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Philosophy of the Optimum: With Special Reference to *Bhartiya Gyan Parampara*

Arun Diwaker Nath Bajpai* and Neha Yadav**

In Indian culture, the philosophy of 'optimum' is the most important one, which encompasses the life values of religion, prudence, dignity, equality, balance, harmony, justice, etc. in its conscience. Indian sages have emphasized cooperation and coordination. Some of its quotes are written below: [1-4]

Om Saha Naavavatu |Saha Nau Bhunaktu |
Saha Viiryam Karavaavahai |
Tejasvi Naavadhiitamastu Maa Vidvissaavahai |
Om Shaantih Shaantih Shaantih || [1]

This means that God should protect both the disciple and the teacher together, may we both enjoy the fruits of knowledge together, may we both get the power to acquire knowledge together, may the education of both of us be brilliant, and let us not hate each other and create a peaceful environment.

San Gachhadhwam Sam Vadadhwam Sam Vo manaansi jaanataam |
Devaa Bhaagam Yatha Poorve Sanjanaanaa Upaasate || [2]

May we move in harmony and speak in one voice. May all be wise and may our minds be in agreement. Remember that the Devatas are venerable because they have also similarly conducted themselves since times immemorial by partaking their portions of any sacrifice.

Samaano Mantrah: Samiti: Samaanee Samaanam Manah:
Sah Chittameshaam |
Samaanam Mantramabhi Mantraye Vah:
Samaanena Vo Havishaa Juhomi|| [3]

This verse means that you all have the same thoughts, organization, mind, and mindset. I give you all the same advice and endow you with the same right to enjoyment.

Samaanee Va Aakootih: Samaanaa Hridayaani Vah: |
Samaanamastu Vo Mano Yathaa Vah: Susahaasati || [4]

This verse means that our purpose should be one, and our feelings should be consistent. Let our thoughts come together. Like this world, there is harmony and unity in the various aspects and activities of the universe.

Our country does not accept extremism. On the one hand, it considers the whole earth as a family. It is vehemently proclaimed " *For those who have a big heart, the whole earth is their family and*

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for those who have a small heart, their thinking is that this is their own and that is someone else's.[5]

For the welfare of every human race. *May all sentient beings be at peace, may no one suffer from illness, may all see what is auspicious, may no one suffer* [6]. The Indian sages have described the purpose of life as *'Purushartha Chatusthaya'*[7,8] *(Four Pursuits of Life)* while giving the "*Ishavasya Drishti (Vision of God)* of living life whose basic *mantra* is as follows:

īśā vāsyam idaṃ sarvaṃ yat kiñca jagatyāṃ jagat |
tena tyaktena bhuñjīthā mā gṛdhaḥ kasya
sviddhanam || [9]

It also presents the strategy of spontaneous development of humans and nature keeping in mind the major goal of sustainability. The present research article is designed to discuss all these issues.

This research article focuses where on the one hand the basic scriptures of India such as Shrimad Bhagavad Gita, Taittiriya Upanishad, Padma Purana, Mahopanishad, Brihadaranyaka Upanishad, Manusmriti and Chanakya Niti, etc. have been used. On the other hand, Kabir and Tulsi have also been quoted where required. The objective of the present research article is to consider the important focal point of lifestyle arising from Indian culture and analyze various dimensions related to it. This research paper also mentions the theories of sophisticated economists like Thaler, Sumekhar, Robbins, Cass, Mill, etc., and scientists like Einstein, Watson, and Crick, Darwin.

The Contradiction of the Present Time

At present, every individual, society, and even nation, is running in the blind race of progress without setting the goal of the final destination. Neither the purity of means nor the availability of resources nor individual abilities are being taken into account in this race.

The modern system aims at maximum and minimum. Where on the one hand maximizing profit, maximizing utility, maximizing the use of resources, maximizing growth rate, maximizing production and productivity, and maximizing market and trade is the objective; on the other hand, minimizing costs, time, and labour. It includes minimizing the costs of capital and other means.[10-13] Modern technology is also being used to maximize the use of resources. But neither it is scientific nor sustainable.

One more thing needs to be described in this context. Two ideologies are currently prevalent. One is based on individual freedom which does not believe in any restrictions or limits [14,15] Therefore, adopting the principle of "Survival of the Fittest"[16], class conflict, discord, inequality, etc. arises automatically. Although it preserves to some extent the human values of a particular class. The second system is such that individual freedom, convenience, and dignity are all sacrificed to prosper the nation. Both these systems are not appropriate. In such a situation, the concept of 'optimum' plays an important role.

Relevance in Optimum

Having relevance is an essential element in the optimum. There are many ideas about relevance but relevance must be compatible with three major elements and that is Time, Space, and Matter[17]. Time, space, and matter, all are variables. In such a situation, relevance has to be considered keeping in mind the matrix of these three[18]. A matrix is a mathematical theorem to explain the interrelationship and interdependence among any given variables It can be explained as follows:

	Time	**Place**	**Substance**
Time			
Place			
Substance			

It may be that what is appropriate at one time may not be appropriate at another or what is relevant to one place, one nation may not be to another or operating on one section of society, rooted or conscious, that of another for not be. Therefore, the necessity of relevance with all three in the optimal is necessary. As far as the question of time is concerned, there are two opinions. One opinion is that time does not move, time is static, and circumstances change.

According to Bhartrihari

Bhogaa na bhuktaa vayameva bhuktaah:
tapo na taptam vayameva taptaah |
Kaalo na yaato vayameva yaataah:
strushnaa na jeernaa vayameva jeernaah || [19]

This means that 'the enjoyment of pleasures is not ours, the lack of austerity is not heated, we are the ones who are heated. "Time never passes, we keep passing" and craving never wears out, we keep wearing out. More precisely it means that "pleasures weren't consumed, only we were;

penance wasn't 'done'; only we were 'done'; time didn't pass, only we passed; thirst was not 'over', only we got 'over." It is clear from this verse that time does not move, circumstances, events, human and human relationships, cultures, traditions, production and technology of production, research, and innovation, creation of literary works, war, sculpture, and architecture, etc. keep changing and belonging to them becomes 'timing or naming' For example, *Satyug, Treta, Dwapara, Kalyug,* Ramayana period, Mahabharata period, time of Lord Rama, Krishna, Mahavira, Buddha, Kalidasa, Bhasa, Bhavabhuti, Magha, Bharivi, Panini, Patanjali, Ancient (Vedic), Middle (Mughal), modern period (after British rule), the time of World War I, II, Gandhi's era, etc. Historical events are responsible for determining time. The second concept about time is that time moves at the same speed in an absolute sense.[20] When the earth moves,[21-22] the solar system is moving, the distances between the members of the various solar systems increase and decrease, and the galaxy is moving, why not time?

Pal bhar Prithvi ruke nahin, gati bhi rahe saman |
Fir manav ne kyon rakhe Shithil, Mand, Dhrut, Maan ||

Upje pal ki kokh se diwas, maas aur saal |
Dasi, sadi yug hai sabhi pal ke baad gopal ||

Based on this logic the change in distance between the Sun and Earth results in day and night, as well as spring, summer, rainy, autumn, pre-winter, and winter. A day has 24 hours and it has been divided into eight periods of time, auspicious times, hours, moments, etc. The calculations of these moments are extended to weeks, fortnights, and months. It happens in years, decades, millennia, *kalpas,* ages. [23] The moment' in time is the most important. The sum of these moments creates the life span.[24] So, when it comes to relevance, the present moment where the decision is to be taken is important. The past is not in control it has passed, and therefore, the future is also unknown.

Purva Janam aru purvajon se milte Sanskar |
Jinse banti prakriti jo karwati vyavahar |

Jeevan, ath se iti talak bas pal-pal ka yog |
Janam sufalta yogh ai har pal ka supyog ||

In short, it makes sense for the optimal to have relevance to the present time. It is also necessary to mention the concept of *Sanatan* here. *Sanatan* does not mean ancient, *Sanatan* means ancient than ancient, it means that which can keep antiquity alive while incorporating modern changes is *Sanatan*.[25] Deendayal Upadhyay has made it clear in his integrated humanism that we are not to become a museum of antiquity. Every ancient is to be made time-appropriate, that is time-friendly.[26] That is the conclusion of the optimum. A time-immemorial song by Balveer Singh Rang is also noteworthy in this context:

Woh nahi nutan jo prachinta ki jad hilade
Bhoot ke etihas ka abhas bhi manse mita de |
Jo puratan ko naya karde main usse nutan kahunga
Maran ko janam samjhe main usse jiwan kahunga || [27]

Kalidasa said long ago that neither everything ancient is good nor everything modern is bad. Rational men make decisions about every event by their judgment.

Puranamityav na sadhu sarvam,
na chaapi kavyam navmityavadyam |
Santah parikshyanyatarad bhajante,
mūdah parapratyayaneyabuddhiḥ || [28]

All this is indicative of the optimum. Space (Place) is the other important aspect. By the way, we stand in a foot space or two and half foot space where we sleep or live in a house of a few square meters or society, village, district, province, nation, island, hemisphere, world, subsoil, water, land, moisture, the whole atmosphere, all contained. There are 195 countries in the world, including 54 in Africa, 48 in Asia, 44 in Europe, 33 in Latin America and the Caribbean, 14 in Oceania, and 02 in North America. The total area of these countries is 5101.1 Mkm² of which 70.9% is covered with water and Only 29.1% is land. [29-30] These countries are divided into the North and South Poles; according to languages, religions, economies, ideologies, cultures, and traditions. But the most important fact is their "Natural Order" Every country and different region of the country has different natural systems mostly influenced by their geographical structure. For example, in Bharat, the characteristics of the northeastern, mountainous, coastal, and plain regions are different. Therefore, the idea of optimum should be in line with the natural characteristics, capabilities, and problems of any place.

It cannot be acceptable that any knowledge, tradition, policy, or ideal, which has been created by

looking at the culture of Western countries will also apply to India and other countries. It is also often argued that through adoption and adaptation, all can be incorporated into all. But it has its limits and it is not possible.

The third element is that of matter."[31] This matter includes all species, root, conscious, human, and non-human. The world has a population of about 780 crores belonging to different languages, religions, and economic status.[32] Indian sages have 8.4 million forms of life. Their classification also according to *Manas, Nadaj, Binduj, Udbhij, jarayuj, Andaj, Swedaj,* etc, has been made. The following verse is worth quoting in this context:

Jalaj Nav Lakshani, Sthavra Laksh Vimshatikh
Krimayo Rudra Sankhyakah |
Pakshinam dash lakshanam, Trinshal Lakshani Pashavah
Chatur Lakshani Manavah ||[33]

It also includes the style of using animals, birds, rivers, plants, minerals, and all things derived from them, resources of energy, machinery, and technology. Indian sages have outlined it as visible and invisible.[34] What is also important here is that the individual unit is the most important in the entire vast universe. The formation of this unit is different. Although they appear organic from the outside, the *Sanskars* and ancestors of previous births are important in their background.[35] Genetic researchers have used DNA[36] and also tried to prove it on the basis, but the *Sanskars* of previous births cannot be researched in the laboratory. That is why no two entities or two individuals are alike. This is also the reason for diversity. If the subject of the optimal arises in such a situation, it must be relevant first to the individual and then to the whole. In summary, relevance in optimal implies that what is not relevant to a given time, place and person/object will not be optimal.

Optimum Lifestyle

The biggest problem in the modern era is the chaotic lifestyle. In this competition to become rich, intelligent, scholar overnight by any means, no one takes care of food, exercise, sleep, manners, discipline, etc. Lord Shri Krishna said in the B*hagwadgeeta:*

yuktāhāravihārasya yuktacēṣṭasya karmasu |
yuktasvapnāvabōdhasya yōgō bhavati duḥkhahā || [37]

Here yoga means optimal behavior with effort in a planned manner. Firstly, diet and recreation. Diet means taking food, water, etc. that satisfy the appetite. The type of food, the method of preparing it, the behavior of the person preparing it, the mental state of the person eating it, and the ingredients, vegetables, and spices used in the food should all be suitable at all times.[38] Vihar means exercise/yoga etc. Yoga is the integration of body, mind, intellect, and soul through *Yama, Niyama, Asana, Pranayam, Pratyahara, Dharana,* and *Dhyana* and finally attaining the state of *Samadhi.*[39] In this context, it is necessary to clarify that mutual compatibility between food and exercise is necessary. It can be stated more clearly that overeating and under-exercising or under-eating and over-exercising is not appropriate nor no-eating and no-exercising situation will be proper.

Having effort in every task means working diligently/planning in which the goal, means and technique must be optimally harmonized. It is often seen that people want to achieve something without a goal, and using any kind of means is not appropriate. Setting goals while assessing one's abilities, the right means should be used with the right method at the right time to achieve the goals, this is the sense of *'Cheshtasya Karmasu'* in optimum.

One should have a plan to sleep and wake up. In the modern lifestyle, there is no attention to sleep and awakening. When to sleep, where to sleep, with whom to sleep. How many hours before sunrise to wake up and how many hours after sunset to go to bed, is not being followed anywhere.[40] All these rules should be observed. In Jainism, the routine with the sun is followed scientifically. The rule is to get up an hour before sunrise. This is called *Brahma Muhurat*. This is the best time to wake up. Then the optimal division of your working hours is also necessary. Optimal allocation of time is essential for worship, yoga, earning for living, family, society, health, recreation, sports, etc. It all comes in the style of awakening. Bedtime starts two hours after sunset. Psychology before sleep, pre-sleep relaxation, and sleep should provide relaxation, happiness, and energy to the body and mind. The best time for sleep should be 10:00 pm to 4:00 am. It changes more or less according to time, place, person, and circumstances. Whoever adopts this optimal balanced lifestyle in a planned manner does not suffer from any disease/ suffering. 'Yoga is the destroyer of suffering'.

Optimum Expression of Emotions

All psychologists know and believe that the behavior of human and non-human species is based on

psychic impulses. Animals, birds, plants, and humans are bound by emotions. The behavior of human and non-human species differs so much that humans can control, regulate, adapt, and sublimate the velocity of their psychic impulses with their power of resolution, which is not the case in other species. There are four main impulses mentioned in the scriptures. The important verse is:

Āhāra nidrā bhaya maithunaṃ cha;
samānametatpashubhirnarāṇām |
dharmo hiteṣhāmadhitko visheṣho;
dharmeṇa hīnāḥ pashubhiḥ samānāḥ || [41]

Here *dharma,* symbolizes religion, balance, optimality, discrimination and rituals, and dignity. Diet and sleep have been discussed in the above context. The wisdom of *dharma* is to behave while answering questions like when, why, how, for what, etc. In the modern system, any kind of control or regulation among the four impulses is considered ridiculous. Therefore, there is a rapid erosion of dignity and traditions in the society. Fear automatically implies 'self-protection as well as protection of society from external calamities of nature. Fear is at the heart of Darwin's evolutionary theory. Survival of the strongest / fittest means that only the strongest has the right to live. This gives birth to the principle of competition. The strong swallow up the weak and easily develop powers of monopoly. The culture says everyone has the right to live. Mahavira Swami gave the principle of live and let live.[42] Collective security means security for all, freedom from fear for all can be achieved through cooperation. The efforts to make people free from fear, by the use of weapons and wars are limited, but it creates more fear and is not appropriate. An environment of collective security and peace can be created by optimally using the emotion of fear.

The most chaotic in the category of emotions is happening in sex. Concepts such as the sex market and sex workers have emerged. Sex is a biological need. Man and woman and their relationship must be established. But the answer to when, with whom, and why is also necessary. It also requires the determination of age. To suit this, the Indian sage developed an institution called 'Parivar'(Family)[43], the foundation of which is the *sanskar* of "*Parinaya*" (Marriage) and its purpose was to produce offspring and promote the activities of the society and nation. This will protect society while fulfilling their physical needs while maintaining dignity. Among the four *Ashrams, Brahmacharya, Grihastha*, *Vanprastha,* and *Sanyas*, the most important *Ashram* is stated to be the *Grihastha* as the other *Ashrams* depend on the *Grihastha Ashram*, which is based on marriage and family, and makes an important contribution to every structure of society. Surprisingly and sadly, sex, which is supposed to lead to salvation when driven by an abiding sense of love, has become the cause of rape, misconduct, incest, murder, and trafficking. There is no natural basis for gay marriage. Yet some cutting-edge scholars have recognized it. There are also many types of unnatural sex. These cause diseases, disorders, suicide psychological morbidity, disability, and destruction. Therefore, there is a need to establish the cultural tradition of restricted/limited sex.

It was stated earlier in this article that there have been two systems at present. One is based on the full expression of emotions, which is not sustainable, and the other on the complete control of emotions which is not natural, is not possible. In the midst of these, the Indian sages have constructed the dignified expression of emotions which reinforces the principle of the optimal.

Optimum and Capabilities

Every individual and region/country has certain capabilities. Goals and ambitions should be set within their limits. In Economics, the Concept of Production Possibility Curve[44] is explained, which means that the maximum combination of goods can be produced by the cooperation of two factors of production. Not more than that. Similarly, there is a maximum limit to the achievements of an individual with the cooperation of physical and non-physical abilities.[45] Any person can neither do everything nor be like anyone else. This is because a person is formed by the *sanskars* of his ancestors and previous births. Although capabilities can be expanded using modern resources, and artificial intelligence, they also have some limits. Therefore, the individual should judge the limits of his abilities and make optimal use of them so that he continues to achieve the set goals as well as maintain his abilities.

Unfortunately, the use of biotechnology, chemical fertilizers, and pesticides has led to erosion of the natural potential of the land. It increases productivity, but it has given rise to serious diseases like cancer. Nowadays we are intensively moving

towards organic farming and Natural farming[46] to maintain the natural fertility of the land and increase productivity. In short, whether it is an individual land/ region, or any other resource, optimal use within its boundaries contributes to the continuous balance between achievements and capabilities. In optimum neither more nor less. Kabir wrote long ago:

Ati ka bhala na bolna ati ki bhali na chup |
Ati ka bhala na barsna ati ki bhali na dhoop || [47]

It means if you talk too much, people will think you are talkative, your words will lose importance, people will not take you seriously, people will not believe in your saying, and if you talk too little, people will think you are stupid, ignorant, weak in language, weak in pronunciation, and less sensible. So, you should speak as much as needed. Similarly, when there is heavy rainfall, there will be floods, houses, and crops will drain off, diseases will spread, there will be famine all around and if there is no rain, more sunshine, and drought, crops will be destroyed, diseases will spread, people will die and there will be famine, so there should be rain and sunshine as needed. This necessity will be determined according to time, person, and place, the principle of "*Ati Sarvatra varjayet'* confirms this. The verse is as follows.

Atiroopena vai Seetaa atigarvena Raavanah |
Atidaanam balirbhdho ati sarvatra vaarjayet ||[48]

This means that Sita was kidnapped because of her extreme beauty, Ravana died because of excessive ego(arrogance) and King Bali lost everything because of excessive generosity, it should be learned from all these examples that do not overdo anything.

Gandhiji projected three symbolic monkeys with their ears, mouths, and eyes shut. One said he wouldn't hear anything bad, the other said he wouldn't say anything bad, and the third wouldn't see anything bad.[49] It is an amazing example of using one's senses judiciously as required. Today, remote sensing has validated the assessment of current capabilities. It should be used to plan for the future.

Suitability in the Optimum

A British economist 'Sumekhar'[50] wrote the book 'Small is Beautiful' which matched Gandhiji's thought. He talked about Intermediate Technology. This Intermediate Technology is not a second-class technology, but the most suitable Appropriate Technology. In today's time, research and promotion of technologies are being done without estimating their features (size/type).

For example, about 70 per cent of land holdings[51] in India are marginal or small holdings, so small tractors irrigation techniques, or thrashers should be equipped accordingly. This means that the population of any country and its structure (age, gender, occupation, etc.); Economy and its structure (agriculture, industry, service, labour, land, capital, entrepreneurship, enterprise, capitalist, socialist, mixed, etc.); Geography and structure (coastal, mountainous, plain, etc.); politics and its structure (democracy, monarchy, communism, federalism, etc.); administration, history and culture, set of resource, past experiences and patterns must all be taken into account. Along with this, a realistic plan for the future can also be made through modern projection techniques. It means that 'Suitability exists in the Optimum', what is not suitable cannot be the optimum.

Sustainability and Optimity

The ultimate purpose of all dimensions of life and the world is sustainability, that is, to continuously maintain this order of creation and development. In the view of Indian sages, nature, and man create sustainability on the mutually optimal coordination and relationship of the two elements. *'Ishavasya Drishti'* is the nurturing vision whose basic *mantra* has been already referred(9).

This verse has three meanings; First, everything in the universe is inhabited by God, it is owned by God or nature, not by man.

Secondly, man should use as much as is necessary for his consumption and leave the rest for other classes of society for consumption or enhancement of nature, i.e. consumption with sacrifice.

Third, no one should be jealous of anyone. Someone has much more so why not me? Because everyone has different abilities. This is Gandhi's principle of trusteeship.[52] He used to say that nature has plenty to satisfy our needs but not our greed. Kabir has said:

Rukhi sukhi khay ke thanda paani piv
Dekh parayi chupdi mat lalchave jeev |[53]

Kabir has also said:

Godhan. Gajdhan, vaajidhan, aur ratandhan khan |
Jab aave santoshdhan sab dhan dhuri saman ||[54]

Tulsi has spoken of "*Ashtam Yatha Labh Santosha*" in *Navadha Bhakti.*[55] All this underscores that human beings should not tend to consume more than their needs. However, modern economists and scientists have created the same laws of economic growth by increasing consumption. Robbins defined economics based on "unlimited wants".[56] Keynes theorized the "consumption function"[57] which is still affecting every dimension of modern development whether developed or developing nations. Development Paradigm has an in-built goal to increase consumption. Transforming the resources of nature into consumable goods through modern technology and energy delivering them to consumers and creating artificial demand, if there is no demand. In case of no purchasing power, one has to arrange purchasing power, to create new ways of consumption, to satisfy consumption at the levels of the mind. The principle of "Supply creates its Demand"[58] remains the Brahma Vakya(Universal Statement). All this is indicative of consumerism. The institution called money has promoted consumerism. The basic difference between consumerism and consumption is that in consumerism the number of consumers should increase but unfortunately, the intensity of consumption of certain given consumers is increasing.

Consumerism refers to a certain class that ventures to get everything for itself in any way, in the shortest possible time. Consumption is directly associated with consuming luxury items rather than necessities. Luxury lifestyle items have a direct impact on the environment causing damage to the ozone layer and causing global warming problems.

The side effects of climatic change, pollution, and various types of viruses are emerging which are destroying the human body, mind, and intelligence. Brundtland[59] who was the Director of WHO and former Prime Minister of Norway defined sustainable development as future generations meeting their needs without compromising the needs of the present generation.

This implied that there should be equality in consumption levels of present and future generations but this is not happening. The way present generation is rapidly increasing their level of consumption. It is harmful to future generations. In the past, scientific techniques for estimating the availability of resources and their detonation were not available but today, through scientific methods, the amount of minerals, oil, and other resources available and the future period of their availability have been estimated, also the rate at which they are being exploited or misused, their availability in future is being projected. Although poetic words like reduce, recycle, and reuse are being coined about resources. The Earth Summit and Days are being celebrated, the 17 Sustainable Development Goals have been set by the UN, and they fixed the years for their achievement also. But with the artificial consumption style that has dominated people's minds and theories like Behavioral Economics[60-62] are being formulated, therefore the goal of sustainable development seems unattainable. The problem occurs when the individual's needs take the form of psychological desires. The sequence is as follows, first, the habit of consumption is formed; then the brain is conditioned and later it turns into addiction, without which the person finds it difficult to live. This consumption pattern is exploiting resources far more than necessary and causing an environmental crisis.

In short, optimizing the use of natural resources as required in the present generation will automatically make the environment safe and secure. It is also necessary to maintain an optimal balance between population and economic growth.

Four Pursuits of Life and The Optimum

India is the only country in the world that has proclaimed the purpose of life which is referred to as *Purushartha Chatustaya*(pursuits of life). It is *Dharma*(moral way of living), *Arth*(ethical earning), *Kama* (desires) and *Moksha* (salvation). Salvation is not death but it is a sense of liberation while living life is *moksha*. *Moksha* is a liberation from bondage. Liberation from bondage by the body, mind, and intellect. Getting rid of the *sanskaras* of previous births. Among the remaining three pursuits, Dharma is important. *Arth* and *Kama* are also important but if they do not have a sense of optimal discernment, and balance, they will become destructive. According to Dharma allocation of earning wealth and earned wealth for self and society, today and tomorrow; according to *Dharma, Vivek*(discretion), *Maryada*(dignity), and Capability freedom from desires and control over desires is considered as ideal example of Optimum. Lord Krishna's teaching of action reinforces this principle:

Karmanyevadhikaraste ma phaleshu kadachan |
Maa Karmaphalheturbhurma te Sangosvatkarmani ||[63]

Conclusion

The philosophy of the optimum is necessary for balance, equality, and convergence in micro and macro aspects of life, leading to 'Significance of Relevance'. This leads to a suitable lifestyle and suitable technique. This sublimates the emotion; man and nature cooperate by pursuing the well-being of all to remain alive and vibrant for eternity.

Notes, References and Readings

1. Krishna Yajurveda Taitriya Upanishad 2.2.2
2. (Rigveda X.191)
3. (Rigveda 10/111/3)
4. (Rigveda X.191)
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6. Vrihadaranyaka Upanishad.
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16. Charles Darwin formulated the theory of evolution by explaining the theory of survival of the fittest. This implies that only those who are most powerful in their environment have the right to survive it has also been seen as the Law of Jungle. Some scholars also associate it with *Matsya Nyaya* but there is a fundamental difference between the two.
17. Albert Einstein is famous for the interrelationships of time, space, and matter, in his theory of relativity. His researches regarding space, time, gravity, and the Universe are revolutionary.
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27. Rang, Balveer Singh (1982). *Gandha Rahit Chhand*, Kashganj.
28. This verse is taken from the great Malavikagnimitram of the great poet Kalidasa, 1st century BC.
29. *https://population.un.org/wpp/Graphs/Probabilistic/POP/TOT/900* United Nations Department of Economic and Social Affairs, Population Division, 2022.
30. *https://data.worldbank.org/indicator/SP.POP.TOTL* World Population Data World Bank
31. Matter refers to a person, object, or physical and non-physical facts arising from it.
32. *https://www.unfpa.org/data/world-population-dashboard* United Nations Population Funds
33. Padma Purana.
34. The visible includes all matter and elements that can be perceived by the senses of perception and the senses of perception and the invisible that cannot be perceived by the senses of perception.
35 Bajpai, Arun Diwaker Nath (2013). Arun Satsai, New Delhi.
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40. One *Ghadi* is equal to 24 minutes Long.
41. Mahabharata, Shanti Parva, 265/29 |

42. Mahavira Swami was the 24th Tirthankar of Jainism He inspired people with this slogan to protect human values and life. This rule of 'live and let live', teaches us to make human life better, to live ourselves and let others live.

43. The Manusmriti is an authentic Indian text which is considered to be an important basis for the structure of society. It has 12 chapters and 2684 verses and was composed two or three centuries before the birth of Jesus.

44. Samuelson, P., A. (1965). *Foundations of Economic Analysis*, New York: Atheneum.

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46. Farmers involved in cow-based natural farming must keep at least one indigenous cow. While this will solve the problem of homeless animals to a large extent, cow dung and cow urine will be used to prepare Jivamrit and Vijamrit.

47. Kabir Das, was a great poet of the 15th century. He has exposed the distortions of society with great skill and tried to establish the truth. His works are divided into Sakhi, Sabad, and Ramani. Sakhi contains instructive d*ohas*.

48. Chanakya Niti 3/12 verse.

49. Gandhiji has many such principles which are completely based on Indian life values one of them is that of Trusteeship. By this Gandhiji meant that the affluent class of society would act as trustees of their affluence and the Left would work for the welfare of the people.

50. Schumacher, F. (1973). Small is Beautiful: A Study of Economics as if People Mattered, London: Blond & Briggs.

51. There are five major types of land holdings in India: marginal less than 1 ha, small plowing 1-2 ha, semi-medium 2-4 ha, medium 4-10 ha, and large land holding more than 10 ha. In India, the Ministry of Agriculture conducts a census and publishes the data regarding the size of land holdings.

52. Through trusteeship, Gandhi wanted to transform the capitalist system into a harmonious equality-based system. His principle is derived from Ishavadasya Upanishad.

53. Kabir Das, ibid.

54. Kabir Das, ibid.

55. Tulsidas mentions Nakdhabhakti in the Aranya Kand of his Ramacharit Manas in the dialogue between Rama and Sabari in which he says that the eighth form of Bhakti is to get satisfied with whatever one possesses.

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    These laws as postulated by JB Say are the basic mantra of capitalist economics. It's J.S. Mill uses it extensively in his book.

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60. Richard, H. Thaler was awarded the Nobel Prize in Behavioral Economics in 2017. The theory of combining economics with psychology to increase consumption levels.

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62. Thaler, Richard (1988). "The Ultimatum Game", *Journal of Economic Perspectives,* 2 (4): 195-206.

63. Shrimadbhagavad Gita. 2:47. ❑

Revitalising Indian Classical Music for Spiritual Healing and Therapy

Arun Dubey*

Music Therapy is one of the very old therapies in India but there is hardly any research repertoire on it, particularly on its application for the treatment of various diseases. Mostly, research works are done on Western Music while the more ancient and more powerful Indian Classical Music (*Shastriya Sangeet*) remains unattended by researchers. The reason for this as mentioned by a great music *Guru* is that classical music is for the elite educated class and is not understood and enjoyed by all so it is less popular at the international level and therefore could not seek the required attention. In general, as most people don't understand it, they ignore it, thinking that the main purpose of music is entertainment and it is just a matter of taste.

Nevertheless, the healing power of Indian classical music is undisputed. When people of any age, religion, and nationality start learning and understanding it they can take advantage of it for therapeutic purposes. Also, Indian Classical Music inspires the practitioners to move towards much much-required spiritual path. It is quite interesting to observe how Indian Classical Music comes into one's life first as a discipline, how it brings life changes, how it helps in therapy, and further, how it leads to a spiritual path as well.

In the musical tradition of Gwalior, the knowledge of creating different moods in one's mind and healing by music is transmitted from generation to generation verbally from the teacher to student meticulously. From the first step in Music, the teacher explains how Music, and even mere musical notes have a powerful influence on one's mood and state of mind. If we observe this process of learning Indian Vocal Music, we will find many similarities with Yoga classes. The teacher and student sit on the floor in the Yoga posture of *Siddhasana* while transacting music. The path of Classical Ashtanga Yoga starts with *Yama and Niyama* – which are our inner and outer habits. In the process of learning Music, the teacher helps in developing proper habits. The students also learn to sit in one posture for a long time in a particular *Asana.*

In the first lesson, the teacher gives his students quite a tedious exercise of practicing the note "Sa", which they have to practice for long hours till they achieve perfection and stability. Only after achieving perfection, they move toward the next lesson.

Why does one have to do that exercise?

In the Indian note system, the fundamental frequency of the Note *Sa* (which means home) is a counterpart of the note "Do" of Western Classical Music and is not static but is variable. The vocalist sets the frequency of this base 'Sa' note according to the natural voice frequency of the singer. It may be for example note G (Sol), A or A# (La, La#), or any other note, and from this 'Sa' note, the whole octave is created individually for each student. This specificity makes Indian Music the ideal means of Music. This gives due flexibility for using it for healing.

The most important tone-setting instrument for Indian Music is the *Tanpura* – a very special string instrument used as accompaniment by the vocalist. Tanpura has four strings, which are tuned in the notes 'Pa', or rarely 'Ma' (middle note of the octave), two other strings are tuned in 'Sa' (upper octave) and the last string gives the base 'Sa' frequency.

On the Tanpura the musicians play the strings one by one in the same order so that the base frequencies of the notes 'Sa' and 'Pa' form the continuous flow of sound. Thus, the sound of Tanpura continuously gives a so-called "foundation" for singing. No performance of Indian Music is possible without Tanpura. But because it is a big delicate wooden instrument that is difficult to carry and tough to tune, people are rarely using it these days. Moreover, the electronic Tanpuras which are mobile and easy to use are available.

But the actual healing power is in the original wooden instrument where the player sits with

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Tanpura in a particular posture. The posture, how the musician sits with Tanpura is a complete Yogic posture (*asana*), which gives balance and healing to the whole-body systems. That itself is a Music Therapy. It has been proved by some recent research works that sound vibrations of the Tanpura have healing effects on the human mind and body – the mind settles, calms down, and concentrates just after 5-7 minutes of listening to the Tanpura sound (for the experienced musicians that effect comes in 1 min).

When the disciple sings the base note 'Sa' with Tanpura, his mind *calms down and concentrates, his voice opens and becomes steady, and his vocal cords become stronger and well-balanced***.** Thus, after 10-15 minutes of singing only 'Sa', the student comes to that condition, which is perfect for learning. Singing of 'Sa' note will also balance our breathing – which is equal to the level of *Pranayama*. The process of mind settling starts at the level of *Pratyahara*, which is the 5th level of Classic Ashtanga Yoga.

Traditionally, the first week, and sometimes more than that the new student is given to sing only Sa, and no other notes. That made a wonderful preparation for further vocal learning but was also a great challenge for the student to develop his discipline and good habits, which are essential for learning. Nowadays, the teachers give this practice very little, otherwise most of the students will disappear after the first or the second session.

Why it is so hard for the students to do this "simple" exercise?

Because that is the level of *Dhyana* – concentration. An untrained mind is continuously wavering. All Yoga *sadhakas* know that it is extremely difficult to control the mind, but when once we learn to control the mind there is nothing impossible in music.

In the process of learning Music, when the student learns to set the tone for the first note 'Sa', then it becomes easier to teach all the other notes one by one. This is not through mere singing, but through some Yoga practice as well in which the students feel each note at a particular point of the body in the form of vibration. Thus, the students learn to feel the notes with their whole body, not just by listening.

After the notes are learnt, the practice of "*Alankars*" (meaning ornaments) begins. *Alankars* are note exercises or playing the notes with rhythm. *Alankars* range from simple to highly complex. This practice is not for beginners only, but even the most renowned musicians practice *Alankars* daily.

What does the practice of *Alankars* give?

First of all, it gives a very good command of notes and develops an effective *musical ear*. It is also a wonderful exercise for the brain, which is very good in application for educational classes for kids, as well as for therapeutic classes (especially it works very well on patients with anxiety and aged people). This first level of learning is at the level of *Pratyahara.* Only when the students get a good command of notes, the teacher introduces their first *Raag* to them.

What is *Raag*? The word *"Raag"* can be understood as the melodic framework of musical composition, which has the power to create specific emotions or moods in one's mind. The Raag system which is based on Ayurveda knowledge is central to classical Indian music and a unique feature of the tradition. No equivalent concept exists in Western classical Music. Each *Raag* consists of an array of melodic structures with musical motifs; and, from the perspective of the Indian tradition, the resulting music can "colour the mind" as it engages the emotions of the audience. That's why every raag has its time of the day (and time of the year) association.

In the Gandharva Veda, Samaveda, Sangita Makarandha, and other ancient scriptures, the combination of notes are placed in a typical order in which they appear in melodies or particular musical motifs and form the raag prescribed as a healing mechanism for different kinds of problems. For any kind of emotion and feeling there is some special raag. There are also male and female raagas, seasonal raagas, etc.

Thousands of *raagas* are known, which evolved from six base *raagas.* Every raaga must have at least five notes. The ascent and descent of the notes in every raaga are very important. Some raagas in the same scale differ in ascent and descent. In every raaga there is one principal note *Vadi,* compared with a king(Raja), and a second important note – *Samvadi* compared with a queen (Rani), and a few helping notes.

Vadi and *Samvadi* of the *raag* determine which particular places of the body the *raag* will stimulate. From the point of view of the Ayurveda System, *Vadi* and *Samvadi* have a direct association with the three *dosha*s and are equal to Ayurvedic treatment. Only in Ayurveda some herbs and other ingredients are taken in the proportion, suitable to change one's three *dosha* combination in the body. In the Raag theory, at the place of chemical combination, produced by herbs, some special note frequencies and their combinations are taken. When we study *raagas,* we come to the point that in different *raagas* the same notes will have quite different 'tastes'.

Here we get to a very important subject, without which Indian Music never can be understood – and that is *shruti* – the microtones, which only the human ear can catch, and only a few musical instruments, such as the veena, sarangi, etc., and human voice can produce. Together with the 12 notes (Sa Re Ga Ma Pa Dha Ni + 5 half tones), there are 22 *shrutis*.

Due to the *shrutis,* every Raag has its very special "flavor", and its effect as well. It takes much time for the students to learn to produce the notes of *Raag* with the proper *shrutis* and their special combination, by which the particular feeling of *Raag* comes. For this reason, Indian Music is learned only from the teacher to the student directly, not through the books.

A student is said to have learnt Music when the student gets the understanding of the *Raag*, how it moves, and how it invokes and gets into the basic rules of the Indian Music system, and can produce the right notes by *Alankar* frequencies in different variations. Then he/she can sing Raagas freely without any notations, just improvising and enjoying the mood of Raagas. Indian Musicians are much relaxed while in music, which is why very often Indian Classical music is compared to Meditation (or *Dhyana* level). In the process of Music, the student first concentrates the mind on some particular note – like 'Sa', then he/she concentrates on some Raag, and when he resonates with that *Raag,* his thinking process stops, and loses the sensation of his body, thus he gets into *Dhyana* state.

In the learning process, the student masters how to treat himself by the sound and after that – by the Raag. The teacher tells which Raag is fit for which condition and time. First, the musician by producing the special notes of some Raag invokes some particular mood or state of mind in himself, then only the same mood and state can be transmitted to the listener. If the musician while performing thinks about something else or his/her mind is busy with some other object, the audience will get into the almost same state of mind. That's why true Music Therapy can only be done when the Master who can get into high positive moods (like unconditional happiness, serenity, wishing peace for every creature, etc.), is treating.

Thus, only well-developed music skills and proper music education are not enough for Music Therapy. The ability of the Master to get into a highly positive state of mind like meditation forgetting the sense of time and place immersed in the music flow. As was told earlier, the learning process in Indian vocal music itself is Music Therapy, which is why the therapeutic classes of Indian music have almost the same structure as the educational music classes. The author's practical experience in conducting therapeutic music classes proves that when one practices or learns Indian music, it is more effective than when it is done by listening only. Though Indian Classical Music is very much effective in Music Therapy for the listeners as well.

The two scientists Keel and Ogolsky had conducted a series of experiments on some psychiatric patients. The patients were divided into two groups; one group was exposed to some Indian *raagas*, which affected their feeling of happiness and enthusiasm. The other group was subjected to listening to modern pop music. The results of several such experiments confirmed that over 80 % of patients in the first group were cured by the soothing effects of the Indian Classical Music, while the condition of the patients in the other group had mostly worsened, because of just the opposite effects of the pop music. These scientists had recorded similar patterns of difference in the effects of the two opposite forms of music in some different kinds of experiments, the details of which are presented in their book, "The Musical Meaning". All raagas are perfectly balanced, all have a healing effect and all have deep meanings behind them.

Raag starts from the *'alap'* – special notes of Raag or some special energy, which every Raag has. One important feature of Indian Music in comparison with Western is that it has a note-to-note connection, a flow - when one note naturally flows into another without any brake or stroke, while in Western music

that stroke *(stoccato)* is much more frequently used. This *continuous flow* (or *Naad*) is essential in calming the mind and getting into a *meditative deep mood*, in which the mind and the body relax, and after that one feels freshness after a good sleep, cheerfulness and energy charging.

After *alap* the composition starts with the words and *taal* – rhythm. And that rhythm or *Taal* is also very special in Indian Music. Rhythm cycles of 6, 7, 8, 10, 12, 14, and 16 beats are widely used, and there are some researches, which prove that these special rhythms in combination with some particular speeds have healing effects on the human body and mind.

The Raag opens slowly, and it takes around one hour for the musician to perform one *raag* fully. So, we can state that the performance of Indian Classical Raag is a *Music Therapy Session*, which usually takes around 45-90 minutes. In that session the speed of rhythm gradually increases, and as we know that correlates with different kinds of brain waves and modes of brain work.

In the emotional sphere, *Raag* helps to flow out the feelings, though the feelings may be not positive. Blockage of emotions is considered to be the main reason for psycho-somatic diseases. In general, we can state that the effect of music is very deep, the sound can reach into such deep spheres (like deep subconscious memories or impressions), which are unreachable by any other means. But when the problem is deep, like some chronic disease, practically not one, but some series of sessions are necessary, though after one session the patient feels the effect. For this reason, healing by Indian Music is more effective, when it is conducted regularly.

Diagnostic Capabilities of the Indian Music

The ancient experts of Indian Classical Music had classified three major characteristics of the musical voice (or *Kanth Naad*) associated with the natural constituent of the three *dosha* - *vata, pitta*, and *kafa,* described in Ayurveda. According to this theory, the sound, generated by the voice of a person, whose inherent tendency is *kafa,* would normally be stable, intense, and very pleasant; the voice of an individual of the pitta nature produces sharp sound, which generally sounds shrilling. People with excess *vata dosha* usually find it difficult to maintain a consistent pitch and amplitude of their voice.

The basic tendencies of *vata, pitta*, and *kafa* are affirmed in Ayurveda to be responsible for the activity level, consciousness, or dullness of various functions of the body and mind respectively. The pitch of one's natural voice is supposed to be governed by *vata dosha*, loudness - by *pitta*, and the tonal characteristic - by *kafa*.

According to Ayurveda, any imbalance in the naturally suitable proportions of these elements in a patient affects his nervous system and the biochemical and physiological functions of various components of the body and the brain. Thus, by listening to one's voice the master can tell which *dosha* prevails. And by the regulation of the same, it is possible to treat the dosha.

Also, there is some obvious correlation between the notes and energy centers of the body. Usually, in vocal class, while singing the notes on some level one starts to make little mistakes in the frequency of the note (either to sing it higher or lower), and that is a sign of disbalance on that particular level of the body, with which that note associates. By that, the Master can check the status of the student, and by working on that note and by improving its proper sounding, the body receives the needed stimulation at some particular weak point.

Thus, by learning Indian Classical Music which conforms to Yoga the student not only improves his vocal skills and gets musical education, but develops some spiritual qualities, purifies the mind, and aligns the body, mind, and soul. By working with the body through the sound, the student learns to balance and develops healing power. Later, by purifying and strengthening the mind, while growing spiritually, the musician learns to heal other people with music, using the means of the healing note frequencies (*shrutis)* and energies of some *Raagas*.

Note: The author conducts a Course on "Music & Yoga Union" which gives practical realization to the ideas, mentioned in this article. It is expected that this article will attract more people, especially the younger generations to pay attention to the treasure, given to us by our great ancestors. With the cooperation of the enthusiasts, the ancient system of Shastriya Music and Raag Therapy will bloom again giving a chance to benefit more and more people.

Weblinks

1. *www.indian-heritage.org › articles › raga_therapy*
2. *www.academia.edu › 41800487 › My_journey_with_Indian*

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Projects for Uplifting Physics Education at the Secondary Level in Consonance with National Curriculum Framework–2023

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Dr D P Khandelwal, a visionary and the Founder of the Indian Association of Physics Teachers (IAPT), had to live in exile in Karachi because of his participation in the August Movement. During that period, he taught at a school in Karachi, where he became very popular primarily because he used to teach science through demonstration experiments and also by making use of very inexpensive devices. Afterward, when he taught at different institutions, he continued with the same spirit, giving cardinal importance to practical sessions. His approach helped in adding new and modern experiments in the labs. The patriot in him always had an eye for proper science education during the post-colonial rule. He strongly felt that experiment-based science teaching is the right approach for making socially conscious people imbibe scientific culture, which was very much needed for post-independent nation-building.

One can find the reflection of his thoughts in the NCF 2023 document. But even after about forty years, the downward slide of science education, in general, and physics education, in particular, is unabated. The reasons behind this are: The number of students is high for supplementing experiments to the theory classes; The belief that the mark secured at the examination is the absolute measure of knowledge, so everyone is running behind marks, practically there is no taker for creative teaching and learning. The most critical problem arises from excluding science practical in JEE, which leads to the belief that the practical is not a necessary component of science education.

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The first President and first General Secretary of IAPT, respectively Prof B L Saraf and Dr D P Khandelwal, had a clear understanding of the problems above at the school level. They also formulated the solutions in their writings that appeared in the Bulletin of IAPT from time to time, following their visions and commensurate with NCF 2023, IAPT RC 15, and IAPT- Midnapore College Centre for Scientific Culture, along with similar organizations, are designing some activities related to physics education that conform to NCF 2023, some of which are in the process of execution.

An account of all of them will be given in the paper. Besides these, the strategies formulated by Dr D P Khandelwal and Prof S Singh for evaluating physics practical, based on the externally set question paper as well as their suggestions for appending physics practical with JEE and its evaluation, are also discussed. At the time of the founding of IAPT in 1984, it was observed that the top of the physics education pyramid was bright but the base very weak. So, IAPT accepted the betterment of physics education as its aim. [1]

But even after about 40 years, the situation has not improved but rather worsened much. Even in 1989, Dr D P Khandelwal commented in his famous essay: 'Physics Education in India - Challenges and Opportunities' [2], that students are going away from science disciplines because they don't find them enjoyable anymore. He observed in the same article: "*A child has a natural curiosity to explore, learn and master. Since science provides additional experiences, it should attract the child more than other subjects. But science education, as it obtains in India, by and large, does not provide that excitement. Worse is that in the name of science, we ask for rote memorisation, often of items that are well beyond his comprehension. The result is that the child is repelled from science*." The current year's admission scenarios in UG classes agree well with Dr Khandelwal's analysis. There may be more than one cause responsible for the students fleeing from physics. But one thing is certain; there is a lack of understanding in physics/science because of

rote memorization. Dr Khandelwal commented in the same essay, "*My basic assumption is that classroom experiments and demonstrations are essentially the simplest ways of developing an understanding of science*." His student, Dr. S P Tripathi, recapitulated, "*Dr Khandelwal believed that students can be motivated to study physics at higher levels if they are taught through demonstrative experiments at lower levels.*" [3]. From these observations of Dr Khandelwal, one can understand the cause of large-scale internal brain drain from physics. It is now known to everybody, and NCF 2023 confirms that experiments have no role in learning science in schools.

Reasons Behind The Disconnect of Experiments From Theory

Theorisation is essential to explain our experiences with Nature and the outcomes of controlled experiments. If we earn new experiences that do not conform to the existing theory, then the theory has to be modified, or a completely new theory has to be proposed that conforms with the new experiences. This way, theory, and experiment can be developed hand in hand. But situations in our school classroom transactions are quite different here,

i) Even in rural areas, school classrooms are overcrowded, so it is nearly impossible to teach through experiments in such situations,

ii) The teachers are not oriented to teach physics through experiments, and most of them are not creative enough, so they hesitate to encourage their students t to undertake any creative, innovative, or application-oriented activities,

iii) Science exhibitions are very rarely organised,

iv) Nowadays, students are getting high marks disproportionate to their learning, so everybody concerned thinks education is on the right track,

v) At the HS examination, students get most of the time 100% marks in science practical even without entering labs once. Again, Joint Entrance Examinations are not appended with the science practical, so everybody thinks experiments are an unnecessary add-on to science education.

Remedial Measures

Remedial measures: proposed activities - the role of IAPT Midnapore Centre for Science and Culture (CSC) and its Regional Council 15 (RC15) which comprises West Bengal, Sikkim, and Andaman & Nicobar Islands.

A. It is possible to collect 15/20 students from a class interested in doing experiments and can spend some time on it. They have to be organised and motivated to perform experiments in physics to start with, naturally in concurrence with their guardians**.** Of course, the physics teacher (s) has/ have to prepare a list of experiments that are given in the science textbook to elucidate certain concepts. Even the teacher (s) can choose some other better options. These are experiments, the performance of which involves very inexpensive devices. Still, schools should provide the materials and equipment for performing those experiments. A team of CSC activists and RC 15 members would help the teacher(s) supervise the work of the students. If logistics are favourable, the students, along with their teacher(s), could be invited to the CSC labs.

When the students have learned and mastered the experiments in physics, an exhibition of those physics experiments could be organised for the benefit of the remaining students of the class for a suitable period so that each student understands each experiment so that at the end of the day all of them can demonstrate any of them. In this situation, Prof B L Saraf had a suggestion [4]:

The experiments are inexpensive, so each student could carry the experiments along with relevant posters and charts to home for completing their work at leisure as much time is available there. Of course, after a reasonable period, they have to return everything.

When physics is complete, the same can be repeated with chemistry and biology. This way, all the classes could be covered. Finally, a grand educational science exhibition could be called to benefit everyone in the locality. The entire procedure can be repeated twice a year or annually.

An Alternative Procedure

Following is the suggestion from a school for some logistic reasons. Only the four classes - VI to IX are to be involved. All the selected students would learn the physics experiments from the class VI science book. After completing VI, they would move onwards up to IX. A physics exhibition could be held when the entire physics of four classes is covered. The process will have to be repeated for chemistry and biology as well. Finally, a grand educational science exhibition is to be called for the benefit of all in the locality.

Takeaways from Activity A

1. The students would learn through experiments; they would be creative, able to apply what they have learnt and design project themes. Moreover, they would enjoy all the indoor-outdoor activities as well as those undertaken in a home environment.
2. The teachers would get ideas for students' project work and topics for their physics education research and understand how to integrate theory with experiments.
3. The teachers and the taught would be empowered to organise educational science exhibitions.

B. Some physics teachers, say 20, would assemble in a school. Each of them would take a class to teach some physics concepts through experiments in the presence of the remaining 19 teachers and the students of that class. The teacher-presenter would design her/his classroom transaction so that everyone in the class has to ask specific questions. The Q/A session would help the teacher-presenter revise his/her presentation. It would now be almost free from mistakes and misconceptions. This way, when all the 20 presentations are completed, a pool of 20 classroom transactions integrated with experiments is created.

In addition to these classroom transactions, each teacher would demonstrate the experiment(s) he/she has designed. Outcomes of interaction among the teachers would be: i) how to convert each of these demonstration experiments into a measurement-based experiment, ii) how to modify each of them to link with some other concepts, and iii) to explore if all/ some of them could be used for developing a Stage Science Show.

Takeaways from Activity B

Again, a pool of all such demonstration experiments would be created with (all ramifications. Any school can use them in organizing educational science exhibitions.

1. Contrary to the belief, everyone concerned would feel that it takes less time if concepts are elucidated through classroom experiments.
2. From the pool of experiments, teachers can choose the project themes for their students, items for educational science exhibitions, materials for classroom transactions, and ideas for their physics education research.
3. Even it may be possible to use some experiments for routine lab exercises.

C. Since 1987 IAPT has been organizing National Standard Examination in Physics (NSEP) for Class XII students. The purpose of NSEP is to make a student aware of his/her standards against a national background. At the same time, teachers could participate in setting standard question papers, administering this countrywide examination, conducting the examination, and evaluating the answer scripts. So NSEP can potentially orient IAPT members in diversified examination-related works. In 1992, Dr Khandelwal 'discovered', in his language, a unique format for evaluating the experimental skill of the NSEP candidates; he named it NSEP Part C. This Physics practical examination could be conducted based on an externally set question paper, like a theory examination. Having analysed the responses of the students about this examination, Prof Surjit Singh, an expert in education statistics observed [5]: "*Dr D P Khandelwal's greatest contribution to the upliftment of physics education is his innovative idea of introducing an element of practical work in the competitive examination. This, indeed, is a revolutionary idea aimed at correcting the imbalance between theory and practical examination. ... In order to study the impact of the idea, Dr D P Khandelwal provided me with all the relevant material about the NSEP Part C for analysis…. The scores of the students depicted a normal curve. On this assumption, the practical examination is a definite supplement to the theory examination….. Therefore, I wholeheartedly support the introduction of an element of practical work in the competitive examination, as was the vision of Dr D P Khandelwal. The idea, I agree with Dr Khandelwal will help rectify the overemphasis of theory to the neglect of physics practical in the colleges and schools*."

IAPT now conducts a similar competitive examination - the National Graduate Physics Examination (NGPE) for UG students along with a practical component NGPE Part C. Due to some reasons, the NSEP Part C has been discontinued, but NGPE Part C is continued; IAPT successfully conducted it even during the pandemic using a blended platform.

The number of participants in Part C is indeed much less; about the top 10% of the participants of the theory examinations take Part C. However,

the experts inform that digital platforms can accommodate many candidates like those appearing in JEEs of different hues. If circumstances necessitate conducting the practical examination in different centres, even then, Prof Singh assures, lack of uniformity in conducting examination and evaluation of the student's responses would not pose any problem in the ranking if a common scale is devised like him.

Takeaways from Activity C

1. If the authorities concerned for different JEEs agree to consider science practical as an essential component of the entrance test it will be a boon for lab-based education. In the language of Dr Khandelwal, science education will stand on its feet, and not on its head.
2. Different boards of examinations have given the responsibility of conducting all examinations for Class XI students to the school authority. In a way IAPT provides an opportunity to motivate our young members from schools to conduct the physics practical examination, modelled on NSEP/NGPE Part C. Through this act, IAPT can demonstrate that it is possible to add a practical component to competitive examinations without any problem.
3. If RCs organize the practical examination in this way, the IAPT members would learn a lot in designing the experiments in the question paper, administering the examination, and evaluating the responses of the students. They have to learn also a lot of education statistics from the papers authored by Prof Singh and Dr Khandelwal (just eight in number!) to get a common rank of the students appearing in different centres. This idea will act for the total orientation of physics teachers at a minimum cost.

Concluding Remarks

1. At the RC 15 level, discussions are going on for undertaking the three activities ---A, B and C. Four schools have given consent for launching A and two schools for B. We expect a good number of leading IAPT members from the RCs would conduct C.
2. This write-up articulates the road map we can follow for the betterment of physics education under the present circumstances; however, it is not a concrete proposal with budgetary estimates. Experiences earned from some pilot activities may help in writing a proper proposal.

Acknowledgement

We all know Prof Saraf as the author of the most sophisticated experiments in '*Physics Through Experiments'.* But he also placed a proposal for the upliftment of the education standard of rural children, at the behest of the Government, entitled**:** *Augmenting Educational Resources for Maximising Achievement Level in School Education* (published in the Bulletin of IAPT October, 1991, pp 293-296). The Spirit of this proposal is behind the articulation of the present paper. He was also kind enough to visit CSC about 25 years back. So, the authors convey their respect to this great Scientist and dedicate this paper to him in his birth centenary year.

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Internationalisation of Higher Education in India through Shared Ecosystem: A Transformative Journey

Mohammad Ilyas*

Higher education is one of the most vital instruments for the socio-economic transformation and human capital development of a nation. In the contemporary scenario, the international dimension of higher education is being considered as a prominent feature across the world. It has emerged as one of the major driving forces to restructure and transform the higher education system to produce skilled human capital, and also make it business-oriented. The international dimension is becoming necessary for institutions due to increasing cross-border mobility and the influence of globalization. The contemporary working culture is becoming more and more entrepreneurial, international, and professional. Higher Education Institutions (HEIs) have now to play a very important role in enhancing international and intercultural experiences, skills, and competencies needed for a person to work successfully anywhere across the world.

India and the Global Knowledge Economy

Knowledge is international and there should be no barriers to obtaining it from anywhere in the world.

— Kothari Commission (1964–66)

India has seen a dramatic social and economic transformation during the last 67 years from an agriculture-based to an industry-based economy. Economic progression, social reconstruction, and sustainable development of a nation depend on higher education. 'Higher education develops the advanced skills needed for modern economies, by developing technical, professional and discipline-specific knowledge and skills; cognitive and information processing skills; and social and emotional skills in graduates that prepares them for the world of work,' (OECD, 2017). Higher Education Institutions (HEIs) are becoming more and more globalized and are focused on establishing collaborations with reputed international HEIs to enhance the capabilities of their faculties and students working in international and intercultural atmospheres. Scott (1999) argued that Globalisation and higher education forces are highly interdependent and interconnected. Universities and their academic activities have always been international but now they are integrating commercial dimension as well.

India has emerged as a significant player in the global knowledge economy, leveraging its strengths in information technology, pharmaceuticals, and software to drive economic growth and competitiveness. The country has made substantial strides in its economic and social development over the past two decades, with a large population and impressive growth rates contributing to its rising economic power (Shahid, 2009). India's knowledge economy is characterized by its increasing scientific and technological capabilities, with the country becoming a major global source of R&D and hosting over 100 multinational corporations' R&D centers. The Indian government has recognized the importance of knowledge and innovation in driving economic success and has implemented policies to improve the efficiency of public R&D, increase private R&D, and encourage greater university-industry linkages (Shivakumar & Wessner, 2007). The country is also leveraging traditional knowledge with modern science and exploiting public-private partnerships to support grassroots innovations that can improve the quality of life for the poor

Initiatives such as the computer-based Functional Literacy programmes, initiated by the Tata Group, demonstrate India's commitment to using IT to overcome illiteracy and improve education outcomes. India's knowledge economy is not without its challenges, however. The country still faces significant infrastructure and resource constraints and must continue to tap into the rapidly growing stock of global knowledge through channels such as international collaboration. Despite these challenges, India is well-positioned to take advantage of the knowledge revolution and accelerate its growth and competitiveness. The country's large and young population, combined with its growing scientific

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and technological capabilities, make it an attractive destination for investment and innovation in higher education globally (Guruz, 2011).

In recent years, the Internationalisation of higher education in India has emerged as a pivotal strategy to enhance global competitiveness, foster academic excellence, and promote cross-cultural learning experiences (Wadhwa and Jha, 2014). The concerted efforts by the Government of India, in alignment with the National Education Policy (NEP) 2020, have laid the foundation for a comprehensive framework that aims to position India as a preferred global study destination while also facilitating academic collaborations and research partnerships with high-quality foreign institutions.

Internationalisation of Higher Education Policies and Initiatives

In higher education, there has been an academic revolution that has created remarkable changes in scope and diversity. A widely accepted and most famous quote by Knight (2003) is "Internalisation is changing the world of higher education, and Globalisation is changing the world of Internalisation". Globalisation in the 21st century has a tremendous influence on higher education. The term Globalisation emerged because of the enormous changes in the integrated world economy, the arrival of Information and Communications Technology, the wide creation of networking of international knowledge, and other forces beyond the control of academic institutions. Universities and governments initiated a variety of initiatives and policies that are responsive to globalisation, which includes mainly moving students to study abroad, establishing branches of campuses out of the country, or engaging in some type of institutional partnership. In the Indian case, leading Indian universities raised the need for Globalisation and Internalisation of higher education. Similarly, policymakers have taken a move to highlight the Internalisation of higher education, regarding the many benefits of Internalisation through different policy initiatives.

However, the current opportunities for foreign universities in India are Tie-ups with Indian Educational Institutions for Twinning Programs. These programmes indicate that a student can join the course in India at its institute in a prescribed period, and at the same time, they can spend some time in foreign institutes as well. Another one is Tie-up with Indian Educational Institutions for providing services: this programme aims to collaborate Indian educational institutions with foreign universities to provide services such as teaching, curricula, affiliations, and faculty. Tie-up with Indian Educational Institutions for Distance Education Programmes is another mode of operation for foreign universities to offer various programmes through e-learning or distance education modes to Indian students.

University Grants Commission Guidelines for Internationalisation of Higher Education

India is committed to revitalising its higher education system through the implementation of the new National Education Policy (NEP) ---2020, aiming to position itself among the top-tier higher education systems worldwide. The NEP--- 2020 is founded on the principles of Access, Equity, Quality, Affordability, and Accountability, proposing transformative reforms to empower students, educators, and institutions and foster a conducive educational environment for a dynamic India. Emphasizing the attainment of global standards in higher education quality, the policy also prioritizes the attraction of international students and aims for "Internationalisation at home." Recognizing the importance of promoting India as a premier global study destination offering high-quality education at reasonable costs, the policy aims to restore India's historical role as a *'Vishwa Guru'* (Helm & Guth, 2022). The UGC Guidelines further elaborate on strategies such as brand building, academic collaboration, and global citizenship approaches to enhance the global outreach of Indian higher education institutions. India's National Education Policy (NEP) 2020, aligned with Goal 4 of the Universal Sustainable Development Goals, marks the first education policy of the 21st century in India. It emphasizes the importance of cultivating competent teachers and fostering Indian students' international competitiveness, thereby guiding higher education institutions (HEIs) towards Internationalisation. The NEP 2020's ambitious vision necessitates collaborative efforts, beginning with the signing of MoUs between Indian and foreign institutions. However, the challenge lies in the time-consuming nature of MoU implementation, often leading to partial or non-implementation. Bureaucratic hurdles further hinder actual implementation, draining resources and slowing down the process,

potentially dampening the enthusiasm and interest of stakeholders.

Transforming Higher Education in India Towards Shared Ecosystem using International Academic Talent

Internationalisation at home in higher education is the integration of global perspectives, intercultural experiences, and international dimensions into the local academic environment. (Robson, Almeida, & Schartner, 2018). This approach aims to create a culturally diverse and inclusive campus that prepares students for a globalized world without the need for physical mobility. By incorporating international elements into the curriculum, promoting cross-cultural interactions, and fostering a global mindset among students and faculty, institutions can enhance the quality of education and promote intercultural understanding. Internationalisation at home initiatives helps develop students' intercultural competencies, critical thinking skills, and global awareness, preparing them to thrive in a multicultural society and contribute meaningfully to a globalized workforce. However, the complexities associated with Memoranda of Understanding (MoUs) and institutional bureaucracies can often hinder the implementation of such initiatives.

Association of Indian Universities---Edify Online Joint Project

The Association of Indian Universities (AIU) has embarked on a transformative collaboration with EdifyOnline USA to enhance the global competitiveness and quality of higher education in India. A problem was identified, prompting EdifyOnline Corp USA and AIU to seek a solution. This endeavor led to the creation of the University Cluster Pilot Study (UCPS) and the 'Shared HEI Ecosystem'. This approach is based on the *'Holistic Option'*, and it prioritizes the needs of teachers and students over administrative red tape. Universities and students are participating in the Internationalizing of Higher Education initiative, starting with the first lecture by a foreign faculty member—a significant first step in a long journey. This initiative offers Indian faculty a free shadowing opportunity to support foreign faculty during sessions, while students gain exposure to global education quality, teaching pedagogy, and a competitive environment. It provides flexibility to universities that may lack competent faculty in certain departments, offering excellent international exposure on a low budget. Utilizing foreign faculty is more cost-effective than hiring full-time local talent, as detailed in the provided numbers. Instead of draining budgets on hiring potentially incompetent local faculty or inviting expensive foreign faculty to campus, universities can prudently and safely use foreign faculty online, minimizing risks to a single course. Additionally, this allows Indian faculty to self-evaluate and improve their course content and teaching methods, ultimately enhancing the quality of higher education. Under this framework, higher education institutions (HEIs) empower their deans and department heads to identify specific programmes and courses which need support from international academic experts. These experts are typically engaged as consultants and are accorded the autonomy to select projects without necessarily seeking approval from their home institutions to teach. By bypassing bureaucratic hurdles, this streamlined approach aims to facilitate scalability within the educational landscape.

The University Cluster Pilot Study (UCPS) for the Internationalisation of Higher Education represents a pivotal initiative in this endeavor. The UCPS aims to establish a "shared ecosystem" where multiple universities, departments, or affiliated colleges can access courses taught by international academic experts. This approach ensures a standardized quality of higher education and fosters a global knowledge enterprise. The strategic partnership between AIU and EdifyOnline USA is focused on promoting academic excellence, facilitating research collaborations, and enabling global knowledge exchange. This joint initiative holds immense potential to harness the expertise of Indian and international academic talents, creating a dynamic ecosystem conducive to talent development, innovation, and cross-cultural understanding. By leveraging the strengths of both Indian and global academic resources, the UCPS is poised to reshape the academic landscape of India, elevating the quality and global competitiveness of its higher education system.

The objectives of the UCPS include promoting global education standards awareness, offering professional development opportunities for Indian faculty, encouraging a service-oriented approach in line with the National Education Policy----2020, and facilitating collaborative research among university clusters participating in shared lecture programs

featuring international academic experts. This initiative seeks to not only improve pedagogical awareness and teaching techniques but also to foster professional development and cooperation among educators, thereby enhancing the quality of higher education in India through international partnerships and shared learning opportunities.

Conclusion

Higher education plays a crucial role in nation-building and contributes significantly to a country's overall development. As a society that values openness and international engagement, prioritizing Internationalisation is paramount. The Internationalisation of higher education in India represents a transformative journey toward excellence, collaboration, and global engagement. With a strategic focus on quality enhancement and institutional partnerships, India is paving the way for a brighter and more interconnected future in the realm of higher education.

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Self-reliant *Mantras*

Vegesna Satyanarayana Raju, Former Member Telecom Regulatory Authority of India (TRAI), Former Chairman, Naval Research Board, DRDO and Former Director, Indian Institute of Technology, Delhi delivered the Convocation Address at the 13th Convocation Ceremony of the Jawaharlal Nehru Technological University, Anantapur, Andhra Pradesh on January 01, 2024. He said, "Finally, for your personal and professional success, Positive Attitude, Focus, Ethics, National Outlook, and Continuous Self Improvement are essential. Students need to focus on what is being done at the moment. They have to take care of the present and the future will take care of them." Excerpts

I am delighted to be part of the Convocation function, an important milestone in the lives of the Graduating students. With India aspiring to become a Developed Nation by 2047, every citizen, in particular, you the Graduating students, have a very crucial role to play.

Personally, for me, in the year 1956 i.e., at the time of starting my Engineering Studies, Engineering Colleges at Anantapur and Kakinada were dream Institutions. They were the only two Engineering Colleges in Andhra Pradesh, with the exception of the College of Engineering, Andhra University which was started in 1955. While I did qualify for the admission to the two Government Colleges on the basis of merit, because of the minimum age requirement at that time, I was asked to wait. That led me to join the Andhra University College of Engineering, where fortunately for me the age requirement was relaxed.

Our goal of becoming *AatmaNirbhar Bharat*, after nearly 1000 years of slavery, is only possible when every citizen of the Country becomes *AatmaNirbhar* meaning Self Confident, Self-Reliant. In this journey, each one of you has a critical role: Firstly, yourself become *AatmaNirbhar*, secondly, facilitate everyone around you to become *AatmaNirbhar*.

As Engineers, you have an extremely crucial role to play in India's journey towards a Developed Country by 2047. Infrastructure such as Water, Power, Roads, Buildings, Railways, Ports, Communications, Manufacturing which includes Steel, Cement, Metals, Automobiles and so on, are the very basis for a developed country. Therefore, it is also very important to remember that All Engineering Disciplines are equally important. There is a misconception among most students and their parents that only Computer Science is the most preferred area. The developments in Computer Science have certainly led to enhance the power of other Engineering Disciplines and it will continue to do so. However, neglect of Core Engineering Disciplines such as Civil, Mechanical, Electrical, Electronics, Chemical, and Metallurgy will be a major setback to progress in Economic Development.

Whatever specialisation you have chosen, consider it as the right choice and excel in your area of specialisation. For that matter, all knowledge, scientific, social and spiritual are all equally important for progress. More importantly, treat everyone, irrespective of the type of the work they do and their official position, as equal. Swami Vivekananda, one of the greatest Spiritual and Philosophical leaders, exhorts to treat the King and the Commoner with equal respect. Each one needs to do his/her duty well.

Finally, for your personal and professional success, Positive Attitude, Focus, Ethics, National Outlook and Continuous Self Improvement are essential.

Positive Attitude includes the broader vision of common good, a spirit of service, human values, professional ethics, honesty and integrity. Various studies have shown that attitude contributes to 85% of success; domain knowledge to only 15%" as stated by-Shiv Khera Students need to focus on what is being done at the moment. They have to take care of the present and future will take care of them.

In the Constitution of India, Article 51 A, Part IV A: Fundamental Duties states to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavor and achievement. Those who strive for excellence would surely be loyal, thereby contributing to our national development.

Pledge at the Time of Graduation (Example: IIT Madras)

Shall in thought, word and deed ever endeavour to be scrupulously honest in the discharge of my duties. Shall uphold the dignity and integrity of my profession and the honour of Institute and the Nation. Shall devote all my energies to promote the unity and the secular ideal of our country and utilize my knowledge in the service of our Motherland and humanity.

There are many ways of achieving Continuous Self Improvement. Seven Habits of Highly Effective People by Stephen Covey provides a transformative guide for personal and professional success. The first habit Covey explains is, 'Be Proactive'. That means one should take the responsibility for one's own life and one's own actions. The second habit is one should 'Begin with the end in mind' This means that one should look at life in its totality, this is one of the qualities of a Leader. The third habit he states is, 'Put first things first', that means we need to prioritize the things in order to achieve productivity. The fourth habit is 'Think Win – Win'. The aim is none should lose and all should gain. Effective people strive for outcomes that benefit all parties involved in it. So, they should act as service center and not a power center. The fifth habit is, 'Seek first to understand and then to be understood'. Covey emphasizes the importance of good communication and active listening skills to build trust and good relationship. The sixth habit Covey discusses is, 'Synergize' (Whole is greater than the parts; 1 + 1 > 2). He stresses the importance of open-mindedness, creativity and teamwork that are very much essential for achieving success.

The Seventh and last habit is 'Sharpen the Saw'. Covey emphasizes the individuals to invest their time in personal care, continuous learning and overall well-being. For a balanced self- renewal, 4 Dimensions are required. They are: i) Physical: Exercise, Nutrition, Stress Management, ii) Mental: Reading, Visualizing, Planning, Writing. iii) Social: Service, Empathy, Synergy, Intrinsic Security and iv) Spiritual: Value Clarification & Commitment, Study & Meditation.

Finally, my hearty congratulations to all the Graduating Students and very best wishes for a bright future.

Sarve Jana Sukhinobhavantu
May All Beings be Well and Happy
Jai Hind…Jai Bharat

Thank You

National Seminar on Teacher Education

A two-day National Seminar on 'Teacher Education in the Context of National Education Policy—2020' was organised by the HB B.Ed. College, Vashi, Navi Mumbai from February 10-11, 2024. The event was sponsored by the Indian Council of Social Science Research (ICSSR), Western Regional Centre, Mumbai. The Chief Guest, Dr. Reeta Sonwat, Director, Ampersand Group, Mumbai, former Dean, Professor and Head, Department of Human Development, SNDT Women's University, Mumbai shared and expressed her views on NEP—2020. She explained how NEP is culture-friendly and has its origin in Indian roots. She also expressed her views on how NEP gives importance to Early Childhood Care and Education and provides quality education. She emphasized the following challenges faced in the implementation of NEP—2020.

- There is a need to have the budget for quality labs, teacher's recruitment, infrastructure facilities and research.
- Our education system is fragmented it needs to be united.
- It's hard to bring quality education as the classroom is overcrowded with a ratio of staff and students of 1:40.
- We need to change the curriculum, pattern of research and seminar to be organised to reach out to our children.
- Children should be capable of making decisions to opt for their course.
- Students should do the registration in the Academic Bank of Credit.

She concluded by saying that the Teacher Education Programme in the context of NEP—2020 faces challenges such as entry-level qualification and training, comprehensive reform, quality and rigor, teacher recruitment and motivation, technological integration and the implementation of a continuous assessment framework. Addressing these challenges requires careful planning, collaboration among stakeholders and a commitment to providing high-quality education to future teachers.

Dr. Sunita Magre, Professor and Head, Department of Education, University of Mumbai in her Keynote Address, discussed how to overcome the challenges faced by teachers in the context of NEP 2020. She highlighted that the curriculum should be changed as per the needs of current society. She expressed her views that multidisciplinary education to be collaborated under one umbrella. She shared knowledge on the integrated teacher education programme, arts-integrated approach and sports-integrated approach, soft skills, communication development, art and culture syllabus. Continuous Personal Development (CPD) parameters that are the requirements of CPD are regular training on the teaching-learning process, orientation required for the introduction of a new topic, refresher/short-term course required for updating of knowledge, and faculty development. She also discussed issues such as enhancing pre-service teacher education and strengthening collaboration and coordination: among different stakeholders including government bodies, teacher training institutions, schools and teacher associations. Establishing effective communication channels and platforms for sharing best practices and resources can facilitate the smooth implementation of the reforms, and invest in professional development for teachers to stay updated with the latest pedagogical approaches and teaching methodologies. Providing regular training programmes, workshops and mentoring opportunities can help teachers enhance their skills and adapt to the changing educational landscape. Promote Technological Integration, Improve Teacher Recruitment and Motivation, and ensuring quality in teacher education requires robust quality assurance mechanisms. Accreditation and regular monitoring of teacher education institutions can help maintain standards and identify areas for improvement. Collaboration with professional bodies and organizations can also contribute to quality assurance efforts and Promote Research and Innovation.

Dr. Shashi Singh, Associate Professor and Head, Department of Education, Central University of Jharkhand, Ranchi opened the session on the subtheme 'Integrating Experiential Learning in Teacher Education'. She shared how experiential learning is a powerful approach that can greatly enhance teacher education programmes by providing educators with hands-on experiences and opportunities

to apply theoretical knowledge in real-world contexts. This integration of experiential learning in teacher education can have numerous benefits, including the development of practical skills, fostering critical thinking, and promoting a deeper understanding of educational concepts.

She discussed Kolb's experiential learning cycle and some benefits, and strategies of Integrating Experiential Learning in Teacher Education. She also discussed that it is important for teacher education programmes to provide adequate support, guidance and resources to facilitate the integration of experiential learning. This includes providing mentorship, creating a supportive learning environment and offering opportunities for reflection and professional development. By integrating experiential learning into teacher education, we can empower educators to become more effective, reflective, and adaptable professionals. This approach not only enhances their own learning experiences but also positively impacts the learning outcomes of their students.

Dr. Khagendra Kumar, Professor of Education and Registrar (I/c), Patna University, Bihar opened the session on the topic 'Teachers' Continuing Professional Development'. He addressed how continuous professional development for teachers is an important element of the school system. Teachers who participate in CPD programmes can improve their knowledge, abilities, and teaching techniques, which leads to better student results. Let us all acknowledge and prioritize the value of continuing professional development in preparing our teachers to be lifelong learners, leaders, and role models for their students.

During the Paper Presentation Session, Dr. Lata Vidhate explained management and training for teacher building. She explained the concept of the 10+2 structure and the new structure of 5+3+3+4 under NEP─2020. She highlighted time management, integration of sports and arts to avoid school dropouts., and learning to learn–keep updating as per the needs of society. She highlighted on PISA–Programme for International School Assessment and NAS–National Assessment Survey.

Ms Bhawana Agarwal, FY B.Ed. student gave a presentation on the 'Integration of Experiential Learning'. She explained how we learn from our experiences. Ms Diandro Pinto spoke about fostering a growth mindset in teacher's professional development. She explained the mindset theory and highlighted on fixed mindset vs growth mindset. She also focused on strategies for fostering a growth mindset in teachers and the impact of growth on teacher's professional development. Ms Surekha Chidambaram, Assistant Professor, Pillai College focused on the integration of ICT training in the B. Ed. course for delivering the lectures and making it interesting and engaging. Mr Borse Bhagwan talked about the Role of a Block Resource Person in NEP─2020. Ms. Chitra Nair, SK College, Ghansoli presented the key features and highlights of National Educational Policy-2020. Dr. Pratibha Sabde, Assistant Professor, MCT College of Education and Research highlighted in brief the ITEP integration opportunities focusing on 21st century skills and challenges faced in the implementation of NEP- 2020.

Resource Person, Dr. Bhujendra Nath Panda, Former Professor and Dean of Education, RIE (NCERT), Bhubaneshwar, Odisha talked about the Integrated Teacher Education Programme (ITEP). Ensuring the quality and consistency of ITEP programmes across institutions is important. Different institutions may have varying programme delivery, assessment practices, and faculty qualifications, therefore robust quality assurance mechanisms are needed. He that another challenge is effectively integrating pedagogical training and subject knowledge within ITEP. Students need a strong foundation in both teaching skills and their subject area to be competent educators. Adequate resources and infrastructure like classrooms, libraries, and technology are essential to support ITEP. Sufficient funding and support from authorities are also needed. Strong partnerships between teacher education institutions and schools are crucial for ITEP students to gain practical experience and exposure. These partnerships require mutual support. Finally, he concluded that these issues require collaboration among policymakers, institutions and other stakeholders. Regular evaluation and faculty development opportunities can also help to improve ITEP.

Dr. D Harichandan, ICSSR Senior Fellow and Former Professor cum Director, IDOL, University of Mumbai highlighted the 'Role of Information and Communication Technology (ICT) in Teacher Education'. He discussed the following key points:

- Teacher educators need proper training and resources to effectively integrate ICT into teaching. Without adequate support, ICT implementation can be hindered.

- The curriculum needs to equip future teachers with digital literacy skills, technological competencies and pedagogical strategies for using ICT. The curriculum also needs continuous updates to meet evolving education needs.
- Access to ICT tools and infrastructure can be challenging, especially in under-resourced areas. Efforts must be made to provide all teachers with access to ICT resources.
- Strong partnerships between teacher education institutions and schools are important to provide practical experiences for student teachers to apply ICT strategies.
- Policymakers, institutions and stakeholders must collaborate to establish frameworks that support ICT integration in teacher education. Regular evaluation and feedback are also needed to improve ICT integration.

He also discussed that ICT has great potential for transforming teacher education and improving teaching and learning if proper training, resources, accessibility, and partnerships are in place to support its effective use. Finally, he concluded the *Swayam* and *Diksha* online portal. Both Swayam and Diksha portals contribute to the digital transformation of education, making learning more accessible, engaging and effective. These platforms empower learners and educators, bridging gaps in access to quality education and providing opportunities for skill development and professional growth.

Dr. Sangeeta N Pawar, Professor and Head, Department of Commerce, University of Mumbai, in her Valedictory Address discussed how the NEP–2020 envisions a holistic approach to teacher education, focusing on attracting talented individuals to the teaching profession, providing them with high-quality training and ensuring their continuous professional development. By prioritizing teacher empowerment and quality, the policy aims to enhance the overall education system in India.

Feedback on the seminar was collected from the participants. Dr. Swarnalata Harichandan, Organizing Secretary expressed her gratitude to ICSSR for the support and thanked all the participants for actively participating in the seminar. She also thanked Dr Sati Shinde, Ms. Seema Kale, all dignitaries, resource persons, and participants for their contribution.

International Conference on Nonlinear Analysis and Computational Techniques

A three-day International Conference on 'Nonlinear Analysis and Computational Techniques' is being organized by the School of Advanced Sciences and Languages, VIT Bhopal University Kothri-Kalan, Madhya Pradesh in collaboration with the Institute of Physics and Mathematics, Technological University of Mixteca from August 08-10, 2024 through hybrid mode.

The subject of nonlinear analysis is interesting in its own right, and it also serves to lay the foundations for different fields of pure and applied mathematics. Researchers across the world are actively involved in analyzing and developing different theories of mathematics that apply to real-world problems. This event will share the recent progress and advances in the different fields of mathematical analysis. The Topics of the Event are:

- Advanced Analysis and Applications.
- Nonlinear Measures and Nonlinear Integrals.
- Control Theory and Applications
- Dynamic Equations on Time Scale.
- Difference and Differential Equations.
- Computational Fluid Dynamics.
- Nonlinear Analysis in Physical and Life Sciences.
- Modelling in Ecological Systems.
- Dynamical Systems and Fractional Calculus.
- Harmonic Analysis and Operator Theory.
- Numerical Analysis.
- Generalized Function Spaces.
- Data Science.

For further details, contact Convenor, Dr. Hemanta Kalita, School of Advanced Sciences and Languages, VIT Bhopal University, Kothri-Kalan, Bhopal-Indore Highway, Madhya Pradesh-466114, Mobile No: 08811039996, E-mail: *icnact@vitbhopal.ac.in.* For updates, log on to: *https://vitbhopal.ac.in*

International Conference on Psychology Learning and Teaching

A three-day International Conference on 'Psychology Learning and Teaching' is being organized by the Department of Psychology, CHRIST (Deemed-

to-be University), Bengaluru in association with the Society for the Teaching of Psychology (STP), Division 2 of the American Psychology Association (APA) and the International Council of Psychology Educators Incorporated (ICOPE Inc) from August 01-03, 2024.

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

Teaching-learning and Assessment Models in Psychology

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

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

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

Psychology Educators' Experience, Perceptions and Challenges

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

Psychology Student's Engagement and Experiences

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

Leadership, Governance and Policies in Psychology Education

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

Current Trends and Future Directions in Teaching Psychology

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

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

Short-term Capacity Building Programme on Excel Data Mastery

A three-day Short-term Capacity Building Programme on 'Excel Data Mastery: Advanced Analysis & Reporting' was organized by the Association of Indian Universities (AIU)—Academic and Administrative Development Centre, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, Tamil Nadu from April 25-27, 2024. About 35 participants from various higher education institutes attended the programme.

Dr. K Ramya, Nodal Officer of the event delivered the welcome speech and briefed about the event. She explained the plan of action for the event. The Presidential Address was delivered by Dr. H Indu, Registrar (I/c), Avinashilingam Institute for Home Science and Higher Education for Women who greeted the guest speakers and the participants. During her speech, she explained Excel's importance, its significance to contemporary functionality, and the implication of Excel in daily operations.

The Technical Session on the theme 'Power Query' was handled by Dr. S Murugappan, Professor and Director, School of Management Studies, Bannari Amman Institute of Technology, Erode. The programme covered various topics, starting with basics such as data modeling and pivot tables, leading to more advanced topics like deep data analysis using pivot tables and data extraction from PDFs and websites. Participants were guided through exercises using sample datasets provided in the shared folder. The facilitator emphasized practical learning and encouraged participants to work along with the demonstrations. The session also highlighted the significance of understanding data structure and distinguishing between stacked and unstacked data. The session aimed to equip participants with data cleaning, transformation, and analysis skills using ETL techniques, specifically focusing on Power Query. The speaker talked about Data Modeling and its Use in Pivot Tables. Further, he talked about self-service ETL techniques, converting unstacked data into stacked data, and sourcing data from various venues. The session successfully introduced participants to data cleaning and transformation techniques using power query, empowering them to handle diverse datasets effectively for analysis.

The next session delved into pivot tables, comparing them to a kaleidoscope that reorganizes data for better insights. Participants learned to identify components of a Pivot Table – row, column, value, and report filter areas. Real-world examples and case studies were used to illustrate the application of pivot tables in decision-making processes. Further, the resource person explained the importance of structured data for efficient data manipulation and analysis. The session also discussed importing and cleaning data from various sources and converting date and time formats for analysis. Also, the speaker described creating dynamic reports and effectively visualizing data using pivot tables and graphs. Participants actively participated in discussions and exercises, enhancing their understanding of the subject. The resource person emphasized the importance of practice, continuous learning, and leveraging available resources for effective data analysis.

The Technical Session on the theme 'Pivot' was led by Dr. P Kamala Kannan, Founder and Director, School of Business Intelligence, Salem. The speaker enthusiastically started the session by sharing his experience and his skills highlighting the importance of Excel in the current scenario. He explained the history and basics of Microsoft Excel. Microsoft Excel is powerful spreadsheet software developed by Microsoft. It's widely used for various tasks, including data entry, analysis, visualization, and reporting. He also added that Microsoft Excel is a versatile tool that caters to a wide range of users, from individuals managing personal finances to businesses conducting complex data analysis and reporting. Its intuitive interface, extensive features, and flexibility make it a popular choice for data-related tasks across industries. Dr. Kannan then explained that Excel tables are powerful tools for organizing, analyzing, and visualizing data. Pivot tables serve as powerful tools for summarizing, organizing, and analyzing complex data sets. However, manual creation and manipulation of pivot tables can be time-consuming and prone to errors. Pivot automation addresses these challenges

by automating repetitive tasks, thereby saving time, reducing errors, and enhancing productivity.

Advanced filtering in Excel allows one to filter data in a more customized and flexible way compared to basic filtering options. With advanced filtering, one can apply multiple criteria, use logical operators, and filter data based on complex conditions. The resource person then explained about data crunching which refers to the process of analyzing and processing large volumes of data to extract meaningful insights and patterns. Data sets can be used to explore to understand their structure, relationships, and patterns. It includes descriptive statistics (mean, median, mode, standard deviation), data visualization techniques (scatter plots, histograms, box plots), and Exploratory Data Analysis (EDA) to identify trends, correlations, and anomalies.

Dr. Kannan also explained Conditional Formatting in Excel which allows one to apply formatting to cells based on specified conditions or criteria. Further, he described building an interactive dashboard in Excel which can be a powerful way to visualize and analyze data without requiring advanced programming skills. Slicers allow users to filter data interactively. He, then explained how to add interactive elements and explained how to adjust fonts, colors, and layout. Finally, the resource persons explained about several AI-powered tools available for data demonstration, visualization, and analysis. These tools leverage artificial intelligence and machine learning techniques to provide insights, automate tasks, and enhance the overall data visualization process. Some popular AI tools for data demonstration are Tableau, Power Bi, Google Data Studio, Looker, DataRobot, Plotly, etc. Finally, the session ended up with the feedback-sharing session.

The Technical Session on the theme 'Advanced Analytical Tools' was led by Mr. Thamizharasu C, Manager, Strategic Projects at Quadrasystems.net (India) Private Limited, Coimbatore. The resource person started his session on 'Advanced Analytical Tools with a Captivating Anecdote about a Skilled Mechanic'. Through this narrative, he underscored the significance of employing the correct tools to simplify intricate tasks, thereby emphasizing the importance of analytical tools in problem-solving and decision-making processes with the expert explaining the presentation flow. The speaker discussed the importance of dynamic array functions. It plays a crucial role in various computational tasks, offering flexibility and efficiency in handling data structures. Among these functions, stack operations, VLOOKUP, and XLOOKUP stand out as fundamental tools for managing and analyzing data effectively. Stack functions are essential for managing data in a Last-In-First-Out (LIFO) manner. These functions include PUSH, POP, and TOP. Stack functions are commonly used in algorithms involving recursive calls, backtracking, and expression evaluation.

VLOOKUP (Vertical Lookup) is widely utilized in spreadsheet applications such as Microsoft Excel and Google Sheets. It searches for a value in the first column of a table array and returns a value in the same row from a specified column. VLOOKUP is commonly employed in tasks involving data retrieval, such as searching for product information, employee details, or financial data. XLOOKUP is a more recent addition to spreadsheet software, offering enhanced functionality compared to VLOOKUP. It allows users to search for data across both rows and columns, offering more versatility in data analysis. Dynamic array functions such as stack operations, VLOOKUP, and XLOOKUP are indispensable tools for managing and analyzing data efficiently. Whether for algorithmic computations, spreadsheet analysis, or data retrieval tasks, these functions provide users with the flexibility and power to handle complex data structures effectively. Understanding and leveraging these functions can greatly enhance productivity and streamline decision-making processes in various domains.

The next session commenced with the overview of What-If Analysis employing Scenario Manager and its pivotal role in decision-making processes. This powerful technique allows for the exploration of diverse scenarios and their potential outcomes. Scenario Manager, a feature commonly integrated into spreadsheet software like Microsoft Excel, facilitates the creation, management, and comparison of various scenarios, enabling users to assess their impact on critical variables. What-If Analysis serves as a cornerstone in decision-making, offering a systematic approach to examine different scenarios and their associated outcomes.

The resource person discussed on What-If Analysis which specifically focused on two powerful techniques - Goal Seeking and Sensitivity Analysis. These techniques serve as guiding lights in the realm of decision-making, offering clarity amidst uncertainty and empowerment in strategic choices.

The presentation commenced with an in-depth discussion on Goal Seek, portraying it as a compass for problem-solving. The expert emphasized its utility in scenarios where a specific target must be achieved, yet the path to reach it remains unclear. Through iterative adjustments of input parameters, Goal Seek automates the process of finding the optimal solution, enabling decision-makers to navigate complex landscapes with precision and confidence. Following Goal Seek, attention shifted to Sensitivity Analysis, portrayed as a beacon of insight amidst uncertainty. The expert illustrated its importance in understanding the interplay between variables and their impact on outcomes. By systematically varying input parameters and observing their effects on key metrics, Sensitivity Analysis provides decision-makers with a comprehensive understanding of potential scenarios, equipping them to anticipate and adapt to changing circumstances effectively.

The session further equipped participants with the knowledge and skills to effectively visualize data in a dynamic and interactive manner. The overview of dynamic chart creation techniques was discussed. Participants were guided through the process of selecting appropriate chart types based on the nature of the data and the intended audience. Emphasis was placed on incorporating dynamic features such as data labels, legends, and axis titles to enhance the clarity and readability of the charts. Following chart creation, the focus shifted to designing interactive graphs that enable users to explore data dynamically. Participants learned how to incorporate interactive elements such as dropdown menus, sliders, and checkboxes to allow for real-time data filtering and manipulation. The expert highlighted the importance of usability and user experience in designing interactive graphs that engage and empower users to derive insights from the data. Another key aspect covered in the session was data integration and automation. Participants were introduced to tools and techniques for seamlessly integrating data from multiple sources into their charts and graphs. Additionally, they learned how to automate the updating of charts and graphs to ensure that visualizations reflect the most current data at all times. ❑

Book Review

From Rairangpur to Rashtrapati Bhawan: A Mesmerising Narrative of an Incredible Journey

Amarendra Pani*

Mohanty, Vijaya Lakshmi (2023). ***President Droupadi Murmu: A Reflection of Changing Bharat,*** **New Delhi: Gyan Publishing House, Hardcover, PP 268, Rs 407 /-**

"President Droupadi Murmu: A Reflection of Changing Bharat," authored by Dr. Vijaya Lakshmi Mohanty, is a profound biographical account that traces the incredible journey of Smt. Droupadi Murmu, Hon'ble President of Bharat. This narrative brings to life the remarkable transformation of a simple tribal girl into the President of the world's largest democracy. Rich in inspiration and resilience, the book meticulously unfolds the milestones of her life, emphasizing her patience, perseverance, and unwavering determination.

The genesis of the biography is Uparbeda, a remote village in Mayurbhanj District of Odisha. The first chapter, "Destiny's Daughter (1958-1963)," sets the stage by delving into Smt. Murmu's early years, providing a vivid depiction of humble beginnings and the influences that shaped her initial worldview. The narrative then transitions into "Formative Years: Exploring the Early Education and Schooling (1963-1970)," focusing on her schooling years where the foundations of her future successes were laid, showcasing the early signs of her indomitable spirit.

As the journey progresses to "Elevation through Education (1970-1979)," it captures her ascent through higher education, emphasizing the pivotal role that learning played in her personal and professional development. The chapter titled "Money, Marriage, and Motherhood (1979-1983)" explores her early adulthood, detailing her marriage, the financial challenges she faced, and the joys and responsibilities of motherhood.

"Home, Harmony & Happiness (1983-1994)" portrays a period of relative stability, delving into the harmony of her family life, her responsibility as a homemaker quitting her job to raise her three children. This is followed by "A Teacher's Transformation through Integral Education (1994-1997)," which chronicles her years as a voluntary teacher, and her profound learning which shaped her future years, highlighting her dedication to education and students.

The chapter "Pilgrimage of Politics: Part of 25 Years of Political Life (1997-2010)" begins her political journey, detailing her meteoric rise in politics from a ward member to the Minister of Odisha and her political career. This is followed by "Tragedies and Triumphs (2010-2015)," a poignant section that narrates the personal losses and a sinusoidal curve of political losses and gains that marked this period, showing her strength and resilience in the face of adversity.

"The People's Governor: Champion of the People (2015-2022)" highlights her tenure as the Governor of Jharkhand, reflecting on her initiatives and the impact she had on the state, earning her the title for addressing the people's cause with utmost sincerity. In "Generous Giver – Enlightening through Education (2016-continuing)," the focus is on her initiatives to provide free education to rural children in her ancestral home which is converted into a charitable trust and school.

"The Political Pivot: A Presidential Election that Propelled the Nation's Progress (2022-Continuing)" details the significant political events leading up to her nomination, and support throughout the nation leading to a historic win in the presidential election. The book also delves into her cultural and spiritual

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pursuits in "Champion of Culture, Spiritual Seeker," presenting a holistic view of her as a leader who values cultural heritage and spiritual growth.

The final chapter, "Droupadi Murmu – People's Reflections," encapsulates public reflections and testimonials from those who have known her closely for, years. From a reader's perspective, the book is an engrossing and enlightening read. Each chapter is a testament to the thorough research and dedication of Dr. Vijaya Lakshmi Mohanty, who has skilfully woven a narrative that is both informative, interesting, and inspirational. Over a hundred people have been interviewed to develop this well-researched book.

The authentic depiction of Smt. Murmu's life makes the book worth possessing. The energy of the flow of content is highly inspiring, making the book a compelling read. The story can motivate any human being to aspire to achieve great heights. The real-life narrative is no less than a story of a film. The cultural life of the tribals of Mayurbhanj offers readers an intimate glimpse into a world that remains unfamiliar to many.

Dr. Mohanty's meticulous efforts in gathering facts, figures, and anecdotes make this biography a delightful read, offering insights into many unknown facets of Smt. Murmu's life and work. The biographical sketch is enriched by the author's close acquaintance with Hon'ble President, lending it a unique touch of authenticity on her journey from Rairangpur to Raisina Hill. Published by Gyan Publishing House, New Delhi, the book is readily available at all the e-commerce platforms and in stores. For those interested in a profound tale of resilience and leadership, this biography is a must-read.

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Edited Book

on

Realising United Nations Sustainable Development Goals through Higher Education Institutions

By

Dr (Mrs) Pankaj Mittal

and

Dr Sistla Rama Devi Pani

The Association of Indian Universities has come out with a new publication on the vital theme '***Realising United Nations Sustainable Development Goals through Higher Education Institutions'*** this year 2024. AIU undertook several initiatives, like organising consultancies, debates, discussions, and Vice Chancellors Meets with experts from the United Nations, the Government, NITI Aayog, and Industries to deliberate extensively on the various issues regarding SDGs. AIU also gathered articles from experts and erudite scholars on the implementation of the SDGs. Each article in the Book is unique and deals with a wide range of issues involved with SDGs in the words and opinions of the authors. This Book covers a range of articles on the status of implementation and the role that Higher Education Institutions can play in the speedy implementation of all 17 Sustainable Development Goals (SDGs). It certainly acts as a reference guide for those who are stuck in the process of achieving this extremely inevitable Agenda 2030. It provides a roadmap for the government and the universities to act timely to achieve the 2030 agenda for sustainable development.

For further details contact the Editors on Email Id : ramapani.universitynews@gmail.com

THESES OF THE MONTH

SCIENCE & TECHNOLOGY

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

BIOLOGICAL SCIENCES

Biotechnology

1. Goel, Chhavi. **Studies on antimicrobial and antioxidant potential of *Adansonia digitata***. (Prof. Rajiv Dutta), School of Biological Engineering & Life Sciences, Shobhit Institute of Engineering & Technology, Meerut.
2. Rabi Prasad, B. **Optimization and development of microbial pretreatment process for effective delignification of lignocellulosic biomass for biofuel**. (Dr. Polaki Suman and Dr. Radha Krushna Padhi), Department of Biotechnology, GIET University, Gunupur.

Food Science & Nutrition

1. Sharma, Shiksha. **Studies on development, evaluation and *in-vitro* digestibility of gluten free cookies prepared from germinated cereals, millets and pulses**. (Prof. Amar P Garg), School of Biological Engineering & Life Sciences, Shobhit Institute of Engineering & Technology, Meerut.

Microbiology

1. Banga, Amita. **Effective novel drug development against *Trypanosoma Cruzi***. (Prof. Amar P Garg and Dr. Fernando Villalta), School of Biological Engineering & Life Sciences, Shobhit Institute of Engineering & Technology, Meerut.
2. Patel, Hiralben Arvindbhai. **Biofilm formation and associated antibiotic resistance in pathogenic pseudomonas aeruginosa**. (Prof. Devarshi Gajjar), Department of Microbiology, M S University of Baroda, Vadodara.
3. Rajni. **Evaluation of antimicrobial activity of selected herbal preparations against Mupirocin resistant *Staphylococcus aureus***. (Prof. Amar P Garg), School of Biological Engineering & Life Sciences, Shobhit Institute of Engineering & Technology, Meerut.
4. Vijay Kumar. **Sperm Cell damage induced by Urogenital Tract Infections**. (Dr. Neelam), Department of Microbiology, Kurukshetra University, Kurukshetra.

EARTH SYSTEM SCIENCES

Environmental Science

1. Chorol, Lobzang. **Integrated approaches for groundwater assessment and treatment of Trans Himalayan Ranges: MCDM based hydrogeochemical analysis, health risk assessment & time series forecasting**. (Prof. Sunil Kumar Gupta), Department of Environmental Science & Engineering, Indian Institute of Technology, Dhanbad.
2. Khan, Muvin. **Studies on eco-physiological changes in selected Indian vegetables cultivated in Qatar**. (Prof. Amar P Garg), School of Basic & Applied Sciences, Shobhit Institute of Engineering & Technology, Meerut.
3. Sadhu, Ankit Kumar. **A study of urban heat island intensity using local climate zone classification method and urban canopy modeling in Dhanbad City, India**. (Prof.Suresh Pandian E), Department of Environmental Science & Engineering, Indian Institute of Technology, Dhanbad.

Geophysics

1. Verma, Sanjay Kumar. **A study on crustal structure in the northwest Himalaya using ambient noise tomography and gravest mode of free earth oscillations based on superconducting gravimeter data**. (Prof. Sanjit Kr Pal), Department of Applied Geophysics, Indian Institute of Technology, Dhanbad.

ENGINEERING SCIENCES

Civil Engineering

1. Monisha, R. **Effect of binder materials on multivariable energy optimization, energy simulation and forecast using machine learning algorithm**. (Dr. M. Balasubramanian), Department of Civil Engineering, SRM University, Kattankulathur, Chennai.
2. Sabarigirivasan, L. **Investigations on long-term thermal effects of composite I-Girder using field monitored data**. (Dr. N Umamaheshwari), Department of Civil Engineering, SRM University, Kattankulathur, Chennai.

Computer Science & Engineering

1. Apat, Shraban Kumar. **Iot assisted heterogeneous ensemble learning environment for smart farming and intelligent agro-decision system**. (Dr. Jyotirmaya Mishra and Dr. K Srujan raju), Department of Computer Science & Engineering, GIET University, Gunupur.

2. Dixit, Ashish. **Design of novel watermarking techniques using machine learning for protection of multimedia contents**. (Prof. R P Agarwal and Prof. Birendra Kumar Sharma), School of Engineering and Technology, Shobhit Institute of Engineering & Technology, Meerut.

3. Eliyas, Sherin. **Game based framework for E-learning, E-assessment and learning path recommendation using collaborative filtering techniques**. Department of Computer Applications, Hindustan Institute of Technology & Science, Chennai.

4. Mayanglambam, Sushilata Devi. **Designing data clustering algorithms for outlier detection using optimization techniques**. (Prof. Rajendra Pamula), Department of Computer Science & Engineering, Indian Institute of Technology, Dhanbad.

5. Medhi, Kishore. **Data analytics in Internet of Things using machine learning**. (Prof. Md Iftekhar Hussain), Department of Informational Technology, North Eastern Hill University, Shillong.

6. Praveenkumar, S. **Human stress recognition system using deep learning techniques based on physiological signals data**. (Dr. T Karthick), Department of Computer Science & Engineering, SRM University, Kattankulathur, Chennai.

7. Reshma, Juhi. **A novel hyperbolic growing cosine unit for prediction of crop fertilizers**. Department of Computer Applications, Hindustan Institute of Technology & Science, Chennai.

8. Rippudaman Kaur. **Role of E-waste management in green computing**. (Dr. Aashish Arora), Faculty of Science, Tantia University, Sri Ganganagar.

9. Saranya, A. **A cross layer approach for early detection of fibrous dysplasia using feature fusion and graph convolutional neural networks**. (Dr. K Kottilingam), Department of Computer Science & Engineering, SRM University, Kattankulathur, Chennai.

10. Sivapriya, M S. **Wavelet based sar image despeckling and ship-iceberg detection using deep learning**. (Dr.S Suresh), Department of Computer Science & Engineering, SRM University, Kattankulathur, Chennai.

11. Sharma, Usha. **Audio-visual feature modeling for Hindi speech recognition**. (Prof.Hari Om), Department of Computer Science & Engineering, Indian Institute of Technology, Dhanbad.

12. Udayakumar, K. **An enhanced task offloading and resource allocation policy for Edge computing enabled industrial IOT using optimized learning algorithms**. (Dr. S Ramamoorthy), Department of Computer Science & Engineering, SRM University, Kattankulathur, Chennai.

13. Vaidhehi, M. **Detection and classification of weeds in the paddy field using deep learning models**. (Dr C. Malathy), Department of Computer Science & Engineering, SRM University, Kattankulathur, Chennai.

14. Vasavi, J. **Precise feature extraction for multimodal biometric authentication using ranking based CNN**. (Dr. M S Abirami), Department of Computer Science Engineering, SRM University, Kattankulathur, Chennai.

15. Vasudevan, N. **Plant disease detection using hybrid approach with E-GAN and LWCN: Grape leaves**. (Dr.T Karthick), Department of Computer Science & Engineering, SRM University, Kattankulathur, Chennai.

16. Wagh, Dnyaneshwari Pandurang. **A novel scheme for secure key generation through finger vein pattern**. (Dr. G N Shinde and Dr. H S Fadewar), Department of Computer Science, Swami Ramanand Teerth Marathwada University, Nanded.

Electrical & Electronics Engineering

1. Annapurna Kumari. **Design and analysis of microwave photonic systems for radar application**. (Prof. Amitesh Kumar), Department of Electronics Engineering, Indian Institute of Technology, Dhanbad.

2. Anup Kumar. **Design and implementation of power system protection scheme using hybridization of signal processing techniques**. (Dr. Himanshu Sharma and Dr. Dr.Ram Niwash Mahia), Department of Electrical & Electronics Engineering, SRM University, Kattankulathur, Chennai.

3. Apoorva. **Islanding detection approaches in active distribution network**. (Prof. Pradip Kumar Sadhu), Department of Electrical Engineering, Indian Institute of Technology, Dhanbad.

4. Chandra Sekhar, D. **Intelligent controllers for performance improvement of grid integrated solar-wind energy systems**. (Dr. P V V Rama Rao and Dr. R Kiranmayi), Department of Electrical Engineering, Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

5. Mandal, Lipika. **Design and analysis of tin-oxide based inorganic thin film solar cell**. (Prof. Mukul Kumar Das), Department of Electronic Engineering, Indian Institute of Technology, Dhanbad.

6. Sathiya, R. **Design and Implementation of PV fed single switch high gain hybrid converters**. (Dr. M Arun Noyal Doss), Department of Electrical & Electronics Engineering, SRM University, Kattankulathur, Chennai.

Electronics & Communication Engineering

1. Balaji, S. **Enhanced energy forecasting through optimized machine learning techniques**. (Dr.S Karthik), Department of Electronics & Communication Engineering, SRM University, Kattankulathur, Chennai.

2. Lekha, K. **On the design and analysis of Monopole based MIMO antenna variants for vehicular communications**. (Dr. Sandeep Kumar P), Department of Electronics & Communication Engineering, SRM University, Kattankulathur, Chennai.

3. Singhal, Abhishek. **Speech signal processing and characterization for gender identification**. (Dr. Devendra Kumar Sharma), Department of Electronics & Communication Engineering, SRM University, Kattankulathur, Chennai.

Energy Studies

1. Gohain, Priyanko Protim. **Study of perovskite nanomaterials for biofuel production**. (Dr. Samrat Paul), Department of Energy Engineering, North Eastern Hill University, Shillong.

Instrumentation Engineering

1. Menaka, T. **Optimizing and evaluating reliable electrospun membranes for airborne particulate filtration using curved electrodes and KGM (1, N) model**. (Dr. Vimala Juliet), Department of Instrumentation and Control Engineering, SRM University, Kattankulathur, Chennai.

Mechanical Engineering

1. Raj, Ratnesh. **Print fidelity evaluation and mechanical characterization of formulated polymer nanocomposites metamaterial using additive manufacturing and its significance in fabricating microwave absorber**. (Prof. Amit Rai Dixit), Department of Mechanical Engineering, Indian Institute of Technology, Dhanbad.

2. Sharma, Anubhav Kumar. **Wear prevention in hydraulic gear pump and pressure relief valve through surface treatment and poppet re-design**. (Prof. Niranjan Kumar and Prof. Alok Kumar Das), Department of Mechanical Engineering, Indian Institute of Technology, Dhanbad.

3. Stephen, Deborah Serenade. **Experimental investigation of grinding Ti-6Al-4V alloy using CNT incorporated CBN grinding wheels**. (Dr. S Prabhu), Department of Mechanical Engineering, SRM University, Kattankulathur, Chennai.

Mining Engineering

1. Deepak Kumar. **Estimation of risk profile of coal mine employees to reduce their risk tolerance using different statistical models**. (Prof. R. M. Bhattacharjee and Prof. A. K. Mishra), Department of Mining Engineering, Indian Institute of Technology, Dhanbad.

2. Guggari, Vishal Babu. **Stability analysis of crown pillars and hanging wall around sub-level open stopes in deep underground metal mines**. (Prof. Gnananandh Budi), Department of Mining Engineering, Indian Institute of Technology, Dhanbad.

MATHEMATICAL SCIENCES

Mathematics

1. Devendra Kumar. **Stability analysis of some Non-Newtonian fluids: Liner and non-liner approach**. (Dr. Vipin Kumar Tyagi), School of Basic & Applied Sciences, Shobhit Institute of Engineering & Technology, Meerut.

2. Hussain, I Sadham. **Study on heat and mass transfer of nanofluid flow through a moving thin needle**. (Dr. D Prakash), Department of Mathematics, SRM University, Kattankulathur, Chennai.

3. Meshram, Asha Rajendra. **Biological approach of dynamical system**. (Dr. V C Borkar), Department of Mathematics, Swami Ramanand Teerth Marathwada University, Nanded.

MEDICAL SCIENCES

Homeopathy

1. Bajpai, Jagrati. **Study to assess the usefulness of homeopathic constitutional medicine in pain management of sciatica: A prospective randomised control trial**. (Dr. Anupriya Vyas), Faculty of Homeopathy, Tantia University, Sri Ganganagar.

2. Choubey, Gurudev. **Double-blind, randomized, placebo-controlled trial of individualized homoeopathic medicines in functional dyspepsia**. (Dr. Charanjeet Singh), Faculty of Homeopathy, Tantia University, Sri Ganganagar.

3. Gaur, Ruchi. **The miasmatic constitutional homoeopathic treatment of polycystic ovarian syndrome using synthesis repertory**. (Dr. Anupriya Vyas), Faculty of Homeopathy, Tantia University, Sri Ganganagar.

4. Khan, Mushfique Ali. **A clinical study on behavioural disorder among adolescent and its homoeopathic management**. (Dr. R K Biswas), Faculty of Homeopathy, Tantia University, Sri Ganganagar.

5. Sahoo, Amulya Ratna. **Sehgal's method and classical homoeopathy in treatment of erectile dysfunction: A randomised, single-blind, placebo-controlled, pilot trial**. (Dr. Charanjeet Singh), Faculty of Homeopathy, Tantia University, Sri Ganganagar.

6. Sharma, Shweta. **Study of the clinical aspect & homoeopathic management of uterine fibroid**. (Dr. Rekha Juneja), Faculty of Homeopathy, Tantia University, Sri Ganganagar.

7. Sharma, Yogesh Kumar. **Role of homoeopathic constitutional medicine in management of Gout**. (Dr. Gagandeep Kaur), Faculty of Homeopathy, Tantia University, Sri Ganganagar.

8. Singh, Priya. **Usefulness of individualized homoeopathic medicines in the treatment of puberty menorrhagia: A prospective observational study.** (Dr. Rekha Juneja) Faculty of Homoeopathy, Tantia University, Sri Ganganagar.

9. Sonal. **Effectiveness of viburnum opulus mother tincture in primary dysmenorrhoea.**. (Dr. Rekha Juneja), Faculty of Homeopathy, Tantia University,Sri Ganganagar.

10. Tomar, Shri Kant. **To study the effectiveness of centisimal and millesimal scale potency of diosma lincaris in cases of depression**. (Dr. Ruchi Biswas), Faculty of Homeopathy, Tantia University, Sri Ganganagar.

11. Trigotra, Dushant. **Efficacy of homoeopathic medicines in cases of migraine: An open label study**. (Dr. Gagandeep Kaur), Faculty of Homeopathy, Tantia University, Sri Ganganagar.

12. Verma, Vivek Kumar. **To study the efficacy of homoeopathic medicines in ischemic heart disease**. (Dr. R K Biswas), Faculty of Homeopathy, Tantia University, Sri Ganganagar.

Microbiology

1. Richa. **Isolation and characteriazation of keratinase producer microbes from the poultry waste material**. (Dr. Vijay Kumar), Department of Microbiology, Career Point University, Hamirpur.

Pharmaceutical Science

1. Begum, Rukaiah Fatma. **Pre-clinical and clinical evaluation of vitamin E add-on therapy with fourth generation combined oral contraceptive pill against Polycystic Ovarian Syndrome**. (Dr.M.Sumithra), Department of Pharmacy, SRM University, Kattankulathur, Chennai.

2. Kalli, Swarna Bharathi. **Design, synthesis and biological evaluation of DPP-4 inhibitors against type-2 diabetes mellitus**. (Dr.V Velmurugan), Department of Pharmacy, SRM University, Kattankulathur, Chennai.

3. Nandhimangalam, Sai Supra Siddhu. **Safety and efficacy of novel polyherbal extracts combination in the management of osteoarthritis**. (Dr. T.M. Vijayakumar), Department of Pharmacy, SRM University, Kattankulathur, Chennai.

4. Singh, S Ankul. **Neuroprotective effect of *Luffa Cylindrica* (LINN.) fruit against ozone-induced neuronal damage in experimental animal model**. (Dr.V.Chitra), Department of Pharmacy, SRM University, Kattankulathur, Chennai.

PHYSICAL SCIENCES

Chemistry

1. Desai, Kushal Upendrakumar. **Enzyme and Polymer mediated pre-treatment of cellulosic textiles to rationalize water consumption vis-à-vis reduction in effluent loading**. (Dr. Bharatkumar Hiralal Patel), Department of Textile Chemistry, M S University of Baroda, Vadodara.

2. Gajurel, Sushmita. **Formation of carbon carbon and carbonheteroatom bonds using metal free and metal-based heterogeneous catalysts**. (Dr. A K Pai), Department of Chemistry, North Eastern Hill University, Shillong.

3. Kavitapu, Dasameswara Rao. **Analytical method development and validation for identification and quantification of impurities in few pharmaceutical compounds using liquid chromatography and mass spectrometry**. (Dr. M. Arthanareeswari and Dr. Sudarshan Mahapatra), Department of Chemistry, SRM University, Kattankulathur, Chennai.

4. Kolte, Komal Sanjay. **Novel metallomacrocyclic dithiocarbamate complexes and their potential applications in host-guest binding study**. (Dr. Vinay Kumar Singh), Department of Chemistry, M S University of Baroda, Vadodara.

5. Nivetha, M Sherlin. **Construction of hybrid heterojunction photocatalysts with metal oxide encapsulated on graphitic carbon nitride for the degradation of antibiotics**. (Dr. N. Abirami), Department of Chemistry, SRM University, Kattankulathur, Chennai.

6. Raval, Hitenkumar Bharatbhai. **Development of novel methodologies in asymmetric synthesis**. (Prof. A

V Bedekar), Department of Chemistry, M S University of Baroda, Vadodara.

7. Saraswathi, G. **Design, synthesis, and characterization of stable organic-inorganic hybrid perovskites and hole selective organic small molecules for efficient defect passivation in perovskite solar cells**. (Dr. K Ananthanarayanan), Department of Chemistry, SRM University, Kattankulathur, Chennai.

8. Saravanan, S. **Pyrazoloanthrone functionalized polymers as a basis for the detection of nitroaromatics and smart temperature sensors**. (Dr. Samarendra Maji), Department of Chemistry, SRM University, Kattankulathur, Chennai.

9. Shankar, A. **Transition metal nanomaterials-based electrocatalysts for energy conversion reactions**. (Dr. G Maduraiveeran), Department of Chemistry, SRM University, Kattankulathur, Chennai.

10. Silambarasan, S. **Transition metal and heteroatom doped carbon composites as electrodes for high-performance asymmetric supercapacitor**. (Dr. T. Maiyalagan), Department of Chemistry, SRM University, Kattankulathur, Chennai.

11. Sreevidya, U. **Investigation of electrical and thermal conductivity properties of polypyrrole-based composites for room-temperature thermoelectric applications**. (Dr. M Navaneethana and Dr. Prakash Muthuramalingam), Department of Chemistry, SRM University, Kattankulathur, Chennai.

12. Ujgare, Sudhakar Ramchandra. **Synthesis, physico-chemical and antimicrobial studies in metal complexes of some schiff bases**. (Dr. B C Khade), Department of Chemistry, Swami Ramanand Teerth Marathwada University, Nanded.

13. Yadav, Shweta. **Monitoring, assessment and prediction modelling of water quality in rural area of Sri Ganganagar District of Rajasthan (India).** (Dr. Harish Kumar), Faculty of Science, Tantia University, Sri Ganganagar.

Physics

1. Jain, Sanjeev Kumar. **Innovative approach towards quality improvement and productivity enhancement of tissue paper**. (Prof. R K Jain and Prof. Dharam Dutt), School of Basic & Applied Sciences, Shobhit Institute of Engineering & Technology, Meerut.

2. Khandelwal, Akansha. **Synthesis and study of electronic structure of mixed metal oxide thin films**. (Prof. K S Sharma and Dr. Rimpy Shukla), Department of Physics, IIS University, Jaipur.

3. Sowjanya, Mannepalli Sowjanya. **Studies on the indentation-induced high-pressure phase of silicon**. (Dr. Kiran Mangalampalli), Department of Physics, SRM University, Kattankulathur, Chennai.

4. Tiwari, Chetna Shivshankar. **Shape and size dependent melting temperature, glass transition temperature and catalytic activation energy of embedded nobel metal nanoparticles and soft matter**. (Prof. Arun Pratap and Prof. Prafulla K Jha), Department of Physics, M S University of Baroda, Vadodara.

5. Tomer, Himani. **Electron induced chemistry of molecules relevant to space applications**. (Prof. Bobby K Antony), Department of Physics, Indian Institute of Technology, Dhanbad.

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Dattajirao Kadam Technical Education Society's

Textile & Engineering Institute, Ichalkaranji.

'Rajwada', Ichalkaranji Dist Kolhapur– 416 115
(Maharashtra State)
(An Empowered Autonomous Institute Affiliated to Shivaji University, Kolhapur.)

(Non-Granted)

WA N T E D

Applications are invited from eligible candidates for the following posts:

Sr. No.	Name of Post	Vacant Post	Reservation
1.	Director	01	Post -01 (Open to All)

Note : For detailed information about post, qualifications and other terms and condition. please visit University **website: www.unishivaji.ac.in/recruitments** & Institute **website www.dkte.ac.in.**

Place :
Date :

Secretary
D.K.T.E. Society
Ichalkaranji

Chairman
D.K.T.E. Society
Ichalkaranji

CHHATRAPATI SHAHU INSTITUTE OF BUSINESS EDUCATION & RESEARCH TRUST

V.P. INSTITUTE OF MANAGEMENT STUDIES AND RESEARCH, SANGLI

Address: Sangli Miraj Road, Near Bharati Hospital, Wanlesswadi, Sangli 416414

(Affiliated to Shivaji University, Kolhapur.)

NON GRANTED

WANTED

Applications are invited from eligible candidates for the following post.

Sr. No.	Name of post	Vacant Post	Unreserved (Open) Post
01	Principal	01	01

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

PLACE: KOLHAPUR
DATE: - 07.06.2024

President and Managing Trustee
Chh. Shahu Institute of Business Education & Research, Trust Kolhapur

CHHATRAPATI SHAHU INSTITUTE OF BUSINESS EDUCATION & RESEARCH TRUST

COLLEGE OF NON-CONVENTIONAL VOCATIONAL COURSES FOR WOMEN

Address: - SHIVAJI UNIVERSITY ROAD, KOLHAPUR
Tal.- KARVEER Dist. KOLHAPUR (Maharashtra)
(Affiliated to Shivaji University, Kolhapur.)

NON GRANTED

WANTED

Applications are invited from eligible candidates for the following post.

Sr. No.	Name of post	Vacant Posts	Unreserved (Open) Post
01	Principal	01	01

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

PLACE: KOLHAPUR
DATE:07.06.2024

President and Managing Trustee
Chh. Shahu Institute of Business Education & Research, Trust Kolhapur

Maulana Azad Education Society's
Marathwada College of Education,
Dr. Rafiq Zakaria Campus-I, Rauza Baugh, Chh. Sambhajinagar(Aurangabad).
(MINORITY INSTITUTION)
Re-accredited 'A' Grade by NAAC
Appointments

Eligible candidates shall submit their application along with photocopy of their documents to 'The Principal, Marathwada College of Education, Dr. Rafiq Zakaria Campus, Rauza Bagh, Chh. Sambhajinagar (Aurangabad)' through Speed post/In person **within 10 days** from the date of publication of this advertisement.

Sr. No	Medium	Post	Subject/Method	No. of Vacancies
1.	**Urdu Medium**	Assistant Professor	Perspective -2 Pedagogy – 4 (Science, Urdu, Maths, History)	06
2.	**English Medium**	Assistant Professor	Perspective – 3 Pedagogy – 6 (Science, Urdu, English, Maths, History, Geography)	09
3.	**Marathi Medium**	Assistant Professor	Perspective - 2 Pedagogy - 2 (English, Maths)	04
4.		Assistant Professor	**Part time** Phy Edn.-1, Fine Arts– 1 Performing Arts – 1	03

Instructions & Required qualifications
- Numbers of posts are liable to be changed and Management's decision for filling up the posts will be final
- Eligibility Criteria as per the NCTE, and Govt. of Maharashtra norms.
- All the appointments are subject to the approval of Dr. Babasaheb Ambedkar Marathwada University, Chh. Sambhajinagar (Aurangabad)
- Candidates should be well acquainted with the medium of the language in which they are applying.
- Candidate already employed shall apply through proper channel.

Prof. Shaikh Imran Shaikh Ramzan
I/C Principal

Margtamhane Education Society's
Dr. Tatyasaheb Natu College of Arts &
Senior College of Commerce, Margtamhane
At Post- Margtamhane, Tal.- Chiplun, Dist.- Ratnagiri, Pin-415702

APPLICATIONS ARE INVITED FOR THE FOLLOWING **CLOCK HOUR BASIS** POSTS FOR THE ACADEMIC YEAR **2024-2025**

AIDED

Sr. No.	Cadre	Subject	Total No. of CHB Posts	Posts Reserved for
1.	Assistant Professor	Hindi	02	02- OPEN
2.	Assistant Professor	Marathi	03	03-OPEN
3.	Assistant Professor	English	01	01-OPEN
4.	Assistant Professor	History	01	01-OPEN

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

Reservation for women will be as per **University Circular No.BCC/16/74/1998 dated 10th March,1998. 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 8thMarch, 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 02ndApril, 2019 & University Circular No.CTAU/23/2021-2022, dated 25th January, 2022.

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

Application with full details should reach the **CHAIRMAN, Margtamhane Education Society's Dr.Tatyasaheb Natu College of Arts and Senior College of Commerce Margtamhane At.Post- Margtamhane, Tal. – Chiplun, Dist.- Ratnagiri, Pin-415702. within 15 days** from the date of publication of this advertisement. **This is University approved advertisement.**

Sd/-
CHAIRMAN

S N M COLLEGE, MALIANKARA

(Affiliated to Mahatma Gandhi University, Kottayam)

Maliankara P O, Moothakunnam, North Paravur

Ernakulam, District, Kerala - Pin. 683516

Phone: 0484 2482386, Mob: 9447729060

WANTED

Applications are invited from fully qualified candidates for the following permanent posts:

Posts	Eligibility (Age, qualification, workload criteria and scale of pay as per)	Number of Posts
Principal (Open Merit)	M. G. University/ UGC/ Government norms	1
Assistant Professor in Chemistry (Community Merit -1 & Open Merit -1)	M. G. University/ UGC/ Government norms	2

Application forms for the above mentioned posts can be had from the undersigned on payment of Rs.1000/- directly or Rs.1050/-by post. Duly filled in application with self attested copies of mark lists and other certificates should reach the Manager **within 30 days** from the date of publication of this advertisement. The appointment will be subject to approval by Government.

Maliankara
07.06.2024

Sd/-
Manager

Dr. Rafiq Zakaria Campus
Maulana Azad College of Arts, Science & Commerce,

Dr. Rafiq Zakaria Marg, Rauza Bagh, Aurangabad 431001
NAAC Re-Accredited Grade "A"
"College with Potential for Excellence" Status
(Minority Institution)

Appointments

Following posts of teaching staff in Non Grant (Full time) Courses are vacant in our College. Eligible candidates shall submit their application alongwith Xerox Copies of their documents to Principal, Maulana Azad College, Dr. Rafiq Zakaria Campus, Rauza Baugh, Aurangabad through Speed Post/in person **within 10 days** of the publication of this advertisement.

Sr	Name of Subject	Course	No. of Posts	Sr	Name of Subject	Course	No. of Posts
1.	Chemistry	P.G. (Non-Grant)	02	**11**	M.Com (HR)	P.G. (Non-Grant)	02
2.	Analytical Chemistry	P.G. (Non-Grant)	02	**12**	BBA	U.G. (Non-Grant)	03
3.	Industrial chemistry	P.G. (Non-Grant)	02	**13**	B. Com E com	U.G. (Non-Grant)	03
4.	Computer Science	P.G. (Non-Grant)	02	**14**	B.C.A.	U.G. (Non-Grant)	04
5.	Mathematics	P.G. (Non-Grant)	02	**15**	B.C.S.	U.G. (Non-Grant)	04
6.	Commerce	P.G. (Non-Grant)	02	**16**	BSc. Biotechnology	U.G. (Non-Grant)	04
7.	Geology	P.G. DDT (Non-Grant)	02	**17**	Psychology	U.G. (Non-Grant)	02
8.	English	P.G. (Non-Grant)	02	**18**	NCC	U.G. (Non-Grant)	02
9.	Microbiology	P.G. (Non-Grant)	02	**19**	Physical Education	U.G. (Non-Grant)	02
10.	Biotechnology	P.G. (Non-Grant)	02	**20**	Economics	U.G. (Non-Grant)	02

- Numbers of posts are liable to be changed and Management's decision for filling up the posts will be final.
- Eligibility criteria as per the UGC, University and Government of Maharashtra norms.
- All the appointments are subject to the approval of Dr Babasaheb Ambedkar Marathwada University, Aurangabad
- No TA/DA will be paid to candidates for attending the interview.

Dr. Mazahar Ahmed Farooqui
Principal

Marathwada Shikshan Prasarak Mandal,
Deogiri College Campus, Railway Station Road, Chhatrapati Sambhajinagar-431005
Ph.No.0240-2332347

WANTED (PERMANENT NON-GRANT BASIS)

Applications from eligible candidates are invited for the post of Principal, Assistant Professor, Librarian, and Physical Education Director from eligible candidates for the following vacancies in various colleges of M.S.P. Mandal on Permanent Non-Grant basis.

The applications duly completed in all respect should reach **within 15 days** from the publication of advertisement to The Secretary, Marathwada Shikshan Prasarak Mandal, Deogiri College campus, Railway Station Road, Chhatrapati Sambhajinagar- 431005 (M.S.)

Sr. No.	Post	Subject & No of post	Category of reservation
1	**Principal**	7	Unreserved-2, SC-1, ST-1, VJ (A)-1, OBC-1, SEBC-1
2	**Assistant Professor**	English-10, Marathi-10, Hindi-9, History-5, Economics-4, Political Science-5, Sociology-5, Chemistry-19, Physics-8, Zoology-10, Pali-2, Urdu-2, Home Science-2, Psychology-6, Geography-8, Drama-2, Music-1, Commerce-19, Microbiology-4, Botany-10, Mathematics-8, Computer Science-8, Electronics 2. Public administration-1	Unreserved-51, SC-24. ST-13, VJ(A)-6, NT(B)-5, NT(C)-6, NT(D)-4, SBC-4, OBC-35, EWS-18, SEBC-19
3	**Librarian**	5	
4	**Physical Education Director**	5	

Note :-

1. Qualification as per rules and regulations prescribed by the U.G.C., Govt. of Maharashtra and University.
2. This advertisement is made as per Advertisement Sanction No. Special Cell/2024/803020, Dt.28/05/2024, Dr. Babasaaheb Ambedkar Marathwada University, Chh. Sambhajinagar.
3. Candidates from reserved category are adviced to sent one copy of application to Dy. Registrar (Special Cell), Dr. Babasaheb Ambedkar Maharathwada University, Chh. Sambhajinagar (M.S.) directly.
4. The above mentioned post and reservation can be changed, right reserved.
5. No TA & DA will be paid for attending the interview.

Administrative Officer
Marathwada Shikshan Prasarak Mandal, Chhatrapati Sambhajinagar (M.S.)

Dayanand Education Society's
Dayanand College of Pharmacy
Dayanand Institute of Pharmacy
Barshi Road, Latur-413531
PH- 02382 – 223199, 223299, www.dayanandpharmacy.org

APPOINTMENT

YEAR: 2024-25

Applications are invited for the following posts in Dayanand Education Society's, Dayanand College of Pharmacy & Dayanand Institute of Pharmacy, Latur. The applications should reach **within 15 days** from the date of publication of this advertisement to the concerned authority of the college on following email address **principaldcop@gmail.com.**

Sr. No.	Name of the post	Subject	Qualification	No. of post
1	**Associate Professor**	Regulatory Affairs / Pharmaceutics	M. Pharm. PhD	01
		Pharmacology	M. Pharm. PhD	01
2	**Assistant Professor**	Pharmacognosy	M. Pharm	02
		Pharmacology	M. Pharm	02

Qualifications and pay scales are as per the norms of S.R.T.M. U., Nanded /PCI/ Govt. of Maharashtra.

Note:

1. Candidates employed anywhere, should submit their application through the proper channel.
2. No. T.A./D.A. will be paid for attending the interview.
3. Attested Xerox copies of all testimonials should be attached with the application with Passport size Photograph.

Sd
Principal

Sd
President/ Secretary
Dayanand Education Society
Latur.

Dnyanprassarak Mandal's

College and Research Centre (DMC)

Assagao, Bardez - Goa 403 507

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Advertisement No. 2024/01

Applications stating full name, address, age with date of birth, educational qualifications (from S.S.C. onwards) with marks and percentages secured, Caste Certificate, Residence Certificate and Experience Certificates are invited from Indian Nationals for the following teaching posts for the academic year 2024-2025 **within 08 days from the date of Advertisement:**

SELF-FINANCED COURSES:

Sr. No.	Designation of Post	Nature of Post	
		Contract basis	Lecture basis
A.	**M.Com.**		
1.	*Associate Professor in Accountancy	01	---
2.	Assistant Professor in Accountancy	01	01
B.	**M.Sc. (Pharmaceutical Chemistry) and M.Sc. (Organic Chemistry)**		
1.	Assistant Professor in Pharmaceutical Chemistry	02	---
2.	Assistant Professor in Quality Assurance	01	---
3.	Assistant Professor in Organic Chemistry	03	---
4.	Assistant Professor in Physical Chemistry	02	---
5.	Assistant Professor in Inorganic Chemistry	01	---
C.	**M.Sc. (Environmental Science)**		
1.	Assistant Professor in Environmental Science	02	---
D.	**B.B.A.**		
1.	Assistant Professor in Human Resource Management	01	---
2.	Assistant Professor in Finance	01	---
3.	Assistant Professor in Psychology	01	---
E.	**B.C.A.**		
1.	Assistant Professor in Computer Applications	05	01
2.	Assistant Professor in English	---	01
3.	Assistant Professor in Commerce	---	01
4.	Assistant Professor in Mathematics	---	01
5.	Assistant Professor in Economics	---	01
6.	Assistant Professor in Environmental Studies	---	01
7.	Assistant Professor in Hindi	---	01
8.	Assistant Professor in Marathi	---	01
9.	Assistant Professor in Konkani	---	01

NOTE: 1. *IF THERE ARE NO APPLICANTS FOR THE POST OF ASSOCIATE PROFESSOR THEN INSTEAD FULL TIME ASSISTANT PROFESSOR WILL BE APPOINTED.

2. RETIRED PROFESSORS/ASSOCIATE PROFESSORS/READERS MAY ALSO APPLY AND WILL BE SUITABLY COMPENSATED.
3. Knowledge of Konkani is essential and knowledge of Marathi is desirable.
4. Valid 15 years of Residence in Goa.
5. Incomplete application will be rejected outright.
6. The right to fill up the above mentioned post is reserved.

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

Date: 05/06/2024

Sd/-
Shri. Kiran H. Shirodkar
CHAIRMAN

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