



## College of Engineering, Pune - 411 005

Quotation for supply of

- (a) Steam Turbine,
- (b) Condenser with condensate pump
- (c) Generator

for Forbes Marshal Steam Technology Centre in Mechanical  
Engineering Department

Ref: COEP/Mech/Lab Equipment/2017/ Date: 20/11/ 2017 /770

Cost of Quotation: Rs. 500/-

**MECHANICAL ENGINEERING DEPARTMENT**  
**COLLEGE OF ENGINEERING, PUNE**  
 SHIVAJINAGAR, PUNE-411005

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Tender No: COEP/MED/lab equipment/SteamEngg/2017/770

Date: 20/11/2017

Last Date of submission of sealed quotations: 28/11/2017, 3.00 pm

Subject: Invitation of sealed quotation for supply, installation and commissioning of laboratory equipment

College of Engineering Pune invites sealed quotation for the supply; installation and commissioning of laboratory equipment as given in the Table 1. Please refer to the attached list of equipment, their specifications and terms and conditions.

Table 1

Sr. No.	Name of the equipment	Detailed specifications as per	The matter to be written on the envelope of the quotation
1	(a) Steam Turbine	Annexure A	“Quotation for Steam Turbine”
	(b) Surface Condenser with condensate pump		Quotation for surface condenser with condensate pump”
	(c) Generator		“Quotation for Generator”

**Terms and Conditions:**

1. Quotations through Fax and Email are not acceptable.
2. Submit separate quotation for each item in a sealed envelope and mention the name of the equipment for which the quotation is submitted.
3. Quotations should be valid for 60 days from the tender due date. The quotation should clearly indicate the period of delivery, warranty terms etc.
4. All duties, taxes and other levies payable by the bidder needs to be included in the total price, and break up needs to be indicated.
5. Quotations received after the due date and time will be rejected.
6. Further details of this quotation and the relevant information are available in the office of Mechanical Engineering Department, College of Engineering Pune. For any query please contact, Prof. P. R. Dhamangaonkar, 9421670869.
7. Delivery: The Equipment should be supplied, installed and commissioned "FOR" College of Engineering Pune within the period of 8 weeks from the date of issue of purchase order.
8. Penalty: If the suppliers fails to deliver and place any or all the Equipment or perform the service by the specified date, penalty at the rate in force subject to the maximum of 10% of total order value will be Charged and deducted from the payables.

s/d

Head, Mechanical Engineering Department  
 College of Engineering Pune

Office copy is signed by HoD

## Annexure A

### Steam Turbine and Generator Set up with surface condenser:

#### Need:

Forbes Marshall Steam Technology Centre, Department of Mechanical Engineering has a LDO fired boiler. It generates steam at 10 bar at the rate of 750 kg/hr. Further the steam is passed to other test equipment. This equipment work at 3 bar. Thus the steam pressure is reduced from 10 bar to 3 bar in pressure reducing centre.

It is intended to install a steam turbine working in the range of 10 bar to 3 bar to be used as pressure reducing centre and a generation station. Thus the setup with steam turbine and a generator will also form a steam turbine test set up. It will cater to TY Mechanical, SY Production and SY Metallurgy practical need.

The Experimental steam power plant setup is designed to study power generation using steam & evaluate performance of the power plant.

#### Specifications:

##### a) Steam Turbine :

Impulse reaction turbine 3-5 kW power output for 600 kg/hour 10 bar wet steam (0.95 dry)

##### b) Condenser:

Shell and tube type condenser to condense steam 600 kg/hr at 3-4 kg/cm<sup>2</sup>, with cooling water at room temperature

##### c) Condensate Pump: 1 hp to pump hot condensate 600 kg/hr at 100 °C to a head of 5 m

##### d) Generator

A.C. Generator with load bank system. Capacity: 3.0 kW, 220 V,

#### Instrumentation:

The set-up should be provided with measuring and monitoring instruments and sensors of high quality and accuracy to measure:

- i) Steam flow, temperature, pressure at inlet and out let of turbine
- ii) Steam flow, temperature, pressure at inlet and out let of condenser
- iii) Cooling water flow, temperature, pressure at inlet and out let of condenser
- iv) Pressure sensor to measure condenser pressure
- v) Power measurement

Calibration certificate of all instruments is must along with the delivery of the equipment

#### Erection and Commissioning:

Erection and commissioning of the turbine, generator, and condenser is in the scope of supplies.

Piping with insulation wherever required, fittings and other accessories will be at accruals.