

Historic contribution of various women in STEM

Women have always been a part of every major event in the history of various world events, be it big or small their presence has always mattered and been significant in shaping the past, present, and future. STEM has predominantly been a male-dominated field but it does not mean that no women existed in this large area of opportunities.

No subject, field, opportunity distinguishes between any individual with respect to his/her beliefs, it is the mindset which creates or ends opportunities for you. Fighting odds is not everyone's cup of tea and surely a tough task to carry out when you are the first. The same happened with Ayyalasomayajula Lalitha.

1. Ayyalasomayajula Lalitha (First woman engineer of India)

Ms. Lalitha, being born in the age of British rule and during the freedom struggle where girls were deprived of basic necessities, studying was an impossible dream. Her dad was a professor at the **College of Engineering, GUINDY**, and knew the importance of being literate and liberal. Britishers took advantage of people being illiterate and misinformed them and things happened in the past which is now a part of history but holds importance and is relevant today too.



Well, like any other child she was **married at the tender age of 15** and had a child. She left studying after marriage and was forced to look after the house. But, **her husband died at the young age of 18** and her father took to himself for her completing the studies that she left.

Mind you, this was the **age when SATI was practiced** by women when their husbands died. She studied hard and got into the engineering college of GUINDY and **she was the only female in the classroom as well as the college**. Yes! It was very rare for a girl to study and especially pursue one of the STEM fields. She, **later on, went to become the first woman engineer in India**.

She **passed out of college with an electrical engineering degree** in her hand and also did a year-long apprenticeship at Jamalpur Railway Workshop. Apart from all the odds, all the difficulties, without thinking about the judgments, with the support of her father and other family members, Lalitha became a part of history which will never forget her. The information describes that there **were 100's of boys in her college and no girl washroom facilities but authorities had to build them because of Ms. Lalitha's admission**. This shows how one small step can start a change and make a difference. **Today crores of girls study and it is getting better each day**

Moving ahead, You know, if someone asked you to think about a mathematician, the first thing that will come to your mind is this one guy with a beard probably wearing old clothes looking like a

scientist but why is it so? Aren't there any female mathematicians or do females not understand math? Well, both do not apply, as the world has seen some serious talent from females in the math field as well. It is just about the stereotypical image that is built around the subject which makes it seem like a male-dominated practice. One such example in the field of Math was, **Maryam Mirzakhani**.

2. Maryam Mirzakhani (The only female with the FIELDS award)

A person who dominated the math field in her short lifespan which eventually reflects by the fact that she won the FIELDS award which is considered the most prestigious award for contribution in the mathematical field. She was born and raised in IRAN which is quite a conservative country.

Her excellence in the field of studies was proved ever since she attended school. She won the Iranian National Olympiad which meant she was not needed to go through the entrance exam. Following in 1994, she became the **first IRANIAN ever to win an international olympiad**. Well, this was the start. Following years to come, she won two gold medals and was the **first IRANIAN student who had a perfect score in such an International Event**.



She, later on, went to the USA for graduation and work under other FIELD medalists and also earned a Ph.D. from Harvard University. She used to be different from other students as she was called the question queen and known for relentless questioning. Mirzakhani described herself as a "slow" mathematician, saying that "you have to spend some energy and effort to see the beauty of math." To solve problems, Mirzakhani would draw doodles on sheets of paper and write mathematical formulas around the drawings. Her daughter described her mother's work as "[painting](#)".

She declared: I don't have any particular recipe [for developing new proofs] ... It is like being lost in a jungle and trying to use all the knowledge that you can gather to come up with some new tricks, and with some luck, you might find a way out.

Unfortunately, she was diagnosed with breast cancer. She died at a very young age of 40. She left a legacy behind. The country of IRAN paid her tributes and the president Mr.Rouhani in his emotional message said - **"the unprecedented brilliance of this creative scientist and modest human being, who made Iran's name resonate in the world's scientific forums, was a turning point in showing the great will of Iranian women and young people on the path towards reaching the peaks of glory and in various international arenas."**

She remains the one and the only woman who graced the FIELD award and remains an undisputed inspiration for women across the globe and breaking the stereotype that only men belong to STEM. She made her country proud at multiple instances and also made her mark on the world as a strong, notable woman.

3. Mangala Mani-(The first woman scientist from ISRO in Antarctica)

Be it Math or science, stereotypes exist for each field, and breaking the stereotypes is what makes it really impactful. One such fine example is this inspirational figure right here. **Mangala Mani.**

She is the **first Indian Woman scientist from ISRO to ever spend time in the World's Coldest place i.e Antarctica.** Yes! How “cool” is that. She was **part of 26 members which was basically an all-men group and she was quite clearly the only female in the squad.** Breaking all the stereotypes and barriers, be it gender-specific or age-specific, the work which Ms. Mangala did prove to the world that **age and gender do not matter** at such places and what matters is the determination of one individual.

She spent more than a year, to be precise a **whopping 403 days in such extreme conditions**, and was the only female to be selected for the process. The process is so difficult that, at the same time the Russian and Chinese squad too had no women in their force. Such was the determination level of Ms. Mangala.



The individuals have to go through a lot of tough and challenging assignments before they are selected for the project where first they go on treks in extreme conditions with heavy backpacks which test the physical toughness of the person, next they spend time in extremely cold conditions so they adapt to it and have fewer amounts of difficulties when they go to the actual destination. In an interview she said during the winters in Antarctica, it is left out and it is not in any sort of connection with the rest of the world.

In an interview, she said, going to Antarctica was a challenge but also an experience she can never forget. She also mentioned that men generally are stronger at the tasks which include physical strength but when it comes to such extreme and difficult conditions, **women are better at handling emotional bridges. She also said that women must have faith in themselves and with that, they can achieve everything they want!**

So, while reading the above examples of such inspirational women, who achieved what they achieved in a “Male-dominated” environment suggests to us that no field is really gender-specific. However, STEM needs 1 million more people to actually work at full strength which means there is an ocean of opportunities available, one just needs to be determined to take a dive in this ocean. Belief, determination, hard work, self-confidence, and respect for others is what will make you a better human being and successful at what you are doing.

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