

Guest Lecture on COMSOL Multiphysics- Structural Mechanics Modules

07/05/2025 (Wednesday)

Report: Guest Lecture on COMSOL Multiphysics- Structural Mechanics Modules on 07.05.2025 (Wednesday)

The Department of Mechanical Engineering, organized a guest lecture on COMSOL Multiphysics-Structural Mechanics Modules, on 07/05/2025 (Wednesday), in Seminar Hall 4, from 10:30 AM to 01.00 PM. The resource speaker was Mr. Yuvraj M, Application Engineer, DHIO Research and Engineering Pvt Ltd. The guest lecture was organized at the Department level for second and third year students of Mechanical Engineering, Aeronautical Engineering and Aerospace Engineering. Around 89 students from these departments participated in the event.

The program was inaugurated by Dr. Shrinivas L Gombi, Dean, SoMS MVJCE, and Dr. Santhosh N, HoD, Department of Mechanical Engineering, MVJCE, delivered the inaugural welcome address.



Mr. Yuvraj M, Guest Speaker (left side), from Dhio Engineering and Research Pvt. Ltd., Mr Dhanush Mishra (middle), from COMSOL India Pvt. Ltd., Dr. Shrinivas L Gombi (right), during the inaugural session of the guest lecture.



Dr. Shrinivas L. Gombi, Dean SoMS MVJCE (on the podium), addressing the gathering during the inaugural session of the guest lecture.

The inauguration was followed by a welcome speech by Dr. Shrinivas L. Gombi, Dean SoMS MVJCE. He highlighted the importance of such programs to nurture the students, to bridge the gap between the industry and academia. The lecture by Mr. Yuvraj M focused on the add-on to the COMSOL Multiphysics simulation platform that provides capabilities for modeling a wide range of structural phenomena. The lecture also covered basic modeling techniques such as meshing, solvers, and results visualization in COMSOL Multiphysics followed by a look at nonlinearity in structural analysis, along with a focus on geometric nonlinearity and nonlinear material models. It also focused on contact modeling and some of the advanced modeling techniques of structural analysis.

Training Course Objective

The goal of this guest lecture was to immerse the students in COMSOL Multiphysics modeling workflow and help them feel comfortable working with the Structural Mechanics module by using a combination of instructor-led and self-guided hands-on training, along with theoretical and practical lectures.



The guest speaker, Mr. Yuvraj M, lecturing on the topic COMSOL Multiphysics- Structural Mechanics Modules



Dr Santhosh N, HoD Mechanical Engineering, giving vote of thanks

The guest lecture created an opportunity for students to learn how to efficiently run mechanical analyses with the COMSOL software.

Outcomes of the Event:

By attending the seminar, the Mechanical Engineering students of the second and third year have gained knowledge on

- Managing Models and Simulations with the Model Manager
- Connecting Analysis, Design, and Production
- Consistent Modeling Workflow with the Model Builder
- AI-enhanced simulation workflows

Conclusion

The guest lecture on COMSOL Multiphysics provided a platform for students where diverse physical phenomena could be modeled together under one roof. Its ability to handle multiphysics problems, build custom apps, and integrate with CAD and scripting environments makes it an indispensable tool in both academia and industry.

The students understood whether you are designing a biomedical device, analyzing a high-voltage circuit, or optimizing a chemical reactor, and how COMSOL empowers you with simulation capabilities that mirror real-world complexities.

They also realised that the demand for accurate, multiphysics-driven design grows, and the relevance of COMSOL, making it not just a simulation tool, but a cornerstone of innovation.