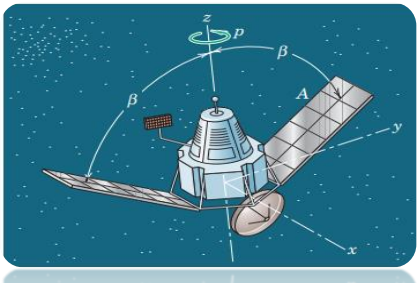
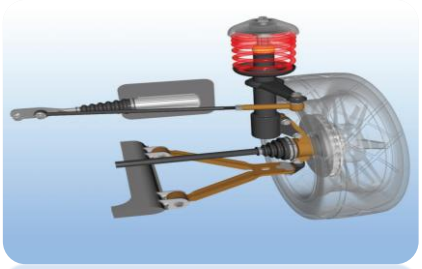
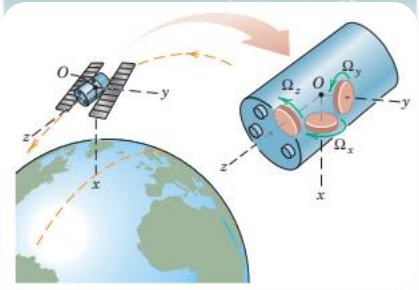
Dynamics of Structural Systems

Date: December 9-December 13, 2024

(Online course)





Organized by:

Department of Aerospace Engineering and Applied Mechanics

Indian Institute of Engineering Science and Technology (IIEST), Shibpur

West Bengal, INDIA

Department of Aerospace Engineering and Applied Mechanics (AE&AM), IIEST, Shibpur

About Organizing Institute

The Indian Institute of Engineering Science and Technology, Shibpur (IIEST Shibpur) is indeed a prestigious institution with a rich history dating back to 1856. Its evolution from the Civil Engineering College to a national institute highlights its significance in India's educational landscape. The wide array of programs offered at IIEST Shibpur, including undergraduate, postgraduate, and doctoral studies in engineering, science, and architecture, reflects its commitment to comprehensive education. The blend of theoretical knowledge with practical skills is particularly noteworthy, as it prepares students for the complexities of the professional world. Additionally, the emphasis on interdisciplinary learning, innovation, and research is crucial in today's rapidly evolving technological landscape. The well-equipped laboratories and research centres provide students with the opportunity to engage in hands-on learning, enhancing their educational experience. Overall, IIEST Shibpur stands out as a leading institution that not only honours its historical roots but also adapts to contemporary educational needs, making it an attractive choice for aspiring engineers and scientists.

About Aerospace Engineering and Applied Mechanics Department

The Department of Applied Mechanics at IIEST Shibpur indeed boasts a rich history since its establishment in 1947. Its transition to the Department of Aerospace Engineering and Applied Mechanics in 2008 highlights its commitment to adapting to the evolving landscape of engineering education. The focus on engineering mechanics and aerospace engineering, along with ongoing research in multiple areas, underscores the department's dedication to providing a cutting-edge curriculum. This diverse range of programs not only imparts essential theoretical knowledge but also emphasizes practical skills, effectively preparing students for the challenges they will face in the aerospace and engineering sectors. By fostering an environment of innovation and hands-on learning, the department plays a crucial role in shaping future engineers equipped to tackle contemporary issues in these dynamic fields.

Department of Aerospace Engineering and Applied Mechanics (AE&AM), IIEST, Shibpur

Course Overview

This course provides a comprehensive exploration of motion and forces on rigid bodies, crucial for engineering applications. Starting with Newton's principles for particles and rigid bodies, it covers kinematics and kinetics in both rotating and non-rotating reference frames. You'll learn to analyze the dynamics of complex systems in three-dimensional space, with fundamental principles clearly explained and illustrated. Basic principles of fluid dynamics will also be covered. By the end, you'll have a solid foundation for modeling and analyzing dynamic systems in engineering contexts.

Course Objectives

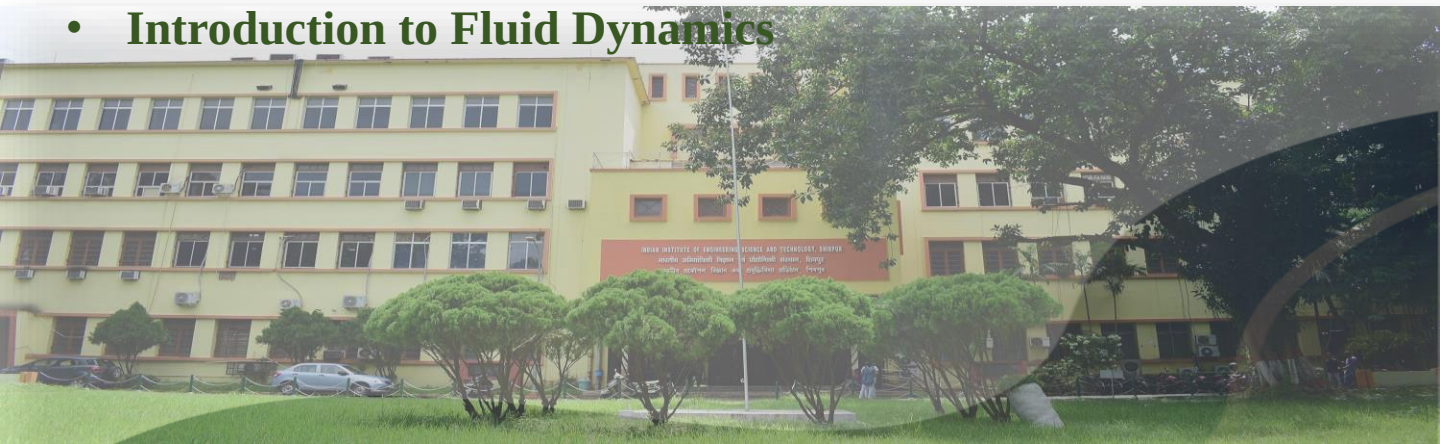
This course focuses on the principles governing the motion of rigid bodies under various forces. It provides broad coverage of key topics, including kinematics, Newton's laws, rotational dynamics, and the principles of energy and momentum. These concepts will equip you to tackle complex real-life dynamics problems, whether in machinery, aerostructures, or civil engineering structures. Additionally, the course aims to deepen your understanding of vibration, fluid dynamics, laying a solid foundation for various engineering applications.

Who can attend

Engineering students especially from Civil, Mechanical, Aeronautics and Aerospace Engineering disciplines can find the course very useful. This course will be immensely beneficial for the students pursuing undergraduate, postgraduate degrees and doctoral research. The course is expected to aid the young faculties and practicing engineers in teaching, research and other challenging works.

Course Contents

- Introduction
- Dynamics of System of Particles
  - Introduction
  - Generalized Newton's Law
  - Integrated forms of Newton's Law
- Kinematics and Kinetics of Rigid Bodies in Plane Motion
- Rotating and Non-rotating Frame of Reference
  - Equations of Motion
- Motion in Space
  - Spheric Motion and Chasles's Theorem
  - Kinematics: Body Cone and Space Cone
  - Inertia Tensor, Kinetic Energy, Gyroscopic Motion, Parallel Plane Motion, Euler's Equations
- Vibration
- Introduction to Fluid Dynamics



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Course Instructors

Dr. Nityananda Nandi, Associate Professor and Head
Dr. Prithwish Kumar Das, Associate Professor
Dr. Rana Roy, Professor

Course Fee (online mode)

Participants	Online (Inclusive GST)
Student, research scholar and others	Rs. 5,000/-

Registration Steps

1. The registration fee to be paid through following account:
   Name: CONTINUING EDUCATION CENTRE BESUS
   A/c No.: 1532010011963
   IFSC: PUNB0153220
   Bank Name: Punjab National Bank
   Branch: BESUS
2. After successful payment, please fill in and submit the Google form along with the payment receipt using the link below:
   https://forms.gle/9dQF6KMzqurLLGJR6

3. Last date of registration: December 6, 2024

Notes:

- ✓ Certificate will be provided to the participants upon completion.
- ✓ Link will be provided to candidates applying for online mode via registered email.

Course Coordinators

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