

MASTER CERTIFICATION COURSE

A dedicated e-learning platform on

INTRODUCTION to STRESS, VIBRATION & SIMULATION

A Upskilling Program for New Product Design, Innovation & Research

Course evaluated by **AICTE**

Implemented by



An Initiative of the Ministry of Education Govt. of India



₹ 4999 (Incl.GST)

1 YEAR LEASE LICENSE PER USER

Building critical thinking problem solvers for the future with unparalleled competitive spirit

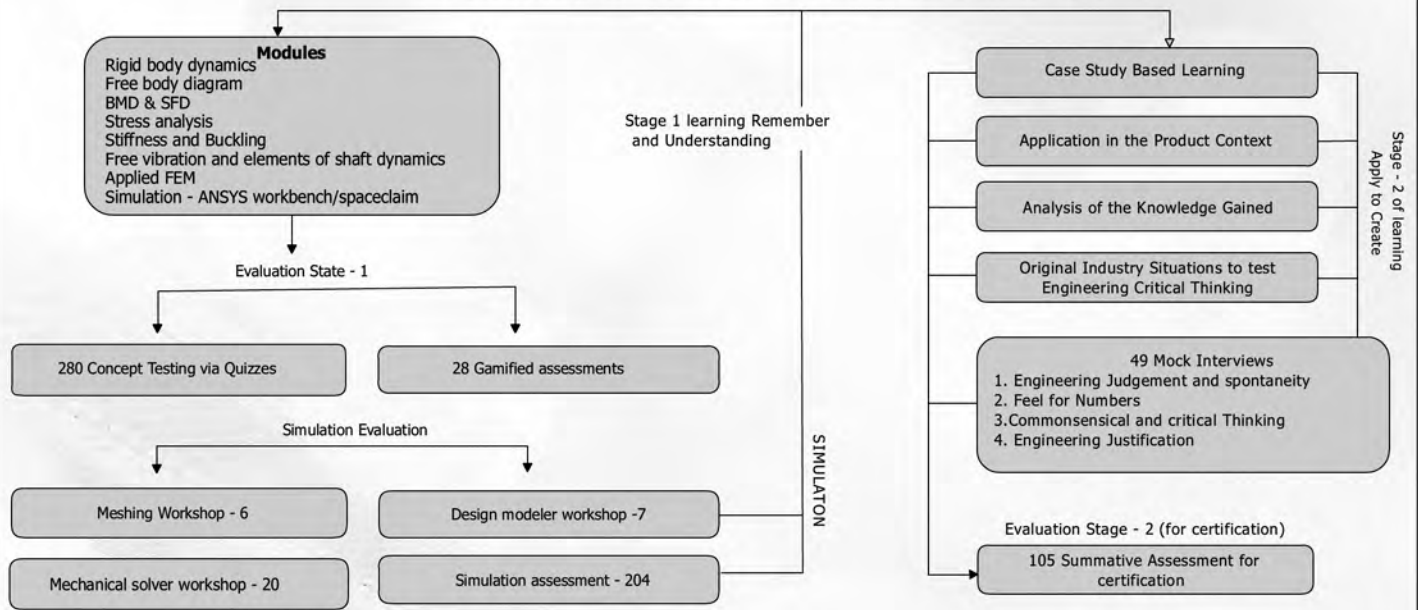
Several courses are available on the web catering to various requirements and very few of them focus on building organic traits such as critical thinking and problem solving. This unique course is a combined package to address every possible need of a young engineer

- Industry readiness
- Complete preparation for top notch interviews
- Strong Foundation for industry relevant simulation skill.
- Introduction to ANSYS Workbench/Spaceclaim (Free with the course)
- Assessments designed to test and map critical thinking and problem-solving skills.

**FREE
ANSYS
TRAINING MATERIAL
AVAILABLE WITH
THIS COURSE**

MODULE	What it contains?	Key Engineering takeaway
Module - 1	<p>Structural physics recast for product development</p> <ul style="list-style-type: none"> • Engineering mechanics (FBD and RBD) • Material mechanics (BMD&SFD, Stress analysis and stiffness and buckling) • Vibration analysis (Free vibration and shaft dynamics) • FEM <p>5 levels of assessments, that test and map against critical industry requirements</p> <p>Introduction to ANSYS workbench/Spaceclaim latest version with 50 workshops comes free with the course</p>	<ul style="list-style-type: none"> • Detailed understanding of loads and load path (Mechanical and thermal loads) • A detailed appreciation for stress, vibration and buckling margin of a component. • Strong fundamental foundation on stress and vibration from component design perspective • Critical thinking • Visualisation • Feel for numbers • Simulation and physics proficiency
Module - 2	<p>An e-Learning GO-TO Course Material on stress, vibration and simulation "Fundamentals of Stress & Vibration"</p>	<ul style="list-style-type: none"> • 100 plus idealized product situations that systematically and mathematically explain design facets • Concepts are naturalized : equations of motion are used to explain Newmark integration formulae

Proficiency in Stress , Vibration & Simulation



Program outcome:

Graduates & Post graduates

- The understanding and application of Mathematical, Science, Engineering Facts,
- Performance and Quality in Paper presentation, Innovation Competitions, Hackathons, Internship, Project, Apprenticeship, Job Opportunities in Engineering and R&D

Research Scholars and Faculty

- Improve the ability to define the problem.
- Application of physics fundamentals to problem analysis.
- Ability to pursue higher literature.
- Orient towards practical research

Introduction to Basic Simulation Culture - ANSYS Workbench/Spaceclaim

This module primarily make the candidates familiar with the GUI, helps in the navigation of ANSYS better understanding of fundamental structure / Free vibration Analysis, Hands on tutorials with voice-over demo for better understanding. 12 case studies with answers and assessments



Module 2: An e-Learning GOTO Course Material FUNDAMENTALS OF STRESS & VIBRATION

The book is intended towards the development of engineers who aspire to peruse product development. The book resorts to numerical culture to explain concepts. The approach has multiple benefits such as sense of numbers, mathematical modelling of the situation and a detailed insight to what parameter has what influence. The book has more than 100 challenging situations solved step by step, providing every possible insight. The situations are well concluded with engineering facts that are crucial to a designer or an analyst. The situations presented are idealized product situations which lay the foundation for strong design culture.

- 100 plus idealized product situations that systematically and mathematically explain design facets
- Concepts are naturalized : equations of motion are used to explain Newmark integration formulae
- All chapters of structural physics are given equal emphasis
- Mathematics relevant to structural physics is presented with practical examples
- Important tools for designers, such as Campbell diagram and Goodman diagram, are detailed with uses and its possible abuses caused from misinterpretations
- Highest clarity is provided on stress concentration fatigue and fracture.
- Foundation for advanced structural learning including detailed mathematical treatment of axisymmetric situations
- Product relevant engineering facts as part of conclusions are given
- Large numbers of graphs are plotted, be it stress or a mechanics situation, to provide insight and assume generalisation
- Optimisation (calculus based) is carried out in many situations to provide young engineers a detailed sense of why and how of optimisation
- In line with current practices, a stochastic optimisation example is included to prepare the candidate for advanced learning

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