Structural Engineering News Letter [1st Sept. 2023]

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Vision of the Institute:

To develop world class professionals through quality education.

Mission of the Institute:

 To create Academic Excellence in the field of Engineering and Management through Education, Training and Research to improve quality of life of people.

Vision of the Department

To achieve national and international recognition in structural engineering education.

Mission of the Department

- To nurture graduates as problem solvers who develop innovative solutions for industry related problems.
- To create graduates who possess the knowledge and skills for future challenges and lifelong learning as a structural engineer.
- To maintain healthy environment in the department which encourage our graduates and faculty to achieve their best in academics and research.
 Sanjivani College of Engineering Kopargaon.

<u>Sanjivani College of Engineering,</u> Kopargaon

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Structural

Engineering Newsletter

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Faculty strength

HOD's desk



The Sanjivani College of Engineering, Kopargaon, established by the Sanjivani Rural Education Society (SRES) 1983, in stands as а

trailblazer in delivering high-quality education in the rural regions of Maharashtra. In response to the growing demand for structural engineering opportunities both in India and internationally, the institution introduced B.Tech. and M.Tech. programs in Structural Engineering starting from the academic year 2020-2021.

Beyond imparting excellent education at the B.Tech. and M.Tech. levels, the department actively engages in fundamental and applied research as well as consulting services. A team of experienced and highly qualified faculty members drive the regular academic pursuits along with planned curricular and extracurricular endeavors for each semester.

Having completed three successful years of offering B.Tech. and M.Tech. programs in Structural Engineering, the department has not only achieved significant milestones but has also gained recognition as a lifelong member of the Indian Society of Structural Engineers, further contributing to its future growth and development.



First M.Tech Batch Convocation

raculty strength				
1.	Dr. A. S. Sayyad (Professor & Head) Ph.D., 17 Yrs. Experience			
2.	Dr. N. S. Naik (Associate Professor) Ph.D., 27 Yrs. Experience			
3.	Dr. S. M. Gunjal (Asst. Prof.) M.E., 13 Yrs. Experience			
4.	Dr. B. M. Shinde (Asst. Prof.) Ph.D., 13 Yrs. Experience			
5.	Prof. H.N. Wagh (Asst. Prof.) M.E., 09 Yrs. Experience			
6.	Prof. S. S. Kolapkar (Asst. Prof.) M.E., 08 Yrs. Experience			
7.	Prof. A. S. Jape (Asst. Prof.) M.E., 08 Yrs. Experience			
8.	Prof. S.B. Gayake (Asst. Prof.) M.E., 10 Yrs. Experience			
9.	Prof.A.D. Yawale (Asst. Prof.) M.E., 06 Yrs. Experience			
10.	Dr. Prashant Sunagar (Asst. Prof.) Ph.D., 12 Yrs Experience			
11.	Prof. H. N. Kedar (Asst. Prof.) M.Tech., 01 Yrs Experience			
12.	Dr. V. Vignesh (Asst. Prof.) Ph.D., 01 Yrs Experience			

<u>Laboratories</u>





The department currently possesses fully furnished laboratories including the Engineering Mechanics Lab, Material Testing Lab, Structural Analysis & Design Lab, Structural Audit & Health Monitoring Lab, Computers & Structures Lab, Students Innovations Lab, and Auto-CAD Lab, among others.

Admission (2022-23)									
<u>-umission (2022-23)</u>									
Class		Intake	9	Admitted Count					
FY B.Te		60		58					
FY M.Te	ch	18		13					
Results	: (2	022-23)						
			L						
Class	%	Result		Topper					
FY B.Tech	45%		В	awake Pratiksha S. [CGPA-9.13]					
SY B.Tech	65%			Abhang Kanchan R. [SGPA-9.60]					
TY 70% B.Tech		70%		Sonawane Tejal V. [SGPA-9.71]					

Students Participation						
Sr. No.	Name of Student	Name of Event	Organized by	Remark		
1.	Jundre Audumb er B.	LoGMIEER Techfest 2k23	Loknete Gopinathji Munde Institute of Engineering Education and Research	Winner		
2.	Wagh Nitin Deepak	Horizon 2023	Ashok Instiute of Engineering & Technology (Polytechnic), Shrirampur	2 nd prize		

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Sr. No.	Name of Student	Name of Event	Organized by	Remark
3.	Khaire Om Sushant	5 th State Level Inter Collegiate VISHWAN ATH SPORTS MEET	MIT-ADT University Pune, India	Participa tion Certifica te
4.	Jadhav Sanket Sadashiv	2023 Inter Zonal Sport Tourname nt/ Competiti on	Savitribai Phule Pune University, Ahmednagar District Zonal Sports Committee	Participa tion Certifica te
5.	Priyanka Ashok Rakshe	Concrete Day and Engineer's Day	Indian Concrete Institute, Pune, Centre	Participa tion Certifica te
6.	Pawan Rajendra Khodke	Concrete Day and Engineer's Day	Indian Concrete Institute, Pune, Centre	Participa tion Certifica te
7.	Divya Ravindra Kshirsaga r	Concrete Day and Engineer's Day	Indian Concrete Institute, Pune, Centre	Participa tion Certifica te
8.	Waghcha ure Snehal Virendra	Concrete Day and Engineer's Day	Indian Concrete Institute, Pune, Centre	Participa tion Certifica te

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Sports Events

In an exciting display of athleticism and camaraderie, the Department of Structural Engineering recently hosted the muchanticipated Sports Championship 2022-2023. Held on June 5th and 6th, this event brought together students from Semester-II for an exhilarating showcase of sportsmanship and Sports Championship, teamwork. The ingeniously integrated into the curriculum as a Creational Activity, demonstrated the department's commitment to fostering holistic growth among its students. The competition not only highlighted physical prowess but also celebrated the values of unity, dedication, and enthusiasm.





The event was a testament to the department's strong spirit of teamwork. Healthy competition and friendly rivalry resonated through various sports and activities, fostering a sense of unity and bringing the department closer together. Each participant's sportsmanship, support, and encouragement perfectly embodied the core values upheld by the department.



Over 15 different sports were contested with the participation of approximately 120 students. The concluding day witnessed the recognition of the Best Male and Female players, determined by their collective achievements across all events. Adding to the excitement, the TYBTech Class emerged victorious, claiming the General Championship for the year. The title of Best Male Player was awarded to **Mr. Aniket Gaikwad** of SY class, while **Ms. Komal Landge** of TY class secured the Best Female Player honor.



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Industry programs & Social events under ASES

During the academic year 2022-23, the Association of Structural Engineering Students (ASES) hosted a variety of enriching activities. These included one technical event, one social event, three one-day workshops, and six guest lectures, all tailored specifically for students in the SY and TY levels.

1. Cleanliness Drive @ Ankai Fort-

In line with "Together everyone achieves more" ASES and CESA jointly organized a "Cleanliness Drive @ Ankai Fort" on January 7th, 2023. Students from Structural and Civil Engineering participated, promoting heritage preservation and cleanliness awareness. This initiative celebrated historical significance and cultural pride. Thanks to all for their support in this effort.



2. Er. Anil Bandre-

The Department of Structural Engineering, along with the Association of Structural Engineering Students (ASES), presented an expert lecture on "Placement Opportunities in Design of Steel Structures." The talk, part of Sanjivani Connect, featured Er. Anil Bandre, Owner of Pillars Structural Engineering Pvt. Ltd. Pune.



Er. Bandre, formerly a Senior Design Engineer at thyssenkrupp Industries India Pvt. Ltd., shared insights on software-driven design for industrial steel structures, power plants, chemical factories, and more. The lecture was a motivating experience for aspiring engineers. Thanks to the department's HoD, Director, and Management for enabling this through Sanjivani I-Connect.

3. Er. Mahesh Sale-

programming Python, а powerful language, is highly beneficial to structural engineers. It offers libraries like NumPy, SciPy, Pandas for tasks such as analysis, and simulation, and data processing. These tools handle complex calculations, differential equations, FEA, and structural behavior Department of simulation.The Structural Engineering, recently organized a workshop on "Python for Structural Engineers." Er. Mahesh Sale, Director at ZeroOneBits Technologies Pvt. Ltd., shared insights on Python's applications in structural engineering. The workshop, held on May 5th, 2023, provided valuable insights into Python's role. Students discussed real-world enhancing their understanding. problems, Thanks to the Department, ASES, and Er. Mahesh

Sale. S IS Sanjivani College of Engineering, Kopargaon (An Autonomous Institute) Affiliated to Savitribai Ph At Shahanahadan Kost Mangar Hast Mangaru 423603, Tay: Kopargaon, Dist: Almednagar (MS) Approved by AICTE, ISO 9001-2015 Certified, Accredited by NBA, Accredited X' Grade by NAAC, Website: www.sanjianaico.org.nit, mail: principalco@e3anijinain.org.in, Ph.No.: [+91] 9130191301, Fax: (02423)-222682 SANJIVANI Association of Structural Engineering Students [ASES] A One day Workshop on Topic "Python for Structural Engineers" By **Er. Mahesh Sale** [B.E. Computer, M.Tech Computer Science] Director, ZeroOneBits Technologies Pvt.Ltd. Time: 10:00AM to 5:30PM Date: May 5th, 2023 Venue: Computer & Structures Lab-307. Prof.S.B. Gayake Prof.S.S. Kolapkar [Event Coordinator] Dr.A.S. Sayyad [HOD, Structural Engg.] Dr.A.G. Thakur [Director] Hon'ble Shri. Amitdada Kolh [Managing Trustee]

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4. Er. Vimal Kumar Maurya-

Sanjivani COE is dedicated to comprehensive student development, consistently pioneering initiatives for industry readiness. In collaboration with ASES, the Department of Structural Engineering organized a one-day workshop on May 9th, 2023. The workshop, "Importance of Structural Case Studies Audit with and Hands-on Training," targeted second-year B.Tech engineering students. Er. Vimal structural Kumar Maurya, an accomplished Structural Engineer from V. Kumar Consultants, Mumbai, shared his expertise in structural auditing. His insights guided students toward a career in Structural Auditing, enhancing their industry prospects. The Department, ASES, and students express gratitude to Er. Maurya for his valuable contribution. Thanks also to the Head of the Department, the Director, and the Management for this opportunity.



5. Structural Convection-An technical event

Sanjivani COE excels in innovative student engagement, offering diverse academic pathways and fostering interdisciplinary projects. In line with this, the Department of Structural Engineering orchestrated "Structural Convention-2023" on April 18-19, 2023. This technical event catered to Civil Engineering Diploma and 12th Science students.The convention hosted three competitions: CAD-Strife (Auto-CAD drawing), My Green Space (green building model) for Polytechnic students, and "प्रकल्प" (Science Project) for HSC students.



Over 70 students from neighboring colleges participated, contributing to its success.The Department thanks The Director and the Management for their unwavering support in organizing the event, ensuring its smooth execution and positive impact.

6. Er. Iqbal Shaikh-



The Department of Structural Engineering, in collaboration with Sanjivani I-Connect and the Association of Structural Engineering Students (ASES), hosted a guest lecture on "Preparing for Future Challenges in Structural Engineering." The talk was delivered by Er. Iqubal Shaikh, Executive Engineer at PWD Maharashtra, Bridge Design Section, Aurangabad. Er. Shaikh highlighted essential aspects like overcoming challenges, motivation, skill development, student life, readiness, upcoming opportunities, and goal setting. The lecture inspired students for competitive preparation and their journey ahead.

Faculty achievements & interaction with outside world

1. Dr. S.M. Gunjal- Congratulations to Dr. Sachin M. Gunjal, Assistant Professor, for completing his Ph.D. at SVNIT Surat. His research on "Calcined Clay-Limestone Blended Cement Concrete for Sustainable Development" earned him a Best Paper Award multiple published and articles. The department commends his achievement and wishes him success in his future research pursuits.

2. Dr. A.S. Sayyad- Congratulations to Dr. A.S. Sayyad, our Head of Department, for his outstanding research achievement! His dedication and expertise have earned him a place among the top 2% of global scientists, as recognized by a comprehensive bibliometric index. This remarkable accomplishment at a world rank of 98,444 is an inspiration to our department and the research community. Dr. Sayyad's groundbreaking work sets a shining example for colleagues and aspiring researchers alike. We are immensely proud of his achievements and eagerly anticipate his future successes in pushing the boundaries of knowledge.

3. Department of Structural Engineering-**Congratulations** to SCOE's Department of Structural Engineering for being designated as a Nodal Center for the IIRS-ISRO Outreach Program! This recognition reflects ISRO's trust in our organization's ability to disseminate knowledge and foster space exploration interest. Live online courses will engage students and the community, igniting curiosity and scientific thinking. We're grateful to the Head of the Department, Director, and Management for their unwavering support. Dr. Prashant Sunagar will lead the outreach program, inspiring generations and achieving remarkable milestones.

Research & Development Activities

1. A.S. Sayyad, Y.M. Ghugal and T. Kant, "Flexural mode, thickness-shear mode and thickness-twist mode frequencies of laminated

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composite shells of double curvature" Composite Structures, 291, July 2022, 115577.

2. S. Yadav, S. Damse, S. Pendhari, K. Sangle, A.S. Sayyad, "Comparative studies between Semi-analytical and shear deformation theories for functionally graded beam under bending" Forces in Mechanics, 8, Aug. 2022, 100111

3. Sayyad A.S., Avhad, P.V. and Palekar, S.P. 2023. Free Vibration Analysis of Anti-Symmetric FGM Sandwich Circular Beams Using a Fifth-Order Circular Beam Theory. Romanian Journal of Acoustics and Vibration. 19, 2 (Mar. 2023), 164-174.

4. A. S. Sayyad, B.M. Shinde and T. Kant, "Effects of Transverse Normal Stress on Hygrothermomechanical Analysis of Laminated Shallow Shells, AIAA Journal, https://doi.org/10.2514/1.J062169

5. Ali Alnujaie, Atteshamuddin S. Sayyad, Lazreg Hadji and Abdelouahed Tounsi, Buckling and free vibration analysis of multidirectional functionally graded sandwich plates, Structural Engineering and Mechanics, Volume 84, Number 6, December25 2022, pages 813-822

6. S.M. Gunjal, Sagar D. Turkane, S.V. Patankar, B. Kondraivendhan, Effect of magnesium sulphate and sulphuric acid attack on limestone calcined clay cement concrete, Materials Today: Proceedings,2023,ISSN 2214-7853,https://doi.org/10.1016/j.matpr.2023.03.4 88

7. A. S. Sayyad, Y.M. Ghugal and T. Kant, "Higher-order static and free vibration analysis of doubly-curved FGM sandwich shallow shells, Forces in Mechanics 11 (2023) 100194. https://doi.org/10.1016/j.finmec.2023.100194

8. A. S. Sayyad, B.M. Shinde and T. Kant, "Hygro-thermo-mechanical analysis of sandwich shallow shells considering the effects of transverse normal strain" Journal of Thermal Stresses,

https://doi.org/10.1080/01495739.2023.220644 4

9. "Nitin S. Naik and Atteshamuddin S. Sayyad 2022 IOP Conf. Ser.: Mater. Sci. Eng. 1236 012009, "Effect of Thickness Stretching on the

Natural Frequencies of Layered Composite Beams"

10. "A. S. Sayyad, S. P. Palekar and B.M. Shinde, "Higher order computational model considering the effects of transverse normal strain and 2-parameter elastic foundation for the bending of laminated panels""Applied and Computational Mechanics, 17 (2023) 53–70"

11. P.P. Deshpande and A.S. Jape, "Stress analysis of Functionally Graded Nanobeams using Hyperbolic Theory", Materials Today Proceeding, (2023)

Industry-Institute Interaction

The purpose of an industrial visit is to enhance students' comprehension by bridging the gap between theoretical knowledge acquired in classrooms and its real-world application. In pursuit of this goal, the department has successfully organized and conducted five industrial visits within the local vicinity. These visits offered valuable insights into various aspects, including planning, design, quality material testing, machinery operations, and management practices.

1. The Landmark Site- On May 27, 2023, T.Y.B.Tech Structural Engineering students visited "THE LANDMARK," a forthcoming real estate project in Kopargaon by Er. Amol Bhakre. The visit covered key aspects of RCC building and design, emphasizing codal analysis provisions, materials, reinforcement techniques, and concreting. This experience enriched their understanding significantly. "THE LANDMARK" features 20 upscale flats with premium amenities, offering students a chance to explore the work of a respected alumnus. Special thanks to Er. Sameer Shaikh and Er. Amol Bhakre for sharing their insights during the construction tour.



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2. <u>TM Cube Indware-</u> Industrial visits offer students real-world exposure, connecting theory to practice and enhancing career prospects. The Department of Structural Engineering organized a visit on April 27, 2023, to "TM Cube Indware LLP, Vilholi, Nasik" for SYBTech Structural Engineering students, focusing on "Geo-technical Engineering" and "Infrastructure Engineering." This experience enriched practical knowledge and career readiness. Thanks to the HOD, Director, and Management for their support in providing this opportunity.



3. HHSBT Samruddhi Mahamarg-



Sanjivani COE consistently prioritizes enhancing students' technical skills, practical training, and soft skills development. The Structural Engineering Department of organized an industrial visit to the New Police Station Building near Swastik Hotel, Samruddhi Mahamarg. Students learned about Foundation Plan Layout using Total Station, an advanced surveying instrument, gaining insight into onsite techniques and foundation layout aspects. The department extends gratitude to the HoD, Director, and Management for enabling this valuable opportunity.

4. Central Engineering Workshop-

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Industrial visits offer hands-on learning, fostering interaction and practical understanding. The Department of Structural Engineering organized an industrial visit to the Central Railway Engineering Workshop at Manmad on Nov 18th, 2022. TYBTech Structural Engineering students, studving Design of Steel Structures, explored railway bridge girder analysis and design concepts. They engaged with design philosophies, cross section detailing, connections, and more.

Student articles



Ms. Hemlata Rathod F.Y.B.Tech

Sustainable Architecture for school building:

The Rajkumari Ratnavati Girl's School is a model of sustainable architecture, conceived by Diana Kellogg of Diana Kellogg Architects and commissioned by CITTA, a nonprofit empowering disadvantaged dedicated to This architectural communities. marvel. constructed entirely from locally hand-carved Jaisalmer sandstone, symbolizes a harmonious tradition, functionality, blend of and environmental responsibility. The use of local materials not only reduced carbon emissions but also tied the structure intimately to the community it serves, with local craftsmen playing a crucial role. To combat the scorching temperatures of up to 120 degrees, a solar panel canopy on the roof was ingeniously integrated, providing both renewable energy and effective cooling. The school's elliptical enhances natural airflow, further shape contributing to its sustainable and energyefficient design. In essence, this school stands as a beacon of hope and progress, illustrating

the trans-formative potential of architecture deeply rooted in environmental sustainability and community engagement.





Mr. Audumbar Jundre S.Y.B.Tech

The Chandrodaya Mandir:

The Vrindavan Chandrodaya Mandir, under construction in Mathura, India by ISKCON Bangalore, is poised to become the world's tallest religious monument, soaring to approximately 700 feet. Spanning 26 acres, with a built-up area of 540,000 sq. ft., this ambitious temple project comes with a hefty price tag of around ₹700 crore, marking it as one of the world's most expensive temples. What sets this temple apart is its deep foundation, plunging five meters deeper than the iconic Burj Khalifa in Dubai, the tallest building globally.



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The temple complex is a splendid blend of 12 forests and four individual temples, each venerating different deities. The surroundings will mirror the tales of Lord Krishna, adorned with lush greenery, orchards, lotus ponds, and waterfalls. At its heart, the main tower will boast an elevator and a viewing tower, offering breathtaking panoramic views. The temple experience will be enhanced by a Krishna theme park featuring fun rides for children, laser shows, and a captivating heritage museum. Throughout the year, the temple complex will host Hindu festivals and spiritual events, inviting visitors to partake and connect with their spirituality. In its essence, the Vrindavan Chandrodaya Mandir is poised to be more than a place of worship—it aspires to be a monumental emblem, showcasing India's rich cultural and religious heritage while providing a space for people to delve into spirituality and engage in a spectrum of cultural and educational activities.



Mr. Vedant Nawale T.Y.B.Tech **Twisted Building with** Dynamo and AI rendering:





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Ms. Tanishqa Kolhe F.Y.B.Tech

Painting





Parents Meet

Department of The Structural Engineering arranged a parental gathering on the 8th of May, 2023, at 03:00 PM in the MBA Conference Hall. The aim was to foster dialogue and deliberations regarding students' academic and extracurricular accomplishments within the department. This gathering was an avenue for the academic faculty, students, and parents to engage in fruitful discussions, sharing perspectives and visions. The head of the department shed light on the department's past achievements and outlined the future aspirations, setting the tone for the event. Parents were actively involved, interacting with and reviewing their children's mentors, academic journey, expressing contentment department's endeavors with the and advancements in enhancing the holistic development of the students.



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As the program drew to a close, there was an optimistic atmosphere, with a tea and snacks session promoting a sense of camaraderie and collaboration amongst all present, solidifying the bond within the academic community. It was a productive and harmonious event, strengthening the relationship between the department and the parents, ultimately benefiting the students' educational journey.





<image>

Program Educational Objectives (PEOs)

- **PEO1:** To impart basic and advanced knowledge of structural engineering so that graduates are able to analyze and solve the industrial problems.
- **PEO2:** To provide hands on training to the graduates on latest equipment and latest software to make them suitable for industries and consultancies.
- **PEO3:** To equip the graduates with basic professional skills to work as a team member or leader for the socio-economical growth of the nation.
- **PEO4:** To motivate the graduates to pursue research, higher education and entrepreneurship in the structural engineering field.

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Program Specific Outcomes (PSOs)

PSO1: Graduates will be able to provide the best possible solutions for the analysis and design problems using conventional and modern engineering tools for the sustainable development related to the structural engineering.

PSO2: Graduates will be able to identify societal and industrial needs through allied courses such as planning and drawing, infrastructural engineering, project management, materials, mechanics, etc.



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