

3 D Scanning and CNC Routing Engineer

Annexure –I

Detailed Curriculum

Name of Unit of Qualification	Introduction to 3 D Scanning
Duration	25 Hours

Outcome	Contents	Hrs.
Acquire the basic knowledge of 3D Scanning	Origin of 3D Scanning, Definition, purpose – CAI and CAE, 3 D scanning objects, 3D Scanning categories, methods of positioning, 3D Scanning Applications, Principles of 3D Scanning, Process and outcomes.	25

Name of Unit of Qualification	Factors in 3D Scanning
Duration	60 Hours

Outcome	Contents	Hrs.
Acquire the basic knowledge about 3D Scanners	Measurement of Arms, process and calculation. Tracked 3 D Scanners	20
Acquire skills about types of scanner	Structured light 3 D scanners, portable 3 D scanners	20
Acquire skills about different factors affecting 3D Scanning	Use and Factors Affecting 3D Scanning, Atmospheric Conditions, Reflectance.	20

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Name of Unit of Qualification	<i>Applications of 3D Scanning</i>
Duration	100 Hours

Outcome	Contents	Hrs.
Acquire skills about Application of 3D scanning	Application of 3 D scanning in Aerospace, Automotive	30
Acquire skills about Application of 3D scanning for user, Companies and Medical	Cultural Preservation, Consumer Products, Manufacturing, Medical etc.	30
Acquire skills about different case studies in 3D Scanning	Case studies.	40

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Name of Unit of Qualification	<i>Operation of 3D Scanners</i>
Duration	100 Hours

Outcome	Contents	Hrs.
Acquire skills about working principle of 3D Scanner	Operation and Working of a 3D Scanner	20
Acquire skills about major components and effective 3D scanning	Major Components in a 3D Scanner, Effective 3D Scanning	30
Acquire skills about post processing of 3D scan data	Post Processing of a 3D Scan File, Meshing, Stitching, Removal of Unnecessary Scan Data, Ensuring Water-tight model, STL Creation	50

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Name of Unit of Qualification	<i>CNC Routing</i>
Duration	80 Hours

Outcome	Contents	Hrs.
Acquire skills basic knowledge about CNC Technology	Origin of CNC Technology, Create a design for CNC, Tool path generation	40
Acquire skills about GCode and Final output	Conversion to GCode, Preview design file, Fabricating the final product	40

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Name of Unit of Qualification	<i>Case Studies</i>
Duration	30 Hours

Outcome	Contents	Hrs.
Acquire skills from different case studies in the area of 3D scanning and CNC Technology	Case Studies	30

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Name of Unit of Qualification	Interpersonal and Communication Skills/Reporting
Duration	5 Hours

Outcome	Contents	Hrs.
Acquire the knowledge of Soft Skills	Communication Skills Technical Writing	05