

# AIRCRAFT STRUCTURE LAB

S. No	Apparatus/Equipment required	Specifications	Qty																		
1	Maxwell's Reciprocal theorem apparatus	<p><b>Apparatus</b> should consists of a mild steel beam 100cm long and 1.25cm x 4mm in cross section with graduations at every 10cm along the length. It should be supported on two knife edge supports 70cm apart with a 30cm.It should able to support simply supported, Overhang and cantilever beam.</p> <p><b>Attachments:</b> End supports Weights Dial Gauge(Mechanical) Make (Baker) Quantity as per accurate observations Note: Quotations can be considered of superior quality.</p>	01																		
2	Shear Centre Apparatus	<p><b>The Apparatus consists of:</b> 1. Thin walled section of the OPEN CHANNEL of material Aluminium or GI or Mild steel is provided. 2. Two dial gauges to monitor the deflection is provided. 3. Weights of 500gm upto 5000gm has being provided for loading purpose. 4. Loading is applied by means of hanger on the section. 5. Vernier Caliper to measure the sizes. 6. Sturdy Frame for attachment is provided with good aesthetic looks. Note: Quotations can be considered of superior quality.</p>	01																		
3	Fabrication of Fuselage Structure and Wing structure Apparatus	<p><b>Riveting tool</b> Euphony 3.2-5mm Electric Gun Riveting Tool(Make Bosch)</p> <p><b>Punching machine</b> Brand(Make Bosch) Usage/Application Industrial</p> <table><tr><td><b>Weight</b></td><td>2 kg</td></tr><tr><td><b>Length</b></td><td>275 mm</td></tr><tr><td><b>Height</b></td><td>127 mm</td></tr><tr><td><b>Stroke Rate Under Load</b></td><td>1500 spm</td></tr><tr><td><b>Cutting Capacity in Steel</b></td><td>2 mm</td></tr><tr><td><b>No-load Stroke Rate</b></td><td>2400 spm</td></tr><tr><td><b>Cutting Track Width</b></td><td>6 mm</td></tr><tr><td><b>Pre-drilling For Interior Cut-outs</b></td><td>16 mm</td></tr><tr><td><b>Smallest Radius</b></td><td>3 mm</td></tr></table>	<b>Weight</b>	2 kg	<b>Length</b>	275 mm	<b>Height</b>	127 mm	<b>Stroke Rate Under Load</b>	1500 spm	<b>Cutting Capacity in Steel</b>	2 mm	<b>No-load Stroke Rate</b>	2400 spm	<b>Cutting Track Width</b>	6 mm	<b>Pre-drilling For Interior Cut-outs</b>	16 mm	<b>Smallest Radius</b>	3 mm	01
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		<b>Cutting capacity in steel (600 N/mm2)</b> 1.4 mm <b>Cutting capacity in steel (800 N/mm2)</b> 1 mm <b>Cutting capacity in aluminium (200 N/mm2)</b> 2.5 mm <b>Rated Input Power</b> 500 W <b>Power Output</b> 270 W	
4	CNC Milling Machine	<b>CNC System SIEMENS Industrial CNC Controller or Equivalent</b> <b>Machine Base</b> Close grained Graded Cast Iron rigid, robust and stress relieved structure <b>Weight of machine:</b> 900-1000 kg <b>Machine Size:</b> 1200mm x 1000mm x 2000mm approx. <b>Axis Travel</b> Longitudinal traverse : 300mm Cross traverse : 200mm Vertical traverse : 200mm <b>Machine Table size</b> 700 x 200mm <b>Table Clamping Area</b> 550 x 170mm <b>T Slots Width</b> 12 mm <b>Axis drive</b> Ball screw C5 Accuracy (Imported) <b>Machine slide drive</b> Imported Linear Guide ways driven for smoother drive. <b>Spindle Inside taper</b> ISO 30/R8 <b>Spindle material</b> Alloy Steel <b>Spindle Quill</b> Chrome plated, precision ground <b>Spindle Power</b> 2.0 HP with Variable Frequency Drive <b>Distance:</b> Spindle Nose to Table top 250mm Spindle Nose to Column 250mm <b>Spindle Speed</b> 200 – 2800 rpm, 300 – 4500 rpm also possible. <b>Spindle Operation</b> 100% Close Loop with Controller <b>Material that can be machines</b> Mild Steel, Cast Iron, Aluminum etc. <b>Maximum depth of cut</b> 1.5 mm on steel <b>Resolution of axis</b> 1 Micron Lubrication System Fully Automatic Lubrication <b>Coolant Supply</b> Re circulating supply <b>Number of Tools</b> One <b>Axis Motors</b> AC Servo Motor  CNC Controller Features Required DNC Communication	01

		<p>           CAD/CAM Compatibility            Hand Wheel Operation            Both Absolute and Incremental Coordinate system            Axis Feedback in closed loop            Option Skip Function            Optional Stop            Feed-Hold Function            Manual Data Input            Online Acceleration/Deceleration            Mirror effect cutting            Tool Radius Compensation            Rectangular Grooving            Circular grooving            Circular Drill Canned cycle            Angular Drill Canned cycle            Arc Drill Canned cycle            Boring Canned cycle            Soft over travel Limits            Feed Rate Commands (mm/min or mm/rev)            Isolation Transformer for Safety            Rapid Feed Rate upto 10 m/min         </p> <p> <b>Accessories</b>            Isolation Transformer 8 KVA            Operational &amp; Maintenance Manual            Machine Vice            Cutter Size 6mm , 12 mm , ER Collets for Cutters            Cutting Oil            BT 30 Adopter            Spanner for BT30 Adopter  <b>Note: 2 Year warranty of various parts and 5 years AMC</b> </p>	
5	<b>Composite Fabrication Materials</b>	<ul style="list-style-type: none"> <li>• Desk top Autoclave: (0.4mX 0.5m)</li> <li>• For processing of small sized composites like MAV air frames and</li> <li>• laminates for Research work in Composites</li> <li>• Operating Temperature and Pressure: 200 Deg C, 7 bar</li> <li>• 400mm dia x 500mm Length</li> </ul>	01





		<ul style="list-style-type: none"> <li>• Fail safe and easy to operate</li> <li>• Quick lock hinged door &amp; integrated lock ring</li> <li>• Touch screen-based PLC with Auto &amp; manual modes.</li> <li>• Compact table mounted</li> <li>• 32A, 230V Single phase power supply</li> <li>• Air less, solenoid operated control valves</li> <li>• Fits in a space of 1.5m cube.</li> </ul> <p><b>Note: 2 Year warranty of various parts and 5 years AMC</b></p>	



