SSBT's College of Engineering and Technology, Bambhori Jalgaon
(Included under section 2 (f) and 12(B)of the UGC Act, 1956)
Grade A (3.14) NAAC Accredited

A Seminar on

Revolutionizing Structural analysis with AI

Activity Report

Academic Year	2024-25
Program Driven by	A Seminar on Revolutionizing Structural analysis with AI
Quarter	III
Program / Activity Name	Capacity Building Program
Program Type	
Program Theme	Innovation and startups
Start Date	15-02-2025
End Date	15-02-2025
Duration of the Activity (in Mins)	60
Number of Student Participant	0
Number of Faculty Participant	70
Number of external Participant	--
Expenditure Amount in Rs.	
Any Remark	--
Mode of Session Delivery	Offline
Objective	
Benefit in terms of Learning / Skills / Knowledge obtained	
Feedback	
Video url (mp4)	
Photograph 1 (jpg)	Attached
Photograph 2 (jpg)	Attached
Overall report of the Activity (pdf)	As given below

Dr. P. H. Zope
Convener IIC

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Report on Expert Lecture
Title: *Revolutionizing Structural Analysis with AI*
Date: 15th February 2025
Venue: MBA AC Seminar Hall
Speaker: Dr. Farooq Ismail Chavan
Designation: Associate Professor, Department of Civil Engineering

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Objective:

The primary objective of the lecture was to expose students and faculty to the evolving applications of Artificial Intelligence (AI) in structural engineering. The session aimed to enhance understanding of how AI-driven techniques are reshaping traditional structural analysis methods and contributing to more efficient, accurate, and intelligent design and evaluation processes in civil engineering.

Key Highlights:

- **Integration of AI in Structural Analysis:** The speaker elaborated on how traditional methods are being supplemented and enhanced by AI technologies such as machine learning, neural networks, and generative models.

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- **Predictive and Adaptive Systems:** Emphasis was laid on AI's capability to predict structural behavior under various conditions and adapt in real-time to changing stress factors and external loads.
- **Efficiency and Cost Reduction:** AI tools not only accelerate design processes but also reduce human error, project timelines, and overall costs.
- **Applications in Real-time Monitoring:** Insights were provided on how AI supports continuous monitoring and assessment of aging infrastructure to prevent failures and ensure safety.
- **Future Prospects:** The talk concluded with discussions on the scope of AI in building smarter and more sustainable infrastructure globally.

Outcomes:

- Participants gained a comprehensive understanding of current trends and innovations in structural analysis driven by AI.
- Students were introduced to interdisciplinary applications, sparking interest in merging civil engineering with data science and AI.
- Faculty members found the session valuable for future academic integration and research collaborations.
- The event encouraged attendees to consider the practical implications of AI in solving real-world civil engineering challenges.

Benefits in Terms of Learning, Skills, and Knowledge Obtained:

1. **Enhanced Technical Knowledge:**
   - Participants gained a deeper understanding of how AI algorithms are applied to structural analysis and civil engineering problems.
   - Exposure to cutting-edge tools such as neural networks, generative models, and real-time monitoring systems.
2. **Interdisciplinary Insight:**
   - The session bridged the gap between civil engineering and artificial intelligence, highlighting how computational methods can enhance traditional engineering practices.
   - Encouraged learners to explore the integration of data science and engineering design.
3. **Skill Development:**
   - Improved analytical thinking through discussions on predictive modeling and system optimization.
   - Sparked interest in learning programming and data analysis skills relevant to AI applications.
4. **Awareness of Industry Trends:**
   - Participants became aware of current innovations and future directions in infrastructure development.

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- o Insight into how AI is being used globally in smart cities, structural health monitoring, and sustainable construction.

5. **Research and Project Ideas:**
   - o The talk inspired new ideas for student research projects, final-year dissertations, and collaborative studies.
   - o Provided a foundation for exploring AI-based tools in academic and professional work.

6. **Professional Growth:**
   - o Gained a broader perspective on the evolving role of civil engineers in a tech-driven world.
   - o Motivated students to upskill and pursue advanced studies or certifications in AI and machine learning.

Remarks:

The session was highly interactive and intellectually stimulating. Dr. Chavan effectively communicated complex concepts using practical examples and real-world case studies. The audience, comprising students, researchers, and faculty members, appreciated the clarity and depth of the presentation. Feedback collected after the event indicated a strong interest in organizing more such interdisciplinary sessions in the future.

Conclusion:
The expert lecture served its purpose of enlightening the academic community on the revolutionary impact of AI in structural engineering. It fostered awareness, curiosity, and a proactive attitude towards adopting emerging technologies in engineering practice and education.

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	Decimal	DMS
Latitude	21.014066	21°0'50" N
Longitude	75.502681	75°30'9" E