JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
ANANTHAPURAMU-515 002, ANDHRA PRADESH, INDIA

XII CONVOCATION
14th May 2022

Address
by
Shri. Somanath S
Distinguished Scientist
Secretary, Department of Space &
Chairman, Indian Space Research Organisation
Bangalore

Honourable Governor of Andhra Pradesh and Chancellor of Jawaharlal Nehru Technological University Anantapur, Sri. Biswa Bhusan Harichandan.

Minister for Education, Government of Andhra Pradesh Shri Botcha Satyanarayana.

Most respected Vice Chancellor of JNTU Anantapur Prof. G. Ranga Janardhana,

The recipient of JNTU's Honoris Causa Dr.Satheesh Reddy, Secretary, Department of Defence R&D and Chairman, DRDO,

Members of the Executive Council, Rector, The Registrar, the Directors and Principals,

Members of Faculty and Staff, Distinguished guests, recipients of the academic awards, young and bright students, proud parents, ladies and gentlemen;

Good morning to you all.

Let me offer my special greetings to you all on the occasion of the XII convocation and specially to the students, who are receiving their degrees and Academic Awards today. Congratulations! This is a momentous and memorable occasion! It is my proud privilege to be in your midst today

during this convocation day celebrations and to know more about the accomplishments of this premier University over the long period of its existence and evolution.

Award of degrees and accomplishments is a celebration of all your stories, a recognition of the journey that each of you have walked to be here, a celebration of the hard work, the sorrows and joys, the accomplishments and disappointments, the friendships and the camaraderie. It is a recognition of the support of families and friends and of the many teachers you have had along the way.

For the faculty and the institution as a whole, it is the culmination of their effort in producing skilled scientists and engineers for addressing the demand of India in the technology sector. I am very happy to note that JNTU Anantapur is well recognised as a premier university in imparting quality education and in bringing out professionals who are adorning positions of repute and recognition in the country and the world.

Teachers and institutions play vital role in shaping one's future. Often, if one asks a successful person about the turning points in his life, many a times a teacher is involved with it. I am sure, many of you will be able to identify few teachers starting from your school including in this university who contributed to make who you are.

Thank them from the depth of your heart. So are the parents. Their sacrifices and support are the blessings you get. Recognize that and thank them from the depth of your heart on this day.

The story of this university is from the College of Engineering, Anantapur which was started at Guindy, Madras in 1946 and shifted to Anantapur in 1948. The college was initially affiliated to Madras University during 1946-1955 and to Sri Venkateswara University, Tirupati during 1955-1972. In 1972, by an Act of State Legislature, JNT University was established at Hyderabad and the College of Engineering, Anantapur went into the fold of JNTU. Later in the year 2008, by an act of AP State Legislature, JNTU was trifurcated into three independent universities viz., JNTU Hyderabad, JNTU Kakinada and JNTU Anantapur.

I understand that Dr.Satheesh Reddy who is receiving the Honoris Causa is an alumni of this university. For all of you, to realise that being offered a place at this university and to graduate from here is to bring honour upon yourself and your family. You are the brand ambassadors of the higher quality education which was offered from here and being a product of this university should provide you reception at every port of success worldwide.

For any degree recipient and awardee, the recognition or the award did not come by accident. It happened through consistent efforts and commitment. This degree and award is only a beginning, you have to recognise that. Your success in future life –both personal and professional – is determined by many attributes including the following:

You must have Passion to be completely dedicated to what you do. Commitment: To lead from the front, 24 hours a day, 7 days a week, in all adverse conditions. Excellence: To set the highest standards of professional integrity and performance. Determination: You may fail sometimes, but never lose the spirit. Focus: Always see the big picture, and not distracted by the small ones. Learn ability: You need to be a student all through your life. Above all, have Humility, Honesty and Integrity.

It is this passion and commitment that makes ISRO a respected and result oriented organisation in the domain of space technology to work wonders. The vast expanse of space has always fascinated human beings. To expand the reach to frontiers of the universe has always been humanities dream. He thus conquered the skies and outer space to satisfy his indomitable spirit.

The conquest of the space is the result of the development of rocket science, the launch vehicle, which gave the necessary controlled power to boost the velocity of a spacecraft to be placed in an orbit around Earth. I am

particularly proud of this fact that in India, we developed the indigenous capability of space transportation systems and satellites to travel overcoming the gravity field of earth to place our own spacecrafts in orbits.

I am particularly fortunate to work in ISRO and at Vikram Sarabhai Space Centre, where Dr. Vikram Sarabhai, focussed on use of space technology to find solutions to the problems of people and society and to empower the country to have a self-reliant programme for building and launching state-of-the-art satellites from our country using our own launch vehicles. In this journey, I was fortunate to meet and work with many legends we adore, who created the technology base in the space sector in this country.

I am sure after this graduation and after higher studies, some of you will turn out to be specialists in certain domains, some of you will become scientists who will change history, some will be evolved into visionaries who will create something splendid in their lifetime, some will be institution builders, some great teachers, some will be great humanitarians, some good business leaders. All these possibilities indicate that there are great opportunities to be explored based on your inner call. You can evolve into whatever form of person you want to be. That will be the results of the choices you make and the results of the determined efforts that will follow to make the choice into a reality.

In ISRO, we work with all types of professionals, engineers from all branches, scientists with the background in physics, chemistry and natural sciences such as botany, geography etc. Some of the new requirements are to work with medical doctors as well. When we embark on human space flight, we need doctors to study the metabolism and human physic in surviving the extreme conditions of flight, which include high acceleration and vibration sensitivity, weightlessness, prolonged exposure to mild radiations. We are currently developing and designing test set ups for necessary evaluation. The multidisciplinary technical skills available in ISRO will enable us to do this while working closely with some of the passionate people in other organisations.

In the coming years, rapid technology growth is forecasted in the field of engineering that will make significant changes in your profession as well. With the support of science and technology, the conquest of hunger and disease is almost achieved in the last 50 years. The average life span of human beings has increased substantially. One of the important goal of the scientific community is to conquer death or to extend the life span. Technologies to make it possible is going to be the leading research topic in the times to come. But those procedures won't be affordable immediately to all except to an affluent few. It will be achieved from the better understanding of the genomics and bio-engineering as well as the

development of technologies to replace human organs and body itself.

The growth in material science, microelectronics, quantum technologies, data sciences, AI&ML, biotechnology will make life of human beings much better than today. Harnessing the power of technology is the only solution to solve the challenging problems of poverty, malnutrition, security of the nation, education and job for all. We must remember the fact that in the new and emerging world order, the power is in the hands of the nation who has the best of the technology and not always with the one who has reserves of natural resources. India has the potential to become the leading technology creator of the world in many areas mentioned above. The graduates coming out of this institute have the opportunity to transform India to a most sought after country to live in, through application of technology in whichever field they work in the future.

Let me dwell into space technology for a while. I always wonder, whether it is necessary for human beings to travel to space to explore other planets, why not robots? One of the difficulties we say is that robots lack the feel of sensory perception and emotions that come out of the experiences and the resultant decision making ability. Suppose we find a way to merge the external electronic sensors to our nervous systems electrically and receive and process the signals as we see and feel, then we will achieve one step closer to merging machine with man. Can we actuate

systems with the electrical signal generated by our thought and thus to external mechanical and electrical devices. This is possible to some extent using the present day technologies. Further growth in this will enable all the sensors of a robot to be integrated to a human in some form to perceive what the robot feel and thus achieve the remote perception capability. In such an eventuality, it is not necessary to travel anywhere; you can sit inside your room and experience the world, including outer space and roam around in other planetary bodies. This will enable long time space journey virtually possible, so when a robot walk on Mars, it will be a replica of you, who will feel the ecstasy of being there. With these technologies, the human form will evolve into an integrated system of electrical sensors and devices connected to brain alone, so that no permanent bodies will be necessary.

As an engineer and a scientist, I consider the rocket like a baby, seeing its birth, its growth, its problems of growth, its emotions and develop a deep understanding of its mechanics and dynamics and its life. In every flight of a rocket and many ground tests, we get thousands of measurements, we plot as curves and models and study how it performs, and see the imminent dangers and prescribe medicines as corrective actions. Living with rocket technology in the last many years, and working with extremely talented people in ISRO, I have learned many lessons which I wish to share with you.

1. Learn to work in a team, which is a force multiplier. A well knot team can achieve the near impossible.
2. Develop deeper knowledge and skill in at least one subject and create sufficient breadth of knowledge in as many connected subjects.
3. Your friends and peers are your real evaluators and not always the bosses. Supportive boss is a blessing.
4. Enjoy whatever you do, if not, it is not worth pursuing.
5. Prepare yourself for the opportunities, as it won't keep on knocking always. Continuous learning and developing enthusiasm in whatever we do is the preparation.

The professional life as a scientist and an engineer offers you a great opportunity to be creative. We wonder how an ordinary person carrying out mundane and repetitive work be creative? It is possible, if we love the work and assignment. Every engineer is a professional and is expected to be creative. The possibilities are immense as you embark on a most exciting journey. Today, you are completing a long, gradual transition from being a guided student; to a new phase as a highly-qualified independent professional. As students of this great University, I urge that as you move ahead for the great unknown, that you maintain a reflective and questioning mind; seek career opportunities that are daring and intellectually challenging as it is such paths that will provide you with a deep sense

of fulfilment. I trust that you will make those choices that will make your family and our country proud.

You all occupy the upper strata of our knowledge society and it is vital that you integrate and apply your wisdom in ways that enables our country to evolve into a formidable economy, as the health of individuals decides the health of a country. I would like to extend to all of you my very best wishes as you take on the task of building the India of the future.

I congratulate all of you once again and wish each one of you an exciting, challenging and a rewarding journey ahead in your life and career and may you fulfil all your dreams. I congratulate the University, Chancellor and Members of the Executive board, Faculty, staff and all who made this event possible for the graduates to remember the day for ever.

Finally, have a great life. Strive to bring benefits of your learning for the betterment of the society and the Nation. Make your parents and teachers proud of you.

Good luck. Thank you all.

****