

KERALA UNIVERSITY OF FISHERIES AND OCEAN STUDIES

GA7/9946/17(i)

Panangad, Dated: 06/01/2018

TENDER NOTICE

Sealed Competitive limited tenders are invited for the setting up of “**Food thermo Dynamics Lab for School of Ocean Engineering & Under Water Technology**”.
The particulars / specifications are attached.

Last date & time for receipt of tender	19.01.2018	11.00 AM
Date & time of opening of tender	19.01.2018	11.30 AM

The envelope containing the Tender should bear the superscription “**Tender for the setting up of Food Thermo Dynamics Lab for School of Ocean Engineering & Under Water Technology: GA7/9946/17(i)**” and should be sent to the Registrar, Kerala University of Fisheries and Ocean Studies, Panangad, Kochi – 682 506, Ernakulam District. Intending firms/individuals can submit their tenders in the tender form downloaded from the official site of KUFOS with detailed specification, tender cost of Rs.500/- and EMD for Rs.2100/- by means of Demand Draft drawn in favour of the Finance Officer, KUFOS, Panangad, Kochi payable at State Bank of Travancore, Vyttila along with the offer. More details are available in the office of Director SOE & UT (Ph. No.8281326577) and he can be contacted on all working days with the permission of undersigned.

All the terms and conditions applicable to University/Government quotation/Tenders are admissible to this also. Right to accept the Tender in full or in part or to reject without assigning any reason whatsoever is reserved with the undersigned.

**Sd/
REGISTRAR**

Specification for Food Thermodynamics Lab

1. Air Conditioning Tutor

The trainer is designed to understand theory, constructional and operational features of air conditioner and to study its performance characteristics.

The trainer is designed for the study of air-conditioning.

Specifications:

- Capacity: 3000 KCal/hr
- Tonnage: 1.0 T
- Moisture removal: 1 Lit/hr
- Air Circulation: 638 m³/hr approx.
- Power Supply: 220 V, 50 Hz, Single Phase

Using/studying this equipment the student must be able to,

- a. Identify components of a Split air-conditioning unit
- b. State need for eco-friendly refrigerant gas
- c. Study of cooling process
- d. Study of Summer, Winter and Monsoon air-conditioning process
- e. Study of dehumidification and cooling process
- f. Study of a typical air-conditioning cycle
- g. Calculate Heat balance at evaporator, condenser and the overall system
- h. Calculate COP at various loads
- i. Study Psychometric charts during drying process/ humidification process
- j. Determination of dryness fraction of steam
- h. Demonstration of equilibrium sorption isotherms

The equipment must consists of following components,

1. Hermetically sealed Compressor, Emerson make or equivalent
2. Capillary
3. Control chamber and ducting : Houses sensors, thermostats and axial fan Size: 4 ft x 3 ft x3 ft (minimum)
4. Pre-heater
5. Rotameter to measure refrigerant flow
6. Measuring vessel to measure water condensed at dew point conditions
7. Cooling coil evaporator
8. Electrical Heater of 3 kW capacity to load the system
9. Humidifier: MOC: SS. Steam generation by using electrical heater
10. Energy-meter transmitter with Digital Indicator for display of power consumption
11. Temperature Indicator (8 point) with sensors, 8 nos.
12. Pressure gauges, SS Body, Wetted brass parts, Glycerine filled, 4 nos.
13. Anemometer with digital indicator, indicator mounted on the panel, calibrated in terms of volume of air in m³/hr
14. Digital RH indicator 2 nos.
15. H.P. / L.P cut out
16. Refrigerant
17. MS test chamber with duct for re-circulation, fresh air and exhaust ducts.
The ducts should have acrylic front face
18. Control panel made of MS
19. Mimic: Colour mimic of size 450 mm X 450 X 2 mm thick
Software: An off-line software should be supplied on CD

Software should calculate all the parameters based on the logged data such as COP, etc. There should be a facility in the software to plot inlet and outlet condition of air on Psychrometric Chart.

Along with the equipment following teaching aid should be supplied.

Operating manual containing Theory, procedure to conduct experiment and troubleshooting.

Installation with necessary Working Table Wiring, Protection, Extension