



18th Uttarakhand State Science and Technology Congress
(18th USSTC 2024)

8th – 9th February, 2024

Theme:

**“Bhartiya Jñāna Vijñāna Parampara
- World Peace and Harmony”**

Organiser:

Uttarakhand State Council for Science & Technology
(UCOST)

In collaboration with

Uttarakhand Open University, Haldwani

And

Kumaun University, Nainital

Venue:

Uttarakhand Open University, Haldwani

Introduction

The Uttarakhand State Science and Technology Congress (USSTC) is conducted as an annual event and provides a forum for interaction and deliberation, a review of the present status of R&D efforts to formulate strategies for better utilization of scientific and technical know-how and manpower for integrated holistic development of the State. The event provides a platform for talented young scientists from Uttarakhand to contribute towards the promotion of Science and Technology in the State. The Science Congress includes technical sessions of research presentations by young researchers, as well as theme lectures by eminent scientists, scholars, thinkers and policy makers.

Uttarakhand State Council for Science & Technology (UCOST) is going to organize the 18th Uttarakhand State Science and Technology Congress 2024 (18th USSTC 2024) from 8th to 9th February 2024 at Uttarakhand Open University campus, Haldwani in collaboration with Uttarakhand Open University, Haldwani and Kumaun University, Nainital. The theme for this year's Science Congress is '**Bhartiya Jñāna Vijñāna Parampara - World Peace and Harmony**'.

The 18th USSTC will emphasize on "Indigenous Knowledge Systems (IKS)". The objective is to bridge the gap between the traditional indigenous knowledge systems and modern science, fostering a deep understanding of how these two seemingly distinct realms can harmoniously exist and enrich each other. It will provide an inclusive platform that brings together scholars, scientists, researchers and practitioners from various fields to explore the profound wisdom found in the ancient Indian texts and their relevance in the contemporary world. This also aims to revisit India's age-old knowledge traditions and find ways to incorporate them into contemporary educational streams as envisaged in the National Education Policy (NEP), 2020.

The Theme: Indigenous Knowledge Systems (IKS)

The development of traditional knowledge systems in India traverses several successive stages. These include not only the adoption of various technologies but also the art of living, polity and formulation of social structures. The Vedas' supreme concern is, no doubt, the nature of Reality, but the Indian Knowledge systems equally include Ayurveda, the science of medicine and wellbeing, Astrology and the astronomical science of planets

and stars, the science of warfare, architecture, sculpture, metallurgy, and above all, the science of Dharma and a deep study of phenomenal Nature. The Indian traditional knowledge, in its wholeness, is thus embedded both in a wide scientific worldview as well as in philosophical, humanistic, artistic and sociological explorations.

Traditional knowledge systems of India begin with the Vedic literature, consisting of the four Vedas and the Upanishads. The six Vedangas, the subsidiary corollaries of the Vedas, include Shiksha, Kalpa, Vyakarana, Nirukta, Chhanda, and Jyotish. This traditional knowledge is enshrined in the Brahmanas, the Upanishads, Aranyakas, Puranas and the two epics, the Ramayana and the Mahabharata, the latter being verily a compendium of Dharma-shastra. Kautilya's Arthashastra covers several aspects of governance from lower-level management and administration to taxation, war and foreign policy. The six systems of Indian philosophy provide a comprehensive ontology and epistemology of the Being. Apart from the Vedic literature in Sanskrit, considerable portions of Sangam literature in Tamil, the Buddhist and the Jain literature in Pali and Prakrit also carry further these explorations. Revelation, intuition, experience, and a sustained constant experiment known as Sadhana constitute the bedrock of traditional knowledge systems in India.

This knowledge system, transmitted by the Rishis to their disciples, has travelled from one generation to another by way of oral instructions. For long considered esoteric and sacred, this knowledge system underwent a sea change after the invention of paper and printing technologies and became available to anyone who could read and write. The current developments in the field of ICT have further democratized this ancient knowledge and have helped to bridge it with contemporary and modern scientific knowledge. Also, several organizations and institutions worldwide have come up with their effort to preserve and manage traditional knowledge systems.

Part A—Plenary Sessions:

At the 18th Uttarakhand State Science Congress, brainstorming sessions, panel discussions, and presentation of new ideas on the theme **“Bhartiya Jñāna Vijñāna Parampara - World Peace and Harmony”** will be the highlight of the event. The theme has the following sub-themes on which in-depth discussions will take place.

Session One: Indigenous Knowledge System

The modern education system, designed predominantly for equipping students with skills and knowledge essential for career development and economic success, faces criticism for its narrow focus on pragmatic outcomes. In contrast, the ancient **Indian systems, ‘Bhartiya Jñāna Parampara’**, offer a comprehensive view of education that integrates material knowledge with spiritual wisdom.

Bhartiya Jñāna Parampara explores the nature of Reality, consciousness, ethics, and the pursuit of inner peace and happiness. Integrating these ancient principles into the current education system could lead to a more balanced and enriching learning experience. The wide-ranging concept of Dharma can be an essential part of this integration. This is particularly relevant in today's world, where moral and ethical issues are increasingly coming to the fore in various spheres, including technology, environment, and politics. Moreover, the application of Bhartiya Jñāna Parampara extends beyond academic learning and encompasses the development of emotional intelligence, resilience, and empathy.

Session Two: Science and Spirituality

The connection between spirituality and science has always come under debate. Science has long been seen as the domain of rationality and objectivity, while spirituality has been associated with faith, mysticism, and subjective experience. However, as our understanding of both fields has grown, it has become increasingly evident that there are significant connections between them.

One of the primary ways in which spirituality and science intersect is through the exploration of the nature of reality. Both spirituality and science are concerned with understanding the fundamental nature of the universe and our place within it. While science approaches this question through empirical observation and experimentation, spiritual traditions emphasize the importance of meditation and contemplation as a means of understanding the nature of reality. These practices can help individuals develop a deeper sense of interconnectedness with the world around them and can lead to profound insights into the nature of consciousness and the universe.

Session Three: Holistic Health and Ayurveda

Ayurveda, a natural system of medicine, originated in India thousands of years ago. Based on the idea that disease is due to an imbalance or stress in a person's consciousness, Ayurveda encourages certain lifestyle interventions and natural therapies to regain a balance between the body, mind, spirit, and the environment. Ayurveda treatment starts with an internal purification process, followed by a special diet, herbal remedies, massage therapy, yoga, and meditation. The concept of universal interconnectedness, the body's constitution (prakriti), and life forces (doshas) are the primary bases of the Ayurvedic approach to health and wellbeing.

In India, Ayurveda is considered a form of medical care, parallel to conventional Western medicine, traditional Chinese medicine, naturopathic and homeopathic medicines. Practitioners of Ayurveda in India undergo state-recognized, institutionalized training and Ayurvedic schools have gained approval as educational institutions in many states.

Session Four: Yogic Sciences

Yoga can be understood as a body of knowledge handed down through millennia from teacher to disciple. This knowledge has been gained through an intense, systematic and inward investigation into the workings of the human psyche in search of a meaning of existence. The major hypothesis is that the human, in essence, is an integral part of the “divine being”, and thus fully capable of experiencing the original state of the Being, Sat-Chit-Ananda. Since consciousness controls and permeates matter, a holistic state of wellbeing and happiness are our inherent possibilities, and thus freedom from all limitations, moksha, is the legitimate goal of human existence.

The science of yoga can be seen as the sublimation of all the finest and most noble approaches to life bequeathed to us as a legacy by the great Rishis of yore. The ancient Indian scriptures, the Vedas and the Upanishads are the treasure house of this wisdom. Yoga uses the technology of asanas, pranayama, kriyas, mudras, bandhas, and shat karma etc. to discover the unity of all life and usage of this wisdom in everyday life. Yoga has the methodology of an experiential and experimental approach which implies the performance of various physical and mental actions (abhyasa) and observing the resultant

effects with a dispassionate sense of objectivity (vairagya). The final aspect, the ‘proof of the pudding’, is that all of these experiments and experiences are open to verification.

Session Five: Vedic Mathematics, Geometry, Astronomy

Many School Boards in India are in the process of formalizing the instructions on our ancient mathematics i.e. Vedic Mathematics. Eversince the Hon’ble **Prime Minister Shri Narendra Modi Ji mentioned “Vedic Mathematics” in his radio address, Maan-ki-Baat**, the subject has come up for discussion among academics. We find some early discourses on arithmetic in the Atharvaveda, but substantial progress in the field of mathematics gained ground only with the development of Astronomical studies in India in the 2nd millennium BCE.

Astronomy at its inception developed as an auxiliary discipline associated with Vedic studies. Vedanga Jyotish said to have accurately identified the Winter Solstice around 1400 BCE, achieved its fullness of growth with the composition of Surya Siddhanta (505 CE), perhaps the best-known Indian text on the subject, describing the motions of the sun, moon and various planets relative to various constellations in a geocentric system. The text also estimated with reasonable precision the equatorial diameter of various astronomical bodies in the solar system and calculated their orbits. Aryabhata (476-550 CE), was the first to postulate that the apparent westward motion of stars every day was due to the rotation of the earth around its axis and stated that the apparent luminosity of the moon and other planets in the solar system is essentially reflected sunlight. He also theorized how to predict with reasonable precision the occurrences of eclipses. Some other notable names who made spectacular contributions to the field of Mathematics and Astronomy include Varahamihira (6th century), Brahmagupta (7th Century), Bhaskar I (7th Century), Bhaskar II (12th Century), Narayan Pandita (14th Century) and Madhava Sangamagrama (14th/15th Century).

Session Six: Bhartiya Jñāna Vijñāna Parampara - World Peace and Harmony

India is a land of multi-ethnic cultures where people belonging to different religious, racial, cultural and linguistic identities live together harmoniously. The country is known

for communal harmony which is the hallmark of a mature democracy. Harmony is truly the fundamental law of creation and governs our life on the planet Earth.

All religions enjoin us to live in harmony, peace and togetherness and spread out the message of love and brotherhood. They inculcate in our resilience, tolerance and forbearance for all beliefs and faiths. The time has now come for all mankind to live on earth harmoniously as a single family, *Vasudhaiva Kutumbkam*. Indian Knowledge systems since ancient days have fostered the unitive vision, where all life is seen as the manifestation of the One. By bringing in the ancient wisdom of Bhartiya Jñāna Vijñāna Parampara to the mainstream discourse, the 18th Uttarakhand State Science and Technology Congress 2024 endeavors to affect a paradigm shift in our educational and governance models.

Special Session – Disaster Resilient Uttarakhand

Last year had been very important and critical for Uttarakhand from Disaster Management point of view. While on one hand Uttarakhand set the new benchmarks of event management and hospitality through three critical and most important G20 meets including Chief Scientific Advisors Roundtable at Ramnagar, on other hand we had gone through challenging testing times in convincing the whole world about Uttarakhand's capabilities as a resilient and progressive state as far as Disaster Management and Risk Reduction is concerned. Be it Joshimath subsidence or the Silkyara tunnel episode, state had shown invincible maturity, determination, management capabilities of highest quality to address the challenges in most optimum and effective manner. Silkyara became centre of attention for all disaster management experts, scientists, researchers and practitioners worldwide and through consistently integrated efforts of various enterprises, it became an ideal example of collaborative integrated disaster management and risk reduction framework.

Grand organisation of world's largest congregation of disaster management professionals outside UN systems in the form of world congress on disaster management at Dehradun from 28 November- 1 December 2023 was another feather in the cap for Uttarakhand. Having representation from around 70 countries including leading international organisations like UN, Worldbank, GIZ, CDRI, ICIMOD, IMI etc, WCDM has

positioned Uttarakhand prominently on the world map. DEHRADUN DECLARATION drafted based on inputs and suggestions from renowned experts during number of plenaries, special technical sessions, special feature events and technical sessions during this world congress has set the tone for measures of Disaster Resilience across the areas and geographies with specific focus in mountain ecosystems. Efforts are underway to further elaborate and develop a roadmap as way forward to implement takeaways from Dehradun Declaration not only in Uttarakhand but in entire Himalayan region and other mountain ecosystems as well.

Part B—Technical Sessions:

The Council invites abstracts of original research work, experiments and success stories related to the theme from research fellows and researchers studying/working in different R&D research institutions, universities, colleges and any recognized, private or autonomous Science and Technology organizations located in the Uttarakhand State in the following disciplines:

1.	Agriculture Science
2.	Bio-Technology, Bio-Chemistry and Micro-Biology
3.	Botany, Environmental Science and Forestry
4.	Chemistry
5.	Earth Sciences including Geology, Geo-morphology, Geo-physics, Glaciology, Geography, Remote Sensing & GIS
6.	Engineering Sciences, Material Science and Nano Technology
7.	Home Science, Health and Nutrition
8.	Mathematics, Statistics and Computer Science
9.	Medical Science and Pharmaceutical Science
10.	Physics
11.	Rural Science, Technology and Society

12.	Zoology, Veterinary Science and Animal Husbandry
13.	Indigenous and Traditional Knowledge Systems etc.

- Innovator of the year award