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Promoting Quality Culture in Colleges of Higher Education: Role of Institutional System and Leadership

M R Kurup*

India is the third largest higher education system in the world today. According to list provided by UGC, there are 1019 universities in India as on 22nd November 2021. This includes Central universities, State universities, recognized national institutions like IITs, IIMs, IISc etc besides nearly 400 Private Universities, some of them set up by Corporate Leaders like Shiv Nadar, Azim Premji, Ambani, among others. However, majority of students are in Colleges numbering over 45,000 spread across the country. These institutions together account for over 20 million enrolments of students, almost equally divided between male and female. As many as 4 million students are enrolled in Indira Gandhi National Open University (IGNOU) and if we take into account the 13 State Open Universities and a large number of Intuitions of Distance and Open Learning (IDOL) of major universities, almost 7 to 8 million students, almost 35 to 40 percent of gross enrolment in India, could be in the Open Learning System.

It is equally important to note that out 1019 universities, only 381 (37%) are under Section 12(B) of UGC Act, eligible for receiving government grand in aid. It implies that 63% of universities do not receive any Central or State Government grant. The situation is almost the same in case of colleges as well. Not even 40% of colleges are listed under section 12(B). The governments have failed to allocate even 6 percent of GDP for education in India.

Despite being the third largest in system the world, the present Gross Enrolment Ratio in higher education in India is a mere 27%, against over 90 percent in UK and 86 percent in USA. Students are constrained to take admission despite wide variety of subsidies offered to students, besides reservation of seats for socially and economically weaker sections of the society. Reservation of seats varies from State to State. If it is 50 percent in some States, it goes to 70 percent in some other State. Young people prefer to enter the labour market to support their families, rather than enroll for higher education. Another reason could be the perceived deficiency in quality and relevance of the higher education system. The educated find it difficult to link their education to career opportunities. An indicator is the very high unemployment among the educated. The focus should be more on Quality than Quantity. If the quality and relevance of education offered by the institution is good, even those who plan to go abroad for higher studies will also come forward to seek admission in India.

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Power of Quality Education

According to Audrey Hepburn, "Quality education has the power to transform societies in a single generation, provide children with the protection they need from the hazards of poverty, labor exploitation and disease, and give them the knowledge, skills, and confidence to reach their *full potential*".

Expenditure on quality of education is an investment that will accelerate socio-economic growth and development. In this knowledge society, University and College have emerged as a powerful **engine** of socio-economic transformation. Colleges and universities are no more mere coaching institutions for obtaining an academic Degree or Diploma. The government at the centre and states should realize the crucial importance of higher education as a tool of creation of employment and eradication of poverty.

Quality – A Habit, A Culture

According to William Foster, "Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction and skillful execution". Institutions should set clear target to achieve quality, work for it on a mission mode and execute the policy into practice. It cannot be an isolated effort, but spread across the spectrum of the institution, involving every one of the stakeholders. Quality has to emerge as the first choice, a habit, the culture. (Aristotle).

Sustaining Quality is a process of institution building, and is more difficult than creating; it requires a high degree of continuous commitment, quality management skills and a proactive leadership with dedicated and *empowered* Internal Quality Assurance Team. In short, institutional quality is the collective responsibility of the internal stakeholders – management, faculty and staff and the students.

According to William Deming, 'Quality is defined as a predictable degree of uniformity and dependability at low cost … and Quality Culture refers to an organizational culture that intends to enhance quality permanently'. Quality culture is a set of institutional values that guide how improvements are made to everyday working practices and consequent outputs. It is a Brand Equity. 'Academic quality is a way of describing how well the learning opportunities available to students help them to achieve their ultimate GOALS'.

The Problems

Attempts have been made to study and recommend policy for improving quality of education since independence. It began with Radhakrishnan Commission in 1948, followed by Kothari Commission (1966), Ramamurthy Commission and the first National Education Policy of 1986. We have new NEP of 2020 under implementation. Despite widespread intellectual and bureaucratic debates and discussions, the quality remains where it was in 1948. We do not have dearth of Policy Statements, but a critical short coming is a commonly agreed WILL to implement.

There are a number of problems that come in the way of full implementation of the 1986 policy as well as the present. First, higher education is in the concurrent list, which implies that the concurrence of the States is needed for implementation at State level. This is lacking at present, largely due to political mistrust and deficiency of financial allocation required for implementation of the policy.

According to researchers, 'poor infrastructure, poor curriculum, memory based examinations, inadequate and ill-equipped faculty, outdated teaching-learning methods, deficiency of funds, inconsistent government policies and bureaucratic implementation of government decisions, pro-profit governance, politicization of education and growing privatization are some of the challenges in higher education. We have identified some of the issues and drawn an institutional roadmap, based on our experience of last fifty years. NEP should not remain on the library shelves of MHRD or UGC but see the light of the day by implementing them willingly (not by force) fully across the country. Our focus is on the colleges, which account for nearly 80 percent of formal enrolment.

The College

Majority of the students in the formal system of higher education are in the colleges. More than 95 percent of colleges in India are affiliated to State universities. Even autonomous colleges continue to be affiliated to universities, as autonomy is largely academic and not financial or administrative. These colleges are largely owned by Private Management. A good number are managed by University (constituent) and Government. Quality initiatives have to start at the grass root college level. 'A great College/ University is one that makes a distinctive and qualitative impact and delivers superior performance over a long period of time'

Quality Culture – A Road Map

An attempt is made here to discuss a select list of initiatives for promoting quality culture in colleges, which account for large majority of students enrolled in the country. Every college should set up a Quality Assurance System (QAS) spearheaded by a Dean or Director of Quality to provide leadership and accountability. A committee can be formed as recommended by NAAC, named Internal Quality Assurance Cell (IQAC). NAAC has listed the composition of members and provided Guidelines for its functioning. Each college can make suitable changes depending on institutional situation. In a knowledge-driven society, the focus of college and university will have to be on Quality and Relevance, and IQAC must emerge as the mechanism to nurture quality culture in institutional performance. IQAC may prepare an action plan on a priority basis, based on the state of quality standard of the institution.

Vision – Mission Statement

College is an Institution set up by a Management (Private, University or Government) with Vision – Mission, Goals and Objectives, to provide opportunities for higher education in the true sense of the term and for Certification of a recognized Degree or Diploma to the Learner. Vision is the big picture of the institution, WHAT it wants to achieve, say, in 20 or 25 years and Mission is a statement HOW it wants to achieve the said Vision. It is important for the institution to revisit the Vision/Mission periodically in view of the changing dynamics of higher education in the country and world. Vision-Mission should be clearly institution contextualized as institutional situations may differ from one another. It should never a vague statement like: "From Darkness to Light", etc.

Quality Goal and Policy

IQAC should do a realistic institutional self-analysis of SWOC. This is not meant for any outside agency like NAAC or UGC. It is meant to critically identify the Strength, Weakness, Opportunities and Challenges, for taking internal steps to strengthen the strength and weaken the weaknesses. In this way, we may be able to identify opportunities and challenges in a realistic manner. The SWOC analysis will open up the path of future development and growth of the institution.

Once the growth path is identified, it is important to make an unambiguous statement of Institutional Quality Policy – what, how and when to achieve. This may be communicated down the line. The Policy may cover the entire range of academic and administrative activities, such as appointment of teachers and staff, admission of students, selection of courses, conduct of academic programs, etc of the college. For instance, Quality policy of VES Arts, Sconce, Commerce College, Mumbai, is listed below:

- Adoption of Innovative teaching methods
- Providing creative enriching learning experiences
- Student centric activities
- Staff development programs
- Having quality control mechanisms in place
- Continuous review of systems and processes to ensure Quality assurance
- Enhancing Quality consciousness amongst staff and students
- Creating a culture of total quality as a way of life.

IQAC can create a monitoring and control mechanism in consultation with Management and Institutional Leadership to ensure that the policy is effectively implemented.

Set Up Data and Documentation Bank

The Quality Policy needs to be implanted. Any implementation plan to inculcate quality culture requires institutional data and documentation. IQAC may set up a Central Documentation & Information Depository System to gather activity data on a weekly or fortnightly basis from decentralized departments and activity groups. It can also create a Management Information System (MIS) to ensure timely diffusion of information to all stakeholders. Structured data will also help IQAC to prepare Annual Quality Assurance Report (AQAR) for submission to Governing Body, University, Government and NAAC.

Academic-Administrative Calendar and Deadlines

It is important to be systematic in the daily, weekly, monthly activities of each Semester or Year. This calls forth preparation of Semester or Annual Calendar, giving details of ALL activities in advance. It may be in the form of a booklet or handbook and for wider information and transparency; the same could be uploaded on the college website. This will make access of institutional activities to parents and other stakeholders.

There are date-specific submissions and responses to be made to different authorities like University, UGC, Govt, NAAC etc. This may include last date for admission, enrolment of students, submission of exam forms, submission of affiliation of forms, forms for confirmation of migration from one university to another, etc. There will be serious consequences if the submissions are delayed. Ensure that such submissions are always made without waiting for the last date. This too can be part of the Academic – Administrative Calendar, and the person concerned for submission is made accountable.

Curriculum Enrichment

In affiliating system, colleges only implement the common curriculum designed by the university. But Vision-Mission statements and the standard attained by the colleges may differ from one another. While colleges at the bottom of the quality ladder might find the common curriculum acceptable, some of the good colleges might find the common curriculum too poor and outdated. The gaps in Curriculum vis-à-vis institutional vision/ mission, and the knowledge explosion/ obsolescence may be pronounced. According to Buckminster Fuller (Knowledge Doubling Curve), while it took 100 years for knowledge to double till 1900, the span was reduced to 25 years by the end of 2nd World Ward. Currently, it is reported to take only 13 months for human knowledge to double. In this context, IQAC should take initiative to fill the vacuum to promote comprehensive intellectual, emotional, and physical development by causing introduction of Diploma, Certificate, and add on programs, keeping in view of students' aspirations and industry expectations. Some of the Courses could be introduced under Vocational and Skill Development Program of State/Central Government. Curriculum designed by the university or autonomous colleges should specify clearly the expected outcome. Colleges and universities should notify the expected Programs Outcomes, Program Specific Outcomes and Course / Learning Outcomes and monitor the attainment.

Building Teacher Profile and Enrichment

It is important to note that NAAC has assigned 35 to 40 percent of weightage for institutional accreditation to Teaching-Learning-Evaluation. This brings out the importance of the role of teachers in developing quality culture.

Quality education depends on quality and competency of teachers. It is the teachers who make institution great or poor. This should be kept in mind while recruiting faculty. Ensure that teachers prepare Teaching Plan for every topic to be taught. Identify and define relevant activity to bring out the expected learning outcome of the lesson.

Use of active teaching models such as direct instruction, cooperative learning, inquiry based learning, problem based learning, skill based learning, project-based learning, resource-based learning, seminar etc to bring out the learning outcome. Also use AV/ICT/Digital tools for teaching, learning and evaluation, feedback and self-introspection at the end of the lesson. Micro-teaching techniques for developing and evaluating teaching skills should be made use of.

Each teacher should develop learning materials, teaching aids/ tools and e-resources. Leadership may motivate teachers to continuously upgrade knowledge and skills to be abreast with the explosion and obsolesces of knowledge

It is the primary responsibility of every teacher and the IQAC to prepare an enrichment plan to cover teachers on a priority basis. Through national and international exposure, inculcate a culture of objectivity, research, publication, innovation and creativity, professionalism and teamwork skills among teachers.

According to John Steinbeck, 'Great teacher is a great artist....Teaching might even be the greatest of the arts since the medium is the human mind and spirit'. Every teacher should realize that when teaching is a profession, the teacher should emerge as a Professional. A Professional is one who possesses valued expertise and adheres to standards of practice (UGC Code of Conduct) designed to benefit the recipients of the service. The teacher professional has the ability to facilitate holistic learning.

Promote Active Learning

According to John Warren, "The teacher's task is to initiate the learning process and then get out of the way". One can take the horse to water, but cannot make the horse drink water. Therefore, make the students responsible for their learning, by progressively discontinuing the teacher centric Lecture method. As per the Learning Pyramid, students only retain just 5 percent of the lecture, whereas if the student is engaged in Practical, he retains 75 percent of what is learnt. The best way of learning is to make student engage in Peer

Teaching, which makes him learn twice and retain almost 90 of what is learnt. Thus the most effective learning takes place with the use of ICT driven Learning Management Systems (LMS) and student-centric involved learning methods. Each Department should prepare a list of appropriate Active Learning Methods with credit points to be communicated to the students (as part of Internal Assignment and Evaluation).

Evaluation Reforms

To ensure quality, innovation in teaching-learning should be accompanied by evaluation reforms. The present system of evaluation mostly tests rote learning. If acquiring *'knowledge- understanding, skills, values and attitude'* are the expected learning outcomes (graduate attributes), the evaluation should involve testing of each of these outcomes. This is best done under Choice Based Credit System (CBCS). The Exam Committee should prepare a comprehensive Exam Calendar and ensure effective management. One of the best way to do is to introduce robust and technology driven continuous internal evaluation, made up of written, spoken, practical, internship, journals, viva-voce components at institutional level.

The greatest problem facing Evaluation, including Internal Evaluation, is lack of transparency and accountability. Students appear to prefer external unknown examiners than their own teachers due to trust deficiency. They fear bias on the part of their own teachers, though it is well said that the best person to assess the competency of the student is one who teaches him. The students who go abroad for higher education trust their own teachers, but in India, they don't. This is largely due to lack of professionalism among our teachers.

It is equally important to set up exam related grievances redressal and follow up machinery within the college to address issues arising out of deficiency in the conduct of examinations.

Research and Beyond

The National Education Policy of 1986 as well as the NEP—2020 and NAAC-NBA Accreditation process have given a lot of focus on Research and Development at institutional level. This requires investment on suitable infrastructure for promoting research.

Colleges should motivate good researchers in taking up Minor and Major Research Projects along with Collaboration and Consultancy, as Professionals. Research outcomes – process and product - could be brought under IPR protection through Patenting. This is an important source of resource for the teacher, department and the institution.

Make Publication in UGC recognized refereed Journals with good citation and high impact factor, a habit. Set target of at least one publication per Semester.

Organizing Seminars - Conferences at National and International level in the college should become a routine practice. Equally important is to motivate teachers to attend such seminars at national-international levels and make presentations or chair sessions. This will take the teacher and the college to national – international academic community and industry. College can bring out publication of Research Journal with ISBN recognition.

Once a teacher is known for his research, industry will come forward for collaboration and consultancy in the field of specialization. Even the governments may invite such teachers with collaboration and consultancy in diverse field. This is another source of revenue for a resource-starved institution.

Enrich Library and ICT Facilities

With greater focus on e-learning, colleges have to upgrade learning resources. Need to enrich library with e-books and e-journals, and digitization of important books. Library should have open as well as remote access. Students and teachers will be able to access the library resources sitting anywhere in the world.

Library should widen its scope by networking with State and National Knowledge Grid and reputed public Libraries like British Council, USIS, and Asiatic Library etc. This will help the teachers and students to go beyond the local learning resources.

For needy students, who may find it difficult to buy text and reference books, library should come out with a Book Bank system.

Since learning resources are available on the I-Pad and Mobile phones, foot prints in the library may be adversely affected. To monitor the use, library may have to arrange user log book FOR both off and online visit. Awards could be instituted for highest foot prints.

Online teaching-learning and evaluation calls forth dynamic Web-ICT, Multimedia and Virtual classroom

facilities. There is need for Language Lab, Business Lab, and Wi-Fi with high bandwidth. Colleges could explore the possibility of setting up a dedicated Intra-net facility as a student portal. Teaching-learning contents could be uploaded on this portal particularly for those who have missed the online class.

Online learning may come in the way of socially and economically disadvantaged students, living in remote places and who have difficulty in acquiring e-resources like Mobile, I-Pad or Television. Arrangements will have to be made to provide such e-resources at nearby community places. Financial support for such arrangements may be made through industry, philanthrophers and alumnus of the institution.

Make institutional Website dynamic and interactive. This can help the college to shift to paper-less administration. There should be provision for collecting feedback from the students to evaluate the quality and suitability of institutional and teacher performance.

Set Up Student Support Services

Higher education institutions are meant to serve the students. Admission is based on Merit cum Reservation policy of the government. There will be students with diverse learning abilities. This will require the institutions to adopt diverse methods of teaching-learning. Mentoring, Counseling and Remedial programs will be required to address the slow learners and those with stress.

The brilliant and socio-economically poor students need to be motivated with scholarship and free-ships. Apart from scholarship offered by the government, institutions can set up endowments to offer financial supports for needy and deserving students. There could be students seeking admission only because of scholarship and freeship. Some institutions are found offering part time work to students under 'Earn and Learn' System. Apart from financial support, this scheme provides work experience to the students.

Education is meant for all-round development of students. Provision for Sports, Games and Cultural development may have to be provided. This requires suitable and adequate provisions for infrastructure and trainers. Institutions may have to provide special infrastructural facilities for differently abled students.

There are competitive examinations conducted by employers, including government and public sector enterprises. Colleges can organize in-house training programs for such competitions either free or on nominal fees. During the course of graduation, these additional programs will help the students' development and self confidence. Even UGC is offering financial support for organizing training for competitive exams conducted by UPSC.

There are students facing socioeconomic and well as stress issues, including discrimination. This will adversely affect their studies and life. It is therefore important for every institution to set up a Grievances Redressal Mechanism.

With college and university becoming an engine of socio-economic growth and development, it is important for colleges to offer facilities for augmenting growth. First, there should be arrangements for effective career guidance and on-campus placement. Career guidance should be provided after conducting aptitude test to identify suitability for different careers. This will require experts who have practical experience. In most colleges career guidance is a ritual, conducted by traditional teachers who have no related work experience. Such guidance should be organized not just as lecture, but as workshops. Former students who have attained good positions in different organizations could be invited to share their experience of how they have reached their positions. This will motivate the students to prepare for their careers.

Similarly, every college should have a Placement Bureau. Prospective employers should be contacted and provided with information on skill sets of the graduating students. The services of Alumnus could be marshaled here. A lot former students of the college may be employed in different industries. They could be used to persuade the HR Departments of their industry to visit the college for campus interview. If a college is able to provide good on-campus placement, it might attract good students to seek admission in such institutions.

An important emerging area is to motivate the students with 'Entrepreneurship Development, Innovation, Incubation, and Startup' support. The students with such potential could be identified during the second year of graduation. Related information may be made available in the Library for interested students. Once their aptitude is tested, programs related to EDP, Incubation and Startup could be organized. Case studies of success startup could be made available in such workshop and successful entrepreneurs including alumnus could be invited to share their experience.

It is not that all students will seek employment immediately after graduation. Some of them might seek post-graduation programs. Colleges should have system to offer information for higher studies in different disciplines in the country and abroad. This can be uploaded on the college website.

It is time for higher education institutions to harness the potential of their past students. It can start with forming a registered Alumni Association. Those who have achieved good positions can be invited to share their managerial and work-skills, as members of different bodies of the college. They can share experience with students as motivational speakers. Alumni who are financially sound could be donors for institutional and students development and welfare activities.

Corpus Fund

Quality education is expensive and sustenance of quality demands perennial source of funds. There are two types of institutions in the country. First, those which receive government fund either directly (government colleges) or as subsidy in the form of grand-in-aid. Second type is self financing institutions. In case of self financing institutions, fees are fixed by a competent authority based on the average cost of education in the institution. Hence, fees may vary from institution to institution. That is not the case with government or colleges receiving grand in aid. Fees of these institutions are fixed by the university taking into account the subsidy given by the government. All such institutions will have a standard common fee structure. It will not vary from institution to institution, though institutional expenditure may vary. Such institutions might face inadequacy and delays in receipt of government fund, which might cause curtailment of the range of activities. Individual initiatives at the college level, beyond what is approved by the government, to improve quality of education may not be covered under the grand in aid framework.

Financial adequacy and self-sufficiency is essential to overcome constraints imposed by the system. Institutions will have to create internal resources to overcome scarcity of government grant and for promoting quality initiatives, flexibility, empowerment and financial incentives to scale up innovation, research, IPR and infra upgradation. This could be met through additional charges or sponsorship from different stakeholders to partly cover quality initiative. Ensure that such efforts will not come under the purview of Capitation Fees Act. Alumni and Parents Associations can help mobilize resources. Collaboration with industry for research and consultancy and utilizing Corporate Social Responsibility (CSR) fund of industry is another important avenue to raise resources. This requires institutional leadership to network with such stakeholders.

Gender Sensitization

A major problem facing higher education in general is gender related issues. It is necessary to set up mechanism to sensitize stakeholders regarding gender issues. Institutions should set up Equal Opportunities Club to be at par with male students and organizing gender awareness programs to overcome inequalities, if any.

Sexual harassment is also reported from many campuses. This needs to be prevented. Institutions may have to setup anti-ragging mechanism as per guidelines provided by apex organizations like UGC. Harassment including ragging of female students in the campus needs to be treated as a criminal offence and action taken accordingly. Failure on the part of authorities would attract punishment.

Another area of opportunity for promoting gender issues is organizing programs relatiang to human and women right issues. This will create awareness among students about their right and responsibilities.

A lot of girl students are found demoralized at home, campus and even at workplace. Personal Counseling by experts is the need of the hour. Equally important is to identify Careers, Skills and Entrepreneurship Development and Grooming specially designed for female students. This can promote even household industry in the country. Colleges can tie up with Khadi and Village Industries Board for developing and marketing such products. The activities listed above will develop self confidence in female students in a big way.

Set Up Structured Feedback System

Building quality culture is a continuous activity. It is important to review the activities to see whether they are effectively carried out to achieve the objectives. This can be achieved by setting a transparent Feed Back system. This is an integral part of participative academic governance. Comprehensive feedback may be collected on the entire gamut of institutional activities, including Curriculum, Teacher Quality and Performance, Learning Resources, Student Support

Services, Governance and Management, to mention a few. The feedback so collected needs to be analyzed for taking appropriate action. To ensure transparency, the report including action taken be uploaded on the college website. This must be made a regular practice.

Feedback from the students and alumni could be used to estimate a *'Student & Alumni Satisfaction Index'.* It would be like a consumer satisfaction index and will speak volume about the quality and excellence of the institution.

Quality Outcome Appraisal

Just as the annual Financial Audit, which is a statutory obligation, colleges may organize performance and quality audit. Dean of Quality or the Coordinator / Director of IQAC should be made accountable for the quality of institutional performance. They should conduct periodic Quality Outcome Audit of institution and individual faculty. Such audit could cover academic and administrative domains of the institution. They can also conduct a Mock Pre-Accreditation Audit to ensure that all parameters expected by the accrediting agencies like NBA and NAAC are fully met.

UGC has now provided for conducting Performance Audit of teachers, particularly for implementing Career Advancement Schemes (CAS). Institutions can set up incentive systems for teachers and staff based on outstanding performance.

Besides Accreditation by national agencies, institutions may invite International Accreditation agencies and ISO for Certification.

Road to Autonomy/Centre of Excellence

No quality initiative in any institution is possible without dynamic Leadership. This need not be a one-person leadership. In the Indian context, it has to be collective – chairman of management, director or principal of college, heads of department, dean quality, chairperson of student council, etc could form the Leadership. Building up such vision-mission driven leadership requires a sense of purpose and effective communication system.

As Michael King said, leadership should have "the ability to engage, inspire, and motivate others towards accomplishing shared visions and goals'. More appropriately, 'Leadership is a process by which a person influences others to accomplish a vision / objective and directs the organization in a way that makes it more cohesive and coherent. Leaders carry out this process by applying their leadership attributes, such as beliefs, values, ethics, character, knowledge and skills'. (Kenneth Boulding).

Such leadership supported by a vibrant and focused team like IQAC can bring Autonomy – self governance – to the affiliating college. Institution will have to follow the UGC Guidelines and relevant provisions in the respective State University Act.

If the college can get Accreditation with a NAAC CGPA 3.51 and above, it can also claim the status of Centre of Excellence from UGC. This will take the college to a higher pedestal and bring a lot of opportunities and funding support for different activities from UGC and different State and Central Government Agencies for further scaling up activities.

Conclusion

The points listed will promote Quality Culture and Brand Equity of the college. This is a difficult challenge but not impossible. Only requirement is to create quality conscious environment in the institution. If all the internal stakeholders work with single minded dedication, Quality is possible.

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Strategic Mentoring Programme for Higher Education Institutions in the Context of National Education Policy—2020

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In the National Education Policy–2020, there was a recomondation regarding the provision of mentoring facilities at Higher Educational Institutions (HEIs) for faculty members and leaders of education (NEP, 2020). This recommendation is very crucial because the policy envisioned reengineering and revamping of higher education in the country. The stakeholders of HEIs (educational leaders, faculty members, technical and ministerial staff, and students) must be prepared to accept, own, implement, and enjoy the fruits of significant change. Mentoring of faculty members and educational leaders has gained importance in recent years in the higher and technical education system of the country because reform-oriented projects and programmes are being implemented at the national level to achieve quality and excellence in education. The authors conceptualized strategic mentoring based on the research review, mentoring experiences, and primary research they are conducting in the context of NEP 2020 for the higher education system. The paper is based on an analysis of content available in the literature and quantitative primary research conducted in the higher and technical institutions. The main purpose of the paper is to introduce the structure of strategic mentoring in the institutions and make the readers appreciate that mentoring programmes need to be professionally designed and implemented strategically in the context of NEP 2020 which envisions reengineering and revamping of higher and technical education. The strategic mentoring programmes at the institute level need to be focussed on the principle of human behaviour change management to achieve the quality education vision and sustain it. The multidimensional, multi-level, multiple, and diverse processes, multiple mentors with a specific purpose, multiple goal-oriented mentoring programme need to be designed at the institute level. The mentoring programme at the institute level needs to be designed in the context of NEP –2020. Therefore, the mentoring model should be implemented in three phases viz unfreezing the conventional education system and processes, changing according to requirements of NEP–2020, and refreezing for sustenance.

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Strategic Mentoring

The authors define strategic mentoring in a broader term as developing the capability, capacity, institutional core competence, commitment, owning of educational leaders, faculty members, staff members, students, and external stakeholders to create favourable culture and climate for innovation and change in order to harness the full potential of individuals, groups, and organization to achieve the goals of the mentoring programme and vision of the institution.

The Strategic Mentoring Programme at Institute Level

The strategic mentoring programme at the institute level focuses on implementing change, innovation, reengineering, adoption of technology, habits, and practices aligned to the vision of the institution. The higher education institutions are already existing and having human resources that are trained and experienced in managing the traditional education system. The human resources need to be strategically mentored for the near and farther future especially in a collaborative manner to accept the challenges, face the uncertainty, take the risk, undertake experimentation, manage with limited resources, mobilize the resources of stakeholders, prevent human obsolescence in a dynamic manner, and keep high collective motivation for the change. The strategic mentoring programme should be based on distinct human nature to learn, think, experience, experiment, criticize, communicate, share, influence, and mutually grow to the highest level of satisfaction. The authors emphase that strategic mentoring programme should not be limited to inductee teachers training, internship, and working under an experienced person for personal and professional development. Higher education institutions are human enterprises and

are not simply a collective sum of individuals, they work as community through teams and groups, so the strategic purpose should not be limited to newly inducted individual development, but it should expand to the collective development of the institution as a whole which produces a synergetic effect, double-loop learning, and which thrives on culture and climate for innovation and change. Higher education institutions are offering noble services to future generations therefore mentoring programme in the context of higher education institutions should be designed and aligned to achieve the missions and vision of the institute or in other words superordinate goals. The strategic mentoring programme at institute level is designed on inputs, to strategic mentoring, strategic mentoring, and outcomes of strategic mentoring. The details are shown in Figure-1.

Mentoring Mix Approaches at Institute Level

The strategic mentoring programme at the institute level is designed using mentoring mix approaches to harness the full potential of the mentoring programme for the institute. The mentoring mix takes care of the strengths and limitations of different types of mentoring approaches. In figure 2 the mentoring mix of approaches is stated which can be optimally used for designing the mentoring programme at the institute level.

Levels of Mentoring

We want to simply stress upon that mentoring should not be restricted to new inductee teachers, but it should be for all the faculty members using individual, small group, and large groups as stated in figure 3. Mentoring should not be limited to training on predefined modules but cross the boundaries of predefined training modules.

All Faculty Mentoring

There will be common areas in which all faculty members will require mentoring like outcome-based education, domain-specific and pedagogical research, publication, vocationalization, use of technology, documentation, accreditation, systems, and processes, rules and regulations, statutory requirements, mentoring students, brand building of the institute, learner-centric teaching-learning, use of information communication technology, educational technology, e-content development, and use, and the like.

Small Group Mentoring

There will be specific areas in which small groups of faculty members will require mentoring like coordinators of entrepreneurship development, curriculum development cell, examination cell, mentoring cell for students, training and placement

Figure 1: Strategic Mentoring Programme at Institute Level

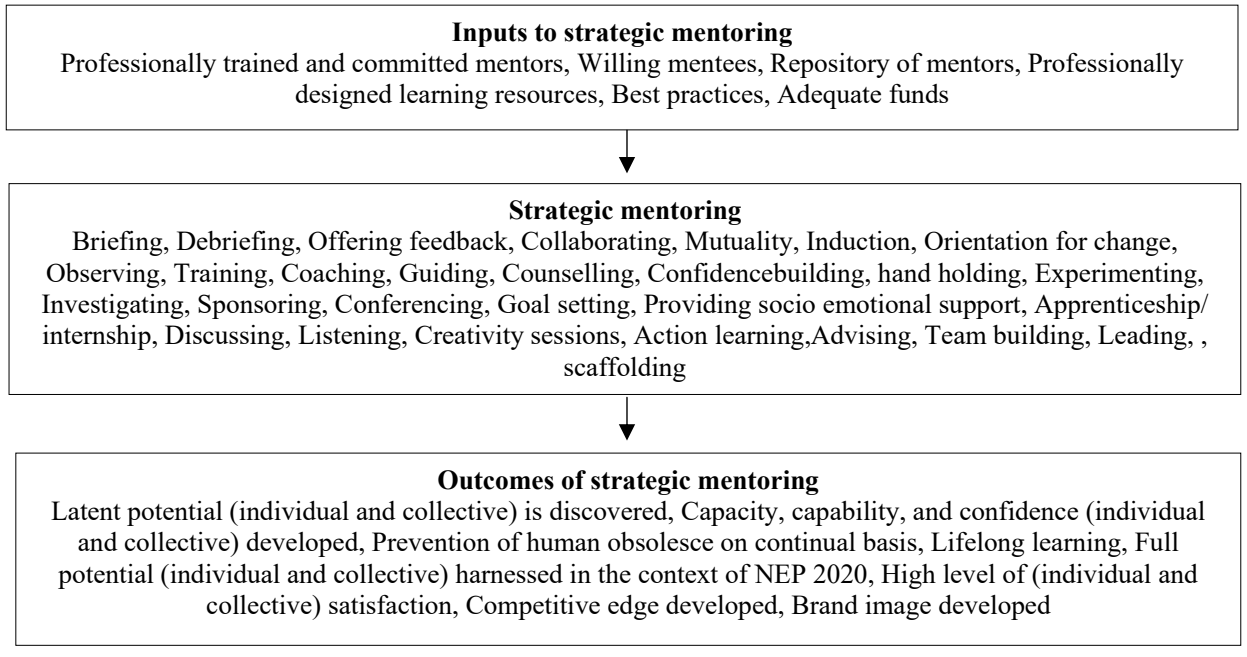
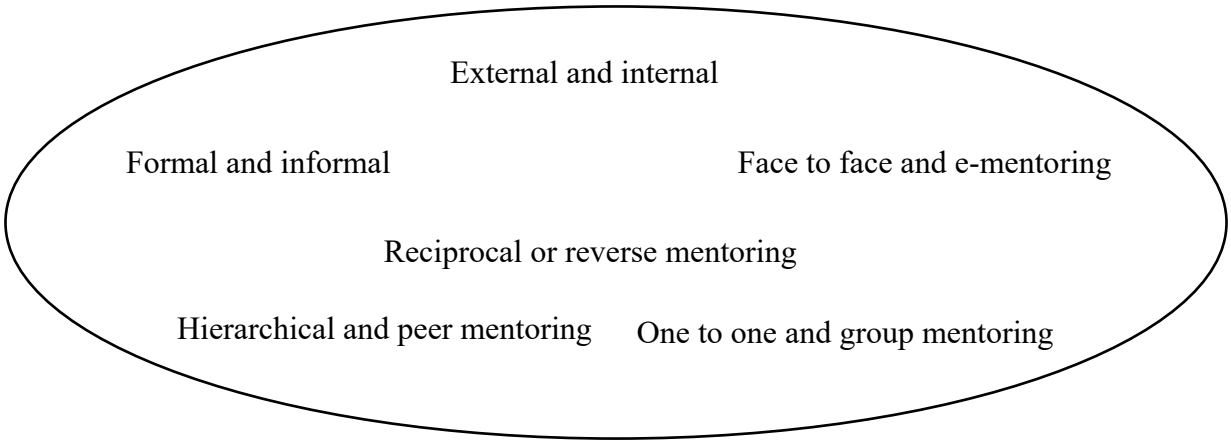


Figure 2: Mentoring Mix Approaches



cell for students, women empowerment cell, autonomy cell, quality assurance cell, and the like.

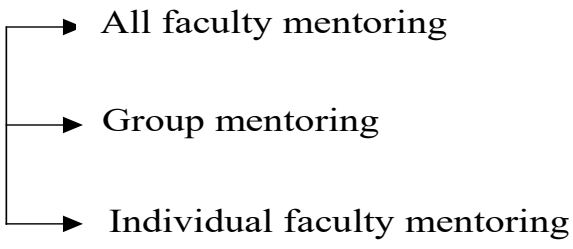
Individual Mentoring

There will be areas where individuals will require mentoring like domain-specific specialization, consultancy projects, preparing self-development plan, exploring latent potential, and using it, and the like. Mentoring should not be based on the premise of seniority and experience, but it should be based on the expertise in the changed context, mentoring abilities, and commitment of potential mentors. Mentoring must result in the transformation of educational institutions in the context of NEP–2020.

The Success of Mentoring Programme at The Institute Level

In the context of NEP–2020, mentoring programme at the institute level will be successful in conditions such as the institute believes in the potential of mentoring, mentoring will facilitate and accelerate the progress of the institute in the direction of achieving the vision, mentoring will create a win-win situation for the mentor, mentee and institute, mentoring will foster culture and climate of mutual learning for individuals, teams, and institution,

Figure 3: Levels of Mentoring



adequate time and resources will be available with mentee and mentor. The success will also depend on the environment in which the mentoring is being conducted viz. positive, constructive, collective, development-oriented, and motivating.

A Paradigm Shift In Mentorship

A paradigm shift in higher education is envisaged in NEP–2020 on all aspects of governance and management of higher education institutions. Many new dimensions have been added about which institutes were not having experience and expertise. The reengineering in the form of multidisciplinary educational programmes, outcome-based curriculum, learner-centric teaching-learning, outcome-based assessment, vocationalization, use of technology and information technology, blended learning, flexible learning, development of life skills and professional ethics, integration of research with the curriculum are envisioned in NEP–2020.

Human resource obsolescence will be created in the future because of the termination of many traditional activities of the institute. To a large extent, human obsolescence may be coupled up with planning strategic human resource management practices. The traditional educational leaders, faculty members, staff members, and students will require intensive training, mentoring, coaching, guidance, and counselling for developing their capability and capacity to implement the provisions of the NEP 2020. In the context of NEP 2020 reform-minded mentoring approaches with a focus on many aspects would be an appropriate approach for higher education institutions (West, Andrew 2016). The mentoring needs to go beyond familiarisation and

socialization of newly inducted faculty members (Stephanie et al, 2018). The mentoring programme at the institute level needs to be designed in the context of NEP–2020 which will create an environment of change, innovation, quality, excellence, adoption, risk-taking, experimenting, learning, and so on. The mentoring in the changed context would be altogether different from conventional mentoring that happens in the organization in general and educational institutions in particular. Even the experienced and senior faculty members may not possess the expertise and experience in the changed context. If such faculty members are appointed as mentors, they will create a high magnitude of resistance to the change and will ensure that change does not happen. Mentoring in a changed context must be aligned to the vision of NEP–2020. Therefore, each institute must design mentoring programme at the institute level which is different than conventional mentoring, and create an environment in the institute for change, growth, development, and quality. A paradigm shift in mentorship in the context of NEP–2020 for higher education institutions is stated in the Table 1.

Current Status of Mentoring in Technical and Higher Education at the National Level

All India Council for Technical Education issued a comprehensive training policy for technical teachers in 2018. The policy is being implemented offering 8 training modules on SWAYAM for teachers having less than five years of experience. These trained teachers will implement the learning in performing their day-to-day activities under the guidance of a senior faculty member called a mentor. The mentors are selected and trained through online orientation programmes to mentor the teachers who have completed these 8 modules on SWAYAM. Similarly, training modules for faculty members having 5-10 years of experience, and 10-15 years of experience, and 20-30 years of experience will be offered in the future (AICTE, 2018). The mentoring envisioned the policy is restricted to teachers having less than 5 years' experience and trained in 8 modules, so the scope is limited and narrow. It does not cover all the teachers of the institution and all the aspects of roles of the teachers in the context of NEP–2020. The availability of mentors is negligible looking at the magnitude of technical institutions in the country.

UGC (2021) issued guidelines on induction and mentorship for teachers of higher education. A comprehensive guideline comprising three phases of mentoring for newly recruited teachers. The document states provisions of NEP 2020 related to mentoring, induction of new entrants, mentorship, supporting the mentorship, implementation strategies, opportunities for lifelong learning, systematic body knowledge, modules for faculty development, and leadership development programmes. It is an excellent document on mentoring of the faculty members with a more focus on training at different levels by different training organizations under different training schemes at the national level. The magnitude of mentoring is huge at the national level which needs to go beyond training to result in the achievement of quality goals in academics, research, and services. UGC (2021) offers training through the faculty induction programme and Dakshta programme through 10 identified modules covering most of the aspects identified in this study. AICTE (2018) offers 8 modules through SWAYAM MOOCs for teachers of technical institutions. Prakash Singh (2013) studied four domains viz preparation and planning, classroom environment, instruction, and professional responsibilities and concluded that mentoring has a high impact on these domains.

AICTE (2020) issued a mentor guideline manual under the national initiative for technical teacher training. This manual is developed for the mentors that are being used to conduct six days duration orientation programmes for the selected mentors in online mode. This online training programme familiarises the mentors in the process of conducting mentoring of newly inducted teachers. The eight modules that are offered to newly inducted teachers are discussed along with their roles and responsibilities. The industrial training of one month is compulsory for inductee teachers, therefore potential mentors are oriented on planning, implementing, and evaluating the learning of the mentee through industrial training. The manual contains many formats, checklists, and rubrics for managing the training and assessing the learning. The assessment of learning is carried out in the form of competencies of each module which is a unique feature of the manual.

UGC (2019) issued *Deeksharambh* - student induction programme guide covering socializing, associating, governing, and experiencing aspects.

UGC (2020) issued good academic practices in which it is stated that the dominant model of learning is apprenticeship where junior scholar learn by working closely with senior researcher.

Table 1: A Paradigm Shift in Mentoring

Sl No.	Criteria	Traditional Mentoring	Strategic Mentoring in the context of NEP–2020
1.	Mentoring system	Situation based	Strategic mentoring programme at institute level
2.	Mentoring goals at the institute level	Vaguely defined or not defined	Well defined in the context of NEP–2020
3.	Communication	Effective communication	Communication with goals
4.	Rapport building	Formal and informal related to traditional roles	High level of trust for accepting challenges and taking the risk
5.	Exploring the self-potential	In the context of the traditional role	In the context of innovative student-centric teaching-learning, relevant research in the domain and system improvement, and effective services
6.	Mentoring goal setting	Personal and professional development goals	Goals aligned to the institutional development plan
7.	Mentoring approach	Traditional for familiarization and socialization One to one or small group	Strategic, Reform oriented In most of the situations whole institute
8.	Mentoring processes	Training followed by internship and performance monitoring under mentor and feedback for improvement	A well-designedstrategic mentoring strategy-mix of many reforms oriented mentoring processes considering the mentoring goals of the institute
9.	Mentors	Generally, a mentor is senior and experienced faculty member	Many mentors with a purpose of reform and not necessarily senior and experienced but expert
10.	Mentees	Inductee teachers	All faculty members especially experienced faculty members
11.	Impact of mentoring	Smooth transition to performing the routine role	Assessed in the form of reforms and achievements with reference to goals planned in the institutional development plan Reform oriented culture and climate in the institute Retention of mentee
12.	Cost-effectiveness of mentoring	Not considered	Is considered
13.	Documentation	No documentation	Anecdotes, case studies, reports, guideline document, research papers, journals, and diaries are maintained

AICTE (2018) issued a student induction programme: a detailed guide covering the purpose and concept of the induction programme, various activities for students, planning, and implementation of activities at the institute level.

The fruits of training and mentoring will be achieved only when the mentoring programme is designed and implemented at the institute level as the institute is offering education, research, and services. The mentoring programme for faculty members should result in mentoring of the students. Therefore, at the institute level, adequate mentors need to be developed in the context of

NEP–2020 that can mentor the faculty members to reengineer the conventional educational systems and processes immediately. There is another issue related to the obsolescence of human resources in the context of NEP–2020 and the changed vision of the institutions, only training is not going to deal with the obsolescence of human resources. It would require effective mentoring from professional mentors. The spectrum of mentoring is wide, so several mentors will be required for mentoring in different areas of institutional functioning. At the institute level, a ratio of mentor and mentees is say 1:5 to 1:15 in that case 8 mentors will be required on every 100 teachers. This ratio will ensure effective and efficient mentoring of faculty members in the context of NEP–2020. The mentoring needs to be done within a short span of time to make everyone committed to the institute development plan. At the institute level, a strategic mentoring programme needs to be designed and implemented effectively in newer areas. In the changed context, it should not be restricted to newly recruited teachers, but it should be mentoring for all. In the changed context, institutes need to create a culture of outcome-based education, use of information communication technology, development of entrepreneurial abilities, fostering professional ethics, developing research and critical abilities, developing attitude towards conservation of the environment, promoting safety, and promoting the cultural heritage of the nation. The changed scenario of higher education requires culture building through training and mentoring in HEIs. Therefore, individual mentoring, small group mentoring, and large group mentoring will also become important. The mentors need to develop large group mentoring abilities with the purpose. They may use strategic mentoring techniques as stated in Figure 1. In the changed context, Mentoring needs to follow principles of andragogy, participative techniques, cooperative and collaborative approaches to achieve the goals of the mentoring. A mentoring programme at the institute level needs to be developed integrating it with an institutional development plan, career development plan of individuals, and potential of individuals.

Mentors

Stephanie, (2018) reported that institutional mentors provide support towards tenure and navigating institutional policy and external mentors support general professional growth. Internal mentoring is formal but external mentoring is informal. Johnson (2002) and others stated that the role of the mentor is providing encouragement, direct teaching and guidance, clarifying performance expectations, initiating sponsorship, demystifying the system, encouraging the risk-taking, promoting visibility providing professional socialization, offering feedback, offering counsel, and allowing for increased mutuality and collegiality. Prakash Singh, (2013) stated that mentors are expected to be models of professionalism for the student teachers to emulate. Michelle (2020) stated that mentors should share pedagogical knowledge, mofdelteacing practice and provide helpful feedback.

Goals of the Mentoring Programme

The goals of a mentoring programme in higher education institutions in the context of NEP 2020 are stated in (UGC, 2021, AICTE, 2020). These are related to help the inductee teachers in achieving personal and professional goals, build academic leadership, foster engagement, enhance capability. Olajide (2013) stated four goals of mentoring programme viz improve performance, support mentee, create a pool of mentors and create educational leaders. The researchers concluded that there is a gain in instructional delivery, content knowledge, course design, assessment, and supervision. There is a gain in presentation and publication, proposal preparation, conferences, services to the profession, and content development. There is a gain in service to students, colleagues, university, and community.

Criteria for Selecting the Mentors

AICTE (2020) states that the mentors will be selected based on their personality characteristics, work habits, mentoring aptitude, senior faculty member, and training received in pedagogy and domain-specific area. UGC (2021) states that mentors will be those senior faculty members that are having 20 years of undergraduate teaching experience or 15 years post-graduate teaching/research experience and attended at least 5 training programmes. Mentors will be selected who are registered at VIDWAN portal. The mentors are classified based on their profile which is assessed using a rubric. They are classified as highly accomplished, middle level, threshold level, and below the threshold level.

Criteria for Selecting the Mentees

Carnethon et. al (2014) stated the characteristics of successful mentees viz. showing appreciation

for mentor's time and efforts, meeting regularly, showing trustworthiness, follow up on project and commitment in a timely way, learning from successes and errors, suggesting mutual projects with the mentor, actively utilizing the mentors' advice and guidance, have realistic expectation, accepting constructive criticism, and acting to improve on the areas identified by the mentor, and setting realistic goals

Characteristics of Mentors

AICTE (2020) defined characteristics of effective mentors as quality teachers, offer the right kind of support, good at developing a co-constructive relationship with a mentee. UGC (2021) stated characteristics of mentors in the form of expectations which are awareness about mentee, understanding of learning aspects, andragogy, analysis and reflection, observational skilled, professional leadership, counseling and guidance, and role model. The characteristics of mentors are stated in the document. In the literature different roles of the mentors are suggested by different authors such as advising, teaching, providing feedback, exposure, sponsorship, guide, parent, spiritual guru, friend, and the like. B. L. Gupta, (2008) stated characteristics of counselors such as positive, flexible, well informed, unbiased, emphatic, realistic, inspiring, constructive, cooperative, and ethical.

Mentoring Processes to be used

Collins, Brown, and Newman (1989) suggested teaching methods such as modeling, coaching, scaffolding, articulation, reflection, and exploration to attain cognitive and metacognitive strategies for using, managing, and discovering knowledge. Mona et. al (2011) stated that the collaborative responsive education mentoring model is suited in the changed context when higher education institutions are to go a major change. The mentoring relationship is consensual which moves forward towards cooperative and collaborative in due course of time. (Tim Cain, 2009) stated that theories of mentoring are rooted in theories of learning to teach learning by reflecting and learning through apprenticeship. Klasen and Clutterbuck's (2002) stated four styles of helping - coaching, guiding, networking, and counseling. Larissa et. al (2016) stated 4Cs process of mentoring viz. clarifying, consulting, collaborating, and coaching. HR Hanover Research Report (2014) stated the types of mentorship as one to one, group, team, peer, e-mentoring, informal mentoring, and reverse mentoring. The reverse mentoring model is described in detail in the context of technological knowledge and the facilitation of social exchange between generations. Sandy Watson concluded through a research study that inspite of the problems and limitations of e-mentoring, there are many advantages of e-mentoring which are not available in face-to-face mentoring.

Outcomes of Mentoring

Rosemary, (2015) stated that the benefits of mentoring occur at mentee, mentor, and institute level. Alberta Teachers' Association stated profits of mentoring for inductee teacher, mentor, administrators, students, and profession. Balu, (2014)stated that the success of the mentoring programme lies in the right selection of mentors and mentees, and mentoring is key to success for academic institutions. The formal mentoring programme at the institute level will result in the development of the competency and proficiency of mentees in the context of the NEP–2020. Andrew J. Hobson (2009) enumerated the benefits as supporting professional development, reduced feelings of isolation, increased confidence and self-esteem, professional growth, and improved self-reflection and problem-solving capacities.

Outcomes of Mentoring at Mentors Level

The formal mentoring programme results in an accelerating increase in the competence of the mentor and experience of the mentor. Gradually it will take them to become professional mentors and set an example for other mentors to follow.

Conditions for Effective Mentoring

Abugre (2017) concluded thatthere is a strong positive relationship between the institutional career support and the process of mentoring', strong mentorship relationship between mentor and mentee and colleagues. Tomlinson (2010) stated conditions for effective mentoring viz contextual support, mentor selection and pairing with mentees, mentoring strategies, mentor preparation, and support.

Limitations of Mentoring

Balu, (2014) reported that gender, race, class, ethnicity ability, sexual orientation, and issues of power affect the success of the mentoring programme. The other limitations for the mentor are overload, resulting in disbalance in equilibrium, fear of being exposed, feeling of rejection (Tomlinson, 2010).

Suggestions for Institutions

1. At the institute level, strategic mentoring programme should be prepared which should be integrated with the institute development plan following the guidelines issued by UGC/AICTE or regulatory bodies. The institute mentoring programme should be prepared on headings such as a policy of institute on mentoring, the rationale of the mentorship programme, goals of the programme, roles, and responsibilities of the institute, financial support for the programme, mentor, mentee, and other stakeholders, detailed action plan containing activities, feedback, and progress reporting format, code of conduct/ standards of mentoring for all stakeholders.
2. At the institute level, a panel of internal and external mentors in different areas of institute functioning should be identified to receive their services to achieve the goals of the mentoring programme and institutional goals. If necessary, the mentors should be provided training in premier institutes on mentoring.
3. At the institute level, the mentoring programme should be implemented effectively and efficiently using the resources of the institute and its stakeholders.
4. At the institute level review of the mentoring programme should be done on yearly basis and the next cycle of the mentoring programme should be improved.
5. The mentees who have developed in a particular domain should be appropriately deployed for leading the implementation of the institutional plan.
6. The developed mentee should be encouraged to take the role of the mentor in the next cycle under the guidance of their mentor at the initial phase and later on, they should do independent mentoring when they develop maturity.
7. At the institute level, the coordinator of the mentoring programme should see that the code of conduct of mentoring is being followed.

Suggestions for Policymakers

In the context of NEP–2020 it is suggested that:

1. A certificate, diploma, and undergraduate programme should be started for potential mentors to manage the mentoring cell in the institutions. The programme should be started in premier institutes of the country in online and offline mode.
2. The certified mentors leading the mentoring cell should be incentivized financially and in their promotion.
3. The institute-level mentoring programmes should be supported through national-level external mentors.
4. Research studies on mentoring should be encouraged through financial support under current schemes or new schemes of funding.
5. National level search conferences and seminars should be organized by premier institutions to share and further the profession of mentoring in institutions.
6. The mentoring programme at the institute level should be disseminated under mission on mentoring using the national forum.
7. The VIDWAN portal should be updated from the mentoring point of view so that institutes may receive mentors of national repute.
8. The documentation of best practices, case studies, experimentation, approaches should be done and placed in a national repository.

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Agripreneurship Development Programmes for Graduates: Striding towards *Atmanirbhar Bharat Abhiyan*

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Today's agriculture faces numerous challenges like globalization, market liberalization, crises of food price, climate change, paradigm change in food production and consumption patterns, changes in demography, *etc.* These challenges have directly or indirectly led to changing agricultural markets, thus creating opportunities as well as risks for farmers. Recognizing the importance of smallholder agriculture in enhancing the economic growth and development of rural livelihoods in quite a good number of developing countries, there is a prominence of market oriented agriculture on the agenda. Agripreneurship is the only viable solution in this regard. When we talk about the agriculture education system in the country, it is a well-known fact that there is a mismatch between the number of agricultural graduates passing out each year to the availability of jobs in the sector. According to the Higher Education Survey (2019), the total number of agricultural graduates passing out in the year 2018-19 were 45, 280 but at the same time, manpower availability in agriculture sector indicted that more than 12,000 agricultural graduates passed out from State Agricultural Universities all over the country, out of which only 2000 find jobs in private and public sector, leaving a huge number of graduates unemployed (Mahra *et. al.,* 2017).

To make the budding agricultural graduates job providers rather than job - seekers; entrepreneurship is the only way out. To be a successful entrepreneur, one has to have a new idea. India being one of the top populated countries of the world with majority of its population dependent on Agriculture, there is a need for innovation in Agriculture sector. In social and economic development, innovation is a major instrument specially; agriculture-friendly innovations stimulate not only production but an efficient use of natural resources as well. Traditionally Agriculture is seen as an old technology industry which needs to be reinvented in innovative ways. Being innovative is an important quality for a business/enterprise, especially when it faces strong competition or operates in a rapidly changing market. With the changing paradigm, skills of the agricultural graduates must also change and develop to meet the management demands of the enterprise.

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Concept of Agripreneurship

Agripreneurship means entrepreneurship in agriculture sector. Entrepreneurship is a concept that encompasses transforming an idea or vision into a "new business venture", or the expansion of an existing business by an individual, a team of individuals, or an established business" (Reynolds *et.al.,* 1999). Entrepreneurs are often creative, take opportunities and bear risks, and can quickly change business strategies to adapt to changing environments. They are innovators (Kahan, 2012). An Agripreneur is an entrepreneur whose main area of venture is agriculture or allied sectors. While usually being innovative and creative, farmers often lack access to services, finance, markets and skills to have realistic chances to succeed as entrepreneurs (Wongtschowski *et. al.,* 2013). In addition, agripreneurs are influenced by external, systemic factors, such as economic and social barriers, policies and regulations (Kahan, 2012).

Government of India is playing a major role in providing multifarious schemes and programmes for agricultural students and farmers to move up in the path of agripreneurship. All these programmes and schemes update the knowledge and skill and provide them access to various institutions and organisations, markets and financial services and facilitate them to be trained in the required managerial and functional skills. Government of India has also created an agripreneurial ecosystem through the inclusion of policies and regulations to thus reducing barriers, or bring about change in the prevailing values of the societies.

India's *Atmanirbhar Bharat Abhiyan* (ABA)

Atmanirbhar means 'self-reliant' which is the vision of the Prime Minister of India; Shri Narendra Modi of making India a self-reliant nation and came in the form of the *'Atmanirbhar Bharat Abhiyan'* or 'Self-Reliant India Mission' on May 12, 2020. This announcement was made during the new normal post country wide lockdown as a result of COVID-19 pandemic which included a special economic and comprehensive allowance of INR 20 lakh crores. Many government decisions like changing the very definition of Micro Small and Medium Enterprises (MSMEs), boosting the role of private sectors in agriculture, marketing reforms *etc.* were a part of the decisions. The five main components of India's self-reliance are boosting the economy, improving infrastructure, technology driven systems, demand and a vibrant demography. The mission behind *Atmanirbhar Bharat Abhiyan* is to give importance to localproducts and thus aim at made in India initiative which includes the agriculture sector as well. This programme focuses on development of skill and in turn making efforts for mapping employment opportunities to the skill sets of potential employees/workers. An endeavour of this nature is incomplete without having a complete overhauling of the syllabus and the curriculum and making it job oriented. This could be the only solution to solve the problem of unemployment. There is great need to provide skill-based training which would certainly ensure entrepreneurship. Thus, to encourage entrepreneurship in agriculture; there is a need to create an ecosystem that promotes people to be a part of *'Atmanirbhar Bhara*t' and agricultural graduates are no exception.

To involve agricultural students of the country in agripreneurship, we need to aware them, educate them about the agripreneurship opportunities and risks, provide efficient resources and the collective strength. This calls for an insight into the potential, importance of agripreneurship knowledge and awareness among the students of agricultural universities. In this direction, education system in India under the world bank funded National Agricultural Higher Education Project has started working on promoting agricultural entrepreneurship that can be the best solution for unemployment of Agri graduates in the country.

Sensitization of Agricultural Students in India

The very first step in this direction was taken by Indian Council of Agriculture Research (ICAR) – National Academy of Agricultural Research Management (NAARM), Hyderabad under the aegis of National Agricultural Higher Education Project (NAHEP) wherein 20 workshops were conducted in 19 State Agricultural Universities of the country covering 1997 Agri-graduates to sensitize them on agripreneurship, for the creation of awareness related to soft skills, innovativeness and entrepreneurship. The National Agricultural Higher Education Project, a World Bank Funded Project, addresses quality and relevance of Agricultural Education through technically sound and verifiable investments that increase faculty performance, attract better students to these Agricultural Universities (AUs), improve student learning outcomes and raise their prospects for future employability.

Participatory training methodologies were involved wherein learners were facilitated by the trainers to understand new perspectives and imbibe a behaviour towards the soft skill generation of Agri- graduates. In an educational process, learners form the core and it is through their needs and their reflection, analysis and questioning that carries forward the whole process. For this, a Training of Trainers' (TOT) workshop was organized at ICAR – NAARM, Hyderabad during September 17-18, 2019 in which 34 faculty members from 23 State Agricultural Universities of the country were trained as Master Trainers, who in turn organised one-day workshops on "Development of Soft skills for Entrepreneurship among Agri Graduates" at their respective universities under the guidance of faculty members from ICAR – NAARM, Hyderabad and covered roughly 100 undergraduate students in various disciplines of Agricultural Sciences *viz;* Agriculture, Horticulture, Forestry, Community Science, Veterinary, Dairy Technology and Agricultural Engineering. All needed support was provided by ICAR – NAARM to the Master Trainers including the programme module, training manual entitled, "Creating Jobs: A training Manual for Prospective Agripreneurs" specially developed for the budding Agri-graduates. Each passing out Agri-graduate under this programme was provided with a copy of the manual which would act as a

handbook for future reference to stride towards the path of agripreneurship or to face a job interview.

The content of this training programme covered basics of entrepreneurship, opportunities and challenges in agriculture sector, development of business plans, start-ups *etc.* The agri-graduates were also exposed to the success stories of Agri-graduates turned into successful entrepreneurs by means of videos developed by ICAR – NAARM as well as live interaction with successful entrepreneurs; preferably who have graduated from the respective State Agricultural University (SAU). Soft skills such as communication skills, interview skills, group discussion, team work, leadership skills, *etc.* formed the core modules. The following methods were used for soft skill awareness generation among Agri graduates:

- **Experiential Learning**: The fundamental source of learning of this type is through one's own experiences or through other's experiences. It has been proved that adults learn best though their own experience. So, first the experience was provided and then the concept explained.
- **Role plays**: This was done through re-enactment of the past experiences.
- **Simulations and Structured Exercises:** Simulation games and exercises were introduced which were then debriefed to derive broader insights about entrepreneurship development in agriculture.
- **Case Studies:** Shared success stories through videos and some cases which provided opportunities to look at the experiences of other entrepreneurs empathetically and learn from them.
- **Real Life Examples** : Shared real life examples of agripreneurs, their experiences and also facilitate discussions to address students' queries**.**

Total students participated in the programme were 1997 including 57.63 per cent boys and 42.36 per cent girl students. Students belonged to age group of 21 to 25 years, studying in B. Sc. Agriculture (57.93 per cent), B.Sc. Horticulture (18.52 per cent), Bachelor of Veterinary Sciences & Animal Husbandry, (6.86 per cent), B.Sc. Community Sciences (5.50 per cent), Agricultural Engineering (5.80 per cent), Forestry (1.85 per cent) and others (3.50 per cent) from different states of the country. "Others" category included the students from B.Sc. Biochemistry, Masters and Ph.D. students. Majority of the students (66.24 per cent) trained were in the IV year of their study followed by 19.12 per cent which were in the III year of study.

Outcome of the Programme

- More aware students on importance of soft skills for entrepreneurship development and starting practicing the skills necessary to increase their confidence level, improve their communication skills; both verbal, non-verbal, thinking, listening and writing. The workshops improved their self-efficacy and self-advocacy skills and problem-solving skills along with control on strong impulses and feelings.
- Students became aware about the Government initiatives and support for Entrepreneurship among Agri-graduates.
- Students possess the ability to make business plans, can organise and implement an innovation or new project which would aim at bringing novelty in the agricultural products and services available in the market.
- Students have improved their interpersonal and collaborative skills.

Way Forward

India is an agriculture dependent country and most of the population directly or indirectly dependent on agriculture sector for their survival. Even in the outbreak of COVID-19 pandemic in the world during 2020, only Gross Domestic Product (GDP) of agriculture sector was growing and remained positive as compared to other sectors. So, Agriculture sector has a great potential and opportunities for entrepreneurship development. In this regard, the landmark initiative in the history of agricultural education to create awareness regarding innovativeness and entrepreneurship in agricultural sector among agricultural graduates and to develop soft skills among the undergraduate students of Agricultural Universities was taken. This programme has sown the seed for future generation of agripreneurs in the history of agricultural

education. The whole training module revolved around three major areas, namely; Innovations, Entrepreneurship and Soft Skills. Training of 1997 agricultural students on agripreneurship, scope of agrpreneurship, soft skills need for agrepreneurship and innovations in agriculture was an indeed a big step towards *'Atmanirbhar Bharat'*. Now, if the trainees are further interested in being an agripreneur, they can avail this opportunity by contacting ICAR – NAARM, Hyderabad who has the facilities and potential to nurture their innovative ideas. With the help of different government schemes for youth promotion in agribusiness like Skill India, make in India, Start-Up India, Stand- Up India, Agri-graduates can become successful agripreneurs if they want, and help India attain the goal of *'Atmanirbhar Bharat'*. This can be a great step in making India self-reliant and self-dependent. Generating Agripreneurs can be the solution for the problem of unemployment in the country and it can also contribute to the 'Make in India' movement.

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Internationalization of Higher Education and Global Rankings

Ankita Masih* and Vidyapati**

Internationalization of Higher Education is the primary focus of all nations in this globalized era to improve the standards of educational institutions as well as to produce skilled and knowledgeable workforce for an economy based global market. Globalization opened several opportunities for India to engage with knowledge based economy . In order to build capacity, quality standards, relationship and creating human resource capital through international links, we must improve the quality of education we provide.

What is Internationalization?

Internationalization is the process of designing or modifying products to meet the needs of consumers in many countries or designing/making them in such a way that they can be easily modified, to fulfil the requirements. Internationalization is a broad term. It might mean designing a website or a web page in such a way that when it is translated from English to any other language, the aesthetic layout still works properly ensuring meaningful translations. This could be difficult to achieve as many words in Spanish/ French/ Mandarin have more characters than their English counterparts and while translating, it may change the complete sense.

Internationalization of Education

Internationalization of higher education demands multilevel complex initiatives from individuals, institutions, local bodies, state and centre. As education has always been an important state subject, it requires multilevel interventions from individuals, educational institutions, corporations, and the state in order to overcome multiple challenges and internationalize the same by integrating inter-cultural and multi-cultural dimensions into roadblocks towards internationalization of education. A comprehensive policy, strategic planning, strict innovative regulatory framework to balance the public - private partnership along with independent monitory body and standardized practices are the pre-requisites for India to become a hub in emerging higher education based globalized economy.

Internationalization has become a hot topic at policy level by authorities (Ministry and Government) and higher education institutions globally. The interpretations of internationalization are often largely associated with competition, markets and economy in the current scenario, but it is shifting from only human resource to joint research activities as well. Globally, higher education institutions are searching for ways to develop how to teach learning, research and student services. India is a no exception; it is also trying to follow the same path. There are some initiatives taken by the Indian government to promote internationalization of Education. Some are: General Cultural Scholarship Scheme (GCSC); the Global Initiative for Academic Networks (GIAN); and the Connect to India programme. Additionally, some leading Indian higher education institutions engage in student exchange programmes and academic collaborations with a number of foreign countries throughout the world through various programmes such as UK-India Education and Research Initiative (UKIERI) initiative, the Generation UK India initiative, the Indo-US 21st Century Knowledge Initiative and the Fulbright-Nehru programme. “Study in India Programme”. Fellowships and institutional collaborations are designed to promote India as a destination for study (education hub). These initiatives suggest that the internationalization of higher education has found a place in Indian higher education system. Still, India’s policies on internationalization of higher education have had limited or nil impact on the development. We need to take some strict actions to overcome the barriers.

Traditional vs. Emerging Pathways of Internationalization

The mobility of learners, professors, and research scholars is the most important and readily visible element of internationalization of higher education in any country. From ages Indian scholars have gone abroad to attain higher education and many great scholars from all over the world have been attracted to Indian

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universities even during ancient times like Takshsila, Vikramshila, Vallabhi, and Nalanda. These universities can rightly be called as 'pioneer universities' as they introduced Indian culture, education and knowledge to the outside world. We earned a special respect globally in the past.

In past three decades, the number of learners enrolled in institutions outside their country of citizenship or birth has risen positively, from 0.8 million worldwide in 1975 to an approximate 5 million in 2016—a more than five times increase. Moreover, it is believed and expected that this number will grow to 7.2 million by 2025 with the probability that 400,000 Indian students will enrol in foreign institutions by 2024 compared to 255,030 in 2016. The growing numbers of mobile Indian students seem to indicate that India is becoming a leading actor in the international student market. It is now the second largest country sending students outside country after China. In contrast to the increase of outbound students, the numbers of international students (inbound) in India is discouraging sharply—in 2014 the number of international students in India was only 30,423.

Not only students are on the move, institutions are too. In present time, new term- 'transnationalism' is emerging as a pathway to internationalization. Academic institutions from one country operates in another; academic programs are offered in collaboration by universities from different countries. Higher education is increasingly made available to the masses through online education or open education. As per recent study in 2010 there are only a limited number of international collaborations—631 foreign institutions had activities in India of which 440 did so from their home campuses; 186 had twinning or some other arrangements with the involvement of local institutions. The programs offered by international collaborators in India are in the professional areas like management and engineering predominantly.

One of the primary strategy of internationalization is setting up of overseas campuses. A total of approximately 313 institutions have branch campuses across the world. According to Bert (2017), seven Indian institutions have campuses overseas—five in the UAE as well as programs in Mauritius and Nepal. Popular destinations for Indian branch campuses are often countries with a strong Indian Diaspora, particularly countries in the Gulf region, the Caribbean, Mauritius, Fiji, Nepal and Southeast Asia. Some private institutions like Birla Institute of Technology, Symbiosis International University and Manipal University promotes programmes like twinning programs, study abroad programs, dual degree programs and branch campuses in other countries.

Many countries and academic institutions have developed strategies for internationalization of higher education. India is a developing country and hence been slow in identifying and responding to the necessity of internationalization despite the tremendous benefits that could occur due to limited availability and accessibility of resources. The data provided above highlights that India has experienced a rapid growth in student outflow, but it has not been able to attract a comparable volume of incoming international students. The volume of student inflow is not equivalent with developed neighbour- China. As a result, India is losing charm and glory as well as advantages such as generation of revenue (economic growth) and also diversity, develop, digitalize and modernize the country's campuses with a globalized ambience. In research and post graduate courses along with other academic collaborations, India has a great deal yet to accomplish many tasks.

Quality Issues and Challenges Related to Internationalization

It is forecasted that by the year of 2025 the demand for international education will grow and rise upto 7.2 million students- a huge leap from 1.2 million students in 2000. Most of all of this demand will be met by mobility of the students resulting in growth of the number of new providers who are striving to deliver programs to students in their home countries. It is accelerating at an unprecedented rate. It is no longer just students, faculty, and researchers who are internationally mobile but also academic programs are being delivered across borders and branch campuses are being established in developing and developed countries around the world.

The new developments are intended to increase access of all the students to higher education and meet the appetite for foreign credentials, degree, career options and employment. There are some serious issues related to the quality of the academic courses offered, the integrity of the new types of providers (institutions) and the recognition of credentials. It is observed that there is an increase in the number of foreign degree selling factories ('parchment' only degrees) and accreditation mills (selling bogus accreditations for programs or institutions), and

rogue for-profit providers (not recognized by national authorities) are realities that are often left unquestioned. These results in problems faced by students, parents, employers, and the academic community in the long run. Nobody would have guessed two decades ago that international education would be struggling to deal with fake degrees and accreditations; academic credentials that are earned but not recognized; and non-regulated 'fly by night' institutions. Having said that, we must not forget to acknowledge the innovative developments by bona fide and genuine new providers and universities who are striving and working hard in delivering high quality programs and legitimate and meaningful degrees through new types of arrangements and partnerships (franchise, twinning, branch campus). The perpetual issue of balancing cost, quality and access significantly challenges the benefits and risks of cross-border education.

Academic Mobility

Today, expansion of academic mobility schemes is a hallmark of internationalization. Two and a half decade ago, nobody would have anticipated that international academic mobility for students, research scholars and academicians have the capacity to grow and develop into a highly competitive multi-million-dollar international recruitment business and help in economic growth of the country. Most of the developed nations and several developing countries are investing in higher education sector and major marketing campaigns to attract the best and brightest talent to study in their institutions and work in their countries in order to supply the 'brain power' for innovation and research agendas. Internationalization of higher education has also helped in keeping a check on 'brain drain' in developing countries where bright students tend to go abroad usually to western nations for higher studies and better future prospects. Neither the complexities, disadvantages and challenges related to academic and professional mobility should not be underestimated nor the potential benefits should be ignored. The original goal of helping students of developing countries is to complete a degree in another country and then return home to contribute to economic development of their nation is fading fast as nations compete in the 21st century brain race and people are going crazy for materialistic things.

To improve the opportunities for employment of students, we require joint programs which are intended to provide a rich international and comparative academic experience. But, with all new ideas, some points needs attention. For example, in many cases, double degrees can be merely double counting of one set of course credits. Situations might exist or arise where two/three credentials (one from each participating institution) are conferred for little more than the work load required for one degree. While it may seem alluring for students (and potential employees) to have two degrees from institutions in two different countries, the situation may be seen as academic fraud if requirements for two full degree courses are not completed or differentiated learning results are not achieved.

Massive Open Online Courses

It is quite evident that Massive Open Online Courses (MOOCs) have a positive impact on internationalization of higher education. MOOCs play a powerful role in widening the access to non-formal learning opportunities which is still an underdeveloped area of international higher education and requires special attention. Now, the question arises, how long it will take before the majority of MOOCs will be able to offer formal credentials accredited by the providing institution or a third party. Further, it is apparent that it is still difficult to provide platforms for students to customize their own menu of programs by combining courses offered by local, regional and international public and private providers according to their individual needs through face to face, distance or a combination of the two.

Universities Rankings

These days ranking system has become very popular. We tend to rank everything right from educational institutions to railway stations and airports. Hence, international and regional rankings of universities/institutions have also become extremely popular and complicated in the last five years. There is a heated debate about their validity, reliability, authenticity, credentials and value continues. But at the same time, it can be stated that a measurable result of internationalization is the achievement of a specific position in one or more of the global ranking tables and leagues. But it is not hundred percent true that the purpose of a university's internationalization efforts is merely to improve global brand or standing. This often confuses an international marketing campaign with an internationalization plan. The former is simply a promotion and branding exercise; the latter is an intense strategy to integrate an international, multicultural and global dimension into the goals and teaching-learning, research and service functions of a university.

Conclusion

It is high time for India to understand need and advantages of internationalization of higher education and capitalize on its strengths. As mentioned earlier, India had a good reputation as a provider of quality higher education in ancient time. Now it is time to regain the reputation and dominate once again. In context of South East Asia, India has a well-established education system in comparison to other nations which have small higher education sector. Moreover, the higher education experience in India seem to be often more affordable when compared to other developed nations.

India must develop special 'education zones' in different regions along with the conditions important to make these regions/ locations appropriate to attract internationally mobile students. Strategies for improving quality of existing higher education institutions, curriculum, teaching learning environment, availability of resources will help India not only attract international students, but also check the outflow of Indian students and eventually brain drain. Currently, international collaborations for faculty exchange, curriculum development, student exchange, joint research, training, internship etc, are a result of initiatives taken by individual institutions, rather than public policy. Public policies must be developed to look after the above mentioned issues. These initiatives are mostly concentrated in the private sector of education system in India. Internationalization is also concentrated in specific cities and regions like metropolitan cities, but India needs to develop measures to develop national approach to reap the academic as well as economic benefits that results through focused, well drafted policy that would eventually expand the horizons of opportunities for international collaboration in both the state and private sectors.

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Investing in Yourself is the Only Way to Succeed

Kumar Mangalam Birla, Chairperson, Board of Governors, IIMA delivered the Convocation Address virtually at the 56th Annual Convocation of Indian Institute of Management Ahmedabad, Gujarat on 8th May, 2021. He said, "You must ask yourself just one question. Did I make a difference? It doesn't matter whether you are a marketer or a consultant, an entrepreneur or a techie. Have you advanced progress in your field and added to the cumulative repository of knowledge and wisdom? If the answer is yes. Then you have done justice to the education you have received and lived up to the rich legacy of this iconic institution. You have enhanced your life with education; now enrich it with meaning, purpose, and the thrill of being part of a shared endeavour. The quest for which commences today." Excerpts

The Convocation Address collected from the Website of IIMA is being published for wider dissemination in academia.

When Bob Dylan penned the iconic song 'Times they are a change in', which became an anthem for change across generations, I don't think he would have remotely imagined the world that we are living in today. In the last 12 months, we have witnessed and embraced change of an unprecedented magnitude. While we have all been robbed off the energy and intimacy of doing this convocation ceremony at the Louis Kahn Plaza, like every year, I am sure all of your digital avatars aren't complaining. As political scientist Ivan Krastev put it, "It might be only for this weird moment in history, but we cannot deny that we are currently experiencing what it feels like to live in one world."

Hidden behind the stories of loss and valour; agony and awe; ruin and revival; is the power of the human spirit. A collective spirit that has enabled us to wrestle with this pandemic for over a year now. A spirit that has been tested, again and again. But a spirit that will triumph, no matter what.

The class of 2021 will be like no other before it. The young people of the World War 2 generation were witness to the massive increases in industrial productivity that came with ramping up automobile, aerospace, and other production to meet the needs of the war years and the demand boom that came post that. Classes graduating in the dotcom bubble years of 2000-01 took away lessons about the husbanding of capital and the need to build more sustainable businesses that transformed what it meant to be an internet company. This pandemic has again stimulated innovation as a broad swathe of companies and consumers have embraced 'digitization'. In the 4 months of 2021, the startup ecosystem in India added over 10 new unicorns whose mix represents everything from interest in financial services to business enablers and our need for human connectivity.

This class is in a unique position. Having had the ability to take a student's dispassionate look at a world in turmoil, you are now stepping into it, to leave your mark as a young leader whose intellectual appreciation of business problems is balanced by a compassionate understanding of the people involved.

The convocation ceremony today marks the culmination of a glorious chapter in your life. This glorious chapter has been defined by three hallmark traits, that I assume are common to all of you - strong academic record, all-round skills that go beyond the classroom, and of course the great hunger to succeed. I call this the trinity of records, skills, and attitude.

Congratulations on successfully completing Chapter 1 of what is going to be the book of your career. Getting to IIMA, completing your course, and finding a marquee job, which is a springboard to new horizons and new opportunities.

Today also marks the beginning of an entirely different chapter in your life. Chapter 2. Success in this leg of your career is entirely predicated on the investments you make, the risks you take, and the learnings you garner over the next 10 years.

Today is perhaps a good day to pause and consider what could be that X factor which will make the difference between just 'coasting along' and 'taking off exponentially' in your life and career. Let me share my thoughts on what could make that difference.

First and foremost, define your North Star: The pandemic and the last 12 months have again shone a spotlight on not just the role of governments but of societies, companies, and individuals in creating better outcomes for all of us. This is a period of short forecast horizons and amplified ups and downs. And therefore, a more important time than ever to define your principles and set your heading. Where do you fit in, and what do you want to be known for? Now is a good time to mull over and define the answer. Second, Experiment in your

20s: While your North Star is clearly in your sights, in the short term, the 20s should be the discovery phase of your next chapter. As a wise businessman once said, "Risk taking is inherently failure-prone, otherwise it would be called sure-thing-taking." I feel that too many management graduates enter the corporate world with a 'this is what I want to do' attitude. When I say experiment, I don't necessarily mean start your own business or company. Rather, Work in a factory, work in a different country, work in diverse sectors, work across unfamiliar functions. The opportunity cost of experimenting rises sharply as you grow in your career. So, start early and experiment. Be impulsive. But temper your impulsiveness with creativity and positivity. Be thoughtful of what you want to focus on and what is the common thread that strings together your experiments and experiences. Which brings me to my next connected point.

Third, Build your personal flywheel: It was legendary artist Vincent Van Gogh who had remarked that "Great things do not just happen by impulse but are a succession of small things linked together."

Your personal flywheel is nothing but your own set of cumulating personal experiences. Think about experiences as units of learning. The more units you can accumulate in a year the more valuable you become. The sooner you start accumulating, the more you accumulate as you go along, as the power of compounding kicks in. Remember, your ability to learn is elastic by nature.

Units of learning should guide your career choices. If you are ever wrestling with a career choice, the defining factor should be the units of learning. Always, make a choice that accelerates your own learning curve and improves your understanding of the world. Let me illustrate this point on building a flywheel and experimenting, using the example of an unconventional entrepreneur. At the age of 20, he opened the first record shop and turned a millionaire in 3 years. He went from running a small record shop to starting up a record label to launching music megastores. In his early 30s, when a flight he was set to board got cancelled, he hired a plane, sold tickets, and filled it up with fellow stranded passengers. This experience set in motion the idea for his successful airline business. Aviation was the fount on which his current conglomerate is built, spanning diverse sectors from travel, transport, entertainment, media, and telecoms. His name is Richard Branson. He was always restlessly entrepreneurial, something that you too can be, even within the boundaries of an organization. Remember, you don't have to be a start-up entrepreneur to turbo charge your flywheel.

And finally, add emotion to IQ: I know all of you have burnt the midnight oil over the last 2 years solving complicated business problems. The reality is that you can't build businesses with spreadsheets. The most detailed business plans this year unraveled in the face of factory workers falling sick. Supply chains came unstuck as the migrant labour silently powering them retreated to their communities. Therefore, don't get unidimensional in the way you think. You need to add other dimensions to your thinking, most importantly, of empathy and humility. I don't see IQ and EQ as binary qualities, but rather as complementary traits that make a personality wholesome.

The irony, perhaps, is that even AI is now starting to hold up a mirror to ourselves. Microsoft's Socio chatbot- Xiaoice boasts of having both IQ and EQ. It has social skills and understanding of human emotions. It writes music, sings, paints, and has a fine arts degree. Xiaoice has had a 29-hour conversation with a human being! In total it has had over 30 billion conversations with 100 million friends. Just pause and think about it, a chatbot is learning social and cognitive skills to build EQ.

The times they are a changin!

To summarize, what I have said is – have clarity on your North Star, but then be adventurous and experiment, use these experiences to build your flywheel and compliment your IQ with EQ.

A decade down the line, you will be confronted with a question: How do you measure this journey that kicked off through this virtual convocation ceremony? The Chapter 2 that I referred to. What benchmarks should you hold yourself accountable to? Is it the pace of promotions? The salary you draw? The designation you hold? The companies you float?

I think it's a simple answer.

You must ask yourself just one question. Did I make a difference? It doesn't matter whether you are a marketer or a consultant, an entrepreneur or a techie. Have you advanced progress in your field and added to the cumulative repository of knowledge and wisdom? If the answer is yes. Then you have done justice to the education you have received and lived up to the rich legacy of this iconic institution.

IIM-A isn't just a B-school. It's more than just an institution or a badge of honour. It is now a permanent part of you. You have enhanced your life with education; now enrich it with meaning, purpose, and the thrill of being part of a shared endeavour. The quest for which commences today. ❑

CAMPUS NEWS

Faculty Development Programme on Green Technology and Sustainable Development

A five-day Faculty Development Programme on 'Green Technology and Sustainable Development' was jointly organized by the Amity Institute of Biotechnology, Amity University Rajasthan, Jaipur and Amity School of Engineering and Technology, Amity University Rajasthan, Jaipur, recently. The programme was sponsored by ATAL-AICTE. As the technological advancement led to the development of the society however, resulted in the pollution of the environment in different ways which finally effecting the human beings in different aspects. This era requires the technologies which can keep the pace of development without producing adverse effect on the environment, natural resources, and human beings. Therefore, there is the need of green technology which is an environment-friendly technology, help the human to do sustainable development and reduce the impact of pollution. The green technology is the development and application of products, equipment and systems used to conserve the natural environment and resources. The implementation of green technology is the demand of this era. Realizing this, eminent speakers enlightened the participants with the research opportunities, development, and emerging areas of green technology during the various sessions of the event.

The Chief Patrons of the programme were Dr. Ashok K Chauhan, Founder President, Amity Group and Dr. Aseem Chauhan, Chancellor, Amity University, Rajasthan. The event started with the welcome address of Prof. Vinay Sharma, Dean, Research and Director, Amity Institute of Biotechnology. Briefing on the aims and purpose of the programme, Prof. Sharma said, "The event will provide a comprehensive forum to enrich knowledge about green technology and sustainable development." Prof. Pankaj K Pandey, Coordinator, Amity School of Engineering and Technology reiterated the need to focus on 5Rs, i.e., refuse, reduce, reuse, repurpose and recycle for a clean and green environment.

The event was inaugurated by Prof (Dr.) Rakesh Bhatnagar, Vice Chancellor, Amity University, Rajasthan. Prof. Bhatnagar congratulated the Committee and said, "The current event on Green Technology is a conscious effort to ponder over sustainable development and live a life close to nature". Addressing the programme, Pro-Vice Chancellor, Prof. Amit Jain said, "Green technology describes eco-friendly products, and the consumers need to understand and accept green technology for sustainable development."

During his Keynote Address, Prof. B N Mishra, Dr. A.P.J. Abdul Kalam Technical University (AKTU), Lucknow talked about the role of '3D Printing Opportunities in Biotechnology' and its use for food waste management, wastewater treatment and paper production. The session was followed by the talk of Dr Lalit Kumar Singh, BARC, Mumbai on 'Research Scope in Nuclear Energy' in the field of engineering and basic sciences, along with the workings of nuclear reactor. The third talk was delivered by Dr. Pawan Kumar Rakesh, NIT, Uttarakhand who discussed fully and partially biodegradable materials.

Dr. Surajit Das, NIT, Odisha spoke on 'Insights into Bacterial Bioremediation for Degradation and Detoxification of Organic and Inorganic Pollutants'. The participants learned about the use of fungal enzymes for the digestion of algal biomass as a pretreatment process to improve the yield of biogas generation from the talk of Dr. Sanjeev Kumar, IIT, Roorkee who addressed 'Algae for Waste-Water Treatment Coupled Bio-energy Generation'.

During the programme, the subject 'Sustainable and Greener Approach in Synthesis of Value-added Chemicals' was explained by Dr. Raj Kumar Joshi, Malaviya National Institute of Technology (MNIT), Jaipur.

Prof. P Rajaram, Jiwaji University, Gwalior delineated his speech on 'Thin Film Solar Cells and its Role in Harvesting Solar Energy for Sustainable Development'. The session was followed by the talk of Prof. Vinay Sharma, Amity University who explained 'Green Biotechnology' as renewable energy from biomass as conventional energy sources like fossil fuels.

Prof. Manish C Srivastava, Amity University, Uttar Pradesh explained the need of recycling scrap metals while delivering upon 'Recycling of Scrap Metals-an Imperative for Sustainability'.

Dr. Pooja Dubey, BETI talked about 'Environment Sustainability by Mushroom Technology'. Prof. Indu Shekhar Thakur, Amity University, Haryana talked about 'Capture, Storage and Sequestration of Green House Gases for Production of Biofuel Materials'. The detailed insight of 'Nanocomposites for Sustainable Development' was addressed by Dr. Avadesh Kumar Sharma, REC, UP talked about 'Biomedical Application of Nanocomposites.

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 further 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, Dharamsala, Kangra, 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 the each day of the event 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. The event was coordinated by Dr. Kulwinder Kaurand, Dr. Anupam Sabharwal and Er. Inderjit Bal compared the event.

NAAC Seminar on Best Practices in Higher Education Institutions

One-day NAAC Sponsored National Seminar on 'Best Practices in Higher Education Institutions: In NAAC Accreditation' was organized by Internal Quality Assurance Cell (IQAC), Salipur College, Salipur Cuttack, Odisha, recently. About 152 teacher delegates including IQAC Coordinators and Principals of different colleges and research scholars from various institutes participated in the event. The seminar was inaugurated by Prof. Amiya Kumar Rath, NAAC Adviser and Dr. B S Ponmudiraj, NAAC adviser by lighting the lamp. In the Inaugural Speech, Prof. Amiya Kumar Rath said, "The objective of NAAC in Assessment and Accreditation is to make quality the defining element of higher education in India through a combination of self and external quality evaluation, promotion and sustenance initiatives." He asserted that colleges who undertook best practices have positive impact on their assessment and accreditation process earning them the expected grade or score. Best practices will create conducive atmosphere among stakeholders and society around them, he further stated. The Resource Person, Dr B S Ponmudiraj, NAAC Adviser also submitted that the mission of NAAC is to arrange for periodic assessment and accreditation of HEIs or units thereof, or specific academic programmes or projects, to stimulate the academic environment for promotion of quality in teaching-learning and research in higher education institutions and to encourage self-evaluation, accountability, autonomy and innovations in higher education. Dr. Umesh Chandra Pati, Principal, Salipur College, Salipur presided over the Inaugural function. Dr. Pati delivered his Welcome Address. Convener, Dr Asit Parija introduced the guests. Dr. D N Patri, IQAC Coordinator was the Organising Secretary of the event. On the eve of the occasion a Souvenir comprising of twenty two articles was released. Similarly, the Research Journal of the College Elixir and Campus Bulletin of the college 'The Fresh Lines' were also released by the NAAC Advisers. Mr. U

K Panda, Coordinator NAAC Steering Committee of the College proposed Vote of Thanks during the Inaugural Function.

The Technical Session was based on the thrust area Assessment and Accreditation Methodology in Revised Accreditation Framework (RAF). Resource Person, Prof. Amiya Kumar Rath presented power point presentation on 'Process of Revised Accreditation Framework of NAAC'. He gave an elaborate description on each and every parameter. The SSR has two kinds of Metrics: i) those requiring quantifiable facts and figures as data which have been indicated as 'quantitative metrics' (QnM); and ii) those metrics requiring descriptive responses and are accordingly named 'qualitative metrics' (QlM). He discussed the seven criteria to serve as basis for assessment of HEIs are Curricular Aspects, Teaching learning and Evaluation, Research, Innovations and Extension, Infrastructure and Learning Resources, Student Support and Progression, Governance, Leadership and Management, Institutional Values and Best Practices. In his presentation, he stated that the assessment process will be carried out in three stages. As stated earlier, it will comprise three main components, viz., Self Study Report (SSR), Student Satisfaction Survey and the Peer Team Report. He covered key aspects of assessment such as QIF, the assessment process, procedures, grading system, fee structure and other financial implications, preparation of SSR, data required for SSR, submission of IQAC and AQAR, etc. At the end of the session, Dr Asit Parija, Convener of the Seminar proposed the Vote of thanks.

The next Technical Session was on 'Best Practices in Higher Education Institutions, Innovative Benchmarking'. The Resource Person, Dr. B S Ponmudiraj, NAAC Adviser said, "Benchmarking is an ongoing systematic means for measuring and comparing the work processes of an organization. The scene for benchmarking can be set, by considering three fundamental performance issues; whether we are performing better than we have ever performed, whether there are any other organisations that are performing well and from whom we can learn, and are there any practices that will improve our performance? In simple terms, the practices which add commendable value to an institution and its various stakeholders are the best practices. However, they depend on many variables. These should be kept in mind while identifying the practices." The Organizing Secretary, Dr. D N Patri proposed the Vote of Thanks.

Webinar on Role of Teachers in Implementation of National Education Policy

One-day Webinar on 'Role of Teachers in Implementation of National Education Policy: Awareness, Orientation, Challenges and Responses' was organized by the University of Science and Technology, Meghalaya (USTM) in collaboration with Bharatiya Shishan Mandal (BSM) and NITI Aayog, Govt. of India, recently. Prof. Kuldeep Chand Agnihotri, Vice Chancellor, Central University of Himachal Pradesh, and Prof. Raghvendra Prasad Tiwari, Vice Chancellor, Central University of Punjab graced the inaugural session. During his Keynote Address, Prof. Agihotri expressed his love towards the beauty and diversity of the native languages of the north-eastern region. He also pointed out the reason of few languages that are dying off, and how to preserve and conserve these languages under the provision of the New Education Policy.

The Chief Guest, Prof. Tiwari delivered his lecture on Cutting-edge Technologies, specially emphasizing on Technological Strategies for Sustainable Livelihood. He mentioned how technology supports the communication, education, and continuity of developments even at the time of pandemic. He also mentioned about the tremendous effort of Indian scientists towards developing the vaccine against COVID-19.

The Welcome Address was delivered by Dr. R K Sharma, Advisor, USTM. Dr. Ajmal Hussain Barbhuiya, Academic Registrar, USTM introduced the participants about the importance and motivation behind the event. The webinar was coordinated by Dr. Nitu Borgohain, Assistant Professor, Department of Physics and Dr. Saru Joshi, Associate Professor, Department of Education, USTM.

Prof. G D Sharma, Vice Chancellor, USTM, in his presidential remark, expressed his view how we can redevelop our ancient, community involved, value based system of learning, which can create human resources be responsible for their societal growth. The breakout session was segregated into 6 different tracks; each track was consisting of number of participants and a track leader. The track leaders headed the deliberation of NEP challenges and their resolutions on six different topics. In Valedictory Session, the summary of discussions of each track was presented by the respective track leaders. ❑

THESES OF THE MONTH

SCIENCE & TECHNOLOGY
A List of doctoral theses accepted by Indian Universities
(Notifications received in AIU during the month of January-February, 2022)

AGRICULTURAL & VETERINARY SCIENCES

Floriculture

1. Jayanth, S. **Genetic and stability analysis for pod yield and its contributing characters in okra [*Abelmoschus esculentus* (L) Moench]**. (Dr. D R Bhanderi), Department of Floriculture and Landscape Architecture, Navsari Agricultural University, Navsari.

Forestry

1. Amit Kumar. **Assessing the impacts of patch - level and landscape variables on birds in Central Indian Forests**. (Prof. Yogesh Dubey and Dr. Adviat Edgaonkar), Department of Forest Ecology and Environment, Forest Research Institute, Dehradun.

2. Amit Kumar. **Assessment of plant functional traits for carbon sequestration in broadleaved and coniferous forests of Kempty watershed in Garhwal Himalaya**. (Dr. Parmanand Kumar and Dr. Hukum Singh), Forest Ecology & Environment Division, Forest Research Institute, Dehradun.

3. Bisht, Deepa. **Wood Anatomy of selected Indian hardwoods from contrasting biogeographical zones with reference to hydraulic conductivity**. (Dr. Sangeeta Gupta), Department of Forest Botany, Forest Research Institute, Dehradun.

4. Chandra, Rommila. **Assessment of socio-environmental adaptation strategies for sustainable livelihood development in the villages around Govind Pashu Vihar, Uttarkashi, Uttarakhand**. (Dr. V.P. Uniyal), Department of Forest Ecology and Environment, Forest Research Institute, Dehradun.

5. Gwal, Srishti. **Modeling forest ecosystem services in Aglar watershed using geospatial approach**. (Dr. Stutee Gupta and Dr. Sarnam Singh), Department of Environment Management, Forest Research Institute, Dehradun.

6. Kainthola, Charul. **Screening for disease tolerant clomps of dendrocalamus strictus among different provenances and their genetic analysis**. (Dr. Amit Pandey, Dr. N.S.K. Harsh and Dr. H.S. Ginwal), Department of Forest Pathology, Forest Research Institute, Dehradun.

7. Kasania, Aakanksha. **Anatomical variations in hardwoods within a narrow wood density range**. (Dr. Sangeeta Gupta), Department of Forest Botany, Forest Research Institute, Dehradun.

8. Lubina, P A. **Resource Sharing and Carbon Stock Estimation in *Dendrocalamus stocksii* (Munro) M. Kumar, Ramesh & Unnikrishnan based cropping system**. (Dr. Syam Viswanath and Dr. K.S. Anil Kumar), Department of Forest Ecology and Environment, Forest Research Institute, Dehradun.

9. Malik, Shuank. **Integrated approach for utilization of lignocellulosic biomass using chemo - enzymatic pre - extraction of sugar for bioethanol production and subsequent effect on pulping and paper making properties**. (Dr. Vikas Rana and Dr. P.K. Gupta), Department of Pulp and Paper Technology, Forest Research Institute, Dehradun.

10. Negi, Ranjana Kumari. **Taxonomic studies of grasses in cold deserts of Himachal Pradesh**. (Dr. Anup Chandra and Dr. H.B. Naithani), Department of Forest Botany, Forest Research Institute, Dehradun.

11. Rana, Anchal. **Analysis of genetic diversity and biochemical parameters in *Polygonatum verticillatum* Linn**. (Dr. Ashok Kumar), Department of Forest Biotechnology, Forest Research Institute, Dehradun.

12. Sangma, Dingsmit B. **Ethnoveterinary practices of Garo Tribes of East and West Garo Hills Districts of Meghalaya, India**. (Dr. T.N. Manogara), Department of Forest Botany, Forest Research Institute, Dehradun.

13. Sharma, Deepak. **Chemical functionalisation of *Cassia tora gum***. (Dr. Pradeep Sharma), Department of Chemistry of Forest Products, Forest Research Institute, Dehradun.

14. Shekhar, Chander. **Population genetic analysis, spatial distribution and gene diversity mapping of Himalayan oak *Quercus semecarpifolia* forests of Uttarakhand**. (Dr. H.S. Ginwal, Dr. Santan

Barthwal andDr. M.S. Bhandari), Department of Forest Biotechnology, Forest Research Institute, Dehradun.

15. Singh, Seema. **Evaluation of *Pseudomonas species* of Dendrocalamus strictus for growth promotion and drought tolerance**. (Dr. Santan Barthwal and Dr. H S Ginwal), Department of Forest Biotechnology, Forest Research Institute, Dehradun.

16. Srinet, Ritika. **Spatio-temporal variability of carbon fluxes by integrating eddy covariance and multi-sensor satellite data in ecosystem models**. (Dr. Subrata Nandy and Dr. N.R. Patel), Department of Forest Geoinformatics, Forest Research Institute, Dehradun.

Fruit Science

1. Khalasi, Devangbhai Natvarbhai. **Effect of hand trimming and bunch feeding of nutrient in banana cv grand naine**. (Dr. T R Ahlawat), Department of Fruit Science, Navsari Agricultural University, Navsari.

Silviculture

1. Rawat, Pravin. **Ex-situ conservation of *Schleichera oleosa* (Lou) Oken through seeds**. (Dr. Ombir Singh and Dr. Manisha Thapliyal), Department of Silviculture, Forest Research Institute, Dehradun.

2. Reddy, Nimmala Mohan. **Development of framework for assessment of forest degradation in tropical dry deciduous forest in India**. (Dr. Ombir Singh), Department of Silviculture, Forest Research Institute, Dehradun.

Soil Science

1. Kalal, Purviben Hasmukhbhai. **Effect of integrated nutrient management in summer green gram (*Vigna radiata* L)-Kharif finger millet (*Eleusine coracana* L) cropping sequence under South Gujarat condition**. (Dr. H M Virdia), Department of Soil Science and Agricultural Chemistry, Navsari Agricultural University, Navsari.

BIOLOGICAL SCIENCES

Biochemistry

1. Manju Bala. **Regulatory Role of S-Allyl Cysteine and/or its derivatives in the pathogenesis of diabetes in skeletal muscle cells**. (Dr. Ashwani Mittal and Dr. Anita Dua), Department of Biochemistry, Kurukshetra University, Kurukshetra.

Biotechnology

1. Mehta, Nikhil. ***In Vitro* plant regeneration and Agrobacterium tumefaciens mediated high throughput novel transformation system development of *Sesbania aculeata* and *Vigna* radiata**. (Dr. Raman Saini), Department of Biotechnology, Kurukshetra University, Kurukshetra.

Botany

1. Deori, Manju. **Ecological studies of some selected Beels of Morigaon District, Assam**. (Dr. P K Baruah), Department of Botany, University of Science and Technology, Baridua.

2. Nath, Purabi. **Plant resource management practices of the Tiwa's of Assam**. (Dr. Milu Rani Das and Dr. Shafiqul Islam Bhuyan), Department of Botany, University of Science and Technology, Baridua.

Life Science

1. Ahmed, Syed Anees. **Pharmacodynamic and pharmacokinetic evaluation of *Cissus quadrangularis* against cardiometabolic disorders**. (Dr. Jiaur R Gayen), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

2. Basak, Nipa. **High altitude adaptation(s) in Tibetan population: Biochemical, epigenetic and genetic perspectives**. (Dr. K Thangaraj), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

3. Bist, Vidisha. **Characterization of microbial formulation for rice straw management**. (Dr. Suchi Srivastava), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

4. Chowdhury, Utpal. **Phylogenetic analysis in the Genus Piper (Piperaceae) in Assam, India**. (Dr. P K Baruah), Department of Botany, University of Science and Technology, Baridua.

5. Dholakia, Dhwani. **Understanding the complexity of HLA locus using Natural Language Processing and Genomics approach: An application for development of predictive genetic testing panel**. (Dr. Mitali Mukerji), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

6. Gogoi, Moloya. **Assessment of nutritional anti-oxidant, anti-inflammatory and anti-proliferative activities of a few minor fruits of North-East India**. (Dr. Rinku Baishya), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

7. Haider, Madiha. **Probing disease gene connectivity using multicomponent ayurvedic formulation**. (Dr. Mitali Mukerji), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

8. Karade, Divya. **Chemoinformatics based investigation of plant metabolites for their medicinal and crop protection values**. (Dr. M Karthikeyan), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

9. Lambhate, Surbhi. **Regulation of IDH1 and IDH2 proteins by APC/C complex**. (Dr. Nishant Jain), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

10. Mathew, Nimisha Sarah. **Evaluation of in-vitro and in-vivo anti-proliferative potential of *Ensete superbum Roxb* Cheesman (Wild banana)**. (Dr. P S Negi), Faculty of Biological Sciences, University of Science and Technology, Baridua.

11. Nikhita, R. **Biochemical and functional properties of chicken blood and plasma protein isolates**. (Dr. N M Sachindra), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

12. Priyadarshini, Nilima. **Efficacy of Gaur, cyamopsis tetragonoloba L as a potential ingredient in tilapia feed**. (Dr. K Dinesh), Department of Aquaculture, Kerala University of Fisheries and Ocean Studies, Kochi.

13. Renuka. **Studies on toxicity of pesticides (Difenoconazole, chlorpyrifos, butachlor) & their major metabolites using model organism Tetrahymena Pyriformis**. (Dr. Alok K Pandey), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

14. Shree G, Sowmya. **Studies on the molecular mechanism underlying the inhibitory potential of lutein on adipocyte differentiation in vitro and in vivo**. (Dr. Ganesan P), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

15. Tirpude, Narendra Vijay. **Vitex negundo Linn for nutraceutical intervention of allergic asthma: Molecular insights on Inflammation associated lung damage and underlying mechanism(s)**. (Dr. Vishal Acharya), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

Microbiology

1. Patel, Srushtiben Prahladbhai. **Amylase and cellulase production through solid-state fermentation from agro-waste using fungi and its applications**. (Dr. Duggirala Srinivas Murty), Department of Microbiology, Gujarat Vidyapith, Ahmedabad.

Zoology

1. Solanki, Ridhima. **Role of top predators in shaping carnivore communities**. (Prof. Qamar Qureshi and Dr. Y.V. Jhala), Department of Wildlife Science, Forest Research Institute, Dehradun.

EARTH SYSTEM SCIENCES

Environmental Science

1. Borah, Biren Chandra. **Study of human-elephant conflict in Rani-Garbhanga area of Assam, India**. (Dr. Anindita Bhattacharya and Dr. Prabal Sarkar), Department of Earth Science, University of Science and Technology, Baridua.

2. Sonkar, Kanchan. **Screening and evaluation of lipase from extremophilic bacteria: A study on kinetic and thermodynamic characterstics**. (Prof. Naveen Kumar Arora), Department of Environmental Science, Babasaheb Bhim Rao Ambedkar University, Lucknow.

Geology

1. Changotra, Sachin. **Studies on geochemical and mineralogical data for sedimentary rocks with special reference to sedimentary rocks of Upper Siwalik Sub Division of Jammu, Jammu and Kashmir**. (Dr. Rekha Israni and Dr. Sanjay Kumar Karlupia), Department of Geology, Bhagwant University, Ajmer.

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APPLICATIONS ARE INVITED FOR THE FOLLOWING POSTS FROM THE ACADEMIC YEAR 2021-22

UNAIDED

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1	**PRINCIPAL**	-	01	01-OPEN
2	**ASSISTANT PROFESSOR**	Law	02	02-OPEN
3	**ASSISTANT PROFESSOR**	Political Science	01	01-OPEN

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

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

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"**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. TASS/(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.

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Sd/-
Hon. President,
Hindi Vidya Prachar Samiti

VIDYA VIKAS MANDAL

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Phone No. 0832 2722505 ● Email : office@vvm.edu.in

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PRINCIPAL

of VVM's Shree Damodar College of Commerce & Economics, Margao - Goa

Applications with full Biodata are invited from Indian Citizens for the **POST OF PRINCIPAL (Unreserved Category).** The required minimum qualifications for the post of Principal are as follows:

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