GOVERNMENT ENGINEERING COLLEGE-VALSAD

CIVIL ENGINEERING DEPARTMENT

Date: 21-08-2026

Report on Expert Lecture On
"Structural Retrofitting Techniques"

1. Introduction

The Department of Civil Engineering organized an expert lecture titled 'Structural Retrofitting Techniques' to introduce students to the principles of structural strengthening, rehabilitation, and restoration through modern retrofitting methods. Students learned about various techniques used to improve the strength, stability, safety, and durability of existing structures and understood the importance of structural retrofitting in extending the service life of buildings and infrastructure.

2. Objectives

- ✓ Introduce students to the principles of structural retrofitting and rehabilitation.
- ✓ Develop knowledge of modern techniques used for strengthening existing structures.
- ✓ Enhance understanding of structural safety, durability, and performance improvement.
- ✓ Promote practical learning about innovative and cost-effective retrofitting methods.

3. Description of Activity

Students participated in an expert lecture on structural retrofitting techniques to understand the methods used for strengthening, repairing, and rehabilitating existing structures. During the session, the resource person explained various retrofitting techniques, their applications, and their importance in improving structural safety and durability. A total of 42 students actively participated in the activity. Students learned about different methods of structural strengthening, the materials used in retrofitting, and the challenges associated with rehabilitating existing buildings. Practical examples related to seismic retrofitting, strengthening of structural members, and repair of damaged structures were discussed. The activity concluded with an interactive question-and-answer session, allowing students to clarify their doubts and enhance their understanding of structural retrofitting techniques.

4. Learning Outcomes

- ✓ Understand the principles and importance of structural retrofitting techniques.
- ✓ Develop knowledge of structural strengthening, repair, and rehabilitation methods.
- ✓ Improve understanding of structural safety, durability, and performance enhancement.
- ✓ Enhance technical knowledge, problem-solving, and awareness of modern retrofitting practices.

5. Future Scope

- ✓ Integration of advanced materials and innovative retrofitting technologies.
- ✓ Use of modern techniques for seismic retrofitting and structural strengthening.
- ✓ Application of retrofitting methods in the rehabilitation of old and damaged buildings.
- ✓ Development of cost-effective and sustainable solutions for improving structural safety and extending the service life of existing infrastructure.

6. Acknowledgement

The department expresses sincere gratitude to Dr. Yogendra Tandel for his valuable guidance and insightful lecture on Structural Retrofitting Techniques, and to the participating students for their enthusiastic involvement and active participation.

7. Conclusion

The expert lecture successfully combined civil engineering knowledge, structural safety, and innovative retrofitting techniques. It enhanced students' understanding of structural strengthening and rehabilitation methods while developing their technical knowledge and awareness of modern practices for improving the safety, durability, and service life of existing structures.





8. Program Outcome (PO) with Justification

Program Outcome (PO)	Justification
PO1 – Engineering Knowledge	Students apply principles of structural engineering, material properties, and structural behavior to understand modern structural retrofitting techniques.
PO2 – Problem Analysis	Students understand structural deficiencies, identify damage in existing structures, and analyze the need for appropriate repair and strengthening techniques.
PO3 – Design/Development of Solutions	Students learn about suitable retrofitting methods for strengthening existing structures and improving their safety, stability, and durability.

PO6 – Engineer & Society	The expert lecture highlights the importance of structural retrofitting in improving public safety, rehabilitating damaged buildings, and enhancing the reliability of existing infrastructure.
PO7 – Environment & Sustainability	Structural retrofitting promotes sustainability by extending the service life of existing structures, reducing demolition waste, and minimizing the need for complete reconstruction.
PO10 – Communication	The expert lecture enhances students' technical communication skills through interaction with the resource person, clarification of doubts, and discussion of practical engineering applications.
PO12 – Life-long Learning	The expert lecture encourages students to continuously learn about emerging retrofitting technologies, advanced construction materials, and innovative methods for structural rehabilitation.

9. Program Specific Objective (PSO) with Justification

Program Specific Objective (PSO)	**Justification**
PSO1 – Technical Research & Innovation	The expert lecture encourages innovative thinking and technical knowledge through the exploration of modern structural retrofitting techniques and advanced methods for strengthening and rehabilitating existing structures.
PSO2 – Application of Technical Knowledge	Students apply their knowledge of structural engineering, material properties, structural assessment, and strengthening techniques to understand the practical applications of structural retrofitting in civil engineering.
PSO4 – Research, Innovation & Industry Interaction	The programme enables the faculty to develop academic proficiency by involving in research & innovation, interaction with industry and professional bodies through technical advice and Continuing Education Programs (CEP) to meet the needs of the user system.

10. Sustainable Development Goal (SDG) with Justification

Sustainable Development Goal (SDG)	**Justification**
SDG 4 – Quality Education	The expert lecture promotes quality education by enhancing students' technical knowledge, practical understanding, and awareness of modern structural retrofitting and rehabilitation techniques through expert guidance and interactive learning.
SDG 9 – Industry, Innovation & Infrastructure	The expert lecture promotes innovation in civil engineering by introducing modern structural strengthening and rehabilitation

	techniques that improve the safety, durability, and resilience of existing infrastructure.
SDG 11 – Sustainable Cities and Communities	Make cities and human settlements inclusive, safe, resilient and sustainable.
SDG 12 – Responsible Consumption & Production	Structural retrofitting supports the development of safer and more resilient buildings and communities by improving the performance of existing structures, reducing the need for demolition, and extending their service life.

Department Coordinator

(Dr. Yogendra Tandel)

H.O.D

Civil Engineering Department