YASHODA SHIKSHAN PRASARAK MANDAL'S



YASHODA TECHNICAL CAMPUS, SATARA FACULTY OF ENGINEERING DEPARTMENT OF CIVIL ENGINEERING



DEPARTMENT OF CIVIL ENGINEERING



(Approved by AICTE,Delhi/Approved by Govt of Maharastra DTE) Email: principalengg_ytc@yes.edu.in Web : www.yes.edu.in NH-4, wadhe,Satara,Tele Fax-02162-271238/39/9172220775



JANUARY - JUNE 2024

PRESIDENT'S DESK



Founder,President Hon. Prof. Dasharath B. Sagare

PRINCIPAL'S DESK



Principal Prof. Dr. Pravinkumar R. Badadapure

Vision of the Department

To become a center of excellence by producing Civil engineers having research and development activity, sound technical knowledge, professional skills and social awareness to serve society. Welcome you to YSPM's Yashoda Technical Campus, Satara an Institution which inculcates true values while disseminating quality education for shaping the career of our students. All our institutes are approved by the concerned statutory bodies and fulfill all the norms and standards laid down by them. Our technical campus is located in a lush green, pollution free, picturesque environment. Our institutes have well qualified, experienced and student caring faculty members, well equipped laboratories, specious lecture hall and tutorial rooms, ICT tools enabled smart classrooms, Seminar halls, well maintained rich library, e-library, wi-fi enabled premises, computer center with internet facility, and a playground with sports facilities, separate gymnasium for Boys and Girls students. We emphasize on overall personality development of our students. Our faculty pays attention to each student to focus on their strength and to develop confidence. We provide students a platform to excel not only in academics but also in co-curricular and extracurricular activities. We encourage individual growth, team building, industry interaction and multi-disciplinary study culture. Amenities provided by our institutes include transport facility, hostel facility, reprographic facility, Cafeteria, STD/PCO, Medical Centre, Cooperative store etc. We are committed to impart value based quality education along with development of positive attitude, skills and abilities to apply knowledge in order to meet the challenge of future. I extend my best wishes for your bright and prosperous future.

GREETINGS TO ALL!

I am really honored and feel very privileged to function as the Principal of Yashoda Technical Campus (YTC), Satara. Let me take this opportunity to thank the Management, Yashoda Shikshan Prasarak Mandal (YSPM), Satara for giving me an opportunity to serve the community here in YSPM family.

We believe that the existence, growth, survival and future of every Educational Institute will long lasting only if that Institute make and keep the students & parents and all the stakeholders of the Institute feel very happy and satisfied. The students & parents will be happy only if they get their expectations and dreams are fulfilled for which the student has taken an admission in the Institute. This can be achieved only if every entity in an Institute works with Academic Excellence, Research Excellence and Training & Placement Excellence, along with Overall Development of the Student to Serve the Society thereby excelling and ensuring EXCELLENCE IN TECHNICAL EDUCATION with OUTCOME BASED EDUCATION. Our Institute Growth lies in Institute Motto that is **"PARENTS AND STUDENTS DREAMS ARE OUR INSTITUTE MISSIONS"**. Therefore I appeal everyone to join together in achieving the aim **"A HAPPY STUDENT, A HAPPY PARENT, AND A HAPPY & MOST PREFERABLE INSTITUTE"**.

Mission of the Department

M1: To impart quality technical education through interactive teaching learning methods.

M2: To promote research and development activity by encouraging creativity and exposure to real world problems.



JANUARY - JUNE 2024

HOD DESK



Head of Department Prof. Chandrahas B. Patil

At YSPM's Civil Engineering Department through our rigorous academic programs, state-of-the-art, research initiatives, and hands-on experiential learning opportunities, we strive to provide our students with the knowledge, skills, and mindset necessary to excel in the dynamic field of civil engineering.

Our esteemed faculty members, who are leaders in their respective areas of expertise, are dedicated to fostering an environment of innovation, critical thinking, and collaboration. Together, we aim to inspire creativity, drive excellence, and instill a strong sense of social responsibility in our students.

As you navigate through our technical magazine, I encourage you to explore the myriad opportunities available to you, from cutting-edge research projects to industry partnerships and professional development resources. Whether you are a prospective student, a current student, alum, or a member of the broader engineering community, we are here to support you on your journey.

I am immensely proud of the achievements of our students, faculty, and staff, and I am confident that together, we will continue to push the boundaries of what is possible in the field of civil engineering. Thank you for your interest in our department...!!

EDITORIAL DESK



Editor In Chief Prof. Mrs Sayali S. Jadhav

On behalf of the Editorial Board, it is with great pride and sincere privilege that I am writing this message to present **Constromatix**, a biannually published technical magazine. Launching this magazine would not have been possible without the great and much appreciated contributions from the technical team. Our team expects similar sort of sincere dedication from the writers in near future.

Civil the oldest branch as traced in the history of engineering has a huge potential and a wide scope to work in. Constromatix focuses not only the trending topics in civil engineering but also the achievements of students and staff which reflect the emerging talents of Civil Department. It has been and always will be a platform for the students to showcase their talent whether it be technical, cultural or sports field. Here students get the chance to post articles on their area of interest and also the trending topics in the field of Civil Engineering

The only mission of Civil Department is to provide undergraduate students with quality technical knowledge in the field of civil engineering and build in them leadership and managerial skills along with social awareness and gratitude towards society.

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OVERVIEW OF DEPARTMENT

Welcome to the Department of Civil Engineering at YSPM's Yashoda Technical Campus, Satara. The department has been immensely successfully working from 2011 in the field of Professional Knowledge and advanced technical world. The department offers 4 years Bachelor of Technology in Civil Engineering.. The department undergoes several curricular and extra-curricular activities throughout the year. The department is having mixture of well experienced and young, enthusiastic faculty members who are involved in industry institute interaction besides their day to day teaching activities. The Department of Civil Engineering at Yashoda Technical Campus (YTC) delivers latest knowledge in Civil Engineering . It prepares students for careers in industry, academia, and also create young entrepreneurs.

STRENGTH OF DEPARTMENT

- Well Qualified, Experienced staff.
- Good infrastructure.
- Well-equipped laboratories.
- Excellent academic performance.
- Departmental Library facility for students.

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M2: To promote research and development activity by encouraging creativity and exposure to real world problems.

M3: To mentor students for innovative thinking with relevance to entrepreneurship.

M4: To develop social awareness in graduates to serve society.

Program Educational Objectives (PEOs)

PEO1. Prepare students to become successful in Civil engineering by applying knowledge of mathematics, science and engineering fundamentals.

PEO2. Produce graduate who can analyze and design civil engineering system to the real life problem & develop attitude of lifelong learning for becoming successful civil engineers.

PEO3 Motivate students for professional level employment in public or private organizations

Program Specific Outcomes (PSOs)

PSO1: Make the students employable in engineering industries. PSO2: Motivate the students for higher studies and research.. PSO3: Motivate the students for various competitive examinations.

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JANUARY - JUNE 2024



Editor-in-Chief Prof Sayali S. Jadhav

Academic co-ordinator Prof. Alfaj N. Shaikh

Head of the Department Prof. Chandrahas B. Patil

Principal Prof. Dr. Pravinkumar R. Badadapure

CONTRIBUTORS

Prof. Dr. Vijay Sawant

Prof. Prashant G. Borate

Prof. Ajinkya S. Shah

Miss. Rutuja N Phadatare

Miss. Shweta B Kadam

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RANI KA VAV, GUJARAT



Architecture of Rani Ki Vav

The architectural grandeur and remarkable design of this Vav have often been placed next to the sun temple at Modhera and the Vimala Vashi temple in Mount Abu. It has been classified under the Nanda style of design and consists of several varying levels. The 4th level present here is the deepest one and also consists of a massive rectangular tank. Over all the structure is divided into seven levels along with sets of stairs that lead down to the circular well. Every feature of the Vav including the pillars, brackets, columns etc are finely carved out and elaborately ornamented.

Speaking about sculptures, there are over 500 of them and more than 1000 small sculptures within the stepwell which hold religious, mythological and importance of some literary work. The Vishnu sculptures outnumber every other one here and if one can see over all, the ornamentation is done the way that it represents the whole universe through images of animals, fishes, plants, trees, birds etc. not just this the sculptures here also showcase everyday women going about with their daily activities which gives us a lot of insight about how everyday lifestyle used to go on during that era.

Ms. Rutuja N Phadatare (B. Tech Civil)

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BOGIBEEL BRIDGE, ASSAM



The Bogibeel Bridge is a combined road and rail bridge over the <u>Brahmaputra River</u> in the <u>northeastern Indian</u> state of <u>Assam</u> between <u>Dhemaji district</u> and <u>Dibrugarh district</u>, which was started in the year 2002 and took a total of 200 months (16 years and 8 months) to complete, Bogibeel river bridge is the <u>longest rail-cum-road bridge in India</u>, measuring 4.94 kilo meters over the Brahmaputra River. As it is situated in an earthquake-prone area it is India's first bridge to have fully welded steel-concrete support beams that can withstand earthquakes of magnitudes up to 7 on the <u>Richter scale</u>. It is Asia's second longest rail-cum-road bridge in India. The bridge was constructed by a consortium of construction companies headed by <u>Hindustan Construction Company</u>. The bridge has a double rail line on the lower deck and a three lane road on the upper deck. It was inaugurated by Prime Minister <u>Narendra Modi</u> on 25 December 2018 on the occasion of <u>Good</u> <u>Governance Day</u>.

The Bogibeel Bridge is the longest rail-cum-road bridge of India on the <u>Brahmaputra River</u> in Assam. Owing to its location, the bridge is of strategic importance to India as it significantly eases India's ability to transport troops and supplies to the <u>border with Tibet</u> in Arunachal Pradesh.[10] Being located in an area of intense rainfall, its construction had been significantly slowed down by the fact that construction largely took place only during a period of four dry months between November and March.

Miss. Shweta B Kadam (TY Civil)

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GEOMATICS IN CIVIL ENGINEERING



Geomatics is a field of study that involves the collection, analysis, interpretation, and management of geographic information. It combines various disciplines, including geography, engineering, surveying, and computer science, to handle spatial data. Here's an overview of its main components and applications:

Key Components of Geomatics

- 1. Geographic Information Systems (GIS):
 - Software tools for mapping and analyzing spatial data.
 - Used for urban planning, environmental management, and resource allocation.
- 2.Global Navigation Satellite Systems (GNSS):
 - Systems like GPS that provide location data anywhere on Earth.
 - Used in surveying, agriculture, and transportation.

3. Remote Sensing:

- Collecting data from satellites or aircraft.
- Applications include environmental monitoring, disaster management, and land-use planning. 4. Surveying:
 - Measuring and mapping land, air, and water resources.
 - Fundamental for construction, real estate, and civil engineering projects.
- 5. Cartography:
 - The art and science of map-making.
 - Involves visualizing geographic data in a way that is easy to understand.
- 6.Photogrammetry:
 - The use of photography to measure distances between objects.
 - Useful in creating topographical maps and 3D models.
- Applications of Geomatics
- Urban Planning: Helps in designing and managing urban infrastructure and services.
- Environmental Management: Assists in monitoring natural resources and environmental changes.
- Transportation: Improves route planning and traffic management systems.
- Disaster Management: Aids in emergency response planning and recovery efforts.
- Natural Resource Management: Supports the exploration and management of minerals, forests, and water resources.

Prof. Dr. Vijay Sawant.

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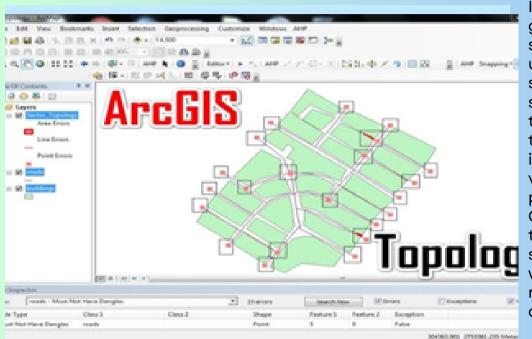
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TOPOLOGY IN GIS



In GIS, topology refers to the geometric properties of spatial features that remain unchanged when they are subjected to transformations such as scaling, rotation, and translation. The concept of especially topology is important when dealing with vector data (points, lines, and polygons) because it allows GIS software to enforce rules define that how features should connect and interact with one another. Some of the most important topological concepts and rules include:

1 Common Topological Rules in GIS: Polygons must not overlap, Lines must not have gaps, Lines must only connect at nodes, Polygons must close

These rules are enforced through topological editing tools in GIS software, such as ArcGIS, QGIS, and MapInfo. Ensuring that topological rules are adhered to helps in maintaining spatial integrity and enables advanced spatial analysis, such as network analysis, proximity analysis, and spatial joins.

2. Topology in Remote Sensing

In remote sensing, topology can be used indirectly for specific tasks such as:

- Land Use/Land Cover Classification: Topological relationships between different land
- Change Detection:
- Feature Extraction: Remote sensing imagery can be processed to extract vector data (e.g., roads, rivers, land parcels). In this case, topology is applied to the vector features extracted from raster data to ensure correct connectivity and spatial relationships between features.

3. Importance of Topology in GIS and Remote Sensing Ensures Data Integrity, Improves Spatial Analysis, Enhances Data Quality, Streamlines Editing Processes:

Topology plays a vital role in GIS by defining how geographic features are spatially related and connected. It ensures that vector data, which represents real-world objects like roads, rivers, and land parcels, behaves according to specific spatial rules, such as connectivity, adjacency, and containment. Although remote sensing data primarily consists of raster data, GIS-based topological rules become essential when integrating remotely sensed data into vector formats or analyzing the relationships between features derived from remote sensing.

Mr. Prashant G Borate

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ACHIEVEMENTS

PAPER PUBLICATIONS

Sr. No.	Faculty Name	Title	Publication Details	
1	Mr. Patil Chandrahas B. & Mr. Shaikh Alfaj N.	Comparative Study of Biochar Mortar with Traditional Mortar	IJARESM Volume 12, Issue 06, June 2024	
2	Mr. Shah Ajinkya S. & Mrs. Pawar Vijaya P.	Smog eating M30 grade of concrete block by using Titanium dioxide (TiO2)	May 2024 IJSDR Volume 9 Issue 5	
		Treatment On Domestic Waste Water by Using Phytoremediation Technique	June 2024 IJSDR Volume 9 Issue 6	
3	Mr. Borate Prashant G. & Mrs. Jadhav Sayali S.	Analysis and Design of Root Zone Technology Reactor for Wastewater Treatment and Management	IJSDR2406080 Volume 9 Issue 6, June 2024	
		Public Perception and Acceptance Analysis of Oobleck Speed Breaker	IJFMR240423306, Volume 6, Issue 4, July- August 2024	

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ACHIEVEMENTS

NPTEL - ACHIEVEMENTS

Sr. No.	Name of Staff	Title of Course	Date	Duration	Any Remark (Elite, Silver etc)
1	Mr. Patil Chandrahas B.	Outcome Based Pedagogic Principles for Effective Teaching	Feb-March 2024	4 Week	Exam Passed with 56%
2		Outcome Based Pedagogic Principles for Effective Teaching	Feb-March 2024	4 Week	Elite Certificate
3	Mrs. Jadhav Sayali S	Remote Sensing Essentials	Feb-March 2024	12 Week	Elite Certificate
4		Structural Analysis I	Feb-March 2024	12 Week	Elite Certificate
5	Mr. Shaikh Alfaj Najir	Outcome Based Pedagogic Principles for Effective Teaching	Feb-March 2024	4 Week	Exam Passed with 56%
6	Mrs. Pawar Vijaya P.	Hydraulic Engineering	Jan-April 2024	12 Week	Elite with Silver 77%

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ACHIEVEMENTS

INDUSTRIAL TOURS

Sr.No.	Class	Date	Name of Industry visited	Purpose
ı	SY, TY	1 March 2024 to 3 March 2024	Study Tour at Hampi, Almatti Dam, Tungbhadra Dam, Karnataka	To understand ancient structure, their construction techniques, rocks, construction work
2	ΤY	18-04-2024	Industrial visit to under construction site of Government Medical College, Krishna Nagar Satara	To gain knowledge about construction of RCC structure
3	SY	18-04-2024	Industrial Visit at Pelton Wheel Turbine at Power House at Yeoteshwar Satara, Satara	To gain the knowledge of main parts and working of Pelton wheel turbine.
4	SY	20-05-2024	Visit to Water Treatment Plant Krishna Nagar Satara	To corelate theoretical knowledge and its practical application, interact with industry experts & deepen their understanding of Environmental engineering.

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DEPARTMENTAL ACTIVITY

GUEST LECTURES

Sr. No.	Activity	Name of Program	Date	Resource Person
1	Guest Lecture	Applications of Al in geotechnical engineering	15/03/2024	Dr. Sachin Jain (Director, Jain Associates)
2	Guest Lecture	Expert lecture on Basic of Engineering Geology useful in Civil Engineering	28/03/2024	Mr. Prashant P. Kamble, MSc in geology
3	Guest Lecture	Deterioration of structures 13/05/20		Mr. Shailesh B Pharande, Civil Tech Solution, Satara
4	Guest Lecture	Structural Audit Report	21/05/2024	Mr. Shailesh B Pharande, Civil Tech Solution, Satara

ACTIVITY AT DEPARTNENT (CESA CLUB)

Sr. No.	Name of Event	Date	Remark
1	Alumni Meet 2K24	08/06/2024	15 Alumni attended meet
2	Guest lecture organized on "Marathi Bhasheche Mahatva "	27/02/2024	16 Students of SY & TY attended
3	Farewell & Freshers welcome Function	12/07/2024	30 students of civil department

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STUDENT FACULTY CORNER





Hampi,KA,India Kamp Bhoop Marg, Hosar KA, India Lat 15.342369, Long 76.4 03/02/2024 11:52 AM GN Note : Captured by GPS M

Visit at Hampi, Karnataka







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DEPARTMENTAL ACTIVITY



ORGANIZES GUEST LEGTURE ON



Guest Lecture on 'Structural Audit Report'





Alumni Meet 2K24





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