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Reimagining Technical and Vocational Education and Training in India: Prospects and Challenges

Suprabha Dey* and Asheesh Srivastava**

India since its ancient Vedic age through its rich education and culture has tried to impart an education that leads to the holistic development of individuals. The great Rig Veda addresses the education that makes a man selfless and self-reliant, and the great education system of India has advocated for the mastery of 64 traditional arts or *chausath kalas.* The Gurukul system engaged the students in activities like building their own cottages, veterinary sciences, agriculture, animal husbandry, and various crafts - in cloth, wood, leather, metal works, etc., that in turn imparted vocational skills, competencies, and knowledge to them.

As per the All-India Council of Technical Education (AICTE), "Vocational Education or Vocational Education and Training (VET), also called Career and Technical Education (CTE), prepares learners for jobs that are based on manual or practical activities, traditionally non-academic and totally related to a specific trade, occupation or vocation, hence the term, in which the learner participates". As expertise is developed for a particular technique or technology in the learners, vocational education is sometimes also referred to as technical education. Various education commissions of India suggested reforms in general and vocational education during pre as well as post-independent India. The need for introducing vocational education at the secondary school stage in pre-independent India was for the very first time pointed out by Wood's Despatch (1854). After this, the Hunter Commission (1882), Hartog Review Committee (1929), Sapru Enquiry Committee (1934), Wood-Abbot Advisory Committee (1936) as well as the Sargent Report (1944) emphasized the crucial role of vocational education in the country's economic development.

India has been the motherland of great educationists and scholars like Mahatma Gandhi and Rabindranath Tagore who were the ardent propounders of education that lead to the overall development of an individual. Mahatma Gandhi believed in an education that is grounded in the harmonious development of the 3Hs- Head, Heart, and Hand or the cognitive, affective, and psychomotor domains. Gandhi Ji at the Round Table Conference in London held in 1931 pointed out the low literacy rate among Indians because of the ineffective primary education system of India and advocated that educating a child through manual

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work should be the prime means of intellectual activity. Therefore, in the Wardha Educational Conference held on 22nd and 23rd October 1937, Mahatma Gandhi proposed the scheme of Basic Education (Nai Talim). Basic Education with its fundamental principle of "learning by doing" had one of its prime resolutions to include manual and productive work while educating a child and developing abilities among them to engage with handicraft works.

The recommendations made by the education commissions of independent India including the Radhakrishnan Commission (1948), Mudaliar Commission (1952), Kothari Commission (1964-66) as well as both the National Policies on Education (NPE 1986 and NPE 1986) also strongly emphasized the need for proper and systematic implementation of vocational education in the country through school education. But decades passed, we are now in the year 2022 and according to the 12th Five-year plan (2012-2017) as mentioned in NEP-2020, the percentage of the Indian workforce in the age group of 19-24 formally trained in vocational education is less than 5% while that of South Korea it is as high as 96%, Germany it is 75% and the USA it is 52% (NEP 2020). This very much underlines the urgency and need to re-imagine Technical and Vocational Education and Training in India.

Genesis and Emergence of TVET

At the World Congress on TVET in Seoul, Republic of Korea (1999), the term Technical and Vocational Education and Training or TVET was officiated. TVET is defined 'as comprising education, training and skills development relating to a wide range of occupational fields, production, services, and livelihoods' (UNESCO, 2016). Though parallel to vocational education, TVET was recognized as an umbrella term that is broad enough to incorporate similar educational and training activities like technical- vocational education, workforce education, etc. Officiating TVET led to the inception of the UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training in Bonn, Germany.

TVET comprehensively involves all those technological, scientific, and learning activities that help in developing attitude, understanding knowledge, and practical skills throughout life which are useful in various personal, social and professional sectors. It involves continuous work-based learning and training at secondary, post-secondary, and tertiary levels for

professional development connecting education to the world of work thus making it a lifelong learning process. In India often TVET provisions are referred to as 'skill development, but skill development or skill training though an integral part of TVET remains insufficient to prepare students for long-term engagements. Therefore, along with the development of skills, TVET aims to induce competencies that will inculcate knowledge, attitudes, mindsets, and understanding of varied occupations making students productive in designated fields. Thus, TVET with its deliberate intervention to enhance work productivity as well as holistic development of an individual has a distinctive stand from other forms of education and training.

Education is at the very core of the United Nations 2030 Agenda for Sustainable Development as this can determine the success of all Sustainable Development Goals (SDGs). Four out of the seven targets of the Sustainable Development Goal 4 addresses Technical and Vocational Education and Training (TVET) aims for quality education that is not only inclusive and equitable but also transforms the lives of all individuals, communities, and societies, with a vision of lifelong learning. UNESCO's strategies for TVET through the targets of SDG 4 envision equipping the adults and the youth with the skills and competencies required for decent work, employment, entrepreneurship, and lifelong learning.

National Education Policy (NEP) 2020 and TVET

NEP—2020 emphasizes technical and vocational education on a serious note and calls for its re-imagination and how it will be offered to students in the future. NEP mentions that the primary reasons for the low percentage of students receiving formal vocational education in India are the perception of people considering vocational education inferior to mainstream education, the lack of well-defined pathways to pursue chosen vocation in higher education and that it is focused largely on Grades 11-12 or dropouts in Grade 8 and upwards. Thus, the policy aims for a phase-wise integration of vocational education programs into mainstream education beginning with middle school, secondary school, and also in higher education so as to ensure that at least one vocation is learned by every child and expose them to several more. This will not only trigger the change in the mindset of the youth but also induce in them the idea of entrepreneurship resulting in a large workforce of skilled human resources. In addition to this, it will preserve the Indian

arts and artisanship and also acknowledge the dignity of labor. The policy aims clear action plans, timelines, and targets so that by 2025 at least 50% of learners get exposed to vocational education through school and higher education. It will be in alignment with SDG goal 4.4 and vocational capacities developed will be hand-in-hand with the development of academic and other capacities. The policy recommends that HEIs offer vocational courses and short-term skill development certificate courses and also aims to explore vocational courses through ODL mode. Furthermore, the policy mentions, "Lok Vidya" which is important vocational knowledge developed in India to be made accessible to learners.

Having more ambitious targets than the previous policies, NEP 2020 inculcates the values of self-worth and dignity among the youth. In order to provide holistic education, the policy aims to expose the middle school students (grades 6 to 8) to multiple vocations. NEP also addresses the faults that lie in the implementation of TVET provisions. It specifies a new National Higher Education Qualification Framework (NHEQF) that will continue beyond the National Curriculum Framework for School Education (NCFSE). Both the NHEQF and NCFSE together with the National Skills Qualification Framework (NSQF) can impart the horizontal and vertical mobility of students in a better way.

Need for the Re-imagination of TVET in India

India and the World

According to the World Bank report, the Republic of Korea is one of the few countries that has successfully transformed into a global leader in innovation and technology from being a low-income economy (worldbank.org). The effective support of its Technical and Vocational Education and Training has been widely credited for the rapid economic growth of South Korea over the last 40 years (*TVET Country Profiles* Republic of Korea November 2018). TVET provisions in South Korea are upgraded and geared up to train large populations of learners and raise the skills levels of workers in order to meet rising labor demands.

As mentioned in NEP–2020, the percentage of the South Korean workforce in the age group 19-24 that received formal vocational education is as high as 96%. In other developed nations like the USA, it is 52% and in Germany, it is 75%, while in India it is below 5%. South Korea, Germany, and the USA all are OECD nations progressing and expanding enormously every moment in technology and other advancements resulting in huge economic growth. TVET if made accessible to the young Indian population will not only lead to the progress of the nation but also help India prosper and compete in the global markets.

Status of TVET in various States of India

Table-1 provides a picture of the vocationalisation of secondary education that was the result of the systematic effort made by the National Skill Development Corporation (NSDC), Sector Skill Council (SSCs), and the Ministry of Education (MoE) for integrating vocational education across schools in the states of India. Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE) has prepared the curriculum of the vocational education courses and as of 2019/20, 10158 schools across Indian states are being offered these courses, creating an impact in the lives of around 1201896 students [Vocational Education First State of the Education Report for India 2020 Technical and Vocational Education and Training (TVET)]. But even though it has provided an impetus to the vocational education in India, the data of states like Bihar, Uttar Pradesh, Uttarakhand, and UT like Lakshadweep shows a certain number of schools approving the vocationalization of secondary school education, but failing in its implementation resulting in zero enrollments of students. This is a matter of serious concern as the learners of these states are being deprived of the ongoing educational provisions. In secondary schools, even after the approval, failure in the implementation of vocational education can be a reason for dropouts and uninterested students in the classroom. Thus, it becomes the responsibility of the state government to take immediate measures for access to TVET for all the students. When the whole world is aiming for quality vocational and technical education, enriching the youth by integrating vocational education with formal education at the middle, secondary, and senior secondary levels in every school can calibrate the progress and performance of the nation in all aspects.

The Demographic Dividend of India

According to the Sample Registration System Statistical Report 2018, 25.9% of the Indian population is below the age of 14, 8.1% above the age of 60, and 66% in the working-age group of 15–59. This acknowledges the urgent need for quality TVET provisions, education, training, jobs, and entrepreneurship initiatives for the young Indian population that will transform them into assets for the nation.

Migration of laborers to other States in Search of Jobs

A popular notion seen among the children of underdeveloped states of India is to migrate to metro cities in search of work. These children if formally trained through TVET within their formal education can be made competent enough for formal employment or self-employment in their own states and can contribute to their socio-economic development.

Effect of COVID-19 Pandemic

Some of the most pathetic images were witnessed

Table 1: List of State-government-run Schools Offering Vocational Courses in Secondary Education

Serial Number	State	Number of Schools approved	Number of Schools Implemented	Total Enrolment
1	A&N	37	37	5983
2	Andhra Pradesh	437	437	48823
3	Arunachal Pradesh	101	99	14349
4	Assam	340	269	27183
5	Bihar	38	0	0
6	Chandigarh	22	22	3019
7	Chhattisgarh	546	546	98581
8	DNH	4	4	318
9	Daman & Diu	5	5	325
10	Delhi	65	65	4967
11	Goa	132	120	7190
12	Gujarat	122	120	5557
13	Haryana	1065	1065	129345
14	Himachal Pradesh	953	873	84100
15	Jammu &Kashmir	657	572	37624
16	Jharkhand	388	260	26941
17	Karnataka	150	150	12392
18	Kerala	93	93	10284
19	Lakshadweep	5	0	0
20	Madhya Pradesh	1200	1141	140384
21	Maharashtra	644	509	50877
22	Manipur	78	62	7126
23	Meghalaya	25	23	1526
24	Mizoram	29	27	3332
25	Nagaland	26	18	2295
26	Odisha	576	576	56692
27	Puducherry	9	9	526
28	Punjab	955	955	111300
29	Rajasthan	905	905	126969
30	Sikkim	194	184	21182
31	Tamil Nadu	120	120	15791
32	Telangana	307	192	51966
33	Tripura	80	24	920
34	Uttar Pradesh	200	0	0
35	Uttarakhand	200	0	0
36	West Bengal	726	676	94029
	Total	11434	10158	1201896

Source: [Ministry of Education as cited in Vocational Education First State of the Education Report for India 2020 Technical and Vocational Education and Training (TVET)]

during the COVID-19 pandemic when millions of workers despite incredible odds were trying to walk home post the lockdown. The states whose most of the population were migrant laborers were vastly affected by the impact of the COVID-19 pandemic and largely blamed the government for the unavailability of jobs that forces them to migrate to other cities. Apart from this many people lost their jobs and faced devastating experiences because of the shutdown of various companies. The COVID-19 pandemic has highlighted the faults that existed in the implementation of TVET in India. Thus, re-imagining the lives of citizens for a more digitalized, sustainable, and equitable society with balanced work-life is the call of the time and TVET can be a tool to empower the post –COVID world.

The Picture Now: TVET Provision in India

India made considerable progress towards its goal of creating a skilled workforce of 110 million by 2022 [NPSDE, 2015, as cited in Vocational Education First State of the Education Report for India 2020 Technical and Vocational Education and Training (TVET)]. Over 20 ministries are engaged in TVET and the Ministry of Skill Development and Entrepreneurship along with its key institution – the National Skill Development Corporation (NSDC) and the Ministry of Education (MoE) are playing a pivotal role in the growth of TVET in India. Thus, this is the best time to re-imagine TVET in India and how it can be provided to students in a phased manner. *Buniyadi Vidyalaya*s or Basic Schools started by Mahatma Gandhi in Bihar to promote handicraft-centered learning among learners and provide them vocational learning experiences through spinning, weaving, farming, carpentry, etc. is failing miserably to live up to its expectations. Many of these *Buniyadi Vidyalayas* were closed due to the lack of trained teachers and some which are functioning have lost their very essence. Research should be encouraged based on the needs, demands, and interests of the learners so that the *Buniyadi Vidyalayas* can be re-imagined, re-designed, rejuvenated, and restarted across India so that they can be a platform for providing TVET provisions in India.

Prospects of TVET

1. TVET can be an instrument to prepare the youth for work by developing work-related skills and capabilities in them that can further train them for formal employment as well as self-employment.
2. TVET can inculcate the spirit of self-reliance and entrepreneurship among learners through the mastery of underlying knowledge and competencies.

3. For keeping pace with the demands of the rapid technological changes of the modern world, TVET can be an aid for continuous professional development through upskilling and reskilling.

4. Along with the work-related education, TVET can lead to the personal development of learners and their emancipation by not only making them realize their potential but also developing a broad range of personal capacities in them.

5. TVET can help in increasing the productivity of workers by developing capacities for effective communication and interpersonal relations in them thereby facilitating their economic growth

6. TVET can help in Promoting social equity and inclusive workplaces if made accessible to every child through their formal education.

Challenges in Achieving TVET

- TVET is not in the reach of all students as government schools of various states still lag behind in the implementation of the vocationalisation of secondary education in schools. In addition to this middle school students also remain deprived of TVET opportunities due to insufficient educational provisions in schools across India.

- Lack of awareness regarding TVET and its benefits among students, parents, teachers, and various other stakeholders of the education sector.

- Most of the migrant laborers of India come from its villages, yet rarely there are any TVET provisions or related awareness and facilities in the villages.

- Lack of trained teachers in TVET or related areas in the schools.

- Poor quality of education in government schools.

Suggestive Measures

- In order to help TVET provisions reach every single institute and address the learning needs of every single learner, concerted and innovative plans need to be devised by the school administration and management committees.

- Teachers and trainers sufficiently trained in the area of TVET should be identified and stationed to meet to the practical training requirements of learners in order to gear up their experiential learning as well as improve the quality of teaching.

- NEP-2020 has proposed the revision of the National

Curriculum Framework for Teacher Education (NCFTE) so that more and more teachers can be trained and re-oriented to contribute to TVET capacities and provisions.

- Change in the mindsets, attitudes, and perceptions of learners is also very much required so that they do not consider vocational education inferior to mainstream education and get interested in TVET provisions. Therefore, as proposed by NEP -2020 there should be a revision of the National Curriculum Framework (NCF), and classroom learning that addresses community challenges should be encouraged. This will not only make the learners interested in TVET provisions but also add to their competency and career choices.

- Special attention should be given to the Bihar, Uttar Pradesh and Uttarakhand, and Lakshadweep for better implementation of TVET opportunities. The implementation of vocationalisation of secondary schools should be done immediately with a sense of emergency in these states and UT so that the maximum number of students can be benefitted from it. This will certainly lead to a reduction in the dropout rates in schools and migration of laborers and an increase in the living standards of people.

- Government should take measures and align the policy as per the recommendations of NEP–2020 for better outreach of TVET opportunities to students starting from grade 6. The aims of TVET and the measures mentioned in NEP—2020 can only be successful in their true sense when they can ensure an equitable learning opportunity. It should aim to reduce gender, regional and social inequalities in access, participation, and achievement levels of TVET opportunities. India's success in achieving the goals of TVET will surely lead to the success of sustainable goals which in turn will have a global impact.

Conclusion

As skills are the new global currency of the twenty-first century economies, TVET has taken center stage for building competencies, capabilities, attitudes, and skills among learners. The introduction of technical and vocational education and training in mainstream education will water the seed of self-reliance and entrepreneurship among learners from the very beginning making them independent, self-motivated, and confident thus contributing to the country's progress. But even though the Indian government has launched various programs and projects to meet the TVET needs of all children, the reality is far short of expectations in terms of enrolment, the quality of schooling, infrastructure, and its outcome. Therefore, it is high time to reformulate policies, redesign and re-imagine TVET and rejuvenate the spirit of self-reliance by integrating Technical and Vocational Education and Training through the formal education system of India so that we can excel as a nation and reach the pedestal of technological advancements and socio-economic progress globally. This paper encourages further researches to analyse the grass root reality, problems, needs, and interests of the students and stakeholders of education so that we can have a re-imagined and relevant TVET in India.

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National Education Policy–2020: Expectations and Probabilities

K Devakar Reddy*, A Bharathi Reddy**, A Ranga Reddy*** and R Suneetha****

Education is the most effective means of social justice and personal advancement. There is no better investment than education to improve the future of society. The new National Education Policy-2020 (NEP—2020) was framed after many years of labour by a panel led by Padma Vibhushan Dr. K. Kasturirangan and feedback from more than 2 lakh stakeholders. As per the new Policy, universities will be classified into Research-Intensive Universities, Teaching Intensive Universities, and Autonomous Degree-granting Colleges (ACS). It will have open and distance learning intuitions, online courses, digital repositories, infrastructure, and funding for research, improved students' services, credit-based recognition of Massive Open Online Courses (MOOCs), etc. The main essence was to integrate Indian culture and ethos at all levels. The paper highlights the objectives of the new National Education Policy 2020 and its practicality in the socio-economic, political, and cultural conditions of India.

Aristotle said, "Education roots are bitter, but fruits are sweeter". Father of Nation- Mahatma Gandhi felt that education should bring all-around development and vocational and skill courses are the best medium for the all-around development of students, and therefore the syllabus should be woven around vocational training. He originated the 'Earn While Learn' theory. As per the 12th Five Year plan document, just 5 percent of people between the ages of 19 to 24 received vocational education. The NEP 2020 aims to break stereotypes and bring changes in the perception of vocational education. The school and college education will be broadened to facilitate multiple pathways to learning, involving both formal and non-formal education modes. The new National Education Policy (NEP) represents a turning point in

this regard. Unlike the country's ongoing approach, the NEP suggests an Indian Educational sector, that is increasingly open to engagement with foreign educational institutions, whether Indian universities can now hold on their own or as collaborators alongside which these universities can take greater strides. Gone are the days when India's Universities feared that they would be overshadowed by foreign institutions.

For growing and catalyzing quality resources in the nation, the NEP–2020 envisions the establishment of a National Research Foundation (NRF) intending to allow a culture of research to permeate our universities. Swami Vivekananda, the son of the soil, who has beaconed the light of Indian culture, once observed, "I would prefer playing the football game in the open ground instead of reading the Bhagavat Gita within the four walls." Swami Vivekananda's observations laid stress on physical growth, which is said to be the psychomotor domain (skills). John Dewey, a famous Philosopher, and Psychologist in America introduced the "learning by doing" theory. This theory focuses the attention on the interaction of the pupil with the society at large. The knowledge which is being imparted in the curriculum cannot be complete unless and until it is put to practice in society. This is the concept he says, is a "hidden Curriculum" that helps the student to acknowledge the "value of the values" of both the individuals and societies by interacting with the society. Cultivating good values such as altruism, humility, honesty, cooperation and sacrifice and positive social attitudes among the youth can enable the young to survive in the external world of deceit, injustice, and criminality.

Nalanda and Takshashila Universities, in the 5th and 6th centuries, were the highest centers of learning in the world. These universities of yore attracted students and scholars from all over the world by virtue of their erudite and eminent scholars and the high quality of the education they offered. These should be our benchmarks. And if we must reach anywhere near there, constant innovation and tireless pushing of our quality standards are essential.

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New Features of School Education

The Policy recommended mother tongue as the medium of instruction up to grade 5 and curricular and pedagogical framework will include Pre-primary Education in the mainstream. The curriculum will integrate Indian culture and ethos at all levels. Vocational education will be included from the middle stage. Every child must learn at least one vocation and will be exposed to several more. The teacher must undergo training in a 4-year integrated B.Ed. degree. Ph. D. Scholars of every subject must pass a module on teacher education. Social workers, alumni, and volunteers should be continuously associated with schools. Innovative pedagogies integrating Indian Arts, Culture, and Sports be implemented. A national curricular and pedagogical framework for early childhood care and education for children up to the age of 8 will be implemented. All school children will undergo regular health check-ups and health cards will be issued. Public and private schools will be assessed and accredited on the same criteria, benchmarks, and processes. Children will be provided energizing breakfast in addition to mid-day meals.

New Features of Higher Education

Higher Education Institutions will be transformed into large multi-disciplinary universities, colleges, higher education institution clusters, and knowledge hubs. Universities will be classified into Research-Intensive Universities, Teaching Intensive Universities, and Autonomous degree-granting colleges (ACS). There will be phasing out the system of affiliated colleges over a period of 15 years through a system of graded autonomy. At the undergraduate level, a multidisciplinary holistic education system will come into force. Exposure to science, arts, humanities, mathematics, and professional fields with flexible curricular structures, creative combinations, and integration of vocational education will be there. 4-year multi-disciplinary bachelor's program with preferred options will be there. Suppose a student studied one year of 4-year course, a certificate will be issued, for 2 years diploma will be given, after completion of 3 or 4 years as prescribed, bachelor's degree is awarded. Academic Bank of Credit (ABC) shall be established which would digitally store the academic credits earned. It is re-affirming the integrity of faculty and institutional leadership positions. Clearly defined independent and transparent processes and criteria for faculty recruitment – tenure track incentives will be there. It will have more open and distance learning, online courses, and digital repositories, funding for research, improved students' services, credit-based recognition of Massive Open Online Courses (MOOCs), etc. It is a gesture to allow entry to foreign universities, and student and faculty mobility. A National scholarship portal will be expanded for financial support. Governance of Higher Educational Institutions will be with independent boards having academic and administrative autonomy.

Higher Education: Under One Umbrella

Higher Education Commission of India (HECI) – the Umbrella Architecture body with independent verticals for standard-setting, funding, accreditation, etc. Namely National Higher Education Regulatory Council (NHERC, General Education Council (GEC), Higher Education Grants Council (HEGC), and National Accreditation Council (NAC) will be there. The standard setting will be taken care of by the general education council and professional standard-setting bodies. The financial probity and public-spiritedness – transparent self-disclosure, faceless interventions through technology, powers to penalize HEIs not conforming to norms and standards.

Public and private higher education institutions will be governed by the same set of norms for regulation, accreditation, and academic standards. Stand-alone institutions will cease to exist and all the institutions; general, health science, legal, agricultural, etc. will merge to become multi-disciplinary institutions. Integration of technology to improve classroom processes, support teacher professional development, enhance educational access for disadvantaged groups, and educational planning, administration, and management will be streamlined. Online and digital education will be promoted. Indian Institute of translation and interpretation (IITI) will be established. National Institute (or institutes) for Pali, Persian, and Prakrit will be set up. All education institutions will be subjected to similar standards of audit and disclosure.

Shri Ramnath Kovind Hon'ble President of India noted that investment was only 0.7% of the GDP in India, in comparison to 2.8% in the U.S., 4.2% in South Korea and 4.3% in Israel. Education is the most effective way for social justice and hence the National Education Policy calls for an investment

of about 6 per cent of GDP jointly by the center and states. NEP emphasizes strengthening public educational institutions for a vibrant democratic society and inculcating respect among students for fundamental rights, duties, constitutional values, and patriotism.

Socio-economic, Political, Cultural Conditions: An Acid Test

In fact, the quality of a school is the foundation for the higher education system. When rural India had a shortage of infrastructure facilities, the introduction of vocational courses and online facilities takes time. In earlier days societies believed in simple living and high thinking, every activity was found transparent with accountability. So, society believed teachers as living gods, after parents. After independence, population growth, poverty levels, and pollution raised alarmingly in the country. Corruption involving caste, cash, and criminality became rampant to make quick money. Even in the education system, the teacher posts, vice-chancellor posts, and student seats in colleges and universities in many places involved nepotism and other corrupt practices involving money. In a democratic country, political interference is found at every point from school to university, and employment to promotions. The level of existence of merit, character, and quality has become a billion-dollar question. Universities exercising autonomy has become a myth. As educational institutions depend upon state finances, state intervention is there at every point. Centuries together, Harvard, Oxford, Cambridge, and Humboldt Universities were working without political interference but in our institutions, political interference is common. On the colleges/university campuses, political parties, and student wings are very actively working and very often disturbing teaching, research, and administration on their ideologies. As employment in state/central institutions was regular, nobody questions actions and activities. As there are no stringent punitive measures, quality is deteriorating, and creativity is no more in the system. We are optimistic, that NEP 2020 may help to generate an honest society, provided the ethical revolution enters the Indian society.

NEP–2020 may help to create an education system that can generate an honest society and brings an ethical revolution to the Indian society.

Conclusion

After 34 years, New Education Policy 2020 is going to form a new India. From the school level, we are introducing general and vocational courses, so that a boy/girl can opt for self-employment or joining in higher education. The essence of past glory will be added to the courses so that students can carry the legacy and heritage of India for future generations. Science, Technology, digitalization, and modernization of education will be taken place. The school, college, university curriculum, examination system, offering degrees, incentives for innovations, scholarship portal, and foreign universities are to be inculcated and invited to the education system. The lingering menaces like political intervention, corruption, and fake autonomy will go and merit, quality, and ethics will be penetrated, and India will become a global education hub as earlier like Nalanda, Thakshashila.

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Education during COVID-19: Some Reflections of Teachers of Rajiv Gandhi University

Vivek Singh* and Hevojit Deka**

Education is the developmental process that ranges from infancy to till death. Education teaches the child maturity and responsibility by bringing the required changes as per the needs and demands of society. Now education is not a priority but a necessity in modern life. "Education is defined as a learning process for the individual to attain knowledge and understanding of the higher specific objects. The knowledge gained formally resulting individual has a pattern of thought and behavior in accordance with the education they have gained." (Big Indonesian Dictionary, 1991). The process of education is dynamic and teaching-learning changes as per the need of society. In the last few decades, Information and Communication Technology (ICT) has resulted in a shift in the teaching-learning processes. Now ICT integrated blended and online learning is considered an innovative practice in instruction. "It is widely accepted that electronic-mode is cost-effective, safe, and convenient" (Garg,2020).

The whole world has been facing the COVID-19 pandemic since the first quarter of 2020 making the people prisoners in their own homes. This led to the physical closure of education institutions, raising the need for an innovative model of teaching-learning and research **(**Jena, 2020; Chhetri &Pokhrel, 2021). In the meantime, ICT-based online education was considered an alternative and a necessary solution by many academicians and institutions (Ivanoma, 2020; Abdulrahim &Mabrook, 2020; Xu & Hill, 2021). Further, educational agencies of the government of India have also accepted online mode as an alternative to face to face, in order to ensure the continuation of teaching-learning. Educational institutions have continued education during the period by using a different online mediums such as Google group, Google Meet, Zoom Meeting Platform, Cisco webex app, etc. and webinars emerged as an alternative to seminars and conferences.

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Teaching online has become very necessary after the COVID-19 crisis and a teacher plays a very important role in the handling of ICT tools. So, teachers had to make themselves familiar with the use of ICT by having required training to handle digital tools and implement new approaches to teaching and learning. (Eickelmann and Gerick 2020). In this way, ICT become very essential to be integrated with education. However, many scholars have raised the question of the use of online education and said that it is not suitable because of cost of internet, uncooperative learners, lack of ICT knowledge, infrastructure (Noor, Isa & Manzhar (2020), less inclusive and less suitable for teaching learning.

COVID-19 is the disease caused by the new corona virus that emerged in December 2019. COVID-19 has several symptoms like body aches, difficulty in breathing, fever, cough, loss of taste and smell, vomiting, runny nose, fatigue, headache, diarrhea. Covid-19 in extreme cases can cause death. It spreads from one person to another and it can be detected by RAT (Rapid antigen tests) or RT-PCR (Reverse transcription-polymerase chain reaction). Spread of Covid-19 shows negative impact and disrupt every aspect of our life including education and a large number of educational institutions and campuses around the world were closed and teaching-learning method moved online from offline. Higher education institutions (HEIs) have faced the major challenges and also deals positively and managed continuity of teaching learning process

RGU (former name Arunachal University), is the only central institute of higher education in Arunachal Pradesh, it is now 35 years old. RGU, the premier institute of higher learning in Arunachal Pradesh is also affected by the pandemic. Prime Minister of India has announced the 1st phase of lockdown on March 25, 2020, following this the university has been closed for physical classes. RGU has strictly followed the rules and regulations set by the Government of India. But to tackle this situation and to make learning continuous RGU has adopted the online mode of Education.

The COVID-19 (1st Phase) pandemic had made significant disruption in the education system across the

world. It has compelled for closure of the schools and other higher institutions and hampered the necessary services to students around the world. COVID-19 has added many new perspectives to education by making the online mode of education a popular medium to impart education during the lockdown period. The teachers were key to implementing online-based education. Hence it is very necessary to explore their point of view and experiences related to online education in order to take a suitable decision and improve the system. Based on the review of related literature it was found that several studies have been conducted in relation to the impact of COVID-19 in education in India and abroad. But no study has been conducted so far on the impact of COVID-19 on the education of RGU, Arunachal Pradesh. Therefore, the researcher thought to take up the present topic for the study.

Based on the discussion so far, a research question came to the mind of the researcher that is "what are the major changes in the teaching-learning process of RGU due to COVID-19? Hence, this study was initiated. In order to study the research problem systematically, the objective formulated was to study the changes in teaching-learning process of the RGU due to COVID-19. It is a descriptive survey method of research by administering a questionnaire. All the regular teachers of the RGU were considered as population of the study. The researcher has selected 50 teachers from various department of RGU by adopting Simple Random sampling procedure. In order to explore teachers' point of view, the researcher prepared and used the self-made questionnaire. For questionnaire the researcher prepared 13 questions about education during the pandemic of COVID-19 in RGU.

Results and Discussion

After the collection of data, it has been cross checked and verified. The data analysis has been done by frequency, percentage method and content analysis.

In order to study the changes in the teaching-learning process 13 questions have been asked from teacher of the university. All questions have certain options as well as space for justification and open response. The responses of each question have been presented in tables (from 1to 9) followed by content analysis.

Table-1 shows the responses of teachers as per the data collected by the researcher. From the statistical representation of table, it is found that 92% of teachers greed that COVID-19 brought them closer to new technology, only 6% of teachers agreed upon online teaching as more effective method of teaching, 78% of teachers agreed that Covid-19 has brought new perspectives in teaching learning process, whereas 72% of teachers found pressure on themselves to complete the syllabus on time and lastly 78% of teachers found new challenges in the research activities.

The researcher has asked some open-ended questions related to questions of table-1 and after content analysis many other views of teachers came forward. Many teachers have not agreed on online teaching because of lack of interaction and of connectivity issues, in other way, it also makes difficult to explain complicated and calculative materials and monitoring students was also found difficult. Teaching learning in subject like visual and performing art, sciences were very much affected because it requires one to one interaction as well as practical experiences.78% of teachers were agreed that COVID-19 has given a new perspective in teaching learning process. It connects the education with new technology, it has huge scope, use of technology has enhanced and given a new perspective of virtual classroom.78% of teachers also agreed upon that, changes have occurred in the research activities. Through the content analysis of data, it was found that new areas of research have come and institution suffered due to absence of research scholars, research activities were more focused on

Table 1: Teacher's Responses on Various Aspects of Teaching-learning Process

Sl. No	Statements	Yes	No
1	Do you think that due to COVID-19 you had come close to new technology?	46 (92%)	4 (8%)
2	Is online teaching more effective than traditional teaching?	3 (6%)	47 (94%)
3	Do you think that COVID-19 has given new perspective in teaching learning?	39 (78%)	11 (22%)
4	Was there any pressure on you to complete the syllabus within time as compared to traditional teaching?	36 (72%)	14 (28%)
5	Did you find any challanges in Research activities during pandemic?	39 (78%)	11 (22%)

literature review and secondary data sources as field work was not possible, online survey increased, for data collection and researchers had to depend on online materials.

From the Table-2 it is found that on 62% teachers used WhatsApp to deliver the materials followed by Google classroom with 30% of users. As the researcher goes through the content analysis, many other views of teachers were found on this statement. As per the data collected it was found that many other media were also used by teachers to deliver the materials such as e-mails, Zoom and Google meet, photo and scan copy of hand written notes and books via mobile or tablet, and Conference calls (Telephonic).

From the Table-3 it was found that with a 46%, problem of lack of interaction was faced by the most of the teachers, followed by connectivity with a 36% and problem in handling of apps with 14%. As the researcher goes through the Content analysis it was found that lack of physical classroom experience was also one of the problems faced by many teachers during the teaching.

From the Table-4 it was found that only 22%

teachers found online teaching interactive and 18% have opposite view. However, 48% students found online education sometimes interactive and 8% have not given any opinion.

Table-5 is about the support of institution in teaching learning during pandemic. Based on the data it was found that 50% of teachers were of the opinion that institution gave support during the pandemic and 50% of teachers were of opposite opinion. As the researcher goes through the Content analysis, it was found that teachers got support in form of free internet and electricity to continue the teaching but other hardware and training support was not provided sufficiently.

From the Table-6 it was found that 92% of teachers used the PPT with lecture method while videos and voice notes were used by only 4%. As the researcher goes through the Content analysis some other methods were also found which were used by the teachers such as e-books, online videos available in the web and digital whiteboard.

As per the Table-7 showing above it was found that teachers were spending more time than before.

Table 2: Teacher's Responses on use of Media for Study Material Delivery

Sl. No	Statement	Via WhatsApp	Online link	Google classroom
6	Study materials were delivered to students during pandemic	31	4	15
Percentage (%)		62%	8%	30%

Table 3 Problems Faced in Teaching

Sl. No.	Statement	In handling apps	Lack of interaction	Connectivity issue
7	Problems faced in teaching during pandemic.	7	23	18
	Percentage (%)	14%	46%	36%

Table 4 Teaching Process

Sl. No.	Statement	Yes	No	Sometimes	Cannot say
8	Teaching process was interactive via online mode during pandemic	11	9	24	4
	Percentage (%)	22%	18%	48%	8%

Table 5 Support from Institution

Sl. No.	Statement	Yes	No
9	Did you got support from institution regarding teaching-learning during pandemic?	25	25
	Percentage (%)	50%	50%

Form the above table-8 it is found that 88% of teachers faced connectivity problem in conducting a test during pandemic while 12% of teachers faced the problem of timely reception of answer sheets. As the researcher goes through the Content analysis some other problems were also reflected by the teachers, such as connectivity at student side was poor, most answers were copied from the internet or other sources, etc.

Table-9 shows the responses of teachers on which online platform they had used the most for teaching during pandemic, in which as per the data gathered it is found that with a 68% Google Meet online platform used most by the teachers, followed by Google classroom with 16% whereas 14% of teachers had used the Zoom meeting and Cisco WebEx with 6 %.

Findings and Discussion

Teachers have come close to new technology due to COVID-19. This could be because technology has huge scope in education, as it connects education with new technology. Some teachers still favor traditional teaching as compared to online teaching. The reason behind this could be lack interaction with the students, and practical oriented and calculative subjects are found difficult to explain through online teaching. Teachers have found changes in the research activities due to COVID-19. Here findings also show that teachers faced problems while conducting tests because of connectivity issue. Connectivity at the student side is slow and most answers were found similar due to copy paste from internet. These findings are similar to the findings of Bao (2020), Noor, Isha and Manzhar (2020).

Due to COVID-19, all the institutions were closed and the students went for online teaching globally. In RGU, normally online classes were done by showing PPT, reading digital materials, students ask questions to clear doubts, prepared notes by themselves, etc., as in that way online classes showed

Table 6 Mode of Teaching

Sl. No.	Statement	PPT show with lecture	Only lecture	By making videos and voice notes
10	Teaching method used during pandemic	46	2	2
	Percentage (%)	92%	4%	4%

Table 7 Time Spent on Lesson Planning

Sl. No.	Statement	Always	Often	Sometime	Never	Rarely
11	Did you spend more time in lesson planning during pandemic than before?	20	8	15	2	5
	Percentage (%)	40%	16%	30%	4%	10%

Table 8 Difficulties Faced

Sl. No.	Statement	Connectivity problem	Timely reception of answer sheets.
12	Difficulties faced during the pandemic in conducting a test and online examination.	44	6
	Percentage (%)	88%	12%

Table 9 Use of Online Platform

Sl. No.	Statement	Google Meet	Zoom meeting	Google classroom	Cisco-WebEx	Microsoft teams
13	Which online platform was used the most during the pandemic?	34	7	6	3	0
	Percentage (%)	68%	14%	12%	6%	0%

some benefits. COVID-19 has affected the higher education and difficulties in teaching and learning were faced by teachers in the form of low connectivity at the both sides, noisy home environment, this could be because of lockdown all members of family staying together. Many changes in the use of technology also found, as their dependency in the internet increases for study materials as compare to pre-COVID-19, they began to spend more time on online reading of e-contents, spending of time on you tube also considerably increased

COVID-19 is pandemic of this century which affected everyone. All countries are fighting against it in all possible ways. Education sector is one of the sectors which was affected most due to COVID-19 all educational institutions has been closed which affected the life of teachers and students. And to continue the learning online education method was used, which has advantages but along with many disadvantages also. To improve the status of online education, every institution need to organize some orientation classes regarding the online teaching for effective classes and need to take them closer to the online pedagogy. The state must be aware of the online teaching status and may need to take necessary steps as per the requirement of the situation. A pool of expert should be set to revise the curriculum as per the present need.

Conclusion

Based on discussion of the study, it can be said that COVID-19 pandemic has given a new dimension to education of RGU. Teacher not only came closer to new technology, understood new perspective of education and research, but also faced some problems such as lack interaction, unavailability of resources and time consuming. During the time teachers have used whatsApp, Email, Videoconferencing for connecting with the learners. The online mode of education may continue in education system after COVID-19 also and for this training of teachers and proper infrastructure will be required.

Educational Implications

The present study focused on changes in education of RGU due to COVID-19. Hence the findings of the study will help to create awareness among the society about the covid-19 and its impact on higher education; the study will help the policy makers and administrators to make plan and policies on how to continue teaching-learning activities if in the near future this kind of situation occurs again. The study will help RGU to develop proper online teaching methods usung teachers' point of views.

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Reimagining Teacher Education and National Education Policy–2020: The Way Forward

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Prologue

It is often quoted that no one can teach anything to anyone and that all one can do is to create an instrumental environment to learn. It is acknowledged that for improving student's learning outcome, teacher's ability to motivate and facilitate learning is very crucial. Teacher stimulates the spirit within, awakens consciousness and radiates into thought and action of individuals. The role of teacher in education is incomparable and for that the teacher training programme is to be organized enough to equip the teachers with the right inspiration, values and skills. Redesigning of both pre service and in service teacher education programme, keeping in mind the 21st century required skills therefore, is the need of the time. The system of teacher education in India is under serious criticism these days because of the increasing instances of quality crisis throughout India. Teacher education programmes are said to be mechanical, stereotyped, traditional and passive, unable to prepare effective and competent teachers. Quality is checked in terms of infrastructure facilities, curriculum, pedagogy, teaching practice, and examination, teaching standard and professional development of the teacher. Teacher education institutions have been legitimized and allowed to function. However, due to increasing demand of the society, explosion of knowledge, technological advancement, requirement of new skills and value system, the need of the hour is to have a holistic outlook about teacher education in India.

It remains a challenge to have well organized and effective teacher education programme in India. Throughout the reformatory and restructuring process of teacher education in post independent India, teacher education curriculum, pedagogy, management, regulations have witnessed a paradigm shift in recent years. New Education Policy 2020, attempted to address the problems of teacher education with an effort to revitalize and renovate teacher education in India. The paper deals with the Policy perspectives on teacher education of India, probable challenges in its implementation and proposed suggestions for achieving the objectives of NEP 2020 on teacher education.

Teacher as Change Catalyst

A student is like a seed full of potential that need constant showering of knowledge, training, inspiration and guidance to blossom into a full grown tree. Teacher ought to be subject expert, facilitator, innovator, good communicator, thinker, compassionate, creative, funny, proactive, passionate, committed, continuous learner, disciplined, value educator, punctual, knowledgeable, resourceful, interested in teaching and what not. Teachers are those who bring about transformational process using different teaching methods, organizing activities, sharing experiences for effective learning. Quality teaching involves responsive and reflective teaching. It is responsive to students learning style and provides scaffolding to the extent that learners would become autonomous. Autonomy is central to the professional identity of teachers. Professional autonomy and identity of teachers promotes liberal thinking enabling the teacher to educate learners to be independent thinker for taking judgement by them. Multidisciplinary environment in higher education lays the strongest foundation for liberal thinking and development of critical thinking. Students need to feel purposive and optimistic about the teaching profession. They need to feel confident that they have specialized dispositions, skills and understanding that enables them to be effective and adaptive teachers. A liberal environment and catalytic role of teachers enable students to learn, unlearn and relearn.

Teacher Education in India and National Educational Policies

Teacher education being an integral part of the entire education system, a novel model for educational theory and practice is needed for preparing teachers to develop as facilitators. Blend

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of cognitive and affective development in education and a focus upon the interpersonal conditions for facilitating significant learning require changes in the preparations of teachers. To develop inter personal qualities as counsellor and facilitator, complete rethought of teacher education programme is necessary. However, sudden and absolute transformation of teacher education curriculum and teaching learning process in the light of facilitative development is not feasible. In the post independent India, initiatives are going on for improvement of the national education system including teacher education. The first Indian Education Commission, University Education Commission (1948-49) recommended for remodelled, flexible and adaptable curricula, selecting suitable schools and duration of practice teaching and replaced the term 'teacher training ' to 'teacher education' for improvement of teacher education.

Secondary Education Commission (1952-53) suggested for training in at least two subjects within one year of training to the graduate teachers, along with practice teaching, observation, demonstration and criticism of lessons, construction and administration of scholastic test, organization of supervised study and maintenance of cumulative records. The Kothari Commission, 1966 stated, "Of all the different factors which influence the quality of education and its contribution to the national development, the quality, competence and character of teachers are undoubtedly the most significant". The National Policy Statement on Education (1968) commented that teachers need to be accorded an honoured place in society. It suggested that teacher's emolument and service conditions should be adequate and satisfactory as per their qualification and responsibilities. The National Commission on Teachers (for school teachers 1983-85) suggested for 4 year training course after senior secondary or preferably a 5 year course leading to graduation and training. Teacher educators in colleges of Education were suggested to be from diverse academic disciplines. The Commission also recommended for replacing 'practice teaching'. The National Education Policy 1986 has stated that no education system can rise above the level of its teachers. The National Education Policy 1986 and 'Programme of Action' 1992 recommended for improving the quality of teacher education and up-

gradation of training schools to District Institute of Education (DIET), Colleges of Teacher Education (CTE), and Institutes of Advanced Studies (IASE). Yashpal Committee (1993) suggested for one year B.ED programme after graduation or four years after higher secondary. The Committee also emphasized on restructuring curricula making it relevant for enabling trainees to acquire the ability for self-learning and independent thinking. National Council for Teacher Education (NCTE) suggested 'National Curriculum Framework (1998)' on content designing and teaching methods. 'National Curriculum Framework (2005) recommended on school education curriculum, evaluation, teachers status and professional development. National Knowledge Commission (2005) considered teachers as single most important element of school system and suggested for adequate monitoring of teacher education programme, increased budgetary allocation. 'National Curriculum Framework (2010) emphasised on professional preparation of teacher educators for strengthening teacher education of India.

NCTE undertook initiatives with NAAC for assessment and accreditation of the teacher training institutions for quality enhancement. Though all these initiatives have resulted into significant growth of teacher education in India, problems of teacher education are still mounting. Less emphasis on integration of socio emotional training, inadequate infrastructure, lack of quality research, demotivated teachers, improper practice teaching, in appropriate pedagogy, unsystematic supervision, technophobic teacher educators, poor financial allocation, lack of feedback system, insufficient co-curricular activities are some of the challenges of teacher education in India that are jeopardising the system of teacher education.

Therefore, a Paradigm shift is in demand where learners are expected to reflect, construct and apply knowledge and teachers are the facilitator supporting and encouraging learner's effort. The recommendations stated in New Education Policy 2020 viewed today's teachers to be grounded in Indian values, languages, knowledge, ethos and traditions while being updated with newer advancement in education and technology.

The National Education Policy 2020 also states, " Teachers truly shape the future of our children – and therefore, the future of our nation" and admit that teachers play the most important role in nation building producing competent, creative, skilled, employable and ethical citizen". However, the Policy also acknowledge the reality of unmotivated Indian teacher and recommend complete overhaul of the teaching profession to create a robust structure of qualification, training, appointment, salary, professional development that recognize the contribution of outstanding teachers. It states, "The quality of teacher education, recruitment, deployment, service conditions, and empowerment of teachers is not where it should be, and consequently the quality and motivation of teachers does not reach the desired standards".

Justice J S Verma Committee Report, 2012 has different opinion. It stated in its report "a broken teacher education sector is putting over 370 million children at risk ----- Private teacher education institutes were found to have only a foundation stone in the name of infrastructure and 99% passing rate". On an average 85% teachers failed to qualify the post qualification competency test. However, the New Education Policy of India 2020 viewed teacher education an attractive profession putting vigorous reforms. Some of the prospective highlights of the recommendations of NEP 2020 in teacher education are presented here.

Prospects of Teacher Education in NEP 2020

By 2030, minimum degree qualification for teaching will be a 4 year multidisciplinary and integrated dual major bachelor degree in Education as well as a specialized subject that teaches a range of knowledge content and pedagogy (NEP 5.22 p.51). For qualitative development of Teacher Education following measures need to be taken as per policy:

• Opening Departments of Education and moving teacher education into multidisciplinary college and Universities with improved in curriculum and pedagogy will enhance liberal and independent thinking among the teacher educators enabling them to inculcate this sense among the teacher trainees.

• Higher education's institutions offering the 4 year integrated B. Ed may also run a 2 year B. Ed for students who have a bachelor degree in a specialized subject. A 1 year B. Ed may also be offered for candidates who have received a 4 year undergraduate degree in a specialized subject. (NEP 5.23) The provision of different level of B. Ed programme will ensure equal accession of the opportunity, catering varied requirements of B. Ed aspirant.

• Provision for scholarships for meritorious students for the purpose of attracting outstanding candidates to the 4 year, 2 year and 1 year B. Ed Programme. (NEP 5.22) will help the eligible aspirants to pursue the programme without financial hardship.

• Gradual movement of Teacher Education institutions by 2030 into multidisciplinary colleges and universities aiming to house outstanding Education Departments for offering B. Ed., M. Ed., and Ph D. degrees in education for (NEP 5.22) innovation in education will help in framing improved curriculum and innovative methodologies in teacher education.

• Recommendation for holding admission test for the pre-service programme, National Testing Agency (NEP 5.22) will be entrusted the responsibility that will ensure eligible and interested candidates that will ultimately enhance teacher quality.

• Multi-disciplinary higher education institutions offering the 4 year in –class integrated B. Ed. Programme and having accreditation for ODL may also offer high quality B. Ed programmes in blended or ODL mode in remote areas(NEP 5.23) will provide increased access to quality teacher education.

• The recommendation of including training on recent technique in pedagogy on foundational literacy and numeracy, multi-level teaching and evaluation, teaching children with disabilities, use of educational technology, learner centred and collaborative learning, practice of Fundamental Duties (Article 51 A), integration of environmental awareness and sustainable development throughout the B. Ed curricula programmes will (NEP 5.22)will lead to holistic development of the teacher trainees.

• NEP promotes the idea of recruiting teachers to a school complex and sharing them across the group of schools to deal with shortage of

teachers particularly for music, dance, art, craft, counsellors, vocational educational trainers, classical language teachers, social workers to meet the need of teachers to teach the newly introduced classical languages and vocational skill subjects.

- Special short-term teacher education programmes will also be made available at BITES, DIETs or at school complexes themselves for eminent local persons who can be hired to teach at local school complexes as master trainer. (NEP 5.22)

- Short-term post B. Ed certification courses will also be made available at multidisciplinary colleges and universities who wish to move into more specialized areas of teaching. (NEP 5.25)

- NCERT will compile varied international pedagogical approaches for teaching different subjects and make recommendations on what can learnt and assimilated from these approaches into the pedagogies being practiced in India (NEP 5.27).

- National Curriculum Framework for Teacher Education (NCTEF) is to be drafted in consultation with NCERT for guiding pre-service and in-service teacher education, academic, vocational, and special education stream. The NCFTE 2021 will factor in the requirements of a new and comprehensive curriculum in teacher education (NEP 5.28).

- Stringent action will be taken against substandard stand-alone Teacher Education Institution run in the country including shutting them. By 2030, only educationally sound, multidisciplinary, and integrated teacher education programmes shall be in force, those will carry out cutting edge research in various aspects of education to enhance the quality of their B. Ed programme.

- All fresh Ph. D. entrants will be required to take credit–based courses in teaching/education/pedagogy/ writing related to their chosen Ph. D subject during their doctoral training period including actual teaching experience gathered through teaching assistantships (NEP 15.9).

- In-service continuous professional development for college and university teachers will continue through the existing institutional arrangements and on-going initiatives. The use of technology platforms such as SWAYAM/DIKSHA for online training of teachers will be encouraged, so that standardized training programmes can be administered to large number of teachers within a short span of time (NEP 15.10).

- One important area NEP2020 highlighted is career management and progression. Teachers are not confined for classroom activities only. Social involvement with contribution and creativity of the teacher is encouraged. Recommendation of a system of multiple parameters for proper assessment of performance and contribution may enhance motivation among the teachers.

- For blending technology with the teaching learning process, National Alliance for Technology (NEAT) which aims to use artificial intelligence for personalising and customising learner requirement is proposed in NEP 2020.

- National professional Standards for teachers (NPTS) by 2022 covering the expected role and competencies from teachers at different levels, IT and data based predictive planning for requirement of students in teacher education institutes, complete formulation of the National Curricular Framework for School Education (NCFSE) and the National Curriculum Framework for Teacher Education will be a building block of Quality Teacher Education.

These are some of the visionary recommendations of NEP–2020 for renovation of teacher education in India.

Challenges in Implementation of NEP 2020 & Teacher Education

Issues pertaining to effective implementation of the recommendations may be specified in the following points-

- Closing of all substandard teachers training institutions and individual programme or merging these institutions and moving teacher education into multidisciplinary colleges or universities will be challenging keeping in view the limited resources, time frame and fund crunch.

- Changing the present system of teacher education and stringent action to close the substandard

teacher education institution as recommended will require much planning and courage.

- The aim of practice teaching or apprentice in teacher education is to make the teacher trainee learn and practice teaching skills in real environment. At present, in some institutions it remains just become a formality. Though the NPE 2020 suggested for such apprenticeship, realising it without appropriate strategic measure will not change the scenario.

- One of the crucial issues in teacher education institution is to limited cooperation of the local schools for practice teaching. Though NEP recommend for strong practicum training in the form of in classroom teaching at local schools.

- The restructured curriculum as suggested in NEP 2020 will require skills in innovative methods for proper transaction of the curriculum. As a large number of in service teachers today are loaded with lots of administrative and social responsibilities with limited opportunity, it will be challenging to motivate them to learn the innovative pedagogies.

- Teachers have to be trained digitally to accommodate with digital learning process for attaining the objectives of NEP 2020, which will take time. Lack of digital infrastructure and expertise in curriculum construction and transaction, evaluation will be another critical factor in teacher education that will need attention.

- Cost and time required for implementation remains a big challenge in implantation of NEP. Complacency of initiating policy recommendations may lessen the urgency to implement it.

- Sometimes, policy implementation depends on good will of the political power. Change in governance may influence the pace of implementation of NEP 2020.

- Lack of collaboration and cooperation among the various implementing agencies and stake holders may also delay the implementation process.

The Way Forward

NEP –2020 looks education as an agent of bringing major transformation in education to prepare the future generation with needed values and skills to meet the needs of future knowledge society and economy. In this march, teacher is considered as change catalyst in the education system. It specifies that teacher education will be provided within multidisciplinary education and programme. The NEP 2020 proposes sweeping changes in teacher education. The recommendation in teacher education aims to rigorous changes in its structural composition, curriculum reconstruction and classroom transaction methods. Required mind-set for a sea change in curriculum transaction among the teachers will be challenging. To re-energies such teachers freeing from archaic thinking, proper orientation about the changing need of the hour and significance of adoption and development of innovative pedagogies through consistent inter and intra school training will be needed.

- For effective implementation of the policy, awareness about the significance of the policy implementation among the stakeholders need to be raised. Innovations and changes need to be diffused for drawing interest of its prospective receiver. Intrinsic motivational factors need to be initiated for the innovative teachers to pursue their best practices. Orientation and discussions need to be held so as to encourage the teacher trainee ad educator understand their role in the venture.

- Existing private and government teacher training institutions should be given the opportunity to enhance quality for a stipulated time frame which may be assessed by the concerned accreditation bodies. Scaffolding of teacher education institutions in cluster instead of merging into multi-disciplinary institutions may prove more effective. Mechanisms for private public partnership need to be chalked out.

- Curricular framework for 4 years integrated programmes should be planned in sequential manner and integrated in terms of undergraduate level. Engaging teachers in policy formulations and reform process will surely feel them responsible and enhance commitment for the rejuvenation of the education system and implementations of the policy recommendations.

- Teacher's autonomy in selecting appropriate pedagogy for effective learning outcome and emphasis on socio emotional learning for holistic development of children is a welcoming approach in NEP–2020. The assurance of recognition and

documentation innovative pedagogies practiced by teachers will motivate the creativity and moral of the teacher.

- To reduce teacher isolation, close collaboration is recommended among schools within a school complex so that teachers can share their best teaching practices.

- The proposed National Mission for Mentoring consists of outstanding senior faculty including the Indian language expert to provide mentorship to teachers will surely be helpful in demonstrating utilization of experienced human resource.

- Implementation of the recommendation on teacher education needs to be realised in a pilot programme basis for identifying the challenges in its implementation.

- Initiatives for preparation of manuals for introducing experiential, competency based, joyful learning and other innovative pedagogies need to be undertaken. Master training to the in service teachers and teacher educators in a collaborative manner with the help of scalable and sustainable model may proof to be beneficial in proper implementation of the recommendations.

- The regulatory agencies for implementation of the recommendations of NEP on teacher education i e NCERT, NCTE and other stakeholders need to be strengthen and revitalize for enabling to take the herculean responsibility of renovating teacher education in India. Regular monitoring mechanism may enhance quality indices.

- Encouraging self-learning, rigorous classroom observation and practice teaching with internship irrespective of the duration of teacher training, backed by mentorship must needs attention. Practice teaching should be spread out throughout the year.

- Essential skills required to be a teacher need to be scaled down and assessed including capability to integrate technology in teaching along with certain common skills. The current pool of teacher educators has to be oriented towards new age teaching techniques.

- Teachers should not be engaged in other social surveys, polling duty etc. which are not anyway

related to teaching learning process. Workforce need to be prepared for serving in remote and inaccessible location.

- Teachers who are prepared for current and future practices and capable of integrating science and technology may be engaged to train the other teachers. A pool of trained motivators consist of teacher educators and staff may design learning eco system considering geographical, cultural and learning diversity for making learning joyful and active.

- For effective and systematic implementation of the recommendations, legal, institutional and regulatory mechanisms need to strategically planning of implementation.

- Teacher training institutions, higher educational institutions, regulatory bodies and government agencies may build information repositories and share among the stakeholders.

- Ensuring participation of all stakeholders and transparency in policy implementation may raise sensitivity about the importance of implementing NEP2020 and help in building trust on implementing agencies.

- Teacher educators, teacher trainees, management of the institutions need to be oriented to welcome newer pedagogies i. e practical and experiential learning, developing creative and critical thinking skills, focusing on understanding of the content rather than completion of the course. Age old chalk and talk methods need integration with technology and mind set of the teachers need to be shifted accordingly.

- Timely fund allocation from the government will remain critical factor in speedy and smooth implementations of the recommendations.

- Tough present higher education is not much focussed on prior Formal training and orientation towards pedagogy for college and university faculties for enabling foundational and higher order thinking and skill inculcation among the faculties.

Epilogue

It is obvious that teacher education needs to foster the 21st century skills among the teacher trainees through pre service and in service mode.

Teachers need to plan, prepare and perform for a new age classroom where the learner will be the creator of their own knowledge. The NEP states "Teachers truly shape the future of our children-and, therefore, the future of our nation." Recognising the strength of the teacher' NEP 2020 has redesigned teaching profession. It is projected that by 2030, over 250 million students are expected to enrol in schools of India requiring an estimated more than 7 million teachers. The policy envisioned to make learning experience real life experience. Learning how to learn' and the move for holistic learning equipping individuals with the 21st century skills are entrusted on the teacher fraternity. And to prepare such teacher, every stakeholder must come forward and extend cooperation in rigorous curriculum framework and pedagogical innovation. For this, changing mind set of all the stakeholders for adapting with the change will remain critical in effective implementation of the policy. Restructured School curriculum and pedagogy backed by experiential learning across disciplines, subject –oriented pedagogy, with innumerable aspects of flexibility for subject selection will definitely encourage critical thinking, problem solving, socio emotional skills among the students. The National Education Policy would transform the educational scenario of the country by making education accessible, equitable, and inclusive at all level.

The role and structure of teacher education is easy to visualise, but difficult to accomplish. We have to actively take part in implementation of these visionary ideas which can fulfil the requirement of present need of the society. A positive attitude and active participation will surely redefine teacher education as envisioned by NEP 2020. The NEP 2020 has offered us a comprehensive design of teacher education considering the challenges of present teacher education system of India. The visionary mission of NEP is aspiring and systematic roadmap for its effective implementation only truly renovates teacher education   making it all inclusive and future ready.

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Law is a Great Discipline for the Mind

Justice N V Ramana, Hon'ble Chief Justice of India delivered the Convocation Address at the 18th Convocation Ceremony of NALSAR University of Law, Hyderabad on December 19, 2021. He said, "Build your career on a strong foundation. That strong foundation is based on practical realization. It is only when you work at the grass root level, you understand the rigors of law on common man. But opportunity comes to everyone, and when the opportunity knocks, be ready. You must put into practice all that you have learnt here. I assure you there is no success like the success in the profession of law. There is no satisfaction like the satisfaction in bringing justice to those in need. Remember, you are entering one of the most independent professions. Be fearless and Be upright. Stand by the constitutional oath taken by you." Excerpts

I am delighted to join all of you here for this eighteenth annual Convocation being held in Hyderabad. I see parents, grandparents, brothers, sisters, all look happier today than the graduates themselves. It is indeed a special occasion for all of them. You graduates represent their scarifies, their aspirations and their hope. At the outset I congratulate all the students graduating today and also welcome them to a challenging and incredibly satisfying profession.

Today is a proud occasion for this University and its faculty. Students of NALSAR are reaching far and wide, bringing laurels to the University. NALSAR is now known for its research centres and academic rigors which has produced many bright lawyers and academicians. Prof. Faizan Mustafa, your beloved Vice Chancellor is carrying forward the rich legacy of this University. You are lucky to have him as your Vice Chancellor.

You will be surprised to know, that this huge university started functioning from a small bungalow in Barkatpura. I was part of a collective endeavour to set up a world class law university in Hyderabad along the lines of National Law School Bangalore.

Things quickly fell in place. With backing of the statute, this robust institution took shape with active support of the then government.

My association continued thereafter with this university as a member of the Governing Body and as a Chancellor for a brief while. This association with NALSAR is very close to my heart.

Young friends, in the last five years, I am sure you must have heard hundreds of lectures. I know that you are certainly not looking forward to yet another lengthy lecture.

Aristotle once said, I quote:

"*The best laws, though sanctioned by every citizen of the state, will be of no avail unless the young are trained by habit and education, in the spirit of the constitution*".

Our Constitution was framed as a radical document which bridged the gap between the aspirations of the past and expectations of the future. But it shall thrive only when the young citizens honour its principles with conviction. Ethos of the democratic republic of India is based on the people's commitment to the welfarist constitution of India.

This commitment must be nurtured at an early age by creating social consciousness and inculcating a culture of lawfulness. The educational institutions of our country such as yours, play a pivotal rule in fostering the spirit of the Constitution.

Eminent jurist Justice M.C. Chagla, in his Autobiography – *Roses in December*, highlighted the importance and need of Law as follows:

"Law is a great discipline for the mind. It teaches you how to think clearly, precisely, and accurately. Every word has its definite meaning and must find its proper place in its own context. Verbosity and diffuseness are foreign to a well- trained legal mind."

A mark of great lawyer is clarity of thoughts, command over the language and skills to communicate. Unless one is proficient in the language, be it his mother tongue or any other language, he or she cannot communicate their point of view effectively. It's a field where one measures every word. Whether you are a lawyer, judge or policy maker, you must always be aware about the consequences and possible interpretations of the words and phrases.

Like renowned jurist John Rawls once said "*Legal philosophers are political philosophers with a specialization that gives language a special importance*".

I would like to state here, particularly in legal profession, the learning does not stop at the university, rather it begins after it. In fact, the learning in law is unending. It is inter- disciplinary and inter-sectional. Law as an instrument is deeply embedded and derived out of our social realities.

The future of law, is often dependent upon our understanding of past and the present. Therefore, a successful practitioner of law must also be well versed with literature, philosophy, history, economics and politics of the land.

After all, the aim of law is to unravel the truth and to do justice. There is nothing more difficult in the world than to discover the truth. Because it cannot be discovered by merely looking at one dimension. It has many facets. It requires trained minds to analyze all aspects of it and reach a logical conclusion. The greatness of a lawyer or judge lies in their ability to discover the ultimate truth, and thus secure justice accordingly.

A great university is where mind is freed from the notions of the past and the illusions of the present. My dear friends, your specialized and esteemed education puts you on a different pedestal.

March forward in your own quest of truth in this world of illusions. It also means not accepting anything on the face value irrespective of where it comes from. Yes, answers may be difficult to come by, but do not stop questioning.

As I had highlighted in an earlier occasion, especially students cannot afford to be disillusioned. It is imperative for you to be a part of current debates. Do not stop at just raising questions. Also ask yourself what the remedy can be. Being the future of the nation, you must have a clear vision.

Being the guardians of freedom, justice, equality and ethics, you cannot allow narrow and partisan views to dominate the nation's thought. Students are known for their readiness to fight for all the right causes because their thoughts are pure and honest. They should be in the forefront to question injustice. We need leaders for tomorrow to rise from these grounds.

Much water has flowed in rivers Krishna and Godavari since my graduation four decades ago. We have seen unthinkable advances in every sphere of our lives and learning. Unfortunately, new vices have also made their way into the lives of youth.

I am alarmed at the reports of increased number of youth falling prey to intoxicants. I would urge the youth of today, to disassociate themselves from substance abuse. Your mental and physical health is in your hands. A vibrant nation is built upon the health and energy of its youth.

I observe that graduating students are accustomed to only considering legal problems in a theoretical manner. There is an urgent need to introduce courses which are more practical and allow students to interact with people and their issues at the grassroot level. That brings me to one of the disappointing outcomes I have found in present day legal education. I find that very few students who graduate from National Law Schools are interested in joining litigation or taking up public causes, let alone practice at the district level.

Further, it seems that there is a fascination to only practice before the Supreme Court and High Court while completely ignoring the importance of trial courts. To succeed at trial advocacy, one requires a separate skill-set, wherein the requirement of presence of mind and intellectual inputs is immense. Moreover, considering the highest pendency before the trial courts, there is both a demand and the need for specialized lawyers. I urge you all to consider gaining experience at trial court level before moving on to practice at higher forums such as High Courts and the Supreme Court.

My personal journey started with my appearance before a tehsildar in tenancy matter. Ever since then, I have appeared before tax authorities, stamp registrar, magistrate court, munsif court, etc. I still remember my first assignment as a judge appointed commissioner. I was paid a princely sum of 100 rupees for that assignment as Commissioner. I must say, the experiences I gathered from these endeavors shaped my understanding of the system and the people.

No university can teach you this. You must understand that there is no substitute for direct experience.

Age is on your side. Build your career on strong foundation. That strong foundation is based on practical realization. It is only when you work at the grassroot level, you understand the rigors of law on common man.

But, let me caution you, the path will not be filled with roses. The courtrooms are nothing like ones you see in a movie or a moot court hall. It will be cramped, dingy and the judge may not even have a fan.

You might feel like an alien in this system. I know it is not easy, but I want all of you to remember that determination and persistence are the two mantras for success. The world may try to throw various challenges at you. But you are equipped to fight the hardest of battles.

Here, I am reminded of a half-a-century old story by famous Telugu author, Sri Rachakonda Viswanthat Sastry, popularly known as 'Raavi Sastry'. Every bit of it is still relevant. Here I quote from "Maya" one of his '*aaru saara kathalu*':

"One of the junior lawyers, Murthy received his law degree. He stood in front of the senior lawyer with humility.

The senior lawyer told Murthy to remember one important thing. The Senior said "*The early bird catches the worm, said the Englishman. Englishmen are very wise. He never does anything unless there is something in it for him. That is why you should reach the Court very early and get the gates opened. And in the evening, wait until the Court gates are closed. Always be alert and make sure that you are present in the court each and every day. The way the cranes stand on the shores and foxes hang around the graveyards. Of course, this kind of comparison is not very pleasant, but this is what we must do. If you want to shine, you must always be in the Court. You know what the Court is. It is like a dense forest. Hyenas mimic human laughter in the forest. If you go closer thinking there is another human, the hyena will eat you. We lawyers need to attract the clients that come to Court in this manner.*

Do not be shocked. It is the fault of the person who enters the forest, not ours. But there are bigger animals than hyenas. If we are not careful, then those animals will eat us.

The English man had drafted the law in accordance with the principles of this stupid world. Never forget that he, the English man, handed down all these things to us – these courts, the law books, the law degrees, and the witness procedures."

After all, practising law still remains one of the most demanding professions. To sustain through these ordeals, you shall need extraordinary will, passion and commitment to the cause. I am of the firm belief that success will come to those who have faith in themselves. You must enter the profession with the zeal of a champion of justice. At times you may feel that your work is pretty ordinary. You may feel that your talents are not being properly used. You may see many undeserving people flourish in the profession.

But opportunity comes to everyone, and when the opportunity knocks, be ready. You must put into practice all that you have learnt here. I assure you there is no success like the success in the profession of law. There is no satisfaction like the satisfaction in bringing justice to those in need. Remember, you are entering one of the most independent professions. Be fearless and Be upright. Stand by constitutional oath taken by you.

Here, I have something to share with the parents and teachers. At times, we try to manifest our unfulfilled dreams upon our children. By doing so, we may end up stifling a great artist, a budding intellectual or a fearless leader from being born. I request all the parents and the teachers present here, to encourage innovation, passion and give the children freedom to pursue their own dreams.

Brother Satish Chandra Sharma, Chancellor of this University is a dynamic person who is enthusiastic of making NALSAR reach greater heights. I am assured that the University is in safe hands under his able guidance.

Prof. Faizan Mustafa is an energetic leader who has continued the legacy of this University and has ensured the continuation of good reputation this University has across the globe. He is one of the acclaimed academicians with a scholarly bent of mind. He is the best Ambassador for legal awareness. He is chosen by the Government to be a Member on the panel created for spreading awareness about the Constitution. He is making best use of social media platforms to spread awareness about the Constitution. I complement him for the good work he is doing.

The bounden duty of NALSAR University of Law does not end with producing extremely competent and skilful graduates. It owes the responsibility to produce honest women and men who can be trusted in public and private life. My beloved students, it is imperative for you to realize that legal education is not just tool of mere professional success.

I wish all of you a life of success and fulfilment. Thank you. ❑

CAMPUS NEWS

Workshop on Bioinformatics and Drug Engineering

A two-day Online Workshop on 'Bioinformatics and Drug Engineering' was organized by the Amity Institute of Biotechnology, Amity University Rajasthan in collaboration with IEEE Rajasthan Subsection, recently. The objective of the workshop was to highlight the relevance of system biology and demonstrate utilization of in-silico tools in drug engineering through guided training. There were about one hundred and two participants from all over India. The event was graced by the President, Dr. Rakesh Bhatnagar, Amity University Rajasthan, Pro-President, Prof. Amit Jain, Amity University Rajasthan, Director, Amity Institute of Biotechnology, and Dean Research, Amity University Rajasthan, Prof. Vinay Sharma, Chairperson IEEE, Rajasthan sub-section, Dr. Rohit Bhakar and Group Leader, Translational Bioinformatics, ICGEB, Dr. Dinesh.

Prof. Vinay Sharma discussed the Human Genome, Bioinformatics and his own research experiences. He stressed the significance of bioinformatics and how it plays a crucial role in every aspect of life sciences and explained the concept of drug discovery and the steps involved in a very concise and interesting manner.

Dr. Rohit Bhakar highlighted the role of bioinformatics and how the knowledge of it in silico techniques is in sync with the current need of the situation. He shared how IEEE focuses on research and technology and expressed his gratitude towards Amity University for collaborating with IEEE and looking forward to many more collaborations in the future.

Prof. Rakesh Bhatnagar, President, AUR shared his past experiences on how the procedure of drug designing was done in the pre-internet era. He meticulously discussed the traditional methods of drug designing and the transition of drug designing based on in silico tools. He also explained briefly about vaccine discovery.

During Technical Session, Dr Dinesh Gupta, Group Leader, Translational Bioinformatics Group, International Centre for Genetic Engineering and Biotechnology, New Delhi explained how repurposing of drugs has become inevitable with the sudden onset of the pandemic as normal journey of drug discovery takes 10-15 years. He sequentially explained the various viral genome databases, how to map a disease and identify drug targets. He appreciated the Indian Initiatives like INSACOG and IBDC whereby the data pertaining to Indian viral population is being maintained. He also explained his own research related to SARS-CoV2, emphasizing the spike protein and results of MD simulation on the mutated spike proteins. Thereafter, repurposing of drugs was lucidly explained on the basis of screening of potential inhibitors from Malaria-Box against SARS-CoV-2 Mopar. As stopping a virus is not easy just on protein inhibition, Dr. Dinesh Gupta explained the usage of RNA-based novel drug targets in SARS -COV-2 by generation and analysis of gene regulatory networks. He also discussed ASCOVPRED and the workflow of drug designing and in silico toxicity testing.

The next session was an intensive hands-on workshop conducted by Dr. Puneet, Chownum, Post-Doctoral Scientist, Chonnam National University, Guangzhou, South Korea whereby he explained the nitty-gritty of using AUTODOCK, simple to use docking platform. The participants demonstrated the installation of the software. He then explained how to download a structure file of the protein and went on to show the importance of protein preparation and optimization protocol required for docking involving the removal of water and adding hydrogen. The protocol of grid prep was explained and how modulation of the rigid and flexible may be done for successful docking. Alongside, he also demonstrated retrieval and refinement of the docked receptor-ligand structure. For structure refinement, he demonstrated the Chimera tool.

Dr. Ajit Kumar, Director, Centre for Bioinformatics, Maharshi Dayanand University, Rohtak explained the role and flow of the drug discovery process in detail. He emphasized how bioinformatics has decreased the period required for shortlisting the drug candidate for testing purposes. He mentioned how the blockbuster drug Omaprezole earned more than movies and superstars post its launch in the market. The importance of Virtual high throughput screening which encompasses target preparation hit identification and lead optimization

all via bioinformatics tools. He mentioned some easy ways to access platforms for docking like Sanjeevni, GOLD, autodock, Hex amongst many others.

Dr Zeenat Mirza, Associate Professor, King Abdul Aziz University, Jeddah, Saudi Arabia emphasized the role of system biology in the drug discovery process and how a holistic approach is required to carefully assess the potency of a drug. She discussed in detail the importance and discovery of diagnostic, prognostic, and therapeutic biomarkers. The role of online repositories like GEO and Array express and how the retrieval of data from these databases can increase the cohort size and the validity of biomarker discovery was highlighted through her lecture. Another important aspect discussed was the inclusion of SNP data in the design of precision drugs.

Dr. Poonam Vishwakarma, Post Doctoral Fellow, University of Paris, France explained Homology Modelling using the SWISS Model Server. Dr. Poonam demonstrated modeling using the Swiss Model in auto mode as well as the manual method. She extended her session with structure validation using different tools like a pro check, verify3d, Annolia, ERRAT, and WHATIFCHECK. She also demonstrated the ProSa web server. She emphasized the importance of structure validation after modeling. The hands-on training session ended with an extended discussion on related topics.

Research Methodology Course in Social Sciences

A ten-day Research Methodology Course in Social Sciences for Ph.D./PDF scholars is being organized by the Centre for Social Studies, Surat, Gujarat during July 12-21, 2022 through offline mode. The course is sponsored by the Indian Council for Social Science Research, New Delhi. The basic objective is to provide training in social science research methodology mainly to the Ph.D. scholars as well as Post Doctoral Fellows and also other research scholars from colleges and postgraduate departments of various universities as well as research institutes. In addition to dealing with philosophical and theoretical aspects of social science research, there may be training in defining research problems, framing research questions, formulation of hypotheses, exploring data sources, data collection methods, data analysis (quantitative and qualitative), and various aspects related to the writing of social science research. It is also envisaged to provide orientation about the use of important statistical methods in analysing quantitative data. The course may benefit participants from all social science disciplines like Economics, Sociology, Anthropology, Social Work, Political Science, Management, Geography, Education, Psychology, etc. The Contents of the Course are:

- Introduction to social science research, the relevance of social science research, basic elements of social science research, trends and status of social science research.

- Philosophical and theoretical dimensions in social science research.

- Critical social theory.

- Accountability in social science research: Quality of research, adequacy of database, dissemination, and linkages with stakeholders.

- Research design: Framing research problems, questions, hypotheses, objectives of the study.

- Review of literature: Bibliography and References.

- How to develop a research proposal?

- Funding in social science research from ICSSR and other agencies. Its challenges and opportunities.

- Sampling procedure and technique: Probability and non-probability sampling, Sampling error, Standard error of the sample mean.

- Sources and application of research data sets for social scientists.

- Secondary data in social science research: indiastat.com.

- Importance of fieldwork in social science research.

- Tools for data collection: Interview and questionnaire method.

- Qualitative research: Application, sampling and fieldwork strategies, reporting and presenting qualitative data, FGD and case study method.

- Types of data, units of measurement of variables.

- Getting started with SPSS, frequency distribution, standard normal distribution, test of normality, cross tabulations, describing data through graph and chart.

- Comparing means, analysis of variance (One-way & Two-way ANOVA), post hoc test, and contrast analysis.

- Bivariate correlation: Scatter plot method, covariance method, Karl Pearson's correlation coefficient, Spearman's rank-order correlation, Kendall's tau correlation, The biserial, and point-biserial correlation, partial correlation.

- Bivariate and multivariate regression analysis: Total Sum of SQuares (SS_T), Residual Sum of Square (SS_R), the Model Sum of Square (SS_M), R^2, standard error of the estimate, regression coefficient, standardized coefficient.

- Feminist methodology and action research.

- Ethnography.

- Content analysis.

- Writing of social science research: Research report, book, journal paper.

- Challenges in publishing social science research.

- Ethics in social science research, plagiarism.

For further details, contact Coordinator, Centre for Social Studies, Veer Narmad South Gujarat University Campus, Udhna-Magdalla Road, Surat, Gujarat-395007, E-mail: *webinar@css.ac.in*. For updates, log on to: *www.vnsgu.ac.in/events*.

International Conference on Revisiting Social Theory

A two-day International Conference on 'Revisiting Social Theory : Challenges and Possibilities' is being organized by the Department of Sociology, North-Eastern Hill University, Shillong, Meghalaya during November 16-17, 2022 through virtual mode.

There is something dialectical about social theory. It can illuminate or camouflage. What a particular theory does, however, depends on the socio-economic location of the theorist in question and the enabling environment or lack of it in a society. The essential function of a 'good' social theory is to raise relevant questions and if possible to find answers. A part from its explanatory power, it is said to possess certain important features such as critical and reflexive interrogation of concepts, rationally rooted search for objectivity, a deep concern to make sense of empirical data, aim to project some degree of generality and abstraction are some of them. Without the above features, a social theory remains merely speculative and metaphysical. This is what one finds in some of the best social theories we have had so far in social sciences.

The question of revisiting social theory becomes relevant when one asks oneself whether the social theory has been raising the right questions and if not, what are those questions which escaped the attention of social theory and the answers that help us have a better grasp of social reality. One is not suggesting that the questions raised in the past are inconsequential. But what one is suggesting is that as societies change (some more rapidly than others), new and more relevant theoretical questions need to be asked. The Social theory faces a difficult challenge in the context of India that is known for diversities of immense nature and whose interaction with one another produces big challenges for any social theory in terms of how it can capture them. The challenges become even biggest when one engages with the societies of North-East India. That probably explains the absence of theory in most of the work done in the northeast. Scholars have acquired a considerable amount of data about the societies in the North-East but unfortunately, it is difficult to find a work which is theoretically well-grounded which would help us make sense of the data we have on the North-East. There is an innocent assumption that an empirical work need not be theoretically located without realizing that no empirical work can be theoretically neutral. There is, therefore a strong need to realize the importance of theory while doing work on North-East India. The Areas to be covered are:

- The Development of Social Theory and its Problematics.

- Nationalism and the Contesting Approaches to it.

- Racial and Ethnic Relations and Their Engagement with Modernity.

- Democracy, Civil Society, Market, The State and The Dialectics Involved in Their Relationship.

- Environment, Development and Their Dialectical Relationship.

- Feminist Theory: The Challenges and Contradictions it Faces.

- Interrogating Secularism Both as a Principle and as a Practice.

- Social Theory and the North-East India.

For further details, contact Convener, Prof. D.V. Kumar, Department of Sociology, North-Eastern Hill University, Shillong-793022, Meghalaya, Mobile No: +919436160928, E-mail: *dvkumar4229@gmail.com*. For updates, log on to: *www.nehu.ac.in/event*.

National Conference on Transformation of Higher Education Libraries

One-day National Conference on 'Transformation of Higher Education Libraries in the Digital Environment' is being organized by the Library and Information Centre, Dnyanprassarak Mandal's College and Research Centre Assagao, Bardez, Goa in collaboration with Goa College Librarians' Association (GCLA) and Karnataka State College Librarians' Association (KSCLA) on June 17, 2022. The Conference may provide an opportunity to interact and discuss key concepts of library management from the experts and other senior librarians of various organizations. The library and information science professionals, research scholars and students may participate in the event.

Libraries are social institutes where information and knowledge are disseminated to the users whenever users need it. The availability of information is much faster due to the applications of the technologies. The use of ICT in libraries has drastically changed the activities and functions of libraries. The growth of knowledge is doubling very fast and in different formats and there is a need to transfer, communicate and filter the information for the users to conduct research and help towards the development of an information society. According to Dr. S R Ranganathan, "The best function of the library is to assist users in providing the right information, to the right users at right time."

In this modern digital era of information explosion, library and information professionals are facing many challenges, redefining their role and also redesigning the library and information services, and adapting to the new technologies. This makes it pertinent to know more about the latest technologies available for the use of libraries. Hence, it is very important to learn and adopt new technologies and services for the Librarians and they have to upgrade their skills and knowledge by attending various events to design and redesign according to the changing needs of the library users. The event offers librarians to share LIS best practices, issues, technology, and trends through articles and to adopt the Best Library Services in their respective higher education libraries and many more. The Subthemes of the event are:

- Bibliometrics/Scientometrics/Webometrics/ Citation Analysis.

- Digital Content Creation, Management, Digital Library Services, Digital Archives/ Preservation/ Repositories.

- Future Libraries, Emerging Trends and Technologies in Library and Information Science.

- MOOCs and LIS Education.

- Open Access Initiatives and Movement.

- Scholarly Communications, Predatory and Cloned Journals.

- User Studies.

- Web-based Resources and Social Networking Sites.

For further details, contact Organising Secretary, Dr. Jayaprakash, Librarian, Library and Information Centre, Dnyanprassarak Mandal's College and Research Centre, Assagao, Bardez, Goa-403507, Mobile: 09511739202, E-mail: *libraryandinformationcentre@ dmscollege.ac.in*; *dmcrclibrary@gmail.com*. For updates, log on to: *https://sites.google.com/view/ dmcrc-lic-conference-2022/home.* ❑

THESES OF THE MONTH

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

AGRICULTURAL & VETERINARY SCIENCES

Agricultural Engineering

1. Makwana, Ajay Dilip Kumar. **Development of remote operated sprayer for field crop**. (Dr. P Mohnot), Department of Farm Machinery and Power Engineering, Junagadh Agricultural University, Junagadh.

Food Science & Technology

1. Jabeen, N B. **Development, evaluation and optimization of wheat grass based functional food products and quality characteristics**. (Dr. N Devanna), Faculty of Food Technology, Jawaharlal Nehru Technological University Anantapur,Ananthapuramu.

BIOLOGICAL SCIENCES

Biotechnology

1. Rahman, A P Habeeb. **Sonophotocatalytic disinfection of waterborne bacteria**. (Dr. Suraj Kumar Tripathy and Dr. Cecilla Stalsby Lundborg), Department of Biotechnology, Kalinga Institute of Industrial Technology, Bhubaneswar.

2. Choudhury, Priyanka. **Application of biomaterials for skin tissue engineering**. (Dr. Luna Goswami), Department of Biotechnology, Kalinga Institute of Industrial Technology, Bhubaneswar.

EARTH SYSTEM SCIENCES

Environmental Science

1. Amarjeet Singh. **Air quality impact assessment of the Western Part of Jharia Coalfield, Jharkhand, India**. (Prof. Gurdeep Singh), Department of Environmental Science & Engineering, Indian Institute of Technology, Dhanbad.

2. Mishra, Amit Kumar. **Study on environmental impact assessment of archaeological structures in the state of engineering Haryana, India**. (Prof.Anshumali), Department of Environmental Science & Engineering, Indian Institute of Technology, Dhanbad.

Civil Engineering

1. Sahoo, Anjana. **Sustainable development of concrete using recycled coarse and fine aggregates**. (Prof. Tanish Dey), Department of Civil Engineering, Indian Institute of Technology, Dhanbad.

2. Varaprasad, J. **Experimental studies on geopolymer concrete with bethamcherla stone powder**. (Dr. E Arunakanthi), Department of Civil Engineering, Jawaharlal Nehru Technological University Anantapur,Ananthapuramu.

Computer Science & Engineering

1. Lovkesh. **Enhancing e-learning through data mining in the context of education data**. (Dr. Akash Saxena), Faculty of Science, Tantia University,Sri Ganganagar.

2. Bindu, G B Hima. **QoS enhanced energy aware task scheduling models in cloud computing**. (Dr. K Ramani and Dr. C Shobha Bindu), Department of Computer Science & Engineering, Jawaharlal Nehru Technological University Anantapur,Ananthapuramu.

3. Mohapatra, Saumendra Kumar. **Development of data mining techniques and verification for biomedical data classification**. (Dr. Mihir Narayan Mohanty), Department of Computer Science & Engineering, Siksha O Anusandhan University, Bhubaneswar.

4. Nayak, Gayatri. **Test case prioritization at various levels of software development life cycle**. (Dr. Mitrabinda Ray), Department of Computer Science & Engineering, Siksha O Anusandhan University, Bhubaneswar.

5. Pattnaik, Sagarika. **Developing automatic POS tagging and summarizing techniques for a low resourced language**. (Prof. Ajit Kumar Nayak), Department of Computer Science & Engineering, Siksha O Anusandhan University, Bhubaneswar.

6. Rahman, Tabassum Yesmin. **Histopathological image analysis applying machine learning methods for detection and classification of oral squamous cell carcinoma**. (Dr. Lipi B Mahanta and Dr. Hiten Choudhury), Department of Computer Science & IT, Cotton University, Guwahati.

7. Singh, Amit Kumar. **Efficient routing strategies for vehicular delay tolerant networks**. (Prof. Rajendra Pamula), Department of Computer Science & Engineering, Indian Institute of Technology, Dhanbad.

8. Vasistha, Devyani Mehul. **Comparison of search techniques using artificial intelligence for career planning**. (Dr. Manish Kumar), Department of Computer Science & Engineering, Arunachal University of Studies, Namsai.

Electrical & Electronics Engineering

1. Amrutha, P. **Power system stabilization using UPFC with intelligent supplementary controllers**. (Dr. C Srinivasa Rao and Dr. M Vijaya Kumar), Department of Electrical Engineering, Jawaharlal Nehru Technological University Anantapur,Ananthapuramu.

2. Banerjee, Chandra Madhab. **Condition assessment of power transformer using model of insulation having time varying parameters**. (Prof. Arijit Baral), Department of Electrical Engineering, Indian Institute of Technology, Dhanbad.

3. Goud, B Srikanth. **Power quality improvement in hybrid integrated system using intelligent controlling techniques**. (Dr. B Loveswara Rao), Department of Electrical Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

4. Jena, Bibekananda. **Investigation on value added application of solar photovoltaic systems**. (Prof. Renu Sharma and Prof. Narendra Dutta Kaushika), Department of Electrical Engineering, Siksha O Anusandhan University, Bhubaneswar.

5. Nayak, Pravati. **Control and islanding detection of photovoltaic-wind electrical system-diesel generator based microgrid**. (Prof. P K Dash), Department of Electrical & Engineering, Siksha O Anusandhan University, Bhubaneswar.

6. Vinoth, M. **Design development and analysis of a low profile microstrip patch antenna for 5G mid-bands application**. Department of Electronics & Communication Engineering, Hindustan Institute of Technology & Science, Chennai.

Electronics & Communication Engineering

1. Harikishore, S. **Efficient schemes for the transmission of multimedia traffic using opportunistic routing in wireless mesh networks**. (Dr. V Sumalatha), Department of Electronics & Communication Engineering, Jawaharlal Nehru Technological University Anantapur,Ananthapuramu.

2. Jena, Jhansirani. **Design and simulation of strain-engineered trigate FinFET at 7nm technology nodes**. (Prof. Chinmay Kumar Maiti), Department of Electronics & Communication Engineering, Siksha O Anusandhan University, Bhubaneswar.

3. Prasad, Ch Rajendra. **Development of routing protocols in wireless body area networks for e-healthcare applications**. (Dr. B Polaiah), Department of Electronics & Communication Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

4. Ravikiran, Pyla. **Modeling of ionospheric delay corrections using orthogonal functions for global positioning system applications**. (Dr. J R K Kumar Dabbakuti), Department of Electronics & Communication Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

5. Shanthi, G. **Design and analysis of novel type RF MEMS switch integrated band reject filters for KU-band application**. (Dr. K Srinivasa Rao), Department of Electronics & Communication Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

6. Vandana, Santhi. **Security and privacy issues in wireless body area networks**. (Dr. S Venkateswarlu), Department of Electronics & Communication Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

Mechanical Engineering

1. Beura, Subhrajit. **Response appraisal of aged GFRP composites**. (Prof. Dhirendra Nath and Dr. Upendra Kumar Mohanty), Department of Mechanical Engineering, Siksha O Anusandhan University, Bhubaneswar.

2. Chaudhury, Pallavi. **Thermal modeling and parametric optimization of EDM of SiC/CNT nonconductive Ceramic Matrix Composite (CMC)**. (Prof. S Srinivasa Rao), Department of Mechanical Engineering, Siksha O Anusandhan University, Bhubaneswar.

3. Mohapatra, Subhashree. **An assessment of centrifugal cast single point cutting tools**. (Dr. Hrushikesh Sarangi and Dr. Upendra Kumar Mohanty), Department of Mechanical Engineering, Siksha O Anusandhan University, Bhubaneswar.

4. Reddy, K Manohar. **Characterization of used jute fiber mat reinforced polymer composite with graphite, wollastonite and silicon carbide as fillers**. (Dr. B Chandra Mohana Reddy), Department of Mechanical Engineering, Jawaharlal Nehru Technological University Anantapur,Ananthapuramu.

5. Sharma, Sanjeev Kumar. **Energy metrics and efficiency analyses of active solar energy based water desalination systems**. (Prof. Ashis Mallick), Department of Mechanical Engineering, Indian Institute of Technology, Dhanbad.

6. Vikas Kumar. **Impact of drops of Jatropha straight vegetable oil its blend , and emulsion on a solid**

surface. (Prof. Deepak Kumar Mandal), Department of Mechanical Engineering, Indian Institute of Technology, Dhanbad.

Petroleum Engineering

1. Chaturvrdi, Ekta. **Comprehensive studies on reservoir aspects of gas hydrates and thermodynamics and kinetics of hydrate formation and dissociation in the presence of different additives**. (Prof. Ajay Mandal and Prof.Sukumar Laik), Department of Petroleum Engineering, Indian Institute of Technology, Dhanbad.

MATHEMATICAL SCIENCES

Mathematics

1. Amanulla, Ch. **Numerical study on MHD Williamson non-Newtonian fluids**. (Dr. N Nagendra and Dr. M Suryanarayana Reddy), Department of Mathematics, Jawaharlal Nehru Technological University Anantapur,Ananthapuramu.

MEDICAL SCIENCES

Pharmaceutical Science

1. Gulshan Kumar. **Synthesis of N-fused heterocyclic analogs of flavonoids and bioevaluation studies towards discovery of anticancer agents**. (Dr. Sankar K Guchhait), Department of Medicinal Chemistry, National Institute of Pharmaceutical Education and Research, Mohali.

2. Mishra, Bishwanath. **Pharmacological and phytochemical evaluation of some plants as antidiabetic hypoglycemic potential**. (Prof. Sanjib Das and Dr. Durga Madhab Kar), Department of Pharmacy, Siksha O Anusandhan University, Bhubaneswar.

3. Mohanty, Sangeeta. **Design and fabrication of different nanoformulations for incorpation of select poorly soluble phytochemicals**. (Prof. Sudam Chandra Si), Department of Pharmacy, Siksha O Anusandhan University, Bhubaneswar.

4. Rout, Sudhanshu Sekhar. **Studies on reactivity of cis-[Cr(C$_2$O$_4$)$_2$ (H$_2$O)$_2$-with some antiparkinsonian drugs in aqueous media: Isolation and characterization of the product complexes for biological studies**. (Dr. Prakash Mohanty and Dr. Sudam Chandra Si), Department of Pharmacy, Siksha O Anusandhan University, Bhubaneswar.

5. Siva Kumar, G. **Structure based computational studies for the identification of potential *Mtb* DNA gyrase inhibitors: Insights into the prevalence of fluoroquinolone resistance and mutations in *Mtb* DNA gyrA**. (Dr. M Elizabeth Sobhia), Department of Medicinal Chemistry, National Institute of Pharmaceutical Education and Research, Mohali.

PHYSICAL SCIENCES

Chemistry

1. Pradeepta Babu. **Functional graphitic carbon nitride based nanostructured photocatalysts for solar water splitting**. (Prof. Kulamani Parida and Prof. Brundabana Naik), Department of Chemistry, Siksha O Anusandhan University, Bhubaneswar.

2. Gogoi, Gautomi. **Studies on new types of organic semiconductors based on diketopyrrolopyrrole and naphthalene diimides**. (Dr. Sagar Sharma and Dr. Neelotpal Sen Sarma), Department of Chemistry, Cotton University, Guwahati.

3. Kharmawlong, George Kupar. **Development of new methodologies for the synthesis of heterocyclic compounds**. (Dr. R L Nongkhlaw), Department of Chemistry, North Eastern Hill University, Shillong.

4. Sharma, Khanindra. **Development of treatment strategies for the remediation of effluents of paper and oil industries**. (Dr. Neelotpal Sen Sarma and Dr. Arundhuti Devi), Department of Chemistry, Cotton University, Guwahati.

5. Singh, Rashmi. **Synthetic methodologies for polycyclic heterocycles based on condensation reactions of substituted 1,4 benzoquinones**. (Prof. Swapan Dey), Department of Chemistry and Chemical Biology, Indian Institute of Technology, Dhanbad.

6. Ullah, Sabnam Swabaka. **Theoretical studies on the electronic structure, stability and reactivity of inorganic rings and cages**. (Dr. Ankur Kanti Guha), Department of Chemistry, Cotton University, Guwahati.

Physics

1. Pandya, Nikunj Dharmendrabhai. **Growth of crystals and their characterizations: The solution and gel growth approach**. (Dr. H O Jethva), Department of Physics, Saurashtra University, Rajkot.

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VANITA VISHRAM WOMEN'S UNIVERSITY

(1st Women's University of Gujarat)
Vanita Vishram, Athwagate, Surat-395001.
Website: www.vvwusurat.ac.in
E-mail: searchcommittee@vvwusurat.ac.in
(O) 0261-2300291 (M) 9727769044

APPLICATIONS/NOMINATIONS FOR THE POST OF PROVOST

Vanita Vishram Women's University, managed by Vanita Vishram, Surat was established on 01 June, 2021. It is recognized and established through the provisions of the Gujarat Private Universities Act, 2009 and listed under the Section 2(f) of the UGC Act, 1956. It is managed by Vanita Vishram, Surat which is a 115 - years old non-profit organization working relentlessly for women empowerment through quality education, skill development and job placement.

For details regarding eligibility, qualifications and experience related to the said post, please log on to www.vvwusurat.ac.in

Date : 16-05-2022
Place : Surat

I/c Registrar VVWU

CENTRAL UNIVERSITY OF RAJASTHAN

Bandarsindri, NH-8, Tehsil Kishangarh,
Ajmer Rajasthan-305817

Advt.: CURAJ/R/F.136/2022/350   Date: 02.05.2022

Advertisement for recruitment on Non-Teaching Positions

Applications are invited from eligible Indian Citizens for various Non-Teaching positions. Candidates are required to apply online in the prescribed format through www.curaj.ac.in Minimum Qualification, Experience, Reservation, Relaxation in Age, Emoluments, Age of Superannuation and other service conditions are available at www.curaj.ac.in.

Application Fee:

Candidates belong to General/ EWS/ OBC categories:	Rs. 1500/-
Candidates belong to SC/ ST/ PwBD categories/ Women:	Nil
Last date for submission of online application:	10 June 2022 upto 11:59 PM
Last date for submission of Hardcopy of Application:	17 June 2022 upto 05:00 PM

Registrar

Kasegaon Education Society
Rajarambapu College of Pharmacy, Kasegaon
A/P: Kasegaon, Tal. Walwa, Dist. Sangli (Maharashtra)
(Affiliated to Shivaji University, Kolhapur)
(Non-Grant Basis)

WANTED

Applications are invited from eligible candidates for the following posts.

Sr. No	Name of the Posts	Vacant Posts	Unreserved (Open Posts)
A)	**Professor for M. Pharmacy**		
1	Pharmaceutical Chemistry	01	01
2	Pharmaceutics	01	01
3	Quality Assurance	01	01
B)	**Associate Professor for M. Pharmacy**		
1	Pharmaceutical Chemistry	01	01
2	Pharmaceutics	01	01
3	Quality Assurance	01	01
C)	**Assistant Professor for M. Pharmacy**		
1	Pharmaceutical Chemistry	01	01
2	Pharmaceutics	01	01

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

Dr. C. S. Magudm	**Principal R. D. Sawant**
Principal	**Secretary**
Rajarambapu College of Pharmacy, Kasegaon	**Kasegaon Education Society, Kasegaon**

Shree Warana Shikshan Sanstha
Warana Mahavidyalaya, Aitawade Khurd
Tal. Walwa, Dist. Sangli (Maharashtra)
(Affiliated to Shivaji University, Kolhapur)
(Granted)

W A N T E D

Applications are invited from eligible candidates for the following post:

Sr. No.	Name of Post	Vacant Post	Unreserved (Open) Post
A	Principal	1	1

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

Place : Aitawade Khurd
Date : 16/05/2022

President
Shree Warana Shikshan Sanstha,
Aitawade Khurd, Tal. Walwa, Dist. Sangli

INDIAN INSTITUTE OF TECHNOLOGY DELHI
Hauz Khas, New Delhi 110 016

ADVT. NO: IITD/EST-1/09/2022
ADVERTISEMENT FOR THE POST OF ENGLISH LANGUAGE INSTRUCTOR (ON CONTRACT)

Applications are invited from Indian Nationals for appointment to the post of English Language Instructor (on contract) in the Department of Humanities & Social Sciences of the Institute as follows:-

Name of Post	: English Language Instructor
No. of Post	: (General-01)
Salary	: Consolidated Salary of Rs. 60,000/- per month + HRA@24% of the consolidated salary.
Tenure	: Initially for one year, extendable up to three years.
Website Link for advt. details	: **https://home.iitd.ac.in/jobs-iitd/index.php**
Address for correspondence	: **fac_recruit@admin.iitd.ac.in**
Last date of submitting application	: **17ᵗʰ June, 2022**

Any further query relating to the post may be made through email to **fac_recruit@admin.iitd.ac.in**

Nana Vanjare Vidyanagari
New Education Society, Lanja's
ARTS, COMMERCE & SCIENCE COLLEGE, LANJA
Dist. Ratnagiri 416701

APPLICATION ARE INVITED FOR THE FOLLOWING
CLOCK HOUR BASIS POSTS FOR THE ACADEMIC YEAR 2022-23

AIDED

Sr. No.	Cadre	Subject	No of post each subject (C.H.B.)	Total (C.H.B.) Posts	Posts Reserved For
1.	Assistant Professor	Marathi	02		02-SC
2.	Assistant Professor	Chemistry	04		01-ST
3.	Assistant Professor	Botany	02		02- DT/NT
4.	Assistant Professor	Zoology	02	15	03-OBC
5.	Assistant Professor	Commerce	01		01-EWS
6.	Assistant Professor	Mathematics	02		06-Open
7	Assistant Professor	Political Science	02		

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

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

Candidates having knowledge of Marathi will be preferred.

"Qualification, Pay Scale and other requirement are as prescribed by the UGC Notification dated 18ᵗʰ July 2018, Government of Maharashtra Resolution No. Misc-2018/C.R.56/18/UNI-1 dated 8ᵗʰ March, 2019 and University Circular No. TAAS(CT)/ICD/2018-19/1241 dated 26ᵗʰ March, 2019 and revised from time to time". Remuneration of the above post will be as per University Circular No. TAAS (CT) /01/2019-20/ dated 02ⁿᵈ April, 2019 and University Circular No. CTAU/23/2021-2022 dated 25ᵗʰ January, 2022.

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

Application with full details should reach the **PRINCIPAL, Nana Vanjare Vidyanagari, New Education Society, Lanja's, ARTS, COMMERCE & SCIENCE COLLEGE, Lanja, Dist. Ratnagiri 416701 (Maharashtra) within 15 days** from the date of publication of this advertisement. **This is University approved advertisement.**

Sd/-
PRINCIPAL

SHIKSHAN VIKAS MANDAL'S
SHRI S. H. KELKAR COLLEGE OF ARTS, COMMERCE & SCIENCE
Smt. Neerabai Jagannath Parkar Vidyanagari, Devgad, Dist. Sindhudurg, Pin–416 613

APPLICATIONS ARE INVITED FOR THE FOLLOWING POSTS
FOR THE ACADEMIC YEAR 2022-23

SELF FINANACE

Sr. No.	Cadre	Subject	No. of Posts	Posts Reserved for
1	Assistant Professor	B. Voc. Hospitality & Tourism	02 F.T.	01 – SC, 01 OPEN
2	Assistant Professor	B. Voc. Health Care	02 F.T.	01 – SC, 01 OPEN
3	Assistant Professor	B.M.S.	04 F.T.	01 – SC, 01 – NT 01 – OBC, 01 OPEN
4	Assistant Professor	B.Com. Banking and Insurance	04 F.T.	01 – SC, 01 – NT, 01 – OBC, 01 OPEN
5	Assistant Professor	B.Sc. I.T.	05 F.T.	01 – SC , 01 – NT , 01 – OBC, 02 OPEN
6	Assistant Professor	Organic Chemistry	03 F.T.	01 – SC, 01 – OBC, 01 OPEN
7	Assistant Professor	Analytical Chemistry	03 F.T.	01 – SC ,01 – OBC, 01 OPEN
8	Assistant Professor	Environmental Science	02 F.T.	01 – SC, 01 OPEN
9	Assistant Professor	Physics Electronics	02 F.T.	01 – SC, 01 OPEN
Total Posts			**27**	

Applicants who are already employed must sent their applications through proper channel. Applicants are required in account for breaks, if any, in their academic year.

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

Application with full details should reach **THE PRINCIPAL, SHIKSHAN VIKAS MANDAL'S SHRI S. H. KELKAR COLLEGE OF ARTS, COMMERCE & SCIENCE, Smt. Neerabai Jagannath Parkar Vidyanagari, Devgad, Dist. Sindhudurg - 416 613 within 15 days** from the date of publication of this advertisement.

Sd/-
PRINCIPAL

SHIKSHAN VIKAS MANDAL'S
SHRI S. H. KELKAR COLLEGE OF ARTS, COMMERCE & SCIENCE
Smt. Neerabai Jagannath Parkar Vidyanagari, Devgad, Dist. Sindhudurg, Pin – 416 613

APPLICATIONS ARE INVITED FOR THE FOLLOWING CLOCK HOUR BASIS POSTS
FOR THE ACADEMIC YEAR 2022-23

AIDED

Sr. No.	Cadre	Subject	Total No. of CHB Posts	Total CHB Posts	Posts Reserved for
1	Assistant Professor	Geography	01		02 – SC
2	Assistant Professor	Commerce	02		01 – ST
3	Assistant Professor	Botany	02	13	02 – DT/NT
4	Assistant Professor	Chemistry	04		02 – OBC
5	Assistant Professor	Mathematics	02		01 – EWS
6	Assistant Professor	Marathi	02		05 – OPEN

The posts reserved for the Backward Class Candidates will be filled in by the Backward Category Candidates (Domicile of the State of Maharashtra) belonging to the particular category only.

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

Candidates having knowledge of Marathi will be preferred.

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

Remuneration of the above post will be as per the University Circular No. TAAS/(CT)/01/2019-20 dated 2nd April, 2019 & University Circular No. CTAU/23/2021-2022 dated 25th January, 2022.

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

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

Application with full details should reach **THE PRINCIPAL, SHIKSHAN VIKAS MANDAL'S SHRI S. H. KELKAR COLLEGE OF ARTS, COMMERCE & SCIENCE, Smt. Neerabai Jagannath Parkar Vidyanagari, Devgad, Dist. Sindhudurg - 416 613 within 15 days** from the date of publication of this advertisement. **This is University approved Advertisement.**

Sd/-
PRINCIPAL

Kasegaon Education Society
Rajarambapu College of Pharmacy, Kasegaon
A/P: Kasegaon, Tal. Walwa, Dist, Sangli (Maharashtra)
(Affiliated to Shivaji University, Kolhapur)
(Non-Grant Basis)
W A N T E D

Applications are invited from eligible candidates for the following posts.

Sr. No	Name of the Posts	Total Vacant Posts	Open Posts	Reserved Posts
A)	**Associate Professor for B. Pharmacy**			
1	Pharmaceutical Chemistry	02	(01)#	01 SC
2	Pharmaceutics	02	(01)#	01 SC
3	Pharmacology	01	01	----
4	Pharmacognosy	01	01	----
B)	**Assistant Professor for B. Pharmacy**			
1	Pharmaceutical Chemistry	07	01(02)*	01-SC, 01-VJA, 01-OBC, 01-EWS
2	Pharmaceutics	06	(02)*	(02) *01-VJA, 01-OBC
3	Pharmacology	03	(01)*	(01)* 01-OBC

#Out of Sanction (Pharmaceutical Chemistry) Posts Two, One Post is already filled from open category & Out of Sanction (Pharmaceutics) Posts Two, One Post is already filled from open category.

* Out of Sanction (Pharmaceutical Chemistry) Posts Seven, Two Posts is already filled from open category, Out of Sanction (Pharmaceutics) Posts Six, Two Posts is already filled from open category and Two Posts is already filled from reserved Category, Out of Sanction (Pharmacology) Posts Three, One Post is already filled from open category and One Post is already filled from reserved Category.

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

Dr. C. S. Magudm
Principal
Rajarambapu College of Pharmacy
Kasegaon

Principal R. D. Sawant
Secretary
Kasegaon Education Society
Kasegaon

10, Institutional Area, Vasant Kunj,
New Delhi 110 070

POSITION OF REGISTRAR

Applications are invited in the prescribed format from eligible and highly motivated candidates with proven track record of competence and success for appointment to the post of **Registrar** on regular/deputation basis for the TERI School of Advanced Studies (Deemed to be University, established under Section 3 of the UGC Act 1956), New Delhi. The serving/retired defence personnel are encouraged to apply. The format of application and other details, including salary and allowances, are available on the website at **https://terisas.ac.in/registraradv.php.** The Search Committee may also approach eligible candidates whose application or nomination has not been received. The last date of application submission is **June 15, 2022.**

Licenced to post without prepayment under WPP No. U(C)-109/2021-23   **Postal Regd. No. DL (C)-05/1241/2021-23**

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Hind Vidya Prachar Samiti's

RAMNIRANJAN JHUNJHUNWALA COLLEGE (Autonomous)

Opp. Ghatkopar Railway Station, Ghatkopar (W), Mumbai 400 086

MINORITY

APPLICATIONS ARE INVITED FOR THE FOLLOWING POSTS FROM THE ACADEMIC YEAR 2022-2023.

UN-AIDED

Sr No.	Cadre	Subject	Total No. of Posts	Category
1	Assistant Professor	BMS	02	02- OPEN
2	Assistant Professor	BBI	01	01- OPEN
3	Assistant Professor	BMM	02	02- OPEN
4	Assistant Professor	BAF	02	02- OPEN

The required minimum qualifications for the post of Assistant Professor are as follows:-

1. A Master's degree with 55% marks (or and equivalent grade in a point – scale wherever the grading system is followed) in relevant subject or as equivalent degree from an Indian/Foreign University.

2. Besides fulfilling the above qualifications, the candidate must have cleared the National Eligibility Test (NET) conducted by the UGC, CSIR, or a similar test accredited by the UGC, like SET or who are or have been awarded a Ph.D Degree in accordance with the University Grants Commission (Minimum Standards and Procedure for Award of M.Phill/Ph.D Degree) Regulations, 2009 or 2016 and their amendments from time to time as the case may be exempted from NET/SET.

Provide further, candidates registered for the Ph.D programme prior to July 11, 2009, shall be governed by the provisions of the then existing Ordinance/ Bye-Laws/ Regulations of the Institutions awarding the degree and such Ph.D candidates shall be exempted from the requirements of NET/SET for recruitment and appointment of Assistant Professor or equivalent positions.

NET/SET shall also not be required for such Masters Programmes in disciplines for which NET/SET is not conducted. However, Ph.D degree shall remain the minimum eligibility for appointment of Assistant Professor in such disciplines as per U.G.C. Regulation 2018.

A minimum of 55% Marks (or an equivalent grade in a point-scale, wherever the grading system is followed) at the Master's level shall be the essential qualification for direct recruitment of teachers and other equivalent cadres at any level.

A relaxation of 5% shall be allowed at the Bachelor's as well as at the Master's level for the candidates belonging to Scheduled Caste/ Scheduled Tribe/Other Backward Classes (OBC) (Non–creamy Layer)/ Differently-abled (a) Blindness and low vision; (b) Deaf and Hard of Hearing: (c) Loco-motor disability including cerebral palsy, leprosy cured, Dwarfism, acid-attack victims and muscular dystrophy: (d) including deaf-blindness) for the purpose of eligibility and assessing good academic record for direct recruitment. The eligibility marks of 55% marks (or an equivalent grade in as point scale wherever the grading system is followed) and the relaxation of 5% to the categories mentioned above are permissible, based on only the qualifying marks without including any grace mark procedure.

A relaxation of 5% may be provided, (from 55% to 50% of the marks) to the Ph.D. Degree holders, who have obtained their Master's Degree prior to 19 September, 1991.

A relevant grade which is regarded as equivalent of 55%, wherever the grading system is followed by a recognized university, at the Master's level shall also be considered valid.

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

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

Candidates having knowledge of Marathi will be preferred.

The pay-scale for the post of **Assistance Professor** is as prescribed by the UGC, Government of Maharashtra & University of Mumbai from time to time.

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. The details of the qualification is available on the website ***http://www.rjcollege.edu. in/career/ or in University News.***

Applications with full details should reach the **PRINCIPAL**, Hindi Vidya Prachar Samiti's **RAMNIRANJAN JHUNJHUNWALA COLLEGE**, Opp. Ghatkopar Railway Station, Ghatkopar (W), Mumbai 400 086 **within 15 days** from the date of publication of this advertisement. **This is University approved advertisement.**

Sd/-
PRINCIPAL