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A Report On

Industrial Visit

Launching visit of PSLV-C55/TeLEOS-2 MISSION, ISRO, Sriharikota, Andhra Pradesh, 524124.

Organized by

Department of Artificial Intelligence and Data Science

22nd April 2023

Submitted by: Mr. K Durga Charan, Assistant Professor at AI&DS.

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Location:

Satish Dhawan Space Centre, Indian Space Research Organisation,

Sriharikota, Tirupati district, Andhra Pradesh 524124, India

Telephone: +91 086232 25050

Attended Students and Faculty:

Participants including students, and faculty.

Faculty From AI & DS	:	6(3Female +3Male)
		Mrs. Aswini Y, Asst. Professor, AI&DS
		Mrs. Manjula Prabakaran, Asst. Professor, AI&DS
		Dr. V. Kavitha, Basic Sciences & Humanities
		Mr. K.Durga Charan, Asst. Professor, AI&DS
		Mr. A. Kalyan Kumar,Asst. Professor, AI&DS
		Mr. Toralkar Pawan,Asst. Professor, AI&DS
Artificial Intelligence Students	:	54 (14-Female + 40-Male) including III & II Year
Data Science Students	:	80 (38-Female + 42-Male) II Year

Overview of ISRO:

Indian Space Research Organisation (ISRO) is the space agency of India. The organisation is involved in science, engineering, and technology to harvest the benefits of outer space for India and the mankind. ISRO is a major constituent of the Department of Space (DOS), Government of India. The department executes the Indian Space Programme primarily through various Centres or units within ISRO.

ISRO was previously the Indian National Committee for Space Research (INCOSPAR), set up by the Government of India in 1962, as envisioned by Dr. Vikram Sarabhai. ISRO was formed on August 15, 1969 and superseded INCOSPAR with an expanded role to harness space technology. DOS was set up and ISRO was brought under DOS in 1972.

The prime objective of ISRO/DOS is the development and application of space technology for various national needs. To fulfil this objective, ISRO has established major space systems for communication, television broadcasting and meteorological services; resources monitoring and management; space-based navigation services. ISRO has developed satellite launch vehicles, PSLV and GSLV, to place the satellites in the required orbits.

Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota

Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota, the Spaceport of India, is responsible for providing Launch Base Infrastructure for the Indian Space Programme. This Centre has the facilities for solid propellant processing, static testing of solid motors, launch vehicle integration and launch operations, range operations comprising telemetry, tracking and command network and mission control centre.

The Centre has two launch pads from where the rocket launching operations of PSLV and GSLV are carried out. The mandate for the centre is (i) to produce solid propellant boosters for the launch vehicle programmes of ISRO (ii) to provide the infrastructure for qualifying various subsystems and solid rocket motors and carrying out the necessary tests (iii) to provide launch base infrastructure for satellites and launch vehicles.

SDSC SHAR has a separate launch pad for launching sounding rockets. The centre also provides the necessary launch base infrastructure for sounding rockets of ISRO and for assembly, integration and launch of sounding rockets and payloads.

PSLV-C55/TeLEOS-2 MISSION

PSLV-C55 is a Dedicated Commercial PSLV mission of New Space India Limited (NSIL), for the international satellite customer from Singapore. In this mission, TeLEOS-2 a Synthetic Aperture Radar satellite will be the primary satellite and Lumelite-4 a Technology Demonstration nanosatellite will be co-passenger satellite. This is the 57^{th} flight of PSLV and 16^{th} mission using the PSLV Core Alone configuration (PSLV-CA). PSLV-C55 adopted "Integrate, Transfer and Launch (ITL)" concept using PSLV Integration Facility (PIF).

TeLEOS-2

The TeLEOS-2 satellite is developed under a partnership between DSTA (representing the Government of Singapore) and ST Engineering. Once deployed and operational, it will be used to support the satellite imagery requirements of various agencies within the Government of Singapore.

TeLEOS-2 carries a Synthetic Aperture Radar (SAR) payload. TeLEOS-2 will be able to provide all-weather day and night coverage, and capable of imaging at 1m full-polarimetric resolution.

Orbit Specification

There is no orbital specification for the orbital platform phase of the mission. PS4 OP shall remain in the same orbit achieved at the end of PS4 tank passivation after the primary mission.

Galley