Republic of the Philippines
**MSU-ILIGAN INSTITUTE OF TECHNOLOGY**
Office of the Bids and Awards Committee
Office of the BAC Secretariat, 3rd Flr, MSU-IIT Canteen Annex, Tibanga, Iligan City
Telefax No. (063) 225-4926

# INVITATION TO Bid

A. The MSU- Iligan Institute of Technology through its Bids and Awards Committee invites interested suppliers to apply for eligibility and to bid for the hereunder project:

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| Name of Project | : | Supply of Various Laboratory Equipment & Materials for use of College of Engineering |
| Location | : | MSU-Iligan Institute of Technology |
| Approved Budget | : | PhP13,495,508.00 |
| Source of Fund | : | TRUST |
| Delivery Period | : | Sixty (60) days upon receipt of P.O. |
| Non-refundable Bidder Fee | : | 0.002 of the Approved Budget Cost |
| Reference No. | : | 2013-003 |

Note: Awarding is on per item basis

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| 1 | 1 | set | ACCELEROGRAPH<br><br>Specifications:<br><br>Sensor Channels: 3 standard<br><br>Input Lever: Balanced: Balanced; ±10V or ± 2.5V differential<br><br>ADC: 24-bit Delta Sigma Converter with 32-bit DSP |

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| 2 | 1 | | SHAKE TABLE<br><br>Specification:<br><br>Table Size: 70 cm x 60 cm;  Maximum specimen weight::  50kg<br><br>Frequency of operation: 0.1 ~ 50 Hz<br><br>Nominal Performance: X axis Z axis;  Stroke: ±0.150m  ±0.075m<br><br>Velocity: 762 mm /sec  500mm/sec ; Acceleration: ±1.15g  ±2.30g<br><br>Weight of Table: 20kg ; Max Displacement: ±7.5 cm<br><br>Max force (theoretical): 1000 N ; Max Motor Torque: 1 N.m<br><br>Servo Motor Power: 750 W (with accessories for data logging & printing) |

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| 3 | 1 | LOT | 3-AXES CNC MACHINING CENTER<br><br>Description:<br><br>It is a machining center where lathe and milling operations are carried out efficiently by employing Computer Numerically Controlled (CNC) operations.<br><br>Specifications:<br><br>Minimum X-axis travel = 800mm/31.5in (Longitudinal Travel)<br><br>Minimum Y-axis travel = 400mm/15.75in (Cross Travel)<br><br>Minimum Z-axis travel = 500mm/19.7in (Vertical Travel)<br><br>Minimum Workable size (L x W) = 800mm x 400mm or 31.5in x 15.75in<br><br>Minimum T-slot = 3 x 14mm x 110mm<br><br>Maximum Load on table 110mm |

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| 5 | 1 | set | HEAVY-DUTY FLOWMETERS with TOTALIZER<br><br>Specifications:<br><br>Repeatability: ±0.1% of reading<br><br>Maximum pressure: Aluminum 300 psi (21 bar); NPT (F) connections<br><br>Operating Temperature 14 to 140 F (-10 to 60C)<br><br>Wetted materials: Aluminum housing, PVDF rotor an supports, tungsten carbide shaft, 316 SS retainers, and ceramics bearings.<br><br>Maximum particular size: 0.125 µm<br><br>Display: 6-digit LCD, ½ “H (with floating decimal)<br><br>Input power: two 3V lithium batteries (included)<br><br>1 unit of 1 to 10 GPM Range ; ½” NPT (F) Connection<br><br>Accuracy: ± 2% of reading ; Body material: Aluminum<br><br>1 unit of 5 to 50 GPM Range ; 1” NPT (F) Connection<br><br>Accuracy: ±1 C u C ๅ |

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| | | | * digitally adjustable, electronic microprocessor overtemperature controller TWW maximum value for overtemperature, minimum value for undertemperature<br><br>* additional integral over-and under temperature monitor “ASF” (Auto-Safety-Function) automatically following the setpoint value at a preset tolerance range; audible alarm is activated in case of over-or- under temperature, heating of the individual shelf is switched off in case of over-temperature<br><br>* resolution of display and setting accuracy: 0,5°C below 99,9°C, 1°C above 100°C<br><br>* automatic overtemperature protection for each thermoshelf separately (MLOP-Multi-Level-Overtemperature Protection) switching the heating off at approx. 3°C above set temperature<br><br>* mechanical temperature limiter TB protection class 1 switching the heating off at approx. 20°C above max. oven temperature<br><br>Textured Stainless Steel Casing<br><br>* w x h x d: 550 x 600 x 400 mm<br><br>* full-sight glass door, on the inside a spring-loaded 15mm thick glazed panel in safety glass with anti-splitter screen on the outside<br><br>* rear zinc-plated steel<br><br>Interior – Heating Concept<br><br>* w x h x d: 385 x 305 x 250mm, 29 liters<br><br>* hermetically welded stainless steel interior of extremely corrosion-resistant, electropolished stainless steel, material no. 1.4404 (ASTM 316L)<br><br>* additional interior mountings of stainless steel material no.1.4404 (ASTM 316L ) removable for cleaning, consisting of mounting at the sides with guide bars for thermoshelves, on top (diffuser)<br><br>* all tubings made of stainless steel material no. 1.4571 (ASTM 316 TI)<br><br>* 1 thermoshelf of aluminum material no. 3.3547 (ASTM B209) with integrated large-area heating<br><br>* two connections for thermoshelves in the rear ( 1st and 2nd position)<br><br>Temperature Range<br><br>* from +20°C up to +200°C<br><br>* temperature variation in time: < ±0,3 °C ( to DIN 12 880: 2007-05)<br><br>* temperature uniformity (surface) at 160°C / 50 mbar: <± 5°C<br><br>Voltage Power Rating<br><br>*230V (± 10%), 50±ted larg ʻ ر ʻ ng |

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| 8 | 5 | pcs. | CPX TERMINAL, Type 50E-TO3GCQSYJ-Z-E+NBE<br><br>Industrial Programmable Logic controller with Free Teachware | 84,258.00 | 421,290.00 |
| 9 | 1 | set | CURRENT METER<br><br>stream flow velocities 0.04m/s up to 10 meters per second<br><br>Specifications:<br><br>Propeller Rotation Diameter 120mm,<br><br>Propeller Hydraulic Pitch: 250mm, Starting Velocity: <0.036 m/s,<br><br>Velocity measuring Range: 0.04 m/s – 10 m/s, | | |

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| 11 | 1 | unit | ANALYTICAL BALANCE<br><br>- advanced microprocessor for accurate weighing results<br><br>- digital filtering and fast stabilization<br><br>- RS-232 Bi-directional interface to communicate to printers or computers<br><br>- GLP complaint print outs for better record keeping<br><br>- Date and time function<br><br>- Security slot<br><br>- Internal calibration with auto calibration for temperature changes or set time<br><br>- Colour coded keys to distinguish frequently used keys<br><br>- Large backlit LCD with dual text display and multi-language settings<br><br>- Capacity tracker to show how much weighing capacity has been used<br><br>- up to 16 weighing units (including one custom unit)<br><br>- robust metal housing |

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| Maximum capacity | 220g |
| Readability | 0.1µg |
| Repeatability | 0.2µg |
| Linearity | ±0.2 µg |
| Pan size | 90mm Ø |
| Units of measurement | B Ն Կ n = Ա |

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<tr><td></td><td></td><td></td><td>
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<tr><td>Draught shield dimensions</td><td>202mm x 158mm x 215mm</td></tr>
<tr><td>Overall dimensions (w x d x h)</td><td>256mm x 524mm x 275mm</td></tr>
<tr><td>Net weight</td><td>12kg</td></tr>
</table>
<br>- includes accessories: printer, thermal printer paper, anti-vibration table, density determination kit, below balance hanger, security lock and cable, dust cover, in-use cover, RS-232 cable, RS-232 to USB interface cable, data collection program, 100g calibration weight for PW series, and 200g calibration for PW series.</td><td></td><td></td></tr>
<tr><td>12</td><td>1</td><td>unit</td><td>DRYING OVEN<br><br>- Double glass observation window<br><br>- Over temperature protection<br><br>- Optional RS 485 interface for software connection<br><br>- Floor type<br><br>
<table>
<tr><td>Temperature range</td><td>10-300 °C</td></tr>
<tr><td>Temperature stability</td><td>0.5°C</td></tr>
<tr><td>Timing range</td><td>1-9999 min</td></tr>
<tr><td>Shelves</td><td>5</td></tr>
<tr><td>Internal size</td><td>400 x 350 x 500 mm</td></tr>
<tr><td>Material inner chamber</td><td>Stainless steel</td></tr>
</table></td><td>180,000.00</td><td>180,000.00</td></tr>
<tr><td>13</td><td>2</td><td>units</td><td>LEACHING COLUMN PLUS ACCESSORIES<br><br>- with vacuum chamber to hold a fraction collector needed for column leaching<br><br>- round vacuum chamber is made of steel with clear, thick and hard plastic cover<br><br>- other major components includes: syringe pump, fraction collector, soil column (flow cell) and vacuum pressure regulator<br><br>
<table>
<tr><td>Inside diameter</td><td>18.0 in.</td></tr>
<tr><td>Inside height</td><td>10.5 in.</td></tr>
</table>
<br>Includes: Installation of equipment and training for end user is required.</td><td>280,000.00</td><td>560,000.00</td></tr>
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| 16 | 1 | unit | JAW CRUSHER<br><br>- Designed to speed-up crushing of ore mineral and similar materials.<br><br>- Compact and rugged for laboratory and small production units. |

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| 18 | 1 | unit | TEMPERATURE CONTROLLER<br><br>- A gun type temperature controller<br><br>Temperature control selection: 0-1200 C<br>Amperage: 11A<br>Height: 10.7 in<br>Width: 3.8 in<br>depth: 11.3 in | 60,000.00 | 60,000.00 |

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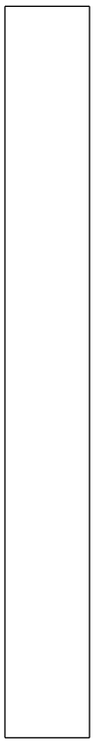
<tr>
<td>19</td>
<td>1</td>
<td>set</td>
<td>SIEVE SHAKER<br><br>- Accurately reproduce the circular and tapping motion of hand-sieving<br><br>- With a uniform, mechanical action to assure dependable and comparable test result<br><br>- totally enclosed, vertically-mounted motor<br><br>- available for use with either 8” or 12” diameter sieves.<br><br>
<table>
<tr><td>Capacity</td><td>6 full height sieves, (203mm) Ø, plus pan and cover</td></tr>
<tr><td>Motor</td><td>¼ HP</td></tr>
<tr><td>Timer</td><td>Built-in 30 minute timer</td></tr>
<tr><td>Support Plate</td><td>Adjustable</td></tr>
<tr><td>Dimensions</td><td>28” w x 21” d x 25” h (711 x 533 x 635 mm)</td></tr>
<tr><td>Weights</td><td>CL-309: Net 165lbs (75kg); Shpg. 185lbs (84kg)</td></tr>
</table>
<br>- Includes one (1) set standard testing sieve (max of seven sieves) of 8” diameter. Features:<br><br>- Unique fillet design ensures smooth and uninterrupted flow of material through sieving medium<br><br>- constructed using the finest quality mesh<br><br>- Certificate of conformity to ASTM standards supplied with every sieve<br><br>- All sieves are made of brass, solder sealed eliminating all crevices<br><br>
<table>
<tr><td>Frames</td><td>8” (203mm)Ø; full height; 2” (51mm) depth to mesh</td></tr>
<tr><td>Brass Type</td><td>Polished and lacquered brass with S.S. mesh on fine series and brass mesh on coarse</td></tr>
<tr><td>S.S. type</td><td>Stainless steel construction S.S. mesh</td></tr>
<tr><td>Nameplates</td><td>Show standard, alternate and Tyler screen scale equivalent designations</td></tr>
<tr><td>Weights</td><td>8” (203mm)Ø; net 1lb (453g)</td></tr>
</table>
<br>Includes: Installation of equipment and training for end user is required.</td>
<td>250,000.00</td>
<td>250,000.00</td>
</tr>
</table>



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| 22 | 1 | unit | ELECTRIC FURNACE<br><br>- Gold melting crucible furnace<br><br>- with automatic digital temperature controller<br><br>- PID controller<br><br>- can be electrically heated or diesel fired furnace |

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| Inner chamber size | 100 x 100 x 100 mm |
| Standard working temperature | 1350 °C |
| Maximum working temperature | 1400°C (< 3hrs) |
| Temperature control | 30 steps programmable and PID automatic control |
| Heating rate | 0~40.C/min (suggestion: =<10.C) |

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| 23 | 1 | unit |

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<tr>
<td>24</td>
<td>1</td>
<td>unit</td>
<td>GOLD BALANCE<br><br>- capacity 2 grams, 1 microgram readability<br><br>Inclusive of Anti vibration table, software and laptop<br><br>- detachable indicator<br><br>The possibility of detaching the indicator from the weighing chamber significantly limits shocks and vibrations that may influence weighing process.<br><br>- Infrared proximity sensors: Optical functions<br><br>* PRINT function<br><br>* TARE function<br><br>* Sensor’s Sensitivity Adjustment<br><br>Data exchange through USB storage devices:<br><br>* Update balance software<br><br>* Export weighing data<br><br>* Export/import databases<br><br>* Export/import balance settings<br><br>* Exchange data between balances<br><br>
<table>
<tr><td>Maximum load</td><td>2gm.</td></tr>
<tr><td>Readability</td><td>1µg</td></tr>
<tr><td>Repeatability</td><td>2.1µg (to 2g)<br><br>2.5 µg (2g ÷ 5g)</td></tr>
<tr><td>Linearity</td><td>± 5µg</td></tr>
<tr><td>Eccentric load deviation</td><td>5µg</td></tr>
<tr><td>Sensitivity offset</td><td>2 x $10^{-6}$ x Rt</td></tr>
<tr><td>Sensitivity temperature drift</td><td>1 x$10^{6}$/°C x Rt</td></tr>
<tr><td>Sensitivity stability</td><td>1 x $10^{-6}$/ a x Rt</td></tr>
<tr><td>Minimum weight (USP)</td><td>6.3 mg</td></tr>
<tr><td>Minimum weight (U= 1%, K=2)</td><td>0.4 mg</td></tr>
<tr><td>Pan size</td><td>Ø 26 mm</td></tr>
<tr><td>Weighing chamber dimensions</td><td>Ø 90 x 90mm</td></tr>
<tr><td>Stabilization time</td><td>5s</td></tr>
<tr><td>Calibration</td><td>Automatic (internal)</td></tr>
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</td>
<td>650,000.00</td>
<td>650,000.00</td>
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| Working temperature | + 18°±30°C |
| Interface | 2xUSB, RS 232, Ethernet, 2in/2out (digital) |
| Power Supply | 110-230 V AC / 50-60Hz/13.5-16V AC /1,1A |
| Display | 5.7" touch screen |

Includes: Installation of Equipment and training for end user is required.

Note: Bidders must specify the brand name in their offer "if applicable"

B. Secure Checklist of bidding documents from the BAC Secretariat Office after payment of the non-refundable bidder's fee. Accomplish the duly certified requirements in three (3) copies, and submit the same at the BAC Secretariat Office on or before the deadline set.

C. Bid Related Schedules:

| Activity | Schedule | Venue |
|---|---|---|
| Issuance of bid documents | January 7, 2013 | BAC Sec Office |
| Pre-bid conference | January 15, 2013; 2:00 PM | Legal Office |
| Submission of bid documents | January 29, 2013; 2:00PM | BAC Sec. Office |
| Opening of bid documents | January 29, 2013; 2:00 PM | Legal Office |

D. The MSU-IIT reserves the right to review the qualifications of a selected bidder, subject to technical and production criteria, reject any or all bids, waive any formality or defect therein and accept the offer considered most advantageous to MSU-IIT.

E. Bidders should have completed, within from the date of submission and receipt of bids, a contract similar to the Project, equivalent to at least fifty percent (50%) of the ABC ( , contract that is similar to this Project, equivalent to at least twenty-five percent (25%) of the ABC ( .

F. The MSU-IIT reserves the right to accept or reject any Bid, to annul the bidding process, and to reject all Bids at any time prior to contract awards without thereby incurring any liability to the affected Bidder or Bidders.

G. For further clarifications, please inquire from Atty. Edgar Alan A. Donasco, Office of the BAC Secretariat, Telefax No. (063) 225-4926, anytime during office hours, or at our e-mail address: obs@g.msuiit.edu.ph.

Dr. David N. Almarez
BAC Chairman