REPUBLIC OF KENYA

MINISTRY OF EDUCATION
STATE DEPARTMENT OF VOCATIONAL AND TECHNICAL TRAINING

GoK/AfDB TVETE III PROJECT

ADDENDUM 2:- RESPONSE TO QUERIES/CLARIFICATIONS

TENDER FOR SUPPLY, DELIVERY, INSTALLATION, CALIBRATION, COMMISSIONING AND TRAINING ON THE USE AND MAINTENANCE OF TRAINING EQUIPMENT:

LOT 1 - BUILDING AND CIVIL ENGINEERING EQUIPMENT TO OLLESSOS TECHNICAL TRAINING INSTITUTE – NANDI COUNTY
LOT 2 - MECHANICAL ENGINEERING EQUIPMENT FOR LIMURU TECHNICAL AND VOCATIONAL COLLEGE – KIAMBU COUNTY
LOT 3 - HOSPITALITY & TOURISM TRAINING EQUIPMENT TO NYERI NATIONAL POLYTECHNIC – NYERI COUNTY

TENDER NUMBER: - OCBI/VTT/TVETE PHASE III/EQUIP/32/23-24

DATE: 19 AUGUST 2024

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
1.	Bidding period	We are currently working on the preparation of our bid but considering it is currently summer holiday season in Europe and most companies are closed, we request you to extend the bid submission deadline by three weeks	The date of tender closure/opening has been extended from 29-08-2024 to 12-09-2024

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
2.	Bidding period	Referring to the subject we need an extension of another two weeks for the submission of the Letter of Bid for the project as it requires minute details of all requisites and to prepare the comprehensive bid document.	The date of tender closure/opening has been extended from 29-08-2024 to 12-09-2024
3.	Bidding period	We are kindly requesting you to extend the date of submission for 2 more weeks to allow us submitting a competitive proposal to the Ministry of Education since most of manufacturers in Europe are not operating during August.	The date of tender closure/opening has been extended from 29-08-2024 to 12-09-2024
4.	ITB 14.8 & ITB 14.9 (b) (i) – Incoterms CIP to place of destination	Kindly confirm specifically to duty, VAT, IDF and RDL charges to be paid by the purchaser directly or exemption certification will be provided by purchaser. Please be specific for all taxes and levies mentioned above	The Ministry will provide tax exemption letters on all taxes and levies for the equipment
5.	Price Schedule form	There is a row called "taxes" in the last page of the price schedule. Please confirm this includes all taxes and levies as mentioned above	The column on taxes includes all taxes and levies
6.	Price & Completion schedule – Related Services; Lot 1, Lot 2 and Lot 3	Price mentioned under this form to be carried forward separately to bid form in parallel to price schedule for each lot or this to be added to price schedule. If added with price schedule please share new format of price schedule to incorporate this change.	There is a provision for sub-total at the end of each price schedule for each lot and a combined grand total at the end of price schedule
7.	Price & Completion schedule – Related Services; Item 1 Equipment Pre-Inspection	There are more than 100+ items to be imported from different countries. Pre-inspection in the country of origin to be done in all countries by 5 members as mentioned or one country where major equipment is imported. Please clarify	The Supplier will consolidate the equipment in one location and invite the employer for pre-inspection OR port of entry before delivery to the final beneficiary institution
8.	Letter of Bid	Please clarify on how option to be mentioned whereas tender is Lot 1, Lot 2 and Lot 3	Each of the lots will have an independent letter of bid

LOT 1-TENDER FOR SUPPLY, DELIVERY, INSTALLATION, CALIBRATION, COMMISSIONING AND TRAINING ON THE USE AND MAINTENANCE OF BUILDING AND CIVIL ENGINEERING EQUIPMENT TO OL'LESSOS TECHNICAL TRAINING INSTITUTE – NANDI COUNTY

OCBI NO: OCBI/VTT/TVETE PHASE III/EQUIP/32/23-24

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
BCEE 18	Motorized Compression/Tension Machine	The requested capacity of 1500 kN is too big for educational purposes therefore we suggest to change the capacity to 600 kN	**The technical specification of Item BCEE 18 should read as follows:** Universal Hydraulic Tensile Test Machine is produced to test the ferrous materials for structural values such as yield strength and tensile strength. Universal Hydraulic Tensile Test Machines can also be used for compression tests up to the capacity of the machine. Maximum capacity is 400 to 1000 kN. Can be test flat and round samples. 0-40 mm flat and 8-32 mm round samples can be tested with a hydraulic jaw that comply with standards. Load cell is used for load measurements. Strain measurement is done by the electronic displacement transducer built in the machine if required external extensometer fitted to the specimen also can be used for strain measurement. Strain measurements can be done directly from the extensometer fitted to the specimen. Tests can be done automatic by digital control unit or computer. Machine complete the test with the set pace rate and turns to start position automatically. Hydraulic Universal Testing Machine, features two test spaces for tension tests and compression tests. The distance between the grips can be set by motor driven hand set system. With open front hydraulic wedge grips user can load specimen easily. Capacity: 600 kN Test Speed: 2mm/min - 25mm/min Load Measurement Accuracy: ± %1 Lower Columns Diameter: 70 mm Upper Columns Diameter: 70 mm Piston Stroke: 150 mm Dimensions (wxdxh): 1500x1000x2750 mm Weight: 1850 kg

BCEE 19	Laboratory Concrete Mixer	There is no power requirement mentioned we request to update the technical specifications	**The technical specification of Item BCEE 19 should read as follows:** The Concrete Mixer Pan Type is used for efficient mixing dry and wet of concrete materials essential if quality specimens. Machine is manufactured for use in the laboratory environment. Pan type mixers are used for mixing of the mixing pan is tilts 135° for easy emptying after completion of the operation. The total volume of the pan is 130 liters but the effective capacity of the mixer is 110 liters. The mixer has mixing blades. The blades can be adjusted to suit the different types and volume of materials to be mixed. The Pan type concrete mixer can be moved by rubber wheel. The gearbox is produced as parallel to floor for the motor to protect. Pan Capacity: 135 L Effective Mixing Capacity: 110 L Dimensions: 1100x1200x1350 mm Weight: 370 kg Power: 2000 W
BCEE 20	Slump Test Apparatus	This set requires rubber mallet, wire brush and slump funnel to operate which is not mentioned in your technical specifications.	**The technical specification of Item BCEE 20 should read as follows:** The Slump cone set is used for the determination of the consistency and workability of fresh concrete. It is used, indirectly, as a means of checking that the correct amount of water has been added to the mix. The test is carried out in fresh concrete. The Slump Test Set is galvanized to prevent corrosion. The Slump cone set is supplied complete with • Slump Cone Top Dia: 100 ±2 mm / Base Dia: 200 ±2 mm / Height: 300 ±2 mm • Base plate, galvanized steel, 500x500x60 mm • Slump Funnel, Galvanized Steel • Tamping rod, galvanized steel, dia. 16x600 mm • Rubber Mallet • Stainless steel rule, 300 mm long • Aluminium scoop, 500 cc capacity • Fine wire brush Dimensions: 550x600x300 mm Weight (approx): 7 kg

BCEE 21	Porker Vibrator	Can you confirm the required frequency?	**The technical specification of Item BCEE 21 should read as follows:** Concrete Poker Vibrator Ø 32mm, 220-240 V 50-60 Hz Standards: EN 12390–2 | ASTM C31, C192 | AASHTO T23, T126 Type & Shaft : Ø32x350 mm tp-2 m shaft Frequency: 12.000 vib/min Dimensions: 160x850x360 mm Weight: 15 kg Power: 220-240 V 50-60 Hz 450W
BCEE 22	In-Situ Water Permeability Test Kit	Can you confirm the required specimen capacity and dimensions?	**The technical specification of Item BCEE 22 should read as follows:** The TESTMAK Impermeability Test Sets are used for the determination of water permeability under pressure of hardened concrete samples. 3 or 6 specimen capacity models and with and without quantitative measurement equipment of water penetration models are available. The system can test 150 mm and 200 mm cube specimens, Ø100x200 and Ø150x300 mm cylinder specimens. Up to 10 bar of working pressure is generated on the sample with 0.2 bar precision with compressed air applied to the integral water tank and controlled by a pressure regulator with a pressure gauge. The test sets with the quantitative measurement equipment of water penetration the penetration of water is measured through the burettes. The system comprises impermeability gaskets for every cell. The measurement apparatus is supplied as standard. The apparatus has to be fitted with a suitable air compressor. Impermeability Test Set without Quantitative Measurement Equipment, 3 Specimen Capacity Capacity: 3 Speciman Capacity Dimensions: 1500x550x1300 mm Weight: 125 kg
BCEE 23	Concrete Cover Meter	No information regarding real-time visualization, measurement of concrete cover or measurement of rebar diameter has been provided. Can you confirm this is required?	**The technical specification of Item BCEE 23 should read as follows:** Fully integrated Rebar Detector and Cover meter is a versatile rebar detector system. This is coupled with rebar-proximity indicators and optical and acoustical locating aids. Rebar diameter can also be estimated within

			the specified testing range. Rebar Detector combines these unique features in a compact, light device that allows the user to operate this rebar detector with one hand making the task of locating rebars a simple and efficient process. Features A rebar detector with real-time visualization of the rebars beneath the instrument Visual indication of rebars in close proximity Rebar Detector is a rebar detector with the ability to identify the mid-point between rebars as well as the orientation of rebars Optical and acoustical indication of rebar location and minimum cover alert This rebar detector offers neighboring bar correction Regional settings (metric, imperial) Cordless and single-handed operation Switchable display backlight for dark environments A rebar detector with icon-based language independent menus Start-up test kit allows user to familiarize him/herself with all functions in a comfortable environment, wasting no time on site Applications Rebar detector Measurement of concrete cover Measurement of rebar diameter Checking for minimum cover Map out the rebar grid and cover for corrosion studies Rebar grid examination for planned load changes on the structure As optional, The rebar locator can store 49'500 measurements. Please contact us for more information on the Rebar Detector and cover meter. Measuring Range of Cover: Up to 180 mm Power source: 2 x 1.5 V AA (LR6) batteries Voltage range: 3.6 V to 1.8 V Battery Lifetime Backlight off: 50H Battery Lifetime Backlight on: 15H

			Temp. Range: -10º to 60º C (14º to 140º F) Humidity Range: 0 to 100% rH
BCEE 24	Bulk Density Kit	No capacity or dimensions of the bulk density measures has been provided in the technical specifications.	**The technical specification of Item BCEE 24 should read as follows:** The Bulk density measures are used to determine the weight per cubic metre of freshly mixed and compacted concrete and also the air content of fresh concrete used also for the determination of loose bulk density and voids of aggregate made from heavy steel sheet, protected against corrosion. <u>Standard:</u> EN 1097:3 | ASTM C29-97 | BS 812 | UNI 8520 :6 | ISO 6872 | CNR N. 62, 63, 64 1 Liter, 100x100x130 mm, 1.8 kg 3 Liter, 150x200x200 mm, 4.5 kg 5 Liter, 160x160x250 mm, 5.5 kg 7 Liter, 250x180x250 mm, 6.5 kg 10 Liter, 200x200x310 mm, 10 kg 15 Liter, 250x300x320 mm, 13 kg 20 Liter,260x260x365 mm,14.5kg 30 Liter,300x360x420 mm, 16 kg
BCEE 25	Coarse Aggregate Density Test Set	You didn't specify if you require an specific gravity frame and plastic water tank.	**The technical specification of Item BCEE 25 should read as follows:** The Specific Gravity Bench Test Set is used for specific gravity determination of aggregates and fresh concretes. The lower part of the frame incorporates a moving platform, which carries the water tank allowing the test specimens to be weighed in both air and water. The Specific Gravity Test Set is supplied complete with; • Specific Gravity Frame • Plastic Water Tank • Cradle for Hardened Concrete Specimens • Density Basket, 200 mm dia x 200 mm deep, 3.5 mm mesh Standards: EN 1097-6, 12390-7

			Dimensions: 600x500x1100 mm Weight: 28 kg
BCEE 26	Dunagan Test Set	Balance of 6 kg is not required can you accept 5 kg balance? Weight of 33 kg is not available for this set.	**The technical specification of Item BCEE 26 should read as follows:** Dunagan test set is used for specific gravity, absorption of fi ne and coarse aggregates, silt determination. Set is include following accessories; • Balance of 5 kg capacity. • Containers: Immersion and soaking buckets with handles; water. overflow container. • Density Basket: with dimensions 203 mm diameter x 203 mm deep. constructed of reinforced no. 8 wire mesh). • Weights: 2,000 g brass weight set and 1 kg slotted types. • Scoops: set of three for weighing. • Sieves: 203 mm (8") diam.; one no.4 mesh x 4" (102 mm) h.; one no.100. mesh, standard height with no.100 mesh. • Case: Galvanized steel construction with cover and carrying handles. Standards: ASTM C127, C128; AASHTO T84, T85
BCEE 27	Organic Impurities Test Set	Can you confirm the required size of sodium hydroxide and if you require soil chart?	**The technical specification of Item BCEE 27 should read as follows:** The Organic impurities test set is used for the determination of the organic impurities in soils and fi ne aggregates. <u>Standard:</u> ASTM C40, ASHTO T21 The Organic Impurities Test Set is supplied complete with: • 500ml Screw Cap Test Bottle • Colour standard chart Organic Impurities in Soils Chart with 5 glass reference scales. • Sodium Hydroxide, pack of 1000 g Dimensions: 200x200x150 mm Weight: 2 kg

BCEE 28	Riffle Boxes (Sample Splitters)	Can you confirm the required slot widths of the riffle box?	**The technical specification of Item BCEE 28 should read as follows:** Riffle Box (Sample splitters) are used for dividing aggregates into two equal homogeneous quantity for testing. The sample splitter is electrostatically painted and manufactured to meet the relevant international standard. The Riffle Boxes are supplied complete with 3 piece conteiners with handles <u>Standard:</u> EN 932-2, ASTM C702, BS 812:1, 1377:1, 1924:1 <u>Specification:</u> The sizes range from 7 mm to 64 mm slot widths. Slots range from 12 to 8
BCEE 29	Sieve Shaker	Can you confirm the required power of this item?	**The technical specification of Item BCEE 29 should read as follows:** The Testmak Motorised Sieve Shakers impart a circular motion to the material being sieved so that it makes a slow progression over the surface of the sieve. The Sieve Shaker is equipped with a dynamic power source which ensures the right vibration is imparted to the sieves and sample for fast, accurate and reproducible tests. The Sieve Shakers are fitted with a very efficient clamping device that ensures sieves are held firmly without over-tightening and allows them to be quickly removed and replaced. The timer can be preset for any duration up to 60 minutes. Sieve Capacity: 15 pieces of 200 mm or 203 mm sieves + pan and cover 10 pieces of 300 mm or 315 mm sieves + pan and cover Dimensions: 510x510x360 mm Weight: 65kg

			Power: 250 W
BCEE 30	Los Angeles Abrasion Machine	Can you confirm the wall thickness and inside diameter of this item?	**The technical specification of Item BCEE 30 should read as follows:** The Los Angeles Abrasion testing machine is used for determine resistance to degradation testing of coarse aggregates with a smaller than 37.5 mm. The test sample is consist of clean aggregate which has been dried in an oven at 105 to 110°C to sub-stantially constant weight and conform to one of the gradings. The test sample and the abrasive charge shall be placed in the Los Angeles abrasion testing machine and the machine rotated at a speed of 31 to 33 rev/min. The machine is so driven and so counter balanced as to maintain a substantially uniform peripheral speed. At the completion of the test, the material shall be discharged from the machine and a preliminary separation of the sample made on a sieve coarser than the 1.70 mm IS Sieve. Los Angeles Abrasion machine is consists of a hollow steel cylinder, with a wall thickness of 12 mm closed at both ends having an inside diameter of 711 mm, and an inside length of 508 mm. The drum rotates at 31 – 33 rpm. Supplied with an automatic digital counter that shows the number of revolutions for the drum. Dimensions: 1000x940x1000 mm Weight: 340 kg Power 750 W
BCEE 31	Digital Point Load Tester	Capacity of 13,000 lbf does not exist we suggest to change it to 50 kN.	**The technical specification of Item BCEE 31 should read as follows:** The Point load test machine is used to determine the strength values of a rock and concrete specimen both in the field and in the laboratory. It consists of a load frame for applying loads up to 50 KN, on which a manual hydraulic jack is mounted. The instrument accepts core specimens up to 4" (101,6 mm) diameter which are loaded by two cone shaped points. A graduated scale indicates the distance between the conical points. The applied load is measured by a pressure.transducer with a digital display unit range 0-50kN.

			Display: Digital readout screen Carrying case: Type of land together with a complete set of wooden carrying case Weight: 60 kg Dimension: 400x700x600 mm Power: 220-240 V 50/60 Hz
BCEE 32	Impact Testing Machine	The automatic record counter is missing	**The technical specification of Item BCEE 32 should read as follows:** The Aggregatesimpact value (AIV) apparatus is used to determine the aggregate impact value which provides a relative measure of the resistance of an aggregate to sudden shock or impact. The counter fitted to the machine automatically records the number of blows delivered to the sample. AIV is made from steel protected against corrosion. Aggregate Impact Value (AIV) Apparatus is supplied complete with; • Impact Value Frame with Counter • Cylindrical Measure, Ø 75 mm, • Steel Tamping Rod, Ø 16x600 mm Dimension: 440x320x870 mm Weight: 55 kg
BCEE 33	Drying Oven	You didn't specify the required number of doors and temperature precision.	**The technical specification of Item BCEE 33 should read as follows:** The Laboratory Drying Ovens are designed for testing, which require high accuracy and uniformity of temperature maintenance to drying asphalt, soil, rock, concrete, aggregate or similar materials. From ambient to 250°C temperature range with a precision of ±2 ºC. The interior is manufactured from stainless steel and the exterior is robustly constructed from sheet steel finished in powder coated paint. This models are fan circulated (forced convection), fitted with direct reading digital control unit and equipped with an analogue over temperature protection thermostat. Designed for use in laboratories of enterprises, organizations and institutions of various profiles. Volume: 250 Liters Inner Dimensions: 600x610x600 mm

			External Dimensions: 920x740x950 mm Number of Door: 1 Pcs Number of Shelves: 3 Pcs Power: 220 V 50/50 HZ Weight: 75 kg
BCEE 34	Laboratory Bench Ovens	You didn't specify the required number of doors and temperature precision.	**The technical specification of Item BCEE 34 should read as follows:** The Laboratory Drying Ovens are designed for testing, which require high accuracy and uniformity of temperature maintenance to drying asphalt, soil, rock, concrete, aggregate or similar materials. From ambient to 250°C temperature range with a precision of ±2 ºC. The interior is manufactured from stainless steel and the exterior is robustly constructed from sheet steel finished in powder coated paint. This models are fan circulated (forced convection), fitted with direct reading digital control unit and equipped with an analogue over temperature protection thermostat. Designed for use in laboratories of enterprises, organizations and institutions of various profiles. Volume: 250 Liters Inner Dimensions: 600x610x600 mm External Dimensions: 920x740x950 mm Number of Door: 1 Pcs Number of Shelves: 3 Pcs Power: 220 V 50/50 HZ Weight: 75 kg
BCEE 35	Field CBR Equipment	Dial gauge support of seamless pipe construction, 30 cm high and 45 cm wide at the base does not exist for this item.	**The technical specification of Item BCEE 35 should read as follows:** The In-situ CBR Test Apparatus is used to determine quickly and effi ciently the bearing capacity of soils on road constructions, foundations, road subgrades. Load is applied through a mechanical jack and handwheel. Upper beam can be adjusted in height. Conversion Frame is used to convert the IN-situ CBR test to a mechanical laboratory CBR test machine. - 50 kN capacity mechanical jack with ball seating - 50 kN capacity load ring

			- Analog penetration dial gauge (30 mm travel x 0.01 mm) with Adjustable dial gauge holder - CBR Penetration piston - Set of extension rods (2 pcs. 102 mm, 1 pcs. 305 mm and 1 pcs. 610 mm length) - Datum bar assembly with two stands - 2.5 kg annular surcharge weight - 4.54 Kg slotted surcharge weight - 9,08 kg slotted surcharge weight - Vehicle Bracket - Wooden carrying case
BCEE 36	CBR Test Machine (Hand Operated)	You didn't specify which capacity in kN you require.	**The technical specification of Item BCEE 36 should read as follows:** CBR Test Machine is designed for performing laboratory evaluation of the CBR value of highway sub-bases and subgrade and determination of the strength of cohesive materials. The device is composed of a robust and compact two column frame with adjustable upper crossbeam. The CBR Test Machine designed to load the penetration piston into the soil sample at a constant rate to measure the applied load and piston penetration at predetermined intervals. Two test speeds can be chosen by using speed buttons on the device as 1.0 mm/min for BS and 1.27 mm/min. for ASTM/EN/AASHTO Tests. For safety, the up and down travel of the lower platen is limited the use of limit switches. The measuring system consists of a 50 kN capacity Load Ring fi tted to the upper cross beam to read stability values and the 30 x 0.01 mm Analog Dial Indicator fi tted to the column. Supplied complete with 50 kNLoad Ring, 30 x 0,01 mm Analog Dial Indicator and CBR Penetration Piston. Dimensions: 450x650x115 mm Weight: 85 kg Power: 220-240V 50/60Hz
BCEE 37	Hand Operated Casagrande	Do you require removable brass cup?	**The technical specification of Item BCEE 37 should read as follows:**

	Equipment		Manual Liquid Limit Device (Casagrande), ASTM – AASHTO The S4250/B and S4250/A Manual Liquid Limit Device (Casagrande) are used to determine the moisture content at which clay soils pass from plastic to liquid state. The Devices consist of an adjustable crank and cam mechanism, a blow counter and a removable brass cup fitted on the base. Supplied with a ASTM type plastic grooving tool Dimensions: 200x220x150 mm Weight: 2 kg
BCEE 38	Motorised Casangarnde Equipment	1 Slider and Pin Cup Holder is not available for this item.	**The technical specification of Item BCEE 38 should read as follows:** Motorized Liquid Limit Device (Casagrande), ASTM-AASHTO Motorized Liquid Limit Device (Casagrande) are used to determine the moisture content at which clay soils pass from plastic to liquid state. The Devices consist of an adjustable crank and cam mechanism, a blow counter and a removable brass cup fitted on the base. Supplied with a ASTM type plastic grooving tool. Power: 220-240 V 50-60 Hz Dimensions: 200x280x180 mm Weight: 5 kg
BCEE 39	Shrinkage Limit Set	Porcelain dish and prong plate are required for the operation of this item.	**The technical specification of Item BCEE 39 should read as follows:** The Shrinkage Limit Test Set is used to determine the maximum moisture content at which the soil does not shrink after drying the sample. • Porcelain Dish 120mm dia. • Prong Plate • Aluminum Moisture Content Tin - Ø:45 mm h:10 mm, 2 pcs. • Aluminum Moisture Content Tin - Ø:55 mm h:35 mm • Spatula 120 mm • Graduated Glass Cylinder 25 ml • Carrying Case

			Dimensions: 350x300x100 mm Weight: 2 kg
BCEE 40	Cone Apparatus	We are unable to find a model with clear plastic end for viewing sand flow and handles for carrying.	**The technical specification of Item BCEE 40 should read as follows:** Sand Density Cone Set 12'' <u>Standard:</u> ASTM D1556, AASHTO T181, T191 The Sand Density Cone Sets are used for the determination of the degree of compaction on site. Dimensions: 600x600x650 mm Weight: 16 kg
BCEE 41	Shear Machine	Load cell and maximum shear force have not been specified.	**The technical specification of Item BCEE 41 should read as follows:** The Automatic Direct Residual Shear Machine is capable of performing the consolidation and shearing phases of a standard direct shear and residual shear test under full automatic control. The system consists of a computer-controlled unit that utilizes micro-stepper motors to apply the vertical and horizontal loads to the soil specimen. The system is capable of doing a consolidation process at 32 phase automatically. Horizontal shearing can be applied at a specified rate of deformation or at a specified rate of horizontal force change, or at a specified set of force steps of a specified duration. The system is capable of displaying the current status of a test and graphically portraying the progress of the test in real time. The system includes the capability for the operator to alter the test process and conditions at any stage of the test. The Automatic Direct Residual Shear Test Machine is supplied complete with; Load Cell 5 kN Linear Potentiometric Displacement Transducer (10x0.001 mm)

			Linear Potentiometric Displacement Transducer (25x0.001 mm) Software Maximum Shear Force: 5 kN Speed Range: 0.00001 to 10,00 mm/min Horizantal Travel: 30 mm Maximum Vertical Load: 0 to 500 N Dimensions: 500x1250x1250 mm Power: 1100 W
BCEE 42	Sieve Shaker	The requested power is to high and can you confirm if you require touch screen?	**The technical specification of Item BCEE 42 should read as follows:** Operated by electromagnetic motor which provides a perfect and standardized sieving to ensure accurate results and eliminate personal errors involved in sieving. Electromagnetic sieve shaker is touch screen controlling having frequency adjustment and digital timer. The shaker can use in 200 mm and 315 mm two sizes sieves: Built-in timer (60 min) is incorporated to set the duration time. Can programming of the sifting time from 1 to 999 min, of the vibration intensity, of the pauses between vibrations. Sieve Capacity: 15 peces of 200 mm or 203 mm seves + pan and cover 10 peces of 300 mm or 315 mm seves + pan and cover Dimensions: 510x510x360 mm Power: 250 W
BCEE 43	Particle Size Analysis Test Set	Woven wire cloth sieves are required for operation of this item but not mentioned in the technical specifications.	**The technical specification of Item BCEE 43 should read as follows:** The Shrinkage Limit Test Set is used to determine the maximum moisture content at which the soil does not shrink after drying the sample. Shrinkage Limit Test Set is supplied complete with: • Prong Plate • Porcelain Dish, 120 mm dia. • Moisture content tin with lid, Aluminum,Ø:55 mm h:35 • Moisture content tin with lid, Aluminum,Ø:45 mm h:10 • Spatula, small, length:120 mm

			• Graduated Glass Cylinder 25 ml • Carrying Case ASTM E11 Woven Wire Cloth Sieves: 4.75 mm (No. 4) - Ø 8" x 2" 2 mm (No.10) - Ø 8" x 2" 850 µm (No. 20) - Ø 8" x 2" 425 µm (No. 40) - Ø 8" x 2" 250 µm (No. 60) - Ø 8" x 2" 106 µm (No. 140) - Ø 8" x 2" 75 µm (No. 200) - Ø 8" x 2" 9.5 mm (3/8") - Ø 8" x 2" 19 mm (¾") - Ø 8" x 2" 37.1mm (1-½") - Ø 8" x 2" 50 mm (2") - Ø 8" x 2" 75 mm (3") - Ø 8" x 2" Pan & Cover: Ø 200 x 50 mm Pan: Ø 200 x 50 mm Dimensions: 350x300x100 mm Weight: 2 kg
BCEE 44	ISO 200mm Test Sieve	SBR rubber o-ring seals does not exist for this item can you provide updated specifications.	**The technical specification of Item BCEE 44 should read as follows:** Test Sieves are which are used in all types of sieve testing applications, from sampling and classifi cation of soils, aggregates and other powdered and granular materials. Woven Wire Cloth and Perforated Plate Sieves are supplied in 200 mm frame diameters in various nominal aperture sizes suitable for several applications and standards. All parts of testing sieves are manufactured from stainless steel. Receiving Pans and Lids are available in stainless steel with 200 mm diameters. Wet Washing Sieves are used for wet testing of various materials enabling to wash the fi nes through the sieve without losing any of the sample.

			All mesh sizes in 50mm full-height frames. Sizes 5.6mm and smaller with 25mm half-height frames.
BCEE 46	Consolidation Apparatus	We couldn't find any current model with Load Capacity: 8800 kPa. on 50 mm (2.5") diam. samples. Loading Beam: Cast aluminium; counterbalanced; 11:1 ratios.	**The technical specification of Item BCEE 46 should read as follows:** Front Loading Oedometer (Consolidation) Set The Consolidation test is used to determine the consolidation characteristics of soils of low permeability. The S4110 Front Loading Oedometer is rigidly constructed to ensure minimum frame distortion. The frame is designed to load the specimen through a lever arm assembly and one of three alternative beam ratios as 9:1, 10:1 and 11:1. The beam is fi tted with a counter balance weight and beam support jack. The cell platform will accept the complete range consolidation cells and is fi tted with a central spigot to ensure accurate centering of the cell under the loading. • Oedometer - 1 pcs • Bench for Consolidation, 1 Oedometer Capacity - 1 pcs • Consolidation Cell for High Pressure, ASTM Ø 63.5 mm (2.5") - 1 pcs • Calibration Disc for Ø 63,5 mm Consolidation Cell - 1 pcs • Set of Weight for Consolidation - 80 kg (6x10 kg + 2x5 kg + 3x2 kg + 2x1 kg + 3x500 g + 2x250 g) • Analog Dial Gauge, 30x0.01 mm - 1 pcs Dimensions: 750x850x1400 mm Weight: 180 kg
BCEE 47	Soil Volume Change Meter	What is the required diameter of specimen ring?	**The technical specification of Item BCEE 47 should read as follows:** Soil Volume Change Meter is used to evaluate potentially dangerous swelling/ shrinking conditions found in clay soils in commercial/ residential development sites. PVC (potential volume change) refers to maximum possible volume change a soil could undergo when submitted to changing moisture conditions. It features fast and simple operation, measuring both shrinkage and swelling of soils and is ideal for gauging swelling of clay soils. Includes: 4.5 kN capacity proving ring,

			mold assembly, loading cap, porous stones, loading pistons, 2-3/4" (70 mm) dia. specimen ring and conversion charts. 7.25" (184 mm) dia. base x 15.5" (394 mm) height.
BCEE 48	Plate Bearing Test Machine	Hydraulic jack is not required for this set but instead hydraulic hand pump.	**The technical specification of Item BCEE 48 should read as follows:** Plate Load Test Set, 500 kN Capacity The Plate Loading Test Sets are performed for the determination of the bearing capacity of a soil in-situ on road constructions, foundations, road subgrades, airport and highway pavements. A wide range of plate bearing test equipment are available, together with many accessories according to the different Standards and specific enduser needs. All test sets supplied complete with 1,5 m long flexiable hose with quick release coupling. • Datum Bar - 2.4 m long • Piston Assemly 500 kN capacity, for Plate Load Bearing Test Sets • Hydraulic Hand Pump, 700 bar. • 25 mm travel x 0.01 mm digital dial gauges with dial supports • Loading Plate Ø 600 mm for for Plate Load Bearing Test Sets • Loading Plate Ø 760 mm for for Plate Load Bearing Test Sets/ Dimensions: 650x350x600 mm Weight: 130 kg
BCEE 49	Core Cutter	You didn't specify the size of the required straight edge which is mandatory to operate this item.	**The technical specification of Item BCEE 49 should read as follows:** The sampling tube (core cutter) is driven into the soil by using the rammer dropping on the driving dolly. The sampled specimen is trimmed weighed and dried; the density and the moisture content % is calculated. Manufactured of plated steel. Soil sampling tube (core cutter) is supplied complete with: • Driving rammer for core cutter • Driving dolly for core cutter • Core cutter • Straight Edge Drive-Cylinder(Core-Cutter): Made of good quality steel, galvanized. Perfectly round, having 4 in. insidediameter,

			4.5 in height and 1/8 in. thickness. The drive cylinder have groove at one side for fi xing with the driving dolly. Other end should have the cutting edge (angle not more than 150). Driving Dolly attached with Collar: With each drive cylinder one driving dolly (attached with the collar) is having groove for fi xing with the drive-cylinder. After fi xing there is 1 inch clear gap between the driving dolly and the drive cylinder. The collar portion should have the thickness same as that of the drive-cylinder. But the top portion is at least 1/4 inch thick and there is a hole of 2 in. diameter to observe the penetration during testing. Driving Hammer: With each drive cylinder (or CoreCutter) one driving hammer is have hammer dia 152 mm, weight 5 kgs & stand 1.0m. Straight Edge: With each set one steel made straightedge is required of 12in X 2in (300 x 50 mm) size and 1/8 in. (3.2 mm) thickness. It have one beveled edge and at least one longitudinal surface (for fi nal trimming). Weight: 9 kg
BCEE 50	Automatic Mechanical Soil Compactor	You didn't specify the required dimensions and power requirement for this item.	**The technical specification of Item BCEE 50 should read as follows:** Automatic Soil Compactor, 220-240V 50/60 Hz The Automatic Soil Compactor is designed to perform fast and accurate compaction of soil samples automatically to by international standards. The machine is designed to allow the hammer to drop the required height into the soil in the mould which rotates circularly to distribute the blows uniformly over the surface of the specimen in the mould. The drop height is adjustable to for EN Standard 300 mm and 450 mm, for ASTM Standard 305 mm and 457 mm. The compaction rammer is circular faced and interchangeable to for EN Standard 50 mm or for ASTM Standard 50.8 mm diameter. Compaction rammer weight is adjustable to 2.5 kg or 4.5 kg according to reference standard. The number of blows per layer can be set at the beginning of the compaction process by the digital counter according to the standard by user.

			Dimensions: 430x250x1500 mm Weight: 140 kg Power: 370 W
BCEE 51	Soil Permeability Apparatus	Do you require a wooden stand for this item?	**The technical specification of Item BCEE 51 should read as follows:** The Constant Head Permeability Set are used to determine the permeability of granular, gravel and sand soils. The specimen is formed in an acrylic permeability cell, and water is passed through it from a constant level tank. The permeability cell has pressure points at different levels which are connected to the manometer tubes fixed on a stand with graduated scale. Constant Head Permeability Set for Ø 75 mm cell Constant Head Permeability Cell, 75 mm dia. Wooden Stand 1500 mm with 3 Manometer Tubes 1000 mm long and 3 m Hose. Constant Level Water Tank, 7 Liter Dimensions: 220x70x1500 mm Weight: 9.5 kg
BCEE 52	Motorised CBR Machine	Do you require digital readout unit and penetration piston?	**The technical specification of Item BCEE 52 should read as follows:** Automatic CBR Test Machine is designed for performing laboratory evaluation of the CBR value of highway sub-bases and sub-grade, and determination of the strength of cohesive materials which have maximum particle sizes less than 19 mm. The Machine is composed of a robust and compact two column frame with adjustable upper crossbeam driven by an electromechanical ram with a maximum capacity of 50 Kn and a data acquisition and processing system. The Machine is designed to load the penetration piston into the soil sample at a constant rate to measure the applied load and piston penetration at predetermined intervals. The ram speed can be set between 0.5 mm/min to 5 mm/min by using the TCM digital readout unit. This main feature allows the user to perform tests complying to BS, EN, ASTM or AASHTO standards with the same machine. Rapid adjustment of the platen is also provided by up and down buttons which are located on the front panel of the machine.

			The Automatic Cbr Test Machine is supplied complete with; • Automatic Cbr Load Frame • Penetration Piston • Load Cell, 50 Kn • Linear Potentiometric Displacement Transducer, 25x0.001 mm • TCM Readout Unit Featuring , PC Software and Cable Capacity: 50 kN Platen Speed: 0.625 to 5 mm/min Dimensions: 400x560x1100 mm Weight: 95 kg Power: 370 W
BCEE 53	Cone Penetrometer	You didn't specify the digital penetration measurement gauge.	**The technical specification of Item BCEE 53 should read as follows:** The Semi-Automatic Liquid Limit Cone Penetrometer is based on the relationship between the moisture content at which clay soils pass from a plastic to a liquid state. The Soil Penetrometer is consists of aluminum base, leveling screws, digital penetration measurement gauge 0,01 mm precision, release button, automatic zeroing and spirit level. Liquid Limit Penetrometer supplied complete with; • Column with aluminum base • Stainless steel cone with 30 ° apex angle • With reverse 25mm / 0.01mm gauge • With standardized penetration cup Dimensions: 220x300x410 mm Weight: 15 kg
BCEE 54	Plastic Limit Roller	We couldn't find a current model with 4.8mm and 9.5mm (3/16in -3/8in) rigid acrylic device.	**The technical specification of Item BCEE 54 should read as follows:** Plastic Limit Roller meets ASTM and AASHTO requirements and allows for accurate results in Atterberg Limits testing for the plastic limit of cohesive soils. The patented design delivers consistent and repeatable performance. The device consists of rigid acrylic top and bottom roller plates separated by 1/8in

			(3.2mm) side rails. Contact surfaces of the plates are covered with sheets of adhesive-backed absorbent paper that adds no fiber to soil samples. Soil samples are rolled between the movable top and fixed bottom plates until the top plate contacts the 1/8in (3.2mm) side rails, preventing further thread size reduction. includes a top plate with an integral handle, bottom plate, and 50-sheet pad of adhesive paper.
BCEE 55	Plastic Limit Set	24 aluminium containers 51x22mm (2in dia. x 0.9in H) with snug-fitting lids, Wash pan Wooden-handled spatula with stainless steel blade 19x102mm, WxL, are not required in this set	**The technical specification of Item BCEE 55 should read as follows:** Plastic Limit Test Set The Plastic Limit Test Set is determine as the lowest moisture content of a soil that will permit a sample to be rolled into threads of 3 mm diameter without the threads breaking. • Glass Plate - 300x300x5 mm • Porcelain Mixing Dish - Dia. 120 mm • Moisture Content Tins - Ø:75 mm h:30, 6 pcs. • Steel Reference Rod • Spatula 120mm • Wash Bottle, 250 ml • Carrying Case Dimensions: 360x360x150 mm Weight: 3 kg
BCEE 56	Shrinkage Limit Set	Do you require aluminium moisture content tin which are necessary for the operation of this item?	**The technical specification of Item BCEE 56 should read as follows:** The Shrinkage Limit Test Set is used to determine the maximum moisture content at which the soil does not shrink after drying the sample. • Porcelain Dish 120mm dia. • Prong Plate • Aluminum Moisture Content Tin - Ø:45 mm h:10 mm, 2 pcs. • Aluminum Moisture Content Tin - Ø:55 mm h:35 mm • Spatula 120 mm • Graduated Glass Cylinder 25 ml • Carrying Case

			Dimensions: 350x300x100 mm Weight: 2 kg
BCEE 57	Shrinkage Prong Plate	Shrinkage prong plate is already included in BCEE 56 do you require Shrinkage Mould?	**The technical specification of Item BCEE 57 should read as follows:** Two Gang Shrinkage Mould is have been manufactured from steel and all internal surfaces are machined. Dimensions and specifications comply with the related standards. The moulds has the surface hardness of a minimum HV400.
BCEE 58	Geotechnical Gauge	The required number of charts has not been specified.	**The technical specification of Item BCEE 58 should read as follows:** Standards BS 1377:3 The Munsell Soil Chart provides a simple method for soil classification by of determining the color of soil specimens. Test set consists of 7 constant hue charts covering a total of 196 colors. The color chart and the diagram are fitted in a pocket size binder. Supplied complete with a Tropical Soil Color Chart Dimensions: 150x150x50 mm Weight: 1 kg
BCEE 61	Cone Apparatus	It is not clear which item you require do you need sand replacement test set?	**The technical specification of Item BCEE 61 should read as follows:** Sand Replacement Test Set 150 mm BS The Sand Replacement Test Sets are used to determine the in-situ density of fine grained compacted soil. The test consists in digging a hole into the ground and then collect, dry and weight the sampled soil. The hole is than filled with dry sand from the cone container. Dimensions: 300x300x450 mm Weight: 8 kg
BCEE 62	Sand Cone Density Apparatus	Which weight and dimension do you require for this item?	**The technical specification of Item BCEE 62 should read as follows:** Sand Cone Set 6.5" The Sand Density Cone Sets are used for the determination of the degree of compaction on site.

			Dimensions: 300x300x550 mm Weight: 4,5 kg
BCEE 67	Sand Replacement Equipment	You didn't specify the size in mm and the required weight?	**The technical specification of Item BCEE 67 should read as follows:** The Sand Replacement Test Sets are used to determine the in-situ density of fine grained compacted soil. The test consists in digging a hole into the ground and then collect, dry and weight the sampled soil. The hole is than filled with dry sand from the cone container. Standards: BS 1377:9, 1924:2 Sand Replacement Test Set 100 mm BS Dimensions: 300x300x450 mm Weight: 8 kg
BCEE 68	Riffle Boxes	Which size slot width do you require?	**The technical specification of Item BCEE 68 should read as follows:** Riffle Box (Sample splitters) are used for dividing aggregates into two equal homogeneous quantity for testing. The sample splitter is electrostatically painted and manufactured to meet the relevant international standard. The Riffl e Boxes are supplied complete with 3 piece conteiners with handles Standard: EN 932-2, ASTM C702, BS 812:1, 1377:1, 1924:1 Specification: The sizes range from 7 mm to 64 mm slot widths. Slots range from 12 to 8
BCEE 69	Permeability Test System	Capacity of constant level tank has not been specified.	**The technical specification of Item BCEE 69 should read as follows:** The Constant Head Permeability Set are used to determine the permeability of granular, gravel and sand soils. The specimen is formed in an acrylic permeability cell, and water is passed through it from a constant level tank. The permeability cell has pressure points at different levels which are connected to the manometer tubes fixed on a stand with graduated scale.

			Constant Head Permeability Set for Ø 75 mm cell Constant Head Permeability Cell, 75 mm dia. Wooden Stand 1500 mm with 3 Manometer Tubes 1000 mm long and 3 m Hose. Constant Level Water Tank, 7 Liter Dimensions: 220x70x1500 mm Weight: 9.5 kg
BCEE 70	Tri-Axial Test Set	Vacuum pump: Flow: 66 litres air/min. - 1 torr It is particularly suitable for laboratory use. Fitted with Manometer with vacuum indication is not required for this item.	**The technical specification of Item BCEE 70 should read as follows:** Triaxial Test System for UU, CU, CD Test, 220-240 V 50/60 Hz Standards: ASTM D2850, D4767, D7181 | AASHTO T-297 | BS 1377-7, BS 1377-8 UNCONSOLIDATED UNDRAINED (UU) TEST The soil is set to be in unconsolidated state, only when the volume of soil remains the same without the air replacement. This soil is loose in the natural state. In case of undrained conditions, the pore water is not allowed to drain out of soil. The undrained and unconsolidated conditions is maintained during the triaxial test. Triaxial test is usually done in a small cell, where the sample is placed in the cylinder whose length to the diameter ratio is 2. In total, three number of principal stresses are applied to soil sample. One is axial stress plus the confining stress. Other two principal stresses are equal, as it is the pressure applied to the soil through water confining all over the sides. There is a rubber sheath which is completely sealed at top and bottom, acting as an impermeable membrane. Pressure transducers are made to measure the pore pressure of the specimen. CONSOLITADED UNDRAINED (CU) TEST This Consolidated Undrained (CU) Test is carried out on a cylindrical specimen of undisturbed soil sample with the measurement of pore water pressures in a triaxial cell and multi speed electromechanic compression machine. The specimen is alloved to saturate and consolidated under the aplied confining and back pressures prior to the start of the test. The volume change is monitored by measuring the water and air expelled

			during the saturation to consolidation stage. Once consolidation is completed, the sample is then isolated from the back pressure and no drainage is permitted during the shearing test. The calculated rate of strain can be as slow as 0.032 mm/min to measure the pore water pressures and stresses. From a set of tests on 3 specimens, Mohr circles of effective stress and total stress at failure can be plotted. The effective cohesion and effective shear angle values can also be determined. CONSOLIDATED DRAINED (CD) TEST: CD tests can be performed on all types of soils. Drainage is allowed in both phases of triaxial testing; isotropic consolidation & shearing. Soil is consolidated under a chosen confining pressure; and after completion of consolidation it is tested for shear by applying deviator stress gradually at slow strain rate while allowing full drainage. It takes more time to complete a test as compared to CU test, and commonly known as "slow" test, which is seldom conducted except for research interest. The consolidated drained triaxial compression test, with volume change measurement during shear is carried out in a similar sequence to the consolidated undrained test, but during shear the back pressure remains connected to the specimen which is loaded sufficiently slowly to avoid the development of excess pore pressures. Supplied complete with: • Multi Speed Electromechanic Load Frame • Load Cell, 5 kN • Triaxial Cell for 38 and 50 mm Samples • Triaxial Cell for 70 and 100 mm Samples • Block for Pressure Measurement and De-Airing • Pressure Transducer - 2000 kPa • Oil and Water Constant Pressure System • Automatic Volume Change Unit • De-Airing Water Tank, 7 L. and Hose • Data Logger, 4 Channel Data Acquisition Unit • TCM Readout Unit Featuring Software to Perform UU Triaxial Tests • TCM Readout Unit Featuring Software to Perform CU - CD Triaxial Tests

			Speed Accuracy: ± 0,5% Vertical Daylight: 0 - 790 mm Distance Between Columns: 360 mm Dimensions: 570x620x1180mm Weight: 105 kg
BCEE 71	Masonry Saw	Cutting length of 500 mm is not suitable for masonry.	**The technical specification of Item BCEE 71 should read as follows:** The Specimen Cutting Machine is produced to cut and prepare concrete, rock or natural stone cores or other type test specimens. The machine is supplied complete with "V" block clamp for Ø 100 mm specimens and a water circulation pump. Blade Diameter: 350 mm Cutting Length: 700 mm Max. Cutting Height: 135 mm Dimensions: 1100x650x1250 mm Weight: 110 kg
BCEE 72	Vibrating Table	Capacity of 8 cube no longer exist can you accept 6 cubes?	**The technical specification of Item BCEE 72 should read as follows:** The fixed amplitude Vibrating Tables are compact units providing controlled vibro-compaction for cube or cylinder molds. Vibrating tables consist of vibrating motor, command unit and clamping assembly. Vibratory Table for 6 Moulds Capacity, (Large Type), 220-240 V 50-60 Hz Standards: EN 12390-2 | BS1881:108 | UNI 6127
BCEE 82	Coarse Aggregate Density Test Set	Do you require specific gravity frame with cradle?	**The technical specification of Item BCEE 82 should read as follows:** Specific Gravity Test Set The Specific Gravity Bench Test Set is used for specific gravity

			determination of aggregates and fresh concretes. The lower part of the frame incorporates a moving platform, which carries the water tank allowing the test specimens to be weighed in both air and water. The Specific Gravity Test Set is supplied complete with; • Specific Gravity Frame • Plastic Water Tank • Cradle for Hardened Concrete Specimens • Density Basket, 200 mm dia x 200 mm deep, 3.5 mm mesh Dimensions: 600x500x1100 mm Weight: 28 kg
BCEE 83	Length Gauge	63 mm capacity does not exist.	**The technical specification of Item BCEE 83 should read as follows:** Length Elongation Gauge The Length (Elongation) Gauge is used for determining the elongation index of aggregates. The particle is elongated when its length is more than 1.8 on the midsize of the sieve fraction. The aggregate to be classified is separated into six sieve fractions from 6.3 to 50 mm and each fraction is examined separately. Standards: BS 812-105.2 Dimensions: 370x70x70 mm Weight: 1 kg
BCEE 84	Drying Oven	2.5 kW power is to high for this item.	**The technical specification of Item BCEE 84 should read as follows:** The Laboratory Drying Ovens are designed for testing, which require high accuracy and uniformity of temperature maintenance to drying asphalt, soil, rock, concrete, aggregate or similar materials. From ambient to 250°C temperature range with a precision of ±2 ºC. The interior is manufactured from stainless steel and the exterior is robustly constructed from sheet steel finished in powder coated paint. This models are fan circulated (forced convection), fitted with direct reading digital control unit and equipped with an analogue over temperature protection thermostat. Designed for use in laboratories of enterprises, organizations and institutions of various

			profiles. Volume: 250 Liters Inner Dimensions: 600x610x600 mm External Dimensions: 920x740x950 mm Number of Door: 1 Pcs Number of Shelves: 3 Pcs Power: 220 V 50/50 HZ Weight: 75 kg
BCEE 85	Deval Attrition Test Machine	Rotating speed of 33 rpm is to low and no longer exist.	**The technical specification of Item BCEE 85 should read as follows:** Micro Deval Testing Machine, ASTM -220-240 V 50 Hz Micro-Deval test is the abrasion of rock samples classified according to certain dimensions in a drum and in wet environment, at a certain rotation speed and for a certain number of revolutions, and then; It is an aggregate strength test based on the ratio of the material passing the sieve determined by the standards to the amount of the first material. The Micro-Deval test can be applied to both fine and coarse aggregates. The procedure is applied differently in the two experiments. The machine has a sophisticated electronic controller with dedicated sensors to precisely track test time, total revolutions and rpm of drums; Stainless steel drums are rotating at a speed of 100 ± 5 r.p.m. The Micro-Deval is supplied complete with control panel fitted with a digital automatic revolutions counter. Also stainless drums and stainless steel spheres are supplied together with machine . The Micro-Deval ASTM Model The Micro-Deval ASTM model is constituted of a sturdy steel frame which can receive 2 stainless drums together. The Drums are made of stainless steel with diameter and height according to standards (diameter within 194 and 202 mm and height within 170 and 177 mm) and are complete with cover and locking device. The Micro-Deval ASTM model is supplied complete with; • Stainless Steel Drums, ASTM (Dia. Within 194 and 202 mm and Height

			within 170 and 177 mm), 2 pcs • Micro-Deval Abrasion Charges, ASTM (Ø9,5 mm, 2 packages of 6 kg) Stainless Steel Jars are Rotating Speed: 100 ± 5 r.p.m Dimensions: 580x350x1000 mm Weight: 115 kg Power: 750 W
BCEE 86	Impact Testing Machine	Which dimensions you require for this item?	**The technical specification of Item BCEE 86 should read as follows:** The Aggregatesimpact value (AIV) apparatus is used to determine the aggregate impact value which provides a relative measure of the resistance of an aggregate to sudden shock or impact. The counter fitted to the machine automatically records the number of blows delivered to the sample. AIV is made from steel protected against corrosion. Aggregate Impact Value (AIV) Apparatus is supplied complete with; • Impact Value Frame with Counter • Cylindrical Measure, Ø 75 mm, • Steel Tamping Rod, Ø 16x600 mm Dimension: 440x320x870 mm Weight: 55 kg
BCEE 87	Rebound Hammer	Do you require calibration table and abrasive?	**The technical specification of Item BCEE 87 should read as follows:** The Concrete Rebound Hammer (Schmidt Hammer) is designed to determine the strength of concrete in finished structures by the method of elastic rebound, the indications are determined with the help of nondestructive testing method. The device is made of aluminum, characterized by simple construction, easy use and maintenance. The advantage is the high accuracy of the test results and the control of the production process at all stages. Principle of operation: the kick strikes against a hard surface, after which it bounces to a certain height (H) in conventional units of the scale of the device, which is an indirect characteristic of the strength of concrete for compression. The delivery set includes a calibration table in N / mm² (Mpa), an abrasive, a carrying case.

			Impact Energy: 2.207J (0.735Nm) Measured Strength Range: 10-70 MPa Dimensions: Ø85x330 mm Weight: 1.4 kg
BCEE 88	Pulse Velocity Measurement	You didn't specify the range in us and resolution in us.	**The technical specification of Item BCEE 88 should read as follows:** Pundit Ultrasonic Pulse Velocity Tester is measurement of pulse velocity can be used for the determination of the uniformity of concrete, the presence of cracks or voids, changes in properties with time and in the determination of dynamic physical properties. EN 12504:4 gives guidance on testing fresh concrete, hardened concrete and concrete in structures. It specifies a method for the determination of the velocity of propagation of pulses of ultrasonic longitudinal waves in concrete. An ultrasonic pulse velocity test instrument which is used to examine the quality of concrete. It features online data acquisition, waveform analysis and full remote control of all transmission parameters. Along with the traditional transit time and pulse velocity measurement, It offers path length measurement, perpendicular crack depth measurement and surface velocity measurement. Optimized pulse shaping gives greater transmission range at lower voltage levels. This, coupled with automated combination of the transmitter voltage and the receiver gain, ensures an optimum received signal level, guaranteeing accurate and stable measurements. An integrated waveform display allows manual triggering of the received waveform. Range: 0.1 – 9999 µs Resolution: 0.1 µs Display: 79 x 21 mm passive matrix OLED Memory: Non-volatile, > 500 measured values Power Supply: 4x AA batteries (> 20 hours continuous use) Operating Temperature: -10° to 60°C (0° to 140°F) Humidity: < 95% RH, non-condensing Dimensions: 175x55x220 mm Weight: 1.5 kg
BCEE 89	Mortar Mixer	Which rpm planetary motion is required and	**The technical specification of Item BCEE 89 should read as follows:**

		how many speeds?	The Manual mortar mixer has been designed to mix mortars and cement pastes primarily to the international of standards. The user can choose beater speeds easily by using switch fitted to the machine. The mixing time can be adjusted from the digital timer on the front control panel. Two speeds are defined on the manual mortar mixer: low and high speed. The User can choose beater; Low Speed: The paddle revolves at a rate of 140 rpm with a planetary motion of 62 rpm. The paddle revolves at a rate of 285 rpm with a planetary motion of 125 rpm and prepare the cement sample according to the standards. The mixer is supplied complete with bowl and the beater. Standards: ASTM C109, C305 | AASHTO T106, T162 | EN 196-1, 196-3:2005, 413-2, 459-2, 480-1 Dimensions: 400x580x650 mm Weight: 56 kg Power: 400 w
BCEE 90	Test Bar Moulds	The requested dimensions are not suitable for test bar moulds.	**The technical specification of Item BCEE 90 should read as follows:** Shrinkage Mould for Cement Two Gang Shrinkage Mould is have been manufactured from steel and all internal surfaces are machined. Dimensions and specifi cations comply with the related standards. Standards ASTM C490, ASTM C438, BS 1881, BS 6073, EN 12617-4, NF P15-433, NF P15-434, NF P18-427 Shrinkage Mould Two Gang 25x25x285 mm Shrinkage Mould Two Gang 75x75x254 mm

			Steel Inserts
BCEE 91	Length Comparator	What is the size and capacity of the dial gauge?	**The technical specification of Item BCEE 91 should read as follows:** The Digital Length Comparator is used to determine the length changes on different type of cement prisms. The apparatus consists of length measuring frame and measuring device. Digital dial gauge is 0.001 mm x 12,7 mm. Standards: EN 1367–4, 12617–4, 12808-4 | ASTM C151, C157, C227, C311, C341, C342, C441,C452, C490, C531, C596, C806, C878 | BS 1881:5, 6073 Dimensions : 180x180x410 mm Weight : 6 kg
BCEE 92	Blaine Fineness Apparatus	Do you require below accessories? • Wood Test Stand, • Rubber Aspirator, • A Glass Connection Parts, • Cell with Perforated Disc and Plunger	**The technical specification of Item BCEE 92 should read as follows:** Blaine Air Permeability Test Apparatus Set The Blaine Air Permeability Apparatus is used to determine the fineness of Portland cement, limes and similar powders expressed in terms of their specific surface. The Blaine Air Permeability Test Apparatus Set is supplied complete with; • Wood Test Stand, • Rubber Aspirator, • A Glass Connection Parts, • Cell with Perforated Disc and Plunger, • U Manometer Tube, • Manometer Liquid • Plastic funnel • Filter paper (100 pcs of pack) Standards: EN 196-6 | ASTM C204 | AASHTO T153 Dimensions : 230x180x470 mm Weight : 6 kg
BCEE 93	Laboratory	What is the required power in W for this item?	**The technical specification of Item BCEE 93 should read as follows:**

	Concrete Mixer		Concrete Mixer Pan Type, 56 Liter Capacity - 220-240 V 50-60 Hz Standards: EN 1766 The Concrete Mixer Pan Type is used for efficient mixing dry and wet of concrete materials essential if quality specimens. Machine is manufactured for use in the laboratory environment. Pan type mixers are used for mixing of The mixing pan is tilts 135° for easy emptying after completion of the operation. The total volume of the pan is 100 liters but the effective capacity of the mixer is 56 liters. The mixer has mixing blades. The blades can be adjusted to suit the different types and volume of materials to be mixed. The Pan type concrete mixer can be moved by rubber wheel. The gearbox is produced as parallel to floor for the motor to protect. Pan Capacity: 100 L Effective Mixing Capacity: 56 L Dimensions: 1000x1200x1350 mm Weight: 250 kg Power: 1500 W
BCEE 94	Le Chatelier Flask	What are the required dimensions?	**The technical specification of Item BCEE 94 should read as follows:** Le Chatelier Flask, 250 ml The Le Chatelier Flask is used to determine the density of hydraulic cement, ground granulated blast-furnace slag and fly ash for concrete, filler aggregates and lime. The glass flask has a 250ml capacity. The neck is graduated from 0 to 1 ml and from 18 to 24 mL in 0.1-mL graduations. Standards: EN 196-6, 450-1, 15617-1 | ASTM C110, C128, C188; C989 | AASHTO T133 Dimensions : 100x100x300 mm Weight : 0,1 kg
BCEE 95	Shrinkage Mould	What surface hardness you require for the mould?	**The technical specification of Item BCEE 95 should read as follows:** Three Gang Mould 40x40x160 mm, Steel, EN

			Three Gang Mortar Prism Moulds are have been manufactured from steel and all internal surfaces are machined. Dimensions and specifications comply with the related standards. The moulds has the surface hardness of a minimum HV400. Standards: EN 196-1 | ASTM C109 | BS 4550 Dimensions : 300x190x70 mm Weight : 12 kg
BCEE 96	Brass Ring Mould	With only brass ring mould you are not able to test soundness.	**The technical specification of Item BCEE 96 should read as follows:** The Le Chatelier Soundness Test Set Standards: EN 196-3 | EN ISO 9597 The Le Chatelier Mould is used to determine the volume stability of cement. 30 mm in diameter, with 30 mm height and 150 mm in length from a special alloy material is produced by combining the two branches. The The Le Chatelier Soundness Test Set is supplied complete with; • Le Chatelier moulds 3 pcs. • 50x50 mm glass plates 6 pcs. • 300 gr Weights 1 pcs. • 100 gr Weight, 3 pcs. • Tamping Rod 17 mm dia. X 70 gr • Steel Ruler • Plastic Carrying Case Dimensions: 350x300x100 mm Weight: 2,5 kg
BCEE 100	Vicat Apparatus	Glass thermometer and transfer dish are required for this set to operate.	**The technical specification of Item BCEE 100 should read as follows:** Vicat Test Set, ASTM The Vicat Test Apparatus is used to determine the amount of water required to produce a cement paste of standard consistency and the setting time. The frame is supplied complete with a 300 g consistency

			plunger (dia. 10 mm). The measurement of the movement is given by an indicator which moves along a scale graduated in millimetres. The apparatus is supplied complete with glass plate and EN Needle and mould. Standards: ASTM C187, C191 | AASHTO T131 | EN 196-3:2005 | EN 408-2 The Vicat Test Set is supplied complete with; • Vicat Mould • Initial and final Needles (for EN) • Vicat Needle (for ASTM) • Consistency Plunger • Supporting Plate • Glass Thermometer 110°C • Transfer Dish (for EN) Dimensions: 260x250x450 mm Weight: 4 kg
BCEE 101	Flow Table	Can you provide the required dimensions and drop height.	**The technical specification of Item BCEE 101 should read as follows:** Manual Cement Flow Table ASTM Standards he Cement Flow Tables are used for determining the consistency of mortar, lime and cement specimens. Cement flow tables are driven by a motor speed reducer coupling at the rate of one rev per second. The number of drops can preset on a counter and the machine stops automatically at the end of the cycle. Cement Flow Tables consists of the following equipment; • Brass Flow Mould, • Filling Hopper and Tamper. Table Dia.: 254 mm Cone Top/Base Dia.: 70 mm Cone Height: 50 mm Drop Height: 12,7 mm Dimensions: 270x270x280 mm Weight: 14 kg

BCEE 102	Pipe Threading Tools	You didn´t specify the size of the required dies.	**The technical specification of Item BCEE 102 should read as follows:** Ratchet type pipe threading kit with cassette style die heads. Lightweight design with four tool-steel cutting bits. Snap-in die cassettes allow fast interchange between pipe sizes. Suitable for iron and stainless steel pipe. Twin ratchet pawl head assembly with free run facility. Contents: Ratchet Die Stock, Dies; 1/2", 3/4", 1", 1-1/4", 2-Piece Handle. Supplied in storage case.
BCEE 103	Strap Wrench	What is the required diameter capacity?	**The technical specification of Item BCEE 103 should read as follows:** Suitable for removing and installing oil filters as well as many other applications. Features soft grip handle for added comfort. Capacity: Ø120, Ø150mm.
BCEE 104	Pipe Bender	How many pipe dies do you require?	**The technical specification of Item BCEE 104 should read as follows:** Tripod mounted pipe bender suitable for bending pipes up to 180° (3 x 60° bends). Compact hydraulics with integral 9 Tonne ram. Suitable for bending DIN classified medium and heavy pipe. 2-Speed hydraulic pump gives fast positioning of pipe in dies and the power to bend up to 50mm pipe. The unit is supplied with six (15mm(1/2") - 50mm(2")) interchangeable pipe dies and is packed into a heavy wooden crate for easy transportation.
BCEE 105	Power Driven Pipe Treading Machine	What is the capacity of pipes and bars?	**The technical specification of Item BCEE 105 should read as follows:** It can thread, cut and ream iron and steel pipes up to 2'', and bars up to 52 mm easily and conveniently. Extremely quiet, less than 80 dB , hearing safety threshold. It makes precise threads working smooth and quietly, thanks to its induction motor, that doesn't lose speed under load and it doesn't need maintenance. Designed with a universal die head to make conical threads (bspt & npt), as well as, cylindrical threads, for steel pipe, stainless steel, rod, electrical tube It has a self-lubricating circuit with cutting oil (included).

			Includes 3 legs to support it, which have been designed with adequate slope to ensure the permanence of oil in the circuit.
BCEE 106	Die Stock	Do you require a complete taps and dies set?	**The technical specification of Item BCEE 106 should read as follows:** High quality alloy steel taps and dies. Split dies with machined lead-ins for ease of use. Die holder features self-centring mechanism for straight and accurate thread cutting. Set also includes T-handled tap wrench and Metric screw pitch gauge. Sizes: 3-12mm. Supplied in storage case.
BCEE 107	Pipe Bending Machine	You didn't specify the required number of interchangeable pipe dies.	**The technical specification of Item BCEE 107 should read as follows:** Tripod mounted pipe bender suitable for bending pipes up to 180° (3 x 60° bends). Compact hydraulics with integral 15 Tonne ram. Suitable for bending DIN classified medium and heavy pipe. 2-Speed hydraulic pump gives fast positioning of pipe in dies and the power to bend up to 75mm pipe. The unit is supplied with eight (15mm(1/2") - 75mm(3") interchangeable pipe dies and is packed in a heavy wooden crate for easy transportation.
BCEE 108	Guillotine Shears (Up To Gauge 16)	Motor driven guillotine shears is not required for cutting up to 16 gauge.	**The technical specification of Item BCEE 108 should read as follows:** 1. Quality knife made of steel with pull-back spring for precise cutting. 2. Simple knife adjustment for optimization of scissors parallelity. 3. Bottom mounting option for stability and flexibility. 4. High cutting accuracy and safety with 1.5 mm cutting thickness. 5. Easy installation and use on a flat surface for comfort and speed. - Bed length: 500 mm - Cutting thickness: 16 gauge / 1.5 mm - Blade material: steel T10. - Overall dimensions (L x W x H): 80 x 38 x 130 cm.
BCEE 110	Oxy-Acetylene Equipment	It is not clear which items are required in the requested set.	**The technical specification of Item BCEE 110 should read as follows:** REGULATORS - Single stage gas regulators with two gauges to show bottle pressure and working pressure. TORCH - Oxy Acetylene torch with cutting torch and mixing nozzle for welding.

			HOSE - 5m Twin gas hose set with hose check valves (to torch) and EN 730 compliant pressure activated flash arrestors (to regulators) NOZZLES - Three lightweight welding nozzles and three AFNM cutting nozzles. STORAGE BAG - Supplied in a storage bag for easy transportation. BOTTLE TROLLEY - Lightweight tubular steel frame with large wheels for easy transportation of heavy cylinders. Accepts cylinders of up to Ø300mm.
BCEE 111	P.P.R Welding Machine	What is the required power?	**The technical specification of Item BCEE 111 should read as follows:** Electronic selecting device to regulate the adequate temperature for different pipe diameters. Heating plates and sockets, made in aluminium and aluminium alloy respectively to avoid oxidation, reach an optimal heat transfer with minimum energy losses. Capacity: 20 ~ 63 mm Power: 800 W Including sockets
BCEE 112	Rivet Gun (Different Sizes)	How many riveting nozzles are required and which sizes?	**The technical specification of Item BCEE 112 should read as follows:** Suitable for aluminium, steel and stainless steel blind rivets up to 1/4". Supplied with five riveting nozzles and two spanners. Nozzle Sizes: 3/32"(2.4mm), 1/8"(3.2mm), 5/32"(4mm), 3/16"(4.8mm), 1/4"(6.4mm). Trigger operated riveter with hardened steel jaw assembly and rivet shaft safety cap. Ideal for heavy assembly work.
BCEE 114	Guillotine Shears	What working length you require?	**The technical specification of Item BCEE 114 should read as follows:** The hand lever shear is developed with a special blade arc, which ensures a perfect cut with minimal deformation and without burrs on the subject. The shear is ideal for cutting in all materials. Very suitable for roofing, insulation and plumbing industry. Mechanical sheet clamping system and backgauge with mm counter. Working length: 1000 mm Sheet thickness: 1,5 mm Table length: 1280 mm Table width: 600 mm

BCEE 115	Slip Roller Machine	Confirm the required roller speed?	**The technical specification of Item BCEE 115 should read as follows:** For use in industry and trade Heavy and stable cast iron construction Asymmetrical 3-roller system Upper roller swung out, thereby easy removal of the finished workpiece Easily adjustable upper and lower roller The foot control leaves both hands free for the material supply User-friendly Powerful 400 volt engine Max. bending performance in steel 400 N/mm^{22} 2.5 mm Max. taper bending performance in steel 400 N/mm^2 1.2 mm Max. bending performance in stainless steel 1.8 mm Max. taper bending performance in stainless steel 0.9 mm Max. bending performance aluminium 3.0 mm Max. taper bending performance in aluminium1.5 mm Min. bending diameter 135 mm Roller speed 6 m/min
BCEE 116	Heavy Duty Bench Vice	Which jaw opening size and jaw width you require?	**The technical specification of Item BCEE 116 should read as follows:** Bench mounting, heavy-duty steel vice with anvil suitable for workshop, garage and machine shop use. Fixed base directly mounts onto workbench. Clamping Force kg/m^2: 4000 Jaw Opening: 150mm Jaw Width: 150mm Nett Weight: 12.7kg Swivel Base
BCEE 117	Arc Wielding Shields	Do you require angle adjustment on the visor?	**The technical specification of Item BCEE 117 should read as follows:** Ratchet adjustable headband with front and back padding for extra comfort. Polycarbonate visor for increased protection, stability and durability. Stepped angle adjustment on visor which simply flips up out of the way when not in use.

			Suitable for use with standard glasses. Premium quality for automotive, agricultural and industrial applications. Conforms to BS EN 166, Optical Class 1, Impact Grade F.
BCEE 118	Centrifugal Pump	Do you require a centrifugal pump used for training purposes?	**The technical specification of Item BCEE 118 should read as follows:** The pumps in a pipe system convert mechanical energy into hydraulic energy. This additional energy allows a fluid to move from one location to another when it is not possible to flow by gravity. For example, to raise a fluid at a certain height above the pump or recycle it in a closed system. In general, the main purpose of a pump in a system is to increase the total energy in quantity H. The fluid is collected and contained by the pump casing, which drives the fluid by its outline shape to the outlet pipes or to another impelling stage. This system allows studying the characteristics of a pump working individually at different rotational speeds. This is made possible by a frequency inverter which adjusts the working speed according to each case study. In addition, the flow control valve manages the pump operating mode, so it is possible to obtain experimental operating curves. These curves can be compared with those supplied by the manufacturer, as well as those obtained by mathematical calculation. Including hydraulic bench
BCEE 125	Surface Dust Chip Remover	The requested dimensions and motor power is to big for education purposes.	**The technical specification of Item BCEE 125 should read as follows:** Mobile workshop extractor suitable for attachment to most static workshop machines including bandsaws, table saws, scroll saws, planers and sanders. Supplied with 2m of Ø100mm suction ducting. Airflow: 618cfm Flex Hose Diameter: Ø100mm Flex Hose Length: 2m Impeller Diameter: Ø250mm Intake Diameter: Ø125mm Motor Power: 1500W Nett Weight: 37kg Supply: 230V
BCEE 126	Multipurpose Wood Working	You didn't specify which functions it should have?	**The technical specification of Item BCEE 126 should read as follows:**

	Machine		Robust cast iron machine table enables precise work Function selection via rotary switch Practical traveling device available as an accessory Surface planer/thickness planer Thicknessing planer table adjustment via handwheel Rubberized pull-out roller protects the surface of the workpiece during thickness planing Dressing and thicknessing table made of gray cast iron with ground surface Strip cutterblock with three HSS knives Aluminum planer fence can be tilted by 45 Circular sizing saw Circular saw blade can be tilted up to 45 Table extension arm with aluminum cross-cut fence for panels and large workpieces Including cast aluminum workpiece clamp and adjustable micro fence Aluminum sliding carriage with 1300 mm length Aluminum rip fence with fine adjustment Table milling machine Rigid milling spindle Spindle height adjustable by 110 mm Slot drilling device Available as accessories Wescott drill chuck 3 - 16 mm Circular saw unit Trimming length 1300 mm Saw blade angle 90 – 45 ° Max. cutting height at 90° 78 mm Max. cutting height at 45° 63 mm Diameter of (main) saw blade 254 mm (Main) saw blade speed 4000 min^{-1}

			Dimensions and weights Length approx. 2200 mm Width/depth approx. 1330 mm Height approx. 1300 mm Weight approx. 362 kg Electrical Data Input power saw 2.2 kW Input power planer 2.2 kW Input power moulder 1.5 kW Supply voltage 230 V Mains frequency 50 Hz
BCEE 127	Vertical Band Saw	Motor power of 7 kW is to high and can you confirm the cutting speed in m/min?	**The technical specification of Item BCEE 127 should read as follows:** Fully approved to current CE directives. Steel chassis with locking blade wheel covers. Bearing-mounted blade wheels and belt drive induction motor provide smooth operation. Micro switches prevent operation when either blade wheel cover is open. No-volt release switch prevents uncontrolled blade restart after power interruption. 2-Speed operation enables bandsaw to cut multiple types of materials. Suitable for cutting wood and plastics. Fitted with tilting table for cutting compound mitres. Supplied with quick adjusting rip fence, mitre gauge, dust extraction port and sturdy metal stand. Throat Depth: 335mm. Maximum Cutting Height: 165mm. Ø100mm Dust extraction port. Blade Length: 2400mm Cutting Speed: 540, 660m/min Dust Extraction Diameter: Ø100mm Maximum Cutting Height: 165mm Motor Power: 750W Nett Weight: 93.35kg Supply: 230V Table Size: 500 x 400mm Table Tilt: 0-45° Throat Depth: 335mm

BCEE 128	Shaper	Do you require tiltable spindle adjustable via handwheel? Which table height do you require?	**The technical specification of Item BCEE 128 should read as follows:** Spindle shaper with sliding and outrigger-table heavy, very high-quality overall design high quality hood with down holder and fence fine adjustment 4 spindle speeds tiltable spindle adjustable via handwheel dust collection below the sliding table Dimensions (L x W x H): 2155 x 990 x 1430 without sliding table 2155 x 2400+(1150) x 1430 with sliding table motor data motor power s1 in W 3000 motor power s6 in W 4000 voltage 400V / 3 / 50Hz measurements table size in mm 1000 x 350 table height in mm 890 sliding table in mm 1000 x 310 dust collector port in mm 100
BCEE 129	Tenoner	Do you require cope head and cut off saw?	**The technical specification of Item BCEE 129 should read as follows:** TENON HEAD Both top and bottom tenon heads can be individually or simultaneously vertically adjusted COPE HEAD For fitting with pattern cutting producing various end patterns CUT OFF SAW The saw mechanism is mounted in front of tenon heads for cutting stock to the desired length

			Maximum tenon cut: Length: 120 mm Width: 370 mm Thickness: 112 mm Max shaping cutter size 10'' diameter Sliding table area: 1280 x 450 mm Net weight: 500 kgs Machine dimensions: 1680 x 1840 x 1150 mm
BCEE 138	21st century learning system for: building, civil, electrical, electronics and green energy	The requested system is not a 21st century learning system suitable for: building, civil, electrical, electronics and green energy. I request you to update the specifications.	**The technical specification of Item BCEE 138 should read as follows:** 21st CENTURY LEARNING SYSTEM: With Classroom Management System (CMS) with Digital Resource Library with 4700 readymade learning units should be new generation of software that assists teachers in utilizing and managing a computer multimedia lab or 1:1 classroom. It transforms traditional classrooms into educational platforms which allow students to develop 21stCentury skills and teachers to manage an ICT rich classroom without compromising the way they naturally would like to teach. CMS should utilize cutting edge features which allow for a broad range of learning techniques and communication methods, while harnessing features such as screen spying, broadcasting, computer/screen locking, file sharing, and many more to maximize earning effectiveness in a 21st Century classroom. Must be compatible with existing Smart Classrooms digital content and hardware that have been already installed at Kisumu NP. Specification: CMS should support additional apps which are able to be purchased directly from the website provider administrator. While, not a comprehensive platform, these apps help educators who want to bring specific 21stCentury Elements into the classroom. Examples of these apps are: Specification: CMS should support additional apps which are able to be purchased directly from the website provider administrator. While, not a comprehensive platform, these apps help educators who want to bring specific 21stCentury Elements into the classroom. Examples of these apps are: * Polling: Using any device, teachers will be able to immediately poll their students

			to get real time responses and assessment. * Digital Whiteboard: Teachers can use their device to replicate many of the same features as a digital whiteboard at a fraction of the cost. Now a teacher can use ICT in their demonstrations with minimal infrastructure. * Exam Creation: Teachers can build exams for students using exam authoring tools * Exam Dissemination: Teachers can digitally disseminate exams to their students and retrieve them for automatic scoring. Compatibility: - Windows 10 - Local- Not online & No Server Needed - Devices Control Features - Learner Monitoring Features - Device Sharing Features - Utility Features - Learner Features Summary - Administration - Differentiated Instruction Learning Management System (LMS) Features: The LMS should be a comprehensive education tool designed to enrich courses by embedding digital Content and assessments into traditional teaching and learning. A full suite of content creation tools Is included to enable instructors and instructional designers to enhance their courses with customized digital content. Scheduling, communication, and web 2.0 tools allow multiple options for students and instructors to meet the diverse needs of learners in the 21st Century. The LMS should incorporates many instructor friendly features which enable complete course delivery or supplemental course materials.

			Instructors are able to design their own curriculum, modify content, and import SCORM compliant modules for students to view. Instructors have complete control over content, assessment and grading scales. The LMS content delivery system tracks individual students' progress as they are guided through technology rich curriculum, which enhances 21st Century Skill competency, in addition to ensuring students meet the required learning outcomes of the course. The LMS should be a versatile learning platform which supports 21st Century learning models such as blended learning, and flipping the classroom. This flexibility enables institutions to create the most valuable learning opportunities possible and to maximize student capacity for independent learning. Specification: * WEB 2.2 Tools * Curriculum Development * Instruction Design * Content Delivery DIGITAL CONTENT (offline version, but 100% compliant for online in a later stages): a) Digital content Working with STEM, 4700 readymade engineering units up to BTEC Engineering Level 5 b) Specific digital content related to Electrical & Electronics, Circuits, Electrical Building Wiring and installation, Electrical Distribution and Protection, Transformers, Motor Construction and Generators, etc. including minimum: - engineering drawing 52 learning units - green technologies 115 learning units - construction 26 learning units - energy 50 learning units - materials engineering 51 learning units - electrical engineering 75 learning units - electrical networks 125 learning units

			- electronics technology 132 learning units - power electronics 137 learning units - DC circuits 125 learning units - AC circuits 129 learning units - digital electronics 291 learning units - circuit construction en testing 129 learning units c)Life skills - business skills 199 learning units - personal skills 24 learning units - workplace problem solving 108 learning units - engineering mathematics 122 learning units - English language skills 47 learning units Each module should contains, presentations, animations, theory and instructional information and photos. The package should have software of 1 server License and 20 student license. The supplier may also offer to install the software on the existing server of the Smart Classroom and add Windows 2012 network software to connect the 20 workstations. Lab set-up manual to be provided during the bidding process to show clearly how the lab will be set-up including drawings. HARDWARE: * Demo Trainers compatible with above listed digital content: - Analogue and digital motor control teaching set - Green energy in buildings trainer - Sustainable energy teaching set - Structures and materials teaching set - Basic electricity trainer - Electronics circuit trainer - Electronic study trainer

			* IT Equipment Supplied complete with Hardware of 1 number Server Computer of specifications: 4 core, 3.1 Ghz, 4Gb Ram, 1Tb Hard-disk, complete with Keyboard Mouse and Display minimum 15.6" with Windows 10 or Latest Windows Operating system. Supplied complete with 20 student PC's with Minimum specifications: Intel i5 Display 15.6", 4Gb Ram Memory, 500 Gb hard-disk With Windows 10 or Latest Windows Operating System and Office Student.

LOT 2 - TENDER FOR SUPPLY, DELIVERY, INSTALLATION, CALIBRATION, COMMISSIONING AND TRAINING ON THE USE AND MAINTENANCE OF MECHANICAL ENGINEERING TRAINING EQUIPMENT FOR LIMURU TECHNICAL AND VOCATIONAL COLLEGE

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
MEE 1	CNC lathe machine	The required more likely to be used for automotive workshop course. Kindly revise the specifications.	**The technical specification of Item MEE 1 should read as follows:** SILENT FEATURES: • Single Spindle Structure with High Accurate Bearing Provide High Speed and prevent it from deformation when overheat. • 45 Degree Slant Bed Structure with Liner Guide Way highly increases the accuracy and stability. • 8 Station Tool Turret highly increases the efficiency and decrease malfunction. • Integral Motor and Guide Way design ensure the Accuracy that may effect by Installation. • Integral Sealed protection all Electric Device from Water, Oil and Metal Shavings. • High Accurate Collets provides more protection for the surface of work piece when machining and durable for repeat clamping, also easy To disassemble • Siemens808D Adv controller Maximum Swing Over Bed Ø 320mm

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
			Maximum Swing Over Slide Ø 140mm Maximum Machining Length with Hydraulic Chuck 245mm Spindle Type A2-5 Spindle Taper Hole Ø 52mm Spindle Speed Range 60-5000rpm Spindle Shift Mode Servo Spindle Rated Torque 24Nm Main Motor Power 3.7 kW Spindle Speed Maximum Speed Range (30Min) 5.5kW Chuck Type Hydraulic Solid Chuck Size Ø 160mm Rapid Traverse Speed on X-Axis 12m/min. Rapid Traverse Speed on Y-Axis 15m/min. Servo Motor Torque on X-Axis 6Nm Servo Motor Torque on Y-Axis 6Nm X-Axis Travel 170mm Y-Axis Travel 310mm Guide Way Type Linear Guide Way Turret Type 8 – Station Electric Tool Turret Tool Changing Time 45° / 0.17Sec. Turning Tool / Boring Bar Size 20 x 20mm / Ø25mm Hydraulic Tail Stock Sleeve Dia./Travel Ø65mm / 70mm (Hydraulic) Tail Stock Sleeve Taper MT-4 Machine Weight 1800Kgs
MEE 2	CNC Milling Machine	The required specs more likely to be used for automotive workshop course. Kindly revise the specifications.	**The technical specification of Item MEE 2 should read as follows:** Machine Model Unit VMC-540 X/Y/Z Travel mm 475/375/400 Distance From Spindle Nose To Table Surface mm 100-500 Distance From Spindle Center To Column Surface mm 390 Spindle Power kw 3.7/5.5 Spindle Speed rpm 10,000 Spindle Taper BT40 Positioning Accuracy mm ±0.005 Repeat Positioning Accuracy mm ±0.003 Table Size mm 700×400

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
			Max. Table Loading kg 300 T Slot 4-14-85 X/Y/Z Rapid Speed M/min 24/24/18 Cutting Speed Mm/min 1-10000 X、Y、Z Axes Ball Screw Diameter Φ32 X/Y/Z Axes Servo Motor Power kw 1.5/1.5/2.0 Linear Width/Type /Guideway No./Slider No. X 30mm/roller/2/4 Y 25mm/roller/2/4 Z 30mm/roller/2/4 Control Depends customer Max. Power Consumption kw 11.0 Air Require (Compressor not included) Mpa 0.5-0.7 Machine Net Weight Ton 2.0 T Control 1 standard Spindle And Servo Motor Load System Display 1 standard Spindle And Servo Motor Load System Protection Function 1 standard Rigid Tapping 1 standard Telescope 1 standard Machine Full Guard 1 standard Mpg 1 standard USB Port 1 standard Automatic Lubrication 1 standard Liquid And Gas Coolant System For Cutters 1 standard Air Gun 1 standard Led Light 1 standard Three-Color Warning Light 1 standard Electric Box Heat Exchange 1 standard Foundation Pads 1 standard Standard Machine Color 1 standard Package Worthy For Shipping 1 standard Umbrella Type Tool Changer 16 Nos Tools 1 standard STANDARD ACCESSORIES LIST Name qty Operation Manual 1

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
			Control Manual 1 Mechanical Manual 1 Electrical Manual 1 Certificate 1 Packing List 1 Flat Head Screw-Drive 1 Cross Head Screw-Driver 1 Hexagon Spanner 1set Pad 8pcs Key 1set
MEE 3	Universal Milling Machine	The required specification more likely to be used for automotive workshop course. Kindly revise the specifications.	**The technical specification of Item MEE 3 should read as follows:** TABLE Table Size 1650x360 Mm T Slot 5 No Size (Width) 14 Mm Centre Distance 95 Mm Max. Load Of Table 300 Kg Swivel Of Table ±35º Degree MACHINING RANGE Table Longitudinal Travel(Manual/Auto) 1300 Mm Table Cross Travel (Manual/Auto) 300 Mm Table Vertical Travel(Manual/Auto) 400 Mm MAIN SPINDLE Spindle Taper ISO50 Spindle Speed /Step 58-1800/12 Horizontal Spindle Axis To Table Surface 0-400 Mm Horizontal Spindle Axis To Arm Bottom 175-560 Mm FEEDS • Feed Range -Longitudinal Feed Range -Cross Feed Feed Range Vertical 22-420mm/min. 22-393mm/min. 6-112 mm/min. Rapid Speed -Longitudinal

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
			Rapid Speed -Cross Feed Rapid Speed -Vertical 1290mm/min. 1205mm/min. 400mm/min. POWER Main Motor 4 Kw (X/Y/Z) Feed Motor 1.1 Kw STANDARD ACCESSORIES • Stub arbor • 3 Axis DRO (DIGITAL READ OUT) unit with High Precision Scales & fittings • Coolant system • Electricals • Tool box • Instruction manual • Safety Guard • Spare Arbour with Spacer 25mm
MEE 4	Lathe Machine	We are unable to identify the Lathe machine with the limited / general specifications provided, we request you to Kindly provide detailed specifications.	**The technical specification of Item MEE 4 should read as follows:** Center Height : 230mm Swing Over Bed : 460mm Swing Over Cross Slide : 270mm Swing In Gap : 690mm Length Of Gap : 165mm Width Of Bed : 300mm Admits Between Centre : 1000/1500/2000mm Spindle Nose : D1-6 Spindle Bore : 58mm Spindle Speed : 12/25-2000rpm Compound Rest Travel : 128mm Cross Slide Travel : 285mm Lead Screw Thread : 6mm/4-TPI Tool Shank Size : 25x25mm Longitudinal Feeds : 0.031-1.7mm/rev. Cross Feeds : 0.014-0.784mm/rev.

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
			Metric Thread : 41/0.1-14mm Imperial Thread : 60/2-112TPI Diametrical Thread : 50/4-112DP Module Thread : 34/0.1-7MP Tail Stock Quill Diameter : 60mm Tail Stock Quill Travel : 130mm Tail Stock Quill Taper : MT-4 Main Motor Power : 5.5Kw Coolant Pump Power : 0.1kW Overall Dimensions (L x W x H) : 3250x1080x1370mm Net Weight : 1965kgs STANDARD ACCESSORIES: 250mm x 3 Jaw Self-Centering Chuck 1 No. 300mm x 4 – Jaw Independent Chuck 1 No. Steady Rest (13-152mm) 1 No. Follow Rest (13-80mm) 1 No. Face Plate 350mm dia 1 No. Toolbox 1 No. Foot Brake 1 No. Coolant System 1 No. Machine Lamp 1 No. Centre 1 No. Centre Sleeve 1 No.
MEE 5	Radial Drilling Machine	The required specs more likely to be used for automotive workshop course. Kindly revise the specifications.	**The technical specification of Item MEE 5 should read as follows:** CAPACITY Drilling Capacity : 50mm Tapping Capacity : M36 Boring Capacity ; 120mm DRILL HEAD Taper in Spindle : MT-5 Spindle Travel ; 315mm Number of Spindle Speeds : 16 Range of Spindle Speeds : 25-2000rpm Number of Spindle Auto Feeds : 16 Range of Spindle Auto Feeds : 0.04-3.20mm/rev.

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
			Drill Head & Column Locking : Hydraulic WORKING RANGE Arm Length ; 1770mm Travel of Drill Head : 1250mm Drilling Radius Min./Max. : 525/1775mm Dist. Spindle Axis and Column. : 350/1600mm Dist. Spindle and Base Plate : 320/1220mm Diameter Of Column : 350mm BOX TABLE Box Table Size : 630x500x500mm Number Of T Slots in Box Table : 5 Size in T Slots in Box Table : 22mm ELECTRICAL Power Supply of Main Motor : 4kW Power Supply of Elevating Motor : 1.5kW DIMENSION & WEIGHT Length x Width x Height : 2500x1070x2550mm Net Weight ; 3500Kgs.
MEE 6	Power Saws, Band, Horizontal	The given specification not generic. Can you please update the specifications to be quoted by all of the bidders.	**The technical specification of Item MEE 6 should read as follows:** Technical Specification: Cutting Capacity Round : 400mm Cutting Capacity Square : 400 x 400mm Blade Size : 5000 x 41 x 1.3mm Blade Speed : 27, 45, 69m/min. Clamping Type : Hydraulic Material Feeding : Automatic (0-500mm) Main Motor Power : 4.0kW Hydraulic Motor Power : 0.75kW Coolant Motor : 0.125kw Power Supply : 415V - 50Hz - 3Phase Overall Dimension : 2500 x 2500 x 1600mm Salient Features: • Stress Relieved Fabricated Steel Structure • Two Vertical Hard Chrome Plated Ground Column • Automatic Height Adjustment for Saw Frame to save Idle Time

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
			• Variable Pressure Control for Cutting Feed • Auto Cutting Stop • Push Button Type Operating Panel Board with PLC Control • Heavy Duty Worm Gear Box • Moveable Blade Support Guide • Manual Blade Tensioning Arrangement • Job Clamping Hydraulically • Material Feeding Automatic Standard Accessories: • Saw Blade Size: 4115 x 34 x 1.1mm • Coolant Systems • Machine Lamp • Blade Tensioning Wrench • Bar Support Roller Stand • Tool Kit • Operating & Instruction Manual
MEE 14	Ultrasonic Flaw Detector	The required specifcations are very old and the item on this are no longer manufactured, Can you update the specifications to the lastest technologies available.	**The technical specification of Item MEE 14 should read as follows:** Specifications: • Display Type 7" high brightness LCD • Display Brightness 1000 nits, variable from 0% to 100% • Display Update Rate 60 Hz • Range 2 to 15,000 mm, in 0.1 mm steps • Velocity 250 to 16,000 m/s, in 1 m/s steps • Zero Offset 0 to 1000 μs, in 0.01 μs steps • Display Delay -60 to 15,000 mm, in 0.1 mm steps • Units millimetres, inches, us, % • Rectification Full wave, positive half-wave, negative half wave • Horizontal Grid 100% or 110% • Reject 0% to 99% FSH with visual indication • Skip Distance Visual indications based on thickness and angle • A-Scan Active freeze, freeze, • Real Time Clock Date and time for saved records • Data acquisition • Digitizing Frequency 100 MHz • Data Storage 32 GB SD card

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
			• Single A-Scan Storage > 6 million A-Scans • Report Generation On-board PDF report with custom logo, PNG A-Scan • Continuous A-Scan Recording onboard file generation, > 200 hours • Calibration Sets 10,000 cal-sets • Data Export SD card, USB flash drive, PC connection • Receiver Dynamic Range 0 to 120 dB, in 0.1 dB steps • Receiver Bandwidth 0.5 to 20 MHz wide band amplifier • Digital Filter Settings 0 to 20 MHz, in 0.1 MHz steps • Enhance Mode Off, low, mid, high • System Linearity Horizontal: ± 1% FSW • Vertical: ± 2% FSH • Gates Measurement Gates 3 gates + 1 interface gate* • Measurement Mode Max peak, Flank, j-Flank, First peak, zero crossing • Start 0 to 20,000 mm, in 0.1 mm steps • Width 0 to 20,000 mm, in 0.1 mm steps • Threshold 0% to 100%, in 0.1% steps • ToF Resolution Selectable 1/0.1/0.01 mm • Alarms Positive and negative threshold, wall thickness • Alarm Indication Audio and visual indicators with vibration • Gate Width Zoom For gates 1, 2, 3 Amplitude Measurement 0% to 110% FSH, with 0.1% resolution • Measurement Rate Equivalent to PRF • Automated Calibration • Velocity, Zero Offset • Straight Beam (First back wall or echo-to-echo) • Angle Beam (Sound path or Depth) • Pulser Types Square wave Spike • PRF 10 to 2000 Hz, in 1 Hz steps Voltage 50V-450V, in 25V steps • Pulse Width 0.5-20 MHz, in 0.1 MHz steps Pulser Damping 500, 400 Ω Impulse Mode 0 to 7 • Test modes Pulse echo, dual, through transmission

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
			Instrument • Inputs/Outputs • USB Ports USB C-charging, storage access • USB A - Flash drive • Transducer connections LEMO 00 SD Card 32 GB Environmental Ratings IP Rating IP 65 Operating Temperature -10° C to 55° C Storage Temperature -20° C to 60° C Battery Recharge Temperature 0° C to 40° C • Measurements Measurement Display Locations 12 user defined blocks • Trigonometric Beam path, flaw depth, surface distance, min/max depth, gate2-gate1 • Threshold Echo height in %, attenuation in dB, min/max threshold • Trigger Initial pulse IF gate Job Thickness 0.1 to 999.9 mm, in 0.1 mm steps. Refracted Angle 0° to 90", in 0.1" steps • DAC Point-point and parabolic curve, 2 additional curves with ±20 dB offset, up to 15-point curve • TCG 15 point, 18 dB/10 ns slope • Curved Surface Correction Tube, bar AWS D1.1/D1.5 • Construction must have IP65 Compact, Rugged Moulded ABS, Soft Touch • Operation 5 button navigation Keypad + 1 gain key, ambidextrous operation Battery Type Single rechargeable inbuilt lithium-ion 7.4v 40W Battery Life Up to 8 hrs Power Requirements USB C fast charger, 100-240 VAC, 50-60 Hz, 1.5 A Warranty 1-year Standard Must provide following Accessories • USB C 30W Fast Charger • 32 GB SD Card Instrument Carry Case • IIW System Evaluation Block, Nickel Plated • IIW Miniature Angle Beam Calibration Block Nickel Plated

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
			• Connector Cable Mini Lemo to Mini Lemo, 2 Mtr • Miniature Angle Probe (9 X 8mm) 60 Deg./4mhz Miniature Normal Probe with Replaceable Protective Membrane 4mhz/10mm • Extra Battery: Yes
MEE 17	Angle Dekkor	Electronic Autocollimator are to be used advanced reasearches, and very few manufacturer's have it, can you revise the specifications for mechanical engineering curriculum?	**The technical specification of Item MEE 17 should read as follows:** • It contains a small illuminated scale in the focal plane of the objective lens (collimating lens). • This scale in normal position is outside the view of microscope. • The illuminated scale project as parallel beam by the collimating lens in the field of view of eye piece. • In the field of view of microscope there will another scale Fixed across the centre of screen and reflected image of the illumined scale is received at right angle to the fixed scale. • Two scale in position will intersect with each other. • Thus the reading on the illuminated scale measures the angular deviations from 90° to optical axis and the reading on the fixed datum scale measures the deviation.
MEE 20	Plotters	The required specification belong to specified brand HP. Kindly revise the specification to be generallized for all bidders,	**The technical specification of Item MEE 20 should read as follows:** Printer Type 5-Colour 609.6mm (24in) Number of Nozzles 15,360 nozzles (MBK 5,120 nozzles,Other Colours 2,560 nozzles each) Maximum Print Resolution 2,400 x 1,200 dpi Nozzle Pitch 1,200 dpi (2 lines) Line Accuracy*1 ± 0.1% or less Ink Capacity Sales Ink: 130 ml/300 ml (MBK/BK/C/M/Y) Ink Type Pigment Ink USB B Port: (Series B, 4 pins) Hi-Speed USB Full Speed (12 Mbit/seconds) High Speed (480 Mbit/seconds) Bulk Transfer

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
			Network: IEEE 802.3 10base-T IEEE 802.3u 100base-TX IEEE 802.3ab 1000base-T SNMP, HTTP, TCP/IP (IPv4/IPv6), FTP Wireless LAN: IEEE802.11 b/g/n WPA-PSK (TKIP/AES) WPA2-PSK (TKIP/AES) WPA3-SAE (AES) WPA-EAP (AES)*3 WPA2-EAP (AES)*3 WPA3-EAP (AES)*3 Standard Memory 2 GB Hard Disk Display LCD (109.22mm (4.3in) TFT colour) Print Speed*4 CAD Drawing (A0 Portrait, Fast Q5 mode) 20s Poster (A0 Portrait, Standard mode) 1 min 23s
MEE 22	Light Crystal Display (LCD)/ Projector	The required specifcations are very old and the item on this are no longer manufactured, Can you update the specifications to the lastest technologies available..	**The technical specification of Item MEE 22 should read as follows:** TECHNOLOGY Projection System 3LCD Technology, RGB liquid crystal shutter LCD Panel 0.59 inch with C2 Fine IMAGE Color Light Output 3,800 Lumen- 2,600 Lumen (economy) White Light Output 3,800 Lumen In accordance with ISO 21118:2013 Resolution WXGA, 1280 x 800, 16:10 Contrast Ratio 16,000 : 1 Lamp UHE, 210 W, 8,000 h durability, 17,000 h durability (economy mode) Keystone Correction Auto vertical: ± 30 °, Manual horizontal ± 30 ° Colour Reproduction Upto 1.07 billion colours OPTICAL Throw Ratio 1.30 - 1.56:1 Zoom Manual, Factor: 1 - 1.2 Screen Size 33 inches - 320 inches

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
			Projection Lens F Number 1.49 - 1.72 Projection Lens Focal Length 16.9 mm - 20.28 mm Offset 10 : 1 CONNECTIVITY USB Display Function 3 in 1: Image / Mouse / Sound Interfaces USB 2.0 Type A, USB 2.0 Type B, RS-232C, Ethernet interface (100 Base-TX / 10 Base-T), Wireless LAN a/n (5GHz) (optional), VGA in (2x), VGA out, HDMI in (2x), Composite in, Stereo mini jack audio out, Stereo mini jack audio in (2x), Cinch audio in Epson iProjection App Ad-Hoc / Infrastructure ADVANCED FEATURES Security Kensington lock, Security cable hole, Wireless LAN unit lock Other features AV Mute Slide, Automatic keystone correction, Built-in speaker, Digital zoom, Direct Power on/off, Document Camera Compatible, Easy OSD pre-setting, Horizontal and vertical keystone correction, Network projection, OSD copy function, PC Free, Quick Corner, Split-ScreenFunction, iProjecton set-up by QR code Video Color Modes Blackboard, Dynamic, Presentation, sRGB, Theatre GENERAL Power consumption 327 Watt, 225 Watt (economy)
MEE 71	Hydraulics Bench and its accessories	Can you please assist with the Learning targets? Can you please provide the technical details for every experiment? The technical specification mentioned particular manufacture name “Armfield”; Kindly Clarify	**The technical specification of Item MEE 71 should read as follows:** Hydraulics bench mounted on lockable castor wheels and is constructed around a sturdy framework onto which all elements of the hydraulics bench are mounted. The main water storage tank from which the electrically operated external pump takes its water is situated on the framework. An on/off control on the front of the frame, together with a safety cut out controls the pump, Storage tank capacity: 75 litres, Centrifugal pump: 0.365kw, Single phase, 230V AC pump supplied as standard, Single Pump: approx. 30L/m, Safety cut out, On/off switch, Lockable castor wheels, Twin 240V waterproof electrical output, Includes 21 channel data logger with 48 screw terminals, push-on edge connection and 20 external channels, 1 internal channel (mains Voltage).USB cable to PC USB port. Can be used via a USB splitter with up to 3 loggers.

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
			Differential voltage inputs (±100mv DC). Eight single ended DC voltage inputs (±8v), Four logic or frequency inputs, On board 12v DC, ±5V DC (optional ±15v DC power supplies) .Utilises HDL software has a curve-fitting Calibrate facility that allows manual input of the desired display value followed by a Read button to record the transducer output. Two such pairs will produce a linear fit or four pairs, a polynomial fit. The result is stored in memory automatically; Characteristic curves for Type K and Type T thermocouples are resident in memory. Each temperature channel can be modified. Hydraulics Bench for supply of water to a wide range of modules. Self-contained floor standing bench fitted with lockable castor wheels. Closed system for re-use of water. Including ten training modules: 1.Free & forced vortices, 2.Bernoulli's theorem demonstration, 3.Orifice & venturi flow measurement, 4.Pressure loss in bends & fittings 5.Center of pressure Module, 6.Impact of a jet module, 7.Osborne reynold's, 8.Flow meter module, 9.Series and parallel pump upgrade, 10.Pressure and throttle module
MEE 72	Gasoline & Alternative Fuels Engine Test Bed	Can you please provide the Learning targets since the required system is used for automotive workshop course and not for the mechanical engineering curriculum?	**The technical specification of Item MEE 72 should read as follows:** The technical specification of item MEE 72 should read as follows: Gasoline Engine Test Bed: A robust floor mounted engine test stand with modular instrumentation and control system. A regenerative dynamometer includes both torque and speed control together with direct reading dynamometer digital display. The dynamometer will accept engines up to 4kW shaft power output. Engine speed and all relevant temperatures are also displayed on digital panel meters on the remote instrumentation console. Air to the engine passes through an intake orifice and pulsation damper. The flow measurement orifice is connected to a panel mounted manometer to allow differential pressure measurement. Fuel flow is measured using a calibrated volumetric fuel gauge. Each of the optional engines are preinstalled on a standard

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
			mounting plate that is designed to allow quick and easy installation on the test bed. Each engine is supplied with a suitable fuel tank and supply system with quick release self-sealing fuel couplings. Operator safety is ensured by a range of interlocks and safety cut out devices. Measurement of the Torque - Speed and Power - Speed for an Internal Combustion Petrol Engine at Range of Throttle Settings. Measurement of the Specific Fuel Consumption at Constant Speed and Varying Power Output. Measurement of Air-Fuel Ratio and Engine Thermal Efficiency at Constant Speed and Range of Throttle Settings. Measurement Of Engine Internal Friction At A Range Of Engine Speeds. Measurement of the Specific Fuel Consumption at Constant Speed and Varying Power Output on a Diesel Engine Measurement of Air-Fuel Ratio and Engine Thermal Efficiency at Constant Speed and Range of Injector Settings, Air-cooled Four Stroke Gasoline Engine, Engine Maximum output 3.5HP (2.6kW), Engine rated speed: 3600rpm, Engine Displacement: 118cc, Engine Bore and Stroke: 60 x 42mm, Engine Cylinders: 1 , Gasoline –Unleaded Features: A Regenerative Engine Test Bed fitted with: Single Cylinder Four Stroke Gasoline Engine. Allows Investigation of Torque-Speed, Power-Speed, Specific Fuel Consumption, Mechanical and Thermal Efficiency Over a Wide Range of Conditions. Optional Engines Are Quickly Installed Quick connects couplings and braked wheels for ease of movement. Able to be tested from adjacent room once engine is set up running. High quality efficient engine Exhaust extension provided Research opportunity to investigate BIO fuels
MEE 73	Diesel Fuel Engine test Bed	Can you please provide the Learning targets since the required system is used for automotive workshop course and not for the mechanical engineering curriculum?	**The technical specification of Item MEE 73 should read as follows:** Diesel Engine Test Bed: A robust floor mounted engine test stand with modular instrumentation and control system. A regenerative dynamometer includes both torque and speed control together with direct reading dynamometer digital display. The dynamometer will accept engines up to 4kW shaft power output. Engine speed and all relevant temperatures are also displayed on digital panel meters on the remote instrumentation console. Air to the engine passes through an intake orifice and pulsation damper. The flow measurement orifice is connected to a panel mounted manometer to allow differential pressure measurement. Fuel flow is measured using a calibrated volumetric fuel gauge. Each of the optional

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
			engines are preinstalled on a standard mounting plate that is designed to allow quick and easy installation on the test bed. Each engine is supplied with a suitable fuel tank and supply system with quick release self-sealing fuel couplings. Operator safety is ensured by a range of interlocks and safety cut out devices. Measurement of the Torque - Speed and Power - Speed for an Internal Combustion Diesel Engine at Range of Throttle Settings. Measurement of the Specific Fuel Consumption at Constant Speed and Varying Power Output. Measurement of Air-Fuel Ratio and Engine Thermal Efficiency at Constant Speed and Range of Throttle Settings. Measurement Of Engine Internal Friction At A Range Of Engine Speeds. Measurement of the Specific Fuel Consumption at Constant Speed and Varying Power Output on a Diesel Engine. Measurement of Air-Fuel Ratio and Engine Thermal Efficiency at Constant Speed and Range of Injector Settings. Vertical cylinder, 4 cycle, air-cooled Four Stroke Diesel Engine, Engine Maximum output 4.6HP (3.5kW), Engine rated speed: 3600rpm, Engine Displacement: 211cc, Engine Bore and Stroke: 70 x 55mm, Engine Cylinders: 1 Features: A Regenerative Engine Test Bed fitted with: Single Cylinder, Direct injection Four Stroke Diesel Engine. Allows Investigation of Torque-Speed, Power-Speed, Specific Fuel Consumption, Mechanical and Thermal Efficiency Over a Wide Range of Conditions. Optional Engines Are Quickly Installed Quick connect couplings and braked wheels for ease of movement. Able to be tested from adjacent room once engine is set up running. High quality efficient engine Exhaust extension provided Research opportunity to investigate BIO fuels.
MEE 74	Hydraulic Braking Systems trainer	Can you please provide the Learning targets since the required system is used for automotive workshop course and not for the mechanical engineering curriculum?	**The technical specification of Item MEE 74 should read as follows:** The technical specification of item MEE 74 should read as follows: Training Equipment in Industrial Hydraulics: Universal Testing Frame constructed of a twinned steel channel frame fastened with high tensile

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
			fixings. This creates an overall structure size of 4.61m long, 2.53m high and 1.2m wide and a working space of 4.0m long x 1.6m high. The 0.60m spacing between the verticals allows for wide test specimens to be tested. The base feet distribute the self-weight of about 1 tonne to four anti vibration levelling feet. The top channel members are used to carry a single acting hydraulic ram Carriage. Accessories to be included: load supports, reaction plates, clamps, dial gauge support bars, half round and full round bearings, height spacing units and clamps. All these accessories enable specimens to be set up quickly and easily in a variety of arrangements. A set of hollow steel dial gauge support bars should also be included. The system should be supplied with: A 20 tonne single acting ram on a moveable carriage to fit the 300kN Universal Testing Frame. Ram operates from a hand pump mounted on a mobile table, with digital pressure indicator and integral shelf, Two hoses with self-sealing couplings to be included, To be used in conjunction with the 300kN Universal Testing Frame and its standard set of accessories, A 3.6 m lighting track supplied at 1 m from top edge of the frame, Four flood lamps in fittings that slide in the track To be supplied with a mains connector and 6 m of cable.

LOT 3- TENDER FOR SUPPLY, DELIVERY, INSTALLATION, CALIBRATION, COMMISSIONING AND TRAINING ON THE USE AND MAINTENANCE OF HOSPITALITY & TOURISM TRAINING EQUIPMENT TO NYERI NATIONAL POLYTECHNIC – NYERI COUNTY

OCBI NO: OCBI/VTT/TVETE PHASE III/EQUIP/31/23-24

NO.	ITEM	QUERY/INQUIRY	RESPONSE/CLARIFICATION
HTE 035	Counter Refrigerator/ Worktop,	The requested power of 350W is to high for this item and is not required.	**The technical specification of Item HTE 035 should read as follows:** Capacity 500L [1] Working temperature 0~5°C [2] Features Ambient temp. 43°C [3] CFC Freeze R-134A refrigerant gas [4] 40 kg/m3

			[5] Temperature and defrost controlled digital display [6] Automatic evaporation of water during defrosting [7] Cooling with fan [8] Self-closing doors at 45 degrees [9] Copper tube evaporator with aluminum fins [10] Stainless steel body [11] 2000x700x850 [12] 142 KG [13] Power: 0.16 kW
HTE 036	Stew Pan (10 Off@ 36)	You didn't specify the number of automatic programs you require.	**The technical specification of Item HTE 036 should read as follows:** [1] Maximum power: 1200W [2] Dishwasher safe [3] Multicooker [4] 25 automatic programs [5] 220-240V [6] 34x34x39.7 cm
HTE 037	Microwave	You didn't specify the required dimensions.	**The technical specification of Item HTE 037 should read as follows:** [1] 1500 Watt [2] 230V / 50Hz / 1phase [3] 18 KG [4] H312 x W520 x D435 mm [5] Suitable for plates with a diameter of 320 mm [6] Ceramic plate on the bottom [7] Hz frequency: 2450 MHz [8] Defrost = 30% power [9] Medium = 50% power [10] High = 100% power
HTE 038	Electric Bread Slicer, 1000 Watt	You didn't specify the required dimensions and power.	**The technical specification of Item HTE 038 should read as follows:** [1] 16 mm bread thickness [2] Quantity of stainless steel blades: 36 [3] Motor power: 0,37 kW 1400 rpm 220V [4] Automatic turning off after slicing [5] 717x686x1140 mm

			[6] Weight: 125KG
HTE 039	Plain Top Hot Cupboard	You didn't specify the required working temperature.	**The technical specification of Item HTE 039 should read as follows:** [1] Stainless steel body [2] Working temperature: 0 °C / 90 °C [3] HOT Cupboard – Non Insulated [4] 1200x700x850 mm [5] Weight: 82 KG [6] Power: 1.4 kW
HTE 040	Electronic Cash Register	How many department keys do you require?	**The technical specification of Item HTE 040 should read as follows:** [1] 24 departments (12 department keys x 2 shift keys) [2] No. of PLUs: 2,000 [3] Thermal printer / Printing speed : Max 10 lines/sec. [4] 58mm +0/-1mm Max 80ϕ [5] Weight: Approx. 3.3 kg with small drawer, 7.3 kg with medium drawer [6] The backlit two-line LCD is easy to read even in dimmed store interiors.
HTE 041	Coffee Percolator	What is the power requirement?	**The technical specification of Item HTE 041 should read as follows:** [1] 48 cups [2] Stainless steel [3] 950 W [4] Weight: 2,17 KG
HTE 042	Espresso Coffee Machine	You didn't specify the beans and water container capacity.	**The technical specification of Item HTE 042 should read as follows:** [1] Dimensions (wxdxh) (mm): 230x430x340 [2] Weight (Kg): 9 KG [3] Beans container capacity (g): 250 [4] Water container capacity (l): 1.8 [5] Grounds container capacity (n): 14 [6] Max cup height (mm): 142 [7] Rated voltage/Frequency (V~Hz): 220-240 V / 50-60 Hz [8] Coffee recipes: Espresso, Espresso Lungo [9] Pump pressure (bar): 15
HTE 043	Flambe Trolley	You didn't specify the required dimensions.	**The technical specification of Item HTE 043 should read as**

			follows: [1] Wooden unit veneered in walnut with swivelling top [2] Drawer, bottle-holder handle in brass-plated steel. [3] Brass-plated wheels diam. 100. [4] Cooking hob in stainless steel with adjustable burner. [5] 105/143x58x85 cm
HTE 044	Horizontal Refrigerated Display	What is the required capacity of GN containers?	**The technical specification of Item HTE 044 should read as follows:** [1] Power: 200 Watt [2] 230V / 50Hz / 1Phase [3] H435 x W2000 x D395 mm [4] Capacity 9 x 1/3 GN [5] Refrigerant R600a / CFC-free [6] Temperature 0 ° to + 10 ° Celsius [7] Dixell digital temperature controller [8] Foamed evaporator [9] Dixell digital temperature controller
HTE 045	Vertical Wine Cooler	You didn't specify the dimensions.	**The technical specification of Item HTE 045 should read as follows:** [1] 595 x 595 x 1840 mm [2] Weight: 86 kg [3] Load capacity: 118 wine bottles (0,75 l.). [4] Included: 6 shelves 490x360 mm (in wood). [5] Built-in compressor unit, climatic class 4 (30°C & 55% RH). [6] Thermopane®" glass door, reversible, closing by magnetic seal. [7] Ventilated evaporator, refrigerant R600a. [8] Automatic defrosting with self-evaporation of condensate.
HTE 046	Dishwasher - Pass Through Type	How many programs do you require? What is the size of the basket?	**The technical specification of Item HTE 046 should read as follows:** [1] 4 different programs, 60/90/120/180 seconds [2] Basket dimensions 500x500 mm [3] Washing water temperature 55-60°C [4] Rinse water temperature 80-85°C [5] Rinse boiler heater power: 6 kW [6] Machine total power: 9 kW/380 V

			[7] Dimensions: 696x765x1485 mm [8] Weight: 112 kg
HTE 047	Workstation, Server	Frequency of 3.1 GHz is to low for a server. 4 GB HDD no longer exist it is outdated.	**The technical specification of Item HTE 047 should read as follows:** [1] Maximum memory: 32 GB with 16 GB DDR4 UDIMM [2] Memory slots: 2 [3] Memory type: HPE DDR4 Standard Memory [4] Processor cache: 4 to 8 MB L3 [5] Processor speed: 3.8 GHz [6] Expansion slots: 1x 16 PCIe Gen3 Slot [7] Weight: 4.23 kg
HTE 048	Ink Jet Printer, Color A4	You didn't specify the dimensions of this item.	**The technical specification of Item HTE 048 should read as follows:** [1] Inkjet printer [2] Print format: Up to A4 [3] Print speed mono: 7.7 ppm [4] Print speed colour: 4.0 ppm [5] Print resolution: 4800 x 1200 dpi [6] 60 sheets [7] Dimensions: 426x131x255 mm
HTE 049	Colour Copier	What is the required memory?	**The technical specification of Item HTE 049 should read as follows:** [1] Print, copy, scan [2] Print resolution black: 1200x1200 dpi [3] Bit depth: 24-bit [4] Memory: 256 MB DDR3 [5] Bordless printing: Yes (up to 8.5 x 11 in, 216 x 297 mm) [6] Print speed : Black (A4, ISO): Up to 15 ppm; Colour (A4, ISO): Up to 10 ppm; Draft black (A4): Up to 22 ppm; Draft colour (A4): Up to 20 ppm
HTE 050	Polaroid Camera & Film	Save and print photo function is necessary for polaroid camera but not specified.	**The technical specification of Item HTE 050 should read as follows:** [1] Photobooth mode, timer setting, auto sleep, pop-up finder and flash [2] 10 MP camera [3] save and print photos in less than 60 seconds [4] 2'' x 3'' color photos

			[5] Full Color, Black and White & Vintage Sepia Tone [6] Built-in Lithium-Ion rechargeable battery, wrist strap and microSD card support up to 32GB
HTE 051	Fire safe	What are the required inner dimensions?	**The technical specification of Item HTE 051 should read as follows:** [1] Burglar-resistant according to Safe 1 [2] Fire resistant according to JIS, class 2 hours [3] Door has contoured edges which interlock with the car case [4] Outer dimensions: H342 x W484 x D411 mm. [5] Inner dimensions: H214 x W354 x D267 mm. [6] Weight: 53kg
HTE 052	Video Camera	8.9 megapixel does not exist for video camera and the specifications are outdated.	**The technical specification of Item HTE 052 should read as follows:** [1] Image sensor: 1/5.8-type BSI MOS Sensor [2] Total pixels: 2.51 megapixels [3] F Value: F1.8 wide / F4.2 tele [4] Focal length : 2.06 – 103 mm [5] 50x Optical Zoom [6] Power consumption: Max. 4.7W recording / Max. 7.7W Charging [7] SD/SDHC/SDXC Memory Card [8] Illumination: 1400 lx [9] HYBRID O.I.S.+ with Active Mode, O.I.S. Lock, Level Shot Function [10] MPEG-4 AVC/H.264 [11] Power supply: 3.6V (Battery) / 5.0V (AC Adaptor)
HTE 053	Color TV 42 Inch	The latest technology is 4K but it is not specified.	**The technical specification of Item HTE 053 should read as follows:** [1] Resolution: 3,840 x 2,160 [2] Screen Size: 43'' [3] Product Type: LED [4] PQI: 2000 [5] High Dynamic Range [6] Sound Output (RMS): 20W [7] Crystal Processor 4K [8] Remote control [9] HDMI: 2 [10] Set Size with Stand: (WxHxD)963 x 627.3 x 192.5 mm

HTE 054	Binocular Microscope	Single lens condenser, 6 holes disc diaphragm is required for operation but not requested.	**The technical specification of Item HTE 054 should read as follows:** [1] Monocular Head, 45° Inclined, 360° Rotatable [2] 20x - 1280x Magnification [3] WF5x, WF10x,16x, Barlow Lens 2x [4] Outward Triple Nosepiece [5] 185 Achromatic 4x,10x,40x(S) [6] Single Lens Condenser, 6 Holes Disc Diaphragm, With Built-in 5 Filters [7] Size: 41x27x14 CM
HTE 056	Farinograph	You didn't specify the required motor power? What is the required cutter speed?	**The technical specification of Item HTE 056 should read as follows:** [1] Motor power: 0.2kW [2] X Coordinate speed: 10mm/min [3] Torque unit: 300g :9.8 mN·m/FU 50g:1.96 mN·m/FU [4] Main doughing cutter speed: 63±2r/m [5] Sub doughing cutter speed: 94.5±3r/m [6] Over-load protection. Alarm when stirring torque is too large and shutdown, protect equipment and personnel safety. [7] Display up to 12 silty map, facilitate comparison its nuances [8] Save analysis results Access database format, access convenient [9] Smart sensing instrument action program to automatically start Drawing.
HTE 057	Analytical Mill	What are the dimensions required? Digital display is mandatory but not mentioned in the specifications.	**The technical specification of Item HTE 057 should read as follows:** [1] Digital timer [2] Counter: Display of grinding time [3] Interval function [4] Speed max. [rpm] 25000 [5] Circumferential speed max. [m/s] 73 [6] Feed grain size max. [mm] 6 [7] Dimensions (W x H x D) [mm] 130 x 250 x 145 [8] Protection class according to DIN EN 60529 IP 41
HTE 058	Computers	1600 MHz is outdated and no longer exist.	**The technical specification of Item HTE 058 should read as follows:** [1] Intel Core i5

			[2] Speed: 2.5 GHz [3] Cache: 18.00 MB [4] Memory type: DDR4 [5] Memory: 8 GB [6] Clock speed: 3200 MHz [7] Including TN monitor 21.5'', 1920 x 1080 pixels
HTE 059	Laptop	Laptop of 10.1'' with 2 GB memory is outdated and no longer exist.	**The technical specification of Item HTE 059 should read as follows:** [1] Screen Size: 14'' [2] Resolution: 1920x1200 [3] Processor speed: 1.8GHz [4] Processer: Intel Core i3 [5] RAM type: DDR5 [6] Aspect ratio: 16:10 [7] Brightness: 210cd/m2
HTE 061	Photocopier	You didn't specify the paper input sheets	**The technical specification of Item HTE 061 should read as follows:** [1] Multifunctional with colour Print, copy and scan [2] Fast print speeds of up to 31ppm colour and mono Maximum copies: 99 [3] Paper input of up to 300sheets [4] Processor 800MHz –Sub:133Mhz [5] 2,400dpi (2,400 x 600dpi), 600 x600dpi [6] 495 x 526 x 549mm29.7Kg
HTE 062	Digital Camera	5x optical zoom is very low and outdated.	**The technical specification of Item HTE 062 should read as follows:** [1] 20.3 Megapixel [2] 40x Optical Zoom [3] 4k UHD [4] Battery life: Approx. 265 shots [5] f/3.3 – f/6.9 [6] 10 fps [7] Focal length: 4.3 – 172.0 mm

HTE 063	Camping Tents	What are the required dimensions?	**The technical specification of Item HTE 063 should read as follows:** [1] Capacity: 2 person [2] Waterproof: HH2000mm [3] Pitch Time: 5 minutes [4] Dimensions: Outer: 330cm x 170cm x 100cm Inner: 215cm x 145cm x 90cm Pole width: 6.9mm [5] 190T breathable polyester (With external waterproof PU coating), Groundsheet: Durable Polyethylene, Poles: fiberglass [6] 55cm x 15cm x 15cm compression stuff sack
HTE 064	Sleeping Bags	What is the temperature you require?	**The technical specification of Item HTE 064 should read as follows:** [1] Size: 210cm (L) [2] Upper Limit: 17°C [3] Comfort Rating: 8°C [4] Lower Limit: 4°C [5] Bag Style: Mummy [6] Material: Outer: 210T polyester ripstop, Lining: 210T polyester pongee, Foot: 150D oxford with PU coating [7] Waterproof
HTE 065	Camping Cooler Box	Lid is not mentioned but required to operate this item.	**The technical specification of Item HTE 065 should read as follows:** [1] Capacity 20 liters [2] Lid-closing handle [3] Double walls with an insulating layer [4] Lid can also be used as a tray
HTE 066	Double Countertop Pizza Oven	Power and dimensions are not mentioned.	**The technical specification of Item HTE 066 should read as follows:** [1] 3000 Watt [2] 230V / 50Hz / 1Phase [3] H440 x W580 x D570 mm [4] Multiple thermostats: 0°C to 350°C [5] Interior chamber with stone slab 400 x 400 mm

			[6] Chamber dimensions: H120 x W420 x D420 mm [7] Suitable for 1 pizza of 40 cm | 4 pizzas of 20 cm