



Indira Gandhi Engineering College, Sagar, Jabalpur Road, Baheriya  
Gadgad, Near Makronia Railway Station, Sagar – 470021

Email Id – prinigec.sgr@mp.gov.in

### INVITATION FOR QUOTATION

Package Code: TEQIP-III/2019/MP/igec/67 **13221** **26/09/19**  
Package Name: IGEC/EE/ED-3/EQIP/01 to 07

Current Date: 23-Sep-2019  
Method: Shopping Goods

For uploading on the Institute Website

### Subject: INVITATION FOR QUOTATION FOR SUPPLY OF GOODS

Dear Sir,

- You are invited to submit your most competitive quotation for the following goods with item wise detailed specifications given at Annexure I,

Sr. No	Item Name	Quantity	Place of Delivery	Installation Requirement (if any)
1	To study speed control of three phase induction motor using three phase current source inverter	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
2	To study speed control of three phase induction motor using three phase voltage source inverter	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
3	To study speed control of three phase slip ring induction motor using static scherbius slip power recovery control scheme	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
4	To study speed control of three phase induction motor using three phase ac voltage controller	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
5	Motor braking methods trainer	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
6	3-phase Electrical Power Distribution Panel (415V, 100A, 50Hz)	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.
7	Itemwise Cabling of motors and panel, Cabling and earthing of panels and motors	1	EE Department, I.G. Engineering College, Sagar	Installation should be done free of cost.

- Government of India has received a credit from the International Development Association (IDA) towards the cost of the **Technical Education Quality Improvement Programme [TEQIP]-Phase III** Project and intends to apply part of the proceeds of this credit to eligible payments under the contract for which this invitation for quotations is issued.
- Quotation**
  - The contract shall be for the full quantity as described above.
  - Corrections, if any, shall be made by crossing out, initialling, dating and re writing.
  - All duties and other levies payable by the supplier under the contract shall be included in the unit Price.
  - Applicable taxes shall be quoted separately for all items.
  - The prices quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
  - The Prices should be quoted in Indian Rupees only.
- Each bidder shall submit only one quotation.
- Quotation shall remain valid for a period not less than **90** days after the last date of quotation submission.
- Evaluation of Quotations: The Purchaser will evaluate and compare the quotations determined to be Substantially responsive, i.e., which
  - are properly signed; and
  - Confirm to the terms and conditions, and specifications.
- The Quotations would be evaluated for all items together.
- Award of contract - The Purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation price.
  - Notwithstanding the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of Contract.
  - The bidder whose bid is accepted will be notified of the award of contract by the Purchaser prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the purchase order.

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9. Payment shall be made in Indian Rupees as follows:

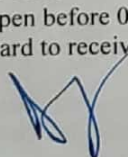

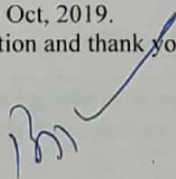
Payment Description	Expected Delivery Period (in Days)	Payment Percentage
Satisfactory Delivery, Acceptance, Installation & Testing	30	100


10. Liquidated Damages will be applied as per the below:

Liquidated Damages Per Day Min % : N/A

Liquidated Damages Max % : N/A

11. All supplied items are under warranty of **24** months from the date of successful acceptance of items and AMC/Others is No.
12. You are requested to provide your offer latest by **15:30** hours on **10-Oct-2019**.
13. Detailed specifications of the items are at Annexure I.
14. Training Clause (if any) – **Training on operation and handling of equipments free of cost as per department requirements.**
15. Testing/Installation Clause (if any) – **Full installation and testing/demonstration free of cost.**
16. Performance Security shall be applicable: **0%**
17. Information brochures/ Product catalogue, if any must be accompanied with the quotation clearly indicating the model quoted for.
18. Sealed quotation to be submitted/ delivered at the address mentioned below, **Indira Gandhi Engineering College, Sagar, Jabalpur Road, Baheriya Gadgad, Near Makronia Railway Station, Sagar – 470021**
19. **Qualification Criteria** : The bidder/supplier should have :
- 19.1 A minimum of 3 years experience of supplying similar items.
- 19.2 A turnover of Rs. 100 lakhs at least once in three years.
- 19.3 Not been blacklisted by any Government Institution/Organization.
20. The quotation should include the following information :
- 20.1 The copies of original documents defining the constitution or legal status, place of registration and principal place of business of the company firm or partnership etc. in India.
- 20.2 Report on financial status (balance sheet and auditor's report for the past three years).
- 20.3 An affidavit for not being blacklisted by any Government Institution/Organization.
- 20.4 Authorization Certificate from the OEM/Principal (if bidder/supplier is not an OEM) assuring full guarantee and warranty obligations during the liability period, for the goods offered.
- 20.5 The list of clients duly supported by copies of purchase orders, installation and performance report signed by purchasers/users.
21. In case of failure to supply the goods within the prescribed time and in accordance with the specifications given in the contract/purchase order, the institute shall be free to cancel the order and make purchase from the next higher tenderer/from the open market as the case may be.
22. The competent authority reserves the right to increase or decrease the quantity of any item of sale, during the period of contract. The tenderer/bidder will be bound to comply with the order of the competent authority without any claim and compensation.
23. Any controversy will be subject to disposal in Sagar Jurisdiction only.
24. Damaged, defective or substandard material will not be accepted under any circumstances.
25. Preference will be given to :
- 25.1 The bidders possessing relevant certification by an authorized body such as ISO etc., copy of which must be enclosed.
- 25.2 The bidders that have quoted the item certified for standard, quality and safety such as BIS, ISI etc., copies of which must be enclosed.
26. Please mention following on top of the sealed quotation submission envelope –
- 26.1. TEQIP – III
- 26.2 Package Code
- 26.3 Don't open before 03:30 PM on 10 Oct, 2019.
27. We look forward to receiving your quotation and thank you for your interest in this project.

  
(Authorized Signatory)

Name & Designation



Sr. No	Item Name	<p style="text-align: center;"><b>Annexure I</b></p> <p style="text-align: center;"><b>Specifications</b></p>
1	To study speed control of three phase induction motor using three phase current source inverter	<p><b>To study speed control of three phase induction motor using three phase current source inverter. (three phase current source inverter trainer)</b></p> <p>Features - Aluminium Profile Modular System consisting of different type of modules, Educational Bench Top Model with schematic/ block diagram of the test circuit engraved on the panel, test points &amp; measurement points brought out and connected to 2mm plastic &amp; BT15/30 terminals circuit setup for testing through in reconnections of patch cards, complete illustrated manual covering brief theory of equipment along with technical details and experimental procedures, Connection diagrams should be supplied with experimental set up. Technical Specifications: Digital Meter: Voltage &amp; Current Measurement, Digital RPM counter, TPN MCB, LED Indicators, A.C. MOTOR : Three Phase, 415V 1.0 HP squirrel cage induction motor drive by Micro Control Based Firing angle along with motor-generator set. Consisting of AC Induction Motor 1HP 415V, 1440RPM coupled to DC shunt Generator 230V with Lamp Bank load. POWER CIRCUIT : It consists of 6 Thyristors connected in anti-parallel (2 SCRs in each phase) by controlling the firing angle of the thyristors connected in anti-parallel in each phase, the r.m.s. value of the stator voltage can be regulated. As a consequence, motor torque and thus speed of the drive is controlled. CONTROL CIRCUIT: FCR-100 (8051) microcontroller based SCR Bridge controller is used for controlling the firing circuit, Soft push buttons provided for increasing or decreasing the firing angle, 3-Phase MCB, LCD display of the firing angle, 10:1 Attenuator with Isolation Transformer for observation of wave form on CRO, CRO 10Hz-1Mhz for AC, 0-1Mhz for DC</p>
2	To study speed control of three phase induction motor using three phase voltage source inverter	<p><b>To study speed control of three phase induction motor using three phase voltage source inverter. (three phase voltage source inverter trainer)</b></p> <p>Features - Aluminium Profile Modular System consisting of different type of modules, Educational Bench Top Model with schematic/ block diagram of the test circuit engraved on the panel, test points &amp; measurement points brought out and connected to 2mm plastic &amp; BT15/30 terminals circuit setup for testing through in reconnections of patch cards, complete illustrated manual covering brief theory of equipment along with technical details and experimental procedures, Connection diagrams should be supplied with experimental set up. Technical Specifications: Digital Meter: Voltage &amp; Current Measurement, Digital RPM counter, TPN MCB, LED Indicators, A.C. MOTOR: AC Induction Motor 1 HP, 3 Phase, 415V AC, 50Hz, 1440rpm, TEFC, IP44, IC01, Class-B, and Single Shaft Extension. FIRING CIRCUIT: Bridge Rectifier for working as DC Source, IGBT Driver Circuit, Three Phase Bridge Circuit, A Digital Circuit Controller to provide pulse to the IGBT Driver Circuit, Three Phase Induction Motor TFC Enclosure is connected as load across the three phase bridge circuit. POWER CIRCUIT: Six MOSFET/IGBT (600V/25A)</p>
3	To study speed control of three phase slip ring induction motor using static scherbius slip power recovery control scheme	<p><b>To study speed control of three phase slip ring induction motor using static scherbius slip power recovery control scheme. (static scherbius slip power recovery control scheme trainer)</b></p> <p>Features - Aluminium Profile Modular System consisting of different type of modules, Educational Bench Top Model with schematic/ block diagram of the test circuit engraved on the panel, test points &amp; measurement points brought out and connected to 2mm plastic &amp; BT15/30 terminals circuit setup for testing through in reconnections of patch cards, complete illustrated manual covering brief theory of equipment along with technical details and experimental procedures, Connection diagrams should be supplied with experimental set up.</p> <p>Technical Specifications</p> <p>Digital Meter: Voltage &amp; Current Measurement, Digital RPM counter, TPN MCB, DOL starter three phase, LED Indicators, AC MOTOR: 1 HP Induction Motor Slip ring Type for demonstration of speed of Induction motor. POWER CIRCUIT: One MOSFET/ IGBT (600V/25A), Six power Diodes (600V/12A) to rectify Wound Rotor generated AC, Resistor for starting.</p>

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4	To study speed control of three phase induction motor using three phase ac voltage controller	<p><b>To study speed control of three phase induction motor using three phase ac voltage controller (three phase ac voltage controller trainer)</b></p> <p>Features - Aluminium Profile Modular System consisting of different type of modules, Educational Bench Top Model with schematic/ block diagram of the test circuit engraved on the panel, test points &amp; measurement points brought out and connected to 2mm plastic &amp; BT15/30 terminals circuit setup for testing through in reconnections of patch cards, complete illustrated manual covering brief theory of equipment along with technical details and experimental procedures, Connection diagrams should be supplied with experimental set up. Technical Specifications: Digital Meter: Voltage &amp; Current Measurement, Digital RPM counter, TPN MCB, LED Indicators, A.C. MOTOR: Three Phase, 415V 1.0 HP squirrel cage induction motor drive by Micro Control Based Firing angle along with motor-generator set. Consisting of AC Induction Motor 1HP 415V, 1440RPM coupled to DC shunt Generator 230V with Lamp Bank load. POWER CIRCUIT: It consists of 6 Thyristors connected in anti-parallel (2 SCRs in each phase) by controlling the firing angle of the thyristors connected in anti-parallel in each phase, the r.m.s value of the stator voltage can be regulated. As a consequence, motor torque and thus speed of the drive is controlled. CONTROL CIRCUIT: FCR-100 (8051) microcontroller based SCR Bridge controller is used for controlling the firing circuit, Soft push buttons provided for increasing or decreasing the firing angle, 3-phase MCB, LCD display of the firing angle, 1 Attenuator with Isolation Transformer for observation of wave form on CRO, DSO 2 channel 25Mhz, 500msps, 2.5 kpts.</p>
5	Motor braking methods trainer	<p><b>Motor braking methods trainer</b></p> <p>Items Required With Description: Input 3 phase DOL Starter panel DOL9A Contactor with 230V / 50 Hz / 11VACOIL. Integrated AC (3-<math>\phi</math>/1-<math>\phi</math>) measurement panel Digital meter for measurement of 3 Ph. &amp; 1 Ph. parameters, Voltage line to line &amp; line to neutral, Current for all 3 Ph. up to 5A, Power factor, frequency, watts, VAR, VA and energy in KWhr. Variable AC/DC power Supply Panel: AC output 0 to 300V / 5 Amp. DC output 0 to 240V / 5 Amp. 3 Phase AC Integrated Machine: Voltage : 415VAC, 50Hz, Capacity/RPM: 300W/1500RPM DC Integrated (Foot mounted) Machine:- Voltage : <math>V_{arm} = 180V</math>, <math>V_{field} = 180V</math>, Capacity/RPM : 300W/ 1500RPM Flywheel: Flywheel dia: 200mm, Shaft mounting dia: 12<math>\phi</math>, 12mm thick Resistive 20E/200W rheostat mounted on horizontal profile of rack. Experiments: 1.To study the regenerative braking of 3<math>\phi</math> AC motor 2. To study the AC dynamic braking of 3<math>\phi</math> AC motor 3. To study the DC dynamic braking of 3<math>\phi</math> AC motor 4. To study the self excited braking of 3<math>\phi</math> AC motor 5. To study the zero sequence braking of 3<math>\phi</math> AC motor 6. To study the rheostatic or regenerative braking of separately excited DC motor. 7. To study the Plugging of separately excited DC motor. 8. To study load equalization by flywheel for intermittent duty cycle.</p> <p>3-phase Electrical Power Distribution Panel (415V, 100A, 50Hz)</p>
6	3-phase Electrical Power Distribution Panel (415V, 100A, 50Hz)	
7	Itemwise Cabling of motors and panel, Cabling and earthing of panels and motors	<p><b>Cabling</b></p> <p>Itemwise Cabling of motors and panel, Cabling and earthing of panels and motors is required to be done by the supplier, Connections of motors to the panels, panels to the MCB boxes and cabling necessary for mains supply box of the lab, this must include supply of MCBs with proper ratings and box cabling using conduits and flexible pipes as and where necessary. Proper earthing of panels, motors, etc. using aluminium flat and GI wire of proper thickness and resistance</p> <p><b>Installation &amp; Commissioning of Machine Lab Equipments</b></p> <p>The Machines &amp; panels should be interconnected from AC panel through UG Cable of size 20 / 4 sq mm for 32 Amps switches and 10 / 4 sq mm for 16 Amps switches (depending upon rating of the machine as indicated in the schedule). The make of the underground cable should be of well known standard quality.</p> <p><b>Grounding/Earthing</b></p> <p>At least two points of Rod and Plate type of grounding of proper rating as per National Electrical Code, to keep the earth resistance less than 5 ohms are to be provided. In case the earth resistance is more than 5 ohm, Bentonite should be added to each point</p>

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to keep earth resistance with in 5 ohms. Funnel type of cups should be provided for water injection. All the Machines & Panels should be properly connected to these ground/earth points.

**Meters and Switch Gears**

All digital meters used should be of well-known standard quality. The Switch gears connected should be of well-known standard quality make. Where ever possible Multi Data Monitoring unit should be connected for Machines.

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**FORMAT FOR QUOTATION SUBMISSION**  
(In letterhead of the supplier with seal)

Date: \_\_\_\_\_

To: \_\_\_\_\_

Sl. No.	Description of goods \ (with full Specifications)	Qty.	Unit	Quoted Unit rate in Rs. (Including Ex-Factory price, excise duty, packing and forwarding, transportation, insurance, other local costs incidental to delivery and warranty/ guaranty commitments)	Total Price (A)	Sales tax and other taxes payable	
						In %	In figures (B)
<b>Total Cost</b>							

Gross Total Cost (A+B): Rs. \_\_\_\_\_

We agree to supply the above goods in accordance with the technical specifications for a total contract price of Rs. \_\_\_\_\_ (Amount in figures) (Rupees) \_\_\_\_\_ amount in words) within the period specified in the Invitation for Quotations.

We confirm that the normal commercial warranty/ guarantee of \_\_\_\_\_ months shall apply to the offered items and we also confirm to agree with terms and conditions as mentioned in the Invitation Letter.

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

Signature of Supplier

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Contact No. \_\_\_\_\_