

**INDIAN INSTITUTE OF TECHNOLOGY GOA**

At Goa Engineering College Campus

Farmagudi, Ponda, Goa 403401

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GSTIN: 30AABAI1653D1ZF

PAN: AABAI1653D

TAN: BLRI08261B

**Enquiry No: IITGOA/2019-20/044**

**Date: 10/12/2019**

IIT Goa invites sealed quotations in two bid form for the supply of below mentioned item.

Sl. No.	Description of Item	Qty
1	DC Modular Servo System <b>(Detailed Specifications Attached)</b>	01 No.

**Terms and conditions:**

1. Quotation must be valid for at least 90 days.
2. The GSTIN should invariably be mentioned in your offer.
3. Kindly attach a compliance certificate along with the technical quote.
4. Prices:
  - I) **For Import Supplies:**
    - a) It is mandatory to quote prices in FOB basis only.
    - b) In case of multiple options of same product, bidders are requested to quote only one best option and not multiple options.
    - c) Payment terms: 90% payment by letter of credit and balance 10% will be paid by wire transfer after satisfactory installation and commissioning.
  - II) **For Indigenous Supplies:**
    - a) In case of multiple options of same product, bidders are requested to quote only one best option and not multiple options.
    - b) Payment terms: Within 30 days after the delivery and installation of the item at IIT GOA.
5. Delivery and installation should be made within 6 weeks of getting a confirmed order.
6. The Bidder must be an Original Equipment Manufacturer (OEM) or his Authorized Dealer/Authorized Distributor/ Authorized Stockist/ Channel Partner having a Direct Purchase and Support agreement with the OEM. In case, if the Bidder is a Dealer/Distributor, a valid LETTER OF AUTHORIZATION from the Original Equipment Manufacturer for Dealership should be produced.

7. The Average Annual Turnover of the Bidder for the last three years should be at least Rs.25 lacs. (Rupees Twenty-Five lacs). A Printed copy of the Annual Accounts duly audited and certified by the Chartered Accountants must be enclosed with the technical bid.
8. The Bidder should provide a list of 6 customers of previous supply of a similar/ same range of equipment to IIT's / NIT's / Universities with contact details. Copies of orders received from the reputed firms on bidding firm need to be submitted.
9. The Bidder should furnish Minimum 4 satisfactory performance certificate from the parties concerned to whom supplies were affected in case such supplies were made.
10. The Successful bidder shall provide Min 1 Years warranty after the completion of installation.
11. The bidder should produce the Certificate of incorporation of the organization.
12. Certificate/Undertaking on the letterhead of the Company to the effect that the bidder/ Manufacturer had not been blacklisted anywhere in India or abroad by any organization.
13. The bidder should have ISO 9000 or equivalent certification.
14. The suppliers shall provide the banking details along with their quote on their letterhead duly signed and stamped.
15. Quotations shall be submitted in two parts;
  - 1) **Part – I (Technical)** should contain all the technical details and specification of the product. It should contain unpriced bid along with terms and conditions, compliance certificates, proprietary certificates (if applicable), any other certificates/details etc. This envelope should be marked as “Technical Bid”
  - 2) **Part -II (Financial)** The financial bid of the above item should be in a sealed envelope marked as “Financial Bid” and should contain financial terms and conditions.
16. IIT Goa reserves the right to accept or reject any or all the bids without assigning any reason in public interest.
17. For any clarification, you may kindly contact Dr. Sheron Figarado (E-mail: [sheron@iitgoa.ac.in](mailto:sheron@iitgoa.ac.in) and Stores & Purchase Department (email: [purchase@iitgoa.ac.in](mailto:purchase@iitgoa.ac.in)) till 20/12/2019.
18. All sealed quotations must reach to the Assistant Registrar (Stores & Purchase), IIT Goa, at Goa College of Engineering Campus, Farmagudi, Ponda, Goa, 403 401 by 17.00 Hrs on or before 31/12/2019.

**Sd/-**  
**Asst. Registrar (S&P)**

# **Technical Specifications**

## **Scope of experiments**

Modular Servo trainer is expected to be used for the study and verification of basic and advanced control methods in practise and should be able to demonstrate variable factors such as friction, damping and inertia as well as a number of positions / speed control methods ranging from classical control schemes such as PID to modern control techniques such as LQ and optimal control.

## **Expected features and specifications**

- DC Motor with speed and position control options: speed and position feedback provision is needed, preferably absolute position feedback.
- Configurable friction (damping) module, inertial module, gears and backlash module.
- Easy configuration of the mechanical and electrical connections.
- Potentiometer knob/ slider for position command.
- Solid frame for support to provide stable fixing of the modules for various configurations so as to ensure safe operation.
- MATLAB Simulink Real time control support.
- Flexibility to run a variety of control schemes including classical PID control and modern control schemes such as LQR for entry level and advanced course syllabi, as defined by the user, through MATLAB Simulink (and the proprietary software, if needed.)
- USB support for PC connection: USB 2.0 or above.
- OS Compatibility: Windows 8 or above.
- PWM control, with configurability of PWM parameters.
- The hardware set up should be table top and with a preferred total cubic volume less than 40,000 cm<sup>3</sup> with the highest dimension less than 100cm.
- Configurable sampling time (better than 1 kHz) such that various digital control schemes can be implemented.
- All the specifications and parameters of the set-up should be supplied as a data set to compare the simulation and real-time control experimental result.
- Software tools (excluding MATLAB Simulink and modules supplied by MATLAB for real-time control) , Library files, model files, and experiment manuals and other user manuals should be supplied along with the experimental set up quoted.
- Installation and demo at the designated lab is to be arranged.