

2D CAD

- Introduction
- File management
- Orthographic drawings
- View management
- Display management
- Layer management
- Selection methods
- Parametric drawings
- Symbol creation using block
- BOM / Joinery details creation
- Isometric drawings
- Perspective drawings
- Annotations and Dimensions
- Team work
- Layout management
- Publish and Plot

Courseware Issued:

AutoCAD

- Reference Guide with Workbook

DURATION: 64 hrs

3D AutoCAD

- 3D modeling concepts in AutoCAD
- Understand and use viewpoint and UCS
- Wireframe modeling
- Solid modeling & editing
- Mesh modeling & editing
- Surface modeling & editing
- Create & manage 2D views from 3D models
- Materials, lights & rendering
- Working with images
- Import and export

Courseware Issued:

AutoCAD - 3D Modelling

- Reference Guide

DURATION: 40 hrs

MicroStation

- Introduction
- Understanding the interface
- MicroStation workflow
- Working with views
- Creating and modifying elements
- Annotation tools
- Dimensioning
- Working with levels
- Working with references
- Printing methods

Courseware Issued:

MicroStation

- Reference Guide

DURATION: 64 hrs

Inventor

- Autodesk Inventor User Interface
- 2D sketching
- 3D sketching
- Parametric Part Modeling
- Creating Work Features
- Editing Features
- Advanced Modeling Tools
- Creating I-Part, I-Features, I-Logic
- Assembly Design
- Bottom –Up Assembly
- Top-Down Assembly
- Creating Adaptive, Flexible Components
- Creating Presentation File
- Creating Level of Details Representation
- Understanding Simplified Assemblies
- Using Shrink-wrap
- Creating Skeleton Modeling
- Sheet metal Design
- Surface Modeling
- Drafting & Detailing
- Freeform Modeling
- Inventor Studio

Courseware Issued:

Inventor

- Reference Guide

DURATION: 80hrs

SolidWorks

- Sketcher basics
- 3D sketching
- Part modeling
- Creating reference geometries
- Editing features
- Advanced modeling tools
- Configuration
- Design table/library features
- Import/export of files
- Surface overview
- Bottom-up assembly
- Top-down assembly
- Exploding assemblies
- Simulation/ Detailing
- BOM, balloon tools
- Sheet metal
- PDM Works
- Weldment

Courseware Issued:

SolidWorks

- Reference Guide

Workbook

DURATION: 80 hrs

SolidWorks Motion

- Types of Motion Studies
- Solid Works Motion Capabilities
- Solid Works Motion Entities
- Animation and Basic Motion
- Motion Simulation
- Using Solid Works Motion for Solving Particle Dynamics Problems
- Using Solid Works Motion for Solving Multibody Dynamics with Examples
- Results Plots and Verification

Courseware Issued:

SolidWorks Motion

- Reference Guide

DURATION: 40hrs

CREO / PARAMETRIC

- Creo/Parametric concepts
- Using the Creo/Parametric interface
- Creating sketcher geometry
- Creating extrudes, revolves, and ribs
- Selecting and editing
- Creating datum features
- Utilizing internal sketches and embedded datums
- Creating sweeps and blends
- Creating holes and shells
- Creating rounds, chamfers and drafts
- Variable section sweeps, helical sweeps and swept blends
- Creating patterns
- Group, copy, and mirror tools
- Measuring and inspecting models
- Advanced reference Management
- Relations and parameters
- Layers, family tables & UDF
- Assembling with constraints
- Exploding assemblies
- Creating surface features
- Editing surface features in Creo/Parametric
- Creating drawing views
- Creating drawing details
- Using advanced assembly constraints
- Creating and using component interfaces
- Creating and using flexible components
- Using assembly features and shrinkwrap
- Replacing components in an assembly

- Understanding simplified reps
- Creating cross-sections, display styles, and combined views
- Substituting components by rep, envelope, and model
- Creating and using assembly structure and skeletons
- Introduction to sheet metal design
- Primary walls, secondary and unattached walls
- Unbend, bend back and cuts
- Notches and punches
- Sheet metal forms
- Bending & Unbending sheet metal geometry
- Converting solid parts
- Sheet metal drawings with flat states and bend order table

Courseware Issued:

Creo/Parametric

- Reference Guide with work book

DURATION: 80 hrs

CREO Simulate

- Theoretical Fundamentals
- Preparing a CAD Model
- Pre-Processing
- Meshing
- Structural Static Analysis
- Model Analysis
- Buckling Analysis
- Symmetry
- Thermal
- Assembly Analysis
- Dynamic Analysis

Courseware Issued:

CREO Simulate

- Reference Guide

DURATION: 40hrs

CATIA

- CATIA user interface
- Creating And editing Sketches
- Creating sketch based features
- Creating transformation features
- Creating dress up features
- Creating advanced replication tools
- Editing parts in Assembly
- Creating surface features
- Generative Sheet metal Design
- Drawing View generation
- Bill of materials, balloons
- Finalizing the drawing and Printing
- Dress up on 2D views
- Real time rendering

Courseware Issued:

CATIA

- Reference Guide
With Workbook

DURATION: 80hrs

CATIA Kinematics

- Kinematics Overview
- Graphic User interface of CATIA Kinematics
- Basic mechanism process
- Creating Joints
- Motion Transfer Joints
- Rotating Joints
- Complex Joints
- Converting Constraints into Joints
- Generating Mechanisms
- Simulating Mechanisms
- Evaluating Mechanisms
- Swept Volume

Courseware Issued:

CATIA Kinematics

- Reference Guide

DURATION: 24hrs

Reverse Engineering

- Reverse Engineering
- Process in Reverse Engineering
- Reverse Engineering Hardware and Software
- Getting Started
- Processing the Point Cloud data
- Importing Cloud data
- Creating and Editing Scans
- Editing Scans
- Curve Creation
- Creating Surfaces from curves (QSR)
- Completing the Surfaces with GSD

Courseware Issued:

Reverse Engineering

- Reference Guide

DURATION: 40hrs

NX CAD

- User interface
- Sketcher essentials
- Constraining sketches
- Datums
- Creating part features
- Editing parts
- Creating fundamental curves
- Editing curves
- Editing freeform features
- Basic assembly concepts
- Creating assemblies
- Positioning assembly Components
- Assembly revisions and component replacements
- Assembly sequencing
- Assemblies – clearance and analysis
- Deformable components
- Part families
- Introduction to drafting
- Drawings and views
- Creating dimensions, notes and labels
- Plotting drawings

Courseware Issued:

NX CAD

- Reference Guide

MCADD Workbook

DURATION: 80 hrs

NX Nastran

- Finite element analysis
- NX Nastran overview
- Geometry abstraction
- Geometry idealization
- Specifying materials
- Meshing the geometry
- Model checking process
- Defining boundary conditions
- Solving the FE model
- Post-processing the solution
- Generating reports
- Import and export of model data
- Applying contact and gluing conditions
- Linear static analysis
- Modal analysis
- Buckling analysis
- Response analysis
- Thermal analysis
- Nonlinear static analysis
- Assembly FEM
- Optimization study

Courseware Issued:

NX Nastran

- Reference Guide

DURATION: 80 hrs

NX CAM

- The operation navigator
- Manufacturing operations Engraving and post processing
- Wizards and shop documentation
- Planar milling - introduction and profiling
- Engrave text
- Face milling
- Cavity milling
- Z-level milling
- Thread milling
- Area milling
- Radial cutting
- Surface area cutting
- Engraving
- Contour profiling
- Common parameters
- Rough and finish turning
- Centerline drilling
- Groove and thread operations
- Multiple spindles and IPW

Courseware Issued:

NX CAM

- Reference Guide

DURATION: 40 hrs

GD&T

- Dimensions and drawings
- Tolerance dimensioning
- Ways of expressing tolerance
- IT grades
- Introduction to "ASME Y14.5M-1994"
- GD&T rules
- Maximum Material Condition of a feature of size
- Least Material Condition of a feature of size
- Concept of virtual condition
- Concept of bonus tolerance
- Planar datums
- Modifiers and symbols
- Tolerance types

Courseware Issued:

GD&T

- Reference Guide

DURATION: 16hrs

ANSYS Workbench

- Introduction to CAE
- General Procedure involved in FEA
- GUI of ANSYS Workbench
- Working on a Project
- CAD modeling Using ANSYS Workbench
- Defining and Assigning Materials
- Generating the Mesh
- Optimizing the Model to refine Mesh
- Working with different Boundary conditions
- Surface and Line Models
- Static Structural analysis
- Modal analysis
- Buckling analysis
- Thermal analysis
- Coupled Field(Thermal Stress)
- Post Processing

Courseware Issued

ANSYS Workbench

- Reference Guide

DURATION: 80hrs

ANSYS Fluent

- Basics of CFD
- Flow Mixing
- Heat Transfer
- Transonic Flow
- Multiple Species
- Turbulence Modeling
- Periodicity
- Radiation and Convection models
- Siphoning

Courseware Issued

ANSYS Fluent

- Reference Guide

DURATION: 40hrs

Hypermesh

- Introduction to FEM
- Brief on Meshing
- Basic interaction with Hypermesh
- Preparing geometry for meshing
- Shell meshing
- Tetra meshing
- Quality
- Assemblies: welding and swapping parts
- Analysis Setup
- Hypermesh Solver Interfaces

Courseware Issued

Hypermesh

- Reference Guide

DURATION: 40hrs

3D Printing

- Introduction of 3D Printing
- Evolution of 3D Printing
- About Additive Manufacturing
- General Procedure of 3D Printing
- 3D CAD file Formats
- Stereo Lithography files
- Various printing Technologies (SLA,SLS,FDM,Poly jet Printing, Color jet printing, SHS, SLM, LOM, Multi jet Printing ,DLP)
- FDM in detail
- Preparation Of Print ready file Using Plasto 200
- Operating Plasto 200-Live Demonstration
- STL Principles
- Object Placement
- Print Settings
- Material Properties
- Manual Controls
- Project

Courseware Issued:

3D Printing

- Reference Guide

DURATION: 24hrs

ARES Commander

- Introduction
- User Interface
- Classic User Interface
- Ribbon User Interface
- Drafting Options
- File Management
- Draw Entities
- Points
- Modify Entities
- Annotation
- Dimensions

Courseware Issued:

ARES Commander

- Reference Guide

DURATION: 24 hrs