Workshop Report

The department of **Civil Engineering** organised a **2-day Workshop** titled **Applications of Software in Structural Analysis** on **02-03-2026 and 03-03-2026** at **10:00 AM**, in **Seminar Hall 2**.

The session was related to applications of software in Structural Analysis, which involves the use of advanced computer programs for analysing and designing various structural systems in civil engineering. These software tools help engineers to model structures, apply loads, analyse stresses, deformations, and ensure that the structures are safe, stable, and economical. The session also highlighted the importance of using modern engineering software to improve accuracy, reduce design time, and handle complex structural problems efficiently.

The dignitaries present were Ms. Hajira Nigar C, Structural Engineer, ISCT Group and Autodesk Certified Instructor, Bangalore, and Prof. Muralidhara R, Associate Professor, Civil Engineering Department, MVJCE.

Prof. Asra Fathima delivered the welcome address, welcoming the Chief Guest and participants. Prof. Muralidhara R introduced the guest speaker.

Ms. Hajira Nigar C began her session with an informative discussion on the advancements of software in Civil Engineering, particularly focusing on the use of various software tools in structural analysis and design. She explained how modern engineering software helps engineers in modelling structures, analysing loads, and evaluating structural performance efficiently. She also highlighted the importance of adopting digital tools in the construction industry to improve accuracy, save time, and enhance the quality of design and analysis. The session provided valuable insights into the practical applications of software in solving complex structural engineering problems.

Objectives of the Workshop

The primary objectives of the event were:

- To introduce participants to the applications of Softwares used in building design and structural analysis.

- To create awareness about Building Information Modelling (BIM), highlighting how Revit supports architectural modelling, visualisation, and design analysis.
- To enhance students' practical understanding of modern engineering software tools used for architectural planning, structural modelling, and analysis in the construction industry.

Event Overview

Figure 1: Workshop Banner Displayed at the Venue

Figure 2: Dignitaries seated on the stage during the event

Day 1, Session 1: Ms. Hajira Nigar C, Structural Engineer, ISCT Group and Autodesk Certified Instructor, Bangalore, started the workshop with a comprehensive introduction to various software used in Civil Engineering, explaining how digital tools have become an essential part of modern engineering practice. She explained how the use of engineering software helps professionals in improving accuracy, saving time, and managing complex projects efficiently. The session provided participants with an overview of the role of technology in modern civil engineering work.

Figure 3: Prof. Muralidhara R delivering the welcome speech

She further discussed the different fields in Civil Engineering, such as building construction, demolition, surveying, road construction, remote sensing, structural design, project management, and quantity estimation. She explained how specialised software is used in each of these fields to assist engineers in planning, designing, and executing projects effectively. The session also highlighted the applications and necessity of advanced software in planning, designing, analysing, and managing construction projects in today's construction industry.

Figure 4: Ms. Hajira Nigar explaining software applications to students

In addition, she explained the importance of Building Information Modelling (BIM) in integrating architectural, structural, and construction information within a single platform. She also discussed the growing job opportunities in the BIM field and emphasised the increasing demand for skilled professionals in the construction and infrastructure sectors. The session concluded with an interactive question and answer session, where participants clarified their doubts and gained further insights into the practical use of these technologies in civil engineering.

Day 1, Session 2: The second session of the workshop focused on the introduction to Revit Architecture. She began the session by explaining the basic concepts of

Building Information Modelling (BIM) and how Revit Architecture is widely used for creating intelligent 3D building models. She highlighted the advantages of using Revit in architectural planning, visualisation, and coordination of different components in a construction project.

She then demonstrated the basic tools and interface of Revit Architecture, helping participants understand how to start a new project and navigate through the workspace. The session included explanations of commonly used tools for creating walls, doors, windows, floors, and other architectural components. She also explained the process of setting up project units, managing views, and understanding the different panels and commands available in the software. Further, she guided

Figure 5: Ms. Hajira Explaining the tools available in Revit

the participants on importing files and working with external drawings, such as importing AutoCAD files into Revit for further modelling. She explained how these imported files can be used as references while developing 3D building models. The session helped students gain a basic understanding of Revit Architecture and provided them with practical exposure to the workflow involved in creating digital building models.

Day 2, Session 1: The first session of Day 2 focused on the creation of a residential house model using Revit Architecture. Ms. Hajira Nigar C guided the participants through the step-by-step process of developing a house plan within the software. She demonstrated how to create walls, place doors and windows, define room layouts, and develop a complete floor plan using the available tools in Revit. The session helped students understand how architectural components can be accurately placed and modified while designing a building plan.

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In addition, she explained the process of generating elevation views and detailed building elements from the created plan. Participants were shown how to view the building in different perspectives, adjust heights, and refine structural and architectural details within the model. The session emphasised the advantage of Revit in automatically generating elevations and maintaining coordination between plan, elevation, and 3D views, which improves efficiency and accuracy in architectural design.

Figure 6: Students creating house model in Revit

Day 2, Session 2: The second session of Day 2 was continued by the new speaker, Ms. Prema Krishna K, Structural Engineer at ISCT Group and Autodesk Certified Instructor, Bangalore. She focused on the development and refinement of the house model created in the previous session using Revit Architecture. She further explained how to add more architectural details to the model, such as floors, roofs, stairs, and other structural components. She also demonstrated how to modify the previously created plan and elevation to improve the overall design and ensure proper alignment of building elements. In addition, she guided the participants
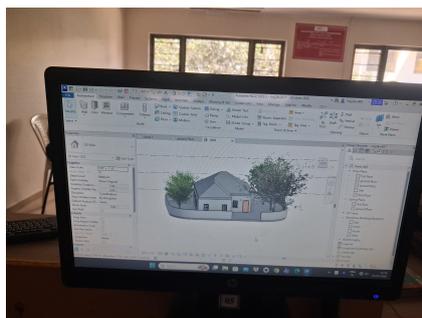

Figure 7: Students adding architectural details in Revit software

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on visualising the model in a 3D view and generating different architectural views and sheets required for the project presentation. The session helped students understand how Revit allows engineers and architects to easily update changes in the model, which automatically reflect in the plan, elevation, and other views. By the end of the session, participants gained a better understanding of creating a complete building model and presenting architectural drawings effectively using Revit Architecture.

Figure 8: Guest being felicitated with a flower pot by the HOD

Day	Time	Session Details
Monday, March 2 2026	10:00 am - 10:15 am 10:15 am - 12:00 pm 01:15 pm - 03:30 pm	Welcome Address Introduction to Civil Software Introduction to Revit
Tuesday, March 3 2026	10:00 am - 12:00 pm 1:15 pm - 3:30 pm	Creation of House Model Development of Building Model in Revit

Table 1: Schedule of the Event

Outcomes and Impact

- Participants gained a basic understanding of **Building Information Modeling (BIM) and Revit Architecture**, including the creation of building plans, elevations, and 3D models.
- The workshop helped students develop awareness about the **importance of modern digital tools in civil engineering design**, improving their practical knowledge and skills relevant to industry applications.

Conclusions

The workshop was successfully conducted and provided participants with valuable knowledge about the use of Revit Architecture and the role of BIM in modern civil engineering practice. Students gained practical exposure to creating building models, plans, and elevations using the software. Overall, the event helped enhance participants' understanding of digital tools used in architectural design and construction planning.

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