

Course Name	:	Advanced Manufacturing –Tecnomatix Process Simulate	
Course Code	:	AM01- Process Simulate	
Course Objective			
To introduce participants to step-by-step instruction on how to use Process Simulate to create Basic Robotics Simulation.			
Duration of course = 24hrs.			
Lecture/Lab wise breakup			Number of Hours
1.	<p>Process Simulate - Basic Robotic Simulation</p> <p>Basic concepts: Creating a study - Process Simulate introduction - Process Simulate viewer, Process Simulate Standalone environment: Working with viewers - Graphic Viewer setup and control - Customizing the user configuration - Entity selection - Introduction to selection filters - Introduction to Display by Type - Measurement and units - Graphical visualization and performance - Additional commands - Accessing online help and release notes.</p> <p>Placement command: Introduction to placement - Introduction to Fast Placement and Restore Design Relative Location - Changing pick behaviour and creating frames - Introduction to Placement Manipulator - Introduction to Relocate, Quick introduction to kinematics: Fundamentals of kinematics - Creating device operations</p> <p>Modeling Basics: Overview of Process Simulate basics - Process Simulate basic modeling tools - Modeling concepts - Solid creating with primitives</p> <p>Kinematics Basics: Kinematics background - Kinematics basics summary - Joint dependency basics - Introduction to kinematic cranks - Kinematic branching - Defining speed and acceleration - Defining an object as a tool - Adding kinematics to a simple robot - Inverse kinematics device creation and usage, Material handling applications: Overview of gripper creation (optional) - Material handling study setup - Material handling (pick and place) operations</p>		24
Course Outcome			
<ul style="list-style-type: none"> Participant will be able to do basic robotic simulation. 			

Course Name	:	Advanced Manufacturing –Tecnomatix Process Simulate	
Course Code	:	AM02- Human Simulation	
Course Objective			
To introduce participants to step-by-step instruction on how to use Process Simulate to create Basic Robotics Simulation.			
Duration of course = 24hrs.			
Lecture/Lab wise breakup			Number of Hours
1.		<p>Introduction to Process Simulate Human-Creating a study (again) - Process Simulate Human Overview - Human Models - Introduction to Human Task Simulation.</p> <p>Basic Human Operations-Setting Human Options - Positioning and Walking - Human Operation Modification - Vision Window, Vision Envelope, and Grasp Envelope - Basic Posturing and Kinematic Jogging -More Posturing and Kinematic Jogging - Postures Library</p> <p>Automatic Posture Tools- Grasping and Releasing Objects - Assigning Object Weight and Lifting Frequency - Auto Grasp - Creating a Simple Grasp Task - Picking Up and Following Objects by Walking - Setting Down Objects – No Walking - Scenario for Using Hand Tools - Humans and Direct Kinematics Scenarios (Optional) - Humans and Inverse Kinematics Scenarios (Optional). - Humans and Moving Line Scenarios (Optional) - Other Human Simulation Scenarios (Optional)</p> <p>Ergonomics- Ergonomics Introduction - Assigning Additional Forces to Any Body Part - Ergonomics Report Viewer - Introduction to OWAS - Introduction to NIOSH - Introduction to Static Strength Prediction (SSP) - Introduction to Lower Back Analysis using DMH - Introduction to Cumulative Back Load - Introduction to RULA - Introduction to Fatigue - Introduction to Garg (Optional) - Introduction to EAWS (Optional) - Introduction to Custom Reports</p>	24
Course Outcome			
<ul style="list-style-type: none"> Participant will be able to do basic robotic simulation. 			

Course Name	:	Advanced Manufacturing –Tecnomatix Process Simulate
Course Code	:	AM03- Advance Level
Course Objective		
To introduce participants to step-by-step instruction on how to do Robot Programming on Process Simulate and to create part flow simulation.		
Duration of course = 40 hrs.		
Lecture/Lab wise breakup		Number of Hours
1.	Process Simulate- Advanced Robotic Simulation Robot Programming in various applications--Defining and simulating robotic material Handling-Gripper definition and Usage-Pick and place path development- Defining and simulating robotic continuous Applications-Arc welding and grinding path Development- Spot Welding-Pneumatic and servo gun definition and usage-Ped. welding and Gun on robot path Development- And More-Multi-robot simulation (i.e. interference zones)-Swept volumes, 7th axis, etc.	20
2.	Process Simulate -Part Flow Simulation Basic Environment-Study Creation-Creating sequences of simulative Operations-Collision Detection-Section Cutting-Video and picture Output-Defining Kinematic Devices-Path creation and Modification-Sequence of Operations-Cables and Editing the features.	20
Course Outcome		
<ul style="list-style-type: none"> • Participant will be able to robot programming on Process Simulate. • Participant will be able to do part flow simulation. 		

Course Name	:	Advanced Manufacturing –Tecnomatix Plant Simulation	
Course Code	:	AM04	
Course Objective			
To introduce participants to basic methods of building simulation models and including building simulation applications			
Duration of course = 24hrs.			
Lecture/Lab wise breakup			Number of Hours
1.	Plant Simulation Basics, Methods, and Strategies Basic Plant Simulation interface- Object-oriented modeling strategies- Basics of material flow Objects-Hierarchy, icons, and Inheritance- Modeling buffers, assembly lines and roads, Kanban, and failures- Resource objects (i.e. workers and shift calendars)-Resource objects (i.e. workers, shift calendars, foot paths, etc.) Basic conveying systems (length-oriented objects)-Other objects (i.e. Information objects, User Interface object, mobile units)-Sankey, bottleneck analyzer, and experiment manager Basics-Customizing object logic (Method creation)-Methods for data collection and Evaluation-Methods for interfaces (Excel, DDE, basics of other interfaces)-Data acquisition from external files and systems.		24
Course Outcome			
<ul style="list-style-type: none"> Participants will be capable of basics of building simulation models and including building simulation applications. 			

Course Name	:	Advanced Manufacturing –Teamcenter
Course Code	:	AM05 -Teamcenter Installation
Course Objective		
To introduce the concept of product lifecycle management and to provide instruction on working in the rich client interface, and the basics of using a suite of Teamcenter software applications.		
Duration of Course = 16 Hours.		
Lecture/Lab wise breakup		Number of Hours
1.	Teamcenter Installation Overview of two-tier and four-tier architectures-Teamcenter database creation (Oracle, MSSQL)-Common Licensing Server-Corporate server installation-File Management System (FMS) overview-Two-tier rich client installation-Teamcenter J2EE Web tier and server manager-Teamcenter .NET Web tier and server manager-Installation of the four-tier rich client using the Over-the-Web Install and TEM-Installation of the Business Modeler IDE-Administering the in-production system-FCS performance cache server-Dispatcher-Store and Forward-Teamcenter integrations for Microsoft Office-Embedded visualization for the two-tier and four-tier rich clients-NX Integration for the two-tier and four-tier rich clients-Installing and accessing Teamcenter online help.	16
Course Outcome		
<ul style="list-style-type: none"> • Participants will become clear with the concept of product life cycle management. • Participants will be clear with the basics of Teamcenter . 		

Course Name	:	Advanced Manufacturing –Teamcenter
Course Code	:	AM06 -Teamcenter Integration for NX
Course Objective		
To introduce the concept of product lifecycle management and to provide instruction on working in the rich client interface, and the basics of using a suite of Teamcenter software applications.		
Duration of Course = 16 Hours.		
Lecture/Lab wise breakup		Number of Hours
1.	Integration for NX 11.0 Users NX data structure and management-Teamcenter capabilities in NX-Active Workspace overview and functionality-NX data creation, storage, access, and Revising-Exporting and importing Data-Sharing data and working in a shared Environment-Creating Part Families-Working with JT data	16
Course Outcome		
<ul style="list-style-type: none"> • Participants will become clear with the concept of product life cycle management. • Participants will be clear with the basics of Teamcenter . 		