

CENTRAL TOOL ROOM AND TRAINING CENTRE, BHUBANESWAR
DAYWISE CONTENT OF ADVANCE ESDP ON 3D-PRINTING

DAY	TOPIC OF SESSION-1	TOPIC OF SESSION-2	TOPIC OF SESSION-3	TOPIC OF SESSION-4
DAY-1	Overview of advanced additive manufacturing technologies (FDM, SLA, SLS, Metal AM)	Industrial applications and case studies across tooling, automotive, aerospace, medical	L U N C H	End-to-end AM workflow: design → slicing → printing → post-processing
DAY-2	Engineering polymers, composites, resins, and metal powders (overview)	Key process parameters: layer height, infill, speed, temperature, cooling		Technology selection criteria and limitations of AM processes
DAY-3	DfAM principles, design rules, and AM-specific constraints	Topology optimization concepts and workflow in Fusion 360		Print orientation, anisotropy, and strength optimization strategies
DAY-4	Fixture and jig design for additive manufacturing	Meta-mould design for rapid tooling and low-volume production		Failure modes, defect analysis, and parameter tuning methods
DAY-5	3D scanning technologies and data acquisition methods	Scan data cleanup, mesh editing, and error correction		Hands-on redesign of a conventional part for AM
				Tolerances, fits, and dimensional accuracy in AM parts
				Assembly consolidation and design validation
				Mesh-to-solid conversion and CAD reconstruction
				AM production strategy, costing, and ROI evaluation