

## International Day of Women & Girls in Science (February 11)

(Ministry of Science and Technology)  
&  
(Ministry of Women and Child Development)

February 16, 2023

*“Today the country does not think about women empowerment through science only. Rather, our aim is that we should empower science with the participation of women and give new momentum to science and research.”*

- [Prime Minister Narendra Modi](#)

### Introduction

The International Day of Women and Girls in Science, which is celebrated on February 11 every year, is implemented by UNESCO and UN-Women, in collaboration with institutions and civil society partners that aim to promote women and girls' participation in science. This Day is an opportunity to promote full and equal access to and participation in science for women and girls.<sup>1</sup>



### Background

Supporting young girls in their education to help them achieve their full potential and empower them to voice their ideas is imperative for both development and peace. On December 22, 2015, the United Nations General Assembly decided to establish an annual International Day to recognize the critical role women and girls play in science and technology.

### Indian Government's Initiatives for Promoting Science Among Women

The Government of India has been taking various measures to promote science among women and girls in India. It recognizes that women have an important role to play in the development of science and technology in the country, and has taken steps to encourage their participation and empowerment in these fields.

<sup>1</sup> <https://www.unesco.org/en/days/women-girls-science>

The government has set up programs and initiatives to provide women with access to education and training in science, technology, engineering and mathematics (STEM) subjects, and to support their professional development and advancement<sup>2</sup>.

Additionally, it has implemented policies to address the gender gap in STEM fields and is working to create a more inclusive and supportive environment for women in science and technology.

The goal of these efforts is to increase the representation of women in STEM fields and to encourage more girls to pursue careers in science, thereby contributing to the overall advancement of the country's scientific and technological capabilities.

1. **‘Women in Science and Engineering-KIRAN (WISE-KIRAN)’** to ensure participation of women in the field of Science and Technology (S&T) through various gender-enabling programmes. **‘Women Scientists Scheme (WOS)’** under WISE-KIRAN provides various opportunities to women scientists and technologists, especially those who had a break in their careers, to pursue research.
2. **Indo-US Fellowship for Women in STEMM (Science, Technology, Engineering, Mathematics & Medicine)** encourages women scientists and technologists to undertake international collaborative research in premier institutions in the USA.
3. In addition to fellowship programmes, DST also provides support for the development of research infrastructure and the creation of state-of-the-art research laboratories under the ‘Consolidation of University Research through Innovation and Excellence (CURIE) Programme’ in women’s institutions to enhance women’s participation in S&T domain.
4. DST has also started a new programme **“Vigyan Jyoti”** for meritorious girl students of Class 9-12 to encourage them to pursue education and career in science and technology, particularly in the areas where women are underrepresented.
5. Another new programme, **Gender Advancement for Transforming Institutions (GATI)** aims to transform institutions for more gender-sensitive approach and inclusiveness with the ultimate goal to improve gender equity in S&T.



6. Further, **“SERB-POWER (Promoting Opportunities for Women in Exploratory Research)”** scheme of Science and Engineering Research Board of DST aims to

<sup>2</sup> <https://pib.gov.in/pressreleaseiframepage.aspx?prid=1694537>

address lower participation of women scientists in research activities and to mitigate gender disparity in science and engineering.

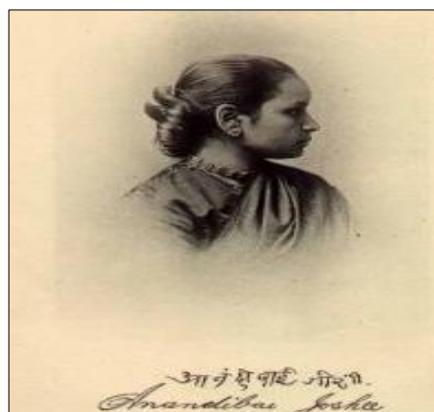
7. In addition to this, Department of Biotechnology (DBT) is also implementing ‘Biotechnology Career Advancement and Re-orientation Programme (**BioCARE**)’ to enhance the participation of Women Scientists in Biotechnology research and also instituted Janaki Ammal National Women Bioscientist Awards to recognize the contributions of senior and young women scientists in the country who are working in the areas of Biology and Biotechnology.
8. The Council of Scientific & Industrial Research (CSIR) is giving a relaxation of five years in the upper age limit to women candidates to be eligible for award of Fellowships/Associateships to pursue doctoral and postdoctoral research to promote women in science & technology.
9. Moreover, the Ministry of Earth Sciences **has initiated a special award called the “National Award for Woman Scientist” since 2018 which is being conferred to one woman scientist each year.**
10. [Women in Engineering, Science, and Technology \(WEST\)](#) - A new I-STEM (Indian Science Technology and Engineering facilities Map) initiative called “Women in Engineering, Science, and Technology (WEST)” was launched by the Government of India on 5th September 2022. The WEST programme will cater to women with a STEM background and empower them to contribute to the technology and innovation ecosystem.<sup>3</sup>

### **Breaking Barriers: Some of The Pioneering Indian Women in STEM**



**Kadambini (Basu) Ganguly (1861–1923):** She was not only the first female graduate of the British Empire, but also one of the first female physicians of South Asia to be trained in western medicine. Ganguly was the first woman to gain admission to Calcutta Medical College in 1884, subsequently trained in Scotland, and established a successful medical practice in India. She was also the first woman speaker in the Indian National Congress.

**Anandi Gopal Joshi (1865–1887):** In the year 1886, another woman from India obtained a degree in Western medicine. Anandi Bai Joshi graduated from Women’s Medical College in Philadelphia, USA and thus became the first Indian to study medicine from abroad. She joined the Medical College of Pennsylvania in 1883 at the age of 19 and graduated as a Doctor of Medicine on 11 March 1886. Her thesis was on ‘Obstetrics among the Aryan Hindus’, wherein she used influences from both Ayurvedic and American medical textbooks<sup>4</sup>.



<sup>3</sup> <https://pib.gov.in/Pre-ssReleasePage.aspx?PRID=1857175>

<sup>4</sup> <https://indianculture.gov.in/snippets/anandi-gopal-joshi>



**Anna Mani (1918–2001):** Former Deputy Director General of the Indian Meteorological Department (IMD), Anna Mani was an Indian physicist and meteorologist. She studied meteorological instruments at Imperial College London and after returning to India in 1948, she joined the Meteorological department in Pune. She conducted research and published numerous papers on solar radiation, ozone and wind energy measurements. She authored two books, *The Handbook for Solar Radiation data for India* in 1980 and *Solar Radiation over India* in 1981, and won the K.R. Ramanathan Medal in 1987.

**E K Janaki Ammal (1897-1984):** D.Sc. (1931, Michigan), Founder Fellow of the Indian Academy of Sciences. She was a renowned botanist and plant cytologist who made significant contributions to genetics, evolution, phytogeography and ethnobotany. Ammal was elected Fellow of the Indian Academy of Sciences in 1935, and of the Indian National Science Academy in 1957. The University of Michigan conferred an honorary LL.D. on her in 1956. The Government of India conferred the Padma Shri on her in 1957. In 2000, the Government of India instituted the National Award of Taxonomy in her name in 2000<sup>5</sup>.



**Rajeswari Chatterjee (1922-2010):** She was the first Woman Scientist to pioneer in the Field of Microwave Engineering and Antennae Engineering in India. She earned an MS degree in Electrical Engineering from Michigan University, USA in 1949. Around 60 years ago, she was the only female faculty in the Indian Institute of Science. Her awards include Mountbatten prize for the best paper from the Institute of Electrical and Radio Engineering, UK, the J C Bose Memorial prize for the best research paper from the Institution of Engineers. She retired as Professor and Chairperson of the Department of Electro-Communication Engineering, IISc, Bengaluru.

<sup>5</sup> [https://www.ias.ac.in/public/Resources/Initiatives/Women\\_in\\_Science/Contributors/janaki\\_ammal.pdf](https://www.ias.ac.in/public/Resources/Initiatives/Women_in_Science/Contributors/janaki_ammal.pdf)

There have been many other women in India who pursued their careers in Science and carved a niche for themselves such as, **Dr. Jamini Sen, Emilie de Costa, Dr. Hilda Mary Lazarus, and Ila Ghose**. Here are some more of them:



**Asima Chatterjee:** Recipient of Padma Bhushan, she was the first woman to be awarded the D.Sc. of any Indian university. The numerous awards she won include Shanti Swaroop Bhatnagar Award, C V Raman Award of the UGC, P C Ray Award, Sisir K Mitra Lectureship and Dr G P Chatterjee Lectureship. She was the first woman President of the Indian Science Congress and a member of Rajya Sabha. Her area of interest was natural products with special reference to medicinal chemistry. Chatterjee successfully developed the anti-epileptic drug, Ayush-56 from *Marsilia minuta* and the anti-malarial drug from *Alstonia scholaris*, *Swrrtia chirata*, *Picrorhiza kurroa* and *Ceasalpinna crista*. The patented drugs have been marketed by several companies<sup>6</sup>.

**Dr. Indira Hinduja:** She is the first Indian women who delivered a test tube baby on August 6, 1986. She has also pioneered the Gamete Intra Fallopian Transfer (GIFT) technique resulting in the birth of India's first GIFT baby on 4 January 1988. She is an Indian gynaecologist; obstetrician and infertility specialist based in Mumbai. She is credited with developing an oocyte donation technique for menopausal and premature ovarian failure patients, and is known for giving the country's first baby using this technique on 24 January 1991.



**Manju Sharma:** Ph.D. (1965, Lucknow), FNASc, FTWAS. She was the president of the National Academy of Sciences during 1995-96 (and the only woman President of any Science Academy in India). Her numerous awards include the Padma Bhushan, National Senior Woman Bio-scientist Award, NASI Platinum Jubilee Gold Medal, and the Norman E. Borlaug Award. She has been responsible for the establishment of a number of new institutions such as the National Institute of Immunology, New Delhi, the Centre for DNA Fingerprinting and Diagnostics, Hyderabad, the National Brain Research

<sup>6</sup> [https://www.ias.ac.in/public/Resources/Initiatives/Women\\_in\\_Science/Contributors/Chatterjee.pdf](https://www.ias.ac.in/public/Resources/Initiatives/Women_in_Science/Contributors/Chatterjee.pdf)



Centre, Manesar, and the Institute of Bioresources and Sustainable Development, Manipur.

**Kalpana Chawla:** (March 17, 1962– February 1, 2003) She was the first Indian-American astronaut and first Indian woman in space. She first flew on Space Shuttle Columbia in 1997 as a mission specialist and primary robotic arm operator. The NASA chief called her a “Terrific astronaut”. On February 1, 2003, the U.S. space shuttle Columbia with a seven-member crew that included Chawla, 41, disintegrated in flames over central Texas shortly before it was scheduled to

land at Cape Canaveral in Florida<sup>7</sup>.

**Vanitha Muthayya, Ritu Karidhal and Swati Mohan<sup>8</sup>:** For the first time in India's history, a space mission - Chandrayaan-2, India's second mission to the moon, was led by two women scientists of Indian Space Research Organisation (ISRO). While **Vanitha Muthayya** headed the country's second lunar mission Chandrayaan-2 as project director, **Ritu Karidhal** was the mission director.



Indian-American scientist **Swati Mohan** led the guidance, navigation, and control operations of the Mars 2020 mission. She is one of the many Indian women scientists, engineers and missile developers, who are leaving a trail for future generations.

## Further Reading

<https://indbiz.gov.in/pioneering-work-of-women-scientists-in-india-gets-a-boost/>  
[https://www.ias.ac.in/Initiatives/Women\\_in\\_Science/The\\_Women\\_Scientists\\_of\\_India](https://www.ias.ac.in/Initiatives/Women_in_Science/The_Women_Scientists_of_India)

## References

<sup>7</sup> <https://ncsm.gov.in/hi/resources/blog/indian-women-in-science-technology>

<sup>8</sup> <https://www.aninews.in/news/world/asia/indias-women-scientists-breaking-barriers-in-space-exploration20210302121205/>

- <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1697219>
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## Video Links

- <https://indianculture.gov.in/video/indian-women-science>
- <https://www.istem.gov.in/latest-info/videos>

## Website Links

- <https://dst.gov.in/>
- <https://wcd.nic.in/>
- <https://www.unesco.org/en/days/women-girls-science>
- <https://www.un.org/en/observances/women-and-girls-in-science-day/assembly>
- <https://transformingindia.mygov.in/scheme/women-scientists-scheme/>
- <https://tifac.org.in/>
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- <https://www.sanskritimagazine.com/women-empowerment-ancient-bharat-modern-india/>
- <https://dst.gov.in/scientific-programmes/scientific-engineering-research/women-scientists-program>
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- [https://www.isro.gov.in/Chandrayaan\\_2.html](https://www.isro.gov.in/Chandrayaan_2.html)
- <https://www.aninews.in/news/world/asia/indias-women-scientists-breaking-barriers-in-space-exploration20210302121205/>
- <https://www.aninews.in/news/national/general-news/india-to-launch-its-maiden-human-space-mission-gaganyaan-in-202320211209220911/>
- India's women scientists breaking barriers in space exploration  
Read more at: <https://www.aninews.in/news/world/asia/indias-women-scientists-breaking-barriers-in-space-exploration20210302121205/>
- <https://amritmahotsav.nic.in/blogdetail.htm?75>
- <https://www.education.gov.in/en/sanskrit-vedic-institutions>
- [nsaindia.res.in](https://nsaindia.res.in)
- <https://dst.gov.in/first-its-kind-program-lateral-entry-women-researchers-joint-rd-projects-between-india-and-germany>
- <https://www.vigyanjyoti.com/>

## Newspaper & Magazine Links

- <https://timesofindia.indiatimes.com/india/chandrayaan-2-indias-1st-space-mission-being-led-by-women-scientists/articleshow/70214125.cms>
- <https://timesofindia.indiatimes.com/india/chandrayaan-2-indias-1st-space-mission-being-led-by-women-scientists/articleshow/70214125.cms>
- <https://indbiz.gov.in/pioneering-work-of-women-scientists-in-india-gets-a-boost/>
- <https://www.moes.gov.in/sites/default/files/2021-08/Science-Reporter-Aug-2021.pdf>

- <https://theprint.in/science/these-are-the-11-indian-women-scientists-the-new-stem-chairs-are-named-after/374077/>

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