, SRM University, Kattankulathur, Chennai.

MATHEMATICAL SCIENCES

Mathematics

1. Agasthi, P. **A study on labelings of certain classes of graphs**. (Dr.N. Parvathi), Department of Mathematics, SRM University, Kattankulathur, Chennai.

2. Kolli, Vijaya. **Heat and mass transfer effects on MHD mixed convective fluid flows through different channels**. (Dr. G Venkata Ramana Reddy), Department of Mathematics, Koneru Lakshmaiah Education Foundation, Guntur.

3. Krishnaveni, G. **Study on single and multi objective transportation and assignment problems under fuzzy environment**. (Dr. K. Ganesan), Department of Mathematics, SRM University, Kattankulathur, Chennai.

4. Parvin, Sabana. **High Order Data-Bounded Numerical Approximations Of Hyperbolic Conservation Laws**. (Dr. Ritesh Kumar Dubey), Department of Mathematics, SRM University, Kattankulathur, Chennai.

5. Prabaharan, N. **Studies on oscillatory properties of second and higher order differential equations with linear or non-linear neutral terms**. (Dr. Dharuman), Department of Mathematics, SRM University, Kattankulathur, Chennai.

MEDICAL SCIENCES

Anatomy

1. Sasikumar, S. **Morphometrical, histopathological and cytogenetical ameliorating effect of ionidium suffruticosum extract on nicotine toxicity of testis in wistar albino rats**. (Dr. Kalavathy Ponniraivan and Dr. S. D. Nalinakumari), Department of Anatomy, SRM University, Kattankulathur, Chennai.

Audiology

1. Porika, Rajendra Kumar. **The application of digital hearing aids in the management of tinnitus**. (Dr. D. Balakrishnan), Department of Audiology, SRM University, Kattankulathur, Chennai.

Ayurveda

1. Patel, Amishaben Jayantilal. **Comparative clinical study of chitraka Haritaki avaleha, Vyaghri talia nasya along with and without saraladi dhoompana in the management of Dushta Pratishyaya (Chronic Sinusitis).** (Dr. D B Vaghela), Department of Ayurved, Gujarat Ayurved University, Jamnagar.

Pathology

1. Anjali, K. **Studies on the prevalence of opportunistic microorganisms in oral cancer patients: A microbiome approach**. (Dr. Bastian T S), Department of Oral Pathology & Microbiology, Yenepoya (Deemed to be University), Mangaluru.

Pharmaceutical Science

1. Panda, Jasmin. **Drug utilization study and receptor based drug design with synthesis and biological evaluation of antidepressant flavonoids**. (Dr. Abhisek Pal), Department of Pharmacy, Siksha O Anusandhan University, Bhubaneswar.

2. Pathuri, Raghuveer. **Formulation and evaluation of self emulsifying drug delivery system for class-II drugs**. (Prof. A Prameela Rani), Department of Pharmacy, Acharya Nagarjuna University, Nagarjuna Nagar.

3. Trivedi, M Himaja. **Pharmacognostical, phytochemical and biological studies on cordia species**. (Dr. K Venkata Ramana), Department of Pharmaceutical Science, Acharya Nagarjuna University, Nagarjuna Nagar.

PHYSICAL SCIENCES

Chemistry

1. Nagadeep, J. **Studies on organic impurities: Development of analytical methods and their validation for a few pharmaceutical compounds using liquid chromatography**. (Dr. P. Kamaraj and Dr. P. Radhika), Department of Physics, SRM University, Kattankulathur, Chennai.

2. Nandipati, Prasada Babu. **Development and validation of stability indicating new analytical methods for estimation of selected drugs in bulk and pharmaceutical formulations by using RP-HPLC**. (Dr. D Ramachandran), Department of Chemistry, Acharya Nagarjuna University, Nagarjuna Nagar.

3. Poodari, Sumalatha. **DFT and HF studies of structural, molecular descriptors and non-linear optical properties of simple coumarins**. (Dr. M Subba Rao), Department of Chemistry, Acharya Nagarjuna University, Nagarjuna Nagar.

4. Sinha, Pooja Rani. **Prediction of quality of water emphasizing on nutrient dynamics in Kosi watershed Uttarakhand**. (Dr. V P Uniyal and Dr. Er Kireet Kumar), Department of Climate Change and Forest Influence, Forest Research Institute, Dehradun.

Physics

1. Durga, Geesupalli Purna. **Studies on moisture recycling and atmospheric residence times over India**. (Dr. T.V. Lakshmi Kumar), Department of Physics, SRM University, Kattankulathur, Chennai.

2. Janani, K. **Designing functionalized zigzag graphene nanoribbon as nanocarriers for targeted drug delivery applications using density functional theory**. (Dr. D. John Thiruvadigal), Department of Physics, SRM University, Kattankulathur, Chennai.

3. Rao, Potti V Srinivasa. **Synthesis and characterization of Ni-Cu-Zn and Gd^{3+}, Sm^{3+} doped Ni-Cu-Zn ferrites**. (Dr. M Rami Reddy), Department of Physics, Acharya Nagarjuna University, Nagarjuna Nagar.

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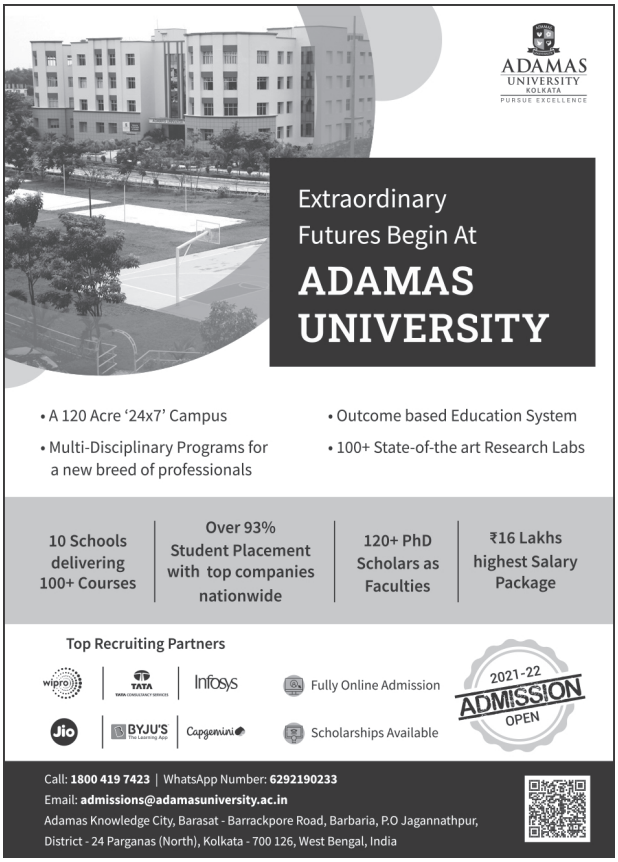

Dnyanprassarak Mandal's

College and Research Centre

Assagao, Bardez - Goa 403 507

Inspiring, Igniting and Transforming to Excel

(Affiliated to Goa University and recognized by U.G.C. under Sections 2f and 12B of the UGC Act of 1956)

Accredited by NAAC with 'A' Grade (3rd cycle)

Applications stating full name, address, age with date of birth, educational qualifications (from S.S.C. onwards) with marks and percentages secured, Caste Certificate, Birth Certificate, Residence Certificate and experience certificates are invited from Indian Nationals for the following post:

ASSISTANT PROFESSOR - FULL TIME, REGULAR: (ENGLISH) – 1 Post (OBC)

Note:

1. **The post is Reserved for OBC.**
2. **Only candidates from OBC category of the origin from the State of Goa need apply.**
3. **Minimum of 15 years of Residence in Goa.**
4. **Knowledge of Konkani. Additionally, knowledge of Marathi shall be desirable.**

For details pertaining to post, qualifications, pay scale and other service conditions, please visit the college **website: www.dmscollege.ac.in.**

Date: 15/11/2021

Sd/-
PRINCIPAL

HENRY BAKER COLLEGE, MELUKAVU

Melukavumattom P.O - 686 652

Kottayam, Kerala • Phone : 04822-219014

Date : 08.11.2021

Applications are invited for the following post of **Assistant Professors** in Henry Baker College, Melukavu:

- History : 3 Nos. (Open)
- Physics : 1 No. (Open)
- Hindi : 1 No. (Open)

Qualification : Masters Degree in the concerned subjects with atleast 55% marks and pass in National Eligibility Test by the UGC or its equivalent.

Apply **within 30 days** from the date of notification. Application forms and other details can be had from the college office on payment of Rs. 1,000/- or by post on sending a D.D. for Rs. 1,050/- in favour of the 'Principal, Henry Baker College, Melukavu' payable at Melukavumattom alongwith a self-addressed envelope. The appointment will be subject to the rules and regulations of UGC, Govt. of Kerala and Mahatma Gandhi University, Kottayam.

Sd/-
Manager

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1. advtun@aiu.ac.in

2. publicationsales@aiu.ac.in

Text matter may be sent in MS-Word document file OR in PDF file in original (as per Mechanical Data/Size of the Advertisement).

All the correspondence may be addressed to the **Under Secretary (Publication & Sales),** Association of Indian Universities, AIU House, 16 Comrade Indrajeet Gupta Marg, New Delhi-110002.

Mob: 09818621761

Phone Office: 91-11-23230059, Extn. 208/213.

Dr. D. C. Pavate Memorial Fellowships in Cambridge, 2022-23

Karnatak University, Dharwad

UNIVERSITY OF CAMBRIDGE

Dr. D.C. Pavate Foundation in collaboration with Karnatak University, Dharwad and Sidney Sussex College, University of Cambridge, Cambridge offers three visiting fellowships annually for a period of four months to be held at Department of English, Department of Applied Mathematics and Theoretical Physics / Department of Material Sciences and Metallurgy / Department of Chemistry / Department of Zoology and Judge Business School, University of Cambridge.

Candidates below the age of 40 years as on 1st January 2022, who have secured a Ph.D., or a first-class Master's Degree or its equivalent are eligible to apply for the following fellowships:

(a) **One fellowship at Department of English, University of Cambridge, Cambridge, selected on all India basis:** This fellowship will be effective from May 2022. Candidates with good academic record and interest in English literature will be considered.

b) **One fellowship at the Department of Applied Mathematics and Theoretical Physics/ Department of Material Sciences and Metallurgy/ Department of Chemistry/Department of Zoology, selected from among Karnataka Candidates:** This fellowship will be effective from January 2023. Candidates from Karnataka with good academic record in the area of Mathematics and Theoretical Physics, Material Sciences and Metallurgy, Chemistry and Zoology will be considered. The selection and award is subject to the Department concerned identifying a host research group accepting the successful candidate. Further information on the research groups and / or their faculty members' research interests can be found on the departmental websites of the University of Cambridge.

c) **One fellowship at Judge Business School, Cambridge, selected from among Karnataka Candidates:** This fellowship will be effective from September 2022. Candidates from Karnataka with good academic record and interest in any aspect of Indian business and management will be considered.

Karnataka Candidate: (i) Educated for a minimum of 5 years continuously at an educational institution located in Karnataka, or (ii) employed in Karnataka for a minimum of 5 years continuously.

The fellowships will cover economy class return air fare, stipend of 3500 pounds sterling and the appropriate academic charges. For more information and application form, visit us **www.pavatefoundation.org/home/fellowship_application**. Duly filled application form along with the proposed research work, CV, best three research publications relating to the proposed area of interest, and supporting statement from a mentor at the University of Cambridge should reach by **10th December, 2022**. In case of fellowship at Judge Business School and Department English, supporting statement from a mentor at the University of Cambridge is not mandatory.

The filled application form along with related documents may be submitted online or directly to Dr. B. H. Nagoor, Coordinator, Dr. D. C. Pavate Foundation, Vidya Soudha Building, First Floor Karnatak University, Dharwad, Karnataka-580003. (Mobile – 09448112166, E-mail: **nagoor_bh@yahoo.co.in)**. For more details, kindly visit **http://www.pavatefoundation.org/**

Sd/-
Registrar

SHIKSHAN VIKAS MANDAL'S

SHRI S. K. PANTWALAWALKAR ADHYAPAK MAHAVIDYALAYA

DEVGAD, DIST. SINDHUDURG, PIN – 416 613

APPLICATIONS ARE INVITED FOR THE FOLLOWING POSTS
FROM THE ACADEMIC YEAR : **2021-2022**

UNAIDED

Sr. No.	Cadre	Subject	Total No. of Posts	Category
1.	Principal	--	01	01-OPEN
2.	Librarian	--	01	01-OPEN

The above post are open to all, however, candidates from any category can apply for the post.

Reservation for women will be as per University Circular No. BCC/16/74/1998 dated 10th March, 1988. 4% reservation shall be for the persons with disability as per University Circular No. Special Cell/ICC/2019-20/05 dated 05th July, 2019.

Candidates having knowledge of Marathi will be preferred.

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

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

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

Applications with full details should reach **The Secretary, Shikshan Vikas Mandsl's, Devgad, Tal. Devgad, Dist. Sindhudurg, Pin-416613 within 15 days** from the date of publication of this advertisement. **This is University approved advertisement.**

Sd/-
SECRETARY

Konkan Education Society's

Laxmi-Shalini Ars, Commerce & Science Women's College

Pezari, Tal. Alibag, Dist. Raigad - 402 201

Email : kesalibag@gmail.com; Website : www.kesalibag.edu.in

APPLICATION ARE INVITED FOR THE POST OF

PRINCIPAL

FROM THE ACADEMIC YEAR 2021-22

AIDED

The advertisement is approved subject to the final decision in the Writ Petition No. 12051/2015.

The above post is open to all, however, candidates from any category can apply for the post.

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

Candidates having knowledge of Marathi will be preferred.

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

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

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

Application with full details should reach the **PRESIDENT, Konkan Education Soceity's, Tal. Alibag, Dist. Raigad - 402 201 within 15 days** from the date of publication of this advertisement. **This is University approved advertisement.**

Sd/-
PRESIDENT
Konkan Education Society
Alibag, Raigad

AIU Invites Proposals for Collaboration for organizing *ANVESHAN- National Student Research Conventions (2021-22)*

Corrigendum

In supersession to the earlier notification inviting proposals for **Anveshan:** Research Conventions published in the University News Issue dated October 04-10, 2021 and uploaded on AIU website of Association of Indian Universities, it is to inform that because of the uncertainty prevailing over due to the lasting impact of COVID-19 it is not feasible to organise the convention in the physical/convention mode. Hence, the Association of Indian Universities has decided to organize **only one National Research Convention** in lieu of the Zonal Conventions. The National Research Convention will be organized in **virtual/online mode**. A brief Background of the **Anveshan: National Research Convention** is as follows:

Anveshan*-Student Research Convention** is organized every year to identify and nurture the young talents and budding researchers in the Indian Universities. In these Conventions, Innovative Research Projects are invited from the students (Undergraduate to Ph. D level), and assessed by a group of experts of the field on a well laid criteria. The best Research Projects are conferred with certificates and awards. The Projects are invited from the disciplines of ***Basic Sciences and Applied Sciences, Engineering and Technology, Agriculture and allied fields, Health Sciences and allied fields, Social Sciences; Humanities; Commerce; Business Management; and Law. In the current Financial Year only the **National Student Research Convention will be organized**. The duration of convention is of **two days**. The detailed guidelines for organizing the Convention will be communicated after the proposals are received, scrutinized and final selection is done.

Therefore, fresh proposals are invited from member universities of AIU for collaboration and organization of the **Anveshan: National Student Research Convention to be submitted to AIU latest by November 30, 2021**. Interested Member universities/institutions may send their Expression of Interest (EoI) along with proposal duly endorsed by the Head of the Institutions to the following address:

Dr Amarendra Pani, Joint Director &Head, Research Division, Association of Indian Universities, AIU House, 16/ Comd. Indrajit Gupta Marg, New Delhi–110 002, E-mail**:** ***researchaiu@gmail.com***

The scheduling of the Event will be finalized on mutually convenient dates and terms and conditions laid down by AIU. For any further query please contact on: 011-23230059, Extn-202/209, **E-mail:** ***researchaiu@gmail.com***. The details can also be downloaded from AIU Website: ***www.aiu.ac.in***

N.B.: AIU is not a Funding Organization. All these events are AIU activities for which Collaboration from member institutions are solicited. Primarily, the event will be conducted under the banner of AIU. The details of terms and conditions will be communicated on selection of the Proposal.

Proposal must be sent to AIU with the Approval /Endorsement of Vice Chancellor/Head of the Institution.

Announcement

The **Special Number of the University News** on **'Realising Sustainable Development Goals through Higher Education Institutions'** is being brought out on various themes. The **Special Issue** will cover articles of eminent educationists and policy makers. Readers of the University News are also invited to contribute to the Special Number by submitting papers/articles on above theme by **November 30, 2021**. The papers will be published in the Issue subject to the approval of the Editorial Committee of the University News. The Issue shall contain papers on Sustainable Development Goals on the following Subthemes:

A. ***Implementation of SDGs in India: Status, Scope and Future Action.***

B. ***Strategies and Approaches in Teaching-Learning to Realize SDGs.***

C. ***Realising SDGs through Research and Innovation: Strategies and Approaches.***

D. ***Engagement of Universities with Society to Realise SDGs.***

E. ***Creating Policies and Roadmap for Realizing SDGS through Indian Higher Education.***

F. ***Individual Article on each of the 17 SDGs.***

Guidelines for Contributors

Articles submitted for the Journal should be original contributions and should not be under consideration for any other publication at the same time. A declaration is to be made by the author in the covering letter that the paper is original and has not been published or submitted for publication elsewhere.

Manuscripts including tables, figures and references should be around 3000-4000 words for articles, 2000 – 5000 words for Convocation Addresses, 1000 words for Book Reviews and 600 words for Communications. All the manuscripts should typed in double-space with 12 point font and ample margin on all sides on A 4 size paper.

The cover page should contain the title of the paper, author's name, designation, official address, address for correspondence, contact numbers and e-mail address.

The main text should not contain footnotes. References should be given at the end of the manuscript and should contain only those cited in the text of the manuscript. The full reference should be listed at the end in alphabetical order running the following style:

Books

- Miles, M., and Huberman, M., (1994). *Qualitative Data Analysis*. London: Sage.

Articles

- Over, R.(1982). Does research productivity decline with age? *Higher Education* 11: 511-20.

Chapter in a Book

- Rendel, M. (1986). How many women academics 1912-1977? In R. Deem(ed.), *Schooling for Women's Work*. London: Routledge.

Authors may send their articles addressing to the Editor through e-mail: **ramapani.universitynews@gmail.com / rama.pani2013@gmail.com with a copy to universitynews@aiu.ac.in**.

Authors are responsible for any copyright clearance, factual inaccuracies and opinion expressed in their paper.

The final decision on the acceptance or otherwise of the article rests with the Editorial Committee and it depends entirely on its standard and relevance. The article accepted may be modified to meet the journal's standards of contents, presentation and style. Authors may also be requested to revise their manuscripts before they can be accepted for publication. Correspondence in this regard will be done with the first named author unless otherwise indicated.

The Editor is free to make editorial corrections in the content as well as title of the article and change the title in accordance with the content of the article as well as the overall theme of the Issue.

Maximum time taken for processing the article is six months. Contributors are free to send the material to any other publication after a period of six months from the date of their submitting the article to the University News, if they do not receive any intimation from AIU.

Author will receive two complementary copies of the Journal immediately after its publication.

AIU may re-use the articles published in the University News for its various other publications including University News.

AIU may extend courtesy to other journals or websites to use the articles published in the University News if due credit is given to the author(s) of the article(s) and the University News.

Manuscripts be sent to: The Editor, University News, Association of Indian Universities, AIU House, 16 Comrade Indrajit Gupta Marg (Kotla Marg), New Delhi-110 002. E-mail: *ramapani.universitynews@gmail.com / universitynews@aiu.ac.in* on or before **November 30, 2021.**

Editor, University News

Announcement

Edited Volume

on

'75 Years of Higher Education in Independent India'

An Edited Volume is being brought out on the theme **'75 Years of Higher Education in Independent India'** to commemorate ***75 Years of Indian Independent, Azadi Ka Amrit Mahotsav*****.** The Volume will cover articles of eminent educationists and policy makers. Readers of the University News are also invited to contribute to the Edited Volume by scholarly papers on the above theme, and below sub theme by **December 15, 2021**. The Volume shall contain papers on the following Subthemes:

i. *Significant Landmarks in Higher Education in Independent India.*

ii. *Higher Education Policies and their Impact.*

iii. *Democracy, Plurality, Equality and Universality of Indian Higher Education.*

iv. *Rise of Research, Innovation and Entrepreneurship in Independent India.*

v. *Student dynamics in Indian Higher Education.*

vi. *Impact of Indian Higher Education on Community.*

vii. *Functional Dimensions of Indian Higher Education: Governance, Leadership, Financing.*

viii. *Professional Education in India.*

ix. *Islands of Excellence in Indian Higher Education.*

x. *Higher Education in India: Roadmap for 75 years Ahead.*

The papers will be published in the volume subject to fulfillment of AIU Norms for publication as given in AIU Website and on the approval of the Editorial Committee. Manuscripts may be emailed to the Editor, University News, Association of Indian Universities, AIU House, 16 Comrade Indrajit Gupta Marg (Kotla Marg), New Delhi-110 002. E-mail: *ramapani.universitynews@gmail.com*/*universitynews@aiu.ac.in*/*rama.pani2013@gmail.com*, Phone: 011-23235009 (6 lines), Fax: 011– 23232131 on or before ***December 15, 2021***.

EDUCATIONAL TECHNOLOGY AND MANAGEMENT ACADEMY **and** **ASSOCIATION OF INDIAN UNIVERSITIES**

Present

International Conference on Hybrid, Blended and E-Learning

3-4-5 December 2021

Association of Indian Universities (AIU) and Educational Technology and Management Academy (ETMA) are jointly organizing an Online International Conference on 'Technology Integrated Learning Focusing on Hybrid, Blended and E-Learning' during December 03-05, 2021.

The primary objective of the Conference is to create a forum for practitioners to meet the global leaders in technology-integrated education. To meet this objective, the Conference will be bringing together some of the finest experts on technology integrated education from all over the world and India at a common platform. The Conference will have four keynote sessions, two panel discussions, ten paper presentation sessions and eight workshops.

Patrons of the Conference are: Col. Dr G. Thiruvasagam, President AIU and Vice Chancellor, AMET University, Chennai; Prof Marmar Mukhopadhyay, Former Professor, NIEPA and President, ETMA; and Dr Pankaj Mittal, Secretary General, Association of Indian Universities, New Delhi.

Invited Keynote Speakers of the Conference are *Prof. Stephen Petrina*, Professor, Department of Curriculum and Pedagogy, University of British Columbia, Vancouver; *Prof. V. Chinapah,* Emeritus, Department of Education, Stockholm University, Stockholm; formerly at UNESCO Headquarters in Paris-France for 16 years; *Dr N. M. Ostashewski,* Associate Professor, Athabasca University Distance Education Program, Alberta, Canada; *Dr Libing Wang,* Chief of Educational Innovations and Skills Development and Senior Programme Specialist in Higher Education at UNESCO, Bangkok.

The Sessions will be chaired by *Dr. Pankaj Mittal,* Secretary General, Association of Indian Universities, Former Vice Chancellor, BPS Women University, Government of Haryana; *Prof Tony Bates,* Distinguished Visiting Professor, Chang School of Continuing Education, Ryerson University; *Prof Matiul Alam,* Professor of the Education, University of British Columbia, and CEO of World Education, Vancouver, Canada; *Dr Sanjaya Mishra,* Education Specialist, e-Learning, Commonwealth of Learning, Vancouver.

There will be two panel discussions – one each on ***Technology-enabled Learning Assessment and Examination Management; and Innovations*** **and** ***Research on Technology Enabled Learning*** on 5th December, 2021.

Expert panelists invited for the Session on 'Technology-Enabled Learning Assessment and Examination Management' are Dr *Vineet Joshi,* Additional Secretary, Ministry of Education, Government of India and Chairman, National Testing Agency, India; *Mr Anshul Sonak,* India Global Director, Digital Readiness Programs and Senior Director for Global AI Readiness at Intel Corporation, Singapore; *Dr Manish Gupta,* Director of Google Research India & Infosys Foundation, Chair Professor at IIIT.

Expert panelists invited for the session on 'Innovation and Research on Technology-Integrated Education' include *Dr Som Naidu*, Principal Fellow of the Higher Education Academy (PFHEA); Executive Editor, Distance Education Journal (Australia's ODLA), Former Pro-Vice Chancellor, The University of South Pacific, Fiji; *Dr Indira Koneru*, Associate Dean and Head, e-Learning Department, ICFAI Business School and Founding Director, Koneru Bhaskara Rao and Hemalata Human Development Foundation; *Prof Amarendra Behera;* Joint Director, Central Institute of Educational Technology (CIET), National Council of Educational Research and Training, New Delhi.

There will be 8 parallel workshops on the themes: Learning 321 Going forward to Normal: Education in a Different World Design Thinking Repurposing OER for Blended Learning; Virtual Reality in Education; Open Education Resources; Advanced Educational Research Methods; AI and Machine Learning. Workshops are free for all the participants. Workshops will be run parallel, participants can choose one theme, and must register in advance.

Call for Paper Presentation and Participation: The Conference invites participation and presentation of case studies, thematic and research papers on ***Technology-integrated Education, Hybrid Learning, Blended Learning, Online Education and e-Learning***.

A nominal Registration Fee of Rs.1000/- need to be paid for registration through the link *https://docs.google.com/forms/d/e/1FAIpQLSffPXeR10iGh_T83pSh0JivJvmC0kBTUIxPw7ZqChTCSUM9Q/viewform*.

For updated information, please visit: *www.aiu.ac.in* **or** *www.etma-india.in.*

For further information contact, Principal, Amitava Ghosh, Conference Secretary at a*mitavaghosh2k1@gmail.com* or Sri Chandan Sarkhel at *etma.india@gmail.com*.

or

Dr S Rama Devi Pani, Editor, University News, Association of Indian Universities, New Delhi at *ramapani.universitynews@gmail.com* or Mobile No: 09582573719

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