

# QUANTUM UNIVERSITY



## A REPORT ON IMPLEMENTATION OF INDIAN KNOWLEDGE SYSTEM (IKS)



# Quantum University, Roorkee

(Session 2022-23)

## *Implementation of Indian Knowledge System in QU Curricula*

### *Current Efforts and Progress Report*

#### **Executive Summary:**

The implementation of the Indian Knowledge System (IKS) in the Quantum University has been a significant endeavor to revitalize and promote India's rich and diverse heritage of knowledge. This report provides an overview of the efforts made thus far in incorporating Indian knowledge systems into the academic curriculum of the university. These efforts encompass curriculum development, research initiatives, faculty development programs, and public awareness campaigns, among others. This report also highlights the progress made in the pursuit of this goal.

#### **1. Introduction:**

The Indian Knowledge System, which encompasses traditional knowledge systems like Ayurveda, Yoga, Vedas, and various indigenous sciences, has been recognized as a valuable resource for inculcating holistic education and cultural preservation. Efforts have been made to integrate IKS into the formal education framework to ensure its continuity and relevance in modern times.



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## 2. Curriculum Development:

In session 2022-23, the efforts have been made to revise and expand the university curriculum to include elements of the Indian Knowledge System. Key initiatives include:

- a. **Development of interdisciplinary courses:** The University has introduced courses that blend traditional knowledge with modern subjects. These courses often offer a unique perspective on subjects like physics, mathematics, and philosophy (***Please Refer Appendix A***).
- b. **Integration of traditional medicine and Grains:** The University has incorporated Ayurveda and traditional medicine into our Pharmacy (UG & Diploma) and health science programs. The university has organized many events to promote Millets and its delicacies in Nutrition and Dietetics Programs at PG and UG Level. Similarly, Agriculture UG Program has organized Kisan Gosthi and Millet Fares. (Appendix B)

## 3. Research Initiatives:

Research projects aimed at exploring and documenting traditional knowledge systems have been actively promoted. These initiatives include:

- a. **Funding for traditional knowledge research:** Grants and funding opportunities have been provided to support research in areas such as ethnomedicine (Pharmacy), indigenous Agriculture
- b. **Collaboration with traditional practitioners:** the University has partnered with traditional knowledge holders to create a bridge between academic and indigenous knowledge.
- c. **Access to digitized ancient texts:** Efforts to provide access to digitize ancient texts for scholars and students through Quantum Learning Resource Center (***Appendix C***).



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## 5. Faculty Development:

Faculty members are being equipped with the knowledge and skills necessary to teach Indian Knowledge System-related courses. Initiatives include:

- a. **Training programs:** Universities are organizing training programs and workshops for faculty members to enhance their understanding of the Indian Knowledge System.
- b. **Collaboration with experts:** Faculty members are encouraged to collaborate with experts and traditional practitioners to enhance their expertise.

## 6. Public Awareness Campaigns (Appendix D):

To promote awareness and appreciation of the Indian Knowledge System, universities have initiated public outreach campaigns:

- a. **Seminars and lectures:** Leading experts are invited to deliver talks and seminars on Indian knowledge systems to engage the wider public.
- b. **Cultural festivals and exhibitions:** Events showcasing traditional arts, music, Yoga and crafts are organized to cater cultural appreciation.

## 7. Progress:

Significant progress has been made in incorporating the Indian Knowledge System into university systems. Some achievements include:

- a Increased awareness and appreciation of traditional knowledge among students and faculty.
- b Integration of traditional knowledge into diverse fields of study.
- c Research and documentation of traditional knowledge for future generations.

### Conclusion:

The efforts to implement the Indian Knowledge System in university systems have made substantial progress, and the integration of traditional knowledge into academic curricula is gaining momentum. However, continued collaboration, standardization, and the protection of traditional knowledge are essential for ensuring the sustainability and success of these efforts. The incorporation of the Indian Knowledge System into higher education is not only about preserving cultural heritage but also about fostering a more holistic and inclusive approach to learning and research.



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## Appendix A

### (Indian Knowledge System incorporated in Curriculum)

#### 1. Introduction of Indian Knowledge System Course (1 Credit, Audit Course) in each UG Program from 2022-23

By making a fundamental course on Indian Knowledge System, compulsory for all undergraduate programs, Quantum University took a significant step towards producing well-rounded graduates who not only excel in their chosen fields but also possess a deep appreciation of India's intellectual and cultural legacy. This initiative aligns with the university's commitment to holistic education and fostering global citizens.

The **Syllabus** of the Course is as Follows

- (i) **Survey of IKS Domains:** A broad overview of disciplines included in the IKS, and historical developments. Sources of IKS knowledge, classification of IKS texts, a survey of available primary texts, translated primary texts, translated primary texts, and secondary resource materials. Differences between sutra, bhashya, karika, and vartika texts. Fourteen/eighteen vidyasthanas, tantrayukti.
- (ii) Introduction to Panchamahabhutas, concept of a sutra, introduction to the concepts of non-translatable (Ex. dharma, punya, aatma, karma, yagna, shakti, varna, jaati, moksha, loka, daana, itihaasa, puraana etc.) and importance of using the proper terminology. Terms such as praja, janata, loktantra, prajatantra, ganatantra, swarjya, surajya, rashtra, desh.
- (iii) **Philosophical foundations of IKS:** Introduction to Samkhya, Vaisheshika and Nyaya.
- (iv) **Methods in IKS:** Introduction to the concept of building and testing hypothesis using the methods of tantrayukti. Introduction to pramanas and their validity, utapatti; Standards of argumentation in the vada traditions (introduction to concepts of vaada, samvaada, vivaada, jalpa, vitanda). Concept of poorvapaksha, uttarapaksha
- (v) **Mathematics** of Madhava, Nilakantha Somayaji
- (vi) **Astronomical models** of Aryabhata
- (vii) **Wootz steel, Aranumula Mirrors, and lost wax process** for bronze castings
- (viii) **Foundational aspects of Ayurveda**
- (ix) **Foundational aspects of Ashtanga yoga**





- (x) **Foundational aspects of Sangeeta and Natya shastra**
- (xi) **Influence of IKS on the world**, knowledge exchanges with other classical civilizations, and inter-civilization exchanges.

## **Appendix - B**

### **Incorporation of Indian Heritage in Pharmacy Program**

#### **UNIT IV**

**10 Hours**

##### **Pharmacognosy in various systems of medicine:**

Role of Pharmacognosy in allopathy and traditional systems of medicine namely, Ayurveda, Unani, Siddha, Homeopathy and Chinese systems of medicine.

##### **Introduction to secondary metabolites:**

Definition, classification, properties and test for identification of Alkaloids, Glycosides, Flavonoids, Tannins, Volatile oil and Resins

#### **UNIT V**

**08 Hours**

Study of biological source, chemical nature and uses of drugs of natural origin containing following drugs

##### **Plant Products:**

Fibers - Cotton, Jute, Hemp

Hallucinogens, Teratogens, Natural allergens

##### **Primary metabolites:**

General introduction, detailed study with respect to chemistry, sources, preparation, evaluation, preservation, storage, therapeutic used and commercial utility as Pharmaceutical Aids and/or Medicines for the following Primary metabolites:

**Carbohydrates:** Acacia, Agar, Tragacanth, Honey

**Proteins and Enzymes :** Gelatin, casein, proteolytic enzymes (Papain, bromelain, serratiopeptidase, urokinase, streptokinase, pepsin).

**Lipids(Waxes, fats, fixed oils) :** Castor oil, Chaulmoogra oil, Wool Fat, Bees Wax

##### **Marine Drugs:**

Novel medicinal agents from marine sources

- **Medicinal and Toilet Preparation Act –1955:** Objectives, Definitions, Licensing, Manufacture In bond and Outside bond, Export of alcoholic preparations, Manufacture of Ayurvedic, Homeopathic, Patent & Proprietary Preparations. Offences and Penalties.
- **Narcotic Drugs and Psychotropic substances Act-1985 and Rules:** Objectives, Definitions, Authorities and Officers, Constitution and Functions of narcotic & Psychotropic Consultative Committee, National Fund for Controlling the Drug Abuse, Prohibition, Control and Regulation, opium poppy cultivation and production of poppy straw, manufacture, sale and export of opium, Offences and Penalties

#### UNIT-IV

08 Hours

- **Study of Salient Features of Drugs and Magic Remedies Act and its rules:** Objectives, Definitions, Prohibition of certain advertisements, Classes of Exempted advertisements, Offences and Penalties
- **Prevention of Cruelty to animals Act-1960:** Objectives, Definitions, Institutional Animal Ethics Committee, CPCSEA guidelines for Breeding and Stocking of Animals, Performance of Experiments, Transfer and acquisition of animals for experiment, Records, Power to suspend or revoke registration, Offences and Penalties
- **National Pharmaceutical Pricing Authority:** Drugs Price Control Order (DPCO)-2013. Objectives, Definitions, Sale prices of bulk drugs, Retail price of formulations, Retail price and ceiling price of scheduled formulations, National List of Essential Medicines (NLEM)

#### UNIT-V

07 Hours





## **BP 609 P. HERBAL DRUG TECHNOLOGY (Practical)**

**4 hours/ week**

1. To perform preliminary phytochemical screening of crude drugs.
2. Determination of the alcohol content of Asava and Arista
3. Evaluation of excipients of natural origin
4. Incorporation of prepared and standardized extract in cosmetic formulations like creams, lotions and shampoos and their evaluation.
5. Incorporation of prepared and standardized extract in formulations like syrups, mixtures and tablets and their evaluation as per Pharmacopoeial requirements.
6. Monograph analysis of herbal drugs from recent Pharmacopoeias
7. Determination of Aldehyde content
8. Determination of Phenol content
9. Determination of total alkaloids

### **Recommended Books: (Latest Editions)**

1. Textbook of Pharmacognosy by Trease & Evans.
2. Textbook of Pharmacognosy by Tyler, Brady & Robber.
3. Pharmacognosy by Kokate, Purohit and Gokhale
4. Essential of Pharmacognosy by Dr.S.H.Ansari
5. Pharmacognosy & Phytochemistry by V.D.Rangari
6. Pharmacopoeal standards for **Ayurvedic** Formulation (Council of Research in Indian Medicine & Homeopathy)
7. Mukherjee, P.W. Quality Control of Herbal Drugs: An Approach to Evaluation of Botanicals. Business Horizons Publishers, New Delhi, India, 2002.

## Appendix C

In a pioneering move towards the integration of Indigenous Knowledge Systems (IKS) into the academic realm, our university has recently incorporated a dedicated IKS section within its digital portal (QLRC).

This innovative initiative aims to provide students and teachers with seamless access to a wealth of digitized literature rooted in diverse indigenous cultures. By incorporating IKS into the university portal, we elevate an inclusive and culturally rich learning environment. Students and educators alike can now explore a repository of knowledge that encapsulates traditional wisdom, practices, and perspectives, thereby promoting a holistic understanding of various subjects.

This digital repository not only serves as a valuable resource for academic research but also plays a pivotal role in acknowledging and preserving the cultural heritage of indigenous communities. The IKS incorporation reflects our commitment to embracing diversity, fostering cultural awareness, and ensuring that our academic community has access to a comprehensive and inclusive knowledge base.



Figure: Incorporating IKS into the university portal



## **Appendix D**

### **Activity Report: A Guest Lecture on „Preserving Cultural Heritage by means of Exploring Vedic Mathematics“**

Quantum University B.Sc.(Hons) PCM students in the past had the opportunity to attend a fascinating lecture on 'Vedic Mathematics' delivered by Mr. Guru Prabhat, Senior Faculty Department of Technology and a renowned expert in the field of Vedic Maths. During the lecture, the students were introduced to the fundamentals of ancient mathematics through extensive examples. They actively participated in solving arithmetic problems and drawing geometrical figures on the blackboard, while learning various exercises.

The lecture highlighted the importance of comprehending our diverse heritage, as stated in Article 51A (f) of the Indian Constitution, and nurturing a scientific mindset, as outlined in Article 51A (h) of the Indian Constitution.

Through the study of Vedic math, students not only improve their mathematical skills but also develop an understanding and respect for the profound cultural heritage emphasized in Article 51A (f) of the Indian Constitution.

This perspective allows students to understand the historical context and legacy of mathematics. The lecture was attended by 15 students from the B.Sc. (Hons) PCM departments, who found the session both informative and engaging. They left with a deeper understanding of Vedic mathematics and its connection to the rich cultural heritage of India.



**Figure: Mr. Guru Prabhat Teaching Students Vedic Mathematics**



## Activity Report: An Educational Visit to Dev Sanskriti Vishwavidyalaya

Organizing Department/Club/Society\_ Department of Humanities & Social Sciences

S No.	Basic Information of the Activity	
1	Title:	"Industrial visit to Dev Sanskriti Vishwavidyalaya"
2	Organizing Coordinator:	Mr.Abhishek Kumar and Dr. Noopur Jaiswal
3	Date Start	17/ 03/2023
4	Date Finished	17/ 03/2023
5	Time Start:	09:55AM
6	Time Finished:	04:30 PM
7	Invited Guest and Affiliation of Guest :	
8	Audience (Departments)	Faculties and Students
9	Number of attendees	50
10	Venue :	Dev Sanskriti Vishwavidyalaya

Quantum University's Department of Humanities and Social Sciences has embarked on an admirable initiative, aiming to inspire students studying Psychology and Economics to explore career paths within the realm of Small Scale Industries.

The educational journey commenced with a visit to the rural development wing of Dev Sanskriti Vishwavidyalaya. Beginning at Gayatri Teerth Shantikunj in Haridwar, the excursion continued to various sites, including the cloth mill, paper mill, goshala (cow shelter), Baltic nation center, and Psychology labs.

During this immersive experience, students were exposed to firsthand observations of cloth manufacturing in ancient India. Moreover, the visit provided insights into the significance of the Baltic Nation Centre within the Indian Knowledge system. A highlight of the trip was the invaluable opportunity for all students to engage with Dr. Chinmay Pandya, Pro-Vice-Chancellor of DSVV and an esteemed clinical psychologist in Asia.



Dr. Pandya's words were profoundly illuminating, leaving an indelible impact on the students' understanding and appreciation of the Indian Knowledge system. DSVV even open its gate to provide internship to our students.







Images from Educational Visit to Dev Sanskriti Vishwavidyalaya



## **Indian classical Music, Dance and Craft Spic Macay Local Chapter**

The Coordinator of Youth Awakening Mission, Sh. Gyanendra Pratap Singh, initiated discussions regarding a proposed visit by the Mission to our esteemed institution. The objective outlined by the Youth Awakening Mission is to engage with students through an inspirational play titled "Sanatan Yoddha Swami Vivekanand" with a fervent aim of contributing to the noble cause of nation-building.

The mission's noble intentions center on seeking collective participation from both the youth and socially responsible institutions, emphasizing their pivotal role in uplifting Indian society. The play is envisioned as a means to inspire and empower the younger generation, instilling values aligned with Swami Vivekananda's principles.

The Youth Awakening Mission fervently hopes for an opportunity to collaborate, harnessing the collective energy of both our institution and the youth toward the advancement and betterment of our nation.

The staging of an inspirational play focusing on Swami Vivekananda for the Youth Awakening Mission stands as a pivotal activity resonating with the essence of the Indian knowledge system. Swami Vivekananda, a stalwart of Indian philosophy and spirituality, epitomized the fusion of ancient wisdom and modern thought.

His teachings and life story serve as a conduit to impart timeless values and ignite the flame of enlightenment among the youth, aligning with the foundational principles deeply ingrained in the Indian knowledge system, emphasizing holistic growth and societal development through the dissemination of timeless wisdom and moral guidance.

### **Efforts to take students and teachers to the Indian classical Music, Dance and Craft Spic Macay Local Chapter**

In 2022-23, University has joined hands with SPIC MACAY for (Society for the Promotion of Indian Classical Music and Culture Amongst Youth) Dr. Kiran Seth, Professor-Emeritus at IIT-Delhi visited the Campus and announced the SPIC MACAY LOCAL CHAPTER.





**A Group Picture During Performance of Indian Music by the famous Musicians of Indian Classical Music**



**The university invites famous musicians of Indian Classical Music. In 2022-23, Pt. Nayan Ghosh has performed Shastriya Sangeet (Sitar Traditions) in Shaym Ji auditorium**



### **Training of Classical Dances by Dance Club and Classical Music by Music Club from Passion Program**

Experts of classical dances train dance club members regularly as a part of regular practices. The university has provided a Dance Room for performing Dance and Music to members of Music and Dance Clubs.



**Quantum Students Learning Bharat Natyam in University Created Dance Club**



**Students Learning Classical Music in Passion Program Class from Senior Students of the Club**

### Learning past through Creative Art

The Creative Art club organized sessions and workshops for Classical art, sculpturing other ancient Indian art and craft techniques.



**Expert Art Teacher is Felicited for the esteemed presence and teaching Quantum Mates**





Participation of IKS program, Students and Teachers take part in various programs and Activities initiated by Government of India and Uttarakhand.



### **Activity Report: An Online Workshop on Vedic Mathematics**

<b>S No.</b>	<b>Basic Information of the Activity</b>	
1	Invited Guest	<b>Mr. Guru Prabhat</b>
2	Affiliation of Guest	<b>Sr. Assistant Professor</b>
3	Audience (Departments)	<b>B.Sc Hons (PCM) Students</b>
4	Number of attendees	<b>30</b>
5	Venue	<b>Google Meet</b>

Vedic Mathematics is a collection of ancient tricks and techniques to execute arithmetic operations quickly and more efficiently. Vedic Math comes from the Vedas, more specifically the Atharva Veda. It was revived by Indian mathematician Jagadguru Shri Bharati Krishna Tirthaji between 1911 and 1918.

Vedic mathematics is a gift of Krishna Tirtha; it is a collection of invaluable techniques that can profoundly improve our speed, understanding, and performance in mathematics and other sciences. Vedic Maths is not getting its due importance; it is a fantastic method. Vedic Math is a great technique to master calculations, being more efficient and accurate. Vedic Maths is elementary and can be comprehended easily.

Once a student begins to understand the basic concepts, they can get creative with their approach. Consequently, their understanding improves. It is flexible and applies to students of all ages. Using Vedic Math in competitive exams may give students an edge over the others.



Vedic Mathematics

How to calculate the complement of numbers?

Complements of 438, 359, 5374, 4729, 73819?  
and of 38776529046, 55674892980463367?

Something tricky, tedious?

Application of Vedic Mathematics

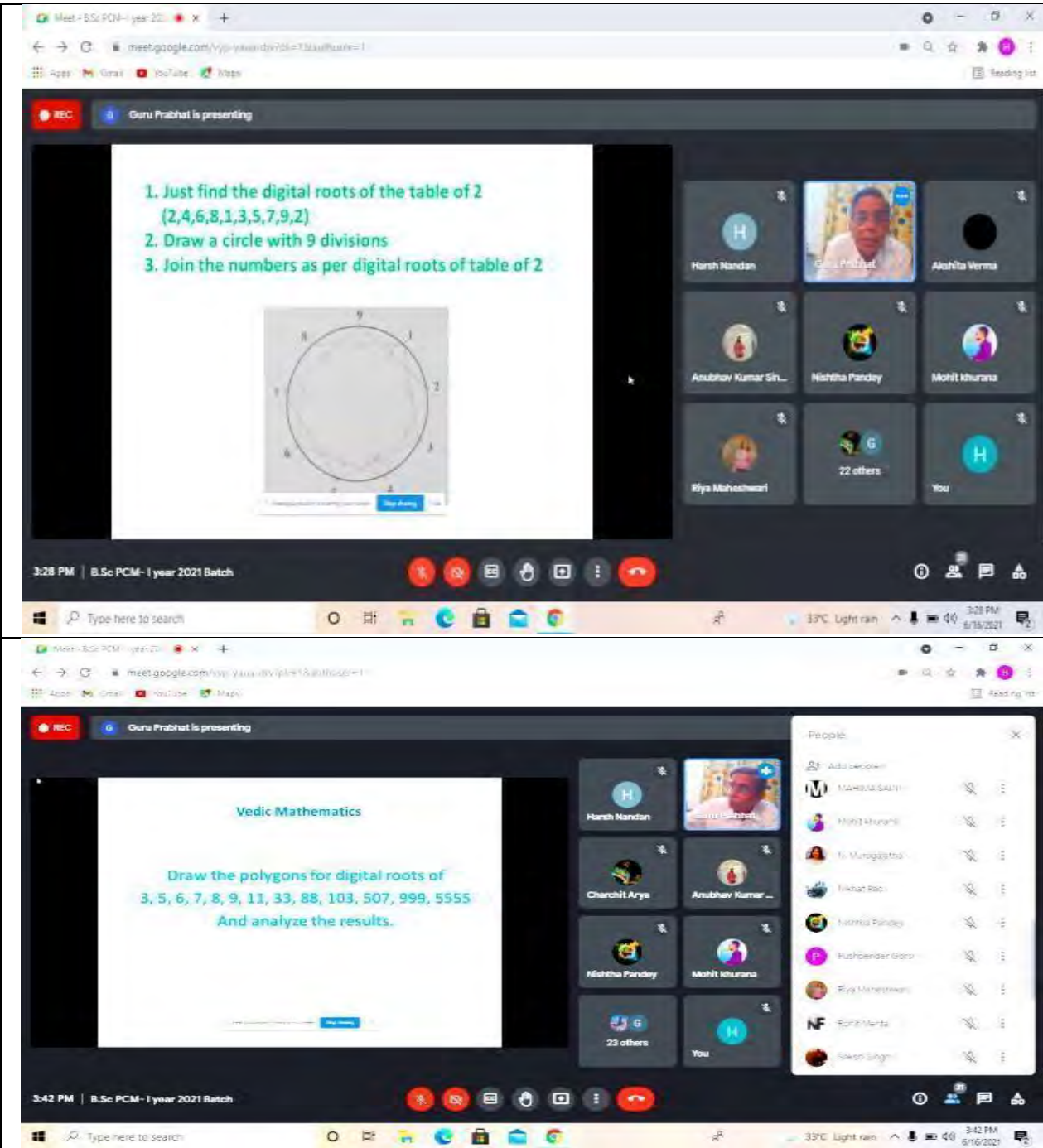
- Pythagoras Theorem
- Apollonius Theorem
- Analytic conics
- Finding equations of set of two straight lines
- Conjugate hyperbolas and asymptotes

This polygon is for the digital roots of table of 4

Vedic Mathematics

Just try quickly

52 + 9, 78 - 9, 66 + 9, 41 - 8  
 $12 \times 2.5$ ,  $52 \times 2$ ,  $54 \times 4$ ,  $12 \times 3.5$   
 $102/4$ ,  $128/4$ ,  $502/2$ ,  $704/2$   
 $52 \times 4$ ,  $92 \times 2$ ,  $127 \times 2$ ,  $61 \times 3$



**1. Just find the digital roots of the table of 2**  
(2,4,6,8,1,3,5,7,9,2)

**2. Draw a circle with 9 divisions**

**3. Join the numbers as per digital roots of table of 2**

**Vedic Mathematics**

**Draw the polygons for digital roots of**  
3, 5, 6, 7, 8, 9, 11, 33, 88, 103, 507, 999, 5555  
**And analyze the results.**

**Screenshots from Google Meet online Workshop by Mr. Guru Prabhat on Vedic Mathematics**



## Activity Report: Yoga Workshop to Endorse Indian Knowledge Systems

S No.	Basic Information of the Activity	
1	Name of Event:	Yoga Workshop
2	Date of Event:	21 <sup>st</sup> June 2022
3	Hosted By:	Quantum University
4	Number of Participants:	69 participants

On June 21, 2022, Quantum University embraced the spirit of International Yoga Day with an extraordinary celebration that brought together students, faculty, and staff in a harmonious union. The event aimed to illuminate the profound physical, mental, and spiritual benefits that yoga bestows upon practitioners.

The celebration comprised a delightful array of activities, meticulously curated to encourage participants to embrace the transformative power of yoga. Yoga sessions were guided by experienced instructors, allowing attendees to immerse themselves in various yoga asanas and breathing exercises, nurturing a sense of relaxation and inner peace. Meditation workshops, interspersed throughout the event, provided a serene space for contemplation, helping individuals find solace amidst the hustle and bustle of daily life.

### Major Outcomes of the Event

1. The event facilitated a deeper understanding among participants about the comprehensive physical, mental, and spiritual benefits that yoga offers.
2. The celebration successfully brought together students, faculty, and staff in a harmonious and united gathering, promoting a sense of togetherness.
3. Through guided yoga sessions and breathing exercises, attendees were able to immerse themselves in the transformative power of yoga, experiencing relaxation and inner peace.
4. Meditation workshops provided attendees with a serene space for contemplation, allowing them to find solace amid the daily hustle and bustle.
5. Enlightening talks on integrating yoga into daily routines enhanced participants' awareness of its potential to promote overall well-being and a balanced lifestyle.





**Quantum University Endorsing Yoga as a Healthy Lifestyle and Preserving the Spirit of Ancient Indian Exercises**