



**NATIONAL INSTITUTE OF
TECHNOLOGY TIRUCHIRAPPALLI**

CONVOCATION 2025

CHIEF GUEST'S ADDRESS



Dr. V. Narayanan
Distinguished Scientist
Secretary to GoI, Department of Space &
Chairman, Indian Space Research Organisation



**21st Convocation Address
of
NIT Tiruchirappalli**

By

**Dr. V Narayanan
Distinguished Scientist
Secretary To GoI, Department of Space &
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On

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Dear Dr. Aghila, Director, NIT, Trichy, Deans, Faculty & staff, Proud parents and most importantly degree receiving students, Very good morning to all of you.

I feel really happy to be with you and to share this significant moment and happiness of students receiving their degrees here today. I am so excited to be in the best and most sought after NIT of the country. NIT, Trichy is having a great history and legacy of 61 long years right from its inception in 1964 as REC. Renamed as NIT from 2003, this institute is a real marvel in engineering education in the country.

I am a native of this state, Tamilnadu and right from my student days, I have heard the name of this Institute and it was anybody's dream to get admission and study in this great institute. You are the privileged set of students who could get admission and study in this institute through your sheer merit and hardwork and let me wholeheartedly congratulate each and every one of you. I had the opportunity of working few months in BHEL, Trichy before I joined ISRO in 1984 and hence I am very much aware of the capabilities and the talent pool of NIT, Trichy. The very fact that it has the Distinction of ***"Best Industry Linked NIT in India"*** by Confederation of Indian Industry is a really great compliment.

I am happy to note that students receiving degrees here today belong to undergraduate and Post graduate programmes of various Engineering and allied disciplines. I am sure the Management & Faculty here have contributed in a big way in leading the students towards providing true education. The education that ensures absorption of knowledge, accumulation of wisdom and appreciation of the experience.

I have always been a person who believed that all the good qualities of a student be it behavior, character, ethics, compassion, empathy and so on, is brought in mainly by the teachers.

The stars of today's function are the students receiving their degrees. Let me take this opportunity to greet each and every one of you. More than anything else, I have felt Convocation is a function for you to look back to remember and thank all those good souls who have helped you to reach this level.

Apart from your hard-work and dedication, you owe the degree you are receiving today to your parents who have educated you to see your bright future. Let me salute each of the parents present here today.

Convocation is one of the most happy occasions in ones life. You all are entering



into a new phase of your life with great maturity, knowledge and a good degree from a great institution. On this occasion I wish to reiterate the message of Swami Vivekananda ***“Arise, Awake and Stop not till the goal is achieved”***.

We are all in a very high mood right now as our own Astronaut, **Shubanshu Shukla** has just become the first Indian to reach International Space Station and land back in Earth safely. I had the great privilege of associating with this Axiom mission in a big way. All of us had a busy time last month in US at the Kennedy Space centre and we were happy to contribute in our own way in ensuring the safe launch of Shukla and 3 other astronauts to ISS. It is a big stepping stone as we move towards our own human space program – Gaganyaan quite shortly.

Since the time I have taken over as Chairman, ISRO, i.e., beginning of this year, we have achieved some key successes within a short time. India has become the 4th country to successfully achieve **Docking** and **Undocking** in Space with the success of **SPADEX** mission in which we demonstrated precise docking and undocking of Chaser and Target. In January this year, we had the successful **100th launch** of the GSLV F15/ NVS-02 mission from Sriharikota. I am also so happy to get the final approval for the **Third launch pad** catering to the launch of our future generation of launch vehicles which will take Indians to the Moon.

Dear friends, with the knowledge you have gained till now, you are starting to serve our country which has completed 77 years of independence and the progress we have made during this period is phenomenal. One has to understand that at the time of independence, 97.5% of our people were below poverty line with an average life expectancy of 32 years. From that state of affairs today we have grown in every sector. In agriculture sector, we had green revolution and became self-sufficient in food production. In health sector – we have world class hospitals & doctors and increased the average life span of Indians from 32 years to 72years.

- ❖ India as a nation has grown by leaps and bounds in Science and Technology since independence.
- ❖ In India over the years, we have made significant progress in various sectors through movements like; Green Revolution, White Revolution, Grey Revolution and Blue Revolution
- **Literacy level** which was alarmingly low pegged at around **12%** soared to **79.7%** as on date. Number of primary schools which was numbered around **2825** at Independence has soared to about **8.40 lakhs**. We could create world class Institutions of National importance like IITs, IISc, IIMs, AIMS, NITs, IISERs etc wherefrom the pass outs are accepted and respected worldwide. We could also establish a number of other schools and colleges of international repute. At



present we have **742 medical colleges and 4351 Engineering colleges** in India rolling out trained men and women to add value added services to our country. The average enrolment of students in colleges in India is largest in the world (**30.6 million**).

- From receiving food aid in the 1950s and 1960s to becoming a net exporter, India has seen a turnaround in food production. Aided by the The Green revolution, **total food production**, which stood at **54.92 million tonnes** in 1950, has risen to **305.44 million tonnes**. In agriculture, we have made 5 fold increase in production since independence. The green revolution has taken us to this growth today. We too had the white revolution for dairy products and blue revolution for fisheries.
- Only 3,061 villages had **access to electricity** in 1950. Currently, all of India's villages 5,97,464 in total have been electrified. The total power generating capacity has increased from meagre **1362 MW** in 1947 to **403 GW**. The **per capita electricity consumption** which can be directly equated as an index of development was a mere **16.3 kWh** and has increased to **1208 kWh**. The country has achieved total self reliance adopting a threefold combination of Hydro electric, Thermal and nuclear power stations along with tapping others like tidal, wind solar etc. Nuclear power plants have been set up at a fast pace ever since Homi Jahangir Bhabha started the research activities at BARC.
- India's **GDP** stood at Rs 2.7 lakh crore at Independence. Now it has reached Rs 135.13 lakh Crore. India is now the 4th largest economy in the world overtaking UK itself. We have the potential of becoming the third-largest economy by 2031, as per Bank of America. Our vision is to have an economy of 300 lakh crores by the end of this decade.
- **Indian Railway, the longest railway system in the world**, expanded by over 14,000 kilometres, reaching 67,956 kilometres in route length by end of 2021. We have added a host of Metroes in most major cities and fast moving Bullet trains.
- **Roads** have expanded exponentially in the last 75 years. In 1950, India only had **0.4 million kilometres** of roadways, which has grown to **6.4 million kilometres**. This is a **16-fold rise** in the total length of roadways, making India's road network the second largest in the world. We have an extensive network of waterways too spread across states and intercontinental water passages. Our national highways and express ways are rated among the best in the world connecting the length and breadth of this vast country.
Our unique programmes like “Make In India” has revolutionized the engineering sector in the country. Hence it is imperative that there are plenty of opportunities



for all of you to contribute for making India a developed country when we celebrate Azadi ka Amrit Mahotsav, 100 years of independence in 2047.

Our country has built world class institutions over the years and achievements have been plenty.

Take the case of **DRDO**, over the years, they have developed large range of weapons like the Arjun battle tank, Zarovar light tank, Brahmos long range supersonic missile system, Agni & Prithvi series of missiles, Tejas light combat aircraft, Pinaka, a multi barrel rocket launcher, Akash, a comprehensive air defence system and so on leading India to become a defence power.

In Atomic energy too we have made a mark and at present we have 23 nuclear reactors across 8 major nuclear plants starting from Tarapur and including the Bhaba Atomic Research Centre (BARC). At present, we have the capability to generate 8180 Mega Watts power but still a long way to go.

We have world class CSIR Labs under the Department of Council of Scientific and Industrial Research.

Our country has built world class institutions over the years and achievements have been plenty - DST, DRDO, IGCAR, Tata Institute of Fundamental Research, Kalpakam and Kudamkulam Nuclear plants, Medical Technological Institutes like AIIMS - Eradication of fatal diseases like Small pox, Diphtheria, Malaria etc, Commissioning of hundreds of roads, bridges and railway lines, National Educational Institutions like IITs, IISc, IIMs, RGIPT, Metro trains, Worlds biggest Statue - Statue of Unity, High Speed Rail Corridor etc
Dear friends, on this important day of your life, let me share a few of my thoughts

Give back to the society

Dear Graduates, education is a privilege that you enjoy for which you are deeply indebted to the society of which you are a member. For the degree you are receiving today, so many have contributed,

- 1) Your parents who have sacrificed their comfort to educate you and see you as great leaders in future.
- 2) Your school teachers who have taught you and given you good foundation.
- 3) Your college teachers and staff members who have given high quality education and shaped & molded your career.
- 4) The fellow citizens who have provided you good ambience for your education.
- 5) The common man, the tax payers and the society of our country, who have funded for your education indirectly.



Is it not your responsibility to give back something to the society?

Noble leaders like the father of our nation Mahatma Gandhi, Pandit Jawaharlal Nehru, Sardar Patel and so many others have sacrificed their entire life for our country. As a valuable and responsible citizen, you also have to work for the welfare & development of the institutes, where you have studied, care for the citizens of our country and build up the nation.

- **Learning is a continuous process**

To update your knowledge, excel in your profession and to reach greater heights in the life and to contribute for the betterment of the society, you should learn continuously. Dr. Radhakrishnan, the great scholar & our former president once said “The habit of reading is one of the greatest resources of mankind”.

- **Work hard and Earn your happiness**

Dear Graduates, you all know that there is 'No substitute for Hard & Smart work.

I have learned from '*Wings of Fire*', the Autobiography of our former president Dr. AP.J. Abdul Kalam, "Total commitment is a pivotal quality for those who want to reach the very top of their profession". It is true. I myself have experienced.

- **Develop inner strength of character**

The intellectual education influences the mind, where as the value based education influences the heart. A person with high academic record with intellectual education and bankrupt value based education is of no use to the society. The success, both personal and professional depends on how we think, how we act and what we believe in. Develop inner strength of character. You should be always honest & thrust worthy.

- “Dream & Aim for greater things, Set high targets and work for it. Dreams are internal monitors, Dreams are powerful tools of an individual to achieve his goals.
- Be imaginative, Innovative & Creative. A person who uses his imagination and creativity will overpower the one who has more resources.
- Self Confidence and Self Motivation is another important requirement for success “Can do approach” is an essential requirement for the one for reaching greater height you should be persistence in achieving your goals.
- Team work with win-win approach and calculated risk taking ability is another important requirement for success.



- You should develop Noble leadership quality. Above all, you should become good human being.

Accomplishments & Future plan of Indian Space Program:

I am today standing before you in the capacity as secretary Department of Space/Chairman, ISRO. When India started its space programme in the 1962, and ISRO was formed on August 15th, 1969, one should keep in mind that Yuri Gagarin had gone to outer space and came back safely in 1961 itself. We also had Neil Armstrong landing on the moon in 1969. Hence we were something like 60 years behind the advanced nations in space technology. But over the years we could more or less bridge this gap and also come out with flying colours in many areas.

- From the first launch of the tiny rocket from Indian soil on 21st November 1963, till today we have launched more than 4000 sounding rockets from India.
- The First launch vehicle – SLV3 was launched successfully in 1980. To our credit, we have so far developed 6 generations of launch vehicles (SLV3, ASLV, PSLV, GSLV, LVM3 & SSLV) and launched 101 launch vehicle missions.
- As far as satellites are concerned, in 1975, we had the launch of our first spacecraft, Aryabhata. From that humble beginning, till today we have developed and realized a total of 132 satellites serving us in various applications. Over the years, the designed life of satellites have increased from 7 to 15 years and the power handling ability has increased from 6 kW at 42V to 20 kW at 70V. We have also launched 433 satellites of 34 foreign countries and other student satellites.
- Chandrayaan 1 mission was a great success and became first mission in the world to find presence of water in the moon. We all are aware, our Chandrayaan – 2 mission had placed an orbiter with the best OHRC camera which is still functioning but we narrowly missed the soft landing in the last 2.10 km. I had the privilege to be the Expert committee chairman to identify possible anomalies and make suitable recommendations for the next mission. My team did extensive analysis and came out with more than 100 recommendations all of which were effectively implemented in Chandrayaan 3 mission ensuring 100% success making India proud and made history of becoming the first country in the world to soft land near the south pole of the moon.
- The Mars Orbiter mission (MOM) was also a well acclaimed mission which our honourable PM has described that the expense per kilometer travel was less than Auto fare and also total expenditure less than many Hollywood movies. We were the first country successfully accomplished this mission in the first attempt.
- India holds the world record of placing in orbit 104 satellites in a single launch, first time. We also had successful re-entry of spacecraft capsule in SRE-1 in first attempt.



- Indigenous cryogenic development after technology denials is another proved development. I was so proud to be the Project Director of C25 cryogenic stage, where we have three world records during the development.
- We also placed One web 1 & 2 putting 72 commercial satellites in precise orbits last year using our LVM3 vehicle.
- We have also successfully placed our Adithya spacecraft in the Lagrangian point L1 of the sun thus becoming only the 4th country to have a satellite to study sun.
- India became the fourth country in the world to achieve Docking of spacecrafts in space just less than 4 months back.
- Over the years, our satellites have provided applications ranging from Communication, Metereology, Cartography, Disaster Warning, Television broadcasting, Telemedicine, Tele education, Village Resource Centres, Remote Sensing, Oceanography, Mineral/Resource mapping just to name a few. India has gifted a satellite for the benefit of all SAARC countries. The Indian NAVIC system has a constellation of spacecrafts which is also serving the country in various domains. Real Time Tracking system is also introduced for 8700 trains. The satellites have played a major role in disaster warning giving early warning saving thousands of lives.
- For the fishermen we have developed applications for getting information about their location.
- Potential fishing zones monitoring and informing is yet nother success story.
- Bhuvan portal equivalent to Google is also developed and deployed.
- At present, we are in the advanced development stages of our Gaganyaan, our human space mission, wherein we shall be for the first time taking Indians to space and return them back safely using our own launcher. Towards this program, the first unmanned mission is planned very shortly. This is a national program which involves meticulous mission planning and development of cutting edge technologies.
- Our Prime Minister has recently rolled out the broad envelope of where our space programme has to reach in the coming years. The **Chandrayaan-4** programme is already approved and this mission shall be planned as a sample return mission. The Bharathiya Anthariksh station (BAS) shall be a reality by 2035 for which the initial modules in space shall start as early as 2027. An Indian has to land in moon and return safely by a fully indigenous moon mission by 2040. A Venus Orbiter Mission (VOM) has also been approved where we shall be sending a spacecraft to study planet Venus. A heavy lift Next Generation Launch Vehicle (NGLV) with recoverable first stage has also been approved by Govt of India. You can imagine the complexity involved in these missions and the degree of quality consciousness and levels to be displayed in each and every subsystem we are going to roll out.



When we look at ISRO, the organisation is built by generations of leaders and each of them have played their role very well. It had a visionary leader, Dr. Vikram Sarabhai, Institution builder Prof. M G K Menon & Dr. Satish Dhawan, Dedicated first Launch Vehicle PD, Dr. APJ Abdul Kalam, a risk taking, first spacecraft PD and former Chairman Prof. UR Rao, a multifaceted personality – Dr. Kasturirangan, a great visionary and humanitarian leader - Dr Madhavan Nair, the Task Masters – Dr. Radhakrishnan, Shri. Kirankumar, Dr. Sivan and Dr S Somanath.

The Government of India has also rolled out the Space Sector Reform for bringing out a vibrant space eco-system in the country. The success of Indian Space Programme is due to the organisation's open working culture, team work, risk taking ability and above all the outstanding human resource.

Summary:

Dear graduates, as Dr. APJ Abdul Kalam used to say, you should always be righteous in the heart which leads to beauty in the character, beauty in the character brings harmony in the home, harmony in the home leads to order in the nation, and the order in the nation leads to peace in the world. As you pass out, you have plenty of opportunities, effectively utilise them and contribute for making Bharat as a developed nation and also contribute for the peaceful and happy life of the global community.

Once again, let me congratulate all the graduating students. My best wishes to the NIT team for developing good quality human resource required for transforming India into a developed nation. Let me once again thank the NIT, Trichy for giving me the opportunity to be with you today.

May GOD bless you. Thank you, jai Hind!

