



National Center for
Composite Materials

Design and Analysis Lab

Lab Facilities



www.ntu.edu.pk/nccm

Design and Analysis Lab

The main objective of this lab is to facilitate the composite industry either by designing (prototype) or recommending solution to their problems by numerical simulation. The lab facilities include:

High Performance Computing

Design and Simulation software

- COMSOL Multiphysics v 5.3
- Ansys 19.1
- Wisetex
- LsDyna

Optical microscope

High Performance Computing

Z840, hp

Work Station

512 GB RAM

Power edge T620, Dell

Work Station with UPS

COMSOL Multiphysics

FEA software, V 5.3

A general-purpose platform software for modeling engineering applications. It has also the capacity to solve the complex Multiphysics problems. The modules available for modelling are:

- Structural mechanics
- Fluid flow
- Heat transfer
- Acoustics
- Chemical specie transport
- Mathematics



Ansys

FEA software, V 19.1

Ansys software is used to design products, as well as to create simulations that test a product's

- Durability
- Temperature distribution
- Fluid movements

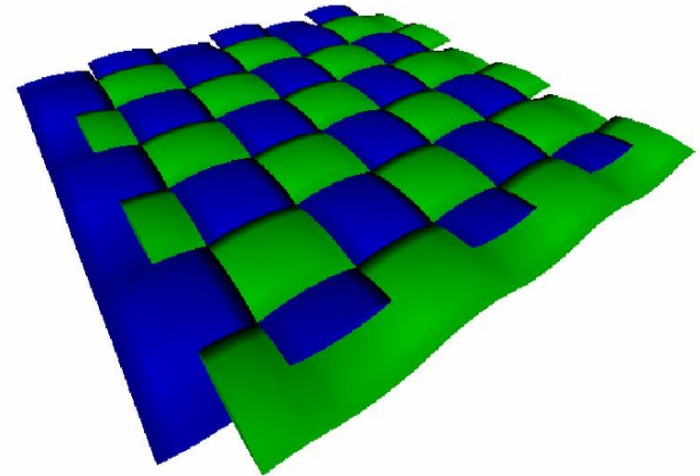
The software creates simulated computer models of structures or machine components to simulate its performance properties. It also helps to determine how a product will function with different specifications, without building test products or conducting crash tests.



Wisetex

THE INTEGRATED TOOL FOR MODELLING TEXTILES AND TEXTILE COMPOSITES

- Internal geometry of dry and impregnated textiles
- modelling of the internal structure and deformability of textiles
- Virtual Reality visualization of the textile geometry
- Resistance of textiles to tension, shear and compaction
- Permeability of textiles
- Stiffness of textile composites



LsDyna

General-purpose finite element program capable of simulating complex real world problems. It is preferred for dynamic indentation and Impact Analysis. LS-DYNA handles transient dynamic problems. Example applications that are considered transient and dynamic include,

- Crash
- Ballistics
- Stamping
- Highly nonlinear quasi-static events



Optical Microscope

DP80, Olympus-Japan

- DP80 combines both a color and a monochrome sensor within the same housing, providing high resolution brightfield imaging.
- CellSens control software enables rapid and automatic exchange between the chips.
- High sensitivity monochrome image capture also supports the near infrared

