

INSTITUTE OF TECHNOLOGY, KORBA (C. G.)
DEPARTMENT OF MECHANICAL ENGINEERING

Approx budget for Tender

S. No.	Name of Deptt	Name of Lab	Approx cost (Rs. In Lakh)	Tender Fee
1	Mechanical Engineering	1. Workshop 'A' (Machine shop & carpentry Shop)	17.00	Rs. 1,000.00
		2. Workshop 'B' (Welding Shop)	06.00	
		3. Robotics Lab.	15.00	
		4. CNC Lab.	12.00	
Total			50.00	Rs. 1,000.00

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**INSTITUTE OF TECHNOLOGY, KORBA (C. G.)
DEPARTMENT OF MECHANICAL ENGINEERING**

SCHEDULE OF REQUIRMENT

Name of Lab - Workshop (Machine Shop)

S. No.	Name of Equipment	Details of Specification	Approx. Qty.	Unit Price	Price (Inclusive of all Taxes)
01.	Center Lathe 'A'	All geared Drive, Machine Length : 1830 mm, ABC : 865 mm, Height of Center : 215 mm, Swing Over Bed : 425 mm, Bed Width : 279 mm, Weight : 675 Kg, Swing in Gap-725mm/29", Swing over Cross Slide-350mm/ 14", Hole through Spindle-80mm, No. Spindle Speeds- 16, 35-2000, Whitworth Threads- 32, 4-60, Metric Threads-32,0.5-60, Cross Slide Travel 400mm/ 16", Top Slide Travel-175mm/7", Power-3 HP, Collet attachment with one Collet, One Spanner Set, One Allen Key Set, Oil Can etc. Accessories at extra Cost : Tools Cost Knee Tool Holder, Boring Tool Holder, Centering & Facing Plunge type, Drill chuck with Sleeve Multi tool Holder, Parallel Shank Drill Sleeve MT-1 /MT-2 (Each Price). <i>Note - All dimensions mentioned above are minimum required dimensions. Manufacturer/Vendor can quote same or nearest matching higher dimentions to fulfil the laboratory purpose.</i>	02		
02.	Center Lathe 'B'	All cone pully/ V-Belt Drive, Machine Length : 1600 mm, ABC : 635 mm, Height of Center : 215 mm, Swing Over Bed : 425 mm, Bed Width : 279 mm, Weight : 650 Kg, Swing in Gap-800mm, Swing over Cross Slide-290mm, Hole through Spindle-52mm, No. Spindle Speeds- 8, 25-475, Whitworth Threads- 19,2-24TPI, Metric Threads-13,1-6mm, Cross Slide Travel 300mm, Top Slide Travel-150mm, Power- 2 HP., Collet attachment with one Collet, One Spanner Set, One Allen Key Set, Oil Can etc. Accessories at extra Cost : Tools Cost Knee Tool Holder, Boring Tool Holder, Centering & Facing Plunge type, Drill chuck with Sleeve Multi tool Holder, Parallel Shank Drill Sleeve MT-1 /MT-2 (Each Price). <i>Note - All dimensions mentioned above are minimum required dimensions. Manufacturer/Vendor can quote same or nearest matching higher dimentions to fulfil the laboratory purpose.</i>	03		

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Name of Lab - Workshop (Machine Shop)

S. No.	Name of Equipment	Details of Specification	Approx. Qty.	Unit Price	Price (Inclusive of all Taxes)
03.	Universal Milling Machine	<p>SPECIFICATIONS: Working Surface mm 1050 x 250, Number of T-Slots 3, Width of T-Slots 15 mm, Pitch of T-Slots 62 mm, Maximum Distance from Spindle Centre to Underside of Over Support 125 mm MOVEMENTS Longitudinal Movement of the Table by Lever / Screw 600 mm Cross Movement of the Table by Screw 230 mm Vertical Movement of the Table by Screw 450 mm MILLING SPINDLE Spindle Bore 17 mm, Inside Taper ISO - 40, Arbor 25.4 mm REVOLUTION OF MILLING SPINDLE Number of Spindle Speed 6, Range of Spindle Speed 50, 85, 110, 240, 350, 525 RPM, Number of Feeds 3 Feeds (0.9, 1.4, 2.25 Per Minute) ELECTRICAL Main Drive Electric Motor 2 HP, 1440 RPM, 440 V. 3 Phase Coolant Motor 0.11 KW, 2700 RPM Optional Features 1. Protection kit. 2. Dividing head, 3. Rotary table, 4. Slotting attachment, 5. Vertical attachment (Universal type), 6. Rack cutting attachment, 7. Digital read out (DRO). Accessories at extra cost :-</p> <ul style="list-style-type: none"> • Vertical Milling Attachment • Dividing Head Centre 137 mm • 3 jaw True chuck with flange fitted. • Milling machine vice size 125 mm with swivel base • Rotary Milling table • (Tools for Gear Cutting Operation) Involute Gear cutter • (Tools for Vertical Operation) Collet Adopter with Collet Size 3/8" • (Tools for Vertical Operation) End Mill Cutter Size 3/8" <p>Note - All dimensions mentioned above are minimum required dimensions. Manufacturer/Vendor can quote same or nearest matching higher dimensions to fulfil the laboratory purpose.</p>	01		
04.	Shaper Machine 'A'	<p>Model : 18 inch (All Geared Drive), Length of Ram Stroke (mm) : 457 mm, Length of Ram (mm) : 940 mm, Feed Length of Tool Slide : 152.0, Max. & Min. Distance from Table to Ram (mm) : 330 x 50 mm Max. Table Travel Horizontal (mm) : 457 mm Length & Width of Table Top (mm) : 482 x 330 mm Range of Ram Speed in All Geared : 4 Electric Motor (3ϕ) : 2 HP (960 RPM) Tool Holder Admits Tools : 25x20 Weight of Machine (Kg) : 1300.0 Kg Optional Features 1. Key cutting attachment. 2. Hydraulic trace attachment. 3. Automatic tool lifting. 4. Tool slide auto feed. 5. Auto up-down for work table.</p> <p>Note - All dimensions mentioned above are minimum required dimensions. Manufacturer/Vendor can quote same or nearest matching higher dimensions to fulfil the laboratory purpose.</p>	01		

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Name of Lab - Workshop (Machine Shop)

S. No.	Name of Equipment	Details of Specification	Approx. Qty.	Unit Price	Price (Inclusive of all Taxes)
05.	Shaper Machine 'B'	<p>Machine size : 12" (All Cone Pully/ V Belt Drive) Maximum stroke : 14" Length of Ram : 26" Max. dist. of Table to Ram : 9", Min. dist. of table to Ram : 1/2", Max. vertical travel to tool slide : 5", Length & width of table top. : 12" x 9" Length & width of table slide : 24" x 10", Length of cross slide : 24" Width of Ram : 8.1/2", No of speeds : 4 Main Motor Power : 1 HP, Machine size : 12" Maximum stroke : 14", Length of Ram : 26", Max. dist. of Table to Ram : 9", Min. dist. of table to Ram : 1/2", Max. vertical travel to tool slide : 5", Length & width of table top. : 12" x 9", Length & width of table slide : 24" x 10", Length of cross slide : 24" Width of Ram : 8.1/2", No of speeds : 4 Main Motor Power : 1 HP Optional Features 1. Key cutting attachment. 2. Hydraulic trace attachment. 3. Automatic tool lifting. 4. Tool slide auto feed. 5. Auto up-down for work table.</p> <p>Note - All dimensions mentioned above are minimum required dimensions. Manufacturer/Vendor can quote same or nearest matching higher dimentions to fulfil the laboratory purpose.</p>	01	01	

Name of Lab - Workshop (Carpantry Shop)

S. No.	Name of Equipment	Details of Specification	Approx. Qty.	Unit Price	Price (Inclusive of all Taxes)
1	Wooden Lathe	<p>Length of Bed 4 1/2', Height of Centre 6 1/2", Width of Bed-7", Admit between Centre-30", Spindle Bore-3, No. of Spindle Speed-3, Face Chuck Dia -8", R.P.M.- 3000/1500/750, Power -1 HP, manufactured by highly reputed company</p> <p>Note - All dimensions mentioned above are minimum required dimensions. Manufacturer/Vendor can quote same or nearest matching higher dimentions to fulfil the laboratory purpose.</p>	01		

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**INSTITUTE OF TECHNOLOGY, KORBA (C. G.)
DEPARTMENT OF MECHANICAL ENGINEERING**

SCHEDULE OF REQUIRMENT

Name of Lab - Workshop (Welding Shop)

S. No	Name of Equipment	Details of Specification	Approx. Qty.	Unit Price	Price (Inclusive of all Taxes)
1	MIG Welding Machine	suitable for outdoor duty application 1. Supply voltage: 415 Volts \pm 10% AC, 3 Phase, 50 Hz 2. Rating at 60% duty cycle: 20 kVA 3. Primary Current at the Rated Output at 415 V supply: 30A 4. Open circuit voltage: 55 Volts DC 5. Max .continuous hand welding current at 60% duty cycle: 400 Amps. DC 6. Type of welding voltage current regulator: Step-less 7. Insulation: 'H' 8. Cooling: Forced Air Cooled 9. Wire feeder Unit: Servo wire feeder with servo drive control motor. Feed Mechanism of Double roll quick change-over type. Wire size: Mild Steel : 0 0.8 to 1.2 mm, Stainless Steel : 0 0.8 to 1.2 mm, Aluminium : 0 0.8 to 1.2 mm 10. Welding Torch: MIG Torch fitted with 3.0 m flexible & light to handle cable hose and connector. Provision for Torch neck swiveling and locking to suit positional welding & welding in difficult areas. 11. Pressure regulator & flow meter-1 set 12. Co2 heater with core assembly-1 set 13. Cables and Hoses: Interconnecting cable/hose assembly (15.0 m long) between Power Source and Wire Feeder Unit. All Cables will be made of Copper 14. Accessories: a. Any other accessories as recommended by vendor for better efficiency and maximum utilization. b. Tool Kit consisting of Nozzle Cleaner, Alley keys, Plier for cutting wire etc.	01		
2	Spot Welding Machine	Prim ary Voltage to be suitable for 415 Volt, 3 phase, 3 wire, 50 Hz, AC Supply rating @ 50 % duty cycle: 25 KVA Secondary Short Circuit Current: 13 KA Welding range : 3 mm Arm spacing : 20-30 cm Cooling: water Cooling Control : Electronic Timer 5-50 cycle & 1-10 Sec	01		
3	AC ARC Welding Machine	Suitable for outdoor duty application 3-phase AC ARC Welding Machine 1. Supply Voltage : 415 Volts \pm 10%AC, 3 phase, 50 hertz. 2. Rating at 60% duty cycle. 3. Primary Current at the Rated Output at 415 V supply : 30 Amps. 4. Open Circuit Voltage : 55 Volts DC. 5. Maximum Continuos Hand Welding Current at 60% duty Cycle : 400 Amps,DC. 6. Type of Welding Voltage Current Regulator :Step-less. 7. Insulation 'H'. 8. Cooling : Forced Air Cooled	01		

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Robotics Lab Technical Specifications

Sr.No.	Item name	Specifications
1	Robotics Trainer	<p>[A] 6 Axis Robotic Trainer</p> <p>Technical Specifications DOF: 6 degree, Work Area: 400X400 mm, Gripper AOF: 180 degree, Gripper Payload:250 g, Display: color LCD 1.77", number of Stepper Motors: 3 Number of servo motors : 4, Number of IR switches: 2, Task handling: 2 Task handling: Graphical record and play capability</p> <p>Stepper Motor Specifications: Type:6 wire, unipollar, Step angle: 1.8 Degree , Holding torque: 4.1 Kg.cm, Operating voltage: 5 volts</p> <p>Servo motor Specification: Control System: PWM 1520 sec Neutral, Stall torque: 3.2 Kg. cm, Operating Voltage: 5 volts, Sensor: IR as Limit Switch Drive type X & Y Axis: Belt Driven - 2 Axis, Z Axis: Servo Motor Driven - 4 Axis</p> <p>The Trainer Should have folowing features:</p> <ol style="list-style-type: none"> 1. Study of stepper motor and servo motor. 2. Each axis can be controlled inddividully. 3. Can be operated from 8 bit microcontroller to ARM processors. 4. Each axis can be control using manually and PC mode. 5. Predefine and user defined programmable tasks. 6. Graphical record and play capability 7. Auto set to home position 8. User can develop own robotic applications. 9. Data acquisition using USB. 10. Graphical representattion of work area 11. Operational interfacing with FPGA and DSP. 12. Self contained and easy to operate. <hr/> <p>[B]Educationak Robot with 5 Axis moving arm</p> <p>Technical Specifications: Main Board Mirocontroller: ATmega128, DC Power Supply: 8.4, 5V & 3.3 V, Display: color LCD 1.77", Betttery Power: 8.4V/2000mAh, Rated Sped: 100 rpm, Rated torque: 2 kgcm, Rated current: No load-60 mA, With Load 300 mA, Operating Speed(4.8 V) : 0.18 sec/60 degrees at no load, Stall torque(4.8 V): 14kg/cm, Wireless interface: WiFi(with android app), Servo motor: 5 Nos., DC motor: 4 Nos., Sensor Interface: 5 Nos.</p> <hr/> <p>[C] Arduino Based Robot</p> <p>Technical Specifications: Robot Mechanism: Motors: 2 metal geared 12 V DC//150 rmp/2 Kgcm Interconnection for moduls: CBK male connector</p> <p>Robotoc Processor Board Arduino processor with board Zigbee for movements control, Arduino controller IC - Atmega 328 P, USB Programming, Motor driven ICs- L293d, On board Zigbee 2.4 GHz for robotic control, Sensor interfacing PCB, CBK male connectors plugable onboard, Sensor interface PCB with facility.</p> <p>Ultrasonic: Accelerometer (on range: $\pm 2g, \pm 4g, \pm 8g, \pm 16g$) Gyro scope:(on range: $\pm 2g, \pm 4g, \pm 8g, \pm 16g$) 4 Analog sensors and 1 digital 6 PWM servomotors optional USB 2.0 compatible for programming PCB, 16 MHz Crystal ocsillator, rechargeable batteries 8.4V/ 3000 mAh(lithium battery) , DC charger supply 9 volt/700 mAh, ob board battery charger, Onboard separate Supply +5 V, +3.3V</p> <p>The robotic Mechanical Structure Dimension: 190X190X80mm Dual rim Weight : 1 Kg approx.</p> <p>Should have folowing features:</p> <ol style="list-style-type: none"> 1. Wireless Zigbee RoboCar Control, 2. Ultrasonic RoboCar control, 3. DC motor interface & control, 4. Gyroscope Accelerometer Sensor interface and control, 5. Expantion analog connectors for enhancing m

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[D]Three Wheels Robot**Technical Specifications:**

Switches: Tact Switch(4-switches), Display: 16X2 LCD, Wheel: 100 MM glass fiber Omni wheel (with bush rollars)
LED:4 nos. super bright green LEDs, GPIOs: 10 nos. general purpose GPIO, Communication: USB Interface, DC motor rated voltage:12 VDC,RPM: 150, Rated current: No load-60 mA, with load 300 mA, Torque:1.2 Kg-cm, Power supply: 8.4 V DC Lithium Ion battery, Power Output: +3.3 VDC, Interface: Relimate connector cable, Dimensions(mm): W270X L270X H 110, Weight: 2 K-gm (approx.)

LPC Controller:

Operating Frequency: 12 MHz, Flash Programming memory(kb): 512, Data memory(kbytes): 8 to 40, PWM:4-channels, Serial communication: Dual programmable serial USARTs , 10 bit Analog to Digital Modules: 10 input channels

Should have following features:

1. ARM7 controller, 2. Controller IC should be detachable, 3. Three Omni wheels for movement in any direction, 4. 16x2 characters LCD interface, 5. Master reset/ restart key for hardware reset, 6. Three DC motor interface & Control, 7. switch interface, 8. Expansion connectors for analog sensors,9. Expansion connectors for PWM output for servo motor,10. On board extra 10 GPIOs, 11. On board battery charger, 12. On board saperate supply +3.3 VDC and + 5 DC, 13.On board USB , 14. On board Socket for wireless module Zigbee and WiFi

[E]RoboCar**Technical Specifications:****Main Board:**

MCU: ATmega32, DC Power Supplies: 8.4V & 5 V, Charger Supply: 9 V

Motor:

Rated Voltage: 12 V DC, Rated Speec: 100 rpm, Rated Torque: 2 Kgcm, Rated current: 600 mA, Lithium Polymer battery: 8.4 V

General:

Dimension(mm): W220XD170XH125, Weight: 1.5 Kg. Approximately

Sensors:

Operating Voltage: 4.5V-5.5 Output:TTL Output, Fire sensor module,Clap Sensor Module, Light sensor modules, TSOP-IR Sensor module, 8 Channel IR Sensor module.

Should have following features:

1. IR Sensor module interface, 2. TSOP-IR module interface, 3. Fire Sensor module interface, 4. Clap sensor module interface, 5, Light sensor module interface,6.16x2 charecter LCD interface, 7. DC motor interface & control, 8. Onboard battery charger,9. User can interface and control using PC,10. 8-channel IR module interface.

[F]Compact AVR USB Programmer**Technical Specifications:**

Communication: USB 2.0 Compliment

Power Supply: USB Powered Programmer Supports: Ready to run programmer will program ATmega8/8515/16/32/128/168/328/1280/2560 & many more devices.

Should have following features:

1. Support ATmega series Microcontrollers like ATmega8/8515/16/32/128/168/328/1280/2560 & many more.
2. USB Interface for PC/laptop based programming.
3. 10 pin standard ISP interface
- 4.Programmer can power target
5. Programming speed up to 5kBytes/sec.
- 6.SCK option to support targets with low clock speed (<1.5 MHz)
7. Two status LEDs for programming and power
8. Program both flash and EEPROM
9. Support fuses and lock bit programming

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[G] Robotics learning and activity software with USB key dongle

Should have following topics:

1. Robotics and Robots
2. Asimov's laws of Robotics,
3. Types of Robotics
4. Robot Mechanical Design
5. Basics of Physics
 - Force
 - Acceleration and Velocity
 - Magnetism
 - Electromagnetism
6. Robot Kinematics
 - Joints and links
 - Degree of Freedom
 - Forward and Inverse Kinematics
7. Sensor, 8. Introduction, 9. Light detecting sensor, 10. Temperature Sensor, 11. Gas Sensor, 12. Ultrasonic Sensor, 13. Motion Sensor, 14. Introduction to robotics electronic components, 15. Breadboard, 16. Types of Battery, 17. Types of Switch, 18. Power Source, 19. Regulator IC's, 20. Operational Amplifier, 21. 555 Timer, 22. Motor Drivers IC's, 23. Logic gate IC's, 24. ADC, 25. Measuring Instruments, 26. Oscilloscope, 27. Multimeter, 28. Actuators, 29. DC motor, 30. Stepper Motor, 31. RC Servo motor, 32. Basic Component, 33. Brain of Robot, 34. PIC Microcontroller, 35. AVR, 36. Arduino, 37. Display Devices, 38. LED Seven Segment, LCD, 39. Autonomous Robots, 40. Application of Robots, 41. Industrial Application, 42. Non-industrial Application

- Note : 1. For all above machines please quote your rates with free warranty for two years from the date of successful installation and demonstration, which includes free servicing, trouble shooting occurred and free replacement of any parts/spares within the warranty period.
2. For training/demonstration to staff and student point no. 28 of 'terms and condition' of tender document will be followed.

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Machine Name: CNC Semiproduction Lathe Machine with Industrial Controller

Machine Details:

Bed Type	Flat
Chuck Size	125 mm (Dia)
Chuck Type	Manual
Minimum Turning Diameter	25 mm
Minimum Turning Length	200 mm
Minimum Center Height	125 mm
Minimum Swing over Cross Slide	80 mm
Minimum Swing Over Bed	200 mm
Minimum Distance between Centre	300 mm
Power Supply	230V, Single Phase

CNC Controller Details:

Controller:	Fanuc / Siemens Industrial CNC Controller
Controller Type	Absolute Encoder
Machine Operating Panel (MOP)	MOP should be of the same make as of the CNC system

CNC Controller with 8.4" Colour display

CNC Controller should have inbuilt PLC for Ladder modifications

PLC Ladder should be displayed on screen for diagnostics

Servo Motors supplied should be of the same manufacturer as of CNC system (Fanuc / Siemens)

400V Line input for Servo Drives

Power cable as well as encoder cable of servo motors should be of the same manufacturer as of Servo Motor (Fanuc / Siemens)

3 axes simultaneous controllable CNC System

Least increment 0.001 mm with decimal input.

Backlash compensation for cutting traverse

Backlash compensation for rapid traverse

Manual Pulse Generator (MPG). It should be of the same manufacturer as of CNC system (Fanuc / Siemens)

Spindle

Spindle Motor Type	AC Motor
Spindle Motor Speed Control	Through Variable Frequency Drive (VFD), VFD should be of the same make as of the CNC System
Spindle Motor Power	3.7/5.5 KW
Programmable Spindle Speed	300- 3,000 RPM
Hole Through Spindle	20 mm

Axes:

Traverse X axis	100 mm
Traverse Z axis	250 mm
Position Accuracy X / Z	10 micron maximum

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Rapid Traverse X / Z	5000 mm/min
Feed Rate	1 to 5000 mm/min
Resolution X / Z	0.001 mm
Turret:	
Tool Changer	Automatic
No. of Stations	8
Control	Through Software
Miscellaneous:	
Electrical Supply	415V, Three Phase AC Supply
Dimensions	1500mm (L) x 1200mm (L) x 1700mm (H) approximately
Weight	Minimum 800 Kg
Accessories	
Fully enclosed splash guard with sight windows	
Automatic Tool Magazine for min. 8 tools and Changer	
SERVO MOTOR & DRIVE SHOULD BE OF SAME MAKE	
WARRANTY 1 YEAR (EXCLUDING BREAK DOWN PERIOD)	
STABILISER SUITABLE VOLTAGE STABILISER AS PER MACHINE REQUIRMENT OF REPUTED MAKE	
Single Phase Preventer with detection of phase reversal in three phase connection.	
MANUALS	
OPERATION	1 SET
PROGRAMMING	1 SET
MECHANICAL MAINTENANCE	SHOULD HAVE DETAIL EXPLODED ASSEMBLY DRAWING WITH PART LIST OF EACH SUB ASSEMBLY – (ESSENTIAL) , QTY :1 SET
ELECTRICAL & ELECTRONICS MAINTENANCE	SHOULD HAVE DETAIL CIRCUIT DIAGRAM – (ESSENTIAL) , QTY : 1 SET
SPAREPARTS	THE MANUAL SHOULD COMPULSORY CONTAIN THE PART NO. AND ORDERING CODE , QTY :1 NO
Computer Based CNC Simulation Software (Computer not to be provided)	
2D and 3D simulation: dynamic zooming, color coding of tools, different move types-rapid /linear/arc distinguished by colours, user defined tool shapes and sectional views	
Comprehensive tool-path graphics including 2D &3D color simulation, tool-path plot and machining process simulation with tool animation	
Single step simulation	
Directory listing	
Program merging facility	
Automatic error checking with message	
Programs generated from leading CAD CAM software such as DELL CAM, EDGE CAM, Solid Works, NX CAM should be directly executed on the software	
Various cycles of Fanuc as well as Siemens controllers should be performed on the software	
Perpetual license should be provided	
Emulation of Siemens, Fanuc, Traub and Heidenhain controller should be possible	
Note : 1. For all above machines please quote your rates with free warranty for two years from the date of successful installation and demonstration, which includes free servicing, trouble shooting occurred and free replacement of any parts/spares within the warranty period.	
2. For training/demonstartion to staff and student point no. 28 of 'terms and condition' of tender document will be followed.	

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Machine Name: CNC Semiproduction Mill Machine with Industrial Controller

Axis Travel

X Axis	270 mm - 300 mm
Y Axis	225 mm - 250 mm
Z Axis	250 mm - 275 mm

Table

Table Size	500 x 350 mm
Load On Table	200 kg

Automatic Tool Changer

Tool Changer Type	Automatic
No. of Stations	08
Actuation	Pneumatic
Maximum Tool Height	64 mm
Tool Holder	BT 30 tool holder with collet chuck

Spindle

Spindle Motor Type	AC Motor
Spindle Motor Speed Control	Through Variable Frequency Drive (VFD), VFD should be of the same make as of the CNC System
Spindle Motor Power	3.7/5.5 KW
Programmable Spindle Speed	300- 3,000 RPM
Spindle Taper	BT 30

Axis drives & control

Digital controlled drive and motors for all axes
400V Line input for Servo Drives
LM Guide ways
C3 Class Ball screws
Rapid speed for all axis (Min) 10 m/min
Positional accuracy for full stroke in each axis: - +/- 0.01 mm or less
Repeatability : +/- 0.005 mm or less

CNC Controller

Controller:	Fanuc / Siemens Industrial CNC Controller
Controller Type	Absolute Encoder
Machine Operation Panel (MOP)	MOP should be of the same make as of the CNC system

CNC Controller with 8.4" Colour display

CNC Controller should have inbuilt PLC for Ladder display

PLC Ladder should be displayed on screen for diagnostics

Servo Motors supplied should be of the same manufacturer as of CNC system (Fanuc / Siemens)

Power cable as well as encoder cable of servo motors should be of the same manufacturer as of Servo Motor (Fanuc / Siemens)

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3 axes simultaneous controllable CNC System	
Least increment 0.001 mm with decimal input.	
Backlash compensation for cutting traverse	
Backlash compensation for rapid traverse	
Manual Pulse Generator (MPG). It should be of the same manufacturer as of CNC system (Fanuc / Siemens)	
Miscellaneous	
Electrical Supply	415V, Three Phase AC Supply
Dimensions	1600mm (L) x 1600mm (L) x 1900mm (H) approximately
Weight	Minimum 800 Kg
Lubrication	Automatic
Coolant	Automatic
Accessories	
Fully enclosed splash guard with sight windows	
Automatic Tool Magazine for min. 8 tools and Changer	
SERVO MOTOR & DRIVE SHOULD BE OF SAME MAKE	
WARRANTY 1 YEAR (EXCLUDING BREAK DOWN PERIOD)	
STABILISER SUITABLE VOLTAGE STABILISER AS PER MACHINE REQUIRMENT OF REPUTED MAKE	
Single Phase Preventor with detection of phase reversal in three phase connection.	
MANUALS	
OPERATION	1 SET
PROGRAMMING	1 SET
MECHANICAL MAINTENANCE	SHOULD HAVE DETAIL EXPLODED ASSEMBLY DRAWING WITH PART LIST OF EACH SUB ASSEMBLY – (ESSENTIAL) , QTY :1 SET
ELECTRICAL & ELECTRONICS MAINTENANCE	SHOULD HAVE DETAIL CIRCUIT DIAGRAM – (ESSENTIAL) , QTY : 1 SET
SPAREPARTS	THE MANUAL SHOULD COMPULSORY CONTAIN THE PART NO. AND ORDERING CODE , QTY :1 NO
Computer Based CNC Simulation Software	
2D and 3D simulation: dynamic zooming, color coding of tools, different move types-rapid /linear/arc distinguished by colours, user defined tool shapes and sectional views	
Comprehensive tool-path graphics including 2D &3D color simulation, tool-path plot and machining process simulation with tool animation	
Single step simulation	
Directory listing	
Program merging facility	
Automatic error checking with message	
Programs generated from leading CAD CAM software such as DELL CAM, EDGE CAM, Solid Works, NX CAM should be directly executed on the software	
Various cycles of Fanuc as well as Siemens controllers should be performed on the software	
Perpetual license should be provided	
Emulation of Siemens, Fanuc, Traub and Heidenhain controller should be possible	
<p>Note : 1. For all above machines please quote your rates with free warranty for two years from the date of successful installation and demonstration, which includes free servicing, trouble shooting occurred and free replacement of any parts/spares within the warranty period.</p> <p>2. For training/demonstartion to staff and student point no. 28 of 'terms and condition' of tender document will be followed.</p>	


