



Govt. of Bihar
MUZAFFARPUR INSTITUTE OF TECHNOLOGY,
MUZAFFARPUR, BIHAR – 842003
(Under the Department of Science & Technology, Govt. of Bihar, Patna)

Notice. No.: 58/TEQIP-III

Dated: 25/09/2018

Rebid for LCT Lab

M.I.T. Muzaffarpur is in the process of procuring equipment of Electrical Engineering Department under TEQIP-III Scheme. Detail specification are as follows.

Package Name: MITM/EE/LCT LAB

Package Code: TEQIP-III/BH/mitm/88

Interested supplier/bidders are required to give the following information/documents on principal@mitmuzaffarpur.org latest by 30.09.2018 so that invitation for bidding process can be initiated through PMSS.

1. Supplier Name :
2. Address(With Pin Code):
3. Contact Person Name :
4. E-Mail-ID:
5. Mobile No.:
6. TIN/GST No.
7. PAN No.

Sr.No.	Item description	Specification	Quantity
01	A.C. SERVOMOTOR STUDY SET UP	(a) an integrated speed sensor with 4-digit display in r.p.m. (b) an electrical loading system to compute torque (c) a time-constant measurement circuit with 3-digit display in milli seconds (d) a three step a.c. source with built-in r.m.s. voltmeter, and (e) a digital voltmeter on the panel for load measurement (F) 30 Mhz Dual Trace Oscilloscope, Sensitivity 1mV/cm	01
02	Time response of second order trainer kit	Built-in Function generator (Sine & Square wave) Self-contained power supplies and power ON/OFF switch Full mimic diagrams in the front panel Process Time constant of simple lags - 1ms, 0.47ms. Time constant of Integrators - 1s. Controller Proportional Band (PB) - Corresponding to gain constants 0.5 to 25.	01

	TEMPERATURE CONTROL SYSTEM		
03	Lead-Lag Compensation:	<p>Square Wave Generator (0-2khz) Digital Frequency Counter (upto 50khz) Precise Signal Conditioning Sensitive, linear, stable and accurate Functional Blocks indicated on board mimic 2 mm socket for interconnection Test points at various blocks to measure and observe the signals</p>	01
04.	D.C. POSITION CONTROL,	<ul style="list-style-type: none"> • Position control of a 12V, 1A d.c. gear motor (50 rpm) • Provision for positive and negative tacho generator feedback Tacho constant: 2V/1000 rpm approximately • Calibrated dials for reference and output position: resolution 1° • Servo-potentiometers with full 360° rotation • mP based waveform capture/display card • Separate unit for motor in a see-through cabinet • Built-in 3½ digit DVM for signal measurements • Built-in step signal and IC regulated power supplies for electronic circuits *30 Mhz Dual Trace Oscilloscope, Sensitivity 1mV/cm 	01
05.	STUDY OF SYNCHRO DEVICES,	<ul style="list-style-type: none"> *Basic characteristics study - stator voltages as a function of the rotor angle using the built-in ac voltmeter. * Operation and error study of the transmitter-receiver pair as a simple open loop position control at a very low torque. * Plotting the error voltage output as a function of the transmitter rotor angle with the receiver rotor locked. * Use of balanced demodulator to develop dc error signal with appropriate polarity and compare it with the ac error. 	01
06.	MAGNETIC LEVITATION SYSTEM	<ul style="list-style-type: none"> * Object suspended in air by magnetic force * Controller design to maintain stability * Position changing by reference * Built-in power supplies, meters etc * 220V/50Hz operation 	01

07.	TEMPERATURE CONTROLLER SYSTEM,	<ul style="list-style-type: none"> • Temperature controller with facilities for P, I, D and relay control blocks • Operating temperature: Ambient to 90°C • Separate controls for P, I, D channel gains • Two settings for relay hysteresis • Fast 25W oven fitted with IC temperature sensor • Forced cooling option to ready oven for next experiment 	01
08.	Performance evaluation and design of PID Controller	<p>ON/OFF Controller</p> <p>Square and triangular wave with variable frequency for testing PID</p> <p>Variable DC for set point & In built power supply</p> <p>Dead zone and disturbances generator</p> <p>Voltmeter for DC measurement & Signals can be observed and measured at various blocks</p> <p>Power Supply : 100V - 240V AC, 50/60Hz</p> <p>Learning Material : CD (Theory, procedure, reference results etc),</p>	01
09.	LINEAR VARIABLE DIFFERENTIAL TRANSFORMER, LVDT	<ul style="list-style-type: none"> • LVDT Range: ± 50mm or total 100mm (typical) Sensitivity : 25mV/cm (typical) Operating frequency : 5KHz$\pm 5\%$ • Displacement measurement on a mm scale with fine motion control • Carrier source (internal): 5KHz$\pm 5\%$; 1.5V (nominal) • Built-in 3½ digit DVM for output reading *30 Mhz Dual Trace Oscilloscope, Sensitivity 1mV/cm 	01
10.	COMPENSATION DESIGN	<ul style="list-style-type: none"> • Simulated 'uncompensated' system having adjustable damping. Peak percent overshoot MP, variable from 20% to 50%, and steady state error variables from 50% to 0.5% • Compensation network implementation through built-in variable gain amplifier. Gain is adjustable from 1 to 11 • Built-in square and sine wave generators for transient and frequency response studies. Frequency adjustable from 25Hz – 800Hz (approx.) • 220V$\pm 10\%$, 50Hz mains operation • Complete in all respects with 30 Mhz Dual Trace Oscilloscope, Sensitivity 1mV/cm 	01
11.	STUDY OF SECOND ORDER NETWORKS	<ul style="list-style-type: none"> *Active second order network • Damping control – over-, critical, and under-damping • Built-in square wave signal • Built-in sine wave signal 	01

12.	LINEAR SYSTEM SIMULATOR	<ul style="list-style-type: none"> * Simulated first, second and third order system of type-0 and type-1 (4 combinations) * Calibrated variable gain amplifier (Resolution 1 : 1000) * Built-in signal sources: Square wave and Triangular Frequency : 45-90Hz Amplitude: 0-2.5V approximately * Trigger output for perfectly steady display on CRO * Uncommitted amplifier for phase adjustment * Provision for disturbance inputs * 220V±10%, 50Hz mains operation * 30 Mhz Dua Trace Oscilloscope, Sensitivity 1mV/cm 	01
13.	POTENTIOMETRIC ERROR DETECTOR	<ul style="list-style-type: none"> * High quality servo-potentiometers of 360° shaft rotation * Built-in signal and power sources * 3½ digit DVM for measurements * 220V±10%, 50Hz mains operation * 30 Mhz Dua Trace Oscilloscope, Sensitivity 1mV/cm 	01
14.	LIGHT INTENSITY CONTROL	<ul style="list-style-type: none"> • Seven lamps 6V/300mA • 5Hz square wave and triangular wave for dynamic response study • Switch selectable PI-Controller • Built-in 3½ digit DVM • Built-in IC regulated power supplies • 220V±10%, 50Hz Mains operation • Detailed literature and patch cords included 	01
15.	STUDY OF TEMPERATURE TRANSDUCERS	<ul style="list-style-type: none"> * Temperature controlled oven upto 150°C with digital temperature display * Digital voltmeter on the panel for sensor output measurement * Built-in interfacing circuit and switched gain instrumentation amplifier * IC regulated power supplies and detailed manual 	01

Note: Detailed specification of all items will be attached in the invitation letter.

Faiz Ahmad
25/09/2018

[Signature]
Principal
MIT Muzaffarpur