

**ADDRESS BY THIRU BANWARILAL PUROHIT, HON'BLE GOVERNOR OF  
TAMIL NADU AT THE INAUGURATION OF TECHNOLOGY BUSINESS  
INCUBATOR AND MERIT SCHOLARSHIP AWARDS FUNCTIONAT SASTRA  
DEEMED UNIVERSITY ON 28.3.2018**

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Faculty

Students

Ladies and Gentlemen

I am happy to be here in this historic town of Thanjavur to take part in this function of SASTRA which is being organized for dedicating the Technology Business Incubator in 3D Printing and IoT to the nation and to award merit scholarships to deserving students.

Thanjavur district, in which this University is located, is an important centre of South Indian Art and Culture. It is also the 'rice bowl' of Tamil Nadu. Brahadeeshwara Temple, which was built by Raja Raja Chola is the most important landmark of Thanjavur District.

The Big Temple, as it is called, is not merely a sculptural treasure-house; it is a pinnacle of architectural achievement. No wonder it is called as the 'Dakshina Meru'. It shows the mastery achieved over building science by planners, architects and builders in Tamil Nadu, more than 1000 years back.

In a later era, Thanjavur was an unparalleled centre of music, with its creativity reaching a peak with Sri Thyagaraja. The nearby village of

Tiruvaiyyaru was his karma bhoomi and he stood for all that is most sublime, sweet and exhilarating in classical music.

Maharaja Serfoji's Saraswathi Mahal here, with its precious collection of palm leaves and manuscripts, is another treasure house of traditional knowledge and wisdom. All this goes to show that the district of Thanjavur is renowned for the pursuit of knowledge and excellence.

The rise of SASTRA from 1984 when it was the Shanmuga College of Engineering to its present status as a Deemed University has been remarkable. Courses in Engineering, Science, Management, Law and Arts are now being provided in the University upto the Ph.D. level. Advanced Computing & Information Processing in 1999 with support from the Department of Science & Technology, National Facility in Mechatronics in 2005, Centre for Advanced Research in Indian Systems of Medicine and the Centre for Nanotechnology and Advanced Biomaterials in 2007-2008 have been important milestones aimed at keeping up with the latest developments in science and technology. The Technology Business Incubator initiative is one another feather in the cap of the University on the same path.

The result of such pursuit of excellence has been gainful campus recruitment for SASTRA graduates. It has also meant meaningful research with benefits to society like secure communications, network security, nerve regeneration, validation of Indian systems of medicine and smart sensors.

Technology Business Incubator promotes innovation and entrepreneurship thus aiding the country's socio-economic development in a knowledge-based world economy.

The 'Technology Business Incubator' being launched today covers two important emerging technologies, '3D Printing' and 'Internet of Things' and represents a major step forward in the endeavour of pursuing technological excellence.

I am informed that the Technology Business Incubator is the first of its kind in an academic institution and has been established at a cost of Rs. 15 crore, with support from the Department of Science and Technology of the

Government of India. It is expected to serve the purpose of incubating start up industries by promoting knowledge-driven and technology-intensive enterprises.

3D printing or additive manufacturing has caught the attention of everybody – from school going children to researchers in research organizations throughout the world. Through a process of making three dimensional solid objects from a digital file laying down successive layers of material until the object is created, 3D printing enables to produce simple to complex shapes using less material than traditional manufacturing methods.

3D Printing technology has evolved to great heights in recent years with many companies producing affordable desktop 3D Printers across the world. The research in the area of polymers, powder metals and processing techniques such as Fusion Deposition machining, Laser Sintering, UV Curing etc. has made this revolution possible. India cannot afford to be lagging behind in this next generation development and more importantly academic institutions of higher learning like SASTRA should take the lead.

In recent years, 3D printing technology has gone from a cutting-edge novelty to a growing and popular industry for new startups. Entrepreneurs and consumers alike can use 3D printers to create useful products ranging from jewellery and light fixtures to replicas of human tissue. This revolutionary manufacturing process allows startups to create fast, affordable prototypes to attract investors and set ideas in motion.

The 3D printing market which is expected to be worth \$10.8 Billion by 2021 includes a robust Indian 3D printer market of \$79 Million by 2021.

3D printing is primarily used in medical, architecture, automotive, industrial, aerospace & military and other applications. Automotive application accounts for the largest both in terms of revenue and volume share. Over the next six years, medical and aerospace & military applications are exhibiting promising growth in India's 3D printing market, owing to increased spending towards R&D of aerospace & military related equipment.

The Internet of Things, or IoT, refers to billions of physical devices around the world that are now connected to the internet, collecting and sharing data. IoT connects computing devices, mechanical and digital machines, objects, animals or people and enables data transfer over network without requiring human-to-human or human-to-computer interaction.

This is the concept of basically connecting any device with an on and off switch. This includes everything from cellphones, coffee makers, washing machines, headphones, lamps, wearable devices so on... and even a jet engine of an airplane or the drill of an oil rig etc.

The analyst firm Gartner says that by 2020 there will be over 26 billion connected devices... Some even estimate this number to be much higher - over 100 billion. The IoT is a giant network of connected "things" (which also includes people). The relationship will be between people-people, people-things, and things-things. In short we are moving into a physical world – physical + digital.

As per a report by IDC, the worldwide spending on IoT stood at \$674 Bn in 2017 and the spending is expected to reach \$772.5 Bn in 2018. In India, the IoT market is poised to touch \$15 Bn by 2020, according to NASSCOM. Fueled by a \$1 Bn investment from the Indian government every year for building 100 smart cities, the trade association also predicts that by 2020, India will account for nearly 5% of the global IoT market.

It is heartwarming to see that merit scholarships worth about Rs. 1 crore are going to be distributed today. The scholarships are based on academic performance, regular attendance as well as the income level of parents.

Science and technology serve as the beacon lights for economic prosperity. They enable us to harness the resources provided by the nature so as to benefit mankind. It is important to remember that in the application of science and technology care is taken to see that the future effects are not harmful to mankind in the long run.

You, as engineers, have an important role in deciding the course of science and technology in the coming years. In all your endeavours it is

important for you to follow the path which India has been following for several centuries. That is the path of sustainability. It has been the sustainable nature of science, art and culture that has resulted in the civilisation flourishing for thousands of years without any interruption.

I, therefore, wish to conclude by sounding this note of optimism and caution simultaneously. Let us advance in science and technology and outpace the world in pursuit of the latest innovative practices. At the same time, let our roots be Indian and our instincts be guided by spirituality.

Nandri

Vanakkam