

59th ANNUAL
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CEREMONY

Thursday, 15 December 2016

CONVOCATION ADDRESS

by

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Scientific Adviser to Raksha Mantri
and Director General-Missiles and
Strategic System



Sardar Patel University

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Convocation Address

Fostering Technology Innovation

Dr G. Satheesh Reddy

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Honourable Chancellor of this University and Governorshri of Gujarat, Shri O P Kohliji, Vice Chancellor of Sardar Patel University, Prof Shirish R Kulkarni, Registrar, Faculty and Staff, Academicians, esteemed invitees and student friends... my greetings to you all.

It is my pleasure to address you at the *59th Annual Convocation* of Sardar Patel University. My heartiest congratulations to the graduating students and their proud teachers and parents.

I deem it a privilege to speak to you at the University named after the **Loh Purush** Sardar Vallabhbhai Patel, one of the great sons of our motherland. I am also humbled by the fact that many distinguished luminaries and nation builders spoke at the previous convocations of this University, and consider myself fortunate to speak in the hallowed precincts of this seat of learning.

The success of any educational institution lies in the success of its students. I am sure that Sardar Patel University is one that takes great interest and pride in the achievements of its students.

The hard work and dedication of the students, the efforts of the teachers and staff and the guidance of the management all result in bringing glory to the University. On this day, I heartily commend all the graduating students, especially those who have won medals and awards. I also congratulate the proud parents of the graduating students.

I am extremely delighted to learn that Sardar Patel University (SPU) has emerged as an important center for excellence in higher education, not only in Gujarat, but also in the country, with an international reputation. It is also heartening to note that SPU has been recognized by the University Grants Commission (UGC) as a 'potential centre of excellence' to carry out inter-disciplinary research in applied polymers. Advances and achievements in material sciences will dictate the progress of technology in the 21st century. Studies on applied polymers will surely add immense value to the ongoing research on materials in the country.

With twenty six departments carrying out research in basic sciences, social sciences, humanities and pharmacy, the University offers instruction in faculty disciplines that include Arts, Science, Business Studies, Management, Education, Home Science, Law, Medicine, Engineering, Technology, Pharmacy, Homeopathy, Fine Arts and Physical Education. I am sure that Sardar Patel University will leave its mark in research on emerging and futuristic technologies.

Dear graduating student friends,

As you step out with the knowledge gained from the teachers at this University, I am sure you will give your best in fulfilling the University's mission of "regeneration of rural Indian life with the application of the study and research in all the disciplines of knowledge in tune with the modern global developments".

As confident men and women who have the most important role to play as future citizens and ambassadors of the rich tradition of our great country, I am sure that you will put the knowledge imparted by your teachers to good use and bring laurels to yourself and your *alma mater*. Apply the knowledge gained at the University to reap benefits for your city, state and nation. I join your teachers and your families in wishing you the very best in the future.

A nation's strength lies in the strength of its academic, economic, scientific and technological sectors. All of us need to put in our best efforts to make our nation strong and self-reliant.

The Science and Technology landscape has seen great changes with rapid developments in electronics, computer science and information technology. Never in the past has mankind been empowered in such a powerful manner.

Technologies involving robotics and artificial intelligence, stem cell research, renewable energy generation and storage, augmented reality, space travel, space tourism and space mining, nanotechnology, anti-matter, to name a few, are beginning to play a greater role in our lives.

Speaking of Defence technology, the nation is focusing hard on the development of advanced systems for our armed

forces. We have put in appreciable efforts in the field of basic and applied research for indigenization of technologies. The outstanding achievements of our nation in missile and space technologies reflect our inherent S&T strengths. The success of Geo-Synchronous Launch Vehicles, Agni Series of Missiles, nuclear submarine INS Arihant, fighter aircrafts and the Chandrayaan and Mangalyaan missions have propelled us into an elite club of nations possessing 'niche' technologies.

Since 1958 Defence R&D has grown to be capable of delivering strategic missile systems, Electronic Warfare, Electronics, Naval and complex platforms such as the Light Combat Aircraft. India is today one of only 5 nations with ICBM capability, one of the 4 countries in the world to have a multi-level strategic deterrence capability, one of only 5 countries of the world to have its own BMD program and underwater missile launch capability, one of only 7 countries to have developed its own Main Battle Tank & an indigenous 4th generation Combat aircraft, one of 6 countries of the world to have developed a nuclear powered submarine, one of select few countries of the world to have its own Electronic warfare & multi Range radar program.

Defence R&D led to the development of Bullet proof jackets, breathing systems, farming in high altitude areas, Dengue, Chikungunya, multi insect repellent, food poison detection kit which have been put to use. In the field of Nuclear Biological and Chemical technologies, a large number of DRDO systems including Reconnaissance vehicles, dosimeters are in use. Bio-digester for human waste management primarily developed glaciers has found its potential in the civilian sectors and has become a significant part of Swachh Bharat movement.

The Government of India has embarked on a very important programme 'Make in India', which encourages design, development and production of state-of-the-art systems within India, thereby encouraging in-house capability, and reducing dependence on external sources. This programme would also boost the country's exports and thereby help the economy grow. *Make in India* programme requires R&D institutes, academia and industry to work hand-in-hand and provide quality products and services.

Academic institutes such as the Sardar Patel University have a significant role to play in the Make in India programme. The academic institutes must become the hubs for fostering innovation and entrepreneurship. Collaboration and teamwork is very important for innovation and creativity. Universities need to create dedicated laboratory spaces in collaboration with research institutes to enable students get valuable experience before they leave the University. Joint programmes must be formulated with other academic institutions and research organizations to propel research in niche areas. In this regard, I am happy to learn that SPU has joint academic programs with a number of international academic institutions. I commend the management for this initiative.

Students and teachers must be encouraged to work for a minimum specified time in research institutes in both the Government and Private sector, to get a hands-on experience with the state-of-art equipment and facilities. Focus must be laid on setting up incubation, innovation and research centres within the campus. Proper mentoring by experts as and when needed must be provided.

Students can be groomed to take up interesting, innovative projects under the *Startup India* programme. Providing required facilities and guidance will surely help them achieve

breakthrough solutions. I am sure that SPU will contribute its best to this programme.

Focus is to be made on futuristic technologies to become a future world leader. From nurturing and working on denied technologies, we need to leapfrog in capability and lead in relevant areas. Establishing focused research centres in the specific technologies at R&D centres and academic institutes with state of the art infrastructure is the first step in that direction. Innovations at Small and Medium Scale industries should be encouraged and supported. The country needs to have innovative manufacturing institutes with public and private partnership. Also, these technologies must be devised for ultimate exports to earn valuable foreign exchange for the country. Bio-sensors, Photonics, NEMS, MEMS, high energy materials, futuristic power supplies, stealth technologies, advanced materials, high power computing are few such identified priority areas.

To encourage and support research in advanced materials, the Government is formulating a National Material Policy. This policy provides a blueprint on harnessing the strengths of the knowledge capital of the nation in relevant areas of material science and putting them to best use for making a strong and technologically superior India of the 21st century.

There exists an immediate need to synergize the capabilities of all stakeholders to foster innovation that would result in the overall development of the nation. R&D institutes should focus more on basic and translational research and the public sector units need to be roped in for development and subsequent production, playing a vital role as lead integrators. The private sector also needs to invest in R&D in specified areas and produce the sub-systems and systems. This will

enable such industries to transform their capabilities to the level of lead integrators.

Today, the private sector already started playing a major role. In last 10 years, the private industries have graduated from mere component producers to a challenging role of developing the state-of-the-art sub systems and systems. For instance, more than 70% of the supplies for Akash missile system are coming from a conglomerate of private industries. Hence, it is evident that the private industry is going through transformation to handle greater challenges.

The new policies of the Government of India are enabling many overseas enterprises to start operations and set up manufacturing units in India with large investments. This is a major driver for development and potential creator of employment. The response to 'Make in India' call is overwhelming.

Teachers inspire the students to reach higher goals and guide them to lead better lives. Dr APJ Abdul Kalam, Bharat Ratna and Former President of our nation attributed his success to his teachers and remembered them with humble gratitude in his book 'Wings of Fire'. During his visits to educational institutions, he would administer the 11-point oath for all teachers, stressing on the importance of good teachers and teaching practices. My best wishes to the teachers of Sardar Patel University, and wish them all success in shaping the nation's future.

My best wishes to all present here today at the 59th Convocation of this prestigious University. May the University achieve greater success in the years to come.

Jai Hind!!