



**CENTRE OF EXCELLENCE IN MANUFACTURING  
NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI**

**Product Design and Validation Lab**

**NX Beginner's Course on Designing**

**Duration: 40 Hours**

<b>PREREQUISITES</b>	Nil
<b>WHO SHOULD ATTEND</b>	Students, Engineers, drafters, checkers and managers who need to manage and use NX
<b>PROVIDED COURSE MATERIALS</b>	Student guide and Activity material

**NX part files 4 Hours**

Introduction to Teamcenter Integration for NX - Introduction to NX - New file overview - Layers - Show and Hide - Working with the Teamcenter Navigator - Working with folders in NX - Create a new folder for your part files - Activities: NX part files - Create new - Part data organization in Teamcenter Integration for NX - Open file overview.

**The NX user interface 12 Hours**

Customize and display toolbars - Command Finder - Dialog boxes and the Dialog Rail - Roles - Save toolbar configuration between activities: User interface - Toolbars and Roles - Using the mouse - Selecting - Deselect - Preview - Selection bar - Selection bar Snap Point - QuickPick - Activities: User Interface - Views - Summary - User interface.

**Sketching:** Sketch overview - Sketch curves - Sketch curve functions - Types of constraints - Sketch dimensions - Convert To/From Reference - Activities: Create constraints. **Datum features:** Datum Plane - Create an inferred datum plane with an offset - Create a datum plane midway between planar faces - Create a datum plane at an angle - Create a datum plane through three points - Activities: Datum features – Relative - Datum Axis - Datum CSYS - Activities: Datum features - cylindrical faces - Summary: Datum features. **Swept features:** Types of swept features - Internal and external sketches – Extrude - Combining bodies using Boolean commands - Body type - Revolve - Sweep along Guide - Create a simple sweep along guide feature - Activities: Swept features - Summary: Swept features. **Hole features:** Hole overview - Hole overview - Hole dialog box - Hole position and direction options - Hole form and dimension options - Create a General Hole feature - Activities: Hole features - Summary: Hole features. **Edge operations:** Edge Blend overview - Activities: Edge operations - blends - Chamfer overview - Create a Chamfer - Chamfer options - Activities: Edge operations – chamfers.

<b>Introduction to Assemblies</b>	<b>8 Hours</b>
<p>Assembly - Subassembly - Component objects - Component Part Files - Assembly Load Options group - Load states - Scope group - Reference Sets - Saved Load Options - Activities: Assemblies - assembly load options and the Assembly Navigator - Select components - Assembly Navigator display commands - Activities: Assemblies - more navigator options - Part revisions and saving assemblies /Save / Save Work Part Only.</p> <p><b>Adding and constraining components:</b> General assembly concepts - Bottom-up assembly modeling - Activities: Adding components - create assembly - Move Component /Move Component options - Assembly Constraints - Show Degrees of Freedom - Activities: Adding and constraining components - constrain.</p>	
<b>Introduction to Drafting</b>	<b>8 Hours</b>
<p>Drafting application overview - The 3D drafting process in NX - The Drafting interface - Master model concept /Master geometry /Create a new master model drawing - Sheet /12 Create a new drawing sheet / Open a drawing sheet/ Edit a drawing sheet - Delete a drawing sheet -drawing display to monochrome - Activities: Drafting - Create drawings - Change drawing display to - Drafting View Style and View Preferences - The View Creation Wizard-Base View/Projection views - Edit the style of an existing view - Drag views on a drawing - views on a drawing - Activities: Drafting - add views - Dimensions - Activities: Drafting – dimensions - Activities: Drafting - Notes and labels.</p>	
<b>Additional projects</b>	<b>8 Hours</b>
<p><b>Custom Roles - Primitive solids</b> - Block – Cylinder - <b>Features with predefined shapes:</b> Boss - Slot - Pocket - Pad – Groove - Positioning Methods/Edit Positioning.</p>	