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Geometrical Dimensioning & Tolerancing

Demonstration of Practical Measurements

Date	Topic
Day-1	Basic Dimensional Measurement Concepts and Principles
	Overview of Dimensional Metrology Devices
	Linear and Angular Measurement Methods
	Limits, Fits and Tolerances; Taylor's Principle of Gauging
	Fixing tolerances for the parts for assembly based on Hole and Shaft basis
	Attribute gauges: GO & NOGO Plain and Thread Gauges
	Gauge tolerances and Gauge wear.
Day-2	Introduction to GD&T; Definitions; Symbology
	Meaning and application of all 14 geometrical tolerances
	Introduction to dimensional and geometric measuring devices, gauges, masters and accessories
	Datums; Datum Feature Simulators; Datum Reference Frame

	<p>Measurement of</p> <ul style="list-style-type: none"> • Flatness of surfaces • Parallelism with reference to planar datum surface • Profile of surface with and without datums
	Measurement of Perpendicularity & Angularity of planar surfaces with reference to planar datum
	Measurement of Straightness of surface and Straightness of axis of a Cylinder
	Measurement of Parallelism, Perpendicularity and Angularity of axis of a hole with reference to planar datum surface and datum axis.
	Measurement of Parallelism, Perpendicularity and Angularity of a mid-plane with reference to planar datum surface and derived mid-plane datum
Day-3	Measurement of Circularity of a cylinder, a cone and other circular cross section parts
	Measurement of Cylindricity
	<p>Measurement of Concentricity</p> <ul style="list-style-type: none"> • between two cylindrical features of a part • between two non- cylindrical features of a part
	Measurement of Circular Run-out and Total Run-out
	Measurement of Symmetry
	Comparison of square and round tolerance zones
	Measurement of Position tolerances axis of holes and mid planes of slots with reference datum reference frames
	Measurement of Profile of a Line and Profile of a Surface accuracies of an irregular surface feature
	Questions and Answers