# *ANNEX II + III:* TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

**Contract title: Supply of laboratory equipment for the purposes and functioning of scientific laboratories of the Blue Growth Research centre at Trakya University in Lots**

**Lot 6** **Supply of analytical and measurement equipment**

**p 1 /…**

**Publication reference:** CB005.3.12.001 – PP2 – Supply 7

**Columns 1-2 should be completed by the contracting authority**

**Columns 3-4 should be completed by the tenderer**

**Column 5 is reserved for the evaluation committee**

Annex III - the contractor's technical offer

The tenderers are requested to complete the template on the next pages:

* Column 2 is completed by the contracting authority shows the required specifications (not to be modified by the tenderer),
* Column 3 is to be filled in by the tenderer and must detail what is offered (for example the words ‘compliant’ or ‘yes’ are not sufficient)
* Column 4 allows the tenderer to make comments on its proposed supply and to make eventual references to the documentation

The eventual documentation supplied should clearly indicate (highlight, mark) the models offered and the options included, if any, so that the evaluators can see the exact configuration. Offers that do not permit to identify precisely the models and the specifications may be rejected by the evaluation committee.

The offer must be clear enough to allow the evaluators to make an easy comparison between the requested specifications and the offeredspecifications.

| **1.**  **Item number** | **2.**  **Specifications required** | **3.**  **Specifications offered** | **4.**  **Notes, remarks,  ref to documentation** | **5.**  **Evaluation committee’s notes** |
| --- | --- | --- | --- | --- |
| **1** | **Analytical Balance (3 numeral)**  1. The optimum working range of the device should be in the range of 0.1 - 420 gr.3. The sensitivity of the device should be 1 mg.  2. The repeatability of the device should be 1 mg.  3. The linearity of the device should be ± 2 mg.  4. The stabilization time of the device should not exceed 2 seconds.  5. The sensitivity deviation of the device should be maximum 3 ppm / ° C.  6. The instrument must have an internal calibration mass and also have an automatic calibration feature.  7. The calibration of the device should be possible with external masses.  8. The tare interval of the device should be reduced and capacitance.  9. The instrument should be able to calculate the density measurement or the specific gravity of the samples with the help of the integrated bottom hook.  10. The device must have 4 hot keys (ON / OFF, Print, Zero and Cal) and 2 tare keys. The actual control of the device should be carried out on the touch screen.  11. Must have usage guiding the user with the firmware.  12. The device must have a frameless protection shield with movable doors for easy operation.  13. The device should be guaranteed for at least 2 year against any manufacturing and assembly defects. Spare parts and service must be guaranteed for 10 years after the end of the warranty period. |  |  |  |
| **2** | **Analytical scales accuracy to the 5th numeral**  1. The device must have a mono-block weighing cell.  2. The linearity of the device should be ± 0.1 mg.  3. The capacity of the device is 120 gr.  4. The sensitivity of the device should be 0.01 mg.  5. The device should be calibrated with external weights, if desired.  6. The device should have a wind shield with movable doors so that it can be operated easily.  7. The device must have weighing, part counting, weighing in percent, weight control, animal / dynamic weighing, filling, formulation, differential weighing, material cost, collection availability, peak point, density, statistics, pipette calibration applications.  8. The functions of the device should include a stopwatch.  9. The instrument should be able to calculate the density measurement or the specific gravity of the samples with the help of the integrated bottom hook.  10. The device must have two sensors on the control unit and the main unit. Easy and clean usage should be provided by assigning zero, tare, calibration, opening of the inner chamber light, closing, opening and printing commands to these sensors.  11. The device must be equipped with an illuminated spirit level. The scale should be easily balanced with the template that helps the user between functions.  12. The device must be manufactured in accordance with the ISO 9001: 2008 quality system.  13. Device density determination should be able to automatically calculate the density after the data is entered.  14. The device should be guaranteed for at least 2 year against any manufacturing and assembly defects. Spare parts and service must be guaranteed for 10 years after the end of the warranty period. |  |  |  |
| **3** | **Automatic micropipette**  1. Pipettes work with continuous piston stroke and working volume.  2. Original pipette stand and 10 tip box for each volume of micropipettpe (2-20 ul, 20-200 ul, 100-1000 uL and 1-10 mL) should be given together. Random and systemayic errors must comply with EN ISO 8655 standards.  3. Pipettes should have an ergonomic design and volume adjustment should be done with one hand. Its surface should be of the type that we recommend that the pipette fits properly in the hand.  4. Pipettes are made of a material resistant to organic solvent chemicals.  5. Pipettes are anti-abrasion, friction and chemical resistant, heat, acid and organic polymer resistant to alkalis, mold, color bleaching and sunlight must have the piston. Thanks to this piston, the pipettes should be light, long-term Works in a structure that will not cause any discomfort.  6. In pipettes that will have two-stage control; In the 1st position, any volume of fluid should be drawn or distributed. 2nd The liquid remaining in the tip should be removed with the exception of the position.  7. After discharging the liquid in the pipettes, it provides a tip shot with a separate button.  8. All pipettes in the pipette set (2-20 ul, 20-200 ul, 100-1000 uL and 1-10 mL), together with the factory final control certificates. It should be given.  9. It should consist of volumes under pipettes and in quantities for volumes. It must be able to be increased. Volumetric accuracy and precision error of ISO 8655-6 standard must meet their values. |  |  |  |
| **4** | **Destilator desktop/wall with a reservoir built in**  1. The device must be a distilled water device.  2. Distillated water from the device should also be used for cleaning and sterilization, buffer solution and analytical applications  3. The device must be able to produce water (between 2 - 3 µs / cm) quality for single distilled water production.  4. Body, boiler, tank and condenser of the device should be stainless steel.  5. The amount of water the device can produce per hour should be at least 4L/ h.  6. The power consumption of the device should not exceed 3000W.  7. The device should be guaranteed for at least 2 year against any manufacturing and assembly defects. Spare parts and service must be guaranteed for 10 years after the end of the warranty period. |  |  |  |
| **5** | **Digital multimeter**  1. The device must be portable.  2. The device should measure critical water quality parameters without having to carry more than one device.  3. The device must have smart probes and these probes must keep all calibrations in the probe. It should enable quick and easy replacement of probes without recalibrating.  4. The device must automatically record serial numbers, valid calibration data, user ID, sample ID, time and date in the data log for complete GLP traceability.  5. It must meet IP 67 safety standards.  6. The device have with standard pH gel electrode and standard conductivity cell  7. The device specifications should be as follows; pH range 0 – 14, pH resolution 0,001 - 0,1 (selectable), pH calibration 4-point calibration, mV range ± 1500, mV resolution 0,1, , Conductivity range 0.01 μS / cm - 200 mS / cm, Conductivity resolution 5 digits with 2 digits after decimal point, Conductivity accuracy ± 0.5% (1 µS / cm - 200 mS / cm), Resistivity range 4 Ωcm - 40 MΩcm, Salinity range 0 - 40 g / kg, Salinity resolution 0,01 ppt, TDS range 0.0 - 50.0 mg / l, DO concentration (mg / l) 0.01 - 20 mg / l, DO concentration resolution (mg / l) 0.01 mg / l / 0.1%, DO saturation (%) 0 - 200%, Temperature range (° C) -10 ... + 110, Temperature accuracy (° C) ± 0.5, Data logging capacity at least 100 data results, Display LCD with backlight, shows simultaneous readings from two probes, Connections Two digital electrode inputs  8. The device should be guaranteed for at least 2 year against any manufacturing and assembly defects. Spare parts and service must be guaranteed for 10 years after the end of the warranty period. |  |  |  |
| **6** | **Digital microscope**  1.The device must be equipped with phase contrast, dark area and polarized accessories.  2.The device must have multi-layer coated lenses for enhanced contrast, even in weak spots.  3.Phase contrast should be available on the device and dark field should be possible with turret capacitor.  4.The device must have a durable stage with X / Y movement.  5.The technical specifications of the device should be as follows ;  -Head Siedentopf, 30° inclined, 360° rotating, -Eyepieces WF 10×/20 mm;  -Objectives 4×, 10×, 40× (spring), 60x (DIC), 100× (spring, oil immersion)  -Stage should be 140×135 mm ±10 mm  -Condenser Abbe 1,25 N.A.  -Focusing system Coaxial coarse and fine knobs  - LED illumination (Köhler)  -Camera should be minimum 3,0 MP with data transfer of at least 480 MB per second  -Resolution should be minimum 2048×1536,  -Output USB 3.0 or equivalent  6. Imaging software and computer (Minimum intel i5 10th gen or equivalent, Minimum 8 gb Ram and Minimum 250 gb SSD, Minimum 23 inch monitor, Windows 10 or equivalent) must be supplied with the microscope.  7. The device should be guaranteed for at least 2 year against any manufacturing and assembly defects. Spare parts and service must be guaranteed for 10 years after the end of the warranty period. |  |  |  |
| **7** | **Electrical conductivity meter**  1. The device should be microprocessor controlled and backlit digital display and desktop type.  2. The device should be capable of measuring conductivity, salinity, TDS, specific resistance, conductivity ash.  3. The device should be capable of automatic temperature correction (ATC) within the measurement range of ( -5 ° C ) to (+100 ° C).  4. One-point calibration should be possible with the device.  5. The measurement finishing criterion of the device should be selected automatically or manually.  6. The device must be able to transfer its data by connecting USB memory.  7. Barcode reader, USB keyboard and magnetic stirrer should be connected to the device if desired.  8. At least 100 measurements and 100 calibration measurements should be stored in the memory of the device.  9. The device should be able to be controlled via a computer, if required, by software.  10. The device must have a reminder setting function for calibration.  11. The device operates at 220 V / 50 Hz. When left open, it should have automatically turn off ability.  12. Measuring range of the device:  Conductivity range: 0.001 µS / cm - 1000 mS / cm; Conductivity accuracy: +/- 5%; Temperature range: MTC 0 - 100° C; ATC: 0 -100° C.; Temperature resolution: 0.1 ° C.; Temperature accuracy: ± 0.1° C.; TDS range: 0.00 mg / L-500 g / L; Salinity range: 0.00-80.00 psu; Resistance range: 0.00-100 MOhm. cm  13. The device should be guaranteed for at least 2 year against any manufacturing and assembly defects. Spare parts and service must be guaranteed for 10 years after the end of the warranty period |  |  |  |
| **8** | **Freezer**  1. The device must be a non-sparking vertical laboratory freezer.  2. The device must have static cooling with an electronic control system that provides high temperature consistency and uniform temperature distribution  3. The device must have an electronic control system with a temperature of at least 1 ° C.  4. Minimum temperature of the system should be at least -24 °C  5. The device must have a Digital Display.  6. The device must have manual defrost  7. The device must have a door lock.  8. Device should have minimum 250 L usable volume The device should be guaranteed for at least 2 year against any manufacturing and assembly defects. Spare parts and service must be guaranteed for 10 years after the end of the warranty period.  9. The device should be guaranteed for at least 2 year against any manufacturing and assembly defects. Spare parts and service must be guaranteed for 10 years after the end of the warranty period. |  |  |  |
| **9** | **Heating mantle ( Striter 100mL)**  1 .Device must have 100 ml Round bottom flask capacity  2. Device maximum stirring speed must be minimum 1000 rpm  3. Device must have Auto-recapture of magnetic stir bar; simple switch to re-activate stirring  4. Device must be set temperatures up to 450°C  5. Device must be replaceable insulated heater and stirring cartridge  6. . The device should be guaranteed for at least 2 year against any manufacturing and assembly defects. Spare parts and service must be guaranteed for 10 years after the end of the warranty period. |  |  |  |
| **10** | **Heating mantle ( Striter 2000mL)**  1. Device must have 2000 ml Round bottom flask capacity  2. Device maximum stirring speed must be minimum 1000 rpm  3. Device must have Auto-recapture of magnetic stir bar; simple switch to re-activate stirring  4. Device must be set temperatures up to 450°C  5. Device must be replaceable insulated heater and stirring cartridge  6. . The device should be guaranteed for at least 2 year against any manufacturing and assembly defects. Spare parts and service must be guaranteed for 10 years after the end of the warranty period. |  |  |  |
| **11** | **Heating mantle ( Striter 250mL)**  1.Device must have 250 ml Round bottom flask capacity  2.Device maximum stirring speed must be minimum 1000 rpm  3.Device must be set temperatures up to 450°C  4.Device must have Indicator lamps for power and heater operation  5.Device must be replaceable insulated heater and stirring cartridge  6. . The device should be guaranteed for at least 2 year against any manufacturing and assembly defects. Spare parts and service must be guaranteed for 10 years after the end of the warranty period. |  |  |  |
| **12** | **Heating mantle ( Striter 500mL)**  1.Device must have 500 ml Round bottom flask capacity  2.Device maximum stirring speed must be minimum 1000 rpm  3.Device must be set temperatures up to 450°C  4.Device must have Indicator lamps for power and heater operation  5.Device must be replaceable insulated heater and stirring cartridge  6. The device should be guaranteed for at least 2 year against any manufacturing and assembly defects. Spare parts and service must be guaranteed for 10 years after the end of the warranty period. |  |  |  |
| **13** | **Hydrometer scales**  1. Weight: up to 200 g;  2. Technique for detection: 0,001g/0,01%;  3. Temperature range: +35°C to 160°C;  4. Margin of increase: 1°C;  5. Monitoring of the drying process and switch off at the set time or when the sample reaches stable weight;  6. Range of measurement: % moisture: 0-100%; % dry substance: 100-0%;  7. The device should be guaranteed for at least 2 year against any manufacturing and assembly defects. Spare parts and service must be guaranteed for 10 years after the end of the warranty period. |  |  |  |
| **14** | **Light meter**  1. Element for receiving light: silicone photo diode (Working range 50 lux-100000 lux )  2. Slection of range: Automatic/ manual  3. Linearity: ± 2% rdg.  4. Time for reaction: Automatic range: within 5 seconds, Manual range: within 2 seconds  5. The device should be guaranteed for at least 2 year against any manufacturing and assembly defects. Spare parts and service must be guaranteed for 10 years after the end of the warranty period. |  |  |  |
| **15** | **Mechanical stirrer**  1. The device must have a capacity of at least 10 liters, suitable for medium viscous liquids.  2. The device should be used in samples with a maximum viscosity of 10,000 mPas.  3. The chuck spacing of the device should be 1.5-10mm dia.  4. The hollow shaft of the device should be 1.5-10 mm dia.  5 .The variable motor speed of the device should be 100-2000 rpm.  6. The device should be able to work with 230 V, 50/60 Hz, 50W.  7. One propeller type stirrer and device stand should be supplied with the device.  8. The device should be guaranteed for at least 2 year against any manufacturing and assembly defects. Spare parts and service must be guaranteed for 10 years after the end of the warranty period. |  |  |  |
| **16** | **Portable grab sampling device Van Veen type**  1. For soil and mud sampling;  2. Stainless steal;  3. The volume of the sample should be at least 3 L |  |  |  |
| **17** | **Professional desktop pH – meter**  1. The device must be a backlit colour digital display and a desktop type.  2. The device should be capable of automatic temperature correction (ATC) within the measurement range of -5 ° C to 130 ° C.  3. 1000 measurements should be stored in the memory of the device.  4. 5-point pH calibration should be possible with the device.  5. The ph range of the device should be: -2 and 20  6. The resolution of the device should be 0.001 / 0.01 / 0.1.  7. Temperature sensitivity of the device should be ± 0.1.  8. One user-bound pH buffer solution group should be created with the device.  9.. The device should be able to recognize pH buffer solutions automatically.  10. The device must have a reminder setting function for calibration.  11. The device must be operating at 220 V / 50 Hz.  12. The device should be guaranteed for at least 2 year against any manufacturing and assembly defects. Spare parts and service must be guaranteed for 10 years after the end of the warranty period. |  |  |  |
| **18** | **Refrigerator**  1- The device must have an electronic temperature control system set 1 ° C.  2- The device must have audible and visual alarms (user adjustable) for Door opening and temperature.  4- The device must have an LED-illuminated interior ceiling lamp.  5- The type of refrigerant used in the device should be hydrocarbon.  6- The adjustable temperature range of the device should be within the range of +3 to +16°C  7. The device should have minimum 300 L volume  8-The technical specifications of the device should be as follows ;  -Air circulation: Ventilated; -Display: Digital; Defrost: Automatic; Door lock  9. The device should be guaranteed for at least 2 year against any manufacturing and assembly defects. Spare parts and service must be guaranteed for 10 years after the end of the warranty period. |  |  |  |
| **19** | **Rope for sampling device Ruttner type - 25 metres**  1.Length: 25 m;  2.length markers;  3.Polyester rope 5 mm thick for sampling Ruttn |  |  |  |
| **20** | **Rope for sampling device Van Veen and Ekman type, 25 metres**  1.Length: 25 m;  2.length markers;  3.Polyester rope 5 mm thick for sampling EKMAN and van VEEN type." |  |  |  |
| **21** | **Sampling device for water Ruttner type**  1.Quantity of the sample: at least 1000 ml  2.Acrylic glass flask;  3.Thermometre 0 to +50°C. |  |  |  |
| **22** | **Single glass system for membrane filtration of microbiological samples**  1. The system is with 1 filtarting body and is applicable for working with membrane filters Ø47mm.  2. The system consists of Erlenmayer suction flask with a schliff 40/35, 1000 ml.  3. Glass adapter with a holder for the filter and a coupling connecting the vacuum pump |  |  |  |
| **23** | **Sound meter**  1-1 Octave tape or optional 1/3 octave tape  2- Class 1 - A, B, C and Z frequency adjustable  3- Fast, Slow Timing - Statistics function  4- Graphic display of sound  5- 3 adjustable measuring profiles  6.- ICCP Microphone 40 mV / PA  7- Alarm level can be adjusted |  |  |  |
| **24** | **Ultrasonic cleaner**  1- The device should be used to release complex geometry parts such as ultrasound cleaning, pallets, undercuts, boreholes or pocket holes from debris (contaminants).  2- The device must have a high performance PZT ultrasonic transducer with Ceramic technology  3- The device must have a robust heating with integrated running-dry protection.  4- The tank material and coating of the device should be Stainless steel.  5- The device must have a digital timer from 1 to 99 minutes in 1 minute steps.  6- The device should include the bathroom, power cord, suitable adapters, manual, basket and cover.  7-Capacity should be minimum 5 lt; |  |  |  |