National Technology Day – 2019

Celebrations at VSSE-SAC

VSSE has been celebrating the National Technology Day every year. This year also, the celebrations were held on 9th & 11th May 2019 in the SAC & VSSE campus respectively. The theme for the year 2019 was “Science for people and people for science”.

CELEBRATIONS ON 9TH MAY 2019

• A lecture by Prof. Pankaj Chandra, Vice-Chancellor & Chairman, Board of Management, Ahmedabad University, was arranged on the topic “Understanding Collaboration for Technological Innovation” for staff members of SAC & DECU.

• In addition, an open competition was arranged wherein any person/team could deliver presentation on the following topic:

  1. Artificial intelligence in Space Mission
  2. Interstellar Travel

Total 11 persons (in teams) participated and the best three presentations were awarded.

Team - 1: Mr. Pawan Gupta, Ms. Himani Singh and Mr. Sachin Kumar
Team - 2: Mr. Mohit Chaudhari
Team- 3: Student from Vijayawada (Andhra Pradesh)

Shri A K Lal, Shri Arup Roy Chowdhury and Shri D R Goswami were invited as judges.

Smt. Leena Kohli Kapoor anchored the overall events of this day.

CELEBRATIONS ON 11TH MAY 2019

• On 11th May, 2019, the National Technology Day was celebrated at VSSE, SAC. The event was inaugurred by Shri D K Das, Director-SAC in presence of Controller, Deputy Directors, GD-PPG, SMC Members and other functionaries.

GD-PPG delivered welcome remarks. Controller-SAC, Director-SAC delivered inspiring speeches and motivated the students. In-charge, VSSE delivered vote of thanks.

• Post the inauguration, a presentation competition was arranged, wherein several engineering college students delivered presentations on the following topics:

  1) Artificial intelligence in Space Mission
  2) Interstellar Travel

Students from various colleges namely, LJ Institute, Nirma University, SAL Engineering, Pandit Deendayal Petroleum University, President Science College, Hasmukh Goswami College & DA-IICT participated in these competitions and the prizes were given to the top three presentations.

Shri D R Goswami, Shri Anurag Verma and Shri Jayesh Jayarajan were the invited judges for these competitions.

Smt. Abha Chhabra anchored the overall events of this day.
During the day, open house sessions for the visitors were also arranged. The visitors showed great interest and enthusiastically interacted with senior scientists of ISRO.

Shri Nilesh Desai, Shri C M Nagrani, Shri D R Goswami and Shri Anurag Verma responded to several queries of the visitors in the open house sessions.

As the quizmaster, Shri Rohit Singh conducted the space quiz for the students & visitors, which was enlightening and inspiring for the students.
EXPLORER PROBE

- Extension of the model of modern-day automated space probes
- Some independent decision-making - safe mode, backup
- Wait for further orders from an Earth-bound mission control
- Because of light speed time delays this would not be an option to star systems
- AI would need to deal with routine systems operations like course corrections and communications, and also maintenance, upgrades and dealing with unplanned incidents like faults
AI & Space Missions: Use Cases

- Launch in 2000
- Onboard AI system to optimize analysis in response to natural occurrences, like floods & volcanic eruptions
- Flight engineers took 67 steps to capture a particular image
- AI onboard took relevant pictures on its own and took no steps
- AI able to tell EO-1 to start capturing images before the ground crew were even aware that an occurrence had taken place

AI’s Predictive Capabilities
- to minimize damages due to Natural Disasters

Trends of Space Industry: Global View

- Traditional Space
  - Institutional Space
  - Commercial Space
  - Workforce & Education
  - Space Tourism

- NewSpace
  - New Business Models with Commercialization Potential
  - New launch platforms
  - New launch vehicles
  - New launch services
  - New launch locations
  - New launch opportunities

- Established
- Emerging
- Established
- Emerging

- Institutional Space
- Commercial Space
- Space Tourism
- Space Robotics

Artificial Intelligence in data processing and applications

Data Processing & Applications:

- Available data is still being researched on from various relations. It can be used for effective decision making.
- Development and application of data mining algorithms using various open-source and operational usage of these on ground as well as on-board processing.
- Collection of information either in ground or on-board within a short timeframe towards providing solutions/applications to the in-field activity of humans is provided through AI.
- Applications:
  - Image classification: birds, cars, roads, water bodies, trees, mountains, sky
  - Image classification sub-domains: road types, crop types, water types
  - Ministry of agriculture for decision making
  - Mining of data based on vehicles and oil tanker
  - Surveillance, springs, and many more.

Image Classification
Interstellar Travel

- Fantasy or Reality?
- Humans love to explore

Let's Go

SIJN
- Distance to the Sun
- Orbital period
- 139,000,000 km in diameter
- Car at 100 km/hr (60 mph)
- Air at 300,000 km/hr
- Light at 300,000 km/s

- 1.86 million km
- 4.63 seconds
11th May 2019 National Technology Day
Thank You