

## AIRCRAFT STRUCTURE LAB

Sr. No	Apparatus/Equipment required	Specifications	Qty
1	Maxwell's Reciprocal theorem apparatus	<p><b>Apparatus</b> should consist of a mild steel beam 100cm long and 1.25cm x 4mm in cross section with graduation at every 10cm along the length. It must be supported on two knife edge supports 70cm apart with a 30cm overhanging on one side.</p> <p><b>Attachments;</b>                      End supports                      Weights                      Dial Gauge(Mechanical) of preferably 'Baker' make                      Apparatus to be supplied should be complete along with supporting stand.</p>	01
2	Shear Centre Apparatus	<p><b>The Apparatus consists of:</b></p> <ol style="list-style-type: none"> <li>1. Thin walled section of the OPEN CHANNEL of material Aluminum or GI or Mild steel.</li> <li>2. Two dial gauges to monitor the deflection.</li> <li>3. Weights ranging from 100gm (4 pieces), 200gm (4 pieces), 500gm (4 pieces), 1000gm (5 pieces) so as to have maximum cumulative weight of 5000gm.</li> <li>4. With all the requisite accessories and with mounting stand/table.</li> </ol>	01
3	Riveting Tool	<p><b>I. Heavy Duty Lever Riveter - One Unit</b> (Preferably make Bosch)  <b>II. Pneumatic Rivet Gun - One Unit</b> (Preferably make Bosch)  <b>III. Pneumatic screw driver- Two Units</b>  <u><b>Note:</b></u> Different size rivets (100 piece each) compatible with above mentioned tools.</p>	Lot

*Shiray*  
28/7/21

*Chandrashekar*

*BK Ariveti*  
24/07/2021

*Shiray* *Shiray*

*P. Lang*

4	CNC Milling Machine	<p><b>CNC System SIEMENS Industrial CNC Controller or Equivalent</b></p> <p><b>Machine Base</b> Close grained Graded Cast Iron rigid, robust and stress relieved structure</p> <p><b>Weight of machine:</b> 900-1000 kg</p> <p><b>Machine Size:</b> 1200mm x 1000mm x 2000mm approx.</p> <p><b>Axis Travel</b></p> <p>Longitudinal traverse : 300mm</p> <p>Cross traverse : 200mm</p> <p>Vertical traverse : 200mm</p> <p><b>Machine Table size</b> 700 x 200mm</p> <p><b>Table Clamping Area</b> 550 x 170mm</p> <p><b>T Slots Width</b> 12 mm</p> <p><b>Axis drive</b> Ball screw C5 Accuracy (Imported)</p> <p><b>Machine slide drive</b> Imported Linear Guide ways driven for smoother drive.</p> <p><b>Spindle Inside taper</b> ISO 30/R8</p> <p><b>Spindle material</b> Alloy Steel</p> <p><b>Spindle Quill</b> Chrome plated, precision ground</p> <p><b>Spindle Power</b> 2.0 HP with Variable Frequency Drive</p> <p><b>Distance:</b></p> <p>Spindle Nose to Table Top 250mm</p> <p>Spindle Nose to Column 250mm</p> <p><b>Spindle Speed</b> 200 – 2800 rpm, 300 – 4500 rpm also possible.</p> <p><b>Spindle Operation</b> 100% Close Loop with Controller</p> <p><b>Material that can be machines</b> Mild Steel, Cast Iron, Aluminum etc.</p> <p><b>Maximum depth of cut</b> 1.5 mm on steel</p> <p><b>Resolution of axis</b> 1 Micron Lubrication System Fully Automatic Lubrication</p> <p><b>Coolant Supply</b> Re circulating supply</p> <p><b>Number of Tools</b> One</p> <p><b>Axis Motors</b> AC Servo Motor</p> <p>CNC Controller Features Required</p> <p>DNC Communication</p> <p>CAD/CAM Compatibility</p> <p>Hand Wheel Operation</p> <p>Both Absolute and Incremental Coordinate system</p> <p>Axis Feedback in closed loop</p>	01
---	---------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----

28/7/21

Chakraborty

BK Arivudi  
24/07/2021

1. Sh. Shourang

P. Jang

		<p>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  <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: 3 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 laminates for Research work in Composites</li> <li>• <b>Operating Temperature and Pressure: 100 Deg C, 7 bar</b></li> <li>• 400mm dia x 500mm Length</li> </ul> <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> </ul>	01

28/7/21

Chandrashekar

PKA/ivedi  
24/07/2021

1.5

Abhina

Peng

		<ul style="list-style-type: none"> <li>• Compact table mounted</li> <li>• Suitable power supply &amp; requisite accessories</li> </ul> <p><b>Note: 3 Year warranty of various parts and 5 years AMC</b></p>	

*J. S. Tiwana*  
28/7/21

(Prof. J.S. Tiwana)

*Tushar Siag*

(Er. Tushar Siag)

*B. K. Dwivedi*  
28/07/2021

(Dr. Bipin Dwivedi)

*Shruti*      *Shruti*      *Shruti*