

Installation Report (Phase 1): Civil, Mechanical, and Electrical/Electronic Laboratory

Date of Installation: Jan. 22- 24 to Feb. 09 - 2024

Location: USET Campus Kanifing

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Summary:

This report outlines the successful installation of phase 1 equipment for Civil, Electrical/Electronic, and Mechanical Laboratories at the University of Applied Science Engineering and Technology Kanifing Campus. The installation process involved various stages such as planning, identifying equipment for different departments, setting up the equipment at the Laboratory space and finally Tagging the various items. The completion of this project marks a significant milestone in enhancing educational and research capabilities in civil engineering, mechanical engineering, and electrical/electronic engineering.

Introduction:

The installation project aimed to establish fully functional laboratories catering to civil, mechanical, and electrical/electronic engineering disciplines. The laboratories are designed to facilitate hands-on learning, research, and experimentation for students, faculty, and researchers. The installation process adhered to industry standards and safety protocols to ensure the efficiency and reliability of laboratory operations.

Planning:

To ensure a seamless and successful installation process, the project team conducted a comprehensive planning phase. They analyzed the optimal location, timing, and personnel responsible for installing the lab equipment. The layout, equipment requirements, and safety protocols were carefully considered for each laboratory, ensuring that all aspects of the installation were carried out with precision and efficiency. The project team consulted with faculty members and relevant stakeholders to align the installations with academic and research objectives.

Setup:

After identifying the laboratory spaces and the equipment required for different departments, the setup phase began. This phase involved the installation and calibration of equipment, instrumentation, and experimental setups. Qualified technicians and engineers supervised the assembly process to ensure the accuracy and precision of equipment placement.

Laboratory Features (Lot 1):

1. Civil Laboratory:

Soil testing apparatus for geotechnical analysis.



Concrete and asphalt testing equipment.



Structural testing facilities for assessing material properties.

Surveying instruments for land measurement and mapping.



Figure 1 Civil Engineering Lab

Item No.	Description	Qty	Picture of the Equipment
1	<p>Electronic Scale</p> <p>Lot 1 Materials Testing Lab Equipment</p> <p>Tag: USET/ACE IMPACT/1303-1304/2024</p>	2	 <p>Figure 2 Electronic Scale</p>
2	<p>Laboratory Platform Scale</p> <p>Lot 1 Materials Testing Lab Equipment</p> <p>Tag: USET/ACE IMPACT/1305/2024</p>	1	 <p>Figure 3 Laboratory Platform Scale</p>

4	Coarse Aggregate Sieve	2	 <p>Figure 4 Coarse Aggregate Sieve</p>
19	Automatic Penetrometer	Digital 1	 <p>Figure 5 Automatic Digital Penetrometer</p>

Lot 1 Materials Testing
Lab Equipment

Tag:

USET/ACE IMPACT/1309-
1310/2024



Lot 1 Materials Testing
Lab Equipment

Tag:


USET/ACE IMPACT/1306/2024


25	<p>Cast Iron Split Moulds Aashto T23</p> <p>Lot 1 Materials Testing Lab Equipment</p> <p>Tag:</p> <p>USET/ACE IMPACT/1240-1289/2024</p>	50	 <p>Figure 6 Cast Iron Split Moulds</p>
26	<p>C254-02 Beam Mould</p> <p>Lot 1 Materials Testing Lab Equipment</p> <p>Tag:</p> <p>USET/ACE IMPACT/1220-1239/2024</p>	20	 <p>Figure 7 Beam Mould</p>

42	Ultrasonic Concrete Tester	2	<div><p>Lot 1 Materials Testing Lab Equipment</p><p>Tag:</p><p>USET/ACE IMPACT/1316-1317/2024</p></div> <div></div> <div>Figure 8 Ultrasonic Concrete Tester</div>
3	Plastic Wash Bottles 100ml	5	<div><p>Lot 1 Soil Lab</p><p>Tag: Non</p><p>*Consumable item</p></div> <div></div> <div>Figure 9 Plastic Wash Bottles 100ml</div>

16	<p>Density Bottle 250ml</p> <p>Lot 1 Soil Lab</p> <p>Tag: Non</p> <p>*Consumable Item</p>	12	 <p>Figure 10 Density Bottle 250ml</p>
20	<p>Consolidation Apparatus (Electronic Bench Model)</p> <p>Lot 1 Soil Lab</p> <p>Tag:</p> <p>USET/ACE IMPACT/1307-1308/2024</p> <p>USET/ACE IMPACT/1318-1319/2024</p>	4	 <p>Figure 11 Consolidation Apparatus</p>

3	<p>Plan Meter</p> <p>Lot 1 Soil Lab</p> <p>Tag:</p> <p>USET/ACE IMPACT/1311-1315/2024</p>	5	 <p>Figure 12 Plan Meter</p>
4	<p>Hand-Held GPS System</p> <p>Lot 1 Soil Lab</p> <p>Tag: Non</p> <p>*Small items</p>	25	 <p>Figure 13 Hand-Held GPS System</p>

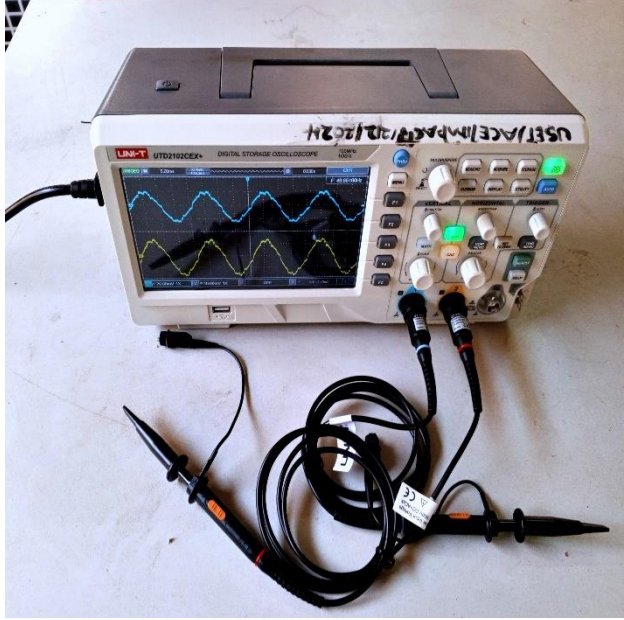

10	<p>Automatic Level</p> <p>Lot 1 Surveying Lab</p> <p>Tag:</p> <p>USET/ACE IMPACT/1295-1302/2024</p>	8	 <p>Figure 14 Automatic Level</p>
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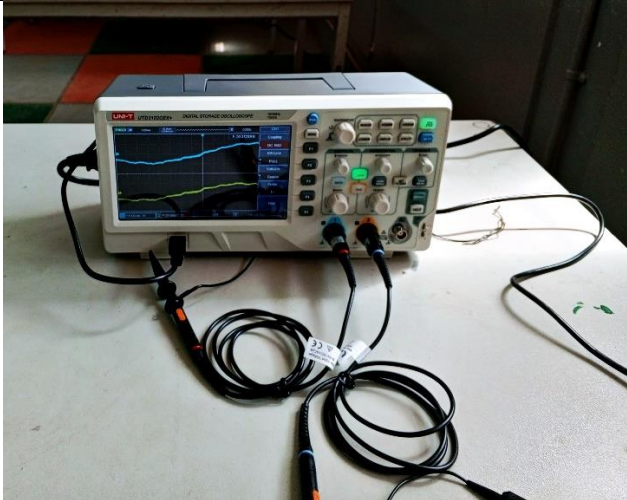


11	<p>Total Station</p> <p>Lot 1 Surveying Lab</p> <p>Tag:</p> <p>USET/ACE IMPACT/1290-1294/2024</p>	5	 <p>Figure 15 Total Station</p>
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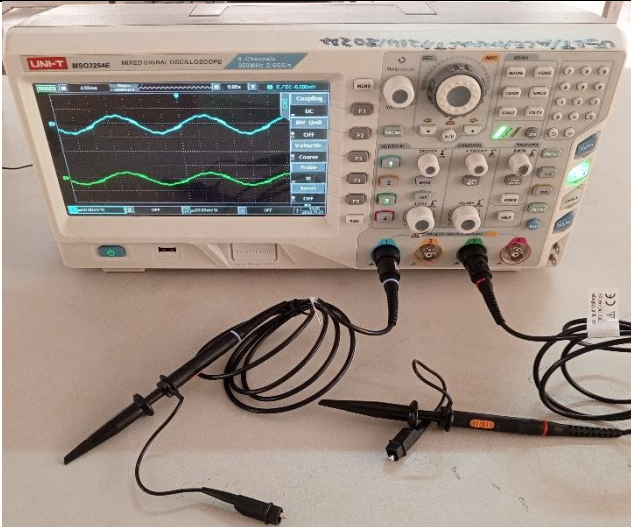
2. Electrical/Electronic Laboratory (Lot 2):



Oscilloscopes, Twine Rotor Mimeo System, Digilent NI MYRIO Mechatronics Kit function generators, and 4-CH DOS, Tektronix-TPS2024 for circuit measurement and analysis.

Item No	Description	Qty	Picture of the Equipment
1	<p>Digital Storage Oscilloscope (DSO) (UNI-T UTD2102CEX+)</p> <p>Control System Lab</p> <p>Tag: USET/ACE IMPACT/1210-1212/2024</p>	2	 <p>Figure 16 Digital Storage Oscilloscope (DSO)</p>
4	<p>Twine Rotor Mimeo System 33-220</p> <p>Control System Lab (This system requires a workstation for it to operate)</p> <p>Tag: USET/ACE IMPACT/1184/2024</p>	1	 <p>Figure 17 Twine Rotor Mimeo System 33-220</p>

7	<p>Digital Storage Oscilloscope D36060CA (APLAB)</p> <p>Electrical Measurement & Instrumentation Lab</p> <p>Tag: USET/ACE IMPACT/1215/2024</p>	1	 <p>Figure 18 Digital Storage Oscilloscope D36060CA</p>
9	<p>Digilent NI MYRIO Mechatronics Kit</p> <p>Electrical Measurement & Instrumentation Lab</p> <p>Tag: Non Small item</p>	5	 <p>Figure 19 Digilent NI MYRIO Mechatronics Kit</p>
12	<p>Function Generator</p> <p>Electrical Measurement & Instrumentation Lab</p> <p>Tag: USET/ACE IMPACT/1213/2024 USET/ACE IMPACT/1211/2024</p>	2	 <p>Figure 20 Function Generator</p>

8	Arbitrary Function Generator AFG 3102	1	 <p>Figure 21 Arbitrary Function Generator AFG 3102</p>
	Power Electronics Lab		
	Tag: USET/ACE IMPACT/1209/2024		
10	4-CH DOS, Tektronix- TPS2024	1	 <p>Figure 22 4-CH DOS, Tektronix-TPS2024</p>
	Power Electronics Lab		
	Tag: USET/ACE IMPACT/1214/2024		

3. Mechanical Laboratory (Lot 3):





Figure 23 Mechanical Engineering Labs

Automotive repairs and maintenance tools and equipment

Machine shop tools and equipment

Welding and fabrication tools and equipment



Item No	Description	Qty	Picture of the Equipment
1	<p>Mobile Table</p> <p>Lot 3 Mechanical</p> <p>TAG: USET/ACE IMPACT/1169-1170/2024</p>	2	 <p>Figure 24 Mobile Table</p>
13	<p>Fully Automatic Battery Charger</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1129/2024</p>	1	 <p>Figure 25 Fully Automatic Battery Charger</p>
16	<p>Auto-Diagnostic Tool</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1062-1063/2024</p>	2	 <p>Figure 26 Auto-Diagnostic Tool</p>


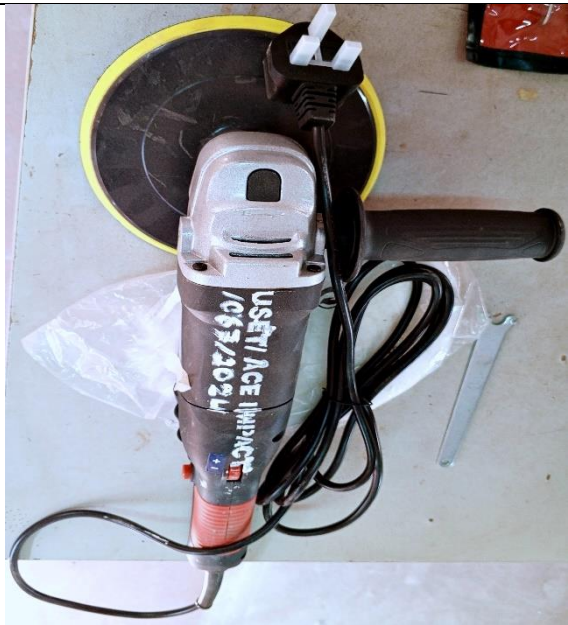
18	<p>Automatic Tyre Changer</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1160/2024</p>	1	 <p>Figure 27 Automatic Tyre Changer</p>
19	<p>Radiator Pressure Gauge</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1147-1148/2024</p>	2	 <p>Figure 28 Radiator Pressure Gauge</p>

21	<p>Wheel Balancer</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1162/2024</p>	1	 <p>Figure 29 Wheel Balancer</p>
23	<p>Advanced Digital Timing Light</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1126-1127/2024</p>	2	 <p>Figure 30 Advanced Digital Timing Light</p>

24	<p>Engine Stand</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1164-1165/2024</p>	2	 <p>Figure 31 Engine Stand</p>
25	<p>Laser thermometer</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1130-1131/2024</p>	2	 <p>Figure 32 Laser thermometer</p>
26	<p>Impact Wrench</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1128/2024</p>	1	 <p>Figure 33 Impact Wrench</p>




27	<p>Air Compressor</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1161/2024</p>	1	 <p>Figure 34 Air Compressor</p>
29	<p>Stand Jack</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1093-1108/2024</p>	8set	 <p>Figure 35 Stand Jack</p>

30	<p>Waste oil Collector</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1179/2024</p>	1	 <p>Figure 36 Waste oil Collector</p>
31	<p>Hand tool Set</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1020-1027/2024</p>	4	 <p>Figure 37 Hand tool Set</p>



32	<p>High-Pressure Car Washer</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1181/2024</p>	1	 <p>Figure 38 High-Pressure Car Washer</p>
35	<p>Car body Polisher</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1067/2024</p>	1	 <p>Figure 39 Car body Polisher</p>

36	<p>Car Vacuum Cleaning Machine</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1168/2024</p>	1	 <p>Figure 40 Car Vacuum Cleaning Machine</p>
38	<p>Piston Ring Clamp</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1149/2024</p>	1	 <p>Figure 41 Piston Ring Clamp</p>
39	<p>Break Caliper Wind Back Tool</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1068-1069/2024</p>	2	 <p>Figure 42 Break Caliper Wind Back Tool</p>

40	<p>Machinist Vise</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1111-1114/2024</p>	4	 <p>Figure 43 Machinist Vise</p>
41	<p>Diesel Smoke Meter</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1172/2024</p>	1	 <p>Figure 44 Diesel Smoke Meter</p>
42	<p>Creeper</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1173-1176/2024</p>	4	 <p>Figure 45 Creeper</p>
43	<p>Auto Electrical hand tools set</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1071-1074/2024</p>	4	 <p>Figure 46 Auto Electrical hand tools set</p>




44	<p>Engine Tinning Tool Kits</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1064-1065/2024</p>	2	 <p>Figure 47 Engine Tinning Tool Kits</p>
45	<p>Ball Join toolset</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1123/2024</p>	1	 <p>Figure 48 Ball Join toolset</p>
51	<p>Digital Hydraulic Press</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1166/2024</p>	1	 <p>Figure 49 Digital Hydraulic Press</p>


52	<p>Engine Hoist</p> <p>Lot 3 Mechanical</p> <p>Tag: USET/ACE IMPACT/1180/2024</p>	1	 <p>Figure 50 Engine Hoist</p>
10	<p>Angle Grinder</p> <p>Lot 3 Mechanical Workshop</p> <p>Tag: USET/ACE IMPACT/1070/2024 USET/ACE IMPACT/1124/2024</p>	2	 <p>Figure 51 Angle Grinder</p>
14	<p>Machinist Vise</p> <p>Lot 3 Mechanical Workshop</p> <p>Tag: USET/ACE IMPACT/1115-1118/2024</p>	4	 <p>Figure 52 Machinist Vise</p>

1	<p>Welding Helmet</p> <p>Lot 3 Welding Workshop</p> <p>Tag: USET/ACE IMPACT/1055-1061/2024 USET/ACE IMPACT/1075-1092/2024</p>	25	 <p>Figure 53 Welding Helmet</p>
2	<p>An Angle Grinder</p> <p>Lot 3 Welding Workshop</p> <p>Tag: USET/ACE IMPACT/1066/2024 USET/ACE IMPACT/1125/2024</p>	2	 <p>Figure 54 An Angle Grinder</p>

3	<p>Smart MIG Welding Machine</p> <p>Lot 3 Welding Workshop</p> <p>Tag: USET/ACE IMPACT/1178/2024 USET/ACE IMPACT/1109/2024</p>	1	 <p>Figure 55 Smart MIG Welding Machine</p>
6	<p>Hydraulic Tubing Bender</p> <p>Lot 3 Welding Workshop</p> <p>Tag: USET/ACE IMPACT/1163/2024</p>	1	 <p>Figure 56 Hydraulic Tubing Bender</p>

7	<p>Stand Drilling Machine</p> <p>Lot 3 Welding Workshop</p> <p>Tag: USET/ACE IMPACT/1217/2024</p>	1	 <p>Figure 57 Stand Drilling Machine</p>
9	<p>Bench Grinder</p> <p>Lot 3 Welding Workshop</p> <p>Tag: USET/ACE IMPACT/1171/2024</p>	1	 <p>Figure 58 Bench Grinder</p>

10	<p>Welding Clamp</p> <p>Lot 3 Welding Workshop</p> <p>Tag: USET/ACE IMPACT/1132-1146/2024</p>	5set	 <p>Figure 59 Welding Clamp</p>
11	<p>Leather Welding Gloves</p> <p>Lot 3 Welding Workshop</p> <p>Tag: Non *Consumable Item</p>	25	 <p>Figure 60 Leather Welding Gloves</p>
13	<p>Arc Welding Machine</p> <p>Lot 3 Welding Workshop</p> <p>Tag: USET/ACE IMPACT/1177/2024</p>	1	 <p>Figure 61 Arc Welding Machine</p>

14	<p>Machinist Vise</p> <p>Lot 3 Welding Workshop</p> <p>Tag: USET/ACE IMPACT/1119-1122/2024</p>	4	 <p><i>Figure 62 Machinist Vise</i></p>
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Conclusion

The successful installation of Phase 1 lab and workshop tools and equipment is a significant step forward in USET's pursuit of excellence in engineering education. With the implementation of new technologies, students will be able to participate in hands-on learning experiences, perform experiments, and apply theoretical knowledge to real-world situations. This new laboratory will not only improve the learning environment but also enable students to gain practical skills that will be valuable in their future engineering professions. We are eagerly looking forward to witnessing the installation of Phase 2 workshop and lab equipment and how these facilities will benefit our students' academic journeys and contributions to the field of engineering.