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Basab Chaudhuri

'Choice' in Choice-based Credit System: A Geometric Interpretation

B S Madhukar

Assessment and Accreditation of Higher Education Institutions:
Need for Impact Study and Analysis

Ajaya Kumar Mohanty and Sudarshan Mishra

Reviews on Impact of COVID-19 Pandemic on Higher Education

Sunil K Tyagi and Lipi Jain

A Quantitative Assessment of the University Research Journal:
A Case Study

M Venkaiah Naidu

Educational Institute: Channel to Equip the Youth with
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In This Issue	
ITEMS	PAGE
Articles	
'Choice' in Choice-based Credit System: A Geometric Interpretation	3
Assessment and Accreditation of Higher Education Institutions: Need for Impact Study and Analysis	5
Reviews on Impact of COVID-19 Pandemic on Higher Education	6
A Quantitative Assessment of the University Research Journal: A Case Study	12
Convocation Address	
Utkal University, Bhubaneswar, Odisha	23
Campus News	25
Theses of the Month (Science & Technology)	29
Advertisement	34

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'Choice' in Choice-based Credit System: A Geometric Interpretation

Basab Chaudhuri*

Higher education all over the world is continuously evolving. New subjects are being introduced; methodologies are being worked out; prescriptions are being written daily with the objective of educating students in larger numbers and improving the quality of education. In recent years, the most used phrase in higher education has been CBCS – Choice-based Credit System, and NEP-2020 – the National Education Policy. In various interactions, CBCS has been spoken of, but not with the conviction as expected. Instead, question has arisen as to whether the CBCS can be made operational in the Indian context. The cafeteria system in higher education – choose as you please – is a far cry from reality. Our mindset does not allow quick adaptation, rather questions are raised, doubts are expressed and a sense of 'cannot be achieved' works through our mind. Before we start, we often falter, and before we falter, we often fail.

Real academics is not about humbugs, but about reflectors who reflect upon issues and bring solutions on the table. India as a whole provides less indigenous solutions although problems abound. It is an interesting case study for all.

Choice

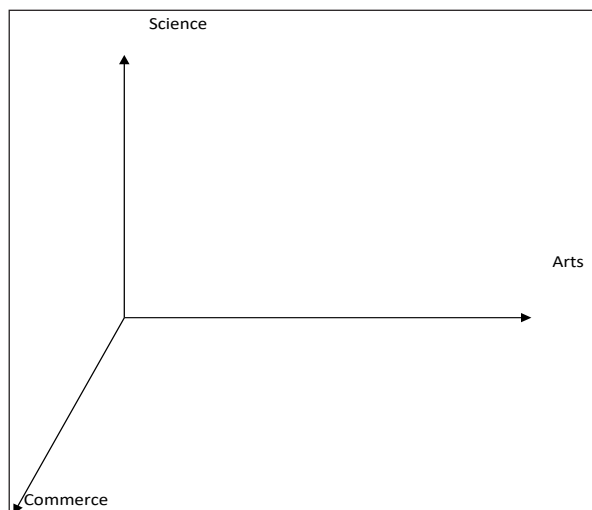
Any 'learner-centered' academic system must give choice to the learner. The learner in the student must arise and awake. Academics is primarily a systematic way of empowering a learner. The more the empowerment, the more is the chance of the learner to succeed in the real world. In old days, complexity and interactions in the world were less; with every passing day, the complexities are increasing. Linearity in thinking was sufficient to tackle life's problems in old times; today it no longer works. That is why a more non-linear system of education is necessary. Choice fits in there.

In many seminars and conferences, discussion was held about CBCS. A lot was told, but many were not convinced. Idea-wise, what is CBCS? Let us try out a geometric interpretation (Figure-1). There are three axes in the figure-1: Arts, Science and Commerce. These are more common themes or subjects which are chosen by the students.

Ordinarily, when a student chooses a given number of subjects in Arts, he moves linearly along the Arts axis. His interests are linear; his attainments are linear too. If such a student is allowed to take one or two subjects of science, there is a transformation. From linear, he moves to a planar system. An example here will suffice. An ant

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Figure 1: Three Dimensions of Learning



moving on a wall and a learner on Arts-Science plane are similar in their orientation although perceptions differ. Now, give the ant its wings and it will fly out from the wall out into the space. If the wall is inside a room, the ant will fly in different directions in the room and may even occupy a little place on

a different wall. By providing the ant its wings, we have increased intuitively its ability to explore the space.

Similarly, when a learner on the Arts – Science plane is given a choice to take a subject of Commerce or Management, he tends to fly and occupy the three-dimensional space. The ‘choice’ in CBCS is thus the ability of a learner to move from linear to planar, and then from planar to a three-dimensional arena.

Ideally, knowledge is infinite. The Arts, Science and Commerce axes may tend to infinity, therefore. In CBCS, a learner thus gets an infinite knowledge space to explore and expand. Swami Vivekananda said, “Expansion is life, contraction is death.” Philosophically, the concept of CBCS allows expansion, and not its reverse contraction. I am confident that our academicians will not opt for death, they must jump into life. CBCS is recommended in the New Education Policy–2020. It is upon us engaged in academics to transform policy into the mode of efficacy. Hard work is needed at this hour. □

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The release of the book in the Annual Meet of Vice Chancellors 2020, coincides with the launch of New Education Policy. The Foreword for the Book was written by the then Minister of Education Shri Ramesh Pokhriyal ‘Nishank’.

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Assessment and Accreditation of Higher Education Institutions: Need for Impact Study and Analysis

B S Madhukar*

The National Education Policy–2020 (NEP–2020) on higher education primarily envisages ‘Light and Tight’ regulation by single regulator to promote quality higher educational institutions. A quality higher education must enable personal accomplishment and enlightenment, constructive public engagement, and productive contribution to the society. It must prepare students for meaningful and satisfying lives and work roles and enable economic independence.

The primary mechanism to enable such regulation will be accreditation. Accreditation of institutions will be based primarily on basic norms, public self-disclosure, good governance, and outcomes, and it will be carried out by independent ecosystem of accrediting institutions supervised by National Accreditation Council (NAC) as indicated in the NEP–2020. Further (in effect) accreditation will enable regulation by way of transparency and quality sustenance and improvement by devolving of power and responsibilities to institutions through the process of graded autonomy.

At present National Assessment and Accreditation Council (NAAC) and National Board of Accreditation (NBA) autonomous institutions of the Government of India accounts for the bulk of assessment and accreditation in India. The unit of accreditation in case of NAAC is an institution (as a whole) whereas in case of NBA it is a program.

As envisaged in the NEP–2020, if accreditation is to be the fulcrum of quality and regulation of higher educational intuitions it will be imperative to rework on the present assessment and accreditation process. While NBA accreditation has its own nuances, the institutional model of accreditation by NAAC with refinements may be more attuned to measurement of institutional quality and conformance to regulatory functions.

NAAC in its existence of more than two decades has an accumulated experience of assessing and accrediting more than ten thousand institutions, covering different types of Universities/colleges and also include institutions that have undergone multiple cycles of assessment (cycle is a period of 5 years). The accredited institutions are spread across all states and union territories of the country and comprises medical, engineering, arts, science, etc.

NAAC’s process of assessment underwent a paradigm shift in 2017 due to varied reasons. The important of them being that of reducing subjectivity of human judgement (by peer team) in institutional grading and mitigate serious allegations of malpractices. This shift has resulted in about 70% of weightage of the evaluation mechanism converted to a question form (Quantitative metrics), the outcome of which is a number, amicable to computer programming. This structure of evaluation thus has resulted in highly reduced scope of 360 degree judgement of an activity/process. The remaining 30% (qualitative metrics) continues to be evaluated by the peer team as per earlier practice, due to limitations of framing questions in measurable form and to adhere at least partially to international practice of peer assessment.

To meet the twin objectives of NEP–2020 i.e. regulation and continuous quality enhancement the ‘eligibility criteria’ for accreditation needs to be reframed (to cover critical aspects of regulation) and also study the changes that has been experienced over time at the institutional level in already accredited institutions. In other words what factors constitutes quality need to be captured vis-à-vis its correlation with grades obtained. This understating will be the key to grant autonomy in a differential fashion.

The best way to capture the above facts is to commission a Nation Wide ‘Impact Study and Analysis’ on out-come of assessment exercise carried out by NAAC/NBA so far, at the institutional (ground) level. The study may be commissioned by the Ministry of Education and carried out by

(contd. on pg. 11)

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Reviews on Impact of COVID–19 Pandemic on Higher Education

Ajaya Kumar Mohanty* and Sudarshan Mishra**

The present review is an attempt to concisely the research work done so far on the impact of COVID-19 pandemic on Higher education worldwide. The sources of the review are the survey findings of national and international media agencies and developmental organizations including the individual expert views. The review included all those thoughts, facts and findings of research available in different web portals. The reviews categorized the impact of COVID-19 on the three broad themes such as Institutional Preparation, Learner Characteristics and Teaching Learning. The review also included strategic actions suggested by the sources for the Government, Policy makers and Higher Education Institutions to undertake.

The COVID-19 pandemic has disrupted the higher education system worldwide. The sudden closer of face to face teaching and learning, lab activities and other related academic activities in the campus has disturbed the academic planning and motivation of students and teachers. Some of the affected activities are non-completion of the terminal exams, incomplete syllabus, delayed starting of the new academic session and loss of jobs on the part of teachers and students as well. The COVID-19 pandemic compels the educational institutions and stakeholders for remote learning. The intellectuals and the researchers across the world studied on the situation and also forecasted the future of the Higher Education.

The present research is a documentary analysis of the thoughts, facts and findings of research works published in different national and international magazines, journals and web portals in the form of research articles, conference proceedings and recommendations of the commissions. The study established its credibility through a systematic documentation of the 'inquiry process' and

established a clear chain of evidence (Creswell and Miller 2000, p. 128; Silverman 2015). The study was undertaken in two directions. One is the perceived or factual information about the loss in different aspects of higher education and the other direction is strategic actions suggested for higher education. The objectives of the study are:

- To review the impact of COVID-19 pandemic on higher education as viewed by intellectuals and researchers
- To review the strategic actions suggested by intellectuals and researchers for Post Pandemic Higher Education
- The researchers searched the contents with keyword 'Impact of COVID-19 Pandemic on Higher Education' Then verified the credibility of the agencies and objectivity of the content on two criteria.
 - a) Is the agency a national or international reputed institution or portal?
 - b) Is the content relates to survey or conference or facts of any national or international scenario

The researchers have done the documentary analysis of the published contents and noted down the facts and findings of the articles and reports. Then they tried to arrange the contents as per the objectives stated.

The impact of COVID-19 pandemic on higher education has been surveyed by media agencies, international developmental agencies like UNESCO, Worldbank and also experts of varied field, they tried to capture the status through surveys and facts collected from different institutions. Thus, the review delimits to all those findings and the facts of local to global on the varied aspects affected negatively due to COVID-19 pandemic. The other direction of the study is to revisit the thought, facts and strategic actions proposed by the sources. The reviews are delimited from January, 2020 to May, 2021.

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The review of the facts and findings of the objective No.1 is categorized under three broad areas such as, Institutional Preparation, Learner Characteristics and Teaching Learning.

Institutional Preparation

As an immediate alternative the learning tools and platforms have been opted by the institutions but have resulted a great number of inconveniences on the part of the teacher and students (Mishra and Mohanty, 2020). It has exposed the shortcomings of higher education system to impart learning through digital platforms. Many are struggling to navigate this crisis while maintaining consistent course delivery, ensuring strong student recruitment numbers, and providing clear communication to staff and students (Quacquarelli Symonds, 2020). The higher education institutions need to plan the post-pandemic education and research strategies to ensure student learning outcomes and standards of educational quality (Rasid & Yadav 2020). The teachers have to adapt themselves to the new digital tools. Simply digital literacy will not serve the purpose, the teachers have to assimilate technology in their online teaching and create their own digital teaching materials and modules in order to survive in the post-pandemic world. The teachers, educationists and the education policy makers have to accept the challenge of the changing education system by adapting themselves to the digital tools and applying them in their new-fangled teaching strategies in Post-COVID-19 education system (Gangpuley, 2020; CoL, 2020). The deficient computer skills and the perception of a higher workload prevented them from perceiving their own improved performance in the new teaching environment. The type of impact is diverse and varies from institution to institution, but everywhere it has been negative. Apart from that scientific research projects are at risk in higher education institutions (IAU, 2020). Societies are, then, confronted with a massive challenge of youth disengagement and deprived of the graduate professionals needed to keep countries on track for social cohesion and growth. (World Bank Group, Education, 2020) Tertiary education provides unique opportunities for individual development and equality of opportunities as well as promotes shared prosperity. There is a significant possibility of corporate houses, technology firms and educational institutions working much more closely together to commercialize education (Galloway, 2020).

Learners Characteristics

Students were mainly concerned about issues to do with their future professional career and studies, and experienced boredom, anxiety, and frustration. Multiple stressors were identified that contributed to the increased levels of stress, anxiety, and depressive thoughts among students. (Son, Hedge, Smith, Wnag, Sasangghora, 2020; Kakoty, 2014; Devedi, Deivedi and Zabukovsek, 2019). Studies show that online classes lose social learning opportunities. Both teachers and students need orientation on online technologies to make online classes a platform for social learning (Mishra and Mohanty 2020). COVID-19 delays or obstacles to program completion, employment and/or immigration (Kanwar, Asha Carr, Alexis, 2020; Dishritristi, 2020) The pandemic has led to the adoption of particular hygienic behaviors (e.g., use of masks, washing hands) and discouraged certain daily practices (Aristovnik, Kerži, Ravšelj, Tomažev, and Umek, 2020) There are three categories of students. One group who have understood the benefits of online classes but their number is very few, second group who understood some of the benefits and the third group who are large in number but far away from the understanding of benefits of online classes. Students should be guided about the potential benefits of the online classes. Their problems need to be addressed through individual or small group approach (Mishra and Mohanty, 2020) The International Association of Universities (IAU, 2020) survey also indicates that the Covid-19 has had an impact on international student mobility and admission in new academic year of Higher education institutions. The digital divide has been created the exclusion of students from poor and marginalized backgrounds from digital learning but also pushed many underprivileged students towards depression and death. (Dishritristi, 2020)

Teaching and Learning

As per Silaban, Suhariato, and Ruslan (2020), ...the world of education has begun to shift the paradigm of 21st century learning from the traditional era towards IT based learning and the internet, so learning can be done anywhere and anytime, and also information can be obtained from anywhere. Needless to say, the traditional teaching strategies are practical; however, with advances in educational technology, the effectiveness of traditional learning methods has

become something of the past. As Wikramanayake (2014) puts it, advances in digital technology have opened up many avenues of learning. Technology has made information accessible/ transmittable from anywhere and by/to all groups of people. Education has reached most parts of the world and Information and Communication Technology has become an integral part of human life. Govindarajan and Srivastava (2020) also advocated for more 'flipped classrooms' and a 'horses for courses' be spoke approach to online delivery. LeBlanc (2020) calls for competency-based degree pathways untethered to time—and for the sector to 'break from the tyranny of time' in order to unleash a wave of innovation and reinvent itself. A way out of the dilemma outlined above seems to be a modified version of blended learning in the form of a hybrid campus, which embraces the advantages of both traditional face-to-face instruction and online learning. With regard to the distribution of courses, they can be divided into two major categories: theoretical and practical. Theoretical courses can be easily taught online while practical courses require face-to-face instruction. For universities, the modified blended-learning model is cost-effective. The modified version and hybrid campus may also boost the admission rate of universities since applicants who have a full or part-time job may find it easier to manage and divide their time between work and school considering the flexibility that the hybrid campus offers and the fact that they can receive 50% of instruction online. It is also environmentally friendly. The great advantage of hybrid campuses for the environment, particularly in large cities, will include less air and noise pollution, and less traffic jam. This type of combinatory model is less boring and more engaging for the learners and it enhances their adaptability skills through self-coordinated style of learning. The synthesis of classroom teaching with online education can also augment students' interest as they can effectively collaborate with their classmates and teachers, which in turn boosts their competence and confidence. The 24-hour online access to the internet in the online part of the model allows students to concentrate on their tasks and complete them during their free time without being under stress and time pressure (Keshavarz, 2020) The effectiveness of online learning depends on the designed and prepared learning material, the lecturer's engagement in the online environment, and lecturer–student or student–

student interactions (Wu and Liu, 2013 and Bao, 2020) At the same time, the forced move to distance teaching and learning offers important opportunities to propose more flexible learning possibilities, explore blended or hybrid learning and to mix synchronous learning with asynchronous learning (IAU–COVID-19 Global Impact Survey, 2020) The studies show that 80% of Higher Education Institutions reported that they have been affected by the COVID-19 pandemic. The most common impact of COVID-19 has been the cancelling of international travel and the cancellation or postponement of scientific conferences (IAU–COVID-19 Global Impact Survey, 2020) Online classes have added to the already existing feelings of vulnerability among students. The digital divide has not only led to the exclusion of students from poor and marginalized backgrounds from digital learning but also pushed many underprivileged students towards depression and death (Sarkar, 2020 and Rye, 2008).

Studies related to the institutional preparedness focused on competency level of students and teacher to accommodate with online learning and the difficulties faced by them. The studies need to be undertaken to get the perception of other stakeholders like, administrators, policy makers at the institutional level and also the bureaucrats of statutory bodies who exactly monitor the education system at the state and national level. Studies are required on infrastructural readiness and challenges faced in institutional management to cope with the changing scenario of higher education. In relation to learners' characteristics, many studies focused on the anxiety or frustration of learners for this outbreak. How the students of varied backgrounds and learning level will accommodate with the forth coming blended system? How do the learners with special needs category will accommodate with it? In relation to teaching and learning, studies focused on what are the problems faced by the teachers and students by offering teaching through online. Review found no such studies relating to what type of special pedagogy required for blended learning? How does the teacher be the creator and user of digital materials and track the progress of students digitally? How do the teachers make the institutional arrangement of subjects, time and resources when teaching will be mostly online mode. The readiness of our existing digital infrastructure, competency

and attitudinal factor of teachers and students etc. need to be focused in the studies.

Strategic Actions

Most of the research findings and the thoughts of the experts centered round the ideas that it is an opportunity for the higher education institutions and the government to redefining the higher education and change the policies accordingly (Kanwar, Asha, Carr and Alexis, 2020)

The International Commission on the Futures of Education—established by UNESCO in 2019 recommended nine ideas for concrete actions to advance education of tomorrow.

1. Commit to strengthen education as a common good. Education is a bulwark against inequalities.
2. Expand the definition of the right to education so that it addresses the importance of connectivity and access to knowledge and information.
3. Value the teaching profession and teacher collaboration.
4. Promote student, youth and children's participation and rights.
5. Protect the social spaces provided by schools as we transform education.
6. Make free and open source technologies available to teachers and students.
7. Ensure scientific literacy within the curriculum.
8. Protect domestic and international financing of public education.
9. Advance global solidarity to end current levels of inequality. (UNESCO, Report, 2020)

Professor Scott Galloway of the Stern School of Business Galloway is of the opinion that the event model of education will be no more in the system. There will be a hybrid model of system where students will have to pay a premium for the 'campus experience', and those who can not afford choose to be educated online. Education will be a lifelong process instead of degree oriented. Education will be an online-offline hybrid, not one of either. Much better technology will emerge to blur your offline and online experience. The private business houses and tech companies will see education (along with healthcare) as the next big opportunity. Even in India corporate houses,

technology firms and education institutions working much more closely together. A negative fallout could be that the country's digital divide will get more pronounced. Poor students with less access to devices, connectivity and private space will suffer greatly (Galloway, 2020).

Programmes that are industry-linked will be in top priority. They need to provide individualized learning paths for their students and individualized career opportunity to their faculty. They must go for a flexible and decentralized management approach (Mandek.Parimal.V.2020, Personal Communication, April 8th, 2021). Tertiary education which fuels competitiveness and growth by preparing professionals, like, managers and engineers, medical personal and teachers. Universities are also centers of research and innovation and—working with small and medium size enterprises—support regional development (World Bank Group, Education, 2020).

A Framework for adaptability which is from the work of political scientist Kathleen Thelen and economist and philosopher Amartya Sen, may a strategic model to work for Higher Education. The key components of educational adaptability are: (1) cooperation, (2) inclusion, and (3) flexibility. It is a collective approach. They suggest that this can be achieved by coordinating various professional, scientific, corporate, community and governmental stakeholders in order to ensure continuity in educational service provision, promoting lifelong learning and overall workforce participation.

UNESCO, IESALC suggested governments to:

1. Include Higher Education in the stimulus plans for economic and social recovery;
2. Forge a national consensus for a strategy for fostering recovery and innovation in higher education;
3. Provide a clear regulatory environment when reopening of classrooms that generates security; and
4. Commit to international cooperation.

For their part, HEIs should:

1. Anticipate a long-term closure, focus efforts on ensuring teaching continuity and guaranteeing equity, and provide governance mechanisms, monitoring, and efficient support;

2. Design pedagogical tools to evaluate training and create mechanisms to support learning for disadvantaged students;
3. Document the pedagogical changes introduced and their impacts;
4. Learn from mistakes and scale up digitization, hybridization and ubiquitous learning; and
5. Promote internal reflection on the renewal of the teaching and learning model UNESCO, IESALC, 2020).

The reviews indicates a paradigm shift in higher education that is event model or degree model to lifelong education. A hybrid of offline and online higher education which will prepare professionals as per the demand of the industries and administration. There will be huge employment in infrastructure building and management of information technology. The thrust areas of Research and innovations may be more contextualized and community based to revive the economy, improving the health care and redirecting the higher education to meet the needs of the changing world. More specifically, research and innovations in higher education will center round the quality access of higher education to the disadvantage students. Making the teachers competent enough to on online pedagogy of teaching and learning and handle evaluation of learning performances. Research will also address How far the policy makers and administrators of the existing higher education systems will improvise the digitized and lifelong education higher education? The curriculum is expected to be more flexible, modulated, work-oriented and need-based. The reviews centered round the opinions and recommendations of the experts in consultations which is still in idea level and the practicability and objectivity of those ideas are subject to verification. Each country has its own procedure to reform its education system which calls for participation of many stakeholders in various stages of its finalization.

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(contd. from pg. 5)

a third party (IIM may be entrusted with the task). The study even otherwise assumes importance for course correction opportunities to the assessing agencies as the process (NAAC/NBA) is in vogue for more than two decades involving substantial human resources and financial outlay. The study will also provide opportunity to address the muffled voices of the institutions, that assessment processes over the years has tended to increasingly consume disproportionate amount of faculty time for process preparation by unnecessarily demanding voluminous information and data records.

The decision making based on ground level realities (Impact Study and Analysis) will be a welcome shift from the generally adopted process of fast decision making through expert committees. The unfortunate part of these committees, many a

times are that the experts drafted and expertise required don't match (Experts are selected by designations held but expertise is a tough learning curve). Moreover, the famous statement of the former Finance Minister late Arun Jaitley that "Some know the law and others the Law Minister" do at times play a role in appointment to the committees. The best neutralizing factor will be judgements based on results from the factual study.

Looking at the long-term implications of the policy and education being in the concurrent list of the constitution the study undoubtedly will be a strong basis for the Centre and the States to work on the implementation of the NEP-2020. Even States can commission similar studies to strengthen their implementation plans.



A Quantitative Assessment of the University Research Journal: A Case Study

Sunil K Tyagi* and Lipi Jain**

A quantitative and statistically supported evaluation of published articles in the University's Research Journal, *Tulsi Prajna* has been effectuated to understand the dynamics of the inter-relationships and impacts of publications, assess research trends in a variety of fields and measure the influence of publication in the academic community. Citation analysis, based on constructing the citation graph has been made to explore the impact of the relevant fields of publications and also the impact of a set of researchers, in addition to the impact of a particular paper. Authors have been inspired by the classical approach of Otlet (1934), who was suggestive of the measurement of all aspects related to the publication and reading of books and documents and coined the term Bibliometric Analysis for the said approach. It has been intended to bring into rigour and accuracy of the bibliometric study and therefore, for analysing the research productivity in the areas of research, covered in the University's research journal, due care has been given to ensure the accuracy in regard of the fair representation of the research areas in the database on which the bibliographic search has been based. The present case study has taken into consideration the quantitative approaches that principally are based on various aspects of written articles like subject, author, citations, title, etc. This type of analysis may be useful to monitor the growth of literature and the patterns of research.

An analysis of research output in particular area of knowledge may reveal new facts that prove beneficial towards the concerned research fraternity. In order to understand the latest trend and pattern of publication distribution, the bibliometric study has been conducted on the research journal *Tulsi Prajna* and the present study remains confined for the period 2016-2020.

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Tulsi Prajna is the peer reviewed research journal published for the last four decades by the Jain Vishva Bharati Institute (JVBI) (Deemed-to-be-University under Section 3 of the UGC Act, 1956) covered the thrust area of Humanities, Indology, Oriental Studies and Jainism. JVBI was established with the inspiration of *Gurudev Tulsi* in Ladnun, District Nagaur, Rajasthan, India. *Gurudev Shri Tulsi* remained its first constitutional *Anushasta* (moral and spiritual guide) followed by Acharya Shri Mahaprajna as its second *Anushasta*. Acharya Shri Mahashraman is its present *Anushasta*. JVBI since 1991 is continuously striving hard as the prime institution for the study-teaching and research in the field of Oriental Studies, Indian Culture, Jain Studies, Comparative Religion and Philosophy, Spiritualism, *Yoga-Sadhana*, Science of Living, etc. and promoting the ideals of Non-Violence, Anekanta, World Peace and Human Welfare (www.jvbi.ac.in and https://jvbi.ac.in/index.php?option=com_content&view=article&id=385&Itemid=873). The present study has been made limited to the 10 volumes published between the periods 2016-2020 with two special issues published in 2019 on '*Aparigraha*' and '*Acharya Mahapragya Birth Centenary 1920-2020*'.

Taking the Clue from the Past Studies

The present article reviews studies conducted on bibliometric study. The following are some of the related studies worthy for analysis.

Hui, et. al. (2021) performed a comprehensive analysis of the worldwide trends in research outputs in the field of premature ejaculation (PE). This study investigated the universal findings of previous PE studies and the trending issues surrounding the condition. They employed the Web of Science Core Collection for data collection. The Excel (2016) and CiteSpace IV were used for information analysis. The information was categorized using journal names, institutions, research frontiers, citation reports, regions/countries, and authors. A sum of 886 publications concerning PE between 2008 and 2018 were identified. The highest number of

publications was identified in the Journal of Sexual Medicine published. The United States of America (USA) had the highest number of publications and H-index value.

Garg, Lamba and Singh (2020) analyses the papers published in DESIDOC Journal of Library and Information Technology (DJLIT) using bibliometric techniques for the period of 1992-2019 (28 years) and citations received by these papers until 20th March, 2020 as reflected by Google Scholar. The findings indicate that the highest number of articles was published during 2012-2015 followed by 2016-2019. The distribution of output by countries indicates that 39 countries contributed 1,698 articles, including India. Indian authors published the highest percentage (86.1%) of articles followed by USA and had the highest value of CPP and RCI. Authors affiliated to different institutions of Delhi contributed the most (30.7 %) followed by Karnataka (13.1 %) and Maharashtra (10.5 %). Among the institutions, DRDO-DESIDOC and CSIR-NISTADS topped the list. During the studied period, 1,698 papers obtained 15,538 citations, of which 248 (14.6 %) articles did not receive any citation.

Prieto-Gutierrez and Segado-Boj (2019) conducted the bibliometric analysis of research published in Annals of Library and Information Studies (ALIS) for the period 2011– 2017. Specifically, it compares this journal's trends with those of other Library and Information Science (LIS) Journals from the same geographical area (India, and Asia as a whole) and with the 10 highest-rated LIS journals worldwide. The source of the data used was the multidisciplinary database Scopus. To perform this comparison, ALIS' production was analyzed in order to identify authorship patterns; for example, authors' countries of residence, co-authorship trends, and collaboration networks. Research topics were identified through keyword analysis, while performance was measured by examining the number of citations articles received. Notably, however, collaboration among Asia-based journals was found to be lower than that in the top-indexed journals in the LIS field.

Xu and Yu (2019) uses the bibliometric analysis and the visual analysis methods to systematically study and analyze the big data publications included

in the Science Citation Index (SCI) and Social Science Citation Index (SSCI) databases. On the one hand, it analyzes the most influential countries, journals, research institutions. On the other hand, the co-occurrence of author keywords of the publications are investigated, and the current research hotspots and future development trends are explored. The research in this paper is helpful for relevant scholars to understand the development status and trends in this field.

Haque, et. al. (2019) conducted a bibliometric analysis of the articles published in Library Philosophy and Practice (E-Journal) for the period 2014–2018. During this period, a total number of 1046 scholarly papers have been published by LIS researchers around the world. In all with an average 209.2 articles were published each year and the highest numbers (421) of articles were published in 2018. Nigeria is in top rank with 36.33% contributions among the 35 contributed countries. Two authorships is leading authorship trend, and also Multi-Authored has shown the unique number of contribution with the 0.71 rates of the degree of collaboration.

Abdi, et. al. (2018) presented a bibliometric analysis of the journal titled 'Information Processing & Management (IP & M)' for the period from 1980-2015. The analysis showed that 2,913 papers were published in journal of IP&M from 1980-2015. The highest percentage was articles (67.15%) among the published document types. The study identified top 10 prolific authors, top 10 institutions and top 24 prolific countries with number of papers. Researchers from USA have been made the most percentage of contributions (50.88%). Also identified that from the period 1980-1985 to the period 2010-2015 degree of collaboration has been increased in 3 times.

Pratap (2018) conducted a bibliometric analysis of 161 articles published in 09 volumes (24-32) of 18 issues of Indian Journal of Agricultural Library and Information Services (IJALIS) for the period of nine years (2008-2016). The study finds that on an average, 18 research articles were published per volume in a year during the period of study, whereas, maximum number (39.75%) of articles was two authored followed by single authored (32.36%). Karnataka topped the top rank among all the 20 contributed states of India from where maximum number of contribution in the journal.

Verma, et. al. (2018)⁰ conducted a bibliometric study of Library Philosophy and Practice (e-journal) from 2008 to 2017. A total of 1478 scholarly papers were published. It is found that the average growth rate of paper was 147.8 per year. The highest number of publications is in the year 2011 with 197(13.33%) followed by 2017 with 193 (13.06%). Majority of papers during 2008-2017 in LPP are in the form of joint authorship and 41.13% of articles are published in two authorship. From the 35 countries of the world contributed their articles in LPP during 2008-2017. With 42.23% contributions, Nigeria is in top rank while India (24.13%) and USA (9.52%) contribution stood second and third, respectively. There are a total of 34907 references cited in 1478 articles from 2008-2017, and highest number of references (5619) has recorded in the year, 2017.

Velmurugan and Radhakrishnan (2016) presented a bibliometric features and characteristics of the journal titled 'Indian Journal of Biotechnology' publishes by NISCAIR, New Delhi. The Analysis has been conducted with 448 contributions published in the journal selected six years for a period from 2007-2012. The result revealed that the highest number of contributions i.e., 87 (19.41 %) were published in the years 2007. The highest number 436 (97.33%) articles were contributed by joint authors and the rest of 12 (2.67 %) articles contributed by single author. The degree of collaboration is 0.97. The average length of the articles varied from a minimum of 5.94 pages in the year 2012.

Mahendra (2014) conducted a bibliometric analysis of the journal titled 'Library Herald' for the period 2011-2014. The result showed that out of 114 articles single author contributed 65 (57.01%) articles while the rest 49 (42.98%) articles were contributed by joint authors. Study reveals that most of the contributions are from India with 89.47% and the rest 10.52 % only from foreign sources.

The Present Study : Dimensions

The present study has been undertaken with the objective of analyzing the following aspects.

- To examine year-wise distribution of papers;
- To examine categories-wise classification of papers;
- To examine the authorship pattern of papers;
- To examine the page length of articles;
- To analysis the number of references given in an articles; and
- To quantify average articles published per volume and issue.

Methodology

The methodology applied in the present study is bibliometric analysis to study in detail the bibliographic features of the articles published in *Tulsi Prajna* research journal during the period 2016-2020. The data required for analysis was collected from the print copy of *Tulsi Prajna* available with Vardhaman Granthagar (Central Library), Jain Vishva Bharati Institute (Deemed University), Ladnun, Rajasthan, India. The data were analyzed using MS-Excel worksheet for executing simple operations like addition, subtraction, percentage and averages, etc.

Data Analysis and Interpretation

The analysis was done in two parts: 1) Analysis of articles 2) Analysis of citations.

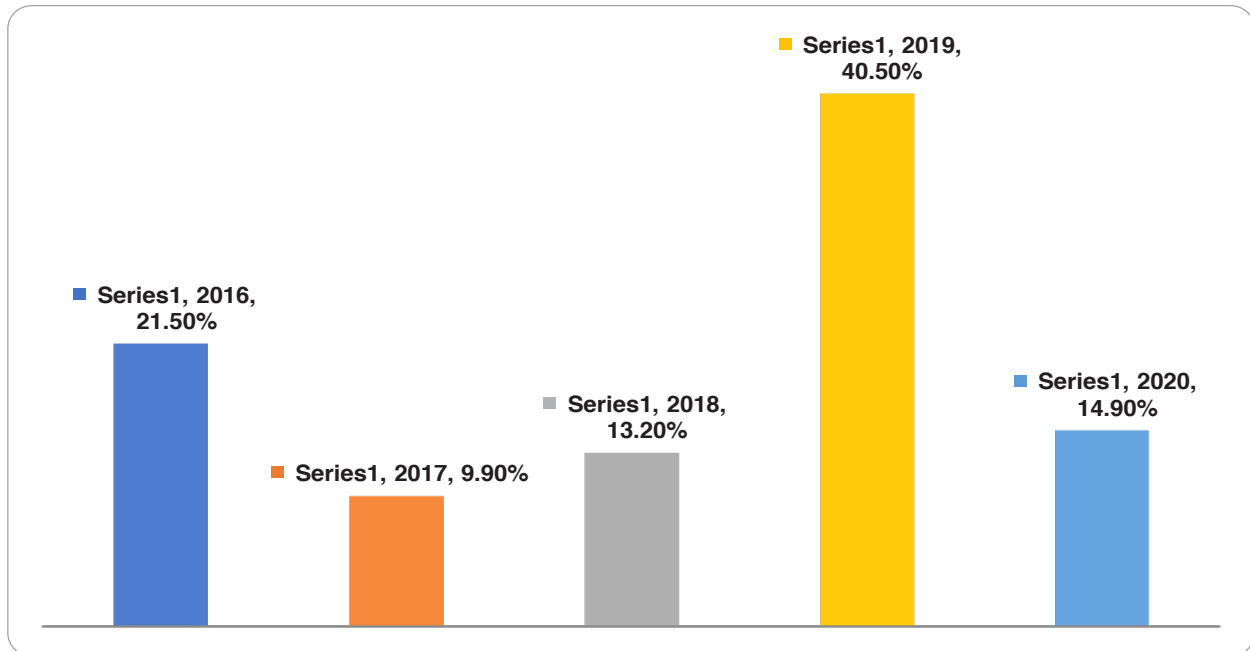
Year-wise Distribution of Papers

Table-1 highlights the data on year-wise distribution of articles contributed in the source journal *Tulsi Prajna* during 2016-2020. During the period of study 2016 to 2020, a total of 121 articles in *Tulsi Prajna* have been produced. The journal on

Table-1: Year-wise Distribution of Papers

Year	Number of Articles	Percentage (%)	Cumulative Percentage (%)
2016	26	21.5%	21.5%
2017	12	09.9%	31.4%
2018	16	13.2%	44.6%
2019	49	40.5%	85.1%
2020	18	14.9%	100
TOTAL	121	100%	

Fig.1: Year-wise Distribution of Papers



an average has published 24 papers per year and 12 papers per volume. However, out of total 121 articles, the maximum number of publication was recorded in 2019 (49 articles, 40.5%) while the minimum was in the year 2017 (12 articles, 9.9%).

Distribution of Contributions According to Year and Volumes

The data given in Table-2 presents the year wise and volume wise distribution of articles in the source journal during the period of study 2016-2020 and it was found that maximum number of articles (42) was published in the volume (181-182) and less number of articles (6) were published in

the volumes of 173-174 and 175-176 respectively. On an average, 12.1 articles per volume were published.

Year-wise Growth of Publication

The fluctuations in publication pattern of articles were also considered throughout the period of study. The number of articles published during 2016-2020 is depicted in Table-3. A total of 121 articles published with the annual average growth rate of 24.5%. By observation, it found that the year, 2018 to 2019 growth rate is positive, but in the year, 2017 and 2020, the growth rate is negative. The highest growth rate is recorded in the year, 2019

Table-2: Distribution of Contributions According to Year and Volumes

Year	Volume No.	Number of Articles	Volume No.	Number of Articles	Total Number of Articles	Percentage (%)	Number of articles/ volume
2016	169-170	15	171-172	11	26	21.5%	13
2017	173-174	6	175-176	6	12	09.9%	06
2018	177-178	8	179-180	8	16	13.2%	08
2019	181-182	42	183-184	7	49	40.5%	24.5
2020	185-186	8	186-187	10	18	14.9%	09
TOTAL		79		42	121	100%	12.1

with growth rate 206.3% followed by in the year, 2018 with 33.3%. The following formula has been applied for calculating the growth rate:

Where,

r = Publication growth in percentage

P0 = Number of publication in the base year

P1 = Number of publication in the present year

$$r = \frac{P1 - P0}{P0} \times 100$$

Category-wise Classification of Papers

Table-4 and table-5 presents the category-wise classification of the articles published during period from 2016 to 2020. The study shows that the maximum number of papers published as under the category of article i.e. 112 (92.6%), whereas 09 (7.4%) papers published under the editorial material category. It was found that maximum number of

articles (46) was published in the year 2019 and less number of articles (10) was published in the year 2017.

Authorship Pattern of Papers

The authorship pattern of papers was studied to determine the percentage of single and multiple authorships. As shown in table-6, our author sample consists of 146 authors for 121 papers. Table-6 exposes that during 2016-2020 the highest proportion of papers were by single authors (79.3%), followed by papers with 2 authors (20.7%). Table 6 displayed that out of 121 papers single author contributed 96 (79.3%) papers.

Degree of Collaboration

The degree of collaboration in quantitative terms is depicted in table-7. As a result, the degree of collaboration is 0.21. As shown in table-7, the

Table-3: Year-wise Growth of Publication

Year	Number of Articles	Growth Rate	Average Growth Rate (%)
2016	26	0	0
2017	12	-14	-53.8
2018	16	04	33.3
2019	49	33	206.3
2020	18	-31	-63.3
TOTAL	121	-8	24.5

Fig.-3: Year-wise Growth of Publication

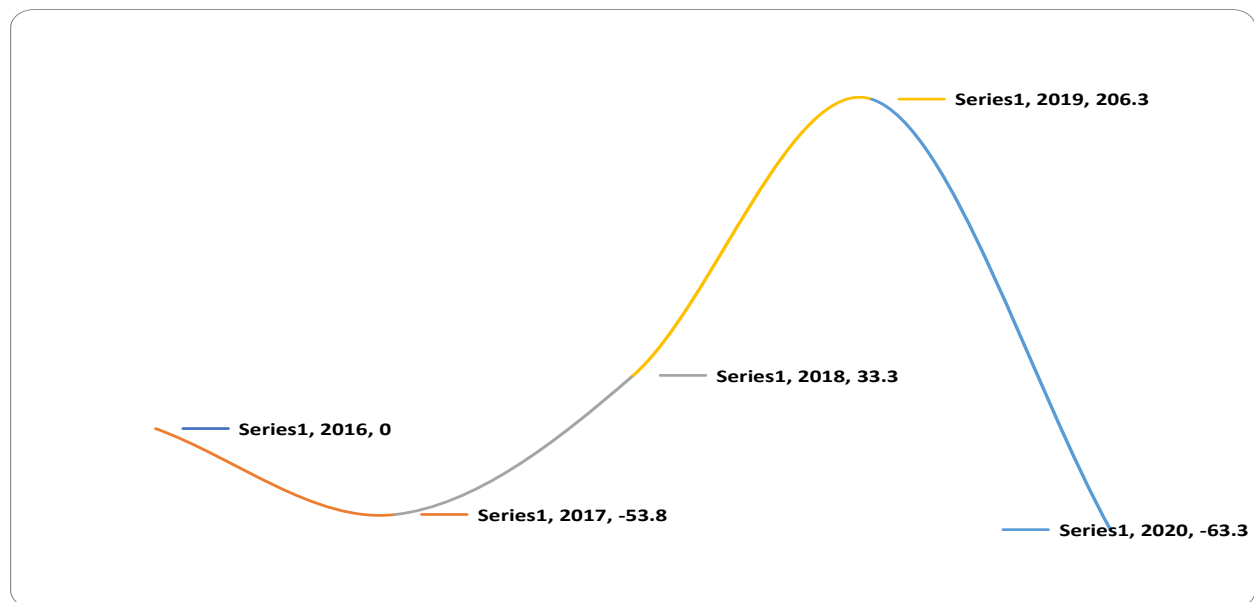


Table-4: Category-wise Classification of Papers

Category	Number of articles	Percentage (%)
Article	112	92.6%
Editorial Material or others	09	07.4%
TOTAL	121	100%

Table-5: Year-wise and Category-wise Classification of Papers

Category	Year					Total Articles	Percentage (%)
	2016	2017	2018	2019	2020		
Article	26	10	14	46	16	112	92.6%
Editorial Material or others	0	02	02	03	02	09	07.4%
TOTAL	23	12	16	49	18	121	100%

value of DC varies from the study period. DC was 0.42 during 2016, 0.08 during 2017, 0.13 during 2018, 0.12 during 2019, and 0.28 during 2020. The following formula has been applied for calculating the Degree of Collaboration (DC):

$$\text{Degree of Collaboration (DC)} = \frac{\text{No. of Multi-authored Papers}}{\text{No. of Single Authored Papers} + \text{No. of Single Authored Papers}}$$

The Geographical Distributions of Contributions

Table-8 shows the geographical distribution of papers of the source journal under study. All the papers have been contributed by India and no articles have been contributed from the foreign countries.

The Language of Contributions

Table-9 shows the language of the papers published in the source journal under study. The majority 65 (53.7%) papers have been contributed in Hindi language and 56(46.3%) papers have been contributed in English language.

Distribution of Page Length of Articles

Table-10 presents the data of distribution of the page length of the articles published in the source journal during the period of study. It was found that majority of the articles 47 (38.8%) were published in the source journal between 6-10 pages, followed by 35 (28.9%) between 11-15 pages, 26 (21.6%) for more than 16 pages and 13 (10.7%) up to 5 pages.

Most Prolific Authors

The data depicted in table-11 highlight some of the prolific authors who significantly contributed (more than 2 articles) to the journal under study. The total output was contributed by 146 authors as single or joint. On the basis of analysis of the data, Acharya Mahaprajna topped the list with 7.44% of total number of publications.

Subject Distributions of the Articles

The data in table-12 highlights the discipline under which articles published in the source journal.

Table-6: Authorship Pattern of Papers

Authorship	Year					No. of Articles	Percentage (%)	Total Authors
	2016	2017	2018	2019	2020			
Single Author	15	11	14	43	13	96	79.3%	96
2 Authors	11	01	02	06	05	25	20.7%	50
More than 2 Authors	0	0	0	0	0	0	0%	0
Total Articles	26	12	16	49	18	121	100%	--
Total Authors	37	13	18	55	23	--	--	146
Single %	57.69%	91.7%	87.5%	87.8%	72.2%	79.3%	--	--
Joint %	42.31%	8.3%	12.5%	12.2%	27.8%	20.7%	--	--
Average author per article	1.42	1.08	1.13	1.12	1.28	--	--	--

Table-7: Degree of Collaboration

Authorship	Year					No. of Authors
	2016	2017	2018	2019	2020	
Single Authored papers	15	11	14	43	13	96
Multi authored papers	11	01	02	06	05	25
Degree of Collaboration	0.42	0.08	0.13	0.12	0.28	0.21

Fig.6: Degree of Collaboration

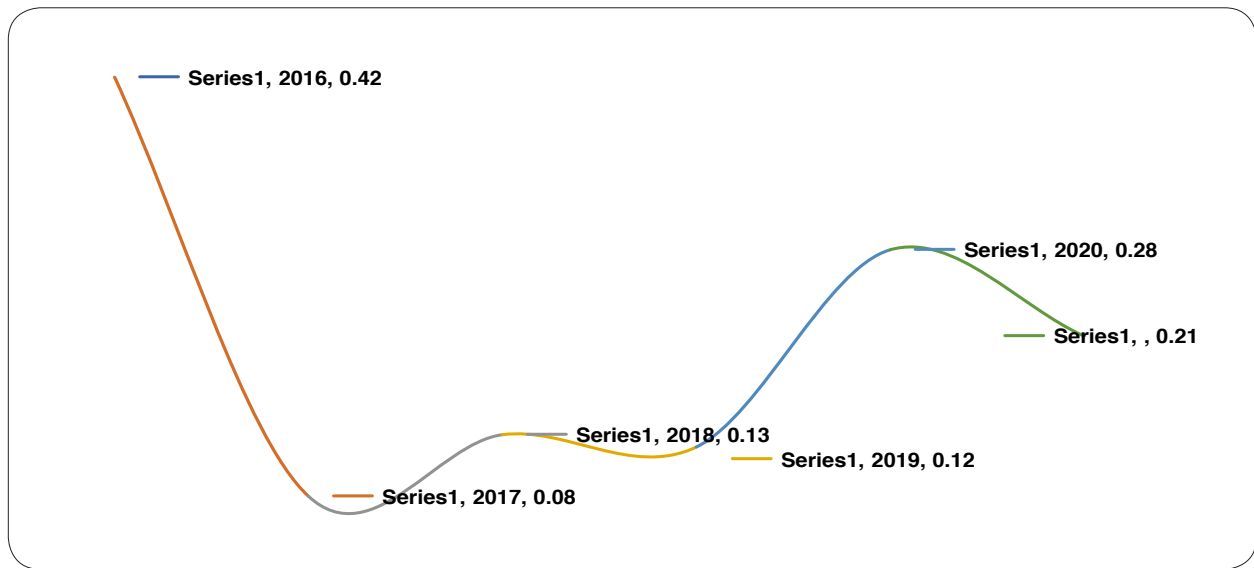


Table-8: The Geographical Distributions of Contributions

Geographical Distribution	Number of Articles	Percentage (%)
India	121	100%
Foreign	0	0%
TOTAL	121	100%

Table-9: The Language of Contributions

Language	Number of Articles	Percentage (%)
Hindi	65	53.7%
English	56	46.3%
TOTAL	121	100%

Table-10: Distribution of Page Length of Articles

Length of Pages	2016	2017	2018	2019	2020	Total	Percentage (%)
1-5	06	0	01	04	02	13	10.7%
6-10	14	01	05	20	07	47	38.8%
11-15	04	02	06	16	07	35	28.9%
More than 16	02	09	04	09	02	26	21.6%
TOTAL	26	12	16	49	18	121	100%

The analysis shows that majority of articles 43 (35.54%) published under Jainology followed by Humanities 35 (28.93%), Prakrit and Sanskrit literature 16 (13.22%), Philosophy 14(11.57%) and Non-Violence 13 (10.74%).

Analysis of Citations

The references supplied by the contributors at the end of articles has been considers as the basis of the citation analysis. Citation traces connection

between two articles, one which cites and the other which is cited. As shown in table-13, there are 3202 citations provided for the total contributions of 121 papers. It has been revealed that maximum number of citations 1195(37.3%) accounted in 2019 followed by 589(18.4%) citations in 2020, 545(17.0%) citations in 2016, and 441(13.8%) citations in 2017, and 432(13.5%) citations in the year 2018. It was revealed that out of total 3202 citations, on an average per article 28.4 citations were cited.

Fig. 8: Distribution of Page Length of Articles

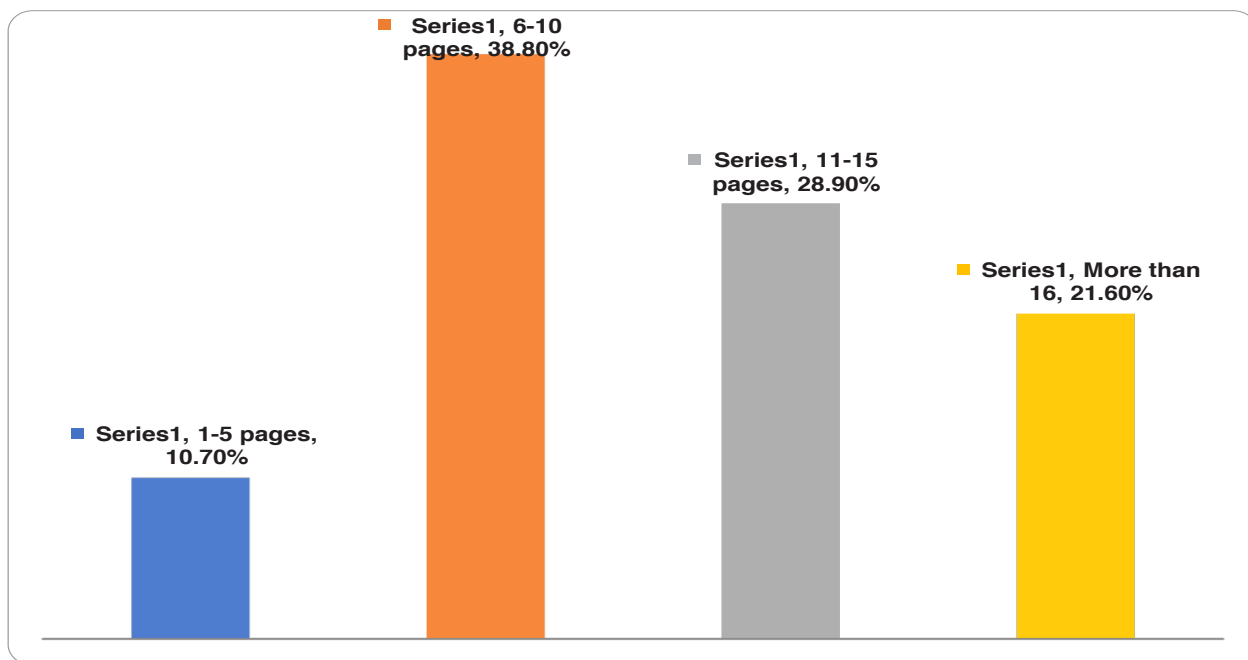


Table-11: Highly Prolific Authors

Sr. No.	Author	Affiliation	TNP**
1.	Acharya Mahaprajna	JVBI*, Ladnun, Rajasthan, India	9(7.44%)
2.	Dr. Samani Sashi Prajna	JVBI, Ladnun, Rajasthan, India	4(3.31%)
3.	Dr. Samani Shreyas Pragya	JVBI, Ladnun, Rajasthan, India	4(3.31%)
4.	Dr. Samani Bhaskar Pragya	JVBI, Ladnun, Rajasthan, India	3(2.48%)
5.	Prof. Dayanand Bhargava	J R Rajasthan Sanskrit University, Jaipur, Rajasthan, India	3(2.48%)
6.	Prof. Dharam Chand Jain	Jaynarayan Vyas University, Jodhpur, Rajasthan, India	3(2.48%)
7.	Dr. Anand Prakash Tripathi	JVBI, Ladnun, Rajasthan, India	3(2.48%)
8.	Dr. Pratap Sanchetee	JVBI, Ladnun, Rajasthan, India	3(2.48%)
9.	Dr. Samini Rohini Pragya	JVBI, Ladnun, Rajasthan, India	3(2.48%)
10.	Dr. Pradyuman Shah Singh	Banaras Hindu University, Varanasi, Uttar Pradesh, India	3(2.48%)

* JVBI = Jain Vishva Bharati Institute (Deemed University)

** TNP = Total Number of Publications

Table-12: Subject Distributions of the Articles

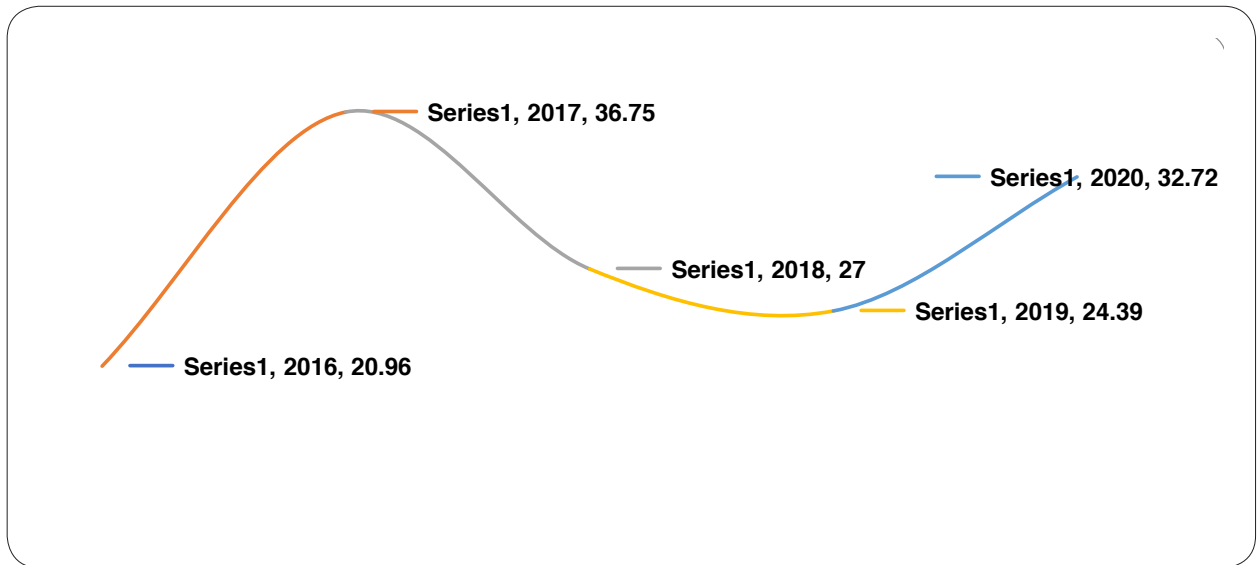
Sr. No.	Subjects	Number of Articles	Percentage (%)
1.	Jainology	43	35.54%
2.	Humanities	35	28.93%
3.	Non-Violence	13	10.74%
4.	Philosophy	14	11.57%
5.	Prakrit and Sanskrit Literature	16	13.22%
TOTAL		121	100%

Table-13: Analysis of Citations

Year	Volume No.	Total Number of Citations	Percentage (%)	Average of Citation/Volume	Average Citation per Item (ACPI)
2016	167-170	545	17.0%	272.5	20.96
2017	173-176	441	13.8%	220.5	36.75
2018	177-180	432	13.5%	216	27.0
2019	181-184	1195	37.3%	597.5	24.39
2020	185-188	589	18.4%	294.5	32.72
TOTAL		3202	100%	320.2	28.4

Table-14: Range of Citations

Range of Citations	2016	2017	2018	2019	2020	Total	Percentage (%)
1-10	05	02	02	12	02	23	19.0%
11-20	09	02	05	10	05	31	25.6%
21-30	07	02	03	10	05	27	22.3%
31-40	02	00	02	09	01	14	11.6%
41-50	01	02	02	02	03	10	8.3%
More than 50	02	04	02	06	02	16	13.2%
TOTAL	26	12	16	49	18	121	100%

Fig.9: Average Citation Per Item (ACPI)

Range of Citations

Table-14 presents the data of range of citations produced in the source journal during the period of study. It was revealed that maximum numbers of citations 31(25.6%) were found between the range of 11-20, followed by 27(22.3%) between the range of 21-30, 23(19.0%) between range of 1-10, 16(13.2%) between range more than 50 citations, 14(11.6%) between range from 31-40 and 10(8.3%) citations between the ranges of 41-50.

Findings of Study

The followings are several useful facts discovered from the analysis of the Journal *Tulsi Prajna*:

- The analysis displays a trend of growth in contributions published during 2016 to 2020 and average number of contributions per year is 24. However, out of total 121 articles, the maximum number of publication was recorded in 2019 (49 articles, 40.5%) while the minimum was in the year 2017 (12 articles, 9.9%).
- A total of 121 articles published with the annual average growth rate of 24.5%. The highest growth rate is recorded in the year 2019 with growth rate 206.3% followed by in the year 2018 with 33.3%.
- The maximum number of papers published as under the category of article i.e. 112 (92.6%), whereas 09 (7.4%) papers published under the editorial material category.
- Highest proportion of papers were by single authors (79.3%), followed by papers with 2 authors (20.7%).
- The degree of collaboration in quantitative terms is 0.21. It shows that during the study period, the most authors contributed their papers single.
- Majority 65(53.7%) papers have been contributed in Hindi language and 56(46.3%) papers have been contributed in English language.
- Majority of the articles 47(38.8%) were published in the source journal between 6-10 pages, followed by 35(28.9%) between 11-15 pages, 26(21.6%) for more than 16 pages and 13(10.7%) up to 5 pages.

- Acharya Mahaprajna topped the list of most prolific authors with 7.44% of total number of publications.
- Majority of articles 43(35.54%) published under Jainology discipline followed by Humanities 35(28.93%), Prakrit and Sanskrit literature 16(13.22%), Philosophy 14(11.57%) and Non-Violence 13(10.74%).
- The findings of year-wise distribution of citations showed that a good number of citations was in 2019 (1195 citations) followed by 2020 with (589 citations), 2016 with the (545 citations), etc. respectively.
- Maximum numbers of citations 31(25.6%) were found between the range of 11-20, followed by 27(22.3%) between the range of 21-30, 23(19.0%) between range of 1-10, 16(13.2%) between range more than 50 citations, etc. respectively.

Conclusion

The journals are the vital source of information and are considered as the main medium for disseminating the research results and information about new ideas in a particular discipline. The journals help for the in-depth study of a respective subject and are the indicators of literature growth in any particular field of knowledge. Analysis of scholarly publications through bibliometrics facilitates the interpretation of structures and trends in the respective disciplines. This type of bibliometric analysis affords the identification of characteristics of a particular research field, and may contribute to reveal the future research topics. Bibliometric method has been used for various purposes viz identification of different scientific indicators, analysis of scientific results and to predicting the potential of a field. Bibliometric analyses can be implemented at a conceptual or intellectual level to investigate authorship and collaboration pattern.

The present analysis displays a trend of growth in contributions published in *Tulsi Prajna* during 2016 to 2020. The journal has published 121 papers during the period of study. The analysis exposed that the maximum number of publication was recorded in 2019 (49 articles, 40.5%). A total of 121 articles published with the annual average growth rate of

24.5%. The highest growth rate is recorded in the year 2019 with growth rate 206.3%. The maximum number of papers published as under the category of article i.e. 112 (92.6%), and the highest proportion of papers were by single authors (79.3%).

The results of the present study may represent a useful means of performing future diagnostics of the *Tulsi Prajna* research capacity. The methodology applied in the present study could be applied to analysis of other journals, as it may contribute to identifying the trends and likely future developments.

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Educational Institute: Channel to Equip the Youth with Requisite Skills

M Venkaiah Naidu, Hon'ble Vice President of India delivered the Convocation Address at the 50th Convocation of Utkal University, Bhubaneswar, Odisha on April 03, 2021. He said, " You are our next generation of academicians, researchers, managers, civil servants, lawyers and leaders. You must remember that your future is intertwined with the future of this country and this is not mere rhetoric. You should never forget that discipline, honesty and hard work are the key to success in any field, including public life. You must be sensitive to the needs of the excluded. We have great economic potential and can improve the human development index on all counts. We can fight hunger, disease, ignorance and every other evil that retards our growth. And youth is the key for change. It is social awareness and sensitivity that can usher the change we dream of. I urge you to embrace the challenges and get ahead of change. Find your purpose and take your share in shaping the new world. Become creators of the future." Excerpts

"It gives me immense pleasure to be here on the occasion of the 50th convocation of Utkal University in this beautiful temple-city of Bhubaneswar. I am glad to know that the Utkal University is the mother university of the state of Odisha and the 17th university of undivided India. With its 27 post graduate departments, 8 centers of excellence and an International Cell, the University is truly the educational lodestone of Odisha. I compliment Utkal University on being accredited with A+ Grade by the National Assessment and Accreditation Council (NAAC) in India in 2016. That itself is a reflection of its high educational standards and its uncompromising adherence to excellence.

Dear Students, Needless to say, the day of convocation marks an important day in your lives—yet, this milestone is the beginning of a journey.

To get to this point was an important achievement in itself to which I commend you. The personal competencies that got you here—passion, perseverance, tenacity, an open mind to learn—will be important to you throughout your lives. Nurture them. These attributes will guide you throughout your lives.

Many of you will be moving out of the sheltered confines of a university and entering the real world replete with its own set of challenges and issues.

The process of transition will not be easy, but I am sure that with the value system and training that you have gained from this university, you will be able to face the world with confidence. New Education Policy focuses primarily on instilling in our students this ability to "face the world with confidence". The aim of education is not only cognitive development, but also building character and creating holistic and

well-rounded individuals equipped with the key 21st century skills.

Dear friends, we must not forget that India has had a glorious tradition of international education. The ancient Indian universities Takshashila, Nalanda, Vallabhi and Vikramashila had thousands of students from India and other parts of the world studying in vibrant multidisciplinary environments.

We should bring back this great Indian tradition to create well-rounded and innovative individuals who will have the distinctive ability to transform the country both socially and economically.

Odisha has a rich and inspiring history. This great land of Kalinga taught the lesson of peace to Emperor Ashoka who began to follow the policy of conquest through dharma (Dharma-Vijaya). The kings of Odisha played an important role in building cross-cultural links with South East Asia and the spread of Hinduism and Buddhism there. The Kalinga Empire was also known for its glorious maritime traditions. Such was their dominance over the sea that Kalidasa in his famous work Raghuvamsa referred to the King of Kalinga as the 'Lord of the Seas'. The daring ocean-faring merchants of Kalinga established trade links with Srilanka, Java, Borneo, Sumatra, Bali and Burma. Presence of the large number of coins and artefacts including Roman objects in excavations points to a flourishing trading society in ancient Odisha.

Even today, the people here celebrate a festival - 'Bali Yatra' in the memory of their maritime ancestors whose skills and entrepreneurship made Kalinga a prosperous empire of its time.

Dear students, I want you to take inspiration from

their stories and imbibe the spirit of entrepreneurship and innovation. Our universities and educational institutions also have an important role in this. They should equip the students with requisite skills so that they can emerge as job creators not mere job seekers.

I also want to remind you of Odisha's Bhaumakara dynasty that had a long succession of women rulers in 9th-10th century. Bhaumakara queens defied patriarchal norms and ruled successfully for some 200 years. These are the shining examples that should make every Indian proud. I urge upon the younger generation to read about such stories and pledge to fight against gender discrimination. In fact, our youth should be in the forefront of fighting all social evils like casteism, communalism, corruption and violence.

Odisha is also special in the way that it has a sizable tribal population. The State is home to 62 different tribal communities who constitute 23% of the state's total population and 9.17% of the total tribal population of the country. Therefore, the development and welfare of these tribal communities should be our priority.

Here, I would emphasise that we should approach the tribals with respect and sensitivity. Paternalistic attitude is wrong. Truth is that we have a lot to learn from the tribal communities who live a simple life in harmony with nature.

A study by Scheduled Castes and Scheduled Tribes Research and Training Institute (SCSTRTI) revealed that the tribal population in Odisha was largely untouched by the COVID-19 pandemic. The unique customary practices and traditions of tribals have been credited for keeping the infection at bay. The study notes that by habit, the tribals walk mostly in rows, instead of in groups; and while walking, they maintain a reasonable distance from one another. Such safe distancing and hygiene norms, rooted in the tribal culture coupled with the natural food have helped them stay safe during pandemic.

I suggest that universities should focus on these positive aspects of tribal communities and include them in their curriculum. I would also like institutions like Utkal University to take up research on issues faced by tribals and actively contribute to policy formation for their development and well-being.

Another topic that I find very important for states like Odisha is—disaster management. You

have seen regular occurrence of cyclones, floods and droughts in the state. Therefore, it is imperative to make disaster management an integral part of our education from early days. This would prepare us better to face any such calamity in future. I hope Utkal University will take a lead in this regard.

Dear students, you are our next generation of academicians, researchers, managers, civil servants, lawyers and leaders.

You must remember that your future is intertwined with the future of this country and this is not mere rhetoric. You should never forget that discipline, honesty and hard work are the key to success in any field, including public life. You must be sensitive to the needs of the excluded.

We have great economic potential and can improve the human development index on all counts. We can fight hunger, disease, ignorance and every other evil that retard our growth.

And youth is the key for change. It is social awareness and sensitivity that can usher the change we dream of.

I wish you the best for your lives.

I urge you to embrace the challenges and get ahead of change.

Find your purpose and take your share in shaping the new world.

Become creators of the future.

You can do it and my best wishes are with you.

I would like to take this opportunity to congratulate Shri Shaktikanta Das, Governor, Reserve Bank of India, Shri Girish Chandra Murmu, Comptroller and Auditor General of India, Kumari Justice Sanju Panda, Orissa High Court, Dr. Ajit Kumar Mohanty, Director, Bhabha Atomic Research Centre (BARC) and Dr. Bijaya Kumar Sahoo, Advisor, Government of Odisha for being conferred Honoris Causa from this prestigious university.

I once again congratulate the recipients of the degrees, doctoral degrees and the Gold Medalists.

I also extend my best wishes to the faculty members, teaching and non-teaching staff, and the family members and guardians of the graduating students on this momentous day.

Thank you.

Jai Hind!"

Webinar on Role of Teachers on Implementation of National Education Policy–2020

The University of Science and Technology (UST), Meghalaya conducted one-day webinar-cum-seminar in blended mode on ‘Role of Teachers on Implementation of National Education Policy-2020’ in collaboration with Bharatiya Shishan Mandal (BSM) and NITI Aayog, Govt. of India, recently. A day-long programme schedule was divided into three sessions, the inaugural session, the breakout (parallel) session, and the valedictory session. Prof. Kuldeep Chand Agnihotri, Vice Chancellor, Central University of Himachal Pradesh, Dharamshala, Kangra and Prof. Raghvendra Prasad Tiwari, Vice Chancellor, Central University of Punjab, Bathinda graced the inaugural session. During his Keynote Speech, Prof. Agnihotri expressed his love towards the beauty and diversity of the native languages of the north-eastern region. He also pointed out the reason of few languages that are dying off, and how to preserve and conserve these languages under the provision of the New Education Policy.

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

Prof. G D Sharma, Vice Chancellor, University of Science and Technology (UST), Meghalaya in his presidential remark, expressed his views how we can re-develop our ancient, community involved, value based system of learning, which can create human resources be responsible for their societal growth.

The inaugural session has started with *Guru Vandana* chanted by Ms Polly Borgohain, Director of University Classes, USTM, followed by a welcome address by Dr. R K Sharma, Advisor, USTM. Dr. Ajmal Hussain Barbhuiya, Academic Registrar, USTM has introduced the participants about the importance and motivation behind this holy event. The webinar was coordinated by Dr. Nitu Borgohain,

Assistant Professor, Department of Physics and Dr. Saru Joshi, Associate Professor, Department of Education, USTM.

The breakout session was segregated into six different tracks; each track was consisting of number of participants and a track leader. Dr. Rashmi Baruah, and Dr. Sankar Thapa, Associate Prof., Business Administration, Dr. Sandeep Gupta, Assistant Prof., Sociology, Dr. Amit Choudhury, Dean, SBUS, Dr. Sanchita Roy, Assistant Prof., Physics, and Dr. Baharul Islam, Dean, USLR, USTM acted as the track leaders. The track leaders headed the deliberation of NEP challenges and their resolutions on six different topics. In the valedictory session, the summary of the enriching discussions in each track had been presented by the respective track leaders followed by an interactive session in the presence of Deans of different schools of the University and the eminent professors.

Seminar on Quality and Standard in Library and Librarianship

One-day Online Seminar on ‘Quality and Standard in Library and Librarianship’ was jointly organised by the Apex School of Library Science and Central Library, Apex University to commemorate the 129th Birth Anniversary of Padamshree Shiyali Ramamrita Ranganathan, recently. The purpose of the event was to bring together Library and Information Science Professionals and students across the country to discuss the vision and mission of Library and Librarianship in pre and post-pandemic situations in the country and also to pay homage to the Father of Library Science in India for his great contribution to LIS education and profession.

Prof. Vinay Singh Kashyap, Dean, Apex School of Library Science in his welcome note while briefing about the event said that Apex Central Library is well organized with state-of-the-art facilities. In addition to providing materials, The Library also provides the services of librarians who are experts in finding and organizing information and interpreting information needs. It is extending services beyond the physical walls of Central Library, by providing the material accessible by electronic means, and by assisting librarians in navigating and analyzing very large amounts of information with a variety of digital

resources. As a community center, Apex Central Library is also becoming increasingly important in helping communities mobilize and organize for their rights.

Prof. Pankaj K Sharma, Registrar, in his introductory speech said that Sanjay Shiksha Samiti with its heritage of excellence in education for over 53 years, launched Apex University (AU), Jaipur. The University has been established by Rajasthan State Legislature Act No. 27 of 2018. The main campus of the University is spread over a sprawling 30 acres campus in an eco-friendly environment at Achrol on Jaipur-Delhi National Highway and is one of the best campuses in the region. AU has a world-class infrastructure, including state-of-the-art research facilities and a modern library.

Prof. Om Prakash Changgani gave an overview of the vision and mission of Apex University. He said that Apex Group's motto is aptly described by the Chinese proverb, "If you are planning for a year, sow rice; If you are planning for a decade, plant trees; If you are planning for a lifetime, educate people." With the liberalization of the country's economy, the world has become flat providing opportunity to our citizens to compete with the rest of the world's human resources. Apex University is fully committed to not only provide world-class education but to groom students into confident, law-abiding and balanced citizens of this country. He also mentioned that Libraries play a vital role in the higher education system. He also highlighted the activities of Central Library, Apex University, Jaipur.

The guest speaker, Prof Ravinder Kumar Chadha, Former Additional Secretary, Parliament of India, New Delhi, and Research Dean, Malwanchal University talked on the topic 'Do We Need Libraries in the Present Knowledge Era'. Whether Libraries are now economically viable and socially useful to retain and sustain. He said that the ICT application has helped a lot to LIS professionals to disseminate library services to users in the COVID-19 situation. He also discussed on 'New Normal in Library and Information Science'. In his concluding remarks, he said that today Libraries have to go to the users. It is the responsibility of LIS Professionals to make efficient use of Information and Communication Technology and develop such activities which can be beneficial for the professionals and users to use the resources beyond the limits.

The keynote speech was delivered by Prof Ramesh C Gaur. The topic of his speech was Reinventing Library and Information Science Education. He spoke on the latest trend and technologies in LIS education system. He discussed the restructuring of LIS curriculum with practical and research approaches. He recommended that the syllabus for professional courses can help the system if the scholars adopt the latest trend and cop up with the crisis with maximum zeal and enthusiasm. He also highlighted Indigenous Knowledge, Archiving of Manuscripts, and Art and Culture. He talked about the research trends in Library Science and gave new guidelines for Apex School of Library Science, imparting LIS education in the ICT age.

Dr. Youd Vir Singh, Head, Library and Documentation Division, Association of Indian Universities, New Delhi shared their best experience with participants and elaborated about the traditional and modern services in the Indian Library System. He emphasized the best practices to be adopted by the Library Professionals in their libraries. Participants took a keen interest in discussing the innovative services for the academic library system. He also satisfied all the participants by sharing live examples in this regard.

Dr Prabhat Pandey Librarian and Head, Department of LIS in Sarojini Naidu Government Girls P G College, Bhopal in his presentation about 'Quality Assurance Best Practices in Libraries'. He said that the purpose of measuring quality is to determine the effectiveness, efficiency, and value of what has been achieved to date. He discussed quality measurement tools and techniques and best practices in academic libraries. It gave a new dimension for students to learn about new trends and develop good habits while serving library users in all situations.

The session was ended with the remarks of Dr. Dharam Vir, Former Librarian. Hindustan Times who gave an informative lecture on Media Libraries. He has served Media Libraries for more than 40 years and has visited many countries all over the world. He said that working in a media library is a big challenge. The users and services of Media Libraries are different from academic libraries. He shared his best experiences of Library services and visit foreign libraries and gave new ideas to the participants. He also discussed Archive Library services which is the most thrust area nowadays.

The event was applauded by more than two hundred participants. Organising Secretary, Mr. Pankaj Singh thanked all the members of management, faculty, and technical staff for their endless support and services. He also thanked all the guest speakers for sparing valuable time and informative speeches delivered at the event. One of the best parts of the event was all the Librarians working in various Libraries of Apex Foundation were given appreciation certificates for their seamless efforts and services towards library users.

Chemical Engineering Congress on Globally Advancement in Technology

A two-day Chemical Engineering Congress on 'Globally Advancement in Technology for Environment-2021' is being jointly organised by the Department of Chemical Engineering, Maulana Azad National Institute of Technology (MANIT) Bhopal and Indian Institute of Science Education and Research (IISER) Bhopal during September 24-25, 2021. The aim of the event is to challenge and inspire the energy and environmental community through the interchange of knowledge and sharing of best practices in a global-scale context and toward advances for a clean and sustainable environment. It will provide a platform to the Chemical Engineering Students to interact, learn and gain exposure to the expanding arena of Chemical Engineering. It will also provide an excellent opportunity for young researchers and postgraduate students to interact with eminent researchers working in the frontier areas of chemical engineering science and process technology.

Chemical Engineering has a number of applications in our day to day lives. Chemical engineering also has applications in production of electronics, clothing, paper and photographic equipment etc. The scope for individuals in the field of chemical engineering is bound to grow in time. This is mainly because of industrial growth as well as the related scarcity of the resources those are required. In overall, it can be said that chemical engineers will be able to make very crucial contributions to the improvement in addition to the maintenance of the quality of our lives. Chemical Engineering techniques are used for the production of usable, high quality products such as fibres, fabrics, paints, medical drugs, biomaterials, gasoline, lubricants etc used in various industries such as textile, food, plastics, automotive, aerospace, petroleum, oil and gas, biomedical, biotechnology and pharmaceuticals, thereby increasing the scope of Chemical Engineering. The Topics of the event are:

Post-COVID-19

- Post-COVID19: New Normal Practices to Chemical Process Industries.
- Recent Research on COVID-19.
- Chemical/Environmental/Pharma/Food Engineers Responsible in COVID-19 Situation.
- Materials for Cheap and Accurate Detection of COVID-19.
- Digital Sustainable Engineering
- Industry 4.0 for Chemical Refinery and Process Industries.
- Application of Digital Tools like Artificial Intelligence (AI), Machine Learning (ML), Digital Twin (DT) and Cloud Computing, etc. for Chemical Industries.
- Digital Engineering Development in the Areas of Solar Energy, Hydrocarbon, Waste Water Treatment, etc.
- Modelling, Simulation of Chemical Process.
- Case Studies/Critical Assessment, State-of-art in the Above Areas.
- Green/ Sustainable Materials
- Novel Material/ Catalyst Development for the Processes.
- Recent Development and Application of Nanoparticles.
- Best Solutions for Industrial/Commercial Building Wastewater Treatment.
- Alternative Energy and Storage: 2021 to 2025
- Bioenergy, Hydrogen Energy and LNG.
- Environmental Biotechnology, Nanoparticles Application in Energy and Environment.
- Energy Resources: Potential, Estimation and Utilization of Renewable Resources.
- Environmental Impact Assessments in the Indian Context.
- Case Studies/Critical Assessment, State-of-art in the Above Areas.

For further details, contact Organising Secretary, Department of Chemical Engineering, Maulana Azad National Institute of Technology (MANIT) Bhopal-462 003 (Madhya Pradesh), Mobile No: 08989005393, 08011153037, E-mail: schemcon2021@gmail.com. For updates, log on to: <https://conf.iiserb.ac.in/SCHEMCON2021/>

Management Development Programme on Business Analytics for Management Decision

A four-day Management Development

Programme on ‘Business Analytics for Management Decision’ is being organized by the Vinod Gupta School of Management, Indian Institute of Technology Kharagpur, West Bengal during December 08-11, 2021. The corporate, executives and academicians may participate in the event. The objective of the event is to emphasize broad range of analytical tools and techniques to foster multi-disciplinary research. It is predominantly relevant for studying dynamic changes in the business structure, household behavior, enterprise efficiency, etc.

Data Analytics, an important branch in mathematical sciences, is very vibrant today for all professionals, including researchers, engineers, managers and analysts. The business environment is very dynamic today, especially with reference to abundance of information and multidisciplinary research. So, it is a huge opportunities and challenges to the decision maker to analyze this information and bring some meaningful decisions to the business prerequisite. With the accessibility of various tools, techniques and user-friendly statistical/mathematical software, the ability to analyse large amount of data is not only desirable, but a necessity for any professionals. Such techniques and software are usually very complex and confusing for the uninitiated. There are several issues in this process like selection of appropriate technique, selection of right software, interpretation of results and so forth. The Topics to be covered are:

- Introduction to Analytics.
- Descriptive Analytics.
- Inferential Analytics.
- Predictive Analytics.
- Prescriptive Analytics.
- Decision Analytics.

For further details, contact Course Coordinator, Prof. Rudra P Pradhan, Vinod Gupta School of Management, Indian Institute of Technology Kharagpur, West Bengal- 721 302, Phone No: +91 3222 282316/ 282317, Mobile No: +91 9733742104, E-mail: rudrap@vgsom.iitkgp.ac.in and pradhanrp@gmail.com. For updates, log on to: <http://www.som.iitkgp.ernet.in>.

International Online Faculty Development Program on Recent Computational Strategies

A One-week International Online Faculty Development Program on ‘Recent Computational Strategies for Condition Monitoring of High Voltage

Equipment’ is being organized under the banner of Electronics and ICT academy, National Institute of Technology Patna during September 18-24, 2021. The event is supported by Ministry of Electronics and Information Technology, Govt. of India. The faculty members, research scholars and students of recognized Universities from both India and Abroad and Industry personals may participate in the event.

The event brings an opportunity for academicians, research scholars, and postgraduate students across various engineering disciplines across the globe to explore the various computational strategies and techniques recently applied for the Condition Monitoring of High Voltage Equipment. The event is intended to expand the existing knowledge on advanced condition monitoring methodologies and the inclusion of computational techniques for effective condition monitoring. Over the past few years, rapid progress has been made on the advancement of tools that facilitate data acquisition and post-processing of acquired data in the field of high voltage engineering and related instrumentation. This FDP aims to provide short but extensive training on different aspects of experimental measurements, data analysis and signal processing tools with particular attention to high voltage applications. The topics of the event are:

- Strategic Planning and Asset Management of Electrical Systems Using AI and Machine Learning Techniques.
- Data Acquisition.
- Soft Computing for HV Applications.
- Dielectric Response Analysis.
- Partial Discharge.
- Signal Conditioning.
- Condition Monitoring of Solid, Liquid, Gas and Composite Insulation in Electrical Equipment Using Time-domain and Frequency-domain Techniques.
- Dielectric Ageing Mechanisms and Their Assessment, Noise and Vibroacoustic Analysis.
- Online and Real-time Condition Monitoring, Climate and Other Environment-related Issues.

For further details, contact Organising Secretary, Electronics and ICT Academy, National Institute of Technology Patna, Patna- 800005. E-mail: saurabh.ee@nitp.ac.in. For updates, log on to: www.nitp.ac.in/ict/ □

THESES OF THE MONTH

SCIENCE & TECHNOLOGY

**A List of doctoral theses accepted by Indian Universities
(Notifications received in AIU during the month of June-July, 2021)**

AGRICULTURAL & VETERINARY SCIENCES

Agricultural Engineering

1. Yadav, Prem Chand. **Studies on impact of sowing through zero till machine in rice-wheat system in Etawah, Uttar Pradesh.** (Dr. Dharmendra Kumar Dubey), Faculty of Agricultural Engineering, Bhagwant University, Ajmer.

Agronomy

1. Dhale, Shilpa Yashwant. **Evaluation of soybean (*Glycine max* (L) Merrill): Pigeonpea (*Cajanus cajan* (L) Millsp) strip cropping under mechanization.** (Dr. B V Asewar), Department of Agronomy, Vasantao Naik Marathwada Krishi Vidyapeeth, Parbhani.

2. Vihariya, Payal Hargovindbhai. **Conceptualization of agricultural innovation system among stakeholders in South Gujarat.** (Prof. R D Pandya), Department of Agronomy, Navsari Agricultural University, Navsari.

Floriculture

1. Ahir, Tejaskumar Rambhai. **Effect of various planting dates on performance of China aster [*Callistephus chinensis* (L) Nees] varieties under South Gujarat agro climatic condition.** (Dr. S L Chawla), Department of Floriculture and Landscape Architecture, Navsari Agricultural University, Navsari.

Genetics & Plant Breeding

1. Munde, Sachin Sambhaji. **Stability analysis studies in newly developed genotypes of soybean (*Glycine max* L Merrill).** (Dr. S P Mehtre), Department of Genetics and Plant Breeding, Vasantao Naik Marathwada Krishi Vidyapeeth, Parbhani.

2. Patel, Himalay Rajeshbhai. **Exploitation of heterosis, inbreeding depression, combining ability and gene action for fruit yield and its component traits in bottle gourd [*Lagenaria siceraria* (Mol) Standl].** (Dr. D R Mehta), Department of Genetics and Plant Breeding, Junagadh Agricultural University, Junagadh.

Plant Pathology

1. Vaja, Sonal Jayeshbhai. **Studies on biocontrol potential of *Chaetomium* sp.** (Dr. Priya Jhon), Department of Plant Pathology, Navsari Agricultural University, Navsari.

Plant Physiology

1. Ghuge, Vivekanand Ramkishan. **Influence of photoperiod on morpho-physiological traits of soybean breeding lines (*Glycine max* L Merrill).** (Dr. V D Salunke), Department of Plant Physiology, Vasantao Naik Marathwada Krishi Vidyapeeth, Parbhani.

Soil Science

1. Patel, Vrutti Kaushikbhai. **Effect of different mulches and liquid organic-inorganic formulations on growth, yield and quality of papaya (*Carica papaya* L) CV GJP-1.** (Dr. M V Ramdevputra), Department of Soil Science and Agricultural Chemistry, Junagadh Agricultural University, Junagadh.

2. Ugile, Suryakant Kakasaheb. **Response of macro and micro nutrient priming on nutrient uptake, yield and quality of soybean and linseed.** (Dr. V D Patil), Department of Soil Science and Agricultural Chemistry, Vasantao Naik Marathwada Krishi Vidyapeeth, Parbhani.

BIOLOGICAL SCIENCES

Botany

1. Oza, Kalpa Navinchandra. **Post-harvest spoilage of selected fruits and vegetables by fungi and its management.** (Dr. B K Jain and Dr. Bharat Maitreya), Department of Botany, Gujarat University, Ahmedabad.

Life Science

1. Anand, Sumit Kumar. **Studies on redux mediated cellular signaling of bisphenol-A induced hepatotoxicity.** (Dr. Poonam Kakkar), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, New Delhi.

2. Bijpuria, Shipra. **Deciphering the dynamics and role in antibiotic response of 16S rRNA methyltransferases of mycobacterium tuberculosis.** (Dr. Bhupesh Taneja), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, New Delhi.

3. Sdhakar, J. **Exploring cationic amphiphiles of estrogen and stilbene molecules as potential cancer therapeutics.** (Dr. Rajkumar Banerjee), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, New Delhi.

4. Singh, Neha. **Studies on adverse effects of mycotoxin patulin on intestinal cells.** (Dr. Kausar Mahmood Ansari), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, New Delhi.

Microbiology

1. Amudha, C K. **Study of anti-neoplastic potential in green synthesized silver nanoparticles on selected human cancer cell lines.** (Dr. Farah Deeba), Department of Microbiology, CMR University, Bangalore.

Zoology

1. Talukdar, Kanmuna Ray. **A study on expression of ovarian steroid independent proteins during periimplantation in mice uterus.** (Prof. Hirendra Nath Sarma), Department of Zoology, Rajiv Gandhi University, Itanagar.

EARTH SYSTEM SCIENCES

Environmental Science

1. Apte, Rahulkumar Deorao. **Phytoremediation studies in relation to some selected trace metals of Arunavati Reservoir at Digras Maharashtra.** (Dr. Arjun Bapurao Bhosle), Department of Environmental Science, Swami Ramanand Teerth Marathwada University, Nanded.

ENGINEERING SCIENCES

Architecture

2. Mohammad Saqib. **Blended learning in design studio: Benefits of combining conventional studio, digital media and public interest design.** (Dr. Chitrarekha Kabre), Faculty of Architecture, Urban and Town Planning, Deenbandhu Chhotu Ram University of Science and Technology, Murthal.

Civil Engineering

1. Divyashree. **Development of plastic hinge models for corroded reinforcement in RC beams.** (Dr. Naveen Kwatra and Dr. Pankaj Agarwal), Department of Civil Engineering, Thapar Institute of Engineering and Technology, Patiala.

2. Kango, Rajat. **Modelling hydraulic conductivity for flow through porous media.** (Dr. Vijay Shankar and Dr. M A Alam), Department of Civil Engineering, National Institute of Technology, Hamirpur.

Computer Science & Engineering

1. Agarwal, Sakshi. **Effective techniques for influence maximization in static and dynamic online social networks.** Department of Computer Science & Engineering, Jaypee Institute of Information Technology, Noida.

2. Bhargavi, K. **Exploring application of machine learning in improving the performance of HPC.** (Dr. B

Satish Babu), Faculty of Computer & Information Sciences, Visvesvaraya Technological University, Belagavi.

3. Guggari, Shankru. **Partitioning based decision tree techniques.** (Dr. Umadevi V and Dr. K Vijayakumar), Faculty of Computer & Information Sciences, Visvesvaraya Technological University, Belagavi.

4. Kalyane, Sangamesh J. **Secure and efficient data transmission for cluster based wireless sensor network.** (Dr. Nagaraj B Patil), Faculty of Computer & Information Sciences, Visvesvaraya Technological University, Belagavi.

5. Karim, Hasina A Razzak A Mohamed. **Tracking intrusion detection system in the hybrid network using genetic resistant model.** (Dr. Supriya P Panda and Dr. M V Ramana Murthy), Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies, Faridabad.

6. Koundinya, K. **Context aware cohesive ontology for IoT deployed with Software-Defined Data Centers (SDDC).** (Dr. Rubini P), Department of Computer Science & Engineering, CMR University, Bangalore.

7. Pathak, Amit Kumar. **To improve working of digital signature using public key cryptography.** (Dr. R K Sharma and Dr. Kalpana Sharma), Department of Computer Science & Engineering, Bhagwant University, Ajmer.

8. Phalachandra, H L. **Energy optimized resources in a cloud data center.** (Dr. Dinkar Sitaram), Faculty of Computer & Information Sciences, Visvesvaraya Technological University, Belagavi.

9. Qutaiba, Mumtaz Dawood. **Technique for improvement of data deduplication in cloud environments.** (Dr. K Gangadhara Rao and Dr. B Basaveswara Rao), Department of Computer Science & Engineering, Acharya Nagarjuna University, Nagarjuna Nagar.

10. Roda, Mohindra, Anubhuti. **Towards secure weighted clustered routing for MANETs.** Department of Computer Science & Engineering, Jaypee Institute of Information Technology, Noida.

11. Shalu. **An energy efficient mechanism for virtual machine migration in cloud computing.** (Dr. Dinesh Singh), Department of Computer Science & Engineering, Deenbandhu Chhotu Ram University of Science and Technology, Murthal.

12. Sujith, A V L N. **Efficient cloud service assessment techniques for QOS-aware service composition in multicloud environment.** (Dr. A Rama Mohan Reddy and Dr. K Madhavi), Department of Computer Science & Engineering, Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

13. Thacker, Chintan Bhupeshbhai. **Ensemble of multi features for facial expression recognition using deep**

learning techniques. (Dr. Ramji M. Makwana), Department of Computer Science & Engineering, Gujarat Technological University, Ahmedabad.

14. Vidyalakshmi, K. **A priority based vehicular communication using artificial intelligence in underwater acoustic communication.** (Dr. M Siddappa and Dr. Shanmukha B), Faculty of Computer & Information Sciences, Visvesvaraya Technological University, Belagavi.

Electrical & Electronics Engineering

1. Akhlesh Kumar. **Recent investigations in robotic surgery.** (Dr. J S Saini and Dr. Amod Kumar), Department of Electrical Engineering, Deenbandhu Chhotu Ram University of Science and Technology, Murthal.

2. Akshay Kumar. **Automatic generation control of tidal power generator integrated hybrid power system.** (Prof. Gauri Shankar), Department of Electrical Engineering, Indian Institute of Technology, Dhanbad.

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Electronics & Communication Engineering

1. Jyoti. **Energy efficient protocols for wireless sensor and actor networks.** (Dr. Surinder Soni), Department of Electronics and Communication Engineering, National Institute of Technology, Hamirpur.

2. Trivedi, Janakkumar Devendrabhai. **Design of real time computer vision system for traffic management in smart cities.** (Dr. Mandalapu Sarada Devi), Department of Electronics & Communication Engineering, Gujarat Technological University, Ahmedabad.

3. Yemineni, Rakesh. **Saliency detection of stereoscopic 3D images using optimization techniques.** (Dr. K Sri Rama Krishna), Department of Electronics & Communication Engineering, Acharya Nagarjuna University, Nagarjuna Nagar.

Mechanical Engineering

1. Anantha Krishna, M. **Experimental and finite element studies on carbon fiber reinforced aluminium based metal matrix composite.** (Dr. Narasimha Marakala), Faculty of Mechanical Engineering, Visvesvaraya Technological University, Belagavi.

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6. Sanjeev Kumar. **Investigation of flow maldistribution and heat transfer in minichannel heat sink.** (Prof. Pawan Kumar Singh), Department of Mechanical Engineering, Indian Institute of Technology, Dhanbad.

Mining Engineering

1. Sardana, Sahil. **Geomechanical investigations and stability assessment of rock slopes under normal and freeze-thaw environment in Indian Himalayan Region.** (Prof. Rabindra Kumar Sinha), Department of Mining Engineering, Indian Institute of Technology, Dhanbad.

2. Upadhyay, Naval Kishor. **Synthesis and characterization of cost-effective silicon-based thermoelectric materials for harnessing waste-heat of automotive and mining machinery.** (Prof. L A Kumaraswamidas and Prof. Ajay Dhar), Department of Mining Engineering, Indian Institute of Technology, Dhanbad.

MATHEMATICAL SCIENCES

Mathematics

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3. Preeti. **Penalty approach for multi-dimensional optimization problems.** (Prof. Anurag Jaiswal), Department of Mathematics and Computing, Indian Institute of Technology, Dhanbad.

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Statistics

1. Mamidi, Pushpalatha. **Applied inferential procedures in inverse Rayleigh and inverse half logistic distributions.** (Dr. R Subba Rao), Department of Statistics, Acharya Nagarjuna University, Nagarjuna Nagar.

MEDICAL SCIENCES

Anatomy

1. Dave, Rashmikantbhai Vishnubhai. **Fetel dissection of human kidney: Morphological analysis.** (Dr. H R Jadav), Department of Anatomy, Gujarat University, Ahmedabad.

Ayurveda

1. Bhutada, Roshna Sukhdevji. **The effect of eye exercise, triphala kwath eye wash and triphala ghrita systemically on computer vision syndrome.** (Dr. Madhukar A Lahankar), Faculty of Ayurved, Maharashtra University of Health Sciences, Nashik.

Forensic Science

1. Goswamy, Gajendra Kumar. **Role of forensics in strengthening Child Rights under the POCSO Act, 2012.** (Dr. J M Vyas and Prof. Manoj Kumar Sinha and Prof. Arvind Tiwari), Faculty of Forensic Science, National Forensic Sciences University, Gandhinagar.

2. Verma, Neelkant. **Study of different xenobiotic compounds on native and non-naive states of protein.** (Dr. Satish Kumar), Department of Forensic Science, National Forensic Sciences University, Gandhinagar.

Medicine

1. Kathuria, Deepika. **Diaminoazines and their bioisosteres as potential trypanothione reductase inhibitors: Computational modeling, synthesis and reactivity.** (Dr. P V Bharatam), Department of Medicinal Chemistry, National Institute of Pharmaceutical Education and Research, Mohali.

2. Mohanty, Satyajit. **Promotion of physical activity with specific reference to non-communicable disease prevention: An exploratory study in urban Odisha.** (Prof. E Venkata Rao), Faculty of Community Medicine, Siksha O Anusandhan University, Bhubaneswar..

3. Rasika, Dhansing Yadav. **Study of genetics polymorphisms of CYP1A2 and CYP2J2 genes in patients**

of myocardial infarction. (Dr. M P Bankar), Faculty of Medicine, Maharashtra University of Health Sciences, Nashik.

Pharmaceutical Science

1. Nizamuddin, N D. **Synthesis, characterization, molecular docking studies and evaluation of biological activity of 2,3-disubstituted N-methyl quinazoline-4-one derivatives.** (Dr. Hindusthan Abdul Ahad and Dr. N Devanna), Department of Pharmaceutical Science, Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

2. Panigrahi, Balaji. **Network pharmacology of *Viscum articulatum* Burm f: A system targeting approach.** (Dr. M B Nariya), Faculty of Pharmacology, Gujarat Ayurved University, Jamnagar.

Physiology

1. Jadhav, Anita Jibhau. **Evaluation of haematological and biochemical parameters in patients of sickle cell disease.** (Dr. S M Vaidya), Faculty of Medicine, Maharashtra University of Health Sciences, Nashik.

PHYSICAL SCIENCES

Chemistry

1. Gaurav Kumar. **Development of functionalized porous frameworks and chiral catalysts for diverse C-C bond formation reaction.** (Dr. Subhadip Neogi), Department of Chemical Sciences, Academy of Scientific and Innovative Research, New Delhi.

2. Govind, M V Chinju. **Ultrafast electronic, vibrational and conformational relaxation dynamics of heme model compounds and proteins in various environments using femtosecond pump-probe spectroscopy.** (Dr. V Karunakaran), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, New Delhi.

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from plant materials. (Dr. B Hari Babu), Department of Chemistry, Acharya Nagarjuna University, Nagarjuna Nagar.

6. Reddy, G Nagaraja. **Synthesis, spectral characterization and biological screening of pyrazine derivatives as anti-tuberculosis agents.** (Dr. Shivaraj Y and Dr. K B Chandra Sekhar), Department of Chemistry, Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

Nano Technology

1. Sinha, Sweta. **Study on physical properties of calcium based ayurvedic Bhasma as nanomaterials by employing modern scientific tools and applications.** (Dr. Rakesh Kumar Singh), Faculty of Nano Science & Technology, Aryabhatta Knowledge University, Patna.

Physics

1. Deswal, Neeti. **An experimental study for modeling and control design on single and double reversed pendulum system.** (Dr. Ritesh Yadav and Dr. Kamal Kumar Kushwah), Department of Physics, Dr. A.P.J Abdul Kalam University, Indore.

2. Gill, Nisha. **Investigations on electromagnetic interference shielding behaviour of graphene based polypyrrole nanocomposites.** (Dr. Dwijendra P Singh and Dr. O P Pandey), School of Physics and Materials Science, Thapar Institute of Engineering and Technology, Patiala.

3. Manjunatha, B. **Synthesis, characterization, transport properties of metal oxides doped polyaniline composite and its biological applications.** (Dr. Sangashetty Kalyane), Faculty of Applied Sciences, Visvesvaraya Technological University, Belagavi.

4. Mishra, Asheesh **A comparative study of radon-222 and gamma level variation in the environment around uranium and copper industries of Singhbhum Region of Jharkhand.** (Prof. S K Sharma and Prof. D C Panigrahi), Department of Physics, Indian Institute of Technology, Dhanbad.

5. Pandey, Anwesh. **A computational study of drug-DNA interactions.** (Dr. Anil Kumar Yadav), Department of Applied Physics, Babasaheb Bhim Rao Ambedkar University, Lucknow.

6. Sharma, Anju. **Design a vibration based electromagnetic energy harvester for highway traffic.** (Dr. Ritesh Yadav and Dr. Kamal Kumar Kushwah), Department of Physics, Dr. A.P.J Abdul Kalam University, Indore.

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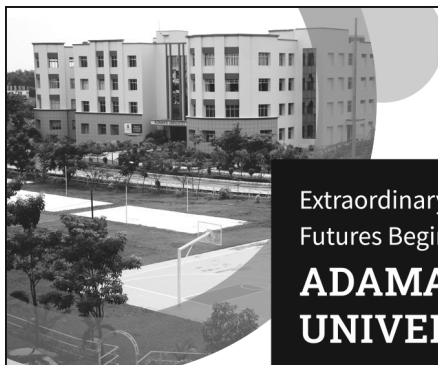
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
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				Unreserved	PH
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02	Assistant Professor in Education	Lecture	01	01	-----

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- Pay & Allowances and Terms & conditions of service will be laid down by Goa University, Govt. of Goa and other competent authorities from time to time.
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2	Economics	01	2	Mathematics	02
3	Botany	06	3	Geography	02
4	Zoology	01	4	Botany	02
5	Geography	02	5	Computer Science	04
-	-	-	6	Electronics	01
-	-	-	7	Statistics	01
-	-	-	8	Physics	02
-	-	-	9	Chemistry	08
-	-	-	10	Zoology	03
Total Posts		11	Total		26

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- As per Govt. Resolution 30% reservation for women and 4% reservation for differently-abled persons would be given as per G.R. dated 29.05.2019.
- The number of above-mentioned posts may change according to the existing circumstances.
- At the time of Interview, candidates should bring all the original testimonials & a set of the copies of the same documents which must be duly attested by a Gazetted Officer.
- It is mandatory to submit PAN Card copy & Relieving Letter from the current working institute after the final selection.
- No separate call letter will be issued to the candidates for the interview.
- No TA/DA will be paid to the candidates for attending the interview.
- At the time of interview, candidates must follow the **COVID-19 Precautions** given by government.

Secretary,
Jadeed Anjuman-e-Taleem Trust,
(Sr. No. 10, Islampura, Malegaon, 423203,
Dist. Nashik. M.H., India)

**Devi Sharvani Education Society's
V. M. SALGAOCAR COLLEGE OF LAW**
Miramar, Panaji-Goa. 403 001
Ph. No. 0832-2462225 website: www.vmslaw.edu.in

APPOINTMENTS

Applications with photograph and full bio-data along with self-attested copies of educational qualifications, marks and percentage secured from S.S.C. onwards, experience, birth certificate and other relevant certificates are invited for the posts for **B.A. LL. B Course Grant-in-Aid**.

- 1. ASSISTANT PROFESSOR (REGULAR – FULL TIME)**
 - a. ASSISTANT PROFESSOR IN LAW – 03 POSTS
 - b. ASSISTANT PROFESSOR IN POLITICAL SCIENCE – 03 POSTS
 - c. ASSISTANT PROFESSOR IN ENGLISH – 01 POST
 - d. ASSISTANT PROFESSOR IN ECONOMICS – 01 POST
- 2. ASSISTANT PROFESSOR IN LAW (CONTRACT BASIS) – 01 Post**
- 3. ASSISTANTS PROFESSOR (LECTURE BASIS)**
 - a. ASSISTANT PROFESSOR IN ENGLISH – 01 POST (IInd TERM ONLY)
 - b. ASSISTANT PROFESSOR IN ECONOMICS – 01 POST (Ist TERM ONLY)
 - c. ASSISTANT PROFESSOR IN HISTORY – 01 POST (Ist TERM ONLY)
 - d. ASSISTANT PROFESSOR IN ENVIRONMENTAL STUDIES – 01 POST (Ist TERM ONLY)

Qualifications:

Post Graduate with 55% and above in the concerned subject with NET/SET. Pay and terms and conditions of service are those laid down by the Goa University, Directorate of Higher Education, Porvorim and other competent authorities from time to time. Candidates without NET/SET may also apply.

A relaxation of 5% shall be provided for the SC/ST/OBC (Non-creamy layer)/ Differently-abled (physically and visually differently-abled) categories

RESERVATIONS

Posts are reserved as follows:

- a) 01 Post reserved for PwD (b) 05 Posts reserved for OBC (c) 02 Post reserved for ST

For all the above posts, 15 years residential certificate in Goa and knowledge of Konkani is essential and knowledge of Marathi is desirable. Scales of Pay and other service conditions are as prescribed by Government of Goa and Goa University.

Application with full bio-data should reach the undersigned **within 15 days** from the date of publication of this advertisement. Applications received after prescribed date/incomplete and or without relevant self-attested documents as mentioned in the advertisement will be rejected and no intimation will be sent to the applicants in this regard.

PRINCIPAL

**Dnyanvardhini Trust's
SONUBHAU BASWANT COLLEGE OF ARTS & COMMERCE,**
N. P. Vasa Marg, Savroli Road, Shahapur, Dist. Thane – 421 601

APPLICATIONS ARE INVITED FOR THE FOLLOWING CLOCK HOUR BASIS POSTS
FOR THE ACADEMIC YEAR 2021-2022

AIDED

Sr. No.	Cadre	Subject	Total No. of CHB Posts	Posts Reserved for
1	Assistant Professor	History	11	SC – 02
2	Assistant Professor	Economics		ST – 01
3	Assistant Professor	Commerce		DT/NT – 01
4	Assistant Professor	Marathi		OBC – 02
5	Assistant Professor	English		EWS – 01
				OPEN – 04

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 Scales and other requirement are as prescribed by the UGC Notification dated 18th July, 2018, Government of Maharashtra Resolution No. Misc-2018/C.R.56/18/UNI-1 dated 8th March, 2019 and University Circular No. TAAS/(CT)/ICD/2018-19/1241 dated 26th March, 2019 and revised from time to time”
Remuneration of the above post will be as per University Circular No. TAAS/(CT)/01/2019-2020 dated 02nd April, 2019.

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

Application with full details should reach the **PRINCIPAL, DNYANVARDHINI TRUST'S SONUBHAU BASWANT COLLEGE OF ARTS & COMMERCE, N. P. Vasa Marg, Near Govt. Godown, Savroli Road, Shahapur, Dist. Thane – 421 601** within 15 days from the date of publication of this advertisement.

This is University approved advertisement.

Shri. B B Patil
Secretary,
Executive Committee

Dr. V H Fulzele
Principal,
S.B. College, Shahapur

Diocesan Society of Education's Rosary College of Commerce & Arts

Navelim, Salcete, Goa 403707.

Minority Institution under Article 30(1) of the Indian Constitution
(Affiliated to Goa University) (Grant-in-Aid)

Re-Accredited by NAAC with 'A' Grade with a CGPA Score of 3.29 (3rd Cycle)

Applications stating full name, address, age with date of birth, educational qualifications with marks and percentage, experience, etc., are invited from Indian nationals for the following posts for the academic year **2021-22**:

1.	Asst. Prof. in Accounts & Commerce	2 Posts Full Time – Contract Basis 2 Posts Lecture Basis
2.	Asst. Prof. in Mathematics	1 Post Lecture Basis
3.	Asst. Prof. in English	2 Posts Full Time – Contract Basis 1 Post Lecture Basis
4.	Asst. Prof. in Economics	2 Post Full Time – Contract Basis 1 Post Full Time – Contract Basic on lien 1 Post Lecture Basis (Only For Odd Semester)
5.	Asst. Prof. in Sociology	1 Post Full Time – Contract Basis 1 Post Lecture Basis
6.	Asst. Prof. in Geography including E.V.S.	1 Post Full Time – On Regular Basis 1 Post Lecture Basis
7.	Asst. Prof. in Information Technology	1 Post Lecture Basis
8.	Asst. Prof. in Business Law	1 Post Lecture Basis
9.	Asst. Prof. in Hindi	1 Post Lecture Basis
10.	Asst. Prof. in History	1 Post Lecture Basis
11.	Asst. Prof. in Psychology	1 Post Full Time – Contract Basis 1 Post Lecture Basis
12.	Asst. Prof. in Konkani	2 Posts Lecture Basis
13.	Counselor	2 Posts Full Time – Contract Basis

Essential Qualifications:

1. Master's degree in the relevant subject with atleast 55% marks or its equivalent grade and good academic record. The candidate must have the Master's degree as well as Bachelor's degree in the same subject for which he / she is being appointed unless he / she has passed the Post Graduate examination under the change of faculty scheme.
For post of **Counselor**, M.A. in Psychology with the subject of Counseling.
2. Candidates for all the above posts should have cleared the Eligibility Test for lecturers conducted by UGC/CSIR such as NET/SET or similar test accredited by UGC. However, candidates who have been awarded the Ph.D. degree in compliance with the UGC (minimum standards and procedures for award of Ph.D. degree) Regulations, 2009 or 2016, as incorporated in the relevant Goa University Ordinance, shall be exempted from the requirement of the minimum eligibility condition of NET/SET for recruitment and appointment of Assistant Professor. In case candidates having passed the said Eligibility Test /Ph.D. are not available, or are not found suitable, candidates fulfilling all other conditions would be considered for appointment on Contract/Lecture Basis (subject to the approval of the Goa University/Govt. of Goa and/or as per the prevailing guidelines of Goa University/Govt. of Goa) on purely temporary basis till the end of the academic year.

Service Conditions: As per the provisions of Goa University, University Grants Commission, Directorate of Higher Education, Govt. of Goa, Diocesan Society of Education and other competent authorities. A certificate stating 15 years residence of the candidate in Goa issued by the State Government is mandatory. Knowledge of Konkani is essential while knowledge of Marathi is desirable. Persons who are already employed shall send their applications through proper channel. Break in service, if any, should be accounted for.

Scale of Pay: As per the provisions of the Goa Government and Goa University.

Vacancies will be filled up, subject to availability of workload and approval of Goa University and Directorate of Higher Education, Government of Goa, and other stipulations. All other regulations / guidelines as those prescribed by UGC, Goa University, Govt. of Goa and Diocesan Society of Education will apply.

Online Application Procedure:

Candidates have to go to the College website: **www.rosarycollege.org** click on "ABOUT" and select recruitment. Candidates applying for Grant-in-Aid posts have to select the appropriate tab under recruitment. Fill the application form and upload the photocopies of marksheets of all examinations from SSC onwards and other relevant documents so that it should reach the **Acting Principal, Rosary College of Commerce and Arts, Navelim, Salcete, Goa 403707, within 15 days** from the date of publication of this advertisement.

The right not to fill up the above mentioned posts is reserved. Applications with incomplete information will be rejected outright.

Contact: 0832 2736864 and 2701564

Email: principal@rosarycollege.org

Website: www.rosarycollege.org

Date: 18th August 2021

Acting Principal

Prabodhan Education Society's
Vidya Prabodhini College of Commerce, Education, Computer and Management
 (Recognized by Govt. of Goa, Affiliated to Goa University and Approved by NCTE)
 (Recognized by U.G.C. under Section 2(f) and 12 (B) of the UGC Act 1956)
 Accredited by NAAC with B+ Grade on a Seven Point Scale Under New Framework (1st Cycle)
 Vidyanagar, Parvari, Goa - 403521
 Ph. No. 0832-2413600/2410500

APPOINTMENTS

Applications with Full Bio-Data are invited from Indian Citizens for the following posts to be filled at the level of undergraduate in Government Aided College for B.A. B.Ed. and B.Com. Programmes from the Academic Year 2021-2022 onwards:

Sr. No.	Designation of Post	No. of Posts	Nature of Posts	Category of Post
1	Assistant Professor in Education (English – Pedagogy/Methodology)	1	Full Time Regular	Reserved for OBC - 3 ST - 1 EWS - 3 Unreserved - 1
2	Assistant Professor in Education (Hindi – Pedagogy/Methodology)	1	Full Time Regular	
3	Assistant Professor in Education (Konkani – Pedagogy/Methodology)	1	Full Time Regular	
4	Assistant Professor in Education (History – Pedagogy/Methodology)	1	Full Time Regular	
5	Assistant Professor in Education (Geography – Pedagogy/Methodology)	2	Full Time Regular	
6	Assistant Professor in Performing Art	1	Full Time Regular	
7	Assistant Professor in Commerce	1	Full Time Regular	
8	Assistant Professor in Commerce	1	Contract basis for the Academic year 2021-2022	Reserved for Physically Disabled – 1 Post Reserved for OBC – 1 Post
9	Assistant Professor in Hindi	1	Contract Basis (For Study Leave Vacancy)	

The appointment is subject to availability of workload, NOC/approval of Govt. of Goa and Goa University.

Candidates applying for more than one post are required to submit a separate application with complete enclosures mentioning the Serial No. of the post applied for. Candidates belonging to SC/ST/OBC/PD/EWS and Children of Freedom Fighter category should enclose the relevant certificates from competent authority.

Application along with photograph should contain full name, address, telephone no. and mobile no., email address, date of birth, designation of the post held, academic qualification with percentage of Marks scored from SSC Exam till date, teaching & Administrative experience, certified true copies of statement of marks secured at SSC to Master Degree & any other degree/higher degree, experience certificate, residence certificate and other achievements in academics and administration. Candidate should have 15 years' residence in Goa. Knowledge of Konkani is essential and Knowledge of Marathi is desirable. Candidates belonging to SC/ST category are eligible for relaxation of 5% marks.

Qualification, pay scale and service conditions as prescribed by UGC, Goa University, Directorate of Higher Education, Government of Goa and other competent authorities. Candidates should send their applications completed in all respect to the **Principal within 20 days** from the date of publication of this advertisement.

For detail information about qualification, pay scale and other terms and conditions visit Goa University website: www.unigoa.ac.in and College Website: www.vidyaprabodhnicollege.edu.in.

Sd/-
 (Dr. Bhushan V Bhawe)
 Principal

ADMISSION 2021-22



(AICTE / PCI Approved)

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7069007910

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- M. Pharm. - Drug Regulatory Affairs
- M. Pharm. - Pharmaceutical Quality Assurance
- M. Pharm. - Pharmaceutics
- M. Pharm. - in Phytopharmacy & Phytomedicine
- Certificate course in Pharmacovigilance and Medical Writing
- Certificate course in Sophisticated Analytical Instruments Handling
- Certificate course on Pharmaceutical Quality Systems and Audit compliance
- Certificate course on Reverse Engineering Approaches in Pharmaceutical Product Development
- Certificate course on Good Manufacturing Practice for Biological Products

9909039232

GRADUATE SCHOOL OF ENGINEERING AND TECHNOLOGY (GSET)

- M.E. - Computer Engineering (Cyber Security)
- M.E. - Computer Engineering (Internet of Things)
- M.E. - Electronics and Communication Engineering (Mobile Communication and Network Technology)
- M. Tech. in Biotechnology
- PG Diploma in Data Science

9909013788

GRADUATE SCHOOL OF MANAGEMENT STUDIES (GSMS)

- MBA - International Business
- MBA - Innovation, Entrepreneurship and Venture Development
- PG Diploma in Digital Marketing

9990093222

SCHOOL OF APPLIED SCIENCES AND TECHNOLOGY (SAST)

- M. Sc. (Industrial Biotechnology)
- PG Diploma in Bioinformatics

9909039233

GUJARAT POWER ENGINEERING AND RESEARCH INSTITUTE (GPRI, Mehsana)

- B.E. - Computer Engineering
- B.E. - Mechanical Engineering
- B.E. - Civil Engineering
- B.E. - Electrical Engineering
- Integrated M. Sc. Computer Science (Specialization in AI & Data Science/ IoT / Cyber Security)



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