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Autonomous | Affiliated to Anna University

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“DISCOVER THE CIVIL”

Department of
Civil Engineering

CIVIL MAGAZINE
2023 - 2024



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About Karpagam College of Engineering

The Karpagam College of Engineering, established in the Year 2000, is an Autonomous institution, Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai. The college offers various Under Graduate and Post Graduate Engineering programmes. The College is accredited by NAAC with 'A+' Grade, TCS and Wipro with 4500 students and 426 teaching and non-teaching staff members, Karpagam College of Engineering strives to impart quality education and an excellent career start to all its students.

The College is situated at Myleripalayam, 15 kms from Coimbatore Central Railway station. The serene location surrounded by green fields and rich clusters of coconut groves creates a calm atmosphere conducive to learning and growth. Infrastructure with well-equipped laboratories and libraries, well maintained Playgrounds, Hostels, Food Court, Gymnasium and an Indoor Stadium.

Vision and Mission of the Institute

Vision

To become one of the best institutions at the National and International level by incorporating innovative teaching -learning methods to enable the students to secure a high-value career, motivate to pursue higher education and research to serve the society

Mission

- To bring out knowledgeable engineers and professionals in their field of specialization by having qualified and trained faculty members and staff besides necessary infrastructure and to create highly conducive teaching and learning environment .
- To work in close association with stakeholders by way of enhanced industry – institute interaction, to take up need based research and industry specific programmes.
- To organize co-curricular and extracurricular activities for character and personality development to produce highly competent and motivated engineers and professionals to serve and lead the society.

About the Department

The department of Civil Engineering was started in the year 2008. It offers under graduate course in Civil Engineering with an intake of 60 students. Our main goal is to be the Centre of Excellence for the development and dissemination of knowledge in Structural Engineering, Construction Engineering and Management, Water Resources and Management, Transportation, Environmental Engineering, Urban Engineering, Geotechnical Engineering, Remote sensing, GIS and its applications.

The Department has good infrastructure and it is well equipped with state-of-the art laboratory facilities necessary for imparting high quality of education and is structured to meet our present day needs of the Civil Engineering. Students from our department have always proved to be meritorious. The department has well experienced, qualified and diversified team of faculty members who are regularly presenting papers in and national and international conferences and publishing their technical papers in reputed peer reviewed journals.

The department actively promotes curriculum development activity by updating existing courses, developing new courses and preparing resource material for teaching and learning process. The department is also very active in conducting conferences, workshops, seminars and visit to industries and construction sites. Visits are arranged regularly to impart technical inputs to the students more effectively through experiential learning. Wi-Fi enabled internet facilities are available in the department. Students are motivated to undergo mini projects to improve their practical knowledge and are encouraged to undergo internship to improve their practical exposure. Soft skill training programs are offered to enhance their communication, aptitude and interpersonal skills.

The Department of Civil Engineering has signed MoU with reputed construction companies to help the students in training and to upgrade their technical skills through practical exposure.

Vision and Mission of the Department**Vision**

To produce technically knowledgeable and socially responsible Civil Engineers by inculcating value based technical education.

Mission

- Imparting strong technical knowledge through qualified faculty.
- Enriching the exposure of the students in emerging technologies, entrepreneurship, and research by industry – institute interaction.
- Enabling the students to become professionally and socially responsible engineers.

ART BY OUR STUDENTS



Mr DINESH K, IV CE (20C115)



Mr PRAVEEN KUMAR J, IV CE, (20C142)

ATAL TUNNEL – AN ENGINEERING MARVEL

Atal Tunnel (also known as Rohtang Tunnel), named after former Prime Minister of India, Atal Bihari Vajpayee is a highway tunnel built under the Rohtang Pass in the eastern Pir Panjal range of the Himalayas on the National Highway 3 in Himachal Pradesh, India. At a length of 9.02 km, it is the highest highway single-tube tunnel above 10,000 feet (3,048 m) in the world. With the existing Atal Tunnel and after the completion of under-construction Shinku La Tunnel, which is targeted to be completed by 2025, the new Leh-Manali Highway via Nimmu–Padum–Darcha road will become all-weather road.



Timeline

- Total length of tunnel is 9.02 km.
- The project was announced by the then Prime Minister Atal Bihari Vajpayee on 3 June 2000. The work was entrusted to BRO on 6 May 2002.
- The foundation stone of the project was laid on 28 June 2010 by Sonia Gandhi in her capacity as the Chairperson of National Advisory Council.
- As of June 2012, two years after the start of the project, 3.5 km of the tunnel digging had been completed.
- Only a little progress was made in the next one year due to heavy ingress of water at serri nullah fault zone, that required constant dewatering and slowed the digging and blasting to a crawl.
- As of October 2013, a little more than 4 km of the tunnel had been dug. However, about 30 m portion of the roof of the tunnel collapsed towards the north portal on 17 October 2013 and the digging had to be stopped.

- As of September 2014, 4.4 km of the tunnel, i.e., half of 8.8 km planned length had been dug.
- As of December 2016, 7.6 km of the tunnel digging had been completed. Excavation was expected to be completed in 2017, with opening in the second half of 2019.
- As on 13 October 2017 both ends of the tunnel met. The Defence Minister, Nirmala Sitharaman, visited the site on 15 October 2017.
- As on 22 November 2017, it was decided to allow patients to be carried through the under-construction tunnel only in the gravest of emergency when the helicopter service was not available and not to allow civilians to enter the tunnel before completion due to risks of falling rocks, lack of oxygen in the tunnel as ventilation system was yet to be installed, etc. and likely interruption in construction work due to presence of civilians.
- Sep 2018: the tunnel was used for evacuation of people stranded in Lahaul after sudden spell of bad weather blocked Rohtang La due to snowfall.
- Nov 2019: Bus service trial started through the yet-incomplete tunnel on 17 November 2019. A Himachal Road Transport Corporation bus carrying 44 passengers entered tunnel from the south portal and the passengers alighted at the north portal. The bus service operated for next five winter months for residents of Lahaul and Spiti valleys. Private vehicles were not allowed through the tunnel.
- Dec 2019: On 25 December the tunnel, which was known as Rohtang tunnel till then, was officially renamed as the Atal Tunnel.
- Sept 2020: 100% completion of project.
- Oct 2020: The tunnel was inaugurated by the Prime Minister, Narendra Modi on 3 October 2020, in the presence of Minister of Defence, Rajnath Singh and Chief Minister of Himachal Pradesh, Jai Ram Thakur and Minister of State for Finance, Anurag Thakur.

Specifications

The tunnel is intended to create an all-weather route to Leh and Lahaul and Spiti valleys in Himachal Pradesh.

Salient features of the Atal Tunnel are as follows:

- **Length:** 9.02 km (5.6 mi)
- **Shape (cross-section) of Tunnel:** Horseshoe
- **Finished width:** 10.00 m (32.8 ft) at road level. (8m pavement and 1m footpath on both sides)

- **General altitude of the tunnel:** 3,000–3,100 m or 9,840–10,170 ft
- **Designated vehicular speed:** 80 km/h (50 mph)
- **Geology of tunnelling media:** Uniformly dipping alternate sequence of quartzites, quartzitic schists, quartz-diolite-schist with thin bands.
- Tunnel boring machines were not used because of the inability to see inside the mountain, instead blasting and digging used to build the tunnel.
- Temperature variation in the area: 25–30 °C (77–86 °F) during May–June, –30 to –20 °C (–22 to –4 °F) during Dec–Jan.
- **Overburden:** Maximum 1,900 metres (6,230 ft), average more than 600 m (1,970 ft)
- **Construction technique:** Drill & Blast with NATM
- **Support system:** Fibre-reinforced concrete (100–300mm or 0–10 inch thick) combined with rock bolt (26.50mm dia, 5,000–9,000mm or 200–350 inch long) has been used as the principal support system.
- **Tunnel ventilation:** Semi-transverse system of ventilation.
- A 2.25 m high and 3.6 m wide emergency tunnel is integrated in the tunnel cross-section beneath the main carriageway.

The following parameters have been set in design:

(a) Upper tolerance limit for concentration – 150 ppm

(b) Visibility factor – 0.009/m

I Vehicles

(i) Cars – 3000 Nos.

(ii) Trucks – 1500 Nos.

(d) Peak hour traffic – 337.50 PCUs

I Design vehicular speed in Tunnel

(i) Maximum Speed – 80 km/h (50 mph)

(ii) Minimum Speed – 30 km/h (19 mph)

Project Cost : Approximately ₹3,200 crore

Article by – Ms DIVYADHARSHINI V (717821C117), III CE

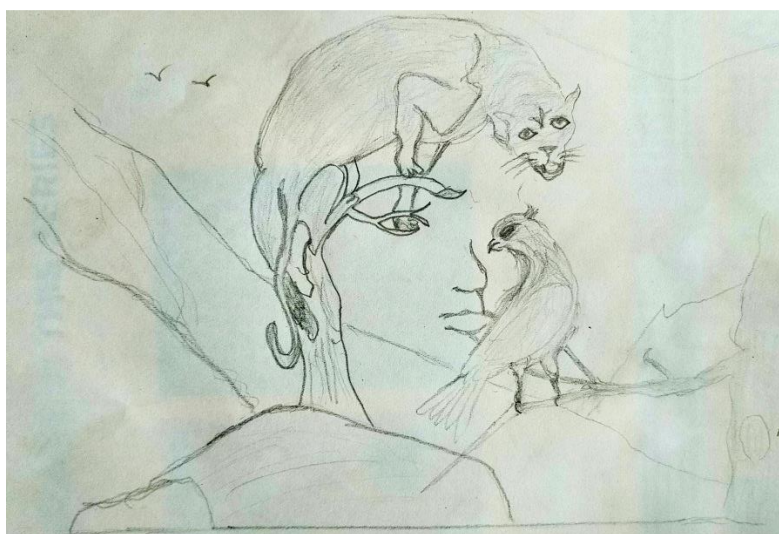
Ms V DEEPIKHA (717821C115), III CE



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Mr KARTHIKEYAN N (717821C125), III CE



Mr MANOJKUMAR V (717821C131)



Mr KISHORE R (717821C127), III CE



Mr MADHUBALAN G (717822C128), II CE

GLIMPSES OF STUDENT INDUSTRIAL VISIT

Civil Engineering



Chilihole Reservoir, Coorg



Harangi Dam, Coorg



Malabar Cements Limited, Walayar



JAS Associates, Coimbatore

GLIMPSES OF MoU ACTIVITIES

Civil Engineering



Workshop



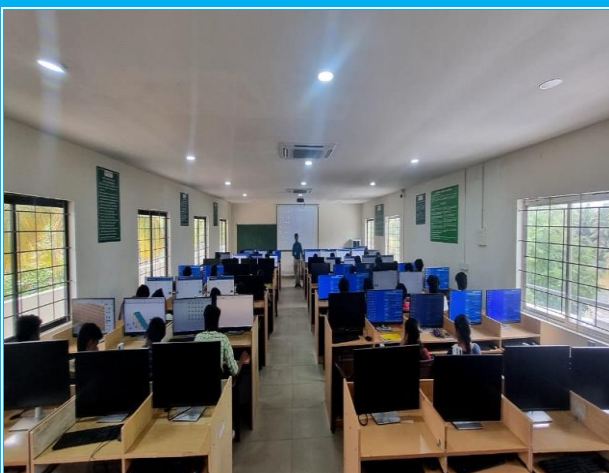
Memorial Lecture



Guest Lecture



Partial Delivery



Workshop on TEKLA



Field Training



Sir M Visvesvaraya

Sir M V's Contributions to the Nation

- Sir M V's contributions have changed the phase of Indian engineering
- He created automatic sluice gates which was later reused for Tigris Dam (in Madhya Pradesh) and KRS Dam (in Karnataka) as well.
- In Hyderabad, he improved the drainage system. In Bombay, he introduced block system of irrigation and water weir flood gates.
- In Bihar and Orissa, he was a part of the building railway bridges project and water supply schemes. In Mysore, he supervised the construction of KRS dam, the then Asia's biggest dam.
- Under his Dewanship Mysore saw major transformation in the realms of Agriculture, Irrigation, Industrialization, Education, Banking and Commerce.

It is better to work out than rust out – Sir M V.

