Nurture and Celebrate

Indian Women in STEM

WiSTEM

2021

Tamil Nadu

TDPC

CII

Confederation of Indian Industry

FOREWORD

Women Achievers in STEM

Anu Sriram,
Convenor- Executive Committee,
CII TNTDPC Women in STEM &
Co-Founder & Joint Managing Director
Integra Software Services Private Ltd.

It gives me great pleasure in having been designated the Convenor of the Women in STEM (Science, Technology, Engineering and Mathematics) initiative of CII-TNTDPC.

Indian women constitute around 40% of undergraduate students in science and around 30% in engineering. However, only 14% of Indian scientists are women. Even in top institutions, such as TIFR, the IITs, or IISc, women faculty constitute only 12%. In the technology sector, only 25% of positions are held by women, and only less than 1% are in the C-suite. Also, only 12.7% of working engineers are women.

There seems to be a considerable leaking pipeline of talent in STEM. Given the vital role of science and technology in economic development of India, more focus needs to be given to encouraging and retaining women in the STEM areas.

Keeping this in mind, CII-TNTDPC has decided to compile an e-book on Indian women achievers in STEM with the following objectives:

- To recognize and celebrate Women in STEM, who bring a unique vision and contribute to the advancement of their fields of specialization.
- To encourage the contribution of women leaders who are making a difference and encouraging and mentoring other women in STEM.

There are many role models and women achievers in STEM in India. We have women entrepreneurs, academicians, and business leaders in STEM, who are accomplishers in their own domains, achieving many milestones for the first time in the country, sometimes even among their global peers. They contribute to the development of STEM through numerous publications. They have patents to their credit. They take new ideas to the market and scale them up to form successful enterprises. They invent new materials in their laboratories. They lead their organizations to greater heights, guiding their teams along with them.

This book is a great initiative by the CII and Tamil Nadu Technology Development & Promotion Center, an autonomous society of CII. It is a compendium of 50 women achievers in STEM. Each one of them has overcome challenges and emerged as a leader in her area. They questioned the status quo. They have carved a niche career path for them. They did not hesitate to ask for support when required. They had their own role models and mentors for guidance. They have contributed immensely to the body of knowledge in their areas, to their overall profession, and to the greater society. They continue to do so.

This book is a guiding light for young and mid-career professionals and enables them to question their limits of what is possible. STEM will play a key role as a driver of our economy in the days to come. The story of these 50 women achievers in STEM will help the future generations to aim for the stars.

We had constituted an Executive Committee (EC) consisting of leading women from various fields such as Academia, Industry and Entrepreneurship. The committee virtually met almost every week for reviewing the progress of identifying women achievers through profile screening and data validation. The committee had been divided into subgroups, and further filtration of candidates was done through a rigorous screening process, using a scoring matrix and interviewing selected candidates.

I would like to thank all the EC members for passionately participating in this initiative. The members gave much of their time and provided their ideas and perspectives throughout the process right from deciding on the STEM areas to be considered, categorizing the women applicants into 3 groups (Academia, Industry & Entrepreneurship), formulating a scoring matrix, and diligently participating in the evaluation process. I enjoyed working with all the EC members – their different backgrounds and diverse perspectives led to very thought-provoking and engaging discussions and has culminated in the release of this e-book.

It is a miss if I don't acknowledge the partnership extended by IIT, Madras. Our sincere gratitude to Dr Bhaskar Ramamurthi, Director, IIT Madras, for having partnered with this initiative. Thanks to his involvement, faculties of IITs across India participated in the e-book, and some of them are also being featured in this e-book.

I am happy to place on record the outstanding contribution of Mrs. Suchitra Ella, who is an inspiration to many aspiring and successful women entrepreneurs. Mrs. Suchitra is the Deputy Chairperson of CII SR, Founding & Past National Chairwoman of Indian Women Network, CII. She is a true voice and energy in promoting women empowerment

Our sincere appreciations to Mrs. Suchitra Ella, her family and Bharat Biotech for developing COVAXIN®, India's indigenous COVID-19 vaccine in collaboration with the Indian Council of Medical Research (ICMR) – National Institute of Virology (NIV), thereby saving the lives of millions of people and achieving our Hon'ble Prime Minister's vision of Atma Nirbhar Bharat.

I would like to thank Ram, who has spent his time to interview the women achievers, writing their success stories, and ensuring the best and inspirational journeys of the women achievers are documented very well for the benefit of the readers, young girls, women, and others. Ram is a Principal Consultant at Infosys Knowledge Institute.

On behalf of the EC, my special appreciation to Madhu Vasanthy, Member Secretary of CII TNTDPC for initiating and being the dependable anchor for this initiative and being always available for all the EC members. We would also like to appreciate Amritha for the close coordination. My appreciations to Regin Jude for his continuous support to this initiative.

The Integra team has worked with complete dedication and their creative involvement has helped in creating this ebook, and I appreciate every member involved.

I consider being the Convenor of this initiative as an honor and privilege. It was so heartening and inspiring to see the profiles of the women who have been featured in this e-book. Each one of them has a unique story to tell and many achievements to share and has broken several barriers both personal and professional. I am sure that these women will serve as great role models for other aspiring women and will give more confidence, courage, and inspiration to the coming generation of STEM professionals and students. I also wish each one of the women profiled in this e-book continued success in their career.

I would like to conclude by saying that every woman has a unique set of strengths and faces different challenges. Play to your natural strengths and unleash your potential. Your mindset is your biggest barrier so work with zeal to aim for higher benchmarks. Don't forget to take time to invest in yourself and make sure to enjoy every moment of your journey and celebrate life.

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Mrs. Suchitra Ella

Joint Managing Director,
Bharat Biotech International Limited

Mrs. Suchitra Ella is the Joint Managing Director of Bharat Biotech, which she co-founded with Dr. Krishna Ella in 1996. She is also the Chairperson of CII Indian Women Network. She serves on the Boards of ISB Well Wisher's Trust and United Way Hyderabad—an international charity partner focused on social empowerment in local communities. Mrs. Suchitra strongly believes in corporate citizenship and social responsibility. She spearheads the CSR initiatives of the company.

Setting up Bharat Biotech

Mrs. Suchitra is a first-generation entrepreneur. Bharath Biotech's overall objective when it was started was to become a world-class vaccine research and manufacturing entity. The team knew that they had to take some steps to achieve that final objective. But as a country, we were not ready yet in 1996, when Mrs. Suchitra returned from the U.S. There were no clear guidelines for biotechnology, a sunrise sector then. But she had no inhibitions – whether it was standing in the Collector's office for 2 hours for an appointment or to walk into a telephone exchange to apply for a phone connection.

The best part of going to office for Mrs. Suchitra every day was not knowing what was out there to be done. Everything was unknown and new. But not knowing sometimes helped. The mind was open to learn, absorb and execute and that is what entrepreneurship is all about. Whatever was required for the company had to be done, sometimes getting her hands dug deep into work. She never felt that as an owner of the company, she did not have to do any work and delegate it to someone else. When there was no receptionist for the first few weeks after setting up, she had to sit at the front desk. Every aspect of running a business was important, however big or small it was.

The Covaxin story

A memorable day for Mrs. Suchitra is January 12th 2021. The team had tears in their eyes when trucks with Covaxin rolled out from the plant in Hyderabad to 11 cities to kickstart our vaccination program on 16th. The trucks left at 1am to reach the airport on time for the early morning flights. The Ministry of Health had given emergency use authorization for the usage of Covaxin during the pandemic.

Another memorable day is April 28th 2020, when lockdown was announced. A group of senior colleagues took two vans and drove down to the National Institute of Virology, Pune, to collect strains of the SARS-CoV-2 virus that was isolated there. No logistic operators were available. No private entities had access to the strains and Bharat Biotech had written to ICMR (Indian Council of Medical Research). The team brought back the strains intact, frozen at -70 degrees Celsius. The virus was grown, inactivated, and a potential vaccine candidate formulated in 30 days. The vaccine candidate was first deployed in animals as part of regulatory procedures to test for its safety. In 60 days, it was administered in small lab animals after which the company wrote to the drug controller, the regulator, for conducting human trials and the rest is history.

According to Mrs. Suchitra, the five success factors for Bharat Biotech are the passion, vision to accomplish something big for the society, a mission to achieve that end goal, the people, and the energy to achieve any endeavour. Without these 5 intrinsic values in the organization, the company could not have created Covaxin or its other products. Covaxin was all the more challenging because of the tight timelines and the bull had to be taken by the horns. The team had remarkable strength as an organization to pull through because of its passion in building products before. If it had not built products before, they could not have done it now for Covaxin.

Role models for guidance

For Mrs. Suchitra, her father was her first role model. 80% of what she is today is from the early lessons learnt from him for life lessons, value systems, work culture, and hard work. Education did teach a lot on the subject matter side. During her stint in the U.S., a meritocratic system where people's lives advance with hard work, she has seen several women rise up in their career. Many of them, a long list to be named, have been a role model. As a youngster back in college when she did not know what was it to run a business, Mrs. Suchitra always used to wonder how JRD Tata could think of entrepreneurship. It was more than a century back in his time, even before our independence. Some of our first-generation freedom fighters taught us resolve, conviction and courage to overcome challenges, political or social.

Dr. APJ Abdul Kalam was one of the first people Mrs. Suchitra Ella and Dr. Krishna Ella were blessed to meet after returning back from the U.S. When the Hepatitis B vaccine was launched by Bharat Biotech, Dr. Kalam was the Principal Scientific Advisor for the Government of India, before he went on to become the President. He visited Bharat Biotech and sat with the team for 2 hours. He instilled a great amount of passion, zeal and conviction in Mrs. Suchitra and the team. His dream was to see Indian companies invest in technologies in life sciences so that we could make our own vaccines for hepatitis, malaria and HIV. After he moved to Delhi, a 30-minute discussion with him would energize Mrs. Suchitra for a couple of years. That was the amount of energy he passed on as a mentor and role model.

Message for youngsters

According to Mrs. Suchitra, youngsters must be bold and courageous first, especially when you are a nobody. Today, Bharat Biotech is popular for Covaxin. But she faced several challenges

during the initial stages. Courage is an innate sense of quality to build, especially for entrepreneurs. If we do not have the courage, we cannot face any situation. It is sometimes intimidating to walk into unknown territories and get work done. We need to be bold to talk and communicate.

Learning through work, absorbing like a sponge is important, whatever be the environment. Mrs. Suchitra had a background in economics when she moved to the U.S. and was new to computers, unlike her contemporaries there at that time. But she learnt and excelled. The environment has an enormous ability to teach us. We need to observe, absorb and learn from it.

We should learn to not give up. If something we try for the first time does not work, we should not lose interest and give up. We should follow up until success is achieved. Entrepreneurship is not about a few weeks or months. Sometimes it takes beyond a few years to be successful. When Mrs. Suchitra's team was working on the Hepatitis B vaccine, investments into it kept going in and there was no return until the end of 3 years. Investors left looking at the long cycle. Instead of packing their bags and returning back to the U.S, Mrs. Suchitra and team persisted. Startups can count more failures than successes.

Personally, for women, some sacrifice is required. They have an additional role of a caregiver at home as well. Being a mother does not give an excuse not to work. Women don't have social support, especially in India, when compared to other western countries. In the West, even if there is no family support, they are tuned from childhood to do everything on their own. Children are not so protected like India, girls or boys. Everyone does their duties on their own and it comes naturally to not depend on others. Men and women help each other and are supportive. We should not be overprotective in upbringing our children. We should teach them practical knowledge, in a do-it-yourself way, to be more practical.

During Prime Minister Shri. Narendra Modi's visit to Bharat Biotech

Other interests

Besides her work at Bharat Biotech as the Joint Managing Director, Mrs. Suchitra Ella manoeuvres multiple roles in various professional, non-profit organizations and won many reputed awards. She is well exposed to diverse extracurricular activities beyond work from early days, thanks to the exposure her parents provided her.

Mrs. Suchitra is the deputy chairperson of CII SR, a founding board member and past chairperson of United Way of Hyderabad, founding and past national chairwoman of Indian women network, CII, a life member of the Red Cross society, a former member of the Tirumala Tirupati Devasthanam (TTD), among many other organisations. She has enjoys serving and giving back to society. She allocates time, energy and resources to women empowerment, support to girl child's survival in this society, education, health and enabling livelihoods for many deserving sections of the society. Soft hearted towards the underprivileged, and leads CSR activities from the board level.

She is very active on her twitter account, updating the world about the development, supply and progress that's going on around her. She likes to promote art and culture, loves listening to classical music, watching cultural performances, and traveling. She likes spirituality to look inward for strength and to connect with nature.

Mrs. Suchitra Ella, a working mother and a serial entrepreneur, has two grown up children - Dr. Jalachari Ella and Dr. Raches Ella, mother-in-law to Dr. Aditya Chowdury and Sahari Cherukuri and a loving grandmother to Keshav Rana.

Mrs. Suchitra Ella at IWN National Annual Day

WOMEN ACHIEVERS

Amrita Chowdhury

Co-Founder and CEO, Gaia

Amrita is the Co-Founder and CEO of Gaia. Gaia was started in 2015 and provides solutions for wide area monitoring, workflow automation and digital operations for smart, connected sites and cities. The solutions blend Internet of Things, information technology, AI/ML, and analytics to provide deep insights. Gaia has won multiple technology, innovation, and social impact awards. Amrita serves as an independent director on the boards of multiple listed companies. She has drafted policy whitepapers and authored two books.

Amrita started her career in research and innovation at Applied Materials in California. Her first project was to create a new fabrication process for semiconductors. The challenge was manufacturing smaller next-gen integrated circuit chips with repeatability and tight tolerances. Product development requires resilience for iterative experimentation. That was when a chance in-corridor meeting with a senior director turned into a powerful mentoring session. The lesson that breakthrough innovation and tough goals are risky, but can create lasting impact and bigger rewards, has guided her since then. Amrita believes in patience and perseverance to repeatedly try, fail and try again to eventually succeed. By the end of that year, her work led to two new products and 7 U.S. patents in semiconductor fabrication. It was used to manufacture the first Intel Pentium II and Pentium IV chips, and was used for nearly a decade in fabs globally.

After a couple of years in engineering, Amrita completed her MBA and joined the strategy consulting practice in AT Kearney. She worked on new business and digital transformation. Digital was nascent at that time. One of her projects was to build an e-channel for a large insurance client.

She worked in the U.S. across industries, followed by a move to Australia to be part of a boutique consulting firm, for strategic work across mining, automotive, services industries and government. The big turning point was moving from a large consulting firm to a high pedigree boutique firm. She had a chance to be in front of CEOs at a young age.

Amrita then moved back to India – and held roles heading three different businesses and focused on delivering growth. India was launching new initiatives like Swachh Bharat and Smart Cities and she looked at it from governance, stakeholder management and multiple Design Thinking perspectives. Joining forces with her co-founders who were looking at these areas from a technology perspective, she had a chance to be a part of Gaia. There

was a unique opportunity to stitch together distributed operations using technology. It has been an interesting and enriching journey to work with both enterprises and governments. The scope and scale of Gaia's projects use technology to connect the last mile and provide e-Governance and digital operations through digital, cloud and IoT based solutions.

Amrita's message for young career professionals is that you need to find your voice at the table. If you are passionate about what you are doing, make sure it comes out. Stick with the idea. In case of any breaks for personal reasons, make it a comma, not a full stop.

Amrita graduated from IIT Kanpur, did her MS at University of California, Berkeley and MBA from Carnegie Mellon University. She has published multiple articles in peer-reviewed journals in the high-tech domain.

"Perseverance is extremely critical. To have an impact in your job or career, you need to have the tenacity to follow an idea and adapt to overcome challenges." – Amrita

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Dr. Anuradda Ganesh

Chief Technical Advisor, Cummins Technologies India Private Limited
Adjunct Professor, IIT Bombay

Dr. Anuradda Ganesh, Fellow, Indian National Academy of Engineering (INAE), is a Chemical Engineer and a PhD from the Indian Institute of Technology, Delhi (IIT Delhi).

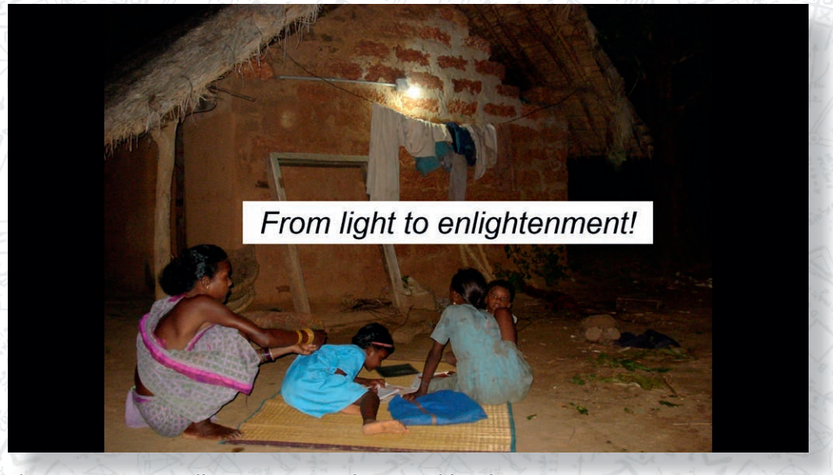
Currently, she is Chief Technical Advisor at Cummins India, where she advises the CTO and MD on future technology and regulatory trends, as well as R&D and innovation policies, actively helping Cummins build a strategic technology and product roadmap.

Prior to her industrial role, Dr. Anuradda was a Professor and the Head of the Department, Energy Science and Engineering at IIT Bombay. She is a renowned global expert in Biomass and Bioenergy, Alternate Fuels and its applications in IC engines, Underground Coal Gasification (UCG), Energy, Environment and Climate Change, with over 60 publications and 4000 citations of her research papers in highly regarded international journals.

An engineer at heart, she believes in using science and engineering as a catalyst for social development at the grass-root level, particularly for women empowerment. She has a novel approach and vision for development, focused on realistic application of technology through industry collaboration. She believes that science and engineering research needs to materialise beyond academic journals, and become drivers of social change.

Among her many accomplishments, her most cherished one involves the use of a technology developed at the Cummins Engine Research Facility (CERF) at IIT Bombay, to electrify a remote rural village in India using straight vegetable oil produced from local biomass. This led to the "CLOSEST TO HEART" moment of her life, when, upon lights being switched on for the first time ever in that village, she saw hope for a better future for the entire village community. Notably, she trained the local women to operate the whole unit, helping them with a business model to ensure their financial independence. This project was awarded the CII National Energy Conservation Award.

Dr. Anuradda believes in the importance of instilling curiosity and an appreciation for science and engineering in students at a young age, encouraging them toward a career in science. To this end, she designed and conducted a unique program called PROSE (Program for Romancing with Science and Engineering) while working at IIT Bombay. This program was conducted for three consecutive years between 2004 and 2006. It was designed as a residential 10-day workshop for a selected group of 15 students from class 9 and 10, which endeavoured to introduce and expose these students to cutting-edge technology and innovation in the field of robotics, biofuels, renewable energy, biosciences, astronomy, etc. The workshop also included a novel segment on how science and mathematics play a role in unexpected areas of yoga and music. Remarkably, it was observed that 100% of the students who attended these workshops opted for science in class 11 and 12.



Electrification of a village using straight vegetable oil

She continued her efforts to empower women through STEM even after joining the Industry.. She conceptualized and established the 'Centre for Research and Intellectual Entrepreneurship' at Cummins College of Engineering for Women to encourage research among faculty and women students. This Centre was sponsored by Cummins India Foundation and Ansys.

In addition to her contributions to the academia and industry, Dr. Anuradda is involved in policy making and is working with government and industry bodies to this end. She is a member of various committees on energy, education and industry-academia collaboration.

Dr. Anuradda's unique and novel approach to leadership across industry and academia are widely recognised, both in India and overseas. She believes that the need of the hour is increased awareness in young engineers and researchers about the ground realities, identify issues through a scientific lens and work towards optimised solutions. Identifying the problem accurately is the key to innovation. She believes that women in STEM bring a diverse perspective and many a times, help identify the unstated needs.

Dr. Anuradda's parents were her first mentors. Her father, a Professor at IIT Delhi, inspired in her a conviction to translate science into technology. She also credits her husband and daughter for their unconditional support.

"I believe that STEM is the perfect tool to help women empower themselves. The intuition, sixth sense, empathy, and vision that women have, when augmented with knowledge through STEM can help create wonders! That's the need of the hour!" – Dr. Anuradda

Apala Ray

Global Cybersecurity Manager,
ABB Process Automation Business

Apala is the Cybersecurity Manager for the Process Industry division in ABB, responsible for the cybersecurity portfolio and compliance with standards. She works closely with the global R&D teams, project, and service organizations as well as the commercial team to grow the cybersecurity business.

Cybersecurity is becoming an increasingly important issue in process automation, especially over the last few years. The malicious computer worm Stuxnet was a wake-up call in 2010. The projects that particularly interest Apala are conducting cyber risk assessments for her customers and providing design recommendations for networks to enable network segregation. She also trains engineers on industrial cybersecurity. Positive feedback from customers and colleagues is what keeps Apala motivated and challenges her further to take on difficult projects.

Apala was always good at academics. She pursued engineering due to peer pressure and managed to make the most of it. After her B.Tech., she completed her post-graduation at the International Institute of Information Technology, Bangalore (IIITB). Being the first person from her family to go abroad for her master's thesis seemed like a daunting task, but with the support of her parents, she achieved her goals. When Apala joined ABB, she started with the corporate research team to broaden her horizon, which proved to be a good decision. In retrospect, all these key decisions have helped Apala shape her career, engage in fulfilling work, and reach her career goals.

Network & Communication was Apala's area of specialization. There were some interesting use-cases in Networks and communication that required some pondering upon such as, identifying the reason as to why a wireless device is not joining a network. Working on solutions to resolve such situations made her focus on cybersecurity. Her seniors foresaw the potential for secure communication and encouraged her to take it up.

Many of her colleagues have been her mentors and still support her. The mentor-mentee ecosystem is important, and Apala feels that she would not have been able to attain such success without her mentors. Madame Marie Curie, Mother Teresa, and Oprah Winfrey are her role models. She has created a simulated lab where ABB employees can learn ABB cybersecurity solutions hands-on, and the results have been amazing. She follows her mentor's referred proverb "give a man a fish, you feed him for a day; Teach a man to fish and you feed him for a lifetime".

Apala completed her Ph.D. from Mälardalen University, Sweden, M. Tech from IIITB, and a B. Tech in Electronics and Communication. She is a Global Industrial Cybersecurity Certified Professional (GICSP) and has been involved with NASSCOM IT-ITeS Sector Skills Council to identify job roles in IoT and creation of the curriculum for them. She is part of the Women Wizards Rule Tech (W2RT) program designed for professionals to prepare them for the future. She has written technical reports in cybersecurity and published more than 20 international papers. She has been part of around 10 inventions and patent applications for ABB's products.

Apala makes sure that she learns at least one new thing every day. Being in defensive security is stressful as many doors need to be protected, unlike offensive security where you need only one weak door to break in. She is interested in reading & music and is learning to play the sitar.

There is a common notion that to be good in cybersecurity, one needs to be good in Mathematics. But Apala's opinion is that it is also the application of Math that is important. Her message to young professionals:

"Interest and an open mindset are needed to advance in one's career. An attitude of" We can do" is very important. Don't doubt yourself. Don't have inhibitions. Have the confidence to pursue and achieve your goals." – Apala

Dr. Bharati Panigrahy

Senior Scientist, Hindustan Petroleum Corporation Ltd.

Dr. Bharati is a senior scientist in Hindustan Petroleum's Green R&D Centre. Most of the catalysts used in our petroleum refineries are imported catalysts. One of the plan of our R&D is to develop indigenous catalysts on which Dr. Bharati and her team is working on. Her other areas of focus are nano-technology in the petroleum industry and alternate sources of energy.

It was a dream come true for Dr. Bharati when she met Bharat Ratna awardee Professor CNR Rao, a pioneer in her field of work. During her DST INSPIRE faculty fellow tenure at IISc, Bangalore, she was overjoyed to meet him at an event where he was the keynote speaker. She presented her ideas before him which he appreciated and encouraged. It was a memorable moment and she treasures it.

She had to take a tough decision after her post-graduation, whether to pursue her higher studies or to take up employment. Her family supported her to continue her studies and her untiring efforts helped her get admission in IIT Bombay. Her life at IIT Bombay gave a wider perspective of life and career which has helped her a lot in personal and professional development.

She is from a small town in central Odisha named Tikabali, but was fortunate to have educated people in her neighbourhood. Her father is knowledgeable and even today shares his points-of-view on important topics with her. Her parents have been her role models throughout and have been fully supportive in her personal and professional life. She is also grateful to her PhD guide Prof. Dhirendra Bahadur at IIT Bombay who helped overcome the fear and initial hesitation in a new environment. He also made her understand the importance of networking with other professionals and researchers.

She is a mentor to her colleagues and juniors. It is her opinion that continuous feedback and words of recognition from a mentor will help mentees to improve their focus and work towards their goals. She firmly believes that leadership and mentorship can provide personal support, academic advice, and knowledge about career progression to enrich a professional for a long-term career.

Dr. Bharati has represented India at the Asia Nanotechnology Camp 2010 jointly organized by Singapore and Malaysia. She received the INSPIRE Faculty Fellowship from the Department of Science and Technology (DST), India. During the fellowship, she worked on renewable energy and waste water management projects. She is a Fast Track Young Scientist of SERB-DST, India and a Life member of Society for Materials Chemistry, BARC, Mumbai. She was teaching undergraduate and postgraduate students at IIT Bombay and supervised Ph. D., M. Tech. and B. Tech. students in their research projects.

Dr. Bharati with her parents collecting Best Thesis Award in IIT Bombay

She wants her research to help our nation and the world as a whole. It is her belief that through mentoring programs, women from all sections of the society will gain support, which will enhance their outlook on the innovative aspect of various fields. Dr. Bharati unwinds from her hectic work-day with her family members. She loves watching sports like cricket and tennis. She loves listening to music and cooking good food for her family. This pandemic has taught the real "value of a family."

Dr. Bharati completed her Ph.D. from IIT Bombay, and her M.Sc. and B.Sc. from Berhampur University. She received the Best Thesis Award for Ph.D. She has 17 publications in international journals and in several conferences. In the field of nano structures, she has one US patent issued and one more filed. She is a reviewer of several international journals.

"A person's driving factor is the passion within themselves. If one is passionate about something and works constantly on it, goals can be achieved even though failures may occur. Even if failures occur one has to pick oneself up and continue their journey." – Dr. Bharati

Dr. Bhuvaneswari Sridhar

API R&D Operations Head,
Pfizer Healthcare India Ltd.

Dr. Bhuvaneswari is the R&D operations head for API at Pfizer. As an organic chemist and a researcher, Dr. Bhuvaneswari has always been attracted towards manufacturing and that made her stay with the industry. In fact, She was the only woman in the factory when the technology transfer happened in the late 90s.

Dr. Bhuvaneswari has been intrigued with the way the Indian pharma sector has evolved over the years. From having a strong presence in chemical manufacturing decades ago, we are now into APIs (active pharmaceutical ingredient), formulations and even finished products. Today, if any pharma manufacturing scientist needs to come up with a proposal and it needs 8 components, 3 of them have to be imported. Initiatives like "Make in India" and new policies will remove the aversion for chemicals in the minds of people, for us to become self-sustaining.

Professionals who do their Ph.D. in organic chemistry usually get fascinated with drug discovery. But Dr. Bhuvaneswari has a contrarian view. She does not see discovery as the only key role. Companies that manufacture chemicals, paints and intermediates for example also look for good professionals in manufacturing where the value of learning and contribution is high. Chemists should also spend time at the shop floor for a wider understanding and for a great career.

Dr. Bhuvaneswari has had a few coaches and role models who inspired her. Her father was her role model in her growing up years. Then it was Prof. Pai during her M.Sc. in Pachaiyappa College, who started his career at Presidency college lab, went on to become a Professor and contributed to several practical books. Even at the age of 70, he used to teach students as professor emeritus. His only objective was to see how much his students learn and how they grow.

Her mantra in life has been to be exemplary in what she does, with acute attention to detail. Inspired to impact the lives of people made her stay with the Pharma industry even when her aspiration to become a healthcare practitioner did not work out. Another mentor, Prof. KK Balasubramaniam, her PhD guide wanted to create a connect with pharma companies for industry-academia collaboration. One of her seniors in IIT Madras inspired her to join a local pharma company.

Dr. Bhuvaneswari completed her B.Sc. and M.Sc. in Chemistry from the University of Madras, as the gold medalist in both. She then did her Ph.D. in Organic Chemistry at IIT Madras. She likes to mentor her colleagues and is part of a steward mentorship program in IITM for research students. She participates in the alumni chapter activities as a way to contribute back to her alma mater.

Dr. Bhuvaneswari and her family

When Dr. Bhuvaneswari talks to college students about a career in chemistry, there are two myths she comes across: chemicals are bad, and women cannot work with chemicals. She strives to disprove both. Choice of career is individual oriented, whether it is education or the industry. We need to persevere in it without excuses. In Pfizer, she is an active and leading member of the diversity, equity and inclusion team, DEI. Her message to young women in STEM:

"If you leave this time, no other time is going to be as good for a career in the industry." – Dr. Bhuvaneswari

Dr. Chandana Rath

Associate Professor & Coordinator, IIT BHU

Dr. Chandana is an Associate Professor in the School of Materials Science and Technology at IIT BHU (Banaras Hindu University). She has made significant contributions in the field of nano-structured materials, ferrites, chromites and dilute magnetic semiconductors and their applications. Her work is used in areas like computer memory devices, finger print imaging for forensic applications and purification of polluted water. New and unusual magnetic properties observed in materials gave a direction to her career.

She had a passion for Mathematics in school and Physics in college. Her math teacher, Umakanta Mahapatra in school used to draw diagrams for geometry in sand. He never used pens or chalk for teaching. In college, Prof. P C Nayak who taught mathematical physics also inspired her and helped her continue her passion for mathematical physics. When she did her M.Sc. and M. Phil., she had developed an interest for research in experimental physics, she was lucky enough to work with Prof. Naresh Chandra Mishra. He is always ready to help and Dr. Chandana remains indebted to him always as a mentor. She considers Prof. Puspa Khare and Prof. Annapoorni as her inspirer for work life balance and their punctuality at work.

She had to face a tough situation at the home front when she was offered a post-doctoral position in University of Girona, Spain, as she had to leave behind her toddler daughter with her parents. The difficulties faced by women in pursuing careers in STEM are such that family support is very important to enable them to pursue their passion. Luckily her father was her pillar of strength, her sister helped to pursue her dream and she is what she is today because of him. Besides, her husband is very supportive to maintain her carrier.

Dr. Chandana loves teaching and mostly prefer to take the classes in the morning. She started her education in a village of Odisha. She studied in a government high school. Her father brought her up with no gender bias in upbringing. He instilled the confidence in her to face any situation. She never had any formal tutor. Her father who was a high school teacher motivated her to excel and top in the class. Students from villages should be motivated to study. Dr. Chandana considers herself as an example for achieving dreams from humble beginnings.

Dr. Chandana feels that students should do their work with interest and dedicate time to pursue their passion. Girls are usually discouraged away from science and math. It limits their options in STEM. As a result, women as engineers, scientists and technologists are less in number. Her research in the field of nanomaterials and its applications helps to vigorously expand the scientific spirit among female scientists and the younger generations. Her involvement further adds in making relevant policies to create opportunities for women to take up a career in science and technology. Moreover, the impact relevant to STEM will be motivation, participation, innovation and gender dignity, which will contribute to empowering women as a whole.

Dr. Chandana winning the MRSI medal 2015

Dr. Chandana has won the MRSI Medal 2015 from Materials Research Society of India, Young Research Award – 1998 from International Union of Materials Research Society IUMRS-ICA (Bangalore). She is a Council member of MRSI, India 2019-2022 and Board of studies Member- Department of Physics, CEIT, Bhubaneswar, 2018.

She loves to sing and relaxes by listening to her daughter's classical music. Dr. Chandana has completed her M.Sc. M.Phil. and Ph.D., in Physics from Utkal University and was RA in a project sponsored by ISRO at the University of Allahabad, India in 2001 and PDF in Spain from 2002-2004. Her message for youngsters:

"Teaching is the building block of society. Women can combine research and teaching as they are suited for this profession." – Dr. Chandana

Dr. Chitra Rajagopal

Former Director General
(Resources & Management), DRDO

A distinguished scientist, Dr. Chitra Rajagopal held the post of Director General (DG) in the Defence Research & Development Organisation till December 2020. She concurrently held the post of the First Appellate Authority, DRDO. She was earlier DG, Systems Analysis and Modeling, during which period she also held additional charge of DG, Life Sciences.

During her illustrious career at DRDO, a motivating aspect was that the research work carried out was directly applied for the defence and security of the country.

Dr. Chitra did her Ph.D. from the Chemical Engineering Department, Indian Institute of Technology, Delhi in the field of Heat Transfer. However, when she started her career in DRDO, she had to acquaint herself with entirely new technical domains, as teams were multi-disciplinary, multi-laboratory, and multi-agency. She had to work with not only the knowledge workforce but also with the armed forces, works community, research institutions, national and international institutions and academia.

Dr. Chitra played a key role in setting up and nurturing the Centre for Fire Explosive and Environment Safety, conducting R&D and consultancy to the MoD, capacity building through training and skill development, and testing of fire safety products. She was the Director of the Centre and subsequently the DG for the cluster. Dr. Chitra laid a lot of emphasis on human factor reliability systems, customized Risk Assessment methodologies and Risk Acceptance criteria in defence.

Dr. Chitra worked as a project leader for projects worth Rs. 80 crores which resulted in manufacturing orders worth approximately Rs 8,100 crores. The designs competed at the global level. A number of innovative technologies were developed for composites, packaging, eco-friendly technologies for fire, explosive, environment, and process safety including clean energy. She was instrumental in setting up several national level infrastructural facilities, including a Skill Development Centre for fire-fighting and integrated safety management, a war-gaming and systems analysis center, and a 1000 bed hospital for COVID -19 patients.

Designs for use in defence have to be validated under field conditions. Dr. Chitra's team not only came out with innovative designs of aboveground and underground ammunition buildings, and simulated the effects of blasts on structures, but undertook some of the largest trials in the world in harsh conditions. A national level task force recommended these designs based on which they were mandated for use.

The designs, processes, products, subsystems and systems developed, primarily for defence, also found extensive applications in civilian sectors such as development of photo-degradable polymers, hazardous waste management technologies, and risk assessment methodologies.

Dr. Chitra has played an important role in several International and National Safety and Sustainability initiatives as well as in national level implementation of International conventions and treaties. She has also organized a number of international and national events and meets including DRDO participation in DEfExpo, AeroIndia, Indian Science Congress, and Republic Day.

Dr. Chitra is the recipient of several national and DRDO awards: Scientist of the Year Award, 2010; Lifetime Achievement Award by Society for Reliability and Safety in 2019; Eminent Engineers Award by The Institution of Engineers (India) in 2019; Suman Sharma Award in 2019 by National Design & Research Forum; The Institution of Engineers (India); Shakti Samman – International Women's Day in 2020 by Honorable Minister of Women and Child Development, among others. She has to her credit 61 international and 55 national publications. She has also authored four book chapters, three book reviews and published 125 technical reports and has twelve patents to her credit. Her hobbies include singing carnatic music, practicing yoga, cycling and reading.

"Believe in yourself. All of us have in-built strengths and the capability" – Dr. Chitra

Prof. Davinder Kaur Walia

I.I.T Roorkee

Dr. Davinder Kaur is a Senior Professor in the Department of Physics and Centre for Nanotechnology at the Indian Institute of Technology Roorkee. Some of her areas of interest are nanoscale thin films, memory devices, shape memory alloys, MEMS (micro-electro-mechanical systems) sensors and energy devices. Her research focuses on deep understanding of processes and properties of nanoscale thin films of functional materials and implementation of this understanding for improvement of devices useful in energy, MEMS and memory applications.

Prof. Kaur has contributed successfully to the Nanotechnology Initiative Program of National importance of Government of India. She has undertaken a major research project of Rs. 4.84 Crore from department of Electronics & Information technology (DeitY, MIT India) (2008-2013) and the Department of Science and Technology (DST) under Nano Mission 2017-2020. The main objective of the project is to strengthen the Nanotechnology infrastructure and research activities at IIT Roorkee. Out of the research grant received, state of the art world class research laboratory for synthesis and characterization of nanomaterials has been developed. A good number of PhD, MTech, M.Sc. and BTech students has been trained on them. She considers it as an important milestone.

Prof. Kaur completed her Masters from Delhi University in a class of 200 where only 10-15 women students were present. She was a member of the first batch of NET-CSIR qualified PhD students with specialization in High Temperature Superconductivity at National Physical Laboratory (NPL) Delhi. She worked as a postdoctoral fellow at Imperial College, London, U.K and Royal Institute of Science and Technology, Sweden under Gestafesson fellowship. She had also worked as visiting research scientist at Tata Institute of Fundamental Research, (1996), Atomic Institute, Vienna, Austria (1997) and as a guest scientist at Oak Ridge National Laboratory, U.S.A. (1998).

She has been awarded the prestigious Shastri Indo-Canadian Fellowship in the area of MEMS technology (2020) and Nanotechnology (2017). She is a proud recipient of V.N.M.M Research Award for innovative and creative work in the field of Nanostructured Thin Films and Devices (2012). She has also received the scroll of merit from Indian Cryogenics Council (1990) and Star Performance at IITR for best teaching and research (2004). Prof. Kaur participates in sports activities since her

VNMM Research Award for innovative research in Nanotechnology from BOG Chairman, IIT Roorkee (2012).

school days. She is a member of Women's Badminton Team at IIT Roorkee and regularly participates in inter IIT staff competitions.

Her recent innovative research work is on development of a four-logic state non-volatile memory device with Ferromagnetic Shape Memory Alloy based Multiferroic Tunnel Junctions for Magnetoelectric Random Access Memory (MeRAM) and Ultrasensitive Magnetic Sensor Applications The device has great potential to be used in future memory chips for almost all electronic applications. The research has been featured in India Science Live Wire, NDTV, Hindustan Times (November 2017) along with other magazines. It is funded by DST under Nano Mission Programme (2017-2020).

Prof. Kaur has been delivering invited talks in international conferences. Recently she has been selected as Executive Board member of Asian Ferroelectric Association (AFA) to represent India. She is also an expert member of Physical Sciences board of DRDO, CSIR and SERB-DST. She has published over 165 papers in peer reviewed journals and has mentored 20 Ph.D. and 30 M.Tech students. Her h index and number of citations are also very impressive. She is a mentor of many young and bright Ph.D. and Master's girls students who after her guidance went for higher studies abroad in STEM. Not only her students but her own daughter got inspired from her and opted to build a career in science.

Prof. Kaur has high regards for her parents. Her father Mr. Kulwant Singh Walia was an electronics teacher and mother Mrs. Balwant Kaur a homemaker. Prof. Kaur believes that her parental encouragement played an important role for her career success. Prof. Kaur's message to young professionals interested in STEM:

**"Think like a Proton and stay Positive.
Never let the candle of curiosity in your mind to get dimmed.
The only person who can limit you, is you yourself." – Davinder**

Dr. Debrupa Lahiri

Associate Professor, IIT Roorkee

Dr. Debrupa Lahiri is an Associate Professor in the Department of Metallurgical and Materials Engineering, and Center for Nanotechnology, at the Indian Institute of Technology, Roorkee. Tissue engineering and regenerative medicine have been her niche areas of research. She also leads a strong research group in the field of bio-materials and artificial organs to develop products for bones, skin and neural applications.

Drug-releasing scaffolds are one of Dr. Debrupa's recent research topics. Orthopedic implants in the human body usually get rejected due to infection. It is difficult to supply drugs at the interface of a bone and an implant, as the surface does not have blood vessels. Intravenous or oral delivery is not feasible. Drug-releasing scaffolds play an important role in such cases. The work was highlighted in Vigyan Prasar and the national media. It motivated her team and they have applied for a patent. Her team is also working on a bio-degradable skin scaffold for healing of deep and burn wounds. There is no product in the global market for burn wounds and the team is waiting to start human trials. It is a one-stop solution like a bandage for scar-free healing. The team also uses 3D printing for neural regeneration along specific directions, to retain the human senses.

When the institute faced a shortage of sanitizers during the COVID-19 pandemic, her team led an effort to prepare it in the lab and distribute in the campus and neighbourhood. It was well appreciated nationally, in different media channels. IIT Roorkee was adjudged as "The Most Innovative Institute of the Year" in the CII Industrial Innovation Awards 2020. One of the three innovations highlighted in this award is the non-invasive cancer detector kit, which is being developed by a team of three professors, including Dr. Debrupa.

Dr. Debrupa has been active in taking technologies from research lab to industry. She was one of the promoters and co-founders of the startup Heal-agnostic Innovations, which was founded in 2019.

Dr. Debrupa is the recipient of Zwick Science Award and Paul Roell Medal in 2013. In Florida International University (FIU), she was selected by the President as the 'World's Ahead FIU Graduate' for the class of summer-2011 and the best Doctoral Graduate for summer-2011 in College of Engineering and Computing. Her research has been highlighted twice in 'Nanowerk' and 'Nanotech Web', popular websites in nanotechnology. She has more than 100 publications featured in peer-reviewed journals. She has authored

Dr. Debrupa receiving the Zwick Roell Award

one book and 6 chapters, and filed for five patents. She completed her B.E. from Bengal Engineering College, M.Tech. from IIT Kanpur in Metallurgy and Ph.D. from FIU in Material Sciences.

Dr. Debrupa has created several milestones for women in STEM. She has been active in attracting female students to engineering and speaking about it in seminars. She is a part of a committee in IIT Roorkee which interacts with female students qualifying through JEE and their parents, to overcome social barriers and encourage them to join. She leads IIT Roorkee's flagship summer internship programme SPARK 2021.

She promotes sports among female staff and students. She is an active member of the women's badminton staff team of IIT Roorkee. She finds great support from her family. She had to make a tough decision of leaving her 3 year old son in India with her parents when she and her husband had to travel to the U.S. for their Ph.D. Her mentor and Professor, who supervised her PhD, gave her confidence and helped her achieve personal and professional growth. She enjoys and cherishes music and is also an avid reader.

According to Dr. Debrupa, a girl student should be professional, confident and maintain balance between family and profession. Girls should be highly confident and determined and dare to achieve their passions and goals.

"Passion makes a career enjoyable. There is only one life and we need to accomplish our goals and passion." – Dr. Debrupa

Deepa Sathiaram

Executive Director, En3 Sustainability Solutions

Deepa is the founding director of En3, a specialized sustainability and wellness built-environment consulting firm. She is an internationally renowned expert in green and well buildings and is one of the first women in the HVAC industry in India. She is recognized amongst the "Top 5 Women in Sustainability in the World" and has been spearheading India's green building movement since early 2000s. She has consulted for over 400 million sq. ft. of green buildings reducing millions of tonnes of CO_2 emissions. She serves on the Sustainability Infrastructure Advisory Board of the Zofnass Program at the Graduate School of Design, Harvard University.

She has always chartered her own path with passion and conviction. Unlike many of her engineering classmates who pursued careers in IT, she chose to enter the HVAC field. When she joined Voltas, she became one of the first women HVAC design engineers in India. It was not easy trying to establish herself in a male-dominated industry but her strong capabilities and domain knowledge made everyone take her seriously. She went on to become the President of ASHRAE South India Chapter and also worked on several prestigious projects such as the first large thermal-storage system at TIDEL Park Chennai, Apollo Hospitals Group etc.

During her stay in the United States, Deepa worked for the U.S Building Code authority – International Code Council (ICC) and its subsidiaries. While at ICC, she worked with the U.S. Green Building Council and soon she found her calling – Sustainable Development.

One of her toughest decisions was to move back to India especially when really everything was going great for her in the U.S. She felt that by moving back and being part of the growing Indian green building movement she could make a far greater impact and co-founded her own consulting company "En3".

As with any new start-up, the initial years for En3 were also not easy. Several clients were curious about sustainable development but very few adopted it. But she patiently hung in there and as a result of her advocacy and leadership, En3 began to grow.

She attributes persistence as a key success factor. It is common for young professionals to give up very early when things don't go their way. She believes that if you are passionate about something and you persist, success will follow. Today En3 is one of the largest consulting firms and has 40 employees of which 60% of them are women including several young mothers.

While every green project for her is fulfilling, personally she feels being recognized by USGBC+ as "Top 5 Women In the World in Sustainability" is an "Aha moment" that she will always cherish.

She has many distinctions to her credit - India's "1st Net-zero Energy Building" and "1st carbon neutral construction" and 3 USGBC LEED Earth Awards for outstanding projects in South Sudan, Kenya and Afghanistan. She is a USGBC LEED Fellow, IGBC Fellow and recipient of several international awards including USGBC Leadership Award, IWBI Leadership Award and WELL Community Award.

She has been actively involved in various "Women in Green" and "Women in HVAC" initiatives and has mentored several women to pursue their dreams while making India a global leader in the war against climate change. She also spearheaded for 10 years "Green-I", a green educational initiative for thousands of schools across India through CII's Young Indians. Her message to young professionals:

"Do not do what is easy, do not do what is expected, do not do what is popular ... Do What Is Right. Doing the right thing may not always yield immediate results but in the long run it will define who you are and that is all that matters." – Deepa

Deepanwita Chattopadhyay

Chairman & CEO, IKP Knowledge Park

Deepanwita is the Chairman & CEO of IKP Knowledge Park. She is responsible for developing the first life sciences research park in India and establishing a sustainable innovation cluster around it, now called the Genome Valley, in Hyderabad.

After three years of research in microelectronics at IIT Delhi, and a brief stint as a lecturer in BITS Pilani, in 1988 Deepanwita was still exploring how to teach science and took up writing science content for children and joined an NGO in Delhi. Her travel to remote villages of India made her realise the lack of teaching tools for science experiments. Her dream then was to set up a hands-on science museum for students. But she had little knowledge of how to raise funds. She joined the ICICI Telecom Advisory Services Division in 1994 with the intent of earning enough money for her science museum project. It was a complete departure from the academic world she knew. Working at ICICI was like a live course on project management and strategy planning. It was a steep learning curve, and with Dr. Debasis Sengupta and Mr. Suneet Maheswari as mentors and the wonderful colleagues, six years flew past.

When the management decided to transfer Deepanwita to a new "Knowledge Park" that ICICI Bank was setting up in Hyderabad, it was a major turning point. She was given two years to turn the operations cash positive. Deepanwita took up the challenge. She went out of her comfort zone to set up the park. As a not-for-profit with no corpus fund, the focus was to build a strategy to make the company sustainable. She was an entrepreneur in that sense. To nurture innovation, entrepreneurship has to be at the core.

It was a first of its kind in India, an opportunity to create an institution, a model that did not exist. Mr. N Vaghul, the then Chairman of ICICI Bank was Deepanwita's mentor. The vision behind the science park was to use innovation to advance the competitive edge of a region. Software technology parks brought companies together, when network bandwidth was constrained. Industrial parks created clusters for manufacturing. The science park was named a Knowledge Park because it would create knowledge that was ever evolving.

Silicon Valley entrepreneur Dr. Bala S. Manian, an IKP co-founder, has been a constant source of ideas and encouragement for Deepanwita. When IKP was setup, Bala had told her, she was sculpting fog, creating something tangible from the nebulous! Dr. MK Bhan, taught her how intellect can be combined with compassion to be an effective leader. Her mother was her first mentor who taught her the sense of duty, sharing and aesthetics. She was a perfectionist. She loved life and was an avid reader even in her 90s.

National Award for the Best Incubator 2007, from Dr. APJ Abdul Kalam, in the presence of Mr. Kapil Sibal, then Minister of Science & Technology and the Secretaries of the Ministry of S&T

Mediocracy pains Deepanwita. She has understood how to deal with it in a mature way now. Deepanwita's message for youngsters is that they should not let go of any opportunity to learn. Do not miss the big picture. Whatever we do, we should do it well every day, every time.

She authored the India Chapter for the Global Innovation Index Report GII2020. She received the FICCI FLO Influential Women Award, 2021 for her contribution to the innovation ecosystem. In 2018 she was awarded the "Top Women Achievers of the Year 2017 in Asia" by AsiaOne Business Magazine and "Women of the Decade in Life Sciences & Innovation" by the Women Economic Forum. She completed her B.Sc. in Physics from Presidency College, Kolkata and post-graduation from the Department of Radio Physics & Electronics, Calcutta University.

The institution Deepanwita leads today is the hands-on museum she dreamt of decades back, albeit, at a much larger scale, and not designed to serve as merely a learning tool but as a self-propelling innovation engine. She loves design and painting. Writing poems during the pandemic helped her release her thoughts. She likes to travel and visit art galleries and historical places. Her message for youngsters:

"Do things today but think of tomorrow, always. You need not be extraordinary to create impact. Pursue your dream with passion – the missing pieces of the jigsaw puzzle will fall in place eventually." – Deepanwita

Dr. Elizabeth Verghese

Chairman, Hindustan Group of Institutions

Dr. Elizabeth Verghese is a committed academician, a qualified Engineer and a passionate social entrepreneur and an activist. She is a pioneer among women and the first Woman Chancellor of a private university in the country, Hindustan Institute of Technology and Science. She is also the Chairperson of Hindustan Group of Institutions, Chennai.

She is responsible for guiding the Hindustan Group of Institutions (HGI) to a citadel of excellence, it is today. Under her able guidance and leadership, HGI has crossed many milestones with several institutions of repute under its fold and has won several achievements, accolades, and awards.

Dr. Elizabeth is a multi-faceted personality. A trained Civil Engineer, she joined the State Highways Department as a Junior Engineer in 1965, immediately after graduation. She has the unique distinction, as the First Woman Engineer in the Highways Department, Government of Tamil Nadu. After a long and unblemished stint of 35 years, she retired as the Joint Chief Engineer in 2000. During her tenure in the Highways Department, many bridges, roads, road over and under bridges, flyovers, etc and highway and national Highways projects in the State including the Pamban Bridge at Rameshwaram, Cauvery, Coloroon, Palar and other bridges were built with her diligent and sincere involvement and hard work with a meticulous eye for perfection. As Divisional Engineer in the 1990s, she gained experience in managing educational institutions, when she was deputed to Hindustan College of Engineering – one of the first private self-financing engineering colleges in the State, as its "Project Director" for 5 years.

As Joint Chief Engineer (Planning) in Highways Department, she finalized various project proposals, design and estimates for major and minor projects in the State for execution, with funding from external agencies like NABARD, HUDCO, World Bank and Asian Development Bank. She was responsible for the conversion of designs for highways, roads and bridges to metric systems including their standardization. She initiated computerization in the design wing of the Highways Department in early 70's. She served in many committees and decision-making bodies.

Dr. Elizabeth has had a chequered career where she has touched the lives of thousands of children from a low socio-economic background and have dropped out from the formal education system. She was able to achieve it through the Hindustan Community College (HCC). Through this, thousands of students have been equipped with vocational skills and encouraged self-employment and small business development. She is empowering many women to gain basic education and skills through the Community College. Immediate job placement was offered after the 1-year training, which has benefitted the society as a whole. Now, more than 1000 students have passed out of Hindustan Community College.

She is also the Founder and Managing Trustee of Dr. KCG Verghese Charitable Foundation, which gives financial assistance and scholarships to many poor and deserving students for pursuing their education and medical assistance to the poor and needy. She has been a philanthropist contributing for their upliftment through various community activities and social service initiatives.

Dr. Elizabath has won several international, national and state level awards for her contributions in education and engineering. She is the recipient of the "Woman Super Achiever Award – 2013" by Asian Education Leadership Awards Dubai and the "Indo Australian Award for Meritorious Service in the field of Education 2014". At a national level, she has won "For the sake of Honour award" from Rotary Club of Chennai, "The Vidhya Vachaspati Award" from Y's Men International South India Region in 2012 and many more. At the State level, she has been awarded the "Perarignar Anna Award" and "The Eminent Engineer Award" for her meritorious service in the highways and rural works department in the year 1995-96 from the then Chief Minister Dr. Karunanidhi, "Arignar Anna Award" and "MMA award for Managerial Excellence" in the year 2008 and "India Icon – 2020" awards for her notable achievements in education.

A Civil Engineering graduate from the Government Engineering College, Trivandrum, Kerala and a post-graduate in Engineering from Birla Institute of Technology & Science, Pilani, Dr. Elizabeth completed her Ph.D., in Education from the Cosmopolitan University & Research Institute, Missouri, U.S.A.

"Never look back – continue your legacies, revolutionise your field in STEM to inspire other women. Strengthen them to face the challenges and to achieve their goals." – Dr. Elizabeth Verghese

Geetha Kanhangad Gangadharan

Senior Manager, Food Safety Division India,
3M India

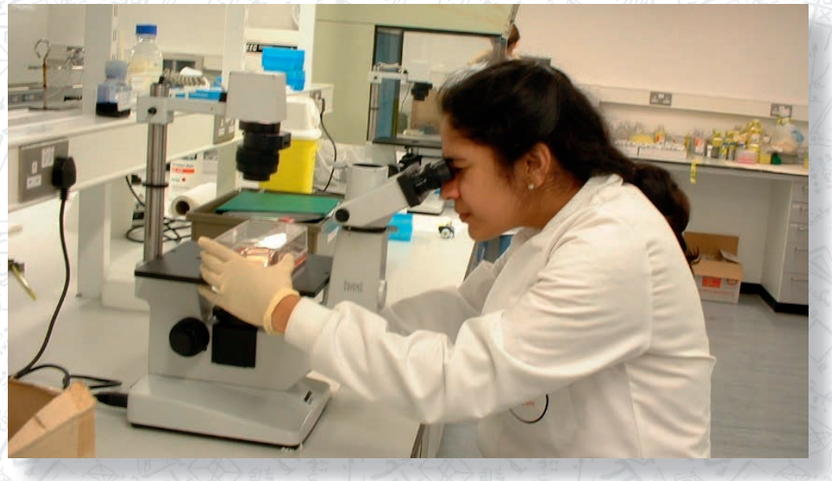
Geetha is an active member of Health Care Research & Development team in 3M India. She has been contributing immensely in the medical solution & food safety divisions. Her major strength includes designing appropriate models for studying effectiveness and safety of products. As a subject matter expert, she was instrumental in identifying customer needs, product gap and successful launch of new products. She has been successful in setting up of clinical capability, designing preclinical and toxicology studies.

She actively led R&D related programmes by engaging researchers of different divisions and developed innovative product solutions. Additionally, she was responsible for a plethora of activities such as Lab related infrastructure capex management, environment health and safety management, Implementation of ISO 13485. She was a recipient of best product concept & prototype, circle of technical excellence & innovation and PARAM awards. She has filed 13 design patents for 3M India. It may be recalled that Geetha has obtained 2 Indian and 3 U.S. patents in the field of healthcare prior joining to 3M.

In her initial days of professional career, non-animal testing methods with animal cell culture for efficacy and safety screening of products was new to India. She had to take a tough decision to go to King's college London for research in spite of many family odds. Her unquestionable and inquisitive research aptitude with able support of her spouse made her to pursue her interests. She was so passionate to learn and use to visit the lab even at odd hours to observe research results. Geetha was overjoyed when she along with her team got their first patent published way back in 2002.

Geetha believes 3M is the best platform for developing leadership qualities, cross functional skills and bestowing talent and expertise. She could nurture her strength & aptitude with a well-balanced work life culture. She was fortunate to be associated with many visionary leaders. 3M culture helped her to learn something new every day and built her perspective. As a researcher, the collaboration between multiple platforms for solving customer needs opened up a new arena and experience.

CSR activities gives her an immense pleasure and a sense of fulfillment in the day to day work. She believed that different forum at 3M uncovered the inherent talents for its workforce. One such program has been the development of a science lab at "Samarthanam"



Research activity at King's College London resulting the first patent publication

trust for the disabled. Her team has selflessly interacted with students, understood their needs and pain points. Eventually the team came up with a curriculum of experiments to make learning highly interesting. She feels that nothing can be an impediment to learning when we have the dream and unconditional passion to achieve.

Any program related to the betterment of the society was her passion from childhood. During her graduation she & her friends helped Rotary club at her village to come up the concept of "special school" instead of a school for the underprivileged. This experience was an eye opener and really touching when they came across many kids with spastic and other disabilities with no means to attend school, even though they have the desire to excel. It was a moment of happiness when she was awarded a trophy for her contribution.

Geetha keeps time for herself and prioritize her work based on 2x2 time management matrix. She is happy to provide guidance to young minds with a passion to learn. She wants to contribute to the community and takes part in activities for the betterment of society. She likes to help people to make natural and healthy choices when it comes to food and nutrition. Geetha has a piece of advice to the young professionals to sharpen their idea on basic science before moving towards technology.

In a nutshell, she feels, if we have right attitude, passion and empathy, we can achieve anything in our life. Also, one need to be open to our mentors just like we would do to our doctors or lawyers.

"Winners don't do different things- they do things differently" – Shiv Kera

Hemalatha Annamalai

Entrepreneur, Angel Investor and Mentor

Hemalatha is a first-generation serial entrepreneur, founder and former CEO of Ampere Vehicles, an early mover that spearheaded India's e-vehicles revolution. Ampere has carved a niche for itself as an innovative technology creator in the nascent Indian electric vehicle industry. Ampere has been acquired and Hemalatha has exited the venture.

When Hemalatha wrote a well thought through, small email to Mr. Ratan Tata requesting him for an appointment, he agreed to meet and cut a cheque in 3 months to invest in Ampere. It showed that if your ideas, product and thought process are good, there will always be help. His endorsement was a defining moment for Hema professionally. Her vision was clear – "affordable mobility" and it took 3 months to define it in 2 words.

In 2008, Ampere had started and was scaling up well, growing 100% year-over-year. But there were several challenges in the fledgling industry, from the battery failure to reversal of government subsidy and power shortage. When Hema sat alone worrying about it, a group of her factory staff came to meet her. They did not have any complaints. What they spoke about gives her goose bumps even today. They said, "Our product is good, you are our leader to get us business. We will deliver and you can trust us, we can come out of the crisis collectively." From that moment, her perspective about the company went tangential. It became social for job-creation, even though it was a commercial for-profit enterprise. This made her believe that if we build an enterprise along with the community, it is robust. Inspiration comes from outside and motivation from within. Adverse situations teach you what books cannot.

It is her opinion that the government has to invest for skilled manpower in power electronics designers, if they are serious about the EV industry. Today, 98% of chargers and converters are imported. She feels that India will evolve only when we make them indigenously. It is the support from the team that can motivate entrepreneurs. They can give some comfort. The strategic battles have to be won from the front on their own. One should not become an entrepreneur because someone told you to be so.

Hema was fortunate to get good founding mentors and graduated from mentor to mentor. They gave access and their time if they saw genuiness in the mentee's approach. A good mentor will not judge you, give the solution or influence the decision. She feels that sending an email to a mentor and not following up is not the correct approach.

The meeting with Mr. Ratan Tata for the EV investment

It is her belief that entrepreneurship has to come from within. But there are role models to look up to. Hema's husband was her inspiration. For young professionals, the validity of the idea is where most failures happen. It must have a genuine need. It has to be SMART – specific, measurable, achievable, realistic and time bound. She feels that there are four aspects of a big business: capital, market, process and people. If the product is good, all the four are easy. It is necessary to talk about your idea to as many people as possible for validating ideas. If you love what you are doing, there is no work-life balance. There is no distinction between the two. You need to give time for yourself. Have a short, mid and long term goal. When an opportunity came to exit, Hema decided to leave Ampere.

"Success is a journey. It is not money or stature. Success or failure, there will be wisdom with you. Go for the wisdom. There is one life. Make the most of it. Just do it." – Hemalatha

Prof. Krishna Misra

Honorary Professor, IIIT Allahabad

Prof. Misra superannuated as Professor of Chemistry and Head, Department of Biochemistry at University of Allahabad. She is now a honorary professor and had been the coordinator for the Indo-Russian Center for Biotechnology, IIIT Allahabad and honorary Professor at CBMR (Center for Bio-Medical Research), Lucknow. She is a senior scientist, fellow of National Academy of Sciences India and also has been General Secretary of this academy. She is Chairperson of STEMM program of DST, New Delhi.

While working on medicinally important plants in Allahabad University for ayurvedic drugs, she realized that she could not do much unless she studied mechanistic pathways. She went to the Tokyo Institute of Technology, Japan and spent a year studying this. She was the recipient of UNESCO fellowship and studied the basis of DNA synthesis in 1984 at the U.K. medical research council. She brought the machine on a plane back to India and started the manual synthesis of oligos or synthetic DNAs. She was the first in India to start DNA synthesis and oligonucleotide synthesis.

18th July 1958 was the date Prof. Misra enrolled for her PhD. From then till today, not a single day has been without an assignment. There were very few girls in Chemistry/ biochemistry those days. Those who took it up as a career left the subject after retirement. But Prof. Misra has been continuing, since after retirement she was founder coordinator of Center for Biotechnology at University of Allahabad and honorary professor at IIIT Allahabad, which she continues even now. She is in touch with her students. She motivates them to continue their work and stay updated in their fields.

Prof. Misra's fields of scientific research are the chemistry of naturally occurring herbal products of biological importance, DNA synthesis, oligonucleotide chemistry, tagging with fluorescent tags, antisense therapy, chemo informatics, systems biology, computer aided drug design, molecular medicine, biomedical engineering, targeted drug designing, nanotechnology and nano-biotechnology.

Prof. Misra has delivered lectures all over India and abroad. She joined CDRI (Central Drug Research Institute), Lucknow as INSA post-doctoral fellow for a year .From 1968 to 1999 she taught at Allahabad University. She has supervised 55 Ph.D.s, published 257 papers in peer reviewed journals, five books, about 25 reviews, a dozen book chapters, presented papers in about 100 national/international conferences, has Indian and US patents, and visited Japan (UNESCO fellow), U.K. (British Council), and USA. She was invited to deliver

Prof. Misra honoured by Nobel Laureate Prof. Kurt Wuthrich

lectures and chair scientific discussions. She had been a member of the task force of Biotechnology for the Central government, is a founder member and fellow of a number of societies.

One of the tough decisions Prof. Misra took was to continue her career as a teacher and not a scientist. She had to give up a very prestigious scholarship from Germany because her daughter was just 11 days old. According to Prof. Misra, if you are a good teacher, you cannot limit your teaching only to what is in books. It has to be from one's own research. Multidisciplinary research and approach from the teacher will always be welcomed by students.

Prof. Misra's role model is her PhD guide Padma Bhushan Prof. T.R. Seshadri. She has interacted with half a dozen Nobel laureates like Prof. HB Khorana, Prof. Robert Robinson, Prof R.D.Haworth who even corrected a chapter of her Ph.D. thesis. Parma Shri Prof. Nitya Anand, ex-Director of CDRI is another mentor who encouraged and motivated her.

Prof. Misra was directly admitted to Class 4 in a school in Bareilly and has been a topper throughout her career. Coming from a traditional family, her father did not want her to go for higher education. She went on a fast for 3 days to make him agree for college admission and changed his concept about girl education. She learnt Ikebana and Bonsai arts from Japan and trained others. She went with a team of doctors to interior villages and helped solve health related problems for the women. She completed her B.Sc. and M.Sc. from Agra University and Ph.D. from Delhi University. Prof. Misra's message for youngsters:

"One has to be very strong minded. Anybody can achieve what they want if they do not give up. If one has the conviction, they can overcome struggles and debunk preconceived notions to achieve their goals." – Prof. Misra.

Dr. Kusum Deep

Professor, IIT Roorkee

Dr. Kusum Deep, is a full Professor (HAG), with the Department of Mathematics, and joint faculty at Centre for Artificial Intelligence and Data Science, Indian Institute of Technology Roorkee, India. She is Visiting Professor, Liverpool Hope University, UK. With national scholarship she pursued B.Sc. Hons & M.Sc. Hons. School from Centre for Advanced Studies, Panjab University, Chandigarh. She is an M.Phil Gold Medalist from University of Roorkee and earned her PhD from the same Institute in 1988 with a UGC scholarship under the supervision of Prof. Chander Mohan. Kusum is a recipient of Post-Doctoral International Bursary funded by Commission of European Communities, Brussels to work at Loughborough University, Loughborough, UK.

Kusum has won numerous awards like Khosla Research Award, UGC Career Award, Star Performer of IITR Faculty, best paper awards by Railway Bulletin of Indian Railways, special facilitation in memory of late Prof. M. C. Puri, AIAP Excellence Award, POWER project awarded by SERB Govt. of India.

Kusum has authored two books, supervised 20 PhDs, and published 125 research papers. She has a vast editorial experience. She is the founder President of Soft Computing Research Society. She is the General Chair of SocProS, which is the signature event of SCRS. Also, she is a Senior Member of ORSI, CSI, IMS, etc.

Kusum is an internationally known expert in the area of Nature Inspired Optimization Techniques. These techniques impressed her as they derive their inspiration from nature, including living organisms and physical phenomenon. Her breakthrough paper in 2009 continues to be the most downloadable paper of the Journal of Applied Mathematics and Computation, Elsevier. It is based on new real coded crossover operator and new real coded mutation operator which she proposed. Her research work has been used in design tools for forecasting of avalanches, predicting the hyper central location of earthquakes, extraction optimization of bioactive compounds from Indian herbs and many more.

Mr. J N. Sharma was Dr. Kusum's mathematics schoolteacher who inspired her to take up a career in Mathematics. Prof. Chander Mohan was her PhD supervisor, who continues to be her source of inspiration even today. Apart from her parents, these two teachers have been responsible for shaping her career. She considers Dr. APJ Abdul Kalam as her role model.

M. C. Puri award for Lifetime achievement, awarded by Operations Research Society of India

One of her recent memorable moments was when she was elevated to Higher Academic Grade pay by IIT Roorkee. This highly competitive achievement is based on a number of parameters based on academic performance. She is extremely happy to have achieved this accomplishment.

Kusum is married to Amar and has a son Aakash and a daughter Paluck – both software engineers.

According to Dr. Kusum, children today are too much dependent on gadgets for calculations. School teaching must be given topmost priority by our policy makers and teachers should be properly trained to inculcate love for mathematics. Students should learn to appreciate patterns and enjoy the beauty of mathematics instead of mugging up. Parents and teachers should jointly relieve the stress on the students. Instead of mugging up the teachers should encourage students to love mathematics by observing the patterns in it.

One of the challenges she faced was when some jealous people around her associated her success to her father's influential position. She did not bother for their remarks and kept on working hard. Kusum's other interests are dancing, singing and listening to old classic songs to unwind her busy day. Her message for youngsters:

"Have a positive approach, there is no shortcut to success, do not sit back on your laurels, keep on working hard and leave the rest to God." – Dr. Kusum

Dr. Lakshmi Vaideeswaran

Independent Consultant

Empowering citizens through Information Technology – Plenary Session 4 – Analytics and e-Governance

Dr. Lakshmi is Vice President, Analytics Consulting at Tiger Analytics and an advisor to companies such as GyanData, Internshape and Hydromet Technologies. In her previous role, she was the CEO at Gyan Data, a data science company, focused on developing niche solutions for a wide range of industry domains.

Dr. Lakshmi began her career as part of the R&D team in Engineers India Limited, developing solvent extraction technologies for the oil and gas sector. She was part of the team that developed an indigenized process for the petroleum refining industry in a record three years time and went on to win the best technology award from CSIR in 2001. The technology helped refinery plants phase out unsafe, inefficient technologies and bring in newer solvents for lube oil base stock manufacture. The said technology saw application in other refineries as well.

From core engineering, Dr. Lakshmi transitioned to data science and analytics. Chemical engineering and industry collaboration meant working with data in a big way: whether it was process modeling and optimization or technology development. Data was also sitting at the core of the technology development initiatives that she was part of. Analytics has cut across her 30 years of experience. So when she joined General Electric, it was not a totally new area.

She successfully implemented her first Artificial Intelligence project in 2003 – an expert system that improved maintainability, safety and operability of GE Plastics plants. It was a rule-based, data driven implementation, for a plant in the U.S. This deployment exposed her to a huge world of unknowns that came snowballing at the team and yet they managed a successful roll out.

Dr. Lakshmi's relocation to Chennai on health grounds paved the way for her role as global manufacturing and engineering leader at Dow. She was leading the teams providing technology to reaction engineering and fluid mechanics and mixing areas, a role that supported operations, maintenance and drove strategy to bring in best-in-class tools and technologies. She later moved on to a data science company as the CEO where Dr. Lakshmi spearheaded domain agnostic techniques to deliver niche, best-in class data science solutions across industry sectors.

Lately she has been advising companies in the circular economy space. The current challenge that they are trying to overcome has to do with scalability, not so much technology development – as technologists, they have managed to commercialize their ideas in a fairly frugal manner.

Dr. Lakshmi has been the country head, India for Women's Innovation Network both at Dow and SABIC. She was the Technology Champion for APAC region at Dow. She has presented in conferences and won the Duke of Edinburgh Award and Best Technology Award from CSIR. Her Ph.D. in process optimization and integration from the University of Manchester, UK followed her B.Tech. and she was able to complete it in under 3 years. She has dabbled in art and tailoring as part of her planned career breaks and found the stints therapeutic. Mentors have played a key role in her career and she has been very active as a mentor herself.

For young career professionals interested in analytics, her message is that Math is a core competency. But there is more to data science than algorithm development. It is also about understanding the business proposition, logic, the technology landscape, and how it brings benefit for customers. We are still discovering the many opportunities that this area can provide and in times to come, we will see it seamlessly integrated in everything we do. The market is crowded with generalists and to make a difference and for a long-term career without getting commoditized, one needs to

"Create the value differentiator, look for the right companies where a good learning experience takes precedence over big names or money." – Dr. Lakshmi

Prof. Maryam Shojaei Baghini

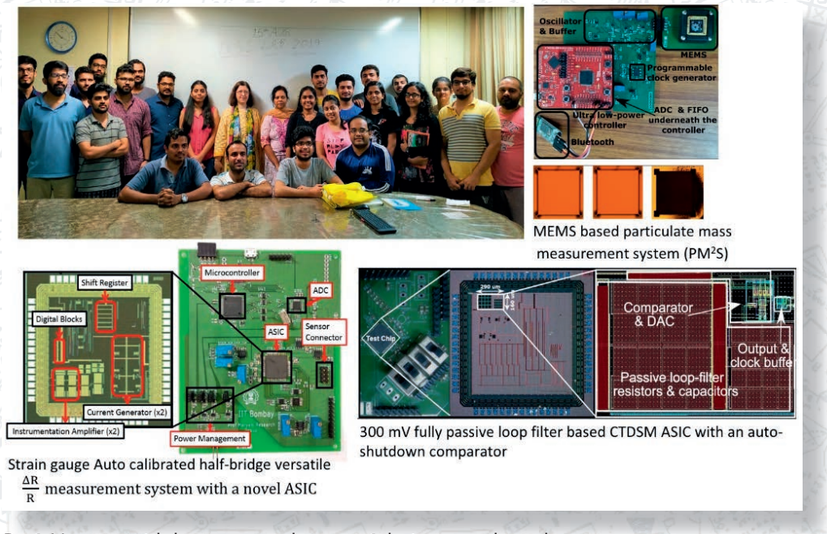
Professor, IIT-Bombay

Prof. Maryam is a Tata Trust Chair Professor for Frugal Engineering in the Department of Electrical Engineering at IIT Bombay. She is a Fellow of the Indian National Academy of Engineering and a Senior member of IEEE. Prof. Maryam has more than 15 years of experience and expertise in the areas of sensors, analog, mixed-signal and high-frequency circuit and system design, development, testing, prototyping, fabrication and field deployment.

Prof. Maryam worked in a collaborative project with Cambridge University during 2018-2020 to precisely measure the concentration of fine particulates in air. The size of the particles was below what commonly-used standard instruments measure, i.e. less than 100 nanometres. It needed a new approach. The ambitous goal was to develop a portable device. Prof. Maryam's team was responsible for the circuit, ASIC (application specific integrated circuit) and system design of the prototype with the available MEMS (micro-electro-mechanical system) resonator, the novel algorithms for better than 1ppm resolution achievement, development and testing the system. While introspecting on the idea, it stuck Prof. Maryam that it was not really necessary to measure the resonator frequency precisely. Instead, let the system be erroneous. The erronous signal was modeled in advance and quantified after mesusrement thereby allowing correct estimation of the frequeny from measurements resuling in world record of 0.1 ppm RMSE (root mean square error) resolution using a portable device. The particle concentration was extracted indirectly after noise removal. This led to a combination of methodologies, mixing frequency estimation techniques and design novelties. The idea worked and was published in IEEE journals and flagship conference proceedings.

One fascinating area for Prof. Maryam is to apply ideas in labs for practical applications. A key area of work in frugal engineering for her is to construct indegenous, portable and affordable sensors for agriculture. Farmers should not worry much about operating them. Currently she is working on phase three of the project, sponsored by the government. It was a rewarding experience. Many systems which emerged from the work were implemented across the country by a start-up founded by Ph.D. scholars.

She has closely worked on a project with her team, supported by Tata Centre at IIT Bombay, to make a portable device compatible with audiometers specifically designed for tinnitus patients. The project has progressed to a proposal stage for clinical trials of the prototype. It can be customised as much as possible based on availability of materials and components.



MEMS based particulate mass measurement system (PM^2S)

Strain gauge Auto calibrated half-bridge versatile $\frac{\Delta R}{R}$ measurement system with a novel ASIC

300 mV fully passive loop filter based CTDSM ASIC with an auto-shutdown comparator

Prof. Maryam with her team and some of their research work

One of the tough decisions she had to take was during high school, to choose engineering despite facing resistance that it would not have scope for a job for girls. Prof. Maryam owes it to her teacher who convinced her to pursue higher studies in a discipline of her interest.

Prof. Maryam believes that it is important for family members to be understanding, respect each other and play a pivotal role in supporting each other's ambitions. Her earliest mentors were her mother who advised her to focus only on her studies from a very young age, followed by teachers. Senior faculty from her department have been her mentors as well as role models. Her message for young professionals is that 'confidence' is the key to succeed. Students must follow what they like to do and not what jobs define.

Prof. Maryam completed her Ph.D. and M.S. from Sharif University of Technology, Tehran where she was the first Ph.D. graduate in Electronics. She did her B.S. from S.B. University, Kerman. She has published more than 285 peer-reviewed international journal and conference papers, is the inventor/co-inventor of 13 granted Indian and U.S. patents with 44 more patent applications. She is joint recipient of 15 awards of which the most recent is Qualcomm Faculty Award 2021. She has graduated 26 Ph.D. scholars till date.

"Don't be afraid of challenges and failures – with every failure there is a learning." – Prof. Maryam

Dr. Menaga Magendran

Managing Director, Bioneemtec India Pvt Ltd, Chennai

Dr. Menaga Magendran established a biotechnology firm Bioneemtec. She is spearheading the efforts by leading a team of scientists in process development in API (Active Pharmaceutical Ingredient) and intermediates.

The 3 core platforms in Bioneemtec are microbiology, chemistry and biotechnology. Microscopic organism or microbes are everywhere. There are several types of bacteria and fungus that are beneficial to humans. Not all are bad. The antibiotics and drugs we use in our day-to-day life are from them. Dr. Menaga focuses on these good microbes, the endophytes. Her team screens such bacteria from medicinal plants, marine life and the soil. The team isolates them, screens the culture, and observes their activity to see if they can produce medicinally important molecules. More than 200 active molecules have been isolated so far for research and documented by its structure and activity.

Dr. Menaga recalls doing M.Sc. in the Centre for Marine Science and Technology (CMST), Kanyakumari, the first artemia research center in India, as a favourite phase in her career. The professors inspired her a lot. Dr. S. Narasimhan, Former Director, SPIC Science foundation was her Doctoral Guide.

When a multi-national company's chemicals and equipment came up for sale, with the cooperation of her husband Dr. Magendran, she went there personally and bought it for an attractive price to set it up in her facility. During the COVID-19 pandemic, her team developed herbal steam inhalation devices using plant extracts. They worked on Remdesivir to enhance its structure for better results and filed a patent for it. These are some other memorable moments.

Dr. Menaga's focus is on the green way of synthesizing APIs and intermediates. Bioneemtec is very keen in using this methodology of continuous flow chemistry, making products through the enzymatic route. A first-of-its kind continuous flow chemistry facility has been opened, for validation of pharma materials using green methodologies. She wants to use the green way of chemical extraction, avoiding harmful solvents by using water as a solvent and enzymes as catalysts. The team has also developed bioplastics from plant waste. Her aim is to make India self-reliant for pharma raw materials without importing them.

It was a difficult decision for her to take up an overseas role in a pharma company in China to learn the tricks of the trade. She worked in a MNC pharma company for three years and later decided to leave the high paying job and return to India to setup her own venture. This job however gave her

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Dr. Menaga at Bioneemtec with the awards won

the contacts of many peers in the field. She is glad that more women are now qualifying in the STEM sector and actively seeking employment. Her company supports women employment with 70% participation. Balancing both family and career, they were able to deliver the products on time and stick to their milestones.

Biocon MD Kiran Mazumdar Shah is role model who has inspired her the most. Dr. Menaga wrote to her once and received a reply in 2 days. That made her very excited. Dr. Menaga's message for youngsters, specifically for entrepreneurs is that they need to have a core wish, a clear vision, good planning and then work towards executing them. She has completed her Ph.D. in Microbiology-Chemistry from the University of Madras and her M.Phil, M.Sc in Microbial technology from Center for Marine Science and technology, Manonmaniam Sundaranar University, Tirunelveli. She has publications in many national and international journals along with her team. She was a senior lecturer before embarking on the entrepreneurial journey.

She has also started another sister company – Negha Green Lab LLP in 2019, an exclusive manufacturing facility for the production of enzymes. She recently registered an association named Scientific Women's Welfare Association (SWWA), with a motive to connect women with interest in Science, so that her team can mentor them.

"Across all platforms, entrepreneurs heed to have a core vision. Business doesn't know the gender, whether male or female one who if wish to be an entrepreneur, then 24/7 committed hard and smart work should be given at the level best. They should visualise the demands of the future and work towards it." – Dr. Menaga Magendran

CII Confederation of Indian Industry

Dr. Mintu Porel

Assistant Professor in Chemistry, IIT Palakkad

Dr. Mintu Porel has completed her M. Sc. in Chemistry from IIT Delhi in 2007. She has received Ph.D. from University of Miami, Florida, USA in 2012. She has done her first postdoctoral research from Columbia University, New York, USA. Thereafter she joined Cornell University, New York, USA in 2014 for her second postdoctoral research. After completing her postdoctoral work, she came back to India in 2017 and joined IIT Palakkad as an Assistant Professor in Chemistry.

Dr. Mintu's research group at IIT Palakkad works on the design and synthesis of novel macromolecules and their applications in materials and biomedical sciences. Her group has developed a strategy to synthesize a novel class of bio-inspired manmade materials. The strategy will allow one to develop materials with extensive chemical diversity and tuneable structure and properties for making them the best fit for a given application. Based on their materials, the team is now focused on developing a new class of therapeutic drugs which will pave the way to encounter the threat from diseases including bacterial infection and cancer.

As evident from her extensive training, Dr. Mintu has a wide range of expertise that resulted in more than thirty peer-reviewed international publications in highly reputed journals such as *Nature Chemistry*, *Proceedings of the National Academy of Sciences of the United States of America, Journal of the American Chemical Society*, *Advanced Materials* etc. One of her postdoctoral findings at Cornell University yielded a US patent. The novel class of material that Dr. Mintu's group has developed at IIT Palakkad has also been filed for Indian and US patent.

Throughout her academic career, Dr. Mintu own several prestigious awards. Recently, she won the 'Early Career Award' from International Conference on Smart Materials for Sustainable Technology in 2020. She is a recipient of 'Ramanujan Fellowship' from Science and Engineering Research Board, 2018. Dr. Mintu's doctoral work from University of Miami, USA won the prestigious 'Gerhard Closs Student Award' from Inter-American Photochemical Society for recognizing the best thesis. She is also the recipient of 'The Stanley, Sam and Clara Schreiber Scholarship' from University of Miami, Florida, U.S.A.

Dr. Mintu has been very active in educational outreach and is always excited in interacting with the students to motivate them about why somebody should pursue higher studies, research and how they can benefit society. For example, she was actively involved in the DST-sponsored Vigyan Jyoti program organized by IIT Palakkad for the girl students from nearby schools; she organized the Research Scholars' Day 2019 meant to showcase the research activities going on at IIT Palakkad; she has always been very excited in participating in the regular science programs including National Science Day, Science Quest etc. During her stay at New York, she served as volunteer instructor for '4-H Science program' for the school students from 2014 to 2016.

Her family has always been very supportive in her life and career. She has always been motivated by her teachers. According to Dr. Mintu, the youngsters must have a dream and strive for it. Resource is not a limitation in this digital era. It is important for them to define their goal. Everyone has a talent. There is no substitute for hard work. The important thing is that they should have patience in the face of struggles and failures and should never give up. Dr. Mintu's message for youngsters:

"Have a goal from the beginning, follow the dream. Be an independent, critical thinker. Have patience and continue to pursue the goals." – Dr. Mintu

Monika Gupta

Vice President, Capgemini

Monika is the 5G & Edge Global Lead with Capgemini, a member of Capgemini's Group 5G & Edge offer team, responsible for 5G Industry use cases and partnerships. She is also the Chair of IET (Institution of Engineering and Technology) Future Tech panel Digital Communications working group. At Capgemini, she leads the 5G initiatives globally, working with industrial clients and communication service providers on their digital transformation and adoption of 5G/future tech. She has also led the setup of the industry focused 5G lab in Mumbai.

The excitement for the 5G technology is that it is designed and targeted to be a major disruptive technology. This is the first time industries are going to use wireless technology in their core operations. According to her, many new emerging technologies are complementary to each other (IoT, Edge, Cloud, 5G, AI/ML etc). New business applications and solutions make use of these technologies collectively.

She believes technology and communications are key enablers for economy and industry and generate enormous positive impact for people and society. She has been fortunate to have worked on large transformational, green-field and strategic programs.

A recent proud moment for Monika was the launch of the first 5G standalone lab in Asia, in Mumbai by Capgemini. The idea to setup this lab was conceived in end 2019 and in spite of the ongoing challenging times, her team carried on and made this launch possible.

According to her, all women face their toughest time as a working mother. The challenges are even harder when children grow up, reach their teenage years and prepare for college. She made a decision to take a planned break from work after having worked for more than two decades in the corporate sector.

This was a life defining moment when she stepped out of her comfort zone. While on her planned break, she became a volunteer telecom advisor for a lot of industry initiatives - working with industry forums, the Government of India, start-ups and expert networks. The amount of learning and personal growth she got from these experiences has been amazing and has made her a better person. She had to fight her inner fear of how she would get back to work after the break but was able to come back successfully in a role of her liking.

According to her, what matters is what you are passionate about and enjoy doing.

5G lab launch on June 22nd

Follow your passion. After that it is just your hard work and sincerity and the path will automatically get charted out. Discover your Ikigai, which is the Japanese way of finding the purpose of life. She also respects the Gita shloka which her father impressed upon her – Believe in doing your work. Don't be driven by results. Have a target, an ambition and don't give up due to the challenges. Keep going and working towards the goals. Goals get fine-tuned along the way.

Mentors are most important and their role is very critical in everyone's life. For Monika, her parents are her first and best mentors. Whoever she is today, is because of her father as a role model. At every place she worked, her seniors and colleagues have been her mentors. Her travels outside India have given her wide exposure and changed her perspectives to a great extent.

She was profiled in "Airtel Power Women" in 2016. She has authored several articles, research and white papers on emerging technologies and won numerous awards at work.

Monika graduated with a B.E. in Electrical Engineering from Delhi College of Engineering, as a University gold medallist. She was one of the eight students selected across all graduate courses in India for the Essar Scholarship for two consecutive years. She topped in Delhi region in Grade XII CBSE Board Exams.

Her other interests are cooking, travelling, music and yoga. During the pandemic, she became a "plant parent" to house plants (something she had never done before).

"If your work is in tune with your passion, half the battle is won. Discover your Ikigai and keep working. Do not worry about the results." – Ms. Monika

Dr. Nappinnai Mohanavelu

VP, Dhanvantari Nano Ayushadi Pvt. Ltd.

Dr. Nappinnai is the Vice President for research and operations and the site leader in Dhanvantari Nano Ayushadi. Nanolife is the chain of medical centers to offer its services for Dhanvantari's customers. Plant products present naturally are utilized to prepare applications for nano particles using precious metals in her research work. Nanotechnology is still in infancy in India. Green nanotechnology is the future and has its roots in India. Bringing research to the commercial sector is the actual success of any research and Nanolife has achieved the same.

Dr. Nappinnai and her team have been utilizing plant products present naturally. It is a unique first-time commercialization of green nano technology. Environmentally friendly chemicals are used in the process. Applications like hand sanitizer, disinfectant, and room sprays are developed. These products have been developed for their anti-viral, anti-bacterial, anti-fungal properties, the need of the hour today. Dhanvantari is a pioneer in green technologies. From R&D to the customers' table, this is the first time in India where green nanotechnology products are being brought to end-users at ease. The safety of the products is their uniqueness.

Dr. Nappinnai started as a formulation expert after a break in her career and climbed the corporate ladder to the current role. She has an understanding boss, with freedom to do her work. She has several memorable moments in her career. The first is the GP Nair award won from IDMA (Indian Drug Manufacturer's Association). She had to travel by train to Mumbai for the event. It was a memorable journey and event to attend. She received the award in front of her parents.

She started teaching after one year of marriage. She stood first in post-graduation and won the university gold medal. When she completed her Ph.D. after six years managing both studies and family with a young child, she felt elated. She switched from academics after 14 years to industry, as a recognition for her talent and was given an opportunity to excel. That is also a memorable event for her.

Tackling the generation gap is a specific issue for gender equality in our country. It is the family that will define our life. It is more important than professional life, whether it is man or woman. Women traditionally opt for academics so that they can balance personal and professional life. Very few break the glass ceiling. Balancing skills and patience are required. Balancing of professional and personal life remains elusive. Patience is the quality to be developed, not taught. Patience has to be developed on our own. Women need to balance family life with career. When we are patient, every challenging situation will cross and settle. One should believe in oneself.

Dr. Nappinnai insists that we should take care of our older generation and consider it as a duty. We should be truthful in our career for enjoying a good quality life. She believes in a higher force. We may call it God, but we need to believe in it. The way of thinking and approaching an issue and later solving any problem to the satisfaction of all is the real lesson. This lesson is not taught, rather experienced. Age, family circumstances and education are not a limitation for achieving success in life.

Her current boss Mr. Abhay Kumar Jain was instrumental in helping her understand herself and her hidden capacity. Earlier she did not know anything about Ayurveda. Now she knows almost 70% of it. She learnt to be humble from him. Her daughter is also an inspiration for her. Dr. Nappinnai is the President of the Indian Pharma Association and a doctoral program guide in Dr. MGR University. She is also their program guide and examiner for pharmacy courses for many Indian universities.

"Truth, Patience, perseverance, intelligence, consistency and emotional balance are required for any success. Be respectful to the elders and truthful to the workplace. Believe in a higher force and it will take care of you" – Dr. Nappinai.

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Dr. Navya Mastanaiah

Team Lead, Lennox India Technology Center (LITC)

Dr. Navya co-leads the Computational Fluid Dynamics (CFD) team at LITC. She is responsible for the design and development of HVAC products. She actively drives people development and employee engagement. Her expertise is in R&D, product development and manufacturing. Simultaneously, she has also become adept at working with and leading multicultural and multi-disciplinary global teams. For 3 years at LITC, she headed the India chapter of Lennox Young Professionals Association which focused on planning and executing activities aimed at furthering the professional development of employees.

Dr. Navya's doctoral research focused on using dielectric barrier discharge (DBD) plasma for disinfection and sterilization of bacteria- an alternative to conventional methods of sterilization such as autoclaving. One of her proud moments was the completion of doctoral research with Prof. Subrata Roy. She made a shift in her domain of interest from aerospace to plasma sterilization, starting a new research stream at Prof. Roy's lab. Thanks to her advisor's support, there was a lot of learning from the scratch and building of new products. During this time, she also discovered that she was a good leader with a unique blend of technical expertise and leadership.

On a personal front, while she was doing her last year of Ph.D., her mother was critically ill. During this time, she had to put her doctoral work on hold. Bouncing back from that incident was very tough. But her support system helped her to continue what she started and complete it.

There is no single mentor in her life. She takes the lessons learnt several leaders she has had the opportunity to work with. From her PhD advisor, she learnt to think through the problem and find a solution. He asked her to "think through the physics and not jump to the conclusion". This made her very independent and helped her find out solutions on her own. From her manager at LITC, she has learnt a more open-ended style of leadership that focuses on delegation and building a support system for her team.

A typical day in her life has a good work-life balance now with lot of meetings and contribution to the home front. One result of the pandemic has been the exposure to technical details through online forums and social media platforms. She feels that it sparks our own ideas for research in addition to details about existing ideas.

Dr. Navya at a Technical Fair she organized at LITC

Dr. Navya's three lessons for youngsters: 1) Reach out. We are lucky to be in a generation where it is easy to reach out to leaders. But youngsters don't do it enough. 2) We are going to make mistakes. They may not be hard ones. We may fail fast, but we should learn from them and move on. 3) Life and career- We are going to get there eventually. Enjoy the journey along the way and don't take yourself too seriously.

Throughout her academic as well as professional experience, she has usually been the only woman in class, in the lab, in a conference room. But it has never hampered her. In fact, she feels that it has contributed to her growth. Not only did she use this to work harder but had the good fortune to be surrounded by mostly supportive and egalitarian networks of classmates, lab-mates, and colleagues. That is why she believes that it is important to remember that our ability to excel in STEM does not depend on our gender – it solely depends on our competence and confidence.

Dr. Navya has published research papers in journals and has filed for 2 patents. She is a people person and is energized by meeting new people and networking. She holds 4 degrees- a M.S. & Ph.D. in Aerospace Engineering from University of Florida, Gainesville, a B. Tech in Aerospace Engineering from IIT Madras and an MBA From IIT Madras. In her spare time, she likes to read, spend time with her dogs and dance.

"Dr. Navya's favourite quote is 'Ad Astra Per Aspera!' – 'Through hardship to the stars' and is a perfect reflection of who she is. Youngsters should reach out, make mistakes, learn, and continue their journey" – Dr. Navya

Tamil Nadu TDPC

Confederation of Indian Industry

Dr. Neeta Varma

Director-General, NIC

Dr. Neeta is the Director-General of National Informatics Centre, a premier technology organization of the Government of India (GoI). With a career spanning over three and a half decades, she has been instrumental in implementing several high-impact digital initiatives. In her current role, she is spearheading the Digital Transformation agenda of the government through the development of Digital Platforms for various initiatives of the Government in different sectors of development.

NIC is mandated to promote the use of information technology for the development, governance, and delivery of services to citizens. With its 800 offices pan India, NIC is providing digital infrastructure and digital solutions to the government at the Central, State, and District level administration. With the mobile revolution in the country, she is also promoting a Mobile-First Strategy and encouraging the use of mobile technologies in digital solutions built by NIC.

She has been an active proponent of leading citizen engagement through technology at various levels of governance. She was instrumental in setting up the technology platform for MyGov, which is a citizen engagement and crowdsourcing platform engaging over 14 million citizens. She also brings extensive experience in the field of open data and has led the launch of Open Data Platform to release government data in open for the public good. She has also been instrumental in formulating Government Open Data License (GODL).

In the current COVID-19 crisis, she was entrusted by the Government to manage the Mobile App, 'Aarogya Setu', which is a data and AI driven technology solution for contact tracing to provision the safety of citizens from the pandemic. With over 195 million downloads, the Aarogya Setu app became the most downloaded government application in India. Apart from Aarogya Setu, she also led the development of the RT-PCR Mobile App to manage the Data related to COVID-19 tests pan India.

Under her leadership, NIC established National Data Centres at various locations and later launched the first National Cloud (Meghraj) for Government in the year 2014 to provide state-of-the-art IT infrastructure for government departments to manage the flagship programmes and deliver citizen services.

She has aggressively worked towards the adoption of Cloud by the Government departments through a Cloud-First Strategy. National Cloud has provided scalability, agility, and reduce time to commission IT initiatives of the Government. She has also played a key role in the establishment of NIC CERT (Computer Emergency Response Team) and one of its kind Centres of Excellence in Blockchain, Microservices, Application Security, Artificial Intelligence, and Data Analytics. Applications of emerging technologies such as AI, ML, Robotics, AR/VR, and Data Science will play a significant role in building upcoming digital solutions.

Dr. Neeta feels that today is the best time to build a career in technology. Technology is not only creating employment opportunities but is also driving the economic growth in our country. Speaking about women, she says with the new normal of 'work from home', various avenues have opened up for women to continue to work while attending to their responsibilities towards family. This will also contribute to an increased percentage of women in the workforce in India. Technology will empower women in various ways at work as well as on their personal front, helping families, society at large and thereby contributing to the socio-economic development of our country.

Dr. Neeta tries to organize her work to maintain work-life balance. She believes in mentoring and empowering her colleagues and teammates to strive for excellence and emerge as leaders. She feels she was fortunate to be mentored under the visionary leadership of founding Director-General Padma Bhushan Shri. N. Seshagiri. Throughout this professional journey, her family has always stood by her side and supported her to succeed in life.

She holds a Ph.D. from the Indian Institute of Technology, Delhi, and an Executive Certificate on Digital Transformation in Government from the Harvard Kennedy School. She was recently featured amongst the Top 10 Technology Leaders to watch in India 2021 by The CEO Magazine and was awarded the Pt. Deen Dayal Upadhyaya recognition for Re-engineering India 2020, in the technology category, among many others. Her research interests include applications of emerging technologies in Governance, Cyber Security, Cloud Computing, etc. Apart from publishing her research in national and international journals, she has also co-authored books on the role of technology in governance. She has led several international assignments to help other countries and organizations in their digital journey. She is regularly invited at various national and international conferences and forums to provide thought leadership around technology in Governance.

Her message for youngsters:

"Technology is permeating deep into our lives. Career in technology will increase your job prospects and equip you with skills to work with technology interventions in almost every domain. Strive for Excellence and Be your Best." – Dr. Neeta

Nirmala Sankaran

Co-Founder, Chief Evangelist, HeyMath!

Nirmala leads product design, innovation and talent at HeyMath! HeyMath! is among the first to have created a globally recognized world-class ed-tech product in India, in collaboration with University of Cambridge. It has been exported to the rest of the world.

Nirmala was nervous that morning. She had a breakfast meeting with New York Times columnist and author Thomas Friedman in Singapore. At the end of the conversation, Friedman promised to write about HeyMath! It was featured in his Op-Ed column, and in his bestseller "The World is Flat" as an example of globalisation in education. What followed was a flood of enquiries.

The first prototype of HeyMath! was approved in 2002 by Raffles Institution in Singapore. They agreed to pilot it and were ready to sign the cheque. Raghuram Rajan has been an advisor from day one. He helped shape the teaching methodology, asking a lot of tough questions. Hey Math! has been adopted by over 1000 schools, and has impacted more than 1 million students and 5000 teachers.

The product has been designed to match the demographics of the users and incorporates the local culture and dialects. When schools adopt HeyMath!, the program is implemented through teachers both live and asynchronously. Digital content and a technology platform are provided, along with professional development support. Students can use HeyMath! independently as well. Customized learning paths can be created for each student depending on their individual needs.

HeyMath! was featured in the top 50 companies in NASSCOM's Emerge Innovation Category. Nirmala has been featured amongst the top 100 IT innovators in India. In 2007, her company was awarded the Most innovative company by Microsoft. Accolades continue to flow in the form of ICT award from Eduweek South Africa and the Partner of the Academy of Singapore Teachers from the Ministry of Education, Singapore. She was also featured as a Young Turk in CNBC-TV 18s programme.

Nirmala thrives on ambiguity and complexity. Her desire to solve a problem led her to stumble upon the acute shortage of good Math teachers. On the flip side, students were struggling and fearful of the subject. The internet and India had a role to play. The pieces fell together. That's how HeyMath! was born. www.heymath.com

Nirmala is convinced that women make fantastic leaders in any field, especially STEM.

Meeting with New York Times columnist and author Thomas Friedman

Leadership is about collaboration and being relationship centric. Hundreds of women have been involved in HeyMath! There is a very low rate of attrition because of the creative space and autonomy offered to employees. Nirmala is associated as a mentor with incubation centers at IIM B and IIM, Udaipur.

As an entrepreneur, unlike in any other job, your natural talents and passion come together and you can be in your element. There is no ceiling to the value you can create or the learning that you have. Women are well suited for entrepreneurship because of their problem solving and collaboration capabilities. Unicorns are mythical creatures. But zebras are real, operate in groups and preserve each other. Zebra companies make money and also do good to the society.

Nirmala was passionate about becoming a cricketer. In her high school days, she used to go to the ground without fail every day at 4pm. She had even dreamt of dropping out of school to take up cricket. She graduated from Shri Ram College of Commerce, New Delhi and an MBA from IIM Bangalore. Her message for young professionals:

"Go create a zebra company and dazzle as a group." – Nirmala

Dr. Poonkuzhali Sugumaran

Professor, Rajalakshmi Engineering College (REC), Chennai

Dr. Poonkuzhali is a Professor in Computer Science in Rajalakshmi Engineering College. Shehas more than two decades of teaching and research experience. Her areas of specialization are Machine Learning (ML), Deep Learning (DL), Information Retrieval, Data analytics and developing e-tools to support the learning process for special children.

Some of her completed projects include Interactive Teaching Aid for Autistic Children, Efficient Prediction and Monitoring Tool for Diabetes Patients using data mining and smart phones, and efficient classifier for detecting spam in social networks through feature relevance analysis. She has developed a Mahatma Gandhi Quotes App commemorating his 150th birth anniversary.

Some of her memorable moments are when she was the first to complete the Ph.D. from her research centre at REC. The attendance at her viva session was more than 150, including seniors and her Chairperson, which went on for a couple of hours. The examiner was surprised to see such a crowd. The institution awarded her a tablet for her achievement. She was immediately promoted as Head of Department of IT after her Ph.D.

She has been a key person instrumental in opening the assistive technology lab and analytics lab in her institution. It has helped many students and faculty members to carry outprojects to pursue their research objectives. Many students who worked here won the best project awards from industries and leading organizations. Based on the preliminary works carried out in the lab, funding of more than 1.5 crores was received for three projects from the Department of Science andTechnology, AICTE, and UGC.

Dr. Poonkuzhali has developed an e-tool to support the intellectually disabled during COVID-19 pandemic. She has held short term training programs on "Writing and PublishingHigh Impact Research Publications, and Scientific Documents". Her team has developed a real-time medical application named "Teleradiology software" that hasbeen designed and developed for sentinel radiology solutions. She has organized INNOVISION events for students to showcase their ideas and talents every year.

Some of the areas in which Dr. Poonkuzhali is currently guiding research scholars are the following: Predictive Analytics for Textile and Garment industry using Machine Learning Techniques; Real Time Data Analytics for Healthcare surveillance systems based on Sentiment Analysis and Transfer Learning, Big data analytics for efficient prediction and monitoring of diabetes patients using Internet of Things; Efficient predictive analytics for cancer patients using deep learning techniques; Predictive data and visual analytics for urban transportation using Deep Learning Techniques; Data analytics for augmenting Travel and Tourism Industries growth using deep learning Techniques; Data analytics approach for Security Model to the IOT Devices.

Dr. Poonkuzhali broke gender barriers at her institution. Her international travel gave her good exposure to the various practices in other countries which widened her horizons. Her message for youngsters is that they need to focus and add value to their education by sharing their research contribution in reputed conferences and summits. Networking is very important for young professionals to advance further in their career.

Her college Chairperson and the management have been her mentors throughout her student as well as professional career. She has been given complete freedom to carry out her ideas and proposals withstrong back-up support provided by the management. When there were no obstacles, she was able to move forward at a fast pace.

Her mother and husband have been a constant support. Her children are independent and help her move forward in career development. Dr. Poonkuzhali has authored 6 textbooks and published more than 90 papers invarious reputed conferences and in international journals. She has received 6 Best PaperAwards and the International Paper Presenter Awardtwice from Computer Society of India. She is a receipt of the Shri P.K. Memorial Award for Best Faculty for Computer from Nehru Group of Institutions. She has completed her B.E. from Madras University, M.E. from Sathyabama University and Ph.D. from Anna University, all in Computer Science. Her message for youngsters:

"We need to have confidence in ourselves. Take up the challenges, new initiatives and excel in those areas. Networking is also important for all round progress and growth." – Dr. S. Poonkuzhali

Dr. Prabha Hegde

General Manager, Healthcare R&D, 3M India

Dr. Prabha is the General Manager for healthcare R&D in 3M India. In her career in 3M, she not only established a state-of-the- art filter validation laboratory, but also responsible for developing analytical protocols for various health care products in the areas of for hand hygiene, pre-op skin preparation and medical device enzymatic cleaners. The successful commercialization of these products has resulted in increased local product sales. As a New Product Introduction leader, she was responsible for launch of 6 products in India.

Dr. Prabha has fond memories of working with HPLC (high-performance liquid chromatography) device on method development and validation in Micro labs which helped the company in exporting the product. She set up a validation lab in Pall Lifesciences, for which she was awarded the Global Employee Award in 2007. A prototype she and other teams collaborated with for a competition at 3M went on to get a global patent. On the personal front, she loves being a doting mother cooking up special food for her children in spite of her busy work schedule. The first car she bought and the drive she took with her mother in it makes her emotional even today. She is very proud of her parents, who considered education as the top priority. This importance towards education motivated her to enroll for PhD, even while continuing to work, and was she was awarded doctoral degree in 2018.

As a member of Bureau of Indian Standards, she helps in preparing National Quality Standards for medical devices. She is also a member of the 3M CII Young Innovators Challenge Awards jury panel to select socially responsible innovative ideas.

Guiding principle that Prabha has always followed in her career is, whatever the situation, she would never stop working. Joining as R&D Chemist in June 1995, she has worked in five companies in roles of increasing complexities. Challenges she faced in her professional and personal life motivated her to work harder and smarter to overcome them. She believes that respect as an equal contributor at work is as important as being contributor to the financial wellbeing of the family. She has been blessed with support from her husband and children to achieve these goals.

Coming from humble background with her education and career in health care industry, Dr. Prabha tries to find ways of improving the standards of healthcare and giving back to society. Just as how a small squirrel helped Lord Rama build the bridge, her little contributions have helped add value to her organization, colleagues, and the society.

Dr. Prabha is actively associated with social causes, especially those with upliftment of girl child. She has been working with NGO Chiguru as a volunteer teaching the inmates and as a member of board of directors increasing scope of the organization. She is a mentor to young rural girl students through the organisation "Mentor to Go". She also associates with other social causes.

Prabha has been fortunate to have mentors who have guided her in her career helping her navigate through challenges. Dr. Prabha has completed her Ph.D. in Biotechnology from Visvesvaraya Technical University, PG diploma in Pharmaceutical Regulatory Affairs, M.Sc. from Manipal Academy and B.Sc. from Mysore University. She has 7 publications in national and international journals and two granted patent. Her message for youngsters is that you could have won the Nobel prize yesterday, but you need to prove yourself today. It is important to read and prepare for what is coming in future.

"You cannot have success in work or family in one day. It builds over time. You can never be a perfect employee or family member at all times. You need to prioritize it each day." – Prabha

Prof. Pranita Sarangi

Associate Professor, IIT Roorkee.

Dr. Pranita is an Associate Professor at the Department of Biosciences and Bioengineering in IIT, Roorkee. Inflammation and cancer immunology are her niche areas of expertise.

Dr. Pranita is the eldest of three daughters and never wanted her parents to feel that they did not have a son. She chose to study veterinary sciences, where many women do not venture. Being awarded the IYBA (Innovative Young Biotechnologist Award) by the Department of Biotechnology, India was a pinnacle moment of her career. She is an alumnus of Sainik School Bhubaneswar and also represented as the first female R&V cadet from the Orissa Veterinary College in the Republic Day Camp-1999 where she won the silver medal in the equestrian events. She is the first lady NCC Officer in an IIT. She was one of the solo performers at the International Odissi Dance Festival-2020. She considers the graduation of her first two Ph.D. students as an important milestone. She is a reiki healer and a yoga enthusiast.

Dr. Pranita has worked on immunological mechanisms underlying blinding herpetic keratitis and published 10 high impact research articles during her doctoral studies at the University of Tennessee. In 2008, she joined the University of Rochester, where tracking of neutrophils in sepsis was her main topic of study. Two of her post-doctoral papers were published in the prestigious Blood journal which received special commentary and was highlighted in Nature-Scibx journal and received a US patent. She followed this up with a research fellow position at the National Institutes of Health, U.S.A., and worked on the cell-matrix interactions in 2011.

She then joined IIT-Roorkee and established the inflammation and cancer-immunology laboratory. Her articles have been published in the FASEB Journal and highlighted in Nature Asia-India and multiple national media channels. She has published 26 research papers in international journals and two book chapters which have been cited innumerable times.

Dr. Pranita's work is in the field of life-threatening sepsis, where certain chemicals the body releases to fight an infection result in a serious condition. Dr. Pranita was diagnosed with sepsis and admitted to the ICU with severe chest pain and fever at a sports event at IIT Guwahati. The recovery was slow and it completely altered her perspective of life. She felt born again and wanted to contribute more to the field.

Innovative Young Biotechnologist Award IYBA-2017, Department of Biotechnology, Government of India

Dr. Pranita has always given her best to motivate girls to chase their dreams. She has coordinated National Social Summits on underprivileged women education and empowerment. Under her initiative, IIT Roorkee became the first IIT to enroll girls cadets in NCC. As a nodal officer of the Vigyan Jyoti Initiative, she is involved in motivating and guiding young and bright girl students from JNV and Central schools to take up careers in STEM.

Dr. Pranita regards mentors with great respect and gratitude. Her family has always supported her. Her parents Mr. Nisamani Sarangi and Dr. Pratimarani Sarangi were teachers and Dr. Pranita follows their principles in her profession. She feels sharing of responsibilities by her husband and support from her mother-in-law are very important for career support for women in STEM. The book, "Vivekananda His Call to the Nation" has been her guiding force during college days.

She holds a Ph.D. in Comparative and Experimental Medicine from the College of Veterinary Medicine, University of Tennessee, U.S.A. She is a BVSc&AH graduate from the Orissa Institute of Agriculture and Technology, India.

"The thought that I am a man or a woman is only a mindset. All women have power to change the mindset and perform multiple roles. Follow your heart's passion then hard work becomes enjoyment. Know where you want to be and what you want to be. Then the how becomes easier. Dream big, believe and achieve. " – Dr. Pranita

Dr. Priya Abraham

Director, National Institute of Virology

Dr. Priya took over as the Director, ICMR (Indian Council of Medical Research)-National Institute of Virology (NIV), Pune, in 2019. She was Professor and former Head of the Department of Clinical Virology at CMC in Vellore when she was appointed as the Director of NIV. Just two months after joining the institute, she along with her team of scientists, got actively engaged with various aspects of the SARS-Corona virus-2 diagnosis and its characterization.

In January 2020, she was about to board a flight to Delhi when she received a call from a team member in ICMR-NIV at Pune. She headed back to the institute and after a hectic night, announced to the authorities that COVID-19 had entered our country. In early March, the team was able to isolate the virus. The institute was able to grow the virus in their own facility and partner with the vaccine industry, handing them the live virus.

Dr. Priya has led the scientific team at ICMR-NIV in several facets of COVID-19 work: diagnostics including assay innovations, kit validations, serological assay development including technology transfer, in-vitro anti-viral testing of equipment and candidate drugs, pre-clinical and Phase-I and Phase-II studies related to an indigenous vaccine.

Dr. Priya completed her MD and Ph.D. in Virology at CMC, Vellore. She has had a sustained interest in hepatitis viruses and human papilloma virus infections. She was invited by WHO to serve as a team member in the formulation of detection and prevention of HBV and HIV infection as well as screening of HBV infection. In March 2017, she was invited to serve as WHO consultant to Myanmar to formulate the Hepatitis Testing Guidelines for that country. She has been part of a WHO external team to Sri Lanka for assessment of the country's National Plan in HIV/AIDS and STI in September 2017. She has served as a Scientific Advisory Committee member to the ICMR virus unit at National Institute of Communicable and Enteric Diseases, Kolkata. She was one along with another virologist who drafted for the first time the syllabus for DM in Virology for the country.

Dr. Priya was interested in science and math early on from her school days. According to her, virology has been at the centre of medicine, paediatrics, agriculture and animal husbandry and that excited her. After her formal training, she was interested in working in a lab and specialized in virology. Some of her role models are Dr. Sowmya Swaminathan, Chief Scientist a WHO, Prof. Margaret Stanley, University of Oxford and Ms. KK Shailaja, the ex-Health Minister of Kerala. Her family has been supportive in her journey. Her parents did not differentiate between boys and girls and taught her to be independent. She likes to spend time with her family.

Dr. Priya has more than 162 publications in peer-reviewed journals. She has been the principal investigator or co-investigator for several external research projects. She has guided Ph.D. students. After her MD, she taught clinical microbiology in CMC and then went to become the Head of the Department of clinical virology. She worked for a few years in the UCD National Virus Reference Laboratory, St. Vincent University, Dublin, Ireland and went to win a fellowship in the Royal College of Pathologists, London. She is both an academician/teacher and a physician scientist. When the Medical Council of India came up with a new course for DM (Doctorate of Medicine) in virology, she was invited to frame the syllabus and training program for the course.

Her message for youngsters interested in virology is that it will be a dynamic field in future too. But they should remember that

"Success will not come overnight. We need to work diligently with patience, commitment and dedication and not try to hit the fast-forward button." – Dr. Priya

Dr. Rajalakshmi Menon

Outstanding Scientist and Program Director (ISTAR), DRDO

Dr. Rajalakshmi is Associate Director of Centre for Airborne Systems at India's Defence Research and Development Organisation (DRDO). She has led and made outstanding contributions to the development of indigenous airborne surveillance and battle management systems.

Dr. Rajalakshmi recalled the flight test campaign led by her wherein the dignitaries onboard declared the initial operational clearance of the surveillance system, developed by DRDO. India is the fifth country in the world to develop an indigenous and comprehensive system for airborne early warning and control, which, she attributes to teamwork and is proud to have been associated with.

Dr. Rajalakshmi believes that working end-to-end from concept to delivery at DRDO is a unique experience, unlike corporates, where the job is restricted to specific verticals. She expressed that at times, success of DRDO comes out as a few lines in a corner of the newspaper whereas other news come out prominently on the front page.

Dr. Rajalakshmi is a pioneer in the field of Intelligence, Surveillance, Targeting and Reconnaissance (ISTAR) technologies. In her current role, she lays emphasis on working at the policy level, architecting solutions, providing directions on technical aspects and bringing in her experience to guide the cohesive teams nurtured by her. She wears both hats i.e. managerial and technical to ensure that the system is delivered meeting the User Requirements within the time and cost projected, competing with global system houses.

She opined that DRDO produces spin-offs such as materials, training aids and software, to name a few, which can be used in civilian applications, surveillance systems for disaster management, flood relief and radars for security and traffic management.

Dr. Rajalakshmi owes it to her school teachers as well as her professors while pursuing her M.Sc. in Computer Science and during her journey at the Indian Institute of Science; in particular her mentors at DRDO who were instrumental in moulding and shaping her attitude. Her mentors encouraged her to pursue higher studies and imbibe skills transcending across fields.

Dr. Rajalakshmi is of the view that to mentor youth, interaction is required with academia through technical as well as inspirational talks, career guidance and motivation through various forums. Youngsters should be shown all options and opportunities in STEM so that they get the exposure at a very young age. Students should not be forced to join, and they should be attracted to STEM on their own. Towards that, reiteration at every stage, right from early education coupled with encouragement, exposure and creating the right environment are required.

Dr. Rajalakshmi with our Prime Minister and IAF users after indigenous airborne warning system demo

She believes that a supportive ecosystem at the home front and at the workplace are essential for success. Her strong analytical abilities and intuitive characteristics coupled with the attitude to lead from the front have been inspirational to other professionals in the organization.

Dr. Rajalakshmi did her Ph.D. in Aerospace Engineering from the Indian Institute of Science (IISc). IISc provides the training to take up any challenge and to solve any problem in life skills, not just in one's profession. Her hobbies include Bharatanatyam, movies and travel. She has published more than 15 papers in conferences and journals. She has received the distinguished alumnus award from IISc. She was awarded the Outstanding Woman Scientist/Technologist/Engineer of the Year by Aeronautical Society of India in 2020, DRDO's Scientist of the Year in 2015, Technology Group Award in 2019, Team award for Path Breaking Research in 2013 and Lab Scientist of the Year in 2006. Her message to young professionals:

"The attitude to adapt to the organization is important. Give your best. In DRDO, if we do not give our best, our soldiers' lives are in danger. There is no runner-up in war." – Dr. Rajalakshmi

Dr. P. Rajamalli

Assistant Professor, IISc

Dr. Rajamalli is an Assistant Professor in the Materials Research Centre, Indian Institute of Science (IISc). Her research team including 8 students focuses on development of efficient and cost-effective luminescent materials for organic LEDs (light-emitting diodes).

Dr. Rajamalli's moment of happiness came in 2015, when her experiments led to pure organic material successfully used to make efficient OLEDs. Common man is aware of the Tungsten filament light bulb which produces more heat than light. Then came LED bulbs which are also not easy on the eyes of humans. OLEDs are cost-effective and have low power consumption. They are easy on human eyes. Hospitals have been using OLEDs and have reported better ambience and comfort for patients. India imports raw materials for OLED products. Dr. Rajamalli wants our nation to be self-sufficient in the manufacture of OLEDs.

LED products cannot be used in certain medical treatments because of their harmful effects. But OLED products do not cause much harm. They can be even worn as a watch by skin cancer patients for treatment. Dr. Rajamalli's other memorable moments were when she received the Marie Curie Fellowship from the European Commission in 2017, when she was the school topper in her 12th grade and when she received her offer letter from IISc.

Before her role in IISc, Dr. Rajamalli was a Marie Curie Fellow in the School of Chemistry, University of St. Andrews, UK, JSPS-Visiting researcher in Kyushu University, Japan and a post-doctoral fellow in National Tsing Hua University, Taiwan. When she moved to Taiwan following her PhD, she was given two choices for her research: basic organic synthesis or organic LEDs. She chose organic LEDs because it was a new and exciting field. It was the best opportunity to learn and bring new expertise to India.

Curiosity drives Dr. Rajamalli to work every day. She feels that every student should have a self-interest to work hard, achieve their dreams and refrain from complaining and giving excuses about unavailable resources. They should be focused and keep the goal in mind. She feels that when someone is sincere, there will always be people to support and that is how she went on to do her Doctorate. Teachers were her mentors who helped at every stage. She has been actively involved in student outreach activities to encourage young women and children to pursue their education in Science, sometimes visiting their

Prof. Rajamalli in her lab

home to convince parents to send kids for higher education.

Dr. Rajamalli won the Marie Sklodowska-Curie individual Fellowships in 2017, DST-Inspire Faculty award in 2017, National Science Council Postdoctoral Fellowship, Taiwan, 2012-16 and Prof. Ramamurthy award for the best Ph.D. thesis in chemistry, IIT Madras in 2013. She has 4 patents filed, 33 publications in peer-reviewed journals and has been invited as a speaker in several conferences.

Dr. Rajamalli completed her B.Sc. in Chemistry from the University of Madras, M.Sc. from Bharathiar University and Ph.D. from IIT Madras. She was an analytical chemist in Orchid Pharmaceuticals' R&D team for a short period (10 months). She was born in a remote village with very little access to basic infrastructure. She fought hard to get herself admitted to a higher secondary school while most of her friends dropped out of school. Girl education was unheard of in her family circles. In spite of the challenges, she made it to college under the guidance and financial assistance of her teachers. She worked part-time to support her college expenses and emerged the topper at college. Her teachers pushed her to continue her postgraduate studies. Her message for young career professionals:

"Do not waste you precious time for small and short-time pleasures. Focus on the dream and it will give you long-lasting pleasure." – Dr. Rajamalli

Dr. Rajashree Bothale

Group Director, NSRC

Dr. Rajashree Vinod Bothale is the Group Director, Training, Education & Outreach Group at National Remote Sensing Centre (NSRC). She has a Masters in Civil Engineering from IIT Roorkee and a doctorate from VNIT, Nagpur, and has had a 34-year-long successful career in geospatial technologies and their applications. The outreach program she leads does technology promotion and training of manpower in remote sensing and GIS so that government bodies and the general public can use these technologies and are aware of ISRO's (Indian Space Research Organization) activities and progress in this area. Before that, she led remote sensing applications in the cryosphere, the portion of the earth's surface that is frozen as ice. The data is used for analysis of snow, snow melt and freeze in the Himalayas and Antarctica.

Her 3 month stay at Antarctica (as part of 35th Indian Scientific Expedition to Antarctica) is one of the most memorable chapters of her professional life. She remembers fondly the pride and joy she felt when she saw the tricolour fluttering at India's base station Bharati in Antarctica after a 10-hour long frightening journey in a tiny plane. From playing with penguins and performing excursions for conducting scientific experiments to being scared for her life as she thought the ice might break and plunge her into the ocean, each day brought her new adventures and delights.

Dr. Bothale is also the author of "अंतरक्षि एक खोज (Antariksh, ek khoj)", a popular science book written in Hindi aimed at introducing children to the fascinating world of space. It was released by the Chairman, ISRO and won the 2nd prize in the Delhi Book Fair. Her second book on satellite navigation is currently under internal review.

Although she has had a long and storied career in Remote Sensing, her entry into the field was the result of a happy accident. Due to a delay in the arrival of the admission letter for her post-graduate program at IIT Roorkee, she ended up having to choose Remote Sensing as her field of specialization. The Head of the Department encouraged her to take the course that eventually became her passion.

She also served as an expert on Remote Sensing and GIS for the Government of Mauritius, as part of which the software package Mauris—Mauritius Information System was developed. She also developed software 'KSHAMTA', a package which is used for reservoir capacity estimation. The team received appreciation from Chairman, ISRO for projects reservoir sedimentation and waterlogging in major and medium irrigation commands. The "Rajasthan Desert Catchment Atlas" published by her was helpful in understanding flood mitigation scenarios in the Rajasthan desert during the devastating floods of 2004.

Dr. Bothale's work has focused on deploying remote sensing technologies from the lab to the field—so that they can benefit the common man. She recalls the challenges she faced as part of her field work, from having to cross an overflowing river to dealing with the lack of basic amenities in many parts of the country. To ensure that her message reaches a wide audience, she frequently writes technical content and delivers talks in Hindi. She is a Fellow of the Institution of Engineers and a member of several other professional organizations. She has more than 70 technical reports, 20 papers and two atlases to her credit, and has received several paper presentation awards, along with the ISRO team excellence award.

In her free time, she loves using her creativity to dabble in various forms of art. One of her recent hobbies has been what she calls "Plate Art", where she uses everyday food ingredients to create designs, depict characters, or convey stories and themes. She also enjoys cooking, creating rangoli patterns, reading books, and watching movies.

She thinks multi-tasking was the key to her success in juggling personal and professional lives. Her message for youngsters:

**"Be creative and work passionately.
If you are zealous about achieving what you want,
it'll bring out the best in you" – Dr. Rajashree Bothale**

Dr. Rashi Gupta

Managing Director, Vision Mechatronics Pvt Ltd.

Dr. Rashi Gupta is the Managing Director of Vision Mechatronics Pvt Ltd, engaged in the manufacture of robotics and industrial automation products, Lithium batteries and advanced energy storage systems. She is the recipient of Asia's Most Influential Women Award in Renewable Energy 2020.

A defining moment for Dr. Rashi was in 2009 when she participated in a design challenge as a fresher from college in which she eventually succeeded, resulting in sowing the seeds for her entrepreneurial journey to work at par with industry leaders in the STEM domain.

Being known as "Batterywali of India' and accepted as leader in this segment in a male dominated industry has been her biggest achievement. She is a pioneer in India in advanced batteries, bringing the "World's smartest Lithium battery" to India. During the course of her career, the foremost challenge she encountered was entering into the business of energy storage and arranging finances in an early stage venture. It was a task convincing people to believe in her idea and to invest the capital. Bootstrapped, her entrepreneurial journey started in robotics and industrial automation, which then led to her foray into the field of energy storage through the manufacture of Lithium batteries.

Dr. Rashi believes in giving her employees an open ground as a professional space to showcase their creativity and for career growth. Whether it is women commencing their career or restarting it after a break, she engages in one-on-one mentoring sessions with each of her staff on their aspirations. She has placed women in the most strategic positions in her company which has had a transformative effect of a three times growth. She ensured equal representation of men and women thereby putting gender equality to practice in her organization.

Dr. Rashi does sessions for students on mentoring for entrepreneurship and career guidance, apart from taking technical sessions. She opines there is a gap in the educational system and what the industry needs and is of the view that industry professionals should engage with academia through short term courses. Dr. Rashi provides internship opportunities to young professionals in her company as well as refers them to known companies for internships.

Her advice for mid-career professionals is to keep evolving and be agile in adapting in their behavioural aspect, acquiring skills which would be required atleast three years down the line by having a futuristic vision of domain related skills.

Tamil Nadu TDPC

Dr. Rashi with the Global Women in Leadership award

Dr. Rashi strongly believes that young professionals should not be rigid in their area of work and instead be adaptive, avoiding a pre-set mind. The first two years is important to understand industry dynamics and what is required of professionals and it is imperative to get industry ready. Being loyal and steady in one's job, learning a skill set, acquiring industry experience are prerequisites before switching jobs.

Dr. Rashi maintains work life balance with the support of her family members and by clearly defining roles, responsibilities and timelines to avoid conflicts.

Dr. Rashi completed her LLM and Doctorate of Philosophy in Management. She is inclined towards spirituality and does meditation, yoga and updates herself by reading up on new technologies. She is passionate about working on projects for the upliftment of rural India. She is the CBC-chair for Energy storage & Smart Energy, Co-Chair for India chapter at the Cleantech Business Club. She is a committee member with Bureau of Indian Standards, International Electro Technical Commission, National Energy Storage Committee – FICCI and an admired speaker on various forums.

"Women need to have their "ME" time, as most women in the daily chores of managing work and family miss out on this which is very important for their mental health and wellbeing." – Dr. Rashi

CII Confederation of Indian Industry

Ms. Rashmi Urdhwareshe

President, SAE India

Ms. Rashmi Urdhwareshe is President, SAE-India. She is also Senior Advisor to Pune Knowledge Cluster (PKC), which is set up under the initiative of Principal Scientific Advisor, Government of India. Mrs. Rashmi is Independent Director empaneled under MCA (Ministry of Corporate Affairs).

Prior to this, she took over as Director, ARAI (Automotive Research Association of India) in 2014 and superannuated in June 2020. At ARAI she rose through the ranks from Trainee to become the first woman Director. She had a long career of 37 years at ARAI, the prestigious R&D organization. She has served on an advisory role to committees appointed by ministries in the areas of automotive technologies, regulatory matters, energy management, electrification, hydrocarbons and such.

Ms. Rashmi was the art of team that developed first indegenous electronic fuel injection system for cars way back in 1991. She later moved to Quality Management and developed business excellence model for ARAI. She brought in a competitive, corporate culture in ARAI, that resulted in several recognitions and awards for Technology, E-mobility, Business Leadership, Business Excellence, etc. She is the co-author of a popular book "Total Quality Management", published by Pearson Education. She is now authoring a book "Women at Workplace".

Under her leadership, ARAI carried out numerous research projects of national and international acclaim. Collaborative research carried out with other Institutes has given great impetus to the Indian automotive industry. As an international expert on automotive emissions and safety, she has been part of important international committees and represented India for harmonization of regulations at the United Nations at Geneva. She had the distinguished honour of serving as Vice Chair of the Working Party on Pollution and Energy (GRPE) during 2014 – 2017.

Ms. Rashmi's contribution towards green mobility, business excellence and innovation are well recognized by way of several awards and accolades. For her lifetime contributions towards development of automotive technology, she was honored with Nari Shakti Puraskar 2019, at the hands of Hon'ble President of India. She has also won Distinguished Alumnus Awards, EMobility Leadership Award, ETNow Business Leader of the Year, SAE Engineering Excellence Award and several others.

Ms. Rashmi's message for young professionals is that excellence should be the foundation of whatever one does. Also be truthful to ethics and your values. Fairness to others must be practised. Self-help and self-empowerment are important for building up strong careers. Professionals should learn to work with diversity and inclusivity. They should ask themselves what is their mssion and accordingly to chart out path to achieve their ambitions.

She actively leads various community development programs in the areas of environment, primary and women education and community health. In personal as well as official capacity she has been helping skilling for STEM through workshops for women, school teachers, and professionals.

Ms. Rashmi has had many mentors. She alwas had a rapport with her managers and senior team members. When it came to setting priorities, she has always placed theorganization first and then the boss.

In personal life, music is her passion. She is a trained sitarist and loves to anchor various social and musical events as a hobby. She is a voracious reader and is fond of gardening, travel and long distance driving. During the COVID-19 pandemic, as she was restricted at home, Ms. Rashmi learn successfully developed the skill of brewing fruit wines from home grown fruits, although she herself is a tetottler.

Having graduated from VNIT, Nagpur, she acquired Master's degree in Electronics Engineering from Government College of Engineering, Pune. She was a recipient of UNDP Fellowship in Germany in early stage of her career. She is a certified Quality Auditor and Six Sigma Black Belt from ASQ and holds a diploma in Corporate Directorship from the World Council for Corporate Governance (WCCG). Her message to youngsters:

"Women have many strengths intrinsically than they realise. They should consolidate these strenghts well and turn to their advantage. They need to have more analytical and scientific oriented outlook to find the ample opportunities available in the outside world." – Ms. Rashmi

Dr. Ratna Sudha

Managing Director, Unique Biotech Ltd.

Dr. Ratna is the founder and Managing Director at Unique Biotech, a first-generation entrepreneur. She always wanted to start something on her own. Doing a 9 to 5 job did not appeal to her. She contemplated on what she could start with various ideas juggling in the mind and started Unique Biotech. It is now India's largest manufacturer of probiotics with a total commitment to the discovery, development and commercialization of innovative solutions for improved healthcare at affordable cost.

As a scientist, she always had a deep interest in the microbial world. Sometime in 1999, when she read about the warning from WHO about the indiscriminate use of antibiotics and the harsh impact it has on the ecosystem of bacteria inside us, she wanted to do something about it. She knew the role these bacteria play, and the health benefits they offer. She wanted to see a future where we don't neglect these microorganisms as a consequence of the changing lifestyles, but work towards creating the conditions for them to thrive. She started Unique Biotech with the vision to provide innovative, research-based probiotic products to promote a healthy microbiome.

Dr. Ratna completed her M.Sc. in Biochemistry from Osmania University, followed by her Ph.D. in biotechnology from Jawaharlal Nehru Technological University. After her Ph.D., she played the role of a mother to took care of her young kids. Once they started going to school, she decided to do something on her own. That is how Unique Biotech was established, as a small-scale industry. Today, she has steered the company from a fledgling firm in 2000 to a medium-size company in 20 years.

More than 50% of the workforce in Unique Biotech comprises of women with biotechnology, microbiology and pharmacy background. Apart from providing them job opportunities, Dr. Ratna also facilitates their higher education i.e. Ph.D., by working towards their degrees in the DSIR recognized R & D center and collaborating with various universities.

Some of the awards Dr. Ratna has won are Pharma Leaders Innovative Business Woman of the year (2018), CST Excellence Award (2016), National Award – 2008 for Entrepreneurship from the Ministry of Micro, Small & Medium Enterprises, received from Hon'ble Prime Minister, Outstanding Export Performance award by Pharmaceutical Export Promotion Council under fast emerging Biotech Products category, All India Best Entrepreneur-2006 for Innovation in SSI, and many more. Dr. Ratna has more than 50 publications in international journals, two Indian product patents, and 1 U.S. patent application submitted.

The Best Woman Entrepreneur Award presented to Dr. Ratna by the Hon. Prime Minister Dr. Manmohan Singh, 2009

Dr. Ratna has imbibed a lot of values from her parents. Her mother was a head mistress and continues to be an inspiration for her. She loved her work and colleagues and that happiness radiated to the entire family. From her father, Dr. Ratna learnt discipline and the value of time early on. Her own family – her husband and kids have always been supportive. Her husband, Jawahar is himself a first-generation entrepreneur who encouraged her to start out on her own. He has been part of her journey, right from the beginning and her pillar of support.

A day in her work life is "24 hours" as she interacts with her teams, customers and constantly innovates. Being a global company, she needs to be available at all time zones to interact with customers and partners. It excites her to constantly innovate, think of new ideas, new formulations with various health benefits and to keep expanding the existing facility.

It gives Dr. Ratna immense satisfaction that she has been able to create jobs, provide training and contribute to the society by providing nutraceutical solutions at affordable costs. Unique Biotech has been exporting its products, both in bulk and finished formulations to countries such as U.S., Japan, European countries and Africa. Her vision is to be a pioneer in development of probiotics, design and develop innovative solutions for improved healthcare and to diversify into probiotic based consumer healthcare products like energy bars, protein powders, super foods, beverages etc. Her aim is to be a one stop solution for probiotics in all market segments. Her message for youngsters:

"If you are passionate about what you study and do, the sky is the limit. Overcome your fears – fears puts a damper on creativity. One has to constantly work on that." – Dr. Ratna

Dr. Rinti Banerjee (Posthumous Acknowledgement)

Professor, Department of Biosciences and Bioengineering, IIT Bombay

Prof. Rinti is the Madhuri Sinha Chair Professor at the Department of Biosciences and Bioengineering at IIT Bombay. She is an Associate Editor of ACS Biomaterials Science and Engineering, Advising Editor ACS Omega and is on the editorial board of Scientific Reports and many other international journals. She is a Fellow of the Indian Academy of Sciences, National Academy of Sciences and the Society of Biomaterials and Artificial Organs India.

Prof. Rinti works in the areas of trigger responsive biomaterials, nanomedicine, drug delivery, and point of care diagnostics. She is also certified in areas of global health, social entrepreneurship, intellectual property law and business strategies for social impact.

Prof. Rinti has worked on meeting the unmet medical needs of the society, where treatments were not available, or they were not affordable. Her interdisciplinary research led to a nanoparticle aerosol to help respiration for preterm babies. Her team developed a new technique to deliver nutrients such as vitamin D, iron and folic acid using a massage oil for women and babies. She developed a wash-resistant, antiviral and antibacterial coating free from plastics, for usage in masks against SARS and COVID-19. The coating can be applied for textiles by dipping them in it. It was retained after several wash cycles during tests conducted. She partnered with NGOs and rural livelihood groups and women self-help groups and taught them to produce the ecofriendly coating on the cloth masks.

Patents have been filed for these innovations. Her group's research has led to licensing, commercialization and widespread usage and impact of the above technologies. Prof. Rinti's research is application oriented and has led to many unique technologies which have high academic and industrial impact in critical care drug delivery, for health and wellness.

It was a tough decision for her to move to biomedical engineering from a successful medical practice. She still remembers the surprise of her colleagues when she decided to move away from her role as a doctor and register for her Ph.D. Our education system does not have integrated curricula yet, cutting across multiple disciplines like medicine and engineering sciences.

She recalls with gratitude the contributions and guidance of her mentor Padma Shri Professor Sujoy Kumar Guha, who has made excellent innovations in the medical domain. He has always motivated and encouraged her and was instrumental in her decision to return to India and contribute to our nation.

Prof. Rinti plans her work life balance very well. It is very important for her to have a complete fulfillment of all aspects. She learnt to prioritize her work and family life according to the day-to-day demands and made clear plans about her boundaries. Research and teaching are addictive, but she was careful to balance them well. Editorial activities also are important to her. She likes painting, music and wants to empower people towards inclusivity, equality and help them have a broader perspective of life.

No research and innovation is without failures but we need to take failures in our stride and keep trying. Particularly in unconventional research, when something feels impossible, the problem should be analysed again and a method obtained to solve it. She has met girl students hesitant to be nominated for their due recognition, though they may be equally qualified as their male counterparts. This is a societal compulsion and this mindset needs to change. She empowers and motivates her students to achieve their passion.

Dr. Rinti completed her MBBS at BJ Medical College, Pune followed by her Ph.D. at IIT Bombay in biomedical engineering. She was a post-doctoral fellow in the University of California. She has more than 200 publications, more than 40 patents that are granted or filed and 26 technologies that are licensed or commercialized, leading to significant impact for long standing, unmet medical needs.

"Believe in yourself. Follow the passion. It will happen in due course. Do not let others' perceptions affect you. Self-motivation, skills and continuous commitment to one's passion and goals are very important." – Dr. Rinti

Ruchi Pandey

Senior Technical Manager, Converter Market Segment for Industrial Adhesives and Tapes Division, 3M India

Ruchi is a senior technical manager in the Industrial Adhesives and Tapes Division at 3M India. She is a technology driven individual, passionate about sustainability initiatives. She leads product development, launch and their scaling-up across automotive, industrial, consumer and commercial solution markets. Ruchi is also responsible for leading the new application development and global new product launches for converter market segment in Industrial Adhesives and Tapes Division. She has a proven track record of leading from concept to commercialization.

Ruchi started her career as a very first female product developer for 3M India. As an expert in the area, she has developed and launched a variety of adhesives, tapes and coating products. These products have contributed to sales of more than USD 100 million, with 34 trade secrets and 4 patents. She led the team to set up the analytical, adhesive and polymer lab capabilities for 3M and played a pivotal role in setting up the manufacturing coating lines for the Indian market. She has contributed to the circular economy of Reduce, Reuse and Recycle. One example is the making of packaging material from used industrial liners.

One of her memorable moments was a proposal for a toluene-free adhesive for the automotive industry, meeting the gasoline resistance requirements. The project was challenging and took two years. It was finally approved by the customer, launched, a patent filed, and is still being sold. This incident increased Ruchi's focus and passion to work in the field of adhesives and coatings. She also recalls the development of a water-based adhesive for vinyl to floor bonding in commercial vehicles. It was a replacement for existing solvent-based rubber adhesive used for vinyl floorings which emit VOCs or volatile organic compounds, harmful when inhaled by humans.

In the automotive segment, Ruchi leads initiatives to provide greener bonding solutions that minimize the usage of hazardous chemicals. She has developed and launched fuel resistance labels and attachment solutions. With the industry progressing towards robust and stable product requirements for their interior bonding solutions, she has developed and commercialized solutions with superior fuel resistance performance along with the team.

Ruchi was awarded the Genesis program grant, the highest level of recognition for select, unique and innovative product concepts in 3M, twice in 2013 and 2017. One was for evaluating charred rice husk for its abrasive and shear properties. It was found to be very effective when used as a coating, for anti-skid tapes. One more product developed in global collaboration was the easy-clean coating for kitchens, with 2 patents filed. She is also the recipient of the Circle of Technical Excellence team award for product development excellence in 2019, for developing fuel resistant label portfolio. Her articles have been published in various magazines and she has represented 3M in many conferences. She represents India in the TWLF (Technical Women Leadership Forum) platform and is part of the Diversity and Inclusion team.

Patent for an amphiphillic polymer

Ruchi has had the fortune of guidance from seniors for her professional improvements. She has mentored more than 10 women interns in their pursuit of knowledge. She had her moment of serendipity when working on the behavior of specialty fillers on adhesives and coating. The adhesion on plastic results reported by the intern did not look realistic and need a relook to confirm. When shared with her global counterparts, it proved to be a useful low surface energy product and a patent.

Ruchi has good work life balance due to the best practices of the company and the able support of her family. She holds an M.Tech from I.I.T Delhi in Polymer Science and Engineering and B.Tech from H.B.T.I Kanpur in Chemical Engineering. Prior to 3M, she had worked with organizations like Haldia Petrochemical Limited and GE Research Center. Women should participate more in STEM. When we develop the product according to the customer's needs and find it in the market, it gives enormous satisfaction and motivation. We must read a lot and keep ourself updated about the recent developments.

"Girls should not only pursue theoretical knowledge but work in the field to gain practical knowledge. Customers' needs must be understood with constant interaction to create products of their requirement." – Ruchi

Dr. Savithiri Shivakumar

Executive Director, Aaranya Biosciences Private Limited

Dr. Savithiri Shivakumar is the Executive Director in Aaranya Biosciences. Her focus is on providing a platform for research services and manufacturing in biotechnology for small molecules, natural products, devices, and cosmetics. She has twenty years of technical and management expertise in developing innovative solutions by working in R&D to support hit to lead candidate selection in biopharmaceutical industries. She has established a premier research facility for in-vitro and in-vivo studies with domain expertise in cell biology, molecular biology, microbiology along with synthetic capabilities including natural products.

Her proud moment was when she initiated research and development of bio-based products that include biomolecules, biomaterials and bio-processes for energy, healthcare and food industries. She graduated from BITS Pilani, with a PhD from CMC Vellore and has industrial experience working in various pharma research programs. These were the base for her self-confidence to start a bio-entrepreneurial journey. Global institutions have been mostly developing synthetic molecules with a targeted approach. When working on these synthetic molecules, she felt interested in developing natural bio-based products, bio-materials and solutions by adapting advanced bio-technology tools like gene editing, synthetic biology, and metabolic engineering, which in turn promote sustainable economic growth.

According to her, the economic development of any country is dependent on the development of bio-economy, which has two aspects. One is the use of microbes for bio innovation. Right now, fuel demand is increasing. By developing bio-diesel and bio-ethanol, we can impact our economy positively. The second one is plant-based products. In this pandemic era, plant-based vaccines would be very much useful. Her team is working on making safe, approachable products using microbes and plants. Developing an enriched or fortified food to address malnutrition is one way for development.

Dr. Savithiri's bio-entrepreneur journey is very challenging as she was the first time entrepreneur in her family, with complete support and encouragement from them. A potential novel approach different from traditional approaches using biotechnology tools for biobased product development is the key element of bio-innovation. For innovative biobased product development, infrastructure poses a stumbling block to meet the larger demand of the population.

Her company's innovative green product has a social impact by solving water scarcity, waste management, soil erosion and water runoff problems by providing extended release of water. It diffuses into the soil to influence soil permeability, texture, density, evaporation rate and keeps the soil moist. She has developed a real time point-of-care device to assess lung pathology of respiratory diseases which is rapid, simple, and cost effective. It has been put in practice for epidemiological studies.

Women are going to make an impact in bio-entrepreneurships as there are focused incubators, grants specifically for women and opportunities in the field of biotechnology. Versatile nature and enduring self-confidence enable women to face this challenging journey of entrepreneurship. The prime approach lies in understanding the existing method/process, identifying the problems and potential needs of the customer to discover innovative solutions.

Her family is her greatest mentor. They keep moulding her in every aspect of her life. She likes to meet youngsters for academic collaboration. Biotech is not one word. It is present in forensics, marine, agriculture, medicine, food and has many applications in many fields. "Waste to value" is one field where youngsters can concentrate and contribute to a green environment. They should keep an open mind to explore all fields. Dr. Savithiri has more than 20 patents. She has published her work in several journals. She has completed her B.Pharm (Hons), M.Pharm. from BITS Pilani and Ph.D. in Pharmacology from CMC & H, Vellore. Her message for youngsters:

"Be positive. Have self-confidence. Focus on newer approaches and novel solutions for discovery of unmet product needs. Keep abreast of global developments in related fields. Contribute to green environment" – Dr. Savithiri

Tamil Nadu TDPC

Confederation of Indian Industry

Dr. Seema Chopra

Global Technical Leader, Boeing India

Dr Seema is the Global Technical Leader for Artificial Intelligence (AI) and Analytics at Boeing Research and Technology, India. She is recognised as a Technical Fellow, the first in Boeing India, with a mandate to think ahead of where AI will be in future, identify business needs and translate it into a product.

Her current focus includes development of next generation advanced health management technologies, fault diagnosis and prognosis. Analytics and big data platforms are used to process large data sets on the cloud for commercial and defence applications. Her role ensures that Boeing's flights take off on time, by proactively identifying faults and fixing them.

One of her proud contributions is an algorithm to predict the deposition of ice on aircraft wings, so that it can be removed on time. Method and System for predicting Wing Anti Ice failure is deployed in Boeing aircrafts and she received a patent for it. This helped to predict in advance if any valve malfunction would happen so that preventive measures can be taken. Boeing's AHM or Airplane Health Management provides timely alerts for part malfunction to reduce time on the ground for flights.

Dr. Seema was always interested in engineering and used to dismantle fans and fix them from her high school days. Her father wanted her to pursue teaching/banking, but she was firm in her decision to do engineering and research. He understood her passion and supported her to the fullest in completing her Ph.D. Seema was married shortly after she enrolled in PhD, and has bravely set about on a journey of managing the household and working on her doctorate. Her family and professional circle had always been supportive of her decisions. Her approach for work-life balance is good planning and flexibility at work. For example, she will not plan for any business travel during her son's exams.

Dr. Seema suggests that youngsters who want to pursue a career in AI must first have a strong foundation of Math and statistics. They should learn how algorithms work, instead of just applying on data. She is inspired by Dr. A.P.J. Abdul Kalam and he was there for Dr. Seema's convocation. Today also she reads and follow his quotes for inspiration. Her seniors have been her mentors in personal and professional lives and enriched her growth and knowledge.

Dr. Seema mentors and guides many women not only in Boeing but also in schools, colleges and other companies through Society of Women Engineers and IEEE Women in engineering. She provides technical guidance

Dr. Seema inaugurating aerospace forum – "Digital Revolution in Aerospace & Defense Industry" on 19th Feb 2019, invited by SAE India

to Ph.D. and post-doctoral fellows at ASTAR Singapore, QCRI and HRL, in support of Boeing projects. She has collaborated with universities on AI globally including IITs. She has volunteered at the Mid-day meal Project at Akshaya Patra and Divine Light Trust of Blind when she was in General Electric.

She is a fitness enthusiast, an exercise freak. She loves long distance cycling, swimming and now practices yoga. Dr. Seema is a certified Black Belt in Lean Six Sigma. She has 16 patents, 6 trade secrets and more than 35 publications in journals and conferences, 8 technical reports and writing a book chapter on smart manufacturing using AI. Her awards include 2021 IEEE TEMS Women Achiever Award, 2021 Boeing Defence Global Team of the year award, 2019 IEEE Women in Engineering Achiever Award, PHM Expertise award from President & CEO, GE Power Gen Services and GE Impact award from CEO of GE, for volunteering in a mid-day meal project.

Dr. Seema earned her doctorate degree in Control Engineering from IIT Roorkee. She completed her M.Tech. in Control Engineering from NIT, Kurukshetra and B.Tech. in Instrumentation & Control Engineering from Kurukshetra University. Her message for young professionals:

"Follow your Passion. Work hard and with motivation. Never give up. Strive for perfection. Believe in Yourself" – Dr. Seema

Shuba Kumar

Managing Director, Natesan Group

Shuba is the Managing Director of Natesan Synchrocones, a national technology award winning auto component company catering to OEMs and Tier1s globally. Under her leadership, Natesan outperformed the market through the introduction of new products, 20 to 25% of annual revenue each year has been from products developed in the past 3 years. Shuba was instrumental in Natesan's foray into aerospace and defence.

Natesan has a culture of innovation and has introduced numerous first-in-India technologies. The company is a global market leader for technically challenging products in niche segments and has created several import substitutions. Under her leadership, the organization adopted a dynamic R&D strategy to keep pace with the challenges and opportunities from rapid advances in technology. This dynamic strategy leverages present opportunities, while positioning the team to adapt as the world evolves, by leveraging Natesan's long-standing strengths in precision manufacturing and material science innovation. For example, while additive manufacturing could disrupt conventional manufacturing, Natesan is developing a novel, sustainable post-processing that is critical for additive manufacturing, using non-toxic chemicals which will be a differentiator there. When her team introduced a new product design, it received the marquee ACMA Gold Award for Product Innovation by an OEM jury. Natesan has won numerous awards from customers year after year.

One of the toughest decisions Shuba had to make was to return to India, leaving behind a successful career in the U.S. Her decision to enter manufacturing turned out to be an interesting and rewarding experience. The opportunity to have an impact, be it on people, technology, operations or on customers keeps her motivated every day.

She enabled the creation of Society of Women Engineers IIT Madras Alumni Association affiliate program. It enables not only the IIT Madras ecosystem to benefit but is also open to other women professionals and those from engineering colleges in the region. This is a first of its kind large impact platform providing networking, mentoring and knowledge for women.

Shuba's mentors were her advisors in graduate school, her professors during B.Tech. and her senior colleagues and business coach during the stint at Applied Materials. Senior business leaders from industry continue to be her mentors. Shuba mentors students from high school to college and working professionals. She was actively involved in setting up the mentoring program for entrepreneurs, students and alumni by the IIT Madras Alumni Association.

ACMA award for Excellence in Technology Product Innovation

During the initial years of her career, she ventured into starting an organic agriculture ecommerce business, which was ahead of the market and did not succeed. A key learning was that having the right concept or brilliant execution will not get one anywhere, if the customer is not going to buy the product. Her advice to entrepreneurs is to build technologies not only because they are cool but because they solve problems or address a customer need and customer is willing to pay for it.

Her message for young professionals is to stay away from herd mentality and not to focus on how much money one can make from their first job. If a career path can be established on the basis of one's calling or interest, an impact can be made. Success would eventually follow.

Shuba is the Chairperson – Automobile Component Manufacturers Association (ACMA), Southern Region, President – IIT Madras Alumni Association (Global), and was the Secretary and Board Member, MIT South Asia Alumni Association 2012-2017. She has B.Tech. from IIT Madras, M.S. from Massachusetts Institute of Technology and MBA from Stanford University. She has won the Vidya Bharathi Award by Institute of Metals in 1995 and the Dr. Dandapani Prize – the Gold Medal at IIT Madras for topping the 1994 branch.

"Take risks and do not be worried about failure. Failure is a phenomenal learning tool. We learn a lot more from our failures than we can learn from our successes. If we aim for the stars, we can reach at least the moon." – Shuba

Dr. Sriparna Saha

Associate Professor, IIT Patna

Dr. Sriparna Saha is an Associate Professor in the Department of Computer Science and Engineering and Associate Dean, Research and Development at the Indian Institute of Technology Patna. She is a member of the Expert Committee under CURIE (Consolidation of University Research for Innovation and Excellence in Women Universities) programme on Artificial Intelligence (AI), Department of Science and Technology.

Dr. Sriparna is a well-known scientist in the field of computer science. She has contributed extensively in the field of machine learning, multi-objective optimization and applications of deep learning for solving problems of natural language processing (NLP) and bioinformatics.

Dr. Sriparna and her team are working on integrating multimodal information to solve real life problems in mental health. AI is used to estimate the amount of depression for individuals. A virtual counsellor chat bot is developed to converse with the patients, listen to their agony and offer advice. Good listening session is what is first needed in the case of mental health patients. Her team has roped in a psychiatrist from AIIMS, Patna to help in this venture.

She feels that students must be given an opportunity to predict their levels of depression beforehand and take timely steps. She wants her research and results to benefit the whole nation and the world at large. She and her team are also developing tools for cancer prognosis. The bioinformatics tool will merge multiple sources of information in the form of scan images, clinical, and genetic reports to predict results. She stresses on the need for gender-specific models for better estimation of medical problems and their treatment. These are areas where AI makes a social impact and she is proud to be a part of it.

Dr. Sriparna feels that the development of chatbots in India's regional languages, especially in the Customer Care and Sales is a great opportunity. Her team is developing chatbots to influence the online buyer behaviour. Another area is on summarization of tweets and social media posts. This is handy during calamities for valuable insights like the current status at a particular location.

Dr. Sriparna was born in the small town Berhampur. Her parents were teachers. She was fortunate to have understanding and culturally progressive parents who gave her the best of education. Her admission to Indian Statistical Institute (ISI), Kolkata for Ph.D. is a memorable moment for her. Another moment was when her extremely energetic and talented mentor Prof. (Dr.) Sanghamitra Bandyopadhyay, the first female Director of ISI, agreed to guide her Ph.D.

NASI-Young Scientist Platinum Jubilee Award, 2016, in the field of Electronics, Computer Science, and Engineering

Dr. Sriparna completed her Ph.D. and M.Tech. in Computer Science from ISI and B.Tech. from Kalyani Government Engineering College. She has authored or coauthored more than 280 papers and one book. She is the recipient of the Lt Rashi Roy Memorial Gold Medal from ISI for outstanding performance in M.Tech. She is the recipient of the Google India Women in Engineering Award, 2008 and many more.

She is keen to stay informed about the latest technological advancements and loves to interact with her students. She took part in an in-house program of IIT, Patna where she interacted with girl students of 12th grade to impress upon them for a career in STEM. She has arranged support for students to attend the Grace Hopper Celebration of Women in Computing.

Hard work is Dr. Sriparna's mantra. She urges the youth to grab the facilities available, use the resources according to their passion and work hard. She wants them to solve real life problems and projects. They must not limit their dreams but dare to think beyond and work with passion and continuous energy.

"Future belongs to one and all. Women of all caste, creed, colour, and class should ensure their place with elan and accomplishment. We must build a support chain where all can grow to nurture our capabilities and fulfill our ambitions." – Dr. Sriparna

Dr. Srividya Ramakrishnan

Head, Process Engineering (API),
Dr. Reddy's Laboratories Ltd.

Dr. Srividya heads Process Engineering for API (Active Pharma Ingredient) development at Dr. Reddy's and is responsible for the scale-up of processes from lab to plant. She has brought in rigorous engineering optimization, application of process analytical tools and modelling in process development, automation for solid form screening, continuous manufacturing, and particle engineering to tailor powder properties of the API. She plays an additional role as Chief Diversity Officer.

Dr. Srividya chose Engineering after schooling as she enjoyed Math and Physics. After completing B.Tech. in Chemical engineering at IIT Madras, she decided to pursue PhD at Princeton University. She worked at Unilever Research and Bristol-Myers Squibb in the US for a few years, prior to returning to India and joining Dr. Reddy's. She has multiple patents, publications in peer-reviewed journals and presentations at international conferences to her credit. She has co-chaired sessions at the AIChE Annual meeting and is an organizing committee member for an ECI conference on Pharmaceutical Engineering. She is also a Six Sigma Black Belt (ASQ-certified).

Srividya's focus is on technology evolution in various areas such as flow chemistry, automation, and application of AI/ML in process development. She is passionate about developing elegant processes with greener manufacturing solutions. Srividya is leading a project on state-of-the-art continuous manufacturing which is one of the pillars for advanced manufacturing technologies.

One of the memorable products she worked on was Lenalidomide, which required an innovative process to generate the desired solid form. She and her team worked hard and scaled it up, creating significant impact through a favourable early launch opportunity. The most motivating aspect for her is the reward of seeing her work truly contribute to the purpose of Dr. Reddy's – accelerating access to innovative medicines because good health can't wait; a purpose that has never been more relevant than during these COVID-19 times.

Srividya attended Dr. Reddys' New Horizon Leadership Program (NHLP) in 2015. It was a game changer that brought self-awareness and helped her discover avenues for self-development. Becoming a leader by understanding herself helped her grow in her professional as well as personal life and opened possibilities on how she could contribute more to the organization and the society.

NHLP graduation presentation from Mr. G.V. Prasad, Co-chairman and MD of Dr. Reddy's

She emphasizes that women need to have perseverance and figure out their choice of work-life integration. Attending the leadership program helped her achieve a better balance by sorting out priorities and being more effective. One has to delegate work and let others explore and grow; otherwise, we end up focussing on tactical activities with little time for strategic priorities.

Talking about role models, she recollects her mother being her first role model / mentor who supported and encouraged her to be independent. Another role model was her PhD advisor at Princeton University who was always down to earth and approachable. She used to spend an hour every week for one-on-one sessions and felt intellectually stimulated and motivated after the discussions.

Srividya is passionate about women's empowerment and was instrumental in drafting policies to enable work-life integration (recognized for Leadership Commitment at UN Women India 2020 WEPs awards). She mentors women within the organization as well as external SASHAKT scholars (a mentoring initiative by Dr. Reddy's Foundation for women students).

Her message to youngsters:

"Nothing can be more rewarding than a genuine contribution to the society. Pursue higher education when you have the opportunity, and always keep learning and stay updated. There could be family or societal pressure but when people have passion, they can go places. Aspire to fulfil your dreams." – Dr. Srividya

Stueti Gupta

Co-Founder and Director, BlueKei Solutions

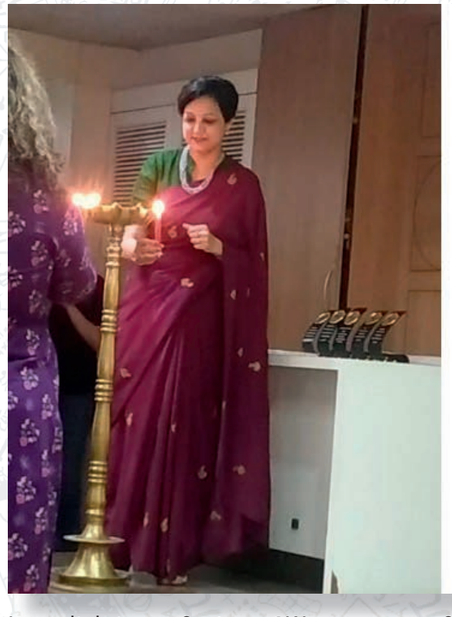
Stueti is a budding entrepreneur who is set out to build a consulting practice in Systems Engineering, one of the pioneering organisation in India. BlueKei works with decision makers in corporate, private, PSU and government organisations to empower decision makers for efficient new product development using integrated engineering across multiple disciplines. Stueti Gupta (promotes) uses of systems engineering, systematic approaches and scientific methods to. BlueKei offers strategies and recipes to carry out integrated multidisciplinary engineering from the start of product development. It is ensured that existing practices are least disturbed to maintain design integrity, connecting the engineering data thread across the product lifecycle. That reduces rework and defects that could show up later and costly to correct.

Stueti is a purpose driven systems engineer, technology leader and STEM advocate. She has more than a decade's experience in architecture and analysis of complex off-highway equipment. She is passionate about systems-of-systems modeling to represent the behaviour of a system.

Stueti recalls developing a mathematical model for a logistics team to test their thumb rule. The team had experienced leaders with their strong mental models. Simulations developed by Stueti were backed by mathematical models enabled them to see how their thumb rules played out from day zero and for the next few years. Her most memorable moment is to follow her dream to be an entrepreneur. Her father would bring home magazines showcasing successful women entrepreneurs and business leaders, which always inspired her. Managing big teams and multiple functions in her career gave the courage to start a venture on her own.

Stueti's message to youngsters is '*be fearless, have high aspirations and big audacious goals*'. They should challenge themselves and remove doubts from their minds. There is no substitute to hard work. If we do not put the right efforts, we will not get the right returns. They should do internships for field knowledge. Young professionals should do some voluntary jobs to make a difference to society. It helps them interact with people, which could be life changing.

Mr. Ratan Tata is her favorite role model. Her parents have also supported her career. Stueti has set aside time every year to mentor new graduates and women professionals. She has constantly been engaged with collegiate via SWE University affiliates as well as



Lamp lighting at Society of Women Engineers' Pune Program, 8th March 2020

Stueti Gupta with her 2nd SWE award, WE Local Engaged Advocate Award 2020

SAEINDIA. Stueti has also engaged in mentoring via a mobile based mentoring platform, MentorToGo, a non-profit organization. She is a trained facilitator of #IamRemarkable, a Google initiative to empower women and under-represented groups.

Stueti volunteers for the Society of Women Engineers (SWE). She received the SWE Distinguished New Engineer Award in 2016, the first awardee from India. In 2021, she received the WE Local Engaged Advocate Award for her significant contribution to the advancement of women in engineering. She is very active in the International Council on Systems Engineering (INCOSE) and served as the President of India Chapter 2017-2021. She leads Asia Oceania countries in one of the working groups, Empowering Women Leaders in Systems Engineering (EWLSE).

Stueti is an organized person and always calendars her commitments. Sunday evenings are for planning the week. She has a dual degree in B.E. (Hons.) Mechanical & M.Sc. (Hons.) Physics from BITS, Pilani, MS from Cornell University and M.E. Design Engineering from BITS, Pilani. Her message for youngsters:

"Growth and comfort do not co-exist. We need to get out of our comfort zone to experience and learn new things. Being committed, stretching oneself will definitely unravel the potential within ourselves which we would not even have realised we had in our possession." – Stueti

Prof. Sujatha Chandramohan

Professor, IIT Madras

Prof. Sujatha is a Professor in the Machine Design Section, Department of Mechanical Engineering, IIT Madras. She has a unique academic background: B.Sc. (Engg.) in Electronics and Telecommunication from Kerala University, M.S. by research (Electrical Engg.) and Ph.D. (Applied Mechanics) from IIT Madras. Her areas of interest are machine dynamics, vehicular vibration, acoustics, instrumentation and signal processing, condition monitoring, etc.

All machines produce vibrations and noise, some of which are harmful to the machines themselves, as well as to their operators. Traffic, community and machinery noise are ever present and are measured to assess whether they are within permissible limits as stipulated by regulatory agencies. As a vibration engineer, she and her team try to reduce the noise and vibration of machines in the outside world. She also does signal analysis, applications of which are now found in almost all fields of engineering, including vibration and acoustics. Spectral and statistical analyses are found useful for machiney disgnostics. Fuzzy logic and artificial neural networks are also used to understand systems and analyse problems.

A memorable moment for Prof. Sujatha was when she emerged as the topper in Kerala state in her pre-degree examination after her father became unwell just before the final exam. Another moment was when she received her Ph.D. after facing personal struggles.

Her role model is her father Prof. K.S.Viswanathan, a physicist who worked with Nobel Laureate, Sir C. V. Raman. Her parents always encouraged her to excel in whatever she did. Her grandfather was the village headmaster and the family placed a lot of importance on education. Her mother, Mrs. V. Ponnammal, taught her to balance work and life well. Her mentor, Prof. V. Ramamurti was an intellectual person with a vision and taught her to teach and do research in her fields when she transitioned from an electrical to a mechanical engineer.

Prof. Sujatha has been actively involved for the past 41 years in teaching, research and industrial consultancy. Her students help her learn continuously by solving the problems she gives them. They help her keep abreast of the new developments in her domain. She has guided 40 Ph.D. and M.S. (by research) scholars. She has authored more than 200 publications in international and national refereed journals and conference proceedings. She has authored 2 books: "Vibration and Acoustics: Measurement and Signal Analysis" (Tata McGraw–Hill Education Pvt. Ltd., 2009) and "Vibration, Acoustics and Strain Measurement: Theory and Experiments" (Ane Books Pvt. Ltd., 2020).

Prof. Sujatha delivering a lecture and testing a vehicle

Prof. Sujatha is also mentor to her students and advises them regarding career progressions based on her experiences. Women students approach her for guidance related to their career and personal problems. As warden of the women's hostel, she could understand the non-academic challenges faced by women students, as well as their aspirations and helped address them. She was the chairperson of the Internal Complaints Committee against sexual harassment for more than three years, when she encouraged women students and staff to voice their concerns and to come out of any trauma they might have faced.

Prof. Sujatha has faced challenges like lack of basic amenities during consultancy visits to industries when she and her team travelled all over India with their measuring instruments. She has worked in rugged environments like inside a battle tank and a helicopter during her field visits for research and development work. She loves her field visits and has made her male colleagues marvel at her zest and zeal in not shying away from hard work. Now the situation is getting better for women in these fields, according to her.

Prof. Sujatha was fortunate to have the full support of her family and husband, Mr. V. Chandra Mohan, in achieving work-life synergy. She prioritizes her day according to the need, while balancing professional and personal life. Even though women in STEM may face work related challenges in a male-dominated field, they should overcome any doubts and continue on the journey until the target is achieved.

Prof. Sujatha loves carnatic music and used to play the veena, but has not played for some time now due to professional commitments. She enjoys gardening and loves to watch her plants grow. Her message for youngsters:

"STEM is an area in which we feel rewarded at the end of the day. Women should stay focussed and not lose track of their career path in spite of obstacles." – Prof. Sujatha

Dr. Suparna Mukherji

Professor, IIT Bombay.

Dr. Suparna is a Professor in the Environmental Science and Engineering Department at the Indian Institute of Technology Bombay. The focus of her research is primarily on microbes that degrade oil, hazardous organic pollutants, their treatment, and remediation. Her work on the application of bacteria together with algae in an engineered bioreactor was found to enhance oil degradation. A patent was granted for this process.

Her other area of focus is the treatment of water and wastewater using nanomaterials. Her team has successfully demonstrated the powerful antimicrobial activity of silver nanoparticles and illustrated the interesting fact, that immobilized silver nanoparticles are more effective for disinfection of water than colloidal silver nanoparticles.

Dr. Suparna's research group has also found that micropollutants in water like pesticides and pharmaceuticals which have diverse adverse effects can be made harmless by exposure to visible light active nanocomposite photocatalysts. This process can help reduce our exposure to toxic pollutants, such as endocrine disrupting chemicals affecting our hormonal receptors and carcinogenic pollutants and can have a positive effect on our health.

When Dr. Suparna completed her B.Tech in Energy engineering, she realized that the field was way ahead of its time in India. She decided to continue her higher studies in Environmental Engineering, which introduced her to many exciting challenges of this interdisciplinary field. She started appreciating the impact her research could have on our environment, and the health and well-being of our society. That has guided her ever since.

Dr. Suparna has won the National Women Bioscientist Award (Young category) awarded by Department of Biotechnology in 2009 and the AICTE Career Award Grant for young Teachers in 2001. In IIT Bombay, she has received an award for Excellence in Teaching, awards based on Research publications, and the Institute Chair Professorship. She received the Jagadish Bose Memorial Fellowship in 1988-1989 during her undergraduate studies. Her journal publications and book chapters are widely cited.

Dr. Suparna has mentored several women students in her career. Many of them are continuing their careers in STEM, as educators. Some have joined the industry sector and NGOs. At IIT Bombay, she has been the Co-Convener of the Women Cell, 2013-2014 and the Convener of the Committee for increasing the intake of women students, 2018. She enjoys brainstorming with her students and research team about advances in the field. Knowledge sharing is her forte. Dr. Suparna considers all her impactful research findings with enormous positive outcomes to be wow moments. She is thankful for the wonderful opportunities she has had in her decades of experience and learning.

Dr. Suparna has been fortunate to have complete guidance and support of her family. Her mother instilled in her the importance of education and working independently. Her school and high school teachers have helped her acquire a strong foundation in STEM. Additionally, her peer group had a lot of influence in shaping her aspirations. She reads extensively on various topics, both academic and fiction.

She completed her Ph.D. in Environmental Engineering from the University of Michigan and M.S. in Civil and Environmental Engineering from Clarkson University, New York, after her B.Tech. in Energy Engineering from IIT Kharagpur. Dr. Suparna has these words of wisdom for the younger aspirants in STEM:

"Women are as capable as men in taking up and sustaining a career in STEM. Women may face more challenges than men do but maintaining faith and focus can help in reaching the target. It is important to believe in oneself and try to achieve what one aspires for." – Dr. Suparna

Dr. Swarnagowri Addepalli

Manager, Baxter Innovations and Business Solutions Pvt. Ltd., India

Dr. Swarnagowri (Swarna) is a manager in Baxter's Renal Care R&D division in Bengaluru, India. She received her Ph.D. from University of North Texas, U.S.A., and M.Sc. and B.Sc. (honors) in Chemistry from IIT Madras and Ethiraj College, Chennai, respectively. Her enrolment in an elective titled "Surface Electrochemistry" during her Ph.D. coursework excited her on the possibility of achieving atomic-scale resolution of materials using Scanning Probe Microscopy (SPM). She completed her Ph.D. in Surface Chemistry, specializing in Ultra-High Vacuum (UHV)-based analytical techniques such as Auger Electron Spectroscopy (AES), X-ray Photoelectron Spectroscopy (XPS), Low Energy Electron Diffraction (LEED) and SPM that are used to understand materials at the nanoscopic level.

A turning point in Swarna's career was when she chose to return to India in 2003 for personal reasons. She applied for a position in General Electric (GE) John F. Welch Technology Center (JFWTC), Bengaluru, becoming the first employee of the Materials Characterization Laboratory. Materials characterization is the study of the microscopic structure and composition of materials, using sophisticated analytical instrumentation techniques. These studies are based on the rationale that the composition and microstructure of materials could impact their performance in end products, and, by tweaking those parameters via processing, one can develop better performing, or more durable materials. Swarna's favourite research area is oxides and coatings for different applications.

Dr. Swarnagowri is a Subject Matter Expert in thin film and materials characterization, surface and interface analysis, failure analysis, structure-property-processing correlation, Scanning Electron Microscopy (SEM) and X-ray microanalysis techniques. She trained several scientists in the operation of complex analytical instruments and data interpretation during her tenure in GE. She was a faculty in the Edison Engineering Development Program, and a blog editor, Edison's desk, for Chemistry and Chemical Engineering Technology Organization in GE. She authored/co-authored over 60 internal reports and was named one of the most prolific authors by the Whitney Knowledge Center, JFWTC for several years between 2007-2016. Four of her patents are issued and one filed. She has 14 peer-reviewed journal publications and multiple presentations in national/international conferences.

During her role as Consulting Technologist at the Centre for NanoScience & Engineering (CeNSE), IISc, she led by example – through dynamic leadership, maintaining productivity and positivity even in stressful situations. She was instrumental in identifying the leadership potential in some women technologists.

Dr. Swarnagowri feels that competing with others generally has an only goal of outperforming them, while competing with self helps define one's own metrics for success, with ample scope for continuous improvement. Maintaining a child-like curiosity helps gain a better understanding of the world around us, and to contribute to improving the quality of lives for ourselves and others. She also believes that we should seek opportunities to share knowledge, which enables to understand our gaps, and fill them. Each experience – good or bad – teaches us something. When faced with challenges, one should seek answers to the question "*What is this experience trying to teach me*", rather than "*Why is this happening to me*".

Dr. Swarnagowri's role models are her parents, school teachers and professors. She believes that one must face the consequences of one's choices, and failure is an extremely valuable learning opportunity, to reflect and determine what can be done differently. Her parents encouraged her to evaluate the pros and cons of any decision she makes, which she applies to her day-to-day life.

She is passionate about reading books on Indian history, geography, and personal development. Her other interests include Carnatic music, gardening and cooking.

"One has to do what one is passionate about. Do excellent work, just because you enjoy doing it. Try to do and be the best in whatever you do. Compete with yourself. Maintain a child-like curiosity and be a lifelong learner." – Dr. Swarnagowri

Teja Manakame

Senior Director, Data Intelligence, Dell

Teja was part of the second batch of women to have ever joined the India Air Force as a Commissioned Officer in the Technical Stream. She was one among 25 applicants selected from over two lakh applicants.

She was part of the Signals Unit. Her job role was gender agnostic and she performed all duties a male officer would. This included physical training, going on rounds of station periphery at nights and working odd hours. She went out about her role with pride and elan. During the course of her career, she even got the opportunity to serve as the Station Commander of a Signals Unit in Maharashtra. She is proud of getting an opportunity to serve the nation during Kargil war.

After her retirement from Short Service Commission in IAF, she decided to pursue her career in IT as she loved technology and its application to business processes in enterprise organizations. She now serves as a Senior Director managing a global team, managing a gamut of IT Enterprise applications related to Finance Domain at Dell Technologies.

She is very keen in contributing her share in giving back to the community. She championed the initiative of "Tech CSR" at Dell. It comprises of volunteers and its charter is to leverage technology for the common good of society. One such initiative was to help Mithra Jyothi, a NGO which works for the visually challenged, automate the process of converting physical text books into Braille format. The earlier process involved various steps, most of them manual and it took Mithra Jyothi weeks to process each book.

The solution her team developed automated all processes except proof reading and significantly reduced time taken to translate a book as well eliminated dependencies of availability of skilled personnel to perform the various manual tasks. This brought tremendous value to the end user beneficiaries while making Mitra Jyothi more efficient and the translation work scalable.

Tech CSR team has also helped with Virtual Reality based learning solution for the autistic kids among others. Very recently, the team helped Buddha Foundation, an NGO with a web-based solution to rehabilitate migrant laborers stuck by Covid 19 pandemic. This team has received accolades not just in the organization but also won the "2020 CII Digital transformation Innovation Award" across a pan-India competition.

Graduating from Airforce technical training academy

Teja leads the "Women in IT" initiative and has been an active champion of diversity initiatives at Dell. She also is a Site lead for Women in Action, an employee resource group in Dell Bangalore. She has participated in several diversity events in the industry. Teja is keen to help women pursue careers in STEM. She serves as a mentor to various Industry associations as "Indian Women Institutional League India" and "Jobs for Her".

Teja is a technologist at heart and holds two US patents in the emerging domains of Additive technologies/3D printing and block chain. Her hobbies are travelling and painting. She has travelled to 45 nations spanning 5 continents on vacations so far.

She holds a Bachelors Degree in Engineering (Electronics and Communication) and has completed Executive Management trainings in Data and Business Analytics, Strategic Sourcing and Supply Chain management from the Indian Institute of Management, Bangalore. Her message for youngsters:

"Curiosity to learn new things accompanied by hard work is the mantra for success." – Teja

Dr. Tessy Thomas

Director General, DRDO

Dr. Tessy is a Distinguished Scientist and Director General for Aeronautical Systems in the Defence Research and Development Organization. She is popularly known as the 'missile woman' and 'Agni putri' of India.

Dr. Tessy was born and brought up in Alleppey and was fascinated by the rocket launching activities of the Thumba rocket station. From her school days, she had the aspiration to take up a career in science and math. The turning point in her life was an advertisement she saw for a post-graduate course in defence technology. She applied and was one among the 10 selected.

Early in her career, Dr. Tessy joined the Defence Institute of Advanced Technology (DIAT), Pune as a faculty member in guided missiles. She later joined DRDL, Hyderabad, where Dr. A.P.J. Abdul Kalam was the Director. She remembers every moment spent with Dr. Kalam as a mentor. The second turning point in her career was when Dr. Kalam advised her to join the navigation and guidance group. She has been the mission designer for India's prestigious Agni missile systems with a range capability from 300 km to 5000 km (Agni series 1,2,3,4 and 5) and contributed for successful flight tests of more than 50 missions.

Dr. Tessy was associated with the Agni program right from its developmental flights. She has designed the guidance scheme for long range missile systems. An energy management guidance scheme was designed and developed for the first time in the country for an all solid propelled long-range system, for which shewas conferred with Agni self-reliance award in 2001.

In her career spanning more than 33 years, she has contributed in various fields such as guidance, control, inertial navigation, trajectory simulation and mission design. She led a major project Agni-4 as Project Director, for a state-of-art system with many new technologies for the first time and successfully flight tested. She was also Project Director (Mission) for the long-range Agni-5 system and successfully flight tested.

As Director, Advanced Systems Laboratory, DRDO, she held multi-dimensional roles and responsibilities and lead the development of indigenous, strategic missile systems. Presently, Dr. Tessy is leading the Aeronautical Systems Cluster laboratories as Director General, with the responsibility of design and development of state-of-the-art-UAVs, manned and unmanned aircrafts, aero gas turbine engine technology, air borne surveillance systems, technologies and systems related to parachute and lighter-than-air systems for the armed forces.

Dr. Tessy receiving a national award from President Shri. Pranab Mukherjee

She is a Fellow of Indian National Academy of Engineering, Fellow & Vice President of Aeronautical Society of India, Fellow & Vice President of Astronautical Society of India, Fellow of Institution of Engineers India and Fellow of Teleganna Academy of Sciences. She has been awarded a Doctor of Science and Literature (Honoris Cause) from several universities.

Dr. Tessy is the recipient of many prestigious awards including DRDO's Agni Award for Excellence in Self-Reliance in 2001, award for Path breaking Research/Outstanding Technology Development in 2007, Scientist of the Year Award in 2008, Performance Excellence Award for Agni 4 in 2011 and for Agni 5 in 2012. She has also won the Lal Bahadur Shastri National Award for Excellence in Public Administration Academics and Management in 2012, Suman Sharma Award by The Institution of Engineers (India), National Design and Research Forum for Engineering Design, Madam Marie Curie Mahila Vijnana Puraskar, India Today Woman of the Year Award in 2009, and CNN-IBN Indian of the Year Award in 2012, among many others. She has publications in international journals.

Her parents were an inspiration for Dr. Tessy and they encouraged both boys and girls to equally focus on education. It has been a journey of challenges, working on systems which are first time technologies and the teamwork dedicated to the country, has made the difference.

Dr. Tessy obtained her B.Tech. from Govt Engineering College, Trichur, Calicut University, M.E. in Guided Missiles from Institute of Armament Technology (now DIAT) and Ph.D. in Missile Guidance from Jawaharlal Nehru Technological University. She obtained her MBA from Indira Gandhi National Open University. Her message for young girls interested in STEM is that each one has to be a decision maker of their own and need to be committed and dedicated to their work.

"Science has no gender. You work as a scientist, not as a woman." – Dr. Tessy

Dr. Uma Batra

Professor, Punjab Engineering College (PEC)

Dr. Uma is a Professor and Head of Metallurgical and Materials Engineering Department in PEC. Her most memorable moment was when she joined as a faculty in PEC, that too in metallurgy. Metallurgy is an exciting and fulfilling field. The innovations have direct applications useful for society. She has worked on novel nano bio ceramic materials for surgical applications.

In case of a fracture, this material could be filled in the gap, instead of using plates and screws. It will develop the bone at that site and Dr. Uma is very excited about this discovery. She has developed biodegradable magnesium alloys for bone implants. She is working on alternate energy sources where they have found an efficient method to separate hydrogen from water for use in electrical vehicles. Another project funded by the Ministry of Steel is to develop the technology for high strength austempered ductile Iron for better performance in tractors and commercial vehicles.

One of the early challenges she faced was when her father was not keen for her taking up a career in metallurgy. After her B.Sc., she had an option to become a lecturer in sciences. But Dr. Uma promised her father that she would do exceptionally well in metallurgy and kept her promise by winning a gold medal. She then went on to do her post-graduation and doctorate. Challenges always enthused and encouraged her.

Dr. Uma discovered her passion in metallurgy when she saw the microscopic structure of metals under a microscope. The labs and intellectual environment were very inspiring and encouraging at IIT, Kanpur. There was no sense of time. They would do the furnace experiments at night.

Her husband has been a great source of support for Dr. Uma as he is also in the same field and understood her difficulties. Her father also helped and encouraged her. She recalls three of her teachers as her role models. Dr. Vijendra Singh during her B.Tech. found something good in her. He asked what Dr. Uma was going to do in future and got her thinking. Companies that came for recruitment at that time did not consider girls. Prof. Singh suggested M.Tech. under Prof T R Ramachandran at IIT, Kanpur. He spoke to her father to convince him. Due to her excellent GATE score, Dr. Uma was able to have Prof T R Ramachandran as her guide. He guided her not just in metallurgy but in life skills too with his simplicity. Her third mentor was Prof Subrata Ray for her Ph D. He sometimes spent a whole Sunday from 9am to 5pm analyzing her test results. She has become a good analyst because of him.

Dr. Uma Batra sharing her Biomaterials Research with Sh. Senapathy (Kris) Gopalakrishnan, Chairman of Axilor Ventures and Co-Founder of Infosys.

Dr. Uma's message for women is that they should first take the idea out of their mind that they are women. She was the only woman for many years in her department. They have to keep learning and improving. Everything should be done with confidence and belief in oneself. She has published more than 100 papers in reputed journals and conference proceedings. She led the project on post-graduate education, demand driven R & D and innovation at PEC by synchronizing the right mix of faculty, researchers and students. Under the TEQIP project on improving learning outcomes and employability of graduates, training of faculty, and enhanced institutional effectiveness, she coordinated starting new post-graduate programs, upgrading laboratories and establishing a Centre of Excellence in her institute. She has won many awards, guided many postgraduate students and has patents to her credit.

Dr. Uma's hobbies are embroidery, playing the harmonium and reading books. During school holidays, her mother got a few things and made them learn to design, cut and stitch clothes. Dr. Uma completed her B.Tech from PEC, M.Tech. from Indian Institute of Technology, Kanpur and Ph.D. from Panjab University and IIT Roorkee, in metallurgy. Her message:

"Write your own story and become the hero of your own story. Don't let others write your story. Contribute To Society And Human Well Being By Innovating Sustainable Materials And Technologies" – Dr. Uma

Prof. Mookambeswaran A Vijayalakshmi

Professor, CBST, Vellore Institute of Technology (VIT)

Prof. Vijayalakshmi, a world-renowned scientist in separation sciences and molecular interactions, is the Founder Director of the Centre for Bioseparation Technology (CBST) at VIT. The technology addresses the separation of molecules of interest, to create high value products. Upto 80% of the manufacturing cost of therapeutic products in the pharma industry goes for separation, to get them in the purest form. It is a tough process.

A special achievement for Prof. Vijayalakshmi is the establishment of the CBST in 2005, when the government of India solicited her to set it up. It is a first of its kind under 'Intensification of Research in High Priority Areas' to give scientific strength in innovative approaches relevant to research and industrial development. Following a performance audit in 2009, the centre was upgraded to "advanced centre" status. It is a first of its kind in a private university. Prof. Vijayalakshmi commends the team spirit for the success of the centre.

She served as a Chief Coordinator, Early Translational Accelerator, at IIT Madras Bioincubator, from 2017-2020. In the field of chromatography, bioseparation, and molecular recognition, Prof. Vijayalakshmi is among the few pioneers who have achieved international acclaim. Well known as 'Viji' in scientific circles in India and abroad, the Society of BioChromatography and Nanoseparation instituted the "Viji award" to honor young scientists. There is a "Viji club", a heavy network of scientifically motivated youngsters created around her.

She is the recipient of several prestigious titles and awards. To name a few, she was conferred the "Chevalier de Honor des PalmesAcademiques" by the French Republic President in 2004. She was awarded the Pierce Award, for the most outstanding work at the global level in the field of Affinity Technology and Biorecognition. She is the first woman, first French scientist and only Indian to get this award. But she considers her students as her most important treasure beyond these awards.

Prof. Vijayalakshmi has held several prestigious positions in international and national scientific and professional organizations. She was consultant and advisor to Council for Scientific and Industrial Research (CSIR) India under TOKTEN programme. She is the only Indian scientist to get three consecutive TOKTEN fellowships.

She has been instrumental in mentoring a number of young women scientists occupying important positions in both academia and

Prof. Vijayalakshmi with her mentor

industry today. She promoted industry oriented teaching and training. She has guided 60 Ph.D. scholars and several Masters' students across the world and most of them are well placed in global biopharmaceutical companies.She has been a Visiting Professor at universities globally and was responsible for the collaborative agreement signed between VIT and UTC.

Prof. Vijayalakshmi has been scientifically active to date and has been contributing to the betterment of society through science and philanthropy. She has been guiding women graduate students to not only build their career in science but also to balance family life. Her message to young professionals is to be mentally prepared to keep themselves updated in all aspects including technical and social intelligence.

With an M.Sc. from All India Institute of Chemistry, Calcutta in 1966, Prof. Vijayalakshmi obtained a PhD from Université de Bourgogne, Dijon, France in 1974 and then her D.Sc. from Université de Technologie de Compiègne France in 1980 combined with University Of Uppsala, Sweden. She worked as a Research Engineer at CNRS, National Research Council Group, UTC, France from 1979 to 1990.

She became a Full Professor in 1990 and thereafter was a Distinguished Professor, Universite de technologie de Compiegne, France from 2001 to 2010. This is the highest level in France for an academic career, she being the first Indian to be ranked thus. Prof. Vijayalakshmi is the co-inventor of several filed or granted patents in India or overseas and has co-authored more than 200 publications till date. Prof Vijayan, IISc once said 0 before 1 is no value, 0 after 1 becomes ten. After a certain age, we are considered a zero in our society. She appointed a successor for CBST to became the 0 after the 1 and continues to be engaged with the center.

"Believe in yourself, work hard and be sincere. Contribute your best in everything." – Prof. Vijayalakshmi

WiSTEM

EXECUTIVE COMMITTEE

Dr. Annie Jacob

Director, KCG College of Technology

Dr. Annie Jacob, a Doctorate from IIT – MADRAS, is a Board Member of Hindustan Group of Institutions and the Director of KCG College of Technology, a unit of Hindustan Group of Institutions, founded by the late Dr. KCG Verghese, a pioneer in self-financing education.

Dr. Jacob is primarily involved in administering the planning and execution of operations and resources to achieve the set institutional goals. With over 10 Educational institutions of repute under the Hindustan umbrella, offering quality education from Kindergarten to Post-Doctoral research in the schools of Arts and Science, Management, Engineering, Technology, KCG College of Technology under Dr. Annie Jacob, continues to impact the lives of several lakhs in the community. She is the proud recipient of "Best Women Entrepreneur Award" from ICT Academy and "Eminent Women Edupreneur Award" from Times Group (2015). She is truly a passionate educationist contributing to the vision of creating Women Leadership in Science, Technology, Engineering and Mathematics.

Experience with STEM: Dr. Annie is an educational entrepreneur, able administrator, assertive leader and advocator of women empowerment. She takes best of her efforts to create the right ambience for her faculty to evolve and also insists on instilling among the budding women engineers the attitude of "Never give up". This multifaceted personality has been creating conducive environment and eco-system for student and teachers to innovate and provide engineering solutions to societal problems. Dr. Annie, under one umbrella, works with students and teachers specializing in STEM related subjects. She strongly believes in the words of Mary E Kinsella, "As a woman and an engineer, one has already beaten the odds. Therefore, women engineers are uniquely qualified to lead".

Key Message: As rightly said by Melinda Gates, "A woman with a voice is by definition a strong woman. But the search to find that voice can be remarkably difficult". Even in this day and age, most women do not come forward to voice out and share their perspectives due to societal and psychological reasons. As a member of the Women in Stem Initiative by CII TNTDPC, learning about and experiencing the brilliant work of women who have achieved groundbreaking work in their career while maintaining a balanced life was truly inspirational. Personally, gaining more insight into how passionately these women have carried out their work and also influenced lives by spreading the word on the importance of women's pursuit of STEM has been an enriching experience. Wishing each one of you all the very best and hoping to see you all in flying colours with your goals accomplished.

Tamil Nadu TDPC

Anu Sriram

Co-Founder & Jt. Managing Director
Integra Software Services

Anu Sriram is the Co-Founder & Joint Managing Director of Integra Software Services, a 2200+ employee digital content and learning services provider to leading publishers, educational institutions and many Fortune 500 enterprises across the world, headquartered in Pondicherry.

Blessed with a strong entrepreneurial streak, Anu who is a B.E. in Electronics and an MBA, started Integra in her hometown Pondicherry, in 1994, along with her husband, Sriram Subramanya. She wanted to provide employment opportunities to the local talent in her hometown, and put Pondicherry on the global map of BPO Companies. She heads the finance and human resources at Integra.

She is a past Chairperson for CII's IWN for the Southern Region and Puducherry Chapter.

She has been the recipient of various awards including '15 Faces of the Future', by India Today and 'Outstanding Woman Entrepreneur-SSI' from ESC.

WInGS

A champion for women's Rights and Privileges, Anu launched a special initiative at Integra called "Sakthi Oli" which has now been re-branded as WInGS – **Women in Integra: Growth & Success** – to develop & empower the women employees of Integra.

Few milestones are:

- **51.3% of Integra's workforce are women**
- **85% of women get back to work after their maternity break**
- **Integra has a 50% representation of women at its leadership level**

Also, under her leadership, Integra has received NASSCOM Corporate Award for Excellence in Gender Inclusivity. Integra has also received the Working Mother & AVTAR awards 2019, continuously for the last 5 years since 2016 as one of the 100 Best Companies for Women in India standing at par with some of the largest corporates in India.

Sriram Charitable Trust

Philanthropists at heart, Anu and Sriram, set up the Sriram Charitable Trust for the welfare of society, focusing primarily on Education, Health Care, the Environment, Social Rehabilitation and Rural Upliftment, Women Empowerment and helping Government on Good Governance.

Confederation of Indian Industry

Dr. Indira Narayanaswamy

Aeronautical Development Agency (ADA),
under the Ministry of Defense, Govt. of India

After Post graduation in Mathematics from Kerala university as the Gold medalist, being University first rank holder, I pursued PhD in Mathematics at Institute of Mathematical Sciences (IMSC), Chennai. After a stint of Post-doctoral Research at the University of Pittsburg, USA, I joined Aeronautical Development Agency **(ADA)**, under the Ministry of Defense, Govt. of India, as a scientist, to work on the **Light Combat Aircraft (TEJAS)** program. The application of Mathematics in an aircraft program is tremendous and my mathematical skills helped me to provide excellent timely support to the program in innumerable ways. The TEJAS program journey was demanding, challenging and often turbulent; nevertheless, I enjoyed the ride and it was a wonderful experience with great learning opportunities in Aircraft Design. My innate passion for Education and Research in Mathematics has brought me to (RUAS) Ramaiah University of Applied Sciences, Bangalore, where I am a Research Professor in Mathematics. Besides handling classes for PG courses, I am also the Doctoral supervisor for PhD students in RUAS wherein one can learn and update on the latest research work being pursued in mathematics as also its applications in various fields. I am also a recognized PhD THESIS SUPERVISOR for Doctoral programs at Visvesvaraya Technological University (VTU), Belgaum and IIT, Mumbai. I have been PhD thesis examiner for DIAT, Pune and IIT, Kanpur in my fields of specialization.

Experience of working with 'Women in STEM' Initiative

It has been my proud privilege to be part of the Steering Committee to work on "Women in STEM' whereby women achievers / leaders / innovators who have made a significant contribution to the society by their dedicated efforts and research in NICHE and Untraditional areas are identified. The response to the FLYER has been overwhelming and it has been an uphill task for the Steering Committee to shortlist those profiles which would be included in the E Book on 'Women in STEM' being brought out by Tamil Nadu Technology Development and Promotion Centre (TNTDPC) of CII. I would like to place on record my deep sense of gratitude and appreciation to the Steering Committee members for the interesting and though provoking discussions we had during the last few months, which is soon culminating in the grand release of the E Book.

Latha Nambisan

Managing Partner,
Savitur Business Consulting LLP

Latha Nambisan, the Founder of Savitur Business Consulting, is a leader with experience in varied Industry Sectors, both in corporate roles and as an entrepreneur.

Founded in January 2017, Savitur Business Consulting focuses on Individual and Organizational Change & Transformation. As the Managing Partner of the firm, Latha works closely with her clients – leaders of small and medium enterprises in developing and scaling their organizations. Savitur's clients include high-growth Companies in the IT Products, IT Services, Media, Consulting and Financial Services Sectors.

Latha's last assignment in the Corporate Sector between 2010 and 2016 was with Servion Global Solutions as President. Prior to Servion, as a Principal Consultant in totus consulting, Latha worked on large scale Leadership Development Programs and Talent Management initiatives in India and several other countries in the Asia Pacific Region.

Latha started her career in a large public Sector Manufacturing organization and has also worked with Blue Star and with the RPG Group as General Manager HR.

Latha has written several articles on HR related areas and has spoken at various HR events in the country. She was honored as a Woman Super Achiever at the Asia Pacific HRM Congress in 2012 and in the Top 30 Women Achievers at the World HRD Congress in 2013. Latha was the Knowledge Partner for the CII HR Summit in 2018. Working with entrepreneurs has been a source of joy and Latha has run a series of 4 HR Masterclasses for entrepreneurs in 2020.

Latha was the Co-Convenor for L&D for CII-IWN Tamil Nadu for 2018 – 2019 and was also the Program Director for the initial two cycles of the SheLeads Program – a Coaching based initiative to fast-track high potential women leaders from across 10 Organizations.

Accredited by the Coaching Foundation of India (CFI), as a Certified Executive and Business Coach, Latha has taken on coaching assignments for senior leaders and CEOs.

"Participating in the WiSTEM initiative of CII was a rare honour and privilege. Going through the stories of passion, purpose and perseverance was inspiring and energizing. I do hope the stories profiled in this book serve as a beacon – encouraging the growth of more women who stand tall in the world of STEM".

Preeti Aghalayam

Department of Chemical Engineering,
IIT Madras

Preeti Aghalayam is a professor in the department of Chemical Engineering at IIT Madras. She obtained her education at IIT Madras and at the University of Massachusetts, Amherst, USA. She has worked as a post-doctoral researcher at the Massachusetts Institute of Technology, Cambridge, USA and as a faculty member in the department of Chemical Engineering at IIT Bombay, previously. Preeti is an enthusiastic teacher and researcher, with several published journal articles and funded projects under her belt. Her research interests are in the areas of Coal Gasification, Automotive Emissions Control, detailed kinetic modelling and Catalysis. Currently, she is the lead Principal Investigator of the Carbon Capture, Utilisation & Storage (CCUS) lab, an Institute of Eminence initiative at IIT Madras.

Preeti is an avid enthusiast and champion of women's rights, particularly in STEM. She has served as the Chairperson of the Women's Forum at IIT Madras for 5+ years, and coordinated various programs related to health, safety & gender awareness. Preeti has also initiated a series of YouTube lectures on IITM Women in STEM recently, with eclectic interviews of women students, research scholars and professors talking about their journey and learnings. She is involved in the Gender Advancement for Transforming Institutes (GATI) network recently launched by DST, India. As a strong proponent of game based learning, watch out for some fun and quirky mobile games designed by Preeti's team as part of the Women Leading IIT Madras grants, in the near future!

"I would like to mention that it has been a very rewarding experience to work with the wonderful team on this e-book. Reading the profiles of accomplished women in STEM from across the country, particularly those who have broken many barriers, was so inspiring. My message specially for young women is to grab opportunities by the horns, work incredibly hard, have a lot of faith in yourselves, and when in doubt, thumb through the stories of the incredible women featured here!"

S Ramachandran

Principal Consultant,
Infosys Knowledge Institute

Ramachandran (Ram) is a Principal Consultant and the lead for manufacturing and engineering domains in the thought leadership team of Infosys – the Knowledge Institute. He is a frequent blogger and speaker. He has more than 22 years of diverse global experience in market research, consultancy, global team/program management, IT, analytics, quality, and transformation functions in manufacturing.

His current topics of interest are Industry 4.0, Servitization, 'Circular economy' and 'Future of Work'. Ram has co-authored a book on reskilling titled "Neoskilling for Digital Transformation" with Prof L Prasad, IIM Bangalore (Wiley India, 2019). He has co-authored a chapter on Servitization in an upcoming book on Advances in digital manufacturing systems (Springer). He continues to speak on these topics in various forums. He writes about them in online and print media, including regional magazines Nanayam Vikatan and Motor Vikatan in Tamil. Ram was invited as a panel discussion member on Industry 4.0 at UNIDO's 50th Anniversary event held at Vienna, 2016. He is a Branding & Communication board member in SAE (Society of Automotive Engineers) India.

Ram started his career in Hindustan Motors Ltd – Earthmoving Equipment Division. He then spent a significant part of his career in General Electric, starting from the global research center in Bangalore and then in GE Power business in Atlanta and Greenville. He led digitization initiatives in GE for product lifecycle management (PLM). He was a transformation manager in Hewlett-Packard for a few years for supply chain management and PLM programs. Before Infosys, Ram was an analyst in IDC Manufacturing Insights, where he discovered his passion in writing.

Ram is a mechanical engineer with a post-graduation in Production Engineering from PSG College of Technology, Coimbatore. He was a research student in the Robotics Research Center, Nanyang Technological University, Singapore for a few years. He completed his executive MBA (PGPEM) from IIM Bangalore.

"It has been a privilege to lead the editorial effort as part of the Women in STEM e-book team. The interactions with the accomplishers to bring out each one of their stories has been motivating. Each one is a role model in their domain. Their stories will go a long way to motivate young women to take up a career in STEM, overcome challenges and achieve great heights".

Rani Muralidharan

Director, indePenn Connections Pvt. Ltd.

Rani Muralidharan is the founder director of indePenn Connections Pvt Ltd, a company that strives to bring gender parity in workplace through various initiatives. To name a few – helping women on career break get back to work, working with companies on their D&I initiatives, creating peer networks to encourage women to take on leadership positions.

A Chartered Accountant from Mumbai, Rani Muralidharan, was an industrialist – in the space of thermal power sector, fabricated structures, manufacture of valves & auto components and industrial infrastructure.

As a professional in the manufacturing space, she has played key roles in industrial bodies, especially CII. She has held various positions in Confederation of Indian Industry, including:

- Chairperson – Trichy Zone,
- Chair – Women empowerment, National MSME Council
- Member Regional Steering committee, Head – learning & development (TN) – Indian Women Network
- Member, Regional International Linkages committee (in charge of knowledge dissemination)
- Member, Infrastructure panel, Tamil Nadu

Rani Muralidharan has been part of many non-governmental organisations:

- President – Women Entrepreneurs Association of Tamil Nadu, uplifting hundreds of women from grass root to being economically independent and self-sufficient.
- President – Menstrual Hygiene Management Consortium, playing a key role in aggregating all the initiatives being taken towards health and hygiene of women and girl children
- President – Rotary club of Tiruchirappalli Shakthi – all women's Rotary club in Trichy, executing meaningful projects for school children, especially girls.
- National Treasurer – Ladies Circle India, organisation of young women, with the motto of friendship & service.

On being part of the expert committee for Women in STEM:

"It was a pleasure to be part of a very vibrant expert committee for the compilation of a compendium of Women in STEM. I realised we have so many hidden gems in STEM, who are silently doing great work. It is imperative that we showcase them, their work, and achievements, which is a source for inspiration for many. I was truly inspired by the kind of work women are doing in the STEM space. Hope this compendium motivates more women to come forward and make a place for themselves in the world of STEM. Thank you for the opportunity."

Tamil Nadu TDPC

Dr. (Mrs.) Thangam Meganathan

Rajalakshmi Educational Trust, Chennai

Dr. Thangam Meganathan is the Chairperson of the Rajalakshmi Educational Trust. She has 20+ years of experience in the field of Educational Administration. The Rajalakshmi Trust which runs several educational institutions across Engineering, Technology, Architecture, Management and Nursing is promoted by professionals from Industry whose interests span Automobile Retail, Renewable energy etc. Dr. Thangam is primarily responsible for providing vision and strategy for all the educational Institutions run by the Trust. Under her transformational leadership, the Rajalakshmi Group of Institutions have emerged as the best Institutions in the country offering high quality education. She has set herself as a role model for high performance and encourages high performance from all the faculty members and staff. As a strong believer in Quality, she has ensured that Quality is a culture inside the Institutions run by the Trust.

Dr. Thangam strongly believes that Innovation is a key change agent that can bring about transformation in the lives of young students. She has been responsible for the implementation of several path breaking innovative practices in the Institutions. The results of these practices have catapulted the Institutions into an elite league.

CII

Dr. Thangam Meganathan was the Chairperson & Vice Chairperson for CII Chennai Zone for the year 2020-21 and 2019-20 respectively. She also served as the Convenor & member of the CII Tamil Nadu Education Panel 6 years, a member in the CII- SR Education Subcommittee and served in several other committees of CII and was instrumental in organizing several high impact conferences.

WOMEN EMPOWERMENT

She is a Member of the 'Women Empowerment and Leadership' panel of Indian Women Network (IWN) and was the Vice Chairwoman in 2014-15. Dr. Thangam is a member of the Tamil Nadu Sports Board and also the Assistant Commissioner for Guides in Tamil Nadu Bharat Scouts and Guides.

OTHER SOCIAL ACTIVITIES

Dr. Thangam has received several awards which includes the prestigious CSI Honorary Fellowship from Computer Society of India (CSI) for her outstanding services in Education. The International Association of Lions Club District 324-A1 has also honoured Dr. Thangam for her contribution to the field of education.

Dr. Thangam Meganthan is an avid follower of Carnatic Music and has philanthropically contributed to the Chennai Music Season for the past several years. She also curates an art gallery during her leisure and plays Bridge.

CII Confederation of Indian Industry

Vijayalakshmi Rao

Director and Chief Operating Officer at Scope e-Knowledge Center Pvt. Ltd.

Vijayalakshmi Rao, (Viji), has over 35 years' experience in industry, consulting and entrepreneurship. She works as an independent consultant providing mentoring and business advisory services to entrepreneurs. She has mentored women entrepreneurs for over 5 years at ISB and is currently associated as a Mentor with a number of forums including IIT Madras, TiE Chennai and Keiretsu Forum.

In her last entrepreneurial assignment, Viji was Director and Chief Operating Officer at Scope e-Knowledge Center Pvt. Ltd. (a global IT services company) for over 12 years. Prior to this, she has worked with the Murugappa Group, SAIL and SB Billimoria.

Viji is passionate about women's empowerment, leadership and entrepreneurship. She is an Advisor & Founder-Member of a voluntary forum, Empowering Women in IT (eWIT) and is also associated with ANEW, an NGO that trains and finds placement for underprivileged women.

Viji is a Science graduate and an MBA from IIM Ahmedabad.

Experience with Women in STEM Initiative:

It was extremely interesting to read through the nominations of women achievers who have made highly impactful contributions in diverse areas of STEM. I was personally not aware that there are so many accomplished women in a field that 'appears' to be largely dominated by men! I am proud to be part of this unique initiative, where for the first time in India, the achievements of women in STEM are being documented and celebrated.

Many of these women have been successful despite facing personal and professional challenges – lack of exposure, mentorship and supportive ecosystems. Identifying and evaluating potential Women Achievers involved intense work but it was a rewarding experience; in fact, we unearthed many hidden gems in the process. Truly, these women are role models; my hearty congrats to each one of them!

Kudos to CII for having initiated such a project. I enjoyed working with all the EC members- their diverse perspectives led to very thought-provoking discussions and I found the entire experience (managed completely online!) very enriching.

Key message:

Having worked closely with women – employees, leaders and entrepreneurs – I strongly believe in the inherent strengths, grit and phenomenal work capacity of women. Their potential can be unleashed provided they are not held back by unsupportive ecosystems and more importantly, their own self-limiting beliefs. The women achievers profiled in this book are leading by example…I am sure they will inspire many other women to aspire for and reach great heights in STEM.

Tamil Nadu TDPC

WiSTEM

WiSTEM

PATRONS

integra

powering content transformation

Foreword by Sriram Subramanya,

Founder, Managing Director & CEO, Integra

With a woman co-founder at the helm, Integra has always focused on providing equal opportunities to women in the workforce, across all business functions, from operations to leadership. One of the biggest challenges faced by most corporates is hiring, and Integra's policy to ensure 50% women representation is quite a challenging feat by itself. But through our attuned efforts, we hit the milestone of 51.4% women in our global workforce by 2020.

Our women-centric task force "WInGS—Women at Integra: Growth and Success" spearheads special mentoring programs to nurture them to become impactful managers and pragmatic leaders.

Integra's initiatives have successfully created a workplace through system strengthening initiatives and imparting upskilling. This translates into creating a more gender-friendly organization that provides an equal opportunity with equal pay grades and promotes their self-worth.

About Integra

Founded in 1994 Integra offers a wide range of content services and workflow solutions to publishers, educational content providers, and digital learning services to enterprises, globally.

As a content service organization, we are infectiously optimistic, innovative and thrive on the impact and customer experience we can deliver. As a leader we consistently evolve and stay agile to provide world-class deliveries. Our design thinking-led approach allows us to stretch our content capabilities, while we never compromise due to our technology first, human-led solution strategy.

Our multi-pronged strategy of tapping into proven expertise, impactful delivery, & disruptive digital technology positions us as the pioneers in providing digital content development solutions in emerging disruptive content technologies.

As a digital-native organization, we re-envision client's digital transformation strategy to ensure they stay on top of the game with the ever-changing digital landscape, while our customer-centric leadership enables a collaborative ecosystem that allows us to help them overcome challenges and alleviate their pain points.

Integra helps global publishing customers maximize 'return on content production investments' and focus on what they do best – publish great content products for their customers.

- **Geographies:** North America, UK, Continental Europe, and APAC
- **Domains:** Academic and Education Publishing, Education Technology, Training and Development
- **Service Sectors:** Content services, Corporate eLearning, Digital Transformation
- **Featured Products:** iAuthor, iLancer, iRights, iPMP
- **Technologies:** Artificial Intelligence, Machine Learning, Deep Learning, Augmented Reality, Virtual reality, and Mixed Reality

Drawing upon this vast experience in developing learning content and designing interactive learning, Integra has over 2200 talented global workforce work across three countries – India, UK, and the US.

Integrites, our people are an important asset to us! Our work ethos is closely intertwined with our deeply rooted value system the PANCHASHEELAS while creating a positive work culture, we call it the Integra Way of Life (IWL): Customer Satisfaction, People Care, Professionalism, Team Work and Excellence.

Tamil Nadu TDPC

CII Confederation of Indian Industry

Women in Leadership

Organizations globally face a massive influx of female millennial talents that are reshaping the corporate landscape as we see. We now have a diverse and accomplished pool of women who make up almost 50% of Integra's workforce. At Integra, we take pride and celebrate women from all walks of life who make tremendous contributions every day and have embraced this progressive work culture more than a decade ago.

As a women-friendly organization since its inception, the focus at Integra has always been and remains on developing women's talent. Integra has implemented several women-friendly policies that have helped retain and grow our women employees into influential leadership roles. Our flexible working hours and work-from-home policies have helped retain potential women while the various mentoring programs have helped our women Integrites to take on additional responsibilities and move up the career ladder. Integra also focuses on growing leaders from within the organization and potential women are allowed to learn and grow through a slew of mentoring programs.

Our Diversity and Inclusion team has implemented a slew of welfare measures to retain and promote potential women across the organization. For women who lose out on the career game due to family pressure, we have built support systems like daycare facilities for kids at a stone's throw of the office premises. Hostel facilities near the office can be availed by women Integrites from other locations. Expecting mothers also enjoy special privileges and have been issued special IDs that enable them to get priority treatment in lifts, the canteen, parking, and elsewhere on the campus.

Mentoring Programs for potential women leaders

Women belonging to the senior leadership team undergo a coaching program with engagement from external coaches. The top management invests a considerable amount of time in working with the identified coaches in drafting out customized programs for individual development. These coaching engagements have helped the senior leaders take on additional responsibilities and grow not just within their teams but to the next level in the organization.

Integra ranks among the top 100 companies for women to work in India. Half of our workforce is comprised of women, out of which 60% work at the entry-level, with programs created to develop more high-level women leaders.

Our relentless effort has provided us a stellar pathway to various milestones. Few being:

- 51.3% of our workforce are women
- 50% of the senior management are women
- 85% of women get back to work after their maternity
- Of the total employees promoted, 25% of the women moved to the next level (managerial)
- Crowned as AVTAR and Working Mother 100 Best Companies for Women in India award while competing with large multinational IT organizations for five years in a row, in 2016, 2017, 2018, 2019, and 2020, we have testimonies to our women-friendly policies.
- Recognized with DivHERsity Awards 2019 and is one of the top 5 Most Innovative Practices in Women L&D Program by bringing Diversity to its workplace.

Towards Integrites' collective growth

Integrites belonging to the mid and senior managerial cadre are groomed to prepare them to handle business requirements. The participants chalk out their development plan facilitated by an external coach and their reporting managers. Additionally, they have the opportunity to participate in group mentoring programs, workshops, and perspective-sharing sessions by leaders within and outside the organization. This program focuses on the personal and professional growth of the individual.

Best practices enable an organization to ultimately achieve more positive results. Integra never hesitates to recognize and reward excellence at work. We also have various diversity and inclusivity initiatives.

We follow the footsteps of our Managing Director, Sriram Subramanya, who always says "You can achieve your goals if your thoughts, words, and deeds align together and are positive."

Mindtree

A Larsen & Toubro Group Company

Foreword by Paneesh Rao,
Chief People Officer, Mindtree

At Mindtree, we have always deeply respected equality and strived to create a culture of inclusion, both internally and externally. As an equal opportunities employer, we believe in creating the right organizational environment, processes, and frameworks that promote sensitivity, empathy, and inclusion, thus unlocking innovation and creativity. Mindtree has always remained steadfast in its resolve to have the right processes and practices that promote inclusion and diversity.

While digitalization is revolutionizing business operations across sectors and geographies, the demand for programmers is expected to go up in the near future, leading to the search for more efficiencies and new opportunities in identifying, hiring, and onboarding talent. We believe that it is a combined responsibility of education providers and technology companies to encourage students from diverse backgrounds to take up STEM (Science, Technology, Engineering and Mathematics) subjects, thus cultivating the next generation of IT leaders. With greater visibility for successful women in STEM and with continued encouragement and more education, a healthier gender balance can be created in this rewarding and exciting industry.

About Mindtree

'Born digital' in 1999, and now a Larsen & Toubro Group company, Mindtree, a digital transformation and technology services company, applies its deep domain knowledge to 260 enterprise clients to break down silos, make sense of digital complexity and bring new initiatives to the market, faster. Operating in 24 countries, we're consistently regarded as one of the best places to work, embodied every day by our winning culture made up of over 27,000 entrepreneurial, collaborative and dedicated 'Mindtree Minds' (our employees).

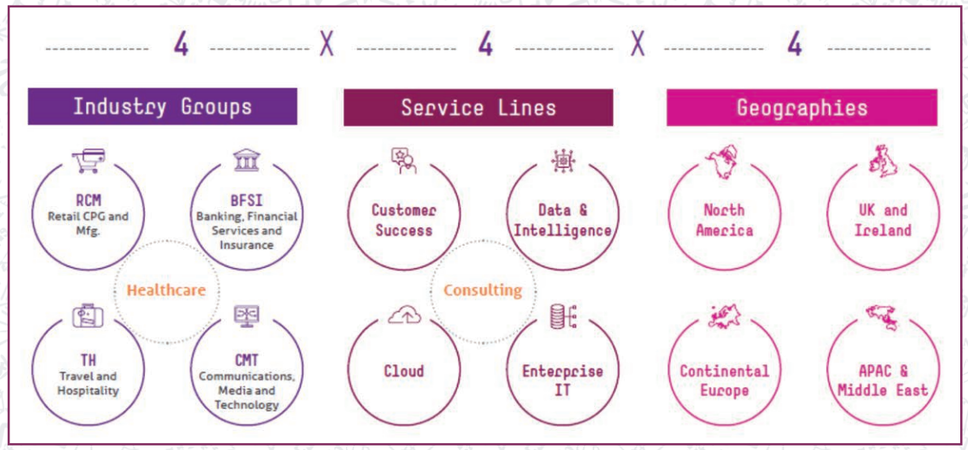
At Mindtree, innovation in technology is core to the solutions we create. We accelerate transformation at the intersection of business, technology, and experience. Translating ideas into concepts and solutions is one of our greatest strengths in creating innovative digital consumer experiences. We help our clients accelerate their digital transformation journeys to build intelligent and future-ready businesses powered by insights, cloud and engaging technologies. We assist in creating new digital experiences by bringing together business needs, technology trends, and new media.

We are strategically focused on four industry groups, four service lines, and four geographies aimed at driving profitable growth, building existing strengths, and developing strategic partnerships.

- **Industries:** Communications, Media and Technology (CMT), Retail, Consumer Packaged Goods and Manufacturing (RCM), Banking, Financial Services and Insurance (BFSI), Travel, Transport, and Hospitality (TTH) and Healthcare
- **Geographies:** North America, UK & Ireland, Continental Europe, and APAC & Middle East
- **Service Lines:** Customer Success, Cloud, Data and Intelligence, and Enterprise IT

We develop a comprehensive understanding of our customers' market, challenges, competition, and future strategy to devise solutions that address their specific digital transformation needs.

On the people front, we are proud of our unique culture and people practices. We seek to bring together people with different views, skills, and backgrounds to create an expertise-led and culture backed organization.



Tamil Nadu TDPC

CII Confederation of Indian Industry

We are a people-centric organization with our people at the heart of the services we provide. Maximizing human potential is key to providing a workplace where all Mindtree Minds are truly valued and provided opportunities to grow and progress.

Our values are at the core of our digital prowess, skilled talent, and consistent profitability. We aim to bring in higher consistency, differentiation, and scale to grow further as a leader in a market currently wading through challenging disruptions. Our organization unites our employees and leaders with a set of enduring and passionately held beliefs.

At Mindtree, our values – *"Collaborative Spirit, Unrelenting Dedication and Expert thinking"* – are the guiding principles for our day-to-day work. They guide us in decision-making, strategic planning, how we do business, and how we interact with customers, colleagues, partners, and society.

Our work ethos at Mindtree talks about the four pillars of our culture that are important to us, along with a set of statements that show us the 'how' of the expected behavior. The four pillars of our work ethos are anchored by **purpose, caring** for people, **learning** with curiosity, and delivering ambitious **results**. We believe that these pillars will help keep us grounded and enable us to achieve our objectives.

Our mission statement – "We create meaningful technology solutions to help businesses and societies flourish" – while aptly reflecting the four pillars of our work ethos, also incorporates the higher purpose of giving back to society and enriching lives.

At Mindtree, Diversity & Inclusion (D&I) is a major aspect of our values. Fostering D&I in an organization also helps create an environment of rich and varied perspectives that help individuals thrive and be more innovative.

Our D&I charter focuses on **E**thnicity/ **N**ationality, **D**isability, **GE**nder and **S**exual orientation that we call *EDGES*.

We aim to attract and develop a diverse talent pool through our inclusive culture, which makes every person feel valued. At Mindtree, inclusion is **respect, belongingness, empowerment,** and **progress**.

Our D&I brand identifier 'In Harmony' emphasizes creating an environment where unique persons of varied ethnicities, nationalities, abilities, genders, and sexual orientations, can come together 'In Harmony' to redefine possibilities.

Mindtree was adjudged the second runner-up in the 'Best Employer for Women' (large) category by the Associated Chambers of Commerce and Industry of India (ASSOCHAM) at its Diversity & Inclusion Excellence Awards and Conclave, 2020. We also received BW Businessworld's HR Excellence Award in 2020 for Excellence in Diversity & Inclusion. We were also the winner of SHRM HR Excellence Award for 2020 in the Excellence in HR Analytics category.

Women in Workforce

Over the past 15 years, we have made several strides in increasing the proportion of women in our workforce from 16% in 2004 to 32.3% in 2020, with the figure for India at over 34%. Our 40x30 vision is to have 40% of our workforce consist of women professionals by the year 2030.

Mindtree has a strong women support community and continually invests in highly successful programs to provide both technical skills and life skills to women workforce. We collectively refer to the community of our women colleagues at Mindtree as Athena, reflecting their indomitable spirit, intelligence, understanding, and creativity.

We acknowledge that women often face unique challenges. However, they have unique strengths to overcome those challenges and be successful. Athena fosters the spirit of togetherness at work.

One of our special D&I initiatives is focused on increasing the number of women in senior leadership roles at Mindtree. 'She WILL' (Women in Leaders League) aims to develop, engage, grow and retain women leaders, and promotes a workplace culture where the potential of women employees is leveraged and every woman feels valued, heard and fully involved. The increase in women representation in leadership positions continues to be a key and strong focus area for us.

Our friendly work policies — such as flexibility to work from home, reduced working hours, and sabbatical — and creche facilities are specifically designed to provide a supportive work environment to our women employees.

As an organization, we are committed to providing a healthy environment to all Mindtree Minds and follow a zero-tolerance policy on discrimination and/or harassment in any form. In addition to Prevention of Sexual Harassment (POSH) policy, underpinned by sensitization and unconscious bias awareness training programs, we also have special measures in place to ensure the safety of women professionals who work in shifts or need to travel after 8 p.m.

Employee Health and Well-Being

At Mindtree, employee health and well-being is of great importance. We believe that physical and mental health is very important for an employee to be happy and productive at the workplace. We have multiple initiatives to support this goal. These include counselling and healthy mind – healthy body programs. Our campuses have in-house doctors, paramedics, and nursing rooms to take care of our Minds.

At Mindtree, we strongly believe that people change the world more than technology does. We are creating a culture that nurtures our most critical asset – our employees – in keeping with today's fast-paced technology environment. As an organization with strong values, we have made a commitment to put D&I at the forefront. To optimize this, we approach D&I as a strategic initiative linked to business goals that will enable us to reduce unconscious biases, bring in innovation, and refresh talent by providing leadership development opportunities.

In this time and age, as we all continue to adapt to the new normal, we are aware that we need to build an inclusive workplace to foster collaboration, recognize the uniqueness of individuals from diverse backgrounds, and create a sense of belonging that will power the workplace of the future.

SHRI SHANKARLAL SUNDARBAI
SHASUN
JAIN COLLEGE FOR WOMEN

A Unit of Sri S. S. Jain Educational Society | Reaccredited by NAAC
Affiliated to University of Madras | An ISO 9001:2015 Certified Institution

Preamble

Shri Shankarlal Sundarbai Shasun Jain College for Women functions with a noble vision and objective to provide quality education to young aspiring women candidates and to equip them to meet the changing needs of the society and industry. With this goal in mind the college provides the students a congenial atmosphere, conducive to their academic and creative growth. It is a self-supporting institution, committed to the cause of holistic education. The institution focuses on general, professional, moral and technical growth of the students. It embodies and strives to deliver world-class education and research in Science and Humanities. The college seeks to foster the skill sets of the students and lends them a helping hand to explore knowledge and excel within the campus, in addition to encouraging external collaboration. In pursuit of this goal, the college strives to kindle the intellectual curiosity among the students and an open mind to 'go beyond', which is the motto of the college.

Amenities & Learning Resources

The College has a team of dedicated and eminent academicians and a well-equipped library with a wide range of books, periodicals, journals (National and International), e-resources, manuals and an impressive Computer Centre with Internet facilities. It also has a well-laid playground and facilities for indoor and outdoor games. Every classroom is ICT enabled and provided with LCD projectors. The College has a fully equipped Visual Communication Department.

The SHASUN LMS is designed to fulfill all aspects of the online learning process, from administering course materials and assignments for documenting class participation and grades. Students and the faculty members are provided with E-Resources such as Proquest, Inflibnet and N-List. The college has a well-equipped English Language Lab which facilitates the students to enhance their integrated skills, i.e. LSRW (Learning, Speaking, Reading and Writing) along with grammar and vocabulary enrichment. The department also offers Youth Leadership Program for the students to nurture leadership and presentation skills and Speech Craft for the staff members, in association with the Chennai Toast Masters Club.Commerce Lab provides practical exposure of the processes and procedures followed by organizations in conducting commercial practices. The Commerce Laboratory is equipped with the latest teaching aids such as projector, video camera and laptop. Charts, Models and Magazines prepared by students are displayed for the benefit of all.

Life at Shasun

The following features are the highlights of the college which enable the students to express their problems with the confidence of getting solutions: Grievance Redressal Cell, Anti-Ragging Cell, Sexual Harassment Cell and Equal Opportunity Cell. Besides, each student will be mentored by the faculty assigned to them, which strengthens their varied capabilities. The college offers various scholarships to the students based on merit, sports and economic background. Shasun Medical Assistance Centre – APOLLOSHINE, a student Health initiative for Neighborhood Engagement being organized by Apollo Hospitals provides health care facilities in the campus. Additionally, Shasun students will receive priority access at all Apollo Hospitals across Tamil Nadu and will receive discounts at all Apollo branded organizations like Apollo Pharmacy, Apollo White Dental, etc. The College provides Ramp, Wheelchair, Elevator and Wash Room specifically designed to cater to differently-abled students. The College has a professional counsellor to support the psychological and emotional wellness of the students. The Placement cell organises skill development sessions and the pre-placement activities to help the students prepare themselves for the internship programmes and campus placements. Placement cell signed an MoU with Sieger Training India Pvt. ltd. which provides training to final year students for 60 hours on Aptitude Skills, Soft Skills, Interview

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Skills and Domain Skills. Student Council team is yet another feather to the cap of the institution. The Student Council team along with its department secretaries, works and coordinates with all the other staff and students for all the college events. The Institution encourages them thereby creating responsible leaders to the society.

IQAC

The IQAC of the college strives to bring quality in all aspects of the college. The college has participated in NIRF ranking and listed in the band of 150 – 200. IT also participated in Times BBA Education Ranking and secured 36th place. In sequence with the panel discussion on 'Draft National Education Policy 2020', a Colloquium on 'National Education Policy 2020' was conducted during August 2020. The highlights of the policy on School Education and Higher Education were emphasised by eminent resource persons.

Centre for Extension Activity Clubs

The college has various clubs functioning actively. To name a few NSS, LEO Club, Rotaract Club, RRC, YRC through which the students get a lot of exposure and cultivate leadership qualities. Yuva Shakthi and Enviro Clubs enable the students aware of their responsibility to the society. The clubs conduct Webinars, Competitions, Awareness Talks, and Welfare Activities for the Society, in which students are involved in large numbers. This creates an opportunity for the students to engage themselves for societal welfare cause and get equipped with practical knowledge. Apart from this the creative skills and knowledge of the students get enhanced by Heritage Club, Debate Club, Theatre and Fine Arts Club. Shasun Swath Dham, the Fitness Club focuses on the fitness aspects of both the staff and the students.

FORUMS

ENACTUS

Enactusis an International non-profit organization dedicated to inspiring students to improve the world through Entrepreneurial Action. Guided by educators the students take the kind of entrepreneurial approach that empowers people to be a part of their own success. The team has presented projects namely FEMMIGLOW and SWeATCH with tribes (gypsy) as community members and also won MAHINDERA GRANT 2017.

SHE Cell

Shasun Empowerment Cell for Women aims to empower and nurture our students into holistic individuals. SHE cell focuses on educating women on various dimensions of empowering themselves like legal rights, gender equality, health and hygiene.

Innovation Hub

Innovation Hub aims to create out-of-the-box solutions and provides opportunities for the students to foster their ideas with respect to their fields of interest.

AIESEC

The Memorandum of Understanding was signed between the College and AIESEC Chennai. The college management, through the AIESEC Organization in Chennai, agreed to send students to various countries such as Nepal, Vietnam, Malaysia, etc. for exchange programmes to have good experience, independency and learn how to handle any situation in their life.

Membership in Professional Bodies

The college possesses membership in the following professional bodies:

1 Confederation of Indian Industries.
2 Hindustan Chamber of Commerce
3 Andhra Chamber of Commerce
4 Computer Society of India
5 ICT Academy of Tamilnadu
6 Madras Management Association
7 The Associated Chambers of Commerce & Industry of India

SHASUN SUMVRDDHI

The following wings function under Shasun Sumvrddhi which impart entrepreneurial training, Training to Civil Aspirants and Value Added Courses.

SAI (Shasun Alliance with Industry) strengthens the relationship between the institution and industry through an array of activities.

SHABASH (Entrepreneurship Development Cell) aims at creating women entrepreneurs by offering entrepreneurial education and facilitate students by providing various self- employment opportunities. It has membership at National Entrepreneurship Network. It organizes Shasun Bazaar, where hundreds of students get a chance to display their entrepreneurial skills.

SCALE (Shasun Civil Aspirants and Leadership Empowerment). The goal of SCALE is to produce a minimum of 5 IAS officers by 2025 through an exclusive in-house training program assisted in all means by the management to a group of 10 best aspirants.

SANKALP (Shasun Knowledge Advocacy Lead Program) offers Value Added Courses such as Digital Marketing, Advanced Microsoft Excel, Personality Development, Principles of Auditing, Quantitative Aptitude, Research Skills with SPSS, E-Banking, Cash Accounting and Working Capital, Fundamentals of Financial Risk Management, Corporate Governance and Business Ethics' Introduction to Supply Chain Management, Essentials of Web Programming, Health and Fitness, Android Application Development, Basics of Python, Graphic Designing, Creative Writing – Short Story and

Life Skills. Life Skill course (Jeevan Kaushal) based on UGC guidelines is offered to all the students.

SKC

Shasun Knowledge Centre promotes the research interests and academic performance of the teachers. A Half – Yearly Journal

Knowledge Economy with registration under RNI and ISSN has been brought out regularly since March 2011. The Centre organizes Orientation Programme, Faculty Development Programme, Seminars and Conferences. The centre encourages the faculty members to present and publish research papers in UGC Care list journals and ScopusIndex, enroll for various online courses and pursue Ph.D. It is significant to mention that Dr. V. Chitra, Assistant Professor, Head, Department of Commerce(Honors) received a certificate of Grant Innovation Patent for the title of invention **MITIGATING ILLEGAL TECHNOLOGY OF ONLINE LOANS THROUGH STRATEGIC FINANCIAL PLANNING** from the Australian Government.

SHASUN SHAKTHI CELL

Students are given a platform through Shasun Shakthi Cell to showcase their talents in cultural fests and competitions. The following courses are offered under SSC free-of-cost: Classical dance, Folk dance, Classical music, Folk music, Veena, Keyboard, Violin, Guitar, Arts & Crafts, Drawing & Painting, Beautician Course, Theatre Arts, Cookery, Mimicry, and Fashion technology. Sha-Kala Utsav, a mega cultural event is conducted every year with themes, glorifying womanhood, nation, natural resources etc.

SHASUN – HU Olympic World Archery Medal Quest

It is a patriotic initiative taken by our college to win Gold Medal in forthcoming Olympics for our Country. The Archery team of our college participated in International Archery World Championship held in Thailand and France.

SPORTS

Sports activities and games are available along with the regular college activities. Students are encouraged and given opportunities to participate in competitive sports at the Inter-collegiate, State level and National level. Various indoor and outdoor games are given focus.

GYMNASIUM

The college believes that Physical Fitness is important for all round development of students and the faculty. Keeping this in mind Gym facility in the College campus is provided. The gym is well equipped and the training is given by a qualified lady Gymtrainer.

NCC

The NCC of our college was started in the year 2019 with an enrollment of 18 cadets. NCC aims at developing discipline, character, spirit of adventure and ideals of selfless service amongst young citizens.

CENTRES OF EXCELLENCE

Shasun has embarked on establishing Centres for Excellence in an effort to bring under the same roof connoisseurs from various fields. The first centre to be inaugurated was **The Centre of Excellence- Retail**, in association with Retailers Association's Skill Council of India (RASCI), a skill partner of National Skill Development Council (NSDC) Government of India. First of its kind in Chennai, Shasun aims at leading the way for the Retail Industry in exploring and adopting new technology tools, techniques & practices through training, workshops, conference, retail & consumer behaviour research and analytics, digital technology enablement, manpower supply, creative support and education. The centre through 'Sharet Mart' provides a platform for small & fledgling retailers to showcase and sell their products & services on campus. Mentoring and handholding comes as a package service to all sharet Mart retailers. Creating a new breed of retailer community from among the students is another focal area of the Centre of Excellence-Retail.Courses such as Retail Cashier, Retail Department Manager, and Retail Sales Associate are offered under COE-Retail.

The Centre of Excellence for Art & Culture, in partnership with Media & Entertainment Skills Council, NSDC, Government of India, was launched to teach, research, promote and showcase Fine and Performing Art forms of India and abroad. By inculcating the cultural values and tradition in the young generation, it aims to create wholesome personalities. In this regard, Special Lecture Series, Educative Workshops, Lecture-Demonstrations and Public Performances are being organized with eminent personalities from across the world as resource persons. The centre offers various courses. To name a few: Traditional Theatre Forms, Theory and Practice of Yoga and Contemporary Fitness Regime.

The Centre of Excellence for Media, Entertainment and Communication focuses on areas such as supply of fresh workforce, training to existing manpower, research projects and publications, graphic designing and photography, short films and audio video, virtual reality & augmented reality, computational photography, and mobile application services. Courses on Digital Photography, Editing, Animation and Graphic Designing are few among the various courses offered.

Shasun News

Shasun News channel, a new initiative by the college for the students has been introduced in our campus to provide enormous opportunities to the students to explore their potential and skill sets in the field of media. This activity has been entrusted to the Department of Visual Communication.

WiSTEM

KNOWLEDGE PARTNER

The Indian Institute of Technology, Madras

The Indian Institute of Technology Madras is known both nationally and internationally for excellence in technical education, basic and applied research, innovation, entrepreneurship and industrial consultancy. A faculty of international repute, a highly motivated and brilliant student community, excellent technical and supporting staff and an effective administration have all contributed to the pre-eminent status of IIT Madras. The Institute is proud to bear the laureate of being No.1 engineering university in India. More recently, IIT Madras has been given the title of Institute of Eminence.

In 1956, the German Government offered technical assistance for establishing an institute of higher education in engineering in India. The first Indo-German agreement in Bonn, West Germany for the establishment of the Indian Institute of Technology at Madras was signed in 1959.

The Institute was formally inaugurated in 1959 by Prof. Humayun Kabir, Union Minister for Scientific Research and Cultural Affairs. The IIT system has sixteen Institutes of Technology – the first of these to be instituted were at Kharagpur (estb. 1951), Mumbai (estb. 1958), Chennai (estb. 1959), Kanpur (estb. 1959), Delhi (estb. 1961), Guwahati (estb. 1994) and Roorkee (estb. 1847, joined IITs in 2001).

A globally recognised Institute

IIT Madras is a residential institute with nearly 550 faculty, 8000 students and 1250 administrative & supporting staff and is a self-contained campus located in a beautiful wooded land of about 250 hectares. The campus is located in the city of Chennai, previously known as Madras. Chennai is the state capital of Tamilnadu, a southern state in India.

The Institute has sixteen academic departments and a few advanced research centres in various disciplines of engineering and pure sciences, with nearly 100 laboratories organised in a unique pattern.

IIT Madras has been the top-ranked engineering institute in India for four consecutive years as well as the 'Best Educational Institution' in Overall Category in the NIRF Rankings of 2019 put out by the Ministry of Human Resource Development.

Dr. Preeti Aghalayam, Department of Chemical Engineering, IIT Madras was a member of the Expert Committee and also IITM is the Knowledge Partner of the TNTDPC in this initiative. IIT madras is elated at the opportunity to work with TNTDPC as knowledge partner on this initiative"

Tamil Nadu TDPC

Confederation of Indian Industry

About TNTDPC

Tamil Nadu Technology Development & Promotion Centre (TNTDPC) is a joint initiative of the Government of Tamil Nadu and Confederation of Indian Industry (CII). TNTDPC is incorporated as a Society. It is governed by an apex Governing Council chaired by the Secretary, Technology Development Board, Department of Science & Technology, Government of India, and consisting of members from Government of India, Government of Tamil Nadu, Industry and CII.

The Centre has been effective in utilizing its networking platforms and consultation to facilitate the knowledge transfer. TNTDPC plays a pivotal role between industries, institutes, Government, International partners and many other potential stakeholders to visualize the latest technological dissemination and trends whilst developing a stronger business network. The Centre has been effective in utilizing its networking platforms and consultation to facilitate the knowledge transfer.

TNTDPC is a unique model in the country conceived as a one stop shop for Technology Development & Promotion, Technology Upgradation and Induction of New Technologies in Tamil Nadu. The major task of the centre is focused towards providing a helping hand to the Small & Medium businesses and entrepreneurs in Tamil Nadu to reach and to compete in the global marketplace through technology innovation and meeting international standards. The Centre provides a user-friendly environment, linking support and guidance from global experts in upgrading the industrial growth of the state. The Centre uses networks of institutions/agencies globally, in order to stimulate innovation and successfully execute SMEs technology projects and help them in problem solving.

About CII

Confederation of Indian Industry

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering Industry, Government and civil society, through advisory and consultative processes.

CII is a non-government, not-for-profit, industry-led and industry-managed organization, with over 9000 members from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 300,000 enterprises from 294 national and regional sectoral industry bodies.

For more than 125 years, CII has been engaged in shaping India's development journey and works proactively on transforming Indian Industry's engagement in national development. CII charts change by working closely with Government on policy issues, interfacing with thought leaders, and enhancing efficiency, competitiveness and business opportunities for industry through a range of specialized services and strategic global linkages. It also provides a platform for consensus-building and networking on key issues.

Extending its agenda beyond business, CII assists industry to identify and execute corporate citizenship programmes. Partnerships with civil society organizations carry forward corporate initiatives for integrated and inclusive development across diverse domains including affirmative action, livelihoods, diversity management, skill development, empowerment of women, and sustainable development, to name a few.

As India marches towards its 75th year of Independence in 2022, CII, with the Theme for 2021-22 as ***Building India for a New World: Competitiveness, Growth, Sustainability, Technology,*** rededicates itself to meeting the aspirations of citizens for a morally, economically and technologically advanced country in partnership with the Government, Industry and all stakeholders

As India marches towards its 75th year of Independence in 2022, CII rededicates itself to meeting the aspirations of citizens under its mission of India@75TM for a morally, economically and technologically advanced country in partnership with the Government, Industry and all stakeholders. All parts of the economic ecosystem must work in partnership to ensure the fastest possible progress under these metrics and CII as a synergistic organization is a strong connect between the various parts.

With 62 offices, including 10 Centres of Excellence, in India, and 8 overseas offices in Australia, Egypt, Germany, Indonesia, Singapore, UAE, UK, and USA, as well as institutional partnerships with 394 counterpart organizations in 133 countries, CII serves as a reference point for Indian industry and the international business community.