An Educational Visit Report of

- Vikram Sarabhai Space Exhibition – ISRO, Ahmedabad
- Institute of Seismological Research (ISR), Gandhinagar
- Gujarat International Finance Tec (GIFT) City Gandhinagar

on 24th February, 2016

For

B.E. Civil Semester VI & VIII

Organized by:
Department of Civil Engineering
Sankalchand Patel College of Engineering, Visnagar

Prepared By: Prof. P. M. Joshi & Prof. A. R. Patel
Guided By: Prof. Y. S. Patel, Head, Department of Civil Engineering
About One Day Educational Visit

The Department of Civil Engineering, Sankalchand Patel College of Engineering, Visnagar organized one day Educational visit to Vikram Sarabhai Space Exhibition a unit of Space Applications Centre - ISRO, Ahmedabad, Institute of Seismological Research (ISR) & Gujarat International Finance Tec-(GIFT) City at Gandhinagar on 24th February, 2016 for the students of B. E. Civil Semester-VI & VIII with a view to familiarize and educate students in the field of Remote Sensing, Space applications, Earthquake Engineering and Smart City Planning with Green Building Concept and also to enhance their concept regarding the practical aspects of construction, launching and operation of Satellite in space and to understand origins, properties and consequences of earthquakes, earthquake monitoring through standardized surface, ocean bottom and satellite observations and how To develop a new format for globally benchmarked Integrated City like as GIFT City.

Prof. P. M. Joshi and Prof. A. R. Patel of Civil Engineering Department accompanied with this Educational visit for the students of B.E. Civil Semester-VI & VIII.

Total 54 Students (39 students from B. E. 8th Semester & 15 students from B. E. 6th Semester) along with 2 faculty members had attended this one Day Educational visit.
## Schedule of Educational Visit

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Place</th>
<th>Arrival</th>
<th>Departure</th>
<th>Remarks</th>
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<tr>
<td>1</td>
<td>Visnagar</td>
<td>--</td>
<td>7.00 a.m.</td>
<td>Start from S.P.C.E. Visnagar</td>
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<tr>
<td>2</td>
<td>ISRO, Ahmedabad</td>
<td>9.30 a.m.</td>
<td>11.30 a.m.</td>
<td>Visit for Vikram Sarabhai Space Exhibition, ISRO, Ahmedabad</td>
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<tr>
<td>3</td>
<td>Lunch</td>
<td>12.00 Noon</td>
<td>1.00 p.m.</td>
<td>Trimandir, Adalaj</td>
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<tr>
<td>4</td>
<td>ISR, Gandhinagar</td>
<td>1.45 p.m.</td>
<td>3.45 p.m.</td>
<td>Visit for ISR, Gandhinagar</td>
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<tr>
<td>5</td>
<td>GIFT City, Gandhinagar</td>
<td>4.00 p.m.</td>
<td>6.00 p.m.</td>
<td>Visit for GIFT City, Gandhinagar</td>
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<tr>
<td>6</td>
<td>Visnagar</td>
<td>7.30 p.m.</td>
<td>--</td>
<td>Back to S. P. C. E. Visnagar</td>
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Roadmap of Travelling

- Sankalchand Patel College Of Engineering
- ISRO BRTS Stop, BRTS Corridor, Satellite
- Trimandir, Simandhar City, Ahmedabad
- Institute of Seismological Research, Gujarat
- G.I.F.T. City Site Office, Gujarat International
- Sankalchand Patel College Of Engineering

via Gujarat State Highway 71

4 h 20 min

4 h 20 min without traffic

202 km
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<tr>
<th>Sr. No</th>
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About Vikram Sarabhai Space Exhibition a unit of Space Applications Centre - ISRO, Ahmedabad

- The Space Application Centre, (SAC) Ahmadabad (Gujarat) is one of the major centres of ISRO; it is a unique centre dealing with a wide variety of disciplines such as designing and development of pay loads, societal applications and capacity building and space science.

- Today, India is considered one of the major powers in space technology.

- ISRO has made our country proud due to its many technical achievements and innovations. In the past four decades ISRO has launched more than 65 satellites for various scientific and technological applications like mobile communications, direct-to-home services, meteorological observation, telemedicine, disaster warning, radio networking, search and rescue operations, remote sensing and scientific studies of the Earth and space.

- The campus has a permanent exhibitions hall open to general public; it is named The Vikram Sarabhai Space Exhibitions (VSSE), Ahmadabad. Various working models, more than 30 static models of satellites, launched vehicles and about seventy panels in English are displayed here.
About Vikram Sarabhai Space Exhibition a unit of Space Applications Centre - ISRO, Ahmedabad

- Scientist H B Pandya provided a detailed information on SAC activities particularly on remote sensing, types of satellites, orbits, satellite launch vehicles, satellite data receiving centres, progress in the Indian Satellite Technology and the role of SAC in the ISRO’s success missions.

- The exhibition have information panels and working models. Students can learn about the types of satellites and launch vehicles. Launch vehicles are the rockets that place the satellites in orbit. Also on display will be models of Mars mission equipment delivered from the Space Application Centre, Ahmedabad.

- The students were then taken to the audio-visual room where they saw three documentaries on the subject of what activities are taken by ISRO and what are the various task and functions of ISRO.

- Later he also discussed an interesting topic “How to recover the Artificial satellites back from space” The students learned some very basic concepts of mapping and how this can be taken up in the practical work of Geography and create different maps and use them as teaching aids.

- Students saw “Mars mission” documentaries at audio-visual room of exhibition during the visit also.
Vikram Sarabhai Space Exhibition a unit of Space Applications Centre - ISRO, Ahmedabad
STATIC MODELS OF CHANDRAYAAN-1 & MARS ORBITER MISSION
STATIC MODELS OF SATELLITES
INFORMATION PANELS ARE DISPLAYED
CUTOUT OF AN ASTRONAUT
Our Students at the Audio-Visual Room of Vikram Sarabhai Space Exhibition
About MARS ORBITER MISSION

Launch: 2013
Arrival: 2014
Travel: 299 days

Mars orbiter

Solar panels

Propellant tank

MENCA

High gain antenna

Path of orbiter

Martian Orbit
India's Mars Orbiter Mission left Earth's orbit on Sunday, clearing a critical hurdle in its journey to the Red planet.

MANGALYAAN (Mars Orbiter Mission)
- Launch weight: 1,350 kg
- Project cost: $69 million
- Launch site: Satish Dhawan Space Centre, Sriharikota, India

Mission:
- To study the Martian surface and its mineral composition
- Search for methane on Mars' atmosphere

Key Equipment:
- Mars colour camera
- Methane sensor
- Lyman Alpha Photometer
- Medium gain antenna
- Mars Exospheric Neutral Composition Analyser
- Thermal infrared Imaging Spectrometer
- High-gain Antenna

Launch Vehicle:
- PSLV

Launch Date: Nov 5, 2013
Insertion Date: September, 2014

Trajectory:
- Mars' orbit
- Earth's orbit
- Mars' position at launch
- Earth's position at Mars orbit insertion
Scientists were Working for MARS MISSION
India’s Mars Orbiter Mission Spacecraft blasts off AAP
About Institute of Seismological Research (ISR)

- The Institute of Seismological Research (ISR) under the Science and Technology Department, Government of Gujarat is functioning from 2006. ISR is the only institute in India fully dedicated to seismological research and is planned to be developed into a premier international institute in few years time.

- Earthquake Monitoring Program

- Gujarat seismic network of 60 Broadband Seismographs and 50 Strong Motion Accelerographs is operated since 2006. Data of 36 broadband stations is processed in real-time through VSAT and Auto location software round the clock to determine the epicenter and magnitude of earthquakes within minutes of arrival of the seismic waves and the information is disseminated to administrators for taking appropriate mitigation measures.

- ISR has prepared a Probabilistic Seismic Hazard (PSH) Map of India for BIS. Vulnerability Assessment of Ports and installations in Coastal Gujarat has been worked out. ISR is participating in global efforts of seismic hazard assessment: (i) Global Earthquake Model (With Italy + Germany) (ii) Seismic & Tsunami hazard using EU – India e-Infrastructure with Italy using Grid & cloud computing. Seismic Hazard Assessment, Project Specific: GIFT City, Sardar Patel Statue, LNG Terminal (Mundra), Nuclear Power Plants, V S Hospital, Ahmedabad
Institute of Seismological Research (ISR)
Earthquake recording station in Gujarat by ISR

Central Recording Station at ISR-Gandhinagar

VSAT Shared Hub Network Configuration

Earthquake Recording Stations in Gujarat (by ISR)
Earthquake recording at ISR
Epicenter map from 1668 to 2014 of Gujarat prepared by ISR
Research & development by ISR

- GPS Laboratory
- Microzonation Laboratory
- Gravity Laboratory
- Magneto telluric Laboratory
- OSL Laboratory
- Seismological Monitoring Laboratory
- Active Fault Study
- Multi-Parametric Geophysical Observatories
About Gujarat International Finance Tec-City (GIFT)  
- A Global Financial Hub

- GIFT city aspires to cater to India’s large financial services potential by offering global firms a world-class infrastructure and facilities.

- It aims to attract the top talent in the country by providing the finest quality of life all with integrated townships, IFSC and multi speciality special economic zone (SEZ). The site is 12 KM from the Ahmedabad International Airport and 8 KM from Gandhinagar.

- "To design a CBD that will serve as a paradigm for Next Class city in terms of quality of life, infrastructure and ambience aiming to be high-density and high-rise, treating land as a precious resource."

- GIFT is conceptualized as a global financial and IT services hub, a first of its kind in India, designed to be at or above par with globally benchmarked financial centers such as Shinjuku, Tokyo, Lujiazui, Shanghai, La Defense, Paris, London Dockyards etc.

- GIFT is planned as a financial Central Business District (CBD) between Ahmedabad and Gandhinagar as a greenfield development. GIFT shall be a part of the future urban complex of Ahmedabad & Gandhinagar. GIFT is designed as a hub for the global financial services sector. More particularly, state-of-the-art connectivity, infrastructure and transportation access have been integrated into the design of the city.

- GIFT Master Plan reflects a sophisticated planning approach that integrates the intended program into the existing context of both the site and the region. The GIFT development is expected to become a contemporary model development in India, advancing the ideas of sustainability and ecology.
Master plan of Gujarat International Finance Tec-City (GIFT)

**GIFT: Master Plan**

- Total Area: 3.6 sq km
- BUA: 62 mn sq ft.
- Additional 30 Million to be developed after removal of height restriction by AAI

**Building Use**
- Commercial: 67%
- Residential: 22%
- Social: 11%
WATER SUPPLY & SEWERAGE SYSTEM

Water Sources:
• Narmada Main canal
• Recycling and Reuse of Wastewater
• Rainwater Harvesting

Water Supply & Sewerage System
• 24 x 7 Water Supply
• Concept of Zero Discharge City
• Perennial Water Front ensured through construction of three barrages on river Sabarmati
• Proposed Landscaped promenade at the river bank along GIFT
• Samrudhi Sarovar & Waterfront Development
• 1 km length & 7 m depth
• Width varying from 82 m to 160 m
• Designed for 15 days drinking water storage
• Water Body of 0.75 Mm3 capacity to enhance aesthetics and for water sports activity
SOLID WASTE MANAGEMENT AT GIFT CITY

- Automated Waste Collection System (AWS) through chute system
- Minimum Human Intervention
- Minimize space requirement
- Waste sucked through pipes at a speed of 90 km/hr
- Waste Treatment through Plasma Technology
Site Plan of World Trade Center in GIFT City

SITE PLAN

1. PLAZA
2. OFFICE ENTRY
3. WATER BODY
4. RETAIL ENTRY
5. RESIDENTIAL ENTRY
6. VEHICULAR ENTRY
7. VEHICULAR EXIT
8. PARKING ENTRY
9. PARKING EXIT
10. PEDESTRIAN ENTRY PLAZA
About World Trade Center in GIFT City

- World Trade Center in GIFT City Project is Landmark Project. Construction activities have already started.
- Expected Project Completion date is October 2018.
- 1 BHK Apartment = 820 sq-ft super built up area
  2 BHK Apartment = 1200 sq-ft super built up area
- 1 BHK Apartment = Total 144
  2 BHK Apartment = Total 8
- Price of WTC Studios in World Trade Center GIFT City is 6250/sq-ft.
- 1 Mandatory Parking per apartment = charge 3,50,000 per parking
- Other Expenses such as CAM Deposits, Building Maintenance Charges, City Maintainance Charges, connection charges, stamp duty charges and registration charges extra.
Excavation works for World Trade Center in GIFT City
Acknowledgments

We Students & Faculty Members are thankful to Vice Chairman, Director & Head of the department for encourage us to organize Educational Visit.

We are thankful to Mr. H. B. pandya, Scientist at ISRO, Mr. Santoshkumar, Scientist at ISR and Mr. Parth Barot, Asst. Manager at GIFT City for the permission of the visit and providing invaluable practical knowledge during visit of Vikram Sarabhai Space Exhibition a unit of Space Applications Centre - ISRO, Ahmedabad, Institute of Seismological Research (ISR) & Gujarat International Finance Tec-(GIFT) City at Gandhinagar respectively.