

INFRACREATOR

Newsletter

ISSUE 16 (DECEMBER 2025)



**GOVERNMENT
POLYTECHNIC
PALANPUR**



**CIVIL ENGINEERING
DEPARTMENT**



ABOUT THE DEPARTMENT

Started in 1984, Civil Engineering Department, Government Polytechnic Palanpur offers 3 years (6 semester) Diploma Civil Engineering Program with 90 intake capacity.

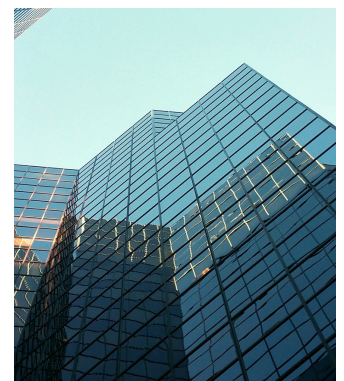
This Program is Approved by All India Council for Technical Education (AICTE) and Affiliated to Gujarat Technological University, Ahmedabad (GTU).

Vision

The department envisions to achieve professionals in emerging field of civil engineering to meet aspirations of the society, by transforming students to be technically skilled, managers, ethical, entrepreneur's leaders, and environmentally sensible civil engineers.

Mission

- To impart civil engineering skill to enhance their employability in the industries.
- Establish industry collaboration through internship and interaction with professional society through experts, workshops
- 3Promote leadership, management, entrepreneurship skills in a student through various projects, co-curriculum, extra-curriculum events.
- 4Impart social, environment awareness and responsibility in students to serve society and industry to promote sustainable growth.



01/12



HOD's Message

Greetings from the Civil Engineering Department.

The Department of Civil Engineering aspires to excellence in professional development that is morally grounded in teaching and learning. We take great pride in having our academic program supported by cutting-edge laboratories and technical personnel. We have a creative, well-balanced teaching-learning environment, as well as a highly skilled and committed faculty. For the purpose of their own growth, the students are encouraged to engage in co-curricular and extracurricular activities, too.

Newsletter Committee



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Orientation (Induction) Program

At Government Polytechnic Palanpur, On 24th July 2025, organised Students Orientation program was arranged for the new admitted Students.



Topics of Discussion

- Institute and Department Information
- Faculty Member Introduction
- Vision and Missions
- GTU curriculum and Exam Method
- Subjects overview
- Classrooms and laboratory overview
- Teaching Learning Process
- Placement Detail
- Co-Curricular Activities

Independence Day Celebration

At Government Polytechnic Palanpur, On 15th August 2025, the occasion of 79th Independence Day, a flag hoisting program was arranged in which all the officials, employees and students of the institute enthusiastically participated.



Project Visit – Akshatam Luxury Flats

A project visit to Akshatam Luxury Flats was organized on 1st August to provide practical exposure to students. They observed construction methods, materials, and site management practices. The visit helped students relate theoretical knowledge to real-world residential construction.



A project visit to S9 Sarvodaya

A project visit to S9 Sarvodaya was organized on 14 August 2025 to provide practical site exposure to students. They observed ongoing construction activities, materials used, and safety practices, helping them connect theoretical concepts with real-world applications.



Factory Visit – Shree Hai Granite

A site visit to Shree Hai Granite, near Toll Tax, Abu Highway, Palanpur, was organized for Diploma Civil Engineering students on 03-10-2025. Students observed granite processing, cutting, polishing, and quality control practices, gaining practical knowledge of stone materials used in construction.



Showroom Visit – Modern Tiles

A site visit to Modern Tiles, near Toll Tax, Abu Highway, Palanpur, was organized for Diploma Civil Engineering students on 03-10-2025. Students observed tile manufacturing processes, quality testing, and finishing methods, gaining practical insight into construction materials and industrial practices.



Actual Measurement Site Visit – Prime Infra

An actual measurement site visit was organized at Prime Infra, Malandarwaja, Opposite Polytechnic College, Palanpur, on 10-10-2025 for Diploma Civil Engineering students. Students practiced site measurements, understood drawings, and learned practical measurement techniques, enhancing their field skills.



Site Visit Report: City Akshat Villa



Date: 19th Sept. 2025

Time: 02:00 PM

Location: City Akshat Villa, Ahmedabad Highway, Palanpur.

Subject: AConstruction Technology (DI03006011)

Attendees: 36 Third Semester Diploma Engineering Students

1. Foundation and Earthwork

- Soil excavation depths and anti-termite treatments.
- The placement of reinforcement steel in the footings.
- The process of leveling and PCC (Plain Cement Concrete) work.

2. RCC Framework (Skeleton of the Building)

- Formwork (Centering & Shuttering): How wooden or steel molds are set up to hold wet concrete.
- Reinforcement: How steel bars (rebars) are tied together for columns, beams, and slabs.
- Concreting: The mixing ratio, pouring process, and the use of vibrators to remove air bubbles.

3. Masonry and Partitioning

- Brickwork/Blockwork: The bond patterns used (like English bond or Flemish bond) to ensure wall strength.
- Mortar Mixing: The ratio of cement to sand used for joining bricks.
- Damp Proof Course (DPC): The layer applied to prevent ground moisture from rising up the walls.

4. Finishing and Services

- Plastering: Techniques to achieve a smooth wall surface.
- Plumbing and Electrification: How pipes and conduits are concealed within the walls before final finishing.
- Flooring: The installation of tiles or stone and the slope required for water drainage.

Tacheometric Survey Project

- Course: Advance Surveying (DI03006021)
- Semester: 3rd Semester (Civil Engineering Dept.)
- Date: September 24, 2025
- Reporting Time: 8:00 AM at the Survey Store
- Location: Hatavada, near Helipad, Palanpur – Danta Highway

Technical Scope

The primary objective is to perform a closed traverse consisting of 4 stations on undulating or hilly terrain.

Unlike traditional chain surveying, you will use a Tacheometer (a specialized theodolite) to:

Measure horizontal distances and elevations using optical observations (stadia hairs).

Calculate vertical intercepts on sloped ground using trigonometric formulas.

Ensure the traverse "closes" accurately (the sum of internal angles for your 4 stations must be 360°).



Site Visit (Aina Park Society)

Visit Logistics

Site Name: Aina Park Society

Location: Gatahaman Road, Palanpur

Date: September 30, 2025 (Tuesday)

Time: 2:00 PM onwards

Staff In-charge: Shri D. N. Sheth, Smt. P. D. Sheth, and Shri A. N. Patel.

1. Substructure and Foundation Works

The foundation is the most critical part of any structure. During this stage, students observe how the building transfers its load to the earth.

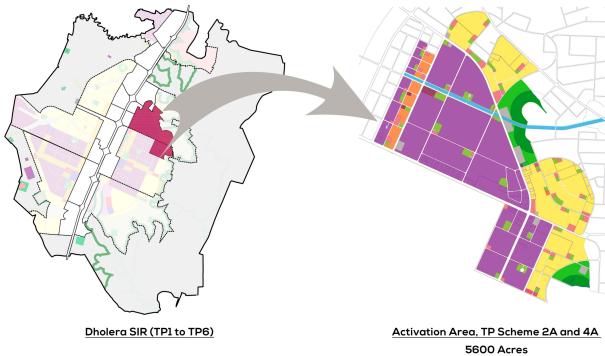
- Earthwork & Excavation: Observation of soil types, excavation depths, and the use of machinery like backhoes or excavators.
- PCC (Plain Cement Concrete): The leveling layer provided before the actual foundation to prevent soil contact with structural concrete.
- Reinforcement Detailing: Checking the diameter and spacing of steel bars in footings or raft foundations.
- Anti-Termite Treatment: Chemical applications to protect the future structure from pests.



2. Superstructure Elements

This is where the skeleton of the building takes shape. Key observations include:

- Formwork and Shuttering: Understanding how molds are created using plywood, steel, or timber to hold wet concrete in place.
- Concreting Process: Observing the mixing, transporting, placing, and compacting (using vibrators) of concrete.
- Curing: The vital process of keeping concrete moist to ensure it reaches its maximum design strength.



1. Introduction

Dholera Smart City is India's first planned greenfield smart city under the Delhi–Mumbai Industrial Corridor (DMIC). Located in the Dholera Special Investment Region (DSIR), Gujarat, it is designed as a world-class industrial and residential hub with advanced infrastructure and smart technologies.

2. Project Overview

Location: Near Ahmedabad, Gujarat

Total Area: ~920 sq. km

Project Authority: Dholera Industrial City Development Limited (DICDL)

Project Type: Smart City + Industrial Zone

Development Model: Phase-wise implementation under Delhi–Mumbai Industrial Corridor

3. Key Infrastructure Components

- Transportation
 - 6–8 lane arterial roads
 - Signal-free corridors
 - Planned metro & regional rail connectivity
 - Logistic hubs and freight corridors
- Power & Energy
 - 24×7 reliable power supply
 - Smart grid system
 - Solar energy integration
- Water & Sewerage
 - Modern Water Treatment Plant (WTP)
 - Underground drainage network
 - Sewage Treatment Plant (STP) with water recycling
- Digital Infrastructure
 - High-speed fiber optic network
 - Smart meters and IoT sensors
 - Integrated Command & Control Centre (ICCC)

4. Urban Planning Features

- Zoning for Residential, Industrial, and Commercial areas
- Green belts and open spaces
- Sustainable building standards (energy-efficient design)
- Underground utility corridors

5. Engineering Highlights

- Earthquake-resistant structural planning
- Stormwater drainage system for flood control
- Pre-planned underground infrastructure
- Smart traffic management system

6. Objectives of the Project

- Promote industrial growth and foreign investment
- Generate employment opportunities
- Develop a sustainable and smart urban ecosystem
- Improve quality of life with modern civic amenities

7. Conclusion

Dholera Smart City represents a milestone in India's infrastructure development. With smart technology integration, sustainable planning, and advanced civil engineering systems, it is expected to become a global industrial and smart urban model in the coming decades.

Aunta-Simaria Bridge — Six-Lane Ganga Bridge

- **Brijesh Parmar**
(Sem 5 Diploma Civil Engineering)

INFRA ARTICLE



- The Aunta-Simaria Bridge is a major road bridge project across the Ganga River in Bihar, India. It connects Aunta in Patna district to Simaria in Begusarai district, improving regional connectivity between north and south Bihar. The bridge plays a key role in easing congestion on the older Rajendra Setu nearby and forms part of the national highway network.

Key Facts

- **Type:** Road bridge over the Ganga River
- **Location:** Near Aunta and Simaria, Bihar, India
- **Length:** Approximately 6.9 kilometers
- **Carried by:** NH-31 / NH-33 (National Highways Authority of India project)
- **Opened to traffic:** 2020 (staged completion)

Geometric & Structural Specifications

- Total Length (Bridge + Approaches): ~6.9 km
- River Span Length: ~5.2 km (approx.)
- Bridge Width: ~24 m (standard four-lane carriageway)
- Carriageway Lanes: 4 lanes (two in each direction)
- Bridge Type:
 - Pre-stressed concrete multi-span girder bridge
 - Continuous spans supported on piers
- Superstructure:
 - Pre-stressed I-girders / Box girders
 - Segmental spans for river crossing
- Substructure (Foundations):
 - Deep pile foundations (drilled shaft / caisson type)
 - Designed for high lateral loads and scour resilience