



SANDARBH

2021 - 2022



IPS Academy **INSTITUTE OF ENGINEERING & SCIENCE**

(A UGC Autonomous Institute, Affiliated to RGPV)

Knowledge, skills & values

Civil Engineering Department





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Message from the Principal

It is a great pleasure to see the creative expressions of students who had contributed to Sandarbh. Civil Engineering Department has grown abundantly in the recent past. It continues to sustain its growth. People reading this magazine will realize the tremendous changes that are happening in the Department. The magazine is presenting a glimpse of the growth of the Department on many fronts. The Department has been simply unstoppable in its progress as it has been actively involved in various activities that have brought to light the hidden talents of the students and staff. The highly qualified and dedicated members of staff have always stood shoulder with the management and have carried out their duties with a level of commitment. This magazine has recorded achievements such as: conferences attended by staff members and students, competitions won by the hugely talented students, innovative projects carried out by students with the guidance of staff, among others. They stand as a witness to the monumental efforts taken by the management to make the college a centre of excellence in education and research. I wish the students of the college success in their future endeavors.

Dr. Archana Keerti Chowdhary Principal

Editorial

It has given enormous gratification to coordinate the editorial team of —SANDARBH|| , our Civil Engineering Department_ magazine in all aspects, covering academic activities, technical events of the students in contributing articles to the magazine.

This magazine would not have been concluded without the constant support of our principal who stood as a pillar of strength and support at all times. We would genuinely place thanks to our editorial team whose dedication and diligent towards completion of magazine was always part of the process. We would like to congratulate and express our hearty thanks and gratitude to our head of the department in believing the quality policy of educate enrich and excel in imparting professional education. This magazine is reflecting of our department quality in terms of all round excellence.

Last but not the least we want to express earnest gratitude to all the faculty members who gave constant support and guidance to enlighten young minds of the people through this magazine.

Editorial Team






Vision

Be the preferred destination locally, regionally and internationally for the Civil Engineering society as a leading department providing high quality programs and services in Civil Engineering fields.

Mission

To offer outstanding U.G. & P.G. education, research guidance, professional consultancy, outreach and manpower training as well as leadership in Civil Engineering fields.





Highlights of the Department

Faculties

Patents by the Faculties 03
Book Published by the Faculties 10
Post Doctoral Program 01
Special Awards 05
Research Paper Published 51
STTP/FDP/Seminars/Workshop Attended 87

Students

Received Gold and Silver Medals 02
Received Chancellor Scholarship 07
Selected in IES and other public Sectors 10
Established as an Entrepreneur 65
Projects with IEDC (DST) 10
Research Papers Published 206

Social Initiatives

Weather Station installed. Road Safety Campaign
Week

State of the Art Laboratories

Instrumentation Lab Heavy Structures Lab
Simulation Lab

Life Membership

Indian Concrete Institute.
Indian Water Works Association. Indian Water
Resources Society Indian Geotechnical Society

Student Chapter

Indian Concrete Institute. Student Council



Laboratories

- Strength of materials
- Engineering geology
- Instrumentation lab
- Transportation lab
- Software lab
- Project lab
- Fluid mechanics lab
- Survey lab
- Concrete /CMTlab I & II
- Theory of structure lab
- Geotechnical engineering lab

Major Softwares

- STAAD Pro
- Auto CAD
- AutoDesk Civil3D 2009
- Primavera P 6.2
- Primavera Contractor
- ANSYS
- SAP 2000
- Abaqus 6.12
- ETABS
- GMS ver 6.5
- AFT Impulse4.0
- STAAD Pro Foundation+Section Wizard
- Abaqus 11.2
- DIANA FEA
- MIDAS GEN



Major Equipment



Total Station



UTM & CTM



Weather Station



Pumps and Turbines



Bituminous Testing Apparatus



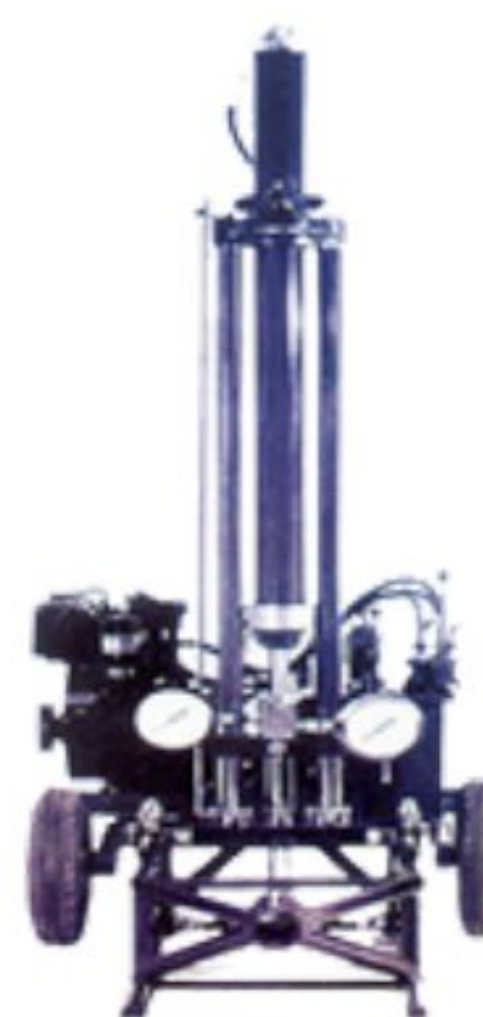
CBR Test Apparatus



Polariscope



DCPT



SCPT



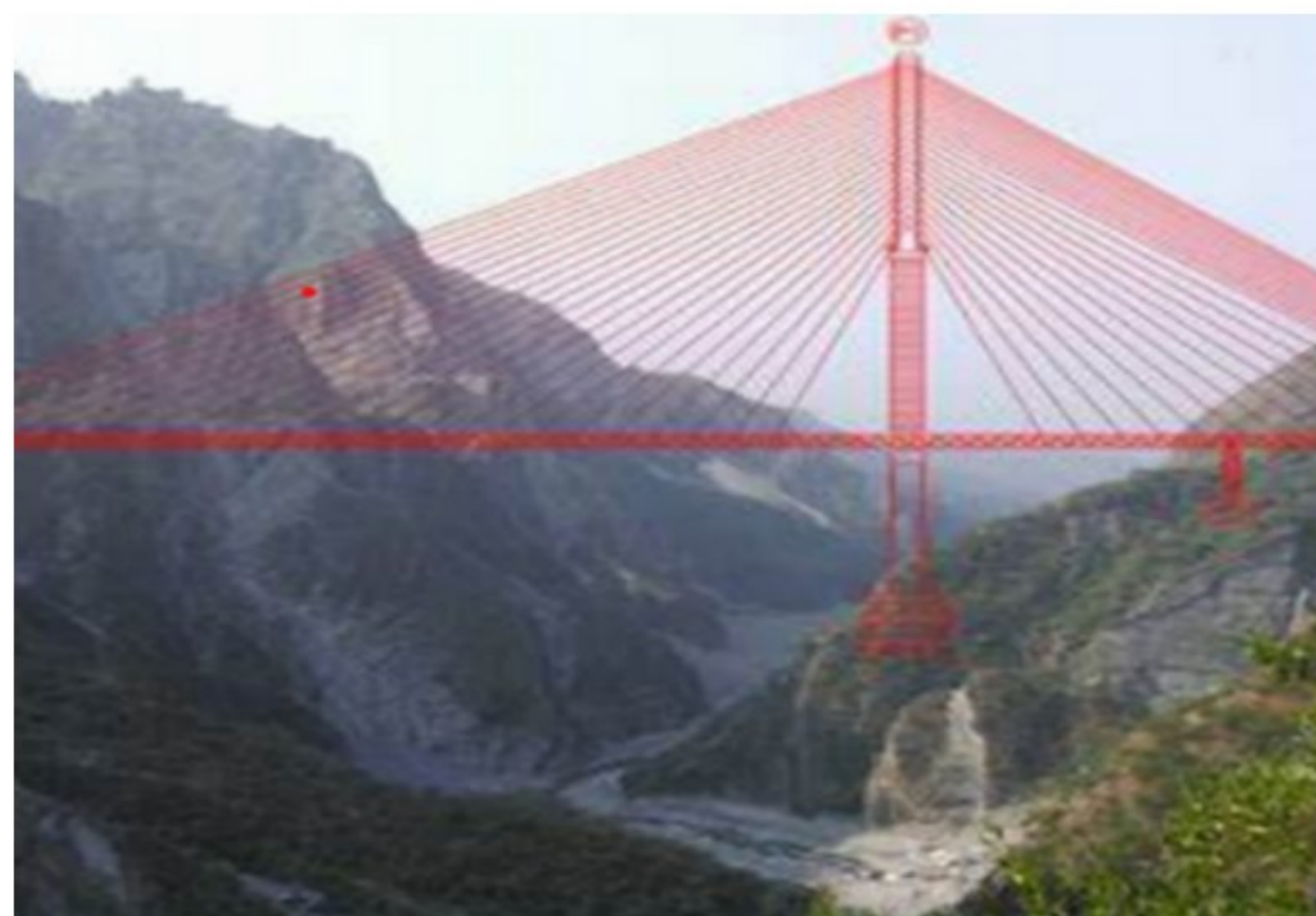
Data Logger

ANJI KHAD BRIDGE



The Anji Khad bridge, India's first cable-stayed bridge and the first-of-its-kind in the country, is currently under construction. The Anji Khad bridge is being constructed in the Reasi district of the Union territory of Jammu and Kashmir. This cablestayed rail bridge is proposed for connecting Katra and Reasi section of Jammu-Baramulla line in Jammu & Kashmir. With an estimated cost of INR 458 crore, Indian Railways in collaboration with Hindustan Construction company decided to build this cable-stayed rail bridge at Anji Khad. The bridge is situated over the Anji river and is ranked as the second most important bridge on the Udhampur-Srinagar-Baramulla rail project after Chenab Bridge. In October 2016, it was decided to build a cable-stayed bridge at Anji Khad. Actually the plan is to build an arch bridge similar to the Chenab bridge which was abandoned due to the vulnerability of the structure primarily due to concerns over the geological instability of the region. Later in 2016, Indian Railways decided to build a cable-stayed bridge considering the geographical aspects. The proposed bridge will connect tunnel T2 on Katra side to tunnel T3 on the Reasi side. The bridge is about 80km by road from Jammu city. It is located in the picturesque mountains of the Himalayas. Due to the complex, fragile and daunting geological features, detailed site-specific investigations were carried out by IIT Roorkee and IIT Delhi respectively.

Anji Khad Bridge is one of the most daunting projects taken up by the Indian Railways. The asymmetrical cable-stayed bridge is balanced on the axis of a central pylon. This bridge is part of the national project of the Udhampur-SrinagarBaramulla Rail Link (USBRL) Project. Being the most focused ongoing projects in India, USBRL is being strictly monitored by the central government of India. The central government had





started its construction in order to connect the mountainous areas with the mainland of the country. And the prime element of this project is the Anji Khad Bridge — India's first cable-stayed bridge. The length of bridge's main section is 473.25m long out of the total length of over 1300m with 120m long viaduct and this bridge is supported by 96 cables which are made up of steel. Even due to the sheer complex nature of the geographic location of the bridge, it is built quite robustly as it can withstand 213kmph of winds and has the capacity to bear earthquakes of the highest intensity.

The Reasi yard station, which is a part of the project, has been built on high, rectangular, tapered hollow piers, that are 105m in height, with the bridge spanning about 490m. The bridge is made using 7,000 reinforcement steel and 6,700 million tonnes of structural steel. Unique and advanced techniques and equipment, including pump concreting system arrangement, have been used in the construction of the bridge. The pump Concreting System arrangement was used to increase efficiency, giving a higher safety for workers and saving construction time by about 30 percent. The Anji Khad bridge will have access to an integrated monitoring system using various sensors installed at various locations on the bridge which will continuously monitor the load acting on the bridge. The project requires extremely diverse loads to be hoisted, for which reason HCC needed a tower crane equipped with an automatic trolley change. This system, along with the Power Lift system, allows variable loads to be dealt with efficiently while ensuring the crane achieves maximum efficiency. A 25-ton 21CM550 tower crane is working on the construction site of Anji Khad bridge which was specially imported from Spain for this particular project. These cranes are equipped with a lightning protection system designed to prevent damage to electronic devices.

This project will be making an enormous impact in merging the Kashmir valley with the rest of Indian Railway network and giving rise to huge economic growth and development for Jammu & Kashmir. In a world where wonders never cease, here's another one to be added to the list. Jammu & Kashmir's Reasi district is all set to host the first cable-stayed railway bridge in India. The central government and the Indian Railways will launch a rail route from Delhi to Kashmir. The construction of the country's first cable-stayed rail bridge is likely to be completed by the month of May, this year. It will be a historic project for Indian Railways and it is viewed as an engineering wonder, thanks to the difficulties involved in the construction process and the unique technology used. Anji Khad Bridge is considered to be an engineering marvel and a milestone achievement of the USBRL project.



DID YOU KNOW?



Did you Know?
Anji Bridge was first proposed as an arch bridge. Later on it was changed

INTERESTING FACT

SOURCES:

<https://shorturl.at/dDFL7>

<https://shorturl.at/aNV14>

<https://shorturl.at/beqF5>

7 Astounding Engineering Marvels in India

1. Pir Panjal Railway Tunnel, Jammu & Kashmir



Also known as Banihal Railway Tunnel, the Pir Panjal Railway Tunnel is an 11.2km-long tunnel built at an altitude of 1440ft located on the Pir Panjal ranges of the Himalayas. It is the longest tunnel in India and the second-longest in Asia. The tunnel connects Bichleri Valley of Banihal to Qazigund and is also a vital link connecting Udhampur to Baramulla. It was built by the Hindustan Construction Company.

2. Bandra-Worli Sea Link, Maharashtra



An astounding bridge that connects the western suburbs of Mumbai to South Mumbai, Bandra-Worli Sea Link or the Rajiv Gandhi Sea Link is an engineering marvel in India worth visiting. A cable-stayed bridge built with pre-stressed concrete-steel viaducts on either side, Bandra-Worli Sea Link is the first 8-lane structure project that consists of seismic arrestors and can withstand earthquakes up to 7.0 on the Richter scale. This was also constructed by the Hindustan Construction Company.

3. Pamban Bridge, Tamil Nadu



The Pamban Railway bridge that was built in 1914 is more than 100 years old and connects Mandapam town with Pamban Island and Rameswaram. This engineering marvel is India's first sea rail bridge project that flaunts a double-leaf bascule section in the midway which can be raised to let ships pass below. The incredible structure, built with amazing precision and design, still enthralls travellers passing through it via trains or ships!

4. Mahatma Gandhi Setu, Bihar



Mahatma Gandhi Setu is a bridge that is built on top of the river Ganga in Bihar, and it connects Patna to Hajipur. With a total length of more than 5kms, it is the third-longest river bridge in India. The bridge was opened for public use in 1982 by the then Prime Minister Indira Gandhi. The bridge is an example of the cantilever segmental construction method and has two lanes, one upstream and another downstream.

5. Auroville Dome or Matrimandir, Tamil Nadu



Another astounding example of engineering marvel in India is the Auroville Dome present in Auroville, Tamil Nadu. It is also called the Matrimandir or Temple of the Mother and is an edifice of spiritual significance to integral yoga practitioners. The structure was completed in 1971.

Matrimandir is a huge sphere with 12 petals and golden discs that reflect the sunlight providing the dome brilliant radiance.

6. Panval Nadi Viaduct, Maharashtra



A 424-metre long bridge built by the Konkan Railways, Panval Nadi Viaduct is a superstructure on top of the Panval River in Ratnagiri, Maharashtra. It is a single-cell continuous prestressed concrete box girder with nine intermediate spans and two end spans. It is the second tallest bridge in Asia. This structure won the “Most Outstanding Concrete Structure in India Award” from the American Concrete Institute.

7. Statue of Unity

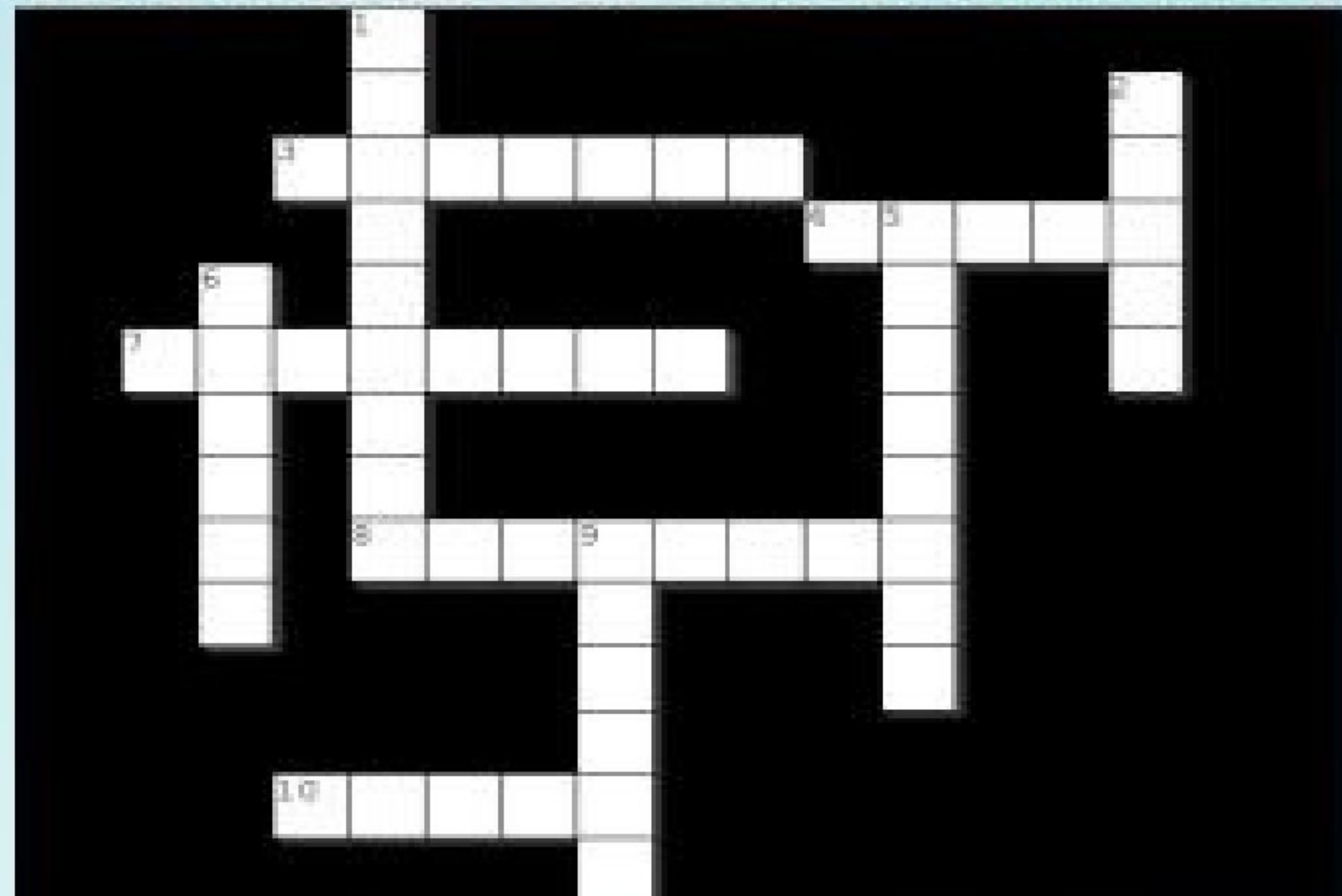


A mammoth statue built in the honour of the Iron Man of India, Sardar Vallabhbhai Patel, the Statue of Unity proudly stands as the tallest structure in the world! The massive project was undertaken and successfully completed by Larson & Toubro in 2018, and it was inaugurated by Prime Minister Narendra Modi. A total of 135 tonnes of iron was used to erect this colossal statue that splendidly stands on the Narmada river. It is indeed an engineering marvel in India that Indians are proud of. Here's the list of 7 awe-inspiring engineering marvels in India that you must know about. If you've travelled to or visited any of these structures, do let us know your experience in the comments below.



FUNZONE!

SOLVE THE CROSSWORD GIVEN BELOW:



Across

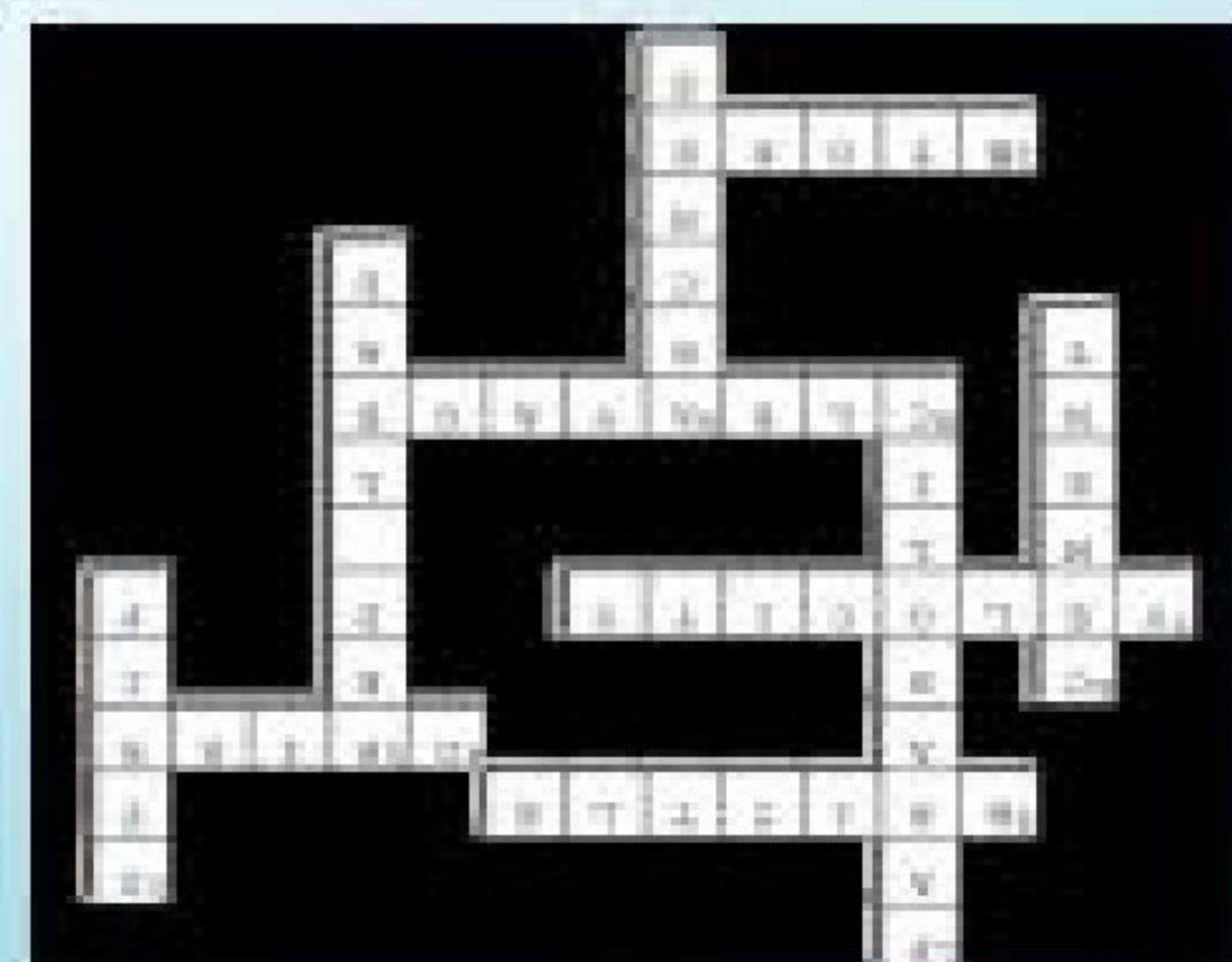
3. Excess of silica in brick results in
4. Linseed oil is used in paints as
7. In flowing liquids pitot tubes are used to measure
8. The tendency of a stone is to split along
10. In C.G.S system the units of kinematic viscosity is

Down

1. An ideal vertical curve to join two gradients is
2. A piece of timber whose thickness and width are respectively 5cm and 10cm is called
5. The pigment used in paints for corrosive resistance is
6. In a mortar the binding material is
9. A bull nose brick is not used for



SOLUTIONS:



Some glimpses of 2021-2022-

CIVILIPSA of IPS Academy Institute of Engineering & Science organizes its annual affair “SRUJAN” since 2009, One week National Seminar on various themes in the first week of October every year. The seminar is symphony of various events including Expert lectures, The Scoop, Chronicles, AutoCAD Planning, Poster Design & various online events that are sure to bring out the creative blaze in every participating individual. We request you to kindly encourage your students and faculties to participate in this event & be a part of the seminar's great triumph.



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Presents National Seminar
SRUJAN 2021
(4th to 9th October)

**NEO-INFRASTRUCTURE
PROJECTS
IN INDIA**

AutoCAD Planning
Scoop
Chronicles
Poster Design

Student Coordinator
Yuvraj Singh Pawar (7000027934)
Anupriya Mujalde (6260275772)
Shatakshi Shrama (9826895041)

Contact us:
Email-ies.srujan2019@gmail.com



IPS ACADEMY
INSTITUTE OF ENGINEERING AND SCIENCE
CIVIL ENGINEERING DEPARTMENT

PRESENT'S
Sameeksha
2021



ANNUAL *Quiz* COMPETITION



Digital India
Power To Empower

"WE CONVERT DREAMS INTO REALITY"

COORDINATORS

SHEIKH MD. HAMZA (8225998267)

VIKAS RATHI (9399325826)

SHIVANSHI KAURAV (6264890920)

PLATFORM *MS Teams*



REGISTER NOW
[HTTP://BIT.LY/SAMEEKSHA2021](http://bit.ly/sameeksha2021)

MAIN EVENT

27 Sep - 01 Oct 2021
TIME 9:30 ONWARD

CONTACT US- OFFICE.CIVIL@IPSACADEMY.ORG / IES.IPSACADEMY.ORG MO- 07314014607

CIVILIPSA with great delight and pleasure announces its annual quiz event, "SAMEEKSHA 2021", a quiz that tests the normal intelligentsia and knowledge in general civil engineering.

The quiz will be conducted for teams of two members each. There is no limit to the number of teams from one college.

SAKRIYA 2021-22

Phase 1

Five Days Workshop for M. Tech (Civil) students On “Software Training”

(Jan 11-15, 2022)

Change is necessary and compulsory process in evolution. Being aware of this change

in our profession is a prime requirement for all professionals and students alike. In

keeping with the spirit of awareness and knowledge, CIVILIPSA is proud to announce

the novel concept of SAKRIYA 2021, a series of workshops consist of Software Training, specifically for M. Tech (Civil) students aimed at exposing the current trends in the field of Civil Engineering. Engineering requires holistic thinking and Civil Engineering more so. SAKRIYA 2021 aims to be multi-disciplinary and therefore uniting in its purpose.

CIVILIPSA would like to extend a hearty invitation to all to attend the workshop.

For Details Contact

Mr. Vijay Kumar Baradiya
Mob 7869271106

Mr. Praveen Kumar Dewra
Mob 7389086231



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CIVIL ENGINEERING DEPARTMENT

Contact us: mtech.ce@ipsacademy.org Ph: 0731-4014607



Primavera P6 Training



STAAD Pro Training

SAKRIYA 2021-22

Phase-II

Five Days Workshop for M. Tech (Civil) students
On
“Software Training”
(April 18-23, 2022)

Change is necessary and compulsory process in evolution. Being aware of this change in our profession is a prime requirement for all professionals and students alike. In keeping with the spirit of awareness and knowledge, CIVILIPSA is proud to announce the novel concept of SAKRIYA 2021, a series of workshops consist of MATLAB Training, specifically for M. Tech (Civil) students aimed at exposing the current trends in the field of Civil Engineering. Engineering requires holistic thinking and Civil Engineering more so. SAKRIYA 2021 aims to be multi-disciplinary and therefore uniting in its purpose.

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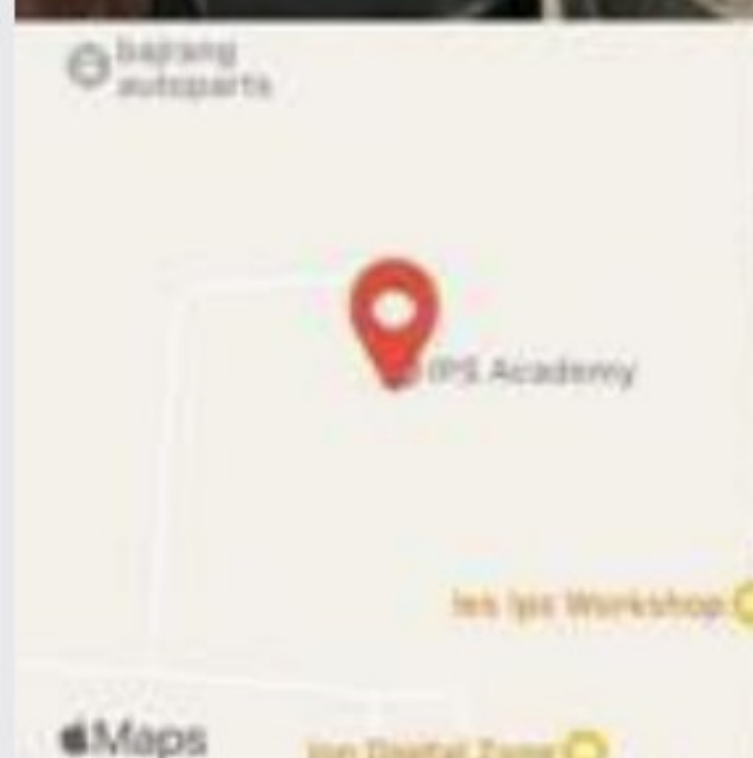
CIVIL ENGINEERING DEPARTMENT

Contact us: mtech.ce@ipsacademy.org Ph: 0731-4014607





GPS Map Camera



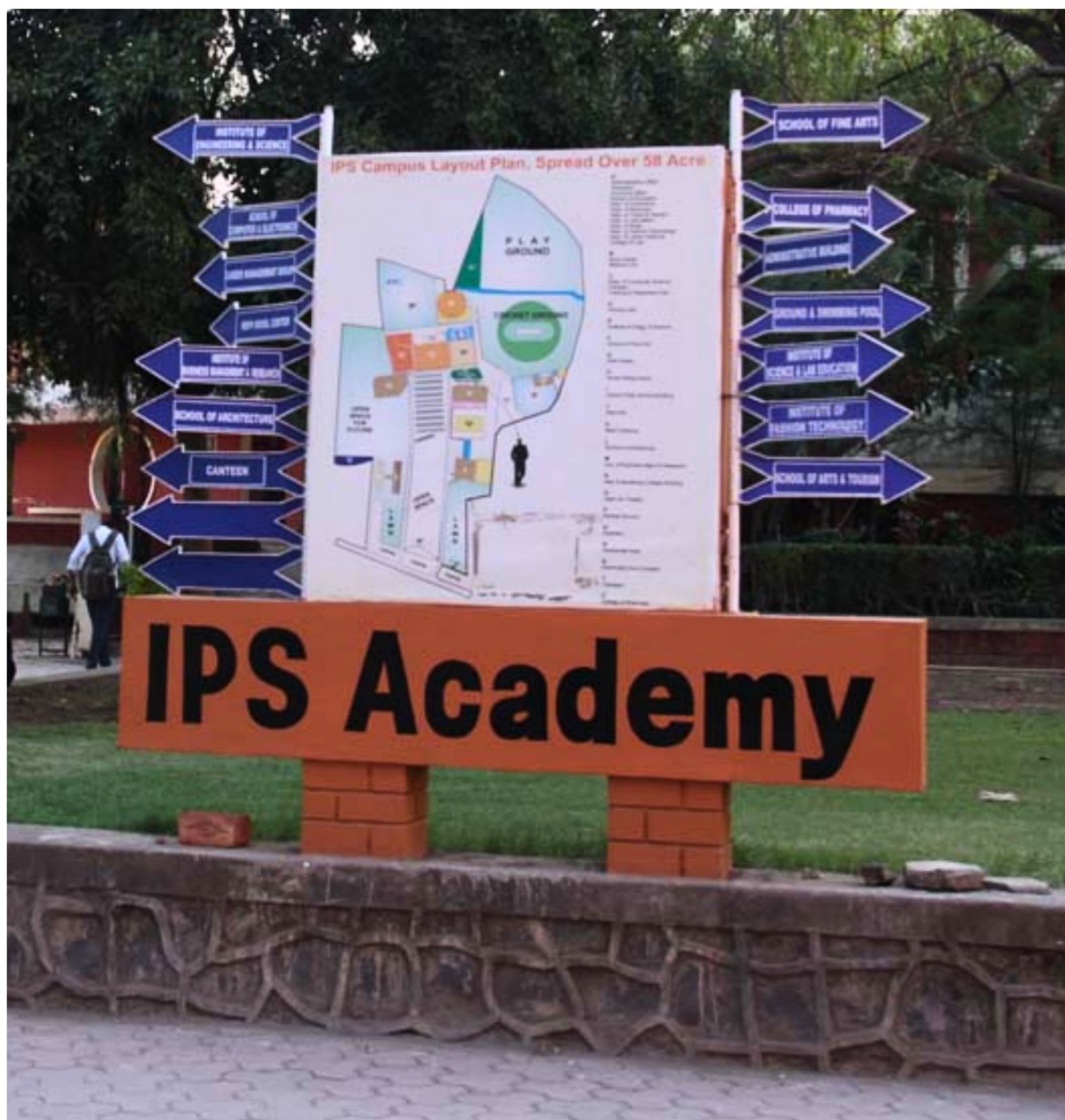
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