CNC MACHINING (CAM) COURSE

Venue: **NCRA, NUST College of E&ME**

Min No of participants per batch: **10**

Fee per participants: **PKR 25,000 ***

***[5% discount for group of 5 from one organization, 10% discount for group of 10 from one organization]**

Lessons	Module	Topics Covered
Day 1	Machining Process with Variables	• Mechanics of machinability • Independent & dependent variables in machining process • Cutting tools and their materials • Cutting fluids and their applications
	Concept & Application of Datums	• Datums & co-ordinate systems • Absolute versus incremental approach • Editing datums for fast modeling
	CNC Fundamentals & Vocabulary	• Axis & motion vocabulary • CNC machining prerequisites and Applications • CNC systems
Day 2	CNC Machining Language (G & M Codes)	• Preparatory & miscellaneous functions • CNC turning fundamentals • Part programming using G & M codes
	Machining Set-Up for CNC Machines	• Loading and aligning the model • Orientating the model around an Active • Work plane where required • Gathering information on the model i.e. Minimum tool radius/ draft angle • Under cuts • Measuring the model • Material block definition • Cutting tool definition • Feed rate and Spindle Speed Settings • Rapid Move Heights • Tool Start Point

Day 3	Tool Path Generation for Roughing, Cycles	• Area clearance strategies • Rest machining for avoiding load on • Cutting tool during rough machining • Simulating and animating tool paths
	Tool Path Generation for Finishing Cycles	• Downward projection of a pattern • Raster machining • Radial machining • Spiral machining • Pattern machining • 3D Offset finishing Steep & shallow areas machining • Corner machining • Projection machining
Day 4	Editing tool paths	• Part Editing • Sketch Issues • Freezing Features • Fillet Expert Moving • Limiting & rotating tool paths • Changing the order & direction of tool paths • Leads & Links • Boundaries & their applications • Collision & gouge checking of tools
	Feature sets/ 2D & 2.5D machining	• Drilling cycles • Pocket • Boss • Slot machining
Day 5	NC Programming and Overview of Post Processors for CNC Machines	• Converting tools paths into machine language • NC Programming • Machine tool simulation
	Machining on Material	• Material Behavior for machining • Tool Selection for material • Job fixturing for block • Vibration sound meanings

Point of Contact:

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