

INTERNATIONAL ISLAMIC UNIVERSITY ISLAMABAD
(Purchase & Stores Section)

CORRIGENDUM

Reference to our Tender Notice published on **05-12-2014** in Daily "**The Nation**" and Daily "**Jang**" for **Procurement of Lab Equipments for FLUID and THERMO/HVAC/HMT/MMT Labs of Department of Mechanical Engineering, FET (Male)** for International Islamic University, Islamabad. Following changes have been made in the tender:

- i) Bid/Tender submission date has been extended and last date for submission of tenders will be **13-01-2015** at 10:30 a.m which will be opened on the same date at 11:00 a.m.
- ii) **Specifications of the Lab Equipments have been Revised** which can be downloaded from www.ppra.org.pk and www.iiu.edu.pk

Note: *The other Terms & Conditions shall remain the same.*

(Javaid Rabbani), Assistant Director (P&S), Room # 213, (2nd Floor)
Administration Block, Sector H-10 International Islamic University, Islamabad,
Phone # 9019255

INTERNATIONAL ISLAMIC UNIVERSITY ISLAMABAD
(Purchase & Stores Section)

No.17/11/2014/P&S-

December 19, 2014

Subject:

CORRIGENDUM

The enclosed Corrigendum for Purchase of a **Lab Equipments for Department of Mechanical Engineering (DME)**, IIU is to be placed on PPRA and IIUI websites as well as in two National Dailies (**Urdu & English each**) of wider circulation. The Corrigendum may preferably be published on **20-12-2014**.

2. *Copies of the News clipping may also be sent to the undersigned for record upon publication of the Notice please.*

(Asif Munir Babar)
Addl. Director (P&S)

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| i) | Addl. Director (P&PR)Section, IIUI | With the request to publish the Corrigendum alongwith Revised Specifications of the Equipment on the PPRA website and only Corrigendum in print media. |
| ii) | Webmaster, IIUI | With the request to post the enclosed Corrigendum alongwith Revised Specifications of the Equipment at IIUI website. |
| iii) | Relevant file | |

Annex-I

LIST OF EQUIPMENT WITH SPECIFICATIONS

LAB EQUIPMENT FOR FLUID LAB				
S.#	Name of Equipment & Technical Specifications	Qty.	Unit Price Inclusive of GST	Total Amount (Rs.)
1	<p><u>Basic Hydraulic Bench:</u></p> <ul style="list-style-type: none">• Stainless steel structure.• Screws, nuts, plates and all the metallic elements in stainless steel.• Diagram in the front panel with similar distribution to the elements in the real unit.• Quick connections for adaptation to feed hydraulics source.• Centrifugal pump single-phase 220V• Capacity of Tank: 100 Liters• Flow meter.• Safety switch ON/OFF.• Literature regarding working of module.• Mounted on movable base with wheels• Warranty: two years <p>The apparatus should provide Water supply for experimental units for fluid mechanics experiments, Volumetric flow rate measurement for large and small flow rate. Comprehensive range of accessories which help to complete the experiments.</p>			
2	<p><u>Reciprocating Pump Test Rig :</u></p> <ul style="list-style-type: none">• Maximum Capacity 1.5 m³/h• Maximum head : 60 m• Maximum intake connection diameter 1”• Maximum delivery connection diameter 1”• 1 reciprocating pump, complete with connections and sensors• Mounted on movable base with wheels• Literature regarding working of module.			

	<ul style="list-style-type: none"> • Compatible with basic hydraulic bench • Warranty: two year <p>The apparatus should determine the power requirement of the pump, hydraulic power output of the pump, pump efficiency, characteristic curves.</p>			
3	<p><u>Kaplan Turbine Apparatus:</u></p> <ul style="list-style-type: none"> • Electric Supply: 220V AC, 50 Hz • Pipe & fittings with flow control valves • Compatible with basic hydraulic bench • Digital display devices for <ul style="list-style-type: none"> ○ pressure (at turbine inlet) ○ pressure (at turbine outlet) ○ flow rate ○ speed • Dynamometer • Literature regarding working of device. • Warranty: two year <p>The apparatus should consist of the impeller, the control device with adjustable guide vanes, a band brake for loading the turbine and housing with a transparent front panel. The transparent cover enables to observe the water flow, the impeller and the guide vanes during operation. The angle of attack and thus the power of the impeller are modified by adjusting the guide vanes.</p>			
4	<p><u>Non-Contact Tachometer:</u></p> <p>Specifications</p> <p>Measuring Range: 1.00-99,999</p> <ul style="list-style-type: none"> • Display: 5digit alphanumeric LCD • Measuring ranges in : Metric System • Literature regarding working of device. • Warranty: two year 			
5	<p><u>Francis Turbine Apparatus:</u></p> <ul style="list-style-type: none"> • Compatible with basic hydraulic bench • Digital display devices for <ul style="list-style-type: none"> ○ flow rate 			

	<ul style="list-style-type: none"> ○ pressures(at turbine inlet & outlet) ○ speed <p>The apparatus should consist of the impeller, the control device with adjustable guide vanes. The transparent cover enables to observe the water flow, the impeller and the guide vanes during operation. The angle of attack and thus the power of the impeller are modified by adjusting the guide vanes.</p> <ul style="list-style-type: none"> ● Literature regarding working of device. ● Warranty: two year 			
6	<p><u>Wind Tunnel:</u></p> <ul style="list-style-type: none"> ● Open wind tunnel Inlet hopper ● Nozzle ● Diffuser ● Fan ● Speed-controlled fan motor ● Manometer ● Maximum Air velocity 25-30 /sec in test section ● Digital Force indicator ● Warranty: two year ● Literature regarding working of device. ● Mounted on movable base with wheels <p>The apparatus should determine drag and lift coefficients for different models, pressure distribution on drag bodies immersed in a flow, boundary layer analysis, investigation of flutter, wake measurement</p>			

Annex-II

LIST OF EQUIPMENT WITH SPECIFICATIONS

LAB EQUIPMENT FOR THERMO/HVAC/HMT/MMT LAB				
S.#	Name of Equipment & Technical Specifications	Qty.	Unit Price Inclusive of GST	Total Amount (Rs.)
1	<p><u>4 Stroke 4 Cylinder Actual Petrol Cut Section Engine Model:</u></p> <p>Specifications:</p> <ul style="list-style-type: none">• Four stroke engine• Four cylinders• Gearbox• Movable base with wheels• Literature regarding working of the model.• Two year warranty• The engine operates electrically at 220 volts and runs at a reduced speed to let the student easily understand and observe the operation of the various mechanical parts. <p>This model is required for the students to understand the working of the engine easily. All the parts should be labeled clearly. The working of complete engine should be demonstrated with the help of actual parts assembled on a wheel mounted frame. All the necessary parts should be in working form.</p>			
2	<p><u>Diesel Engine Cut Section Model:</u></p> <p>Specifications:</p> <ul style="list-style-type: none">• Four stroke engine• Four cylinders• Direct/indirect injection• Overhead camshaft• Water cooling• Movable base with wheels• Operating voltage 220 volts/50Hz and runs at a reduced speed to let the student easily understand and observe the operation of the various mechanical parts.• Literature regarding working of the model.• Two-year warranty <ul style="list-style-type: none">• This model is required for the students to understand the working of the engine easily. All the parts should			

	be labeled clearly. The working of complete engine should be demonstrated with the help of actual parts assembled on a wheel mounted frame. All the necessary parts should be in working form.			
3	<p><u>Gas Turbine with Power & Turbine:</u></p> <p>Specifications:</p> <ul style="list-style-type: none"> • Using this unit, the operation of a two shaft gas turbine system for electric generation can be study and investigate. • Low Pressure Turbine (Power Turbine) • Pressure regulation valve. • Flow meter (Rotameter) • Gas injector.. • Water supply connections. • Air filter. • Exhaust gas outlet • Sensors and instrumentation: • Current and voltage measurement. • Safety system to prevent faults • Movable base with wheels • Literature regarding working of the model. • Two-year warranty • A self-contained, fully instrumented, educational two-shaft gas turbine that clearly show the typical properties of gas turbines, easily understood by students. Relevant values should be measured by sensors, displayed and processed by a PC in many cases. This enables comprehension of the cyclic process and determination of power, fuel consumption and efficiency values etc. 			
4	<p><u>Two Stage Compressor Trainer:</u></p> <p>Specifications:</p> <ul style="list-style-type: none"> • Two stage Compressor • Cylinders • Pressure vessels • Safety valve • Movable base with wheels • Literature regarding working of the Model. • Two-year warranty • The apparatus should measure the relevant pressures and temperatures, the intake volumetric air flow rate. The measured values should be read on digital displays. 			

5	<p><u>Two Cylinder Steam Engine:</u></p> <p>Specifications:</p> <ul style="list-style-type: none"> • Two-cylinder steam engine • Condenser • Measurement of temperature • Measurement of pressure, flow rate, and speed • Movable base with wheels • Literature regarding working of the Model. • Two-year warranty <p>The experimental module contains a steam engine, a condenser and a condenser tank together with comprehensive instrumentation.</p>			
6	<p><u>Mini-Compact Steam Turbine Plant:</u></p> <p>Specifications:</p> <ul style="list-style-type: none"> • Laboratory scale steam power plant • Steam turbine • Generator • Condenser • Measurement of temperature • Measurement of Pressure • Movable base with wheels • Literature regarding working of the Model • Two-year warranty <p>The module should measure the boiler efficiency, mechanical & thermal efficiency of the turbine, condenser efficiency, and specific fuel consumption of the plant.</p>			
7	<p><u>Universal Truss Apparatus:</u></p> <ul style="list-style-type: none"> • Truss with 19 PVC bar of different length <ul style="list-style-type: none"> ○ Height of truss maximum : 450 mm ○ Length of truss bar maximum: 900mm ○ Angle between bar: 30⁰, 45⁰, 60⁰, 90⁰ ○ Maximum Bar force : 200 N • Load Application device <ul style="list-style-type: none"> ○ Measuring range: -500+500N, Graduation :10N • Dial Gauge <ul style="list-style-type: none"> ○ Measuring range: 0,.....0,10mm, graduation: 0,01 mm • Literature regarding working of the Model 			

8	<p><u>Behavior of rubber shearing Apparatus:</u></p> <p>Specifications:</p> <ul style="list-style-type: none"> • Rubber Block • Loading Weights • Hanger • Loadapplying mechanism • Dial gauge • Movable base with wheels • Literature regarding working of the Model • Two-year warranty <p>The apparatus should measure the variation of deflection with applied load, relationship between shear stress and shear strain, modulus of rigidity of the rubber block</p>			
Total Amount				
Amount of Earnest Money				

- The equipment should be as per specification or equivalent.