

FTKA LABORATORY PROFILE



FTKA

BLOCK C

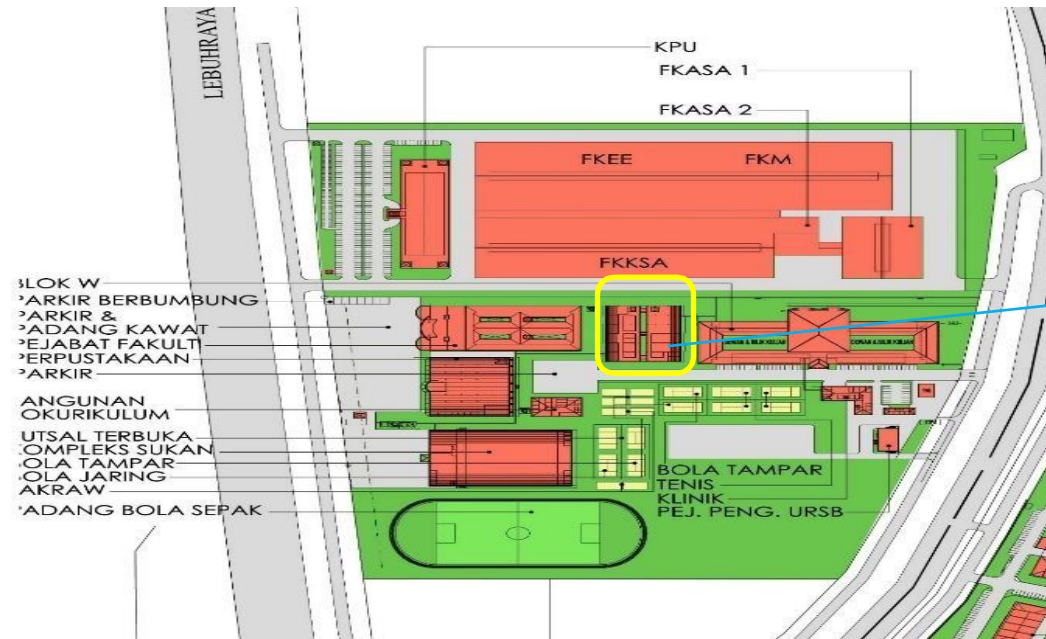
**SOIL
MECHANICS &
GEOTECHNICS**

BASIC INFORMATION

Location:
Block C

Person In Charge :

1. **Tc.Nor Azmi bin Sabri**
Email norazmi@umpsa.edu.my
2. **Mohd Ziunizan bin Hamzah**
Email:ziunizan@umpsa.edu.my
3. **Haliman Ridzuan bin Mat Yatin**
Email : leman@umpsa.edu.my



Soil Mechanics and
Geotechnics Lab

Block Makmal
FKASA

Person in Charge

No	Name	Email
1	Tc.Nor Azmi Sabri	norazmi@umpsa.edu.my
2	Mohd ZiunizanHamzah	ziunizan@umpsa.edu.my
3	Haliman Ridzuan Mat Yatin	leman@umpsa.edu.my

LIST OF EQUIPMENTS

Nature of Equipments

The laboratory is equipped with advanced instrumentation for soil mechanics, geotechnical engineering and rock mechanics testing.

Experimental activities encompass the determination of engineering properties of soils and rocks, including classification, strength, compressibility, and permeability characteristics.

The equipment used in this laboratory is sourced from internationally recognised manufacturers such as GDS, MATEST, ELE as well as other reputable suppliers.

No	Item	Quantity	usage
1	FULLY AUTOMATED COMPUTER CONTROL STRESS	1	PnP & RnD
2	CYCLIC TRIAXIAL TESTING SYSTEM	1	RnD
3	AUTOMATED CONSOLIDATION & SWELL TESTING	3	PnP & RnD
4	ONE-DIMENSIONAL CONSOLIDATION APPARATUS	8	PnP
5	DIRECT/RESIDUAL SHEAR TESTING MACHINE	2	PnP & RnD
6	LOAD FRAME	1	PnP & RnD
7	UNIVERSAL MULTISPEED DIGITAL LOAD	1	PnP & RnD
8	SHEAR BOX ASSEMBLY	1	RnD
9	BRAZILLIAN TEST APPARATUS	1	RnD
10	POINT LOAD TEST	2	RnD
11	AUTOMATIC COMPACTOR	1	PnP & RnD
12	VIBRATOR SIEVE SHAKER	3	PnP & RnD

LIST OF EQUIPMENTS

No	Item	Quantity	usage
13	UNCONFINED COMPRESSION MACHINE	1	PnP & RnD
14	ROCK CLASSIFICATION HAMMER	1	RnD
15	RELATIVE DENSITY APPARATUS	1	PnP & RnD
16	PLATE BEARING TEST	1	RnD
17	MOTORISED HAND AUGER	1	PnP & RnD
18	FALLING HEAD PERMEAMETER	2	PnP & RnD
19	PERMEABILITY APPARATUS	2	PnP & RnD
20	LAB VANE SHEAR APPARATUS	1	PnP & RnD
21	SLAKE DURABILITY APPARATUS	1	RnD
22	RESISTIVITY METER WITH LUND IMAGING SYSTEM	1	PnP & RnD
23	JET FILL TENSIO METER	1	RnD
24	INPLACE INCLINOMETER	1	RnD

LIST OF SERVICES

No	Testing
1	SOIL MECHANICS ❖ Sieve Analysis ❖ Fine Analysis (Hydrometer Method) ❖ Atterberg Limits Test ❖ Particle Density ❖ Field Density ❖ Compaction Test
2	GEOTECHNICAL ❖ Unconsolidated Undrained (UU) ❖ Consolidated Isotropic Undrained (saturated and unsaturated) ❖ Consolidated Drain (CD) ❖ Unconfined Compressive Strength (UCS) ❖ One Dimensional Consolidation ❖ Direct Shear ❖ Permeability Test (fine and granular)

LIST OF SERVICES

No	Testing
	Cont. ❖ Electrical Resistivity Imaging (ERI) ❖ Field Monitoring Work ❖ Landslide Monitoring Work

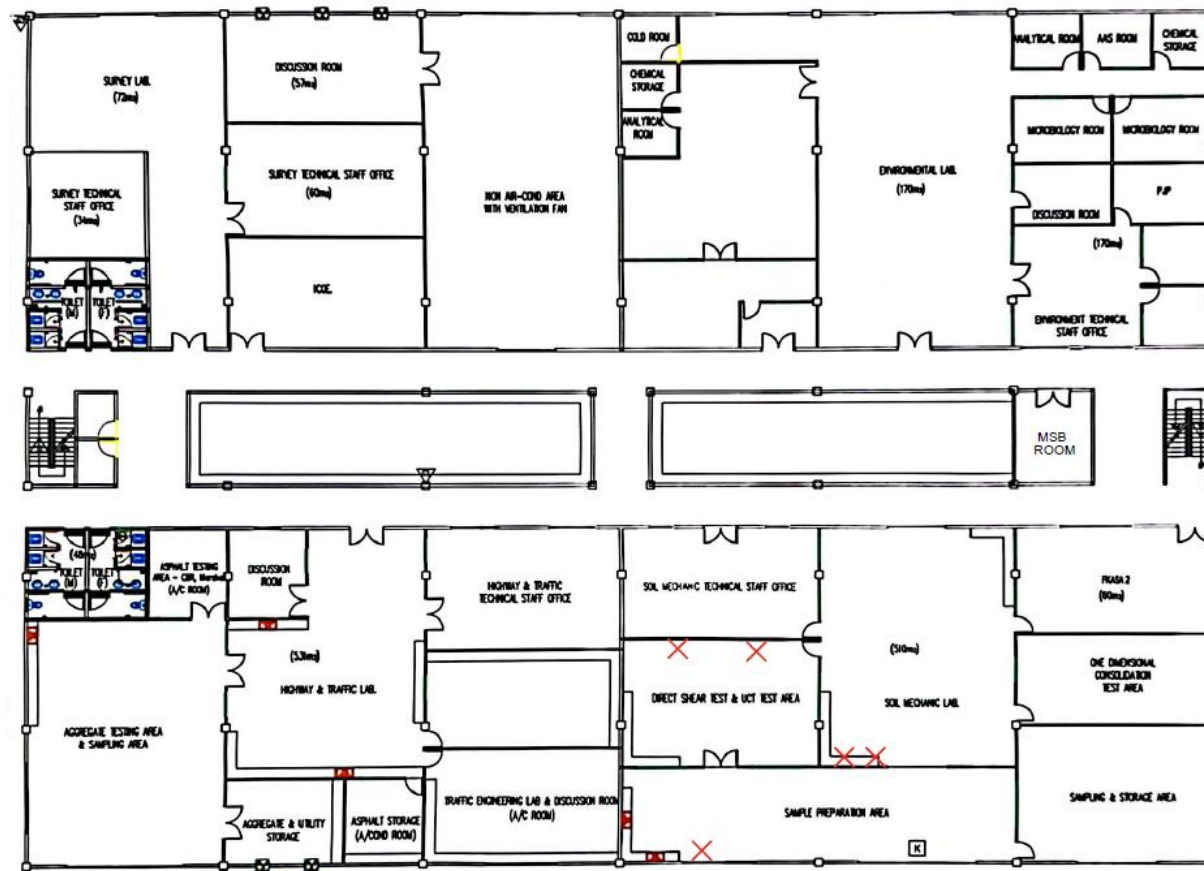
3 **ROCK TESTING**

- ❖ Rock Hardness
 - ❖ Slake Durability
 - ❖ Rock Shear
 - ❖ Point Load Test
 - ❖ Brazilian Test
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LAB LAYOUT

SOIL MECHANICS AND GEOTECHNICS LABORATORY (GROUND FLOOR)

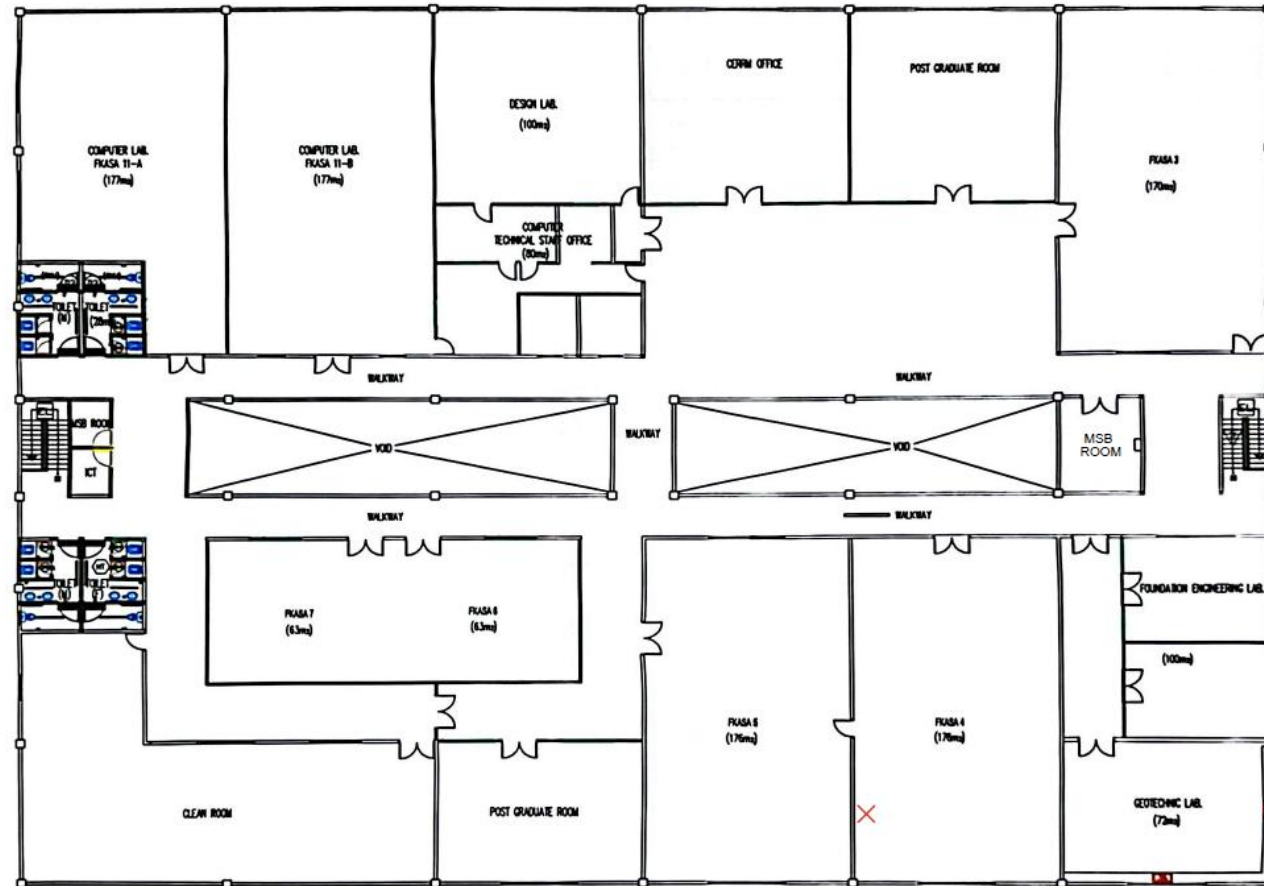
LAYOUT PLAN - GROUND FLOOR, SOIL MECHANICS & GEOTECHNICS LAB, FTKA



LAB LAYOUT

SOIL MECHANICS AND GEOTECHNICS LABORATORY (1st FLOOR)

LAYOUT PLAN - 1ST FLOOR, SOIL MECHANICS & GEOTECHNICS LAB, FTKA



LAB PICTURES

CYCLIC TRIAXIAL TESTING SYSTEM

Nature of Equipment

The combinations of these equipment are to determine the advance soil properties, characteristics, behavior and advance testing for researchers.



LAB PICTURES

AUTOMATED CONSOLIDATION & SWELL TESTING

Nature of Equipment

The test is carried out by applying a sequence of nine vertical loading and three unloading to laterally confined specimen having a height of 20mm and 50mm diameter.

The vertical compression under each load is observed over a period of time



LAB PICTURES

ONE-DIMENSIONAL CONSOLIDATION APPARATUS

Nature of Equipment

The test is carried out by applying a sequence of seven vertical loading and three unloading to laterally confined specimen having a height of 20mm and 50mm diameter.

The vertical compression under each load is observed over a period of time



LAB EQUIPMENT

FULLY AUTOMATED COMPUTER
CONTROL STRESS

AUTOMATED CONSOLIDATION &
SWELL TESTING

DIRECT/RESIDUAL SHEAR TESTING
MACHINE

UNCONFINED COMPRESSION
MACHINE

Nature of Equipment

The combinations of these equipment are to determine the advance soil properties, characteristics, behavior and advance testing for researchers.



LAB EQUIPMENT

VIBRATOR SIEVE SHAKER

AUTOMATIC COMPACTOR

MIXER

OVENS

Nature of Equipment

The combinations of these equipment are to determine the basic soil properties, characteristic and soil behavior such as texture, classification, and permeability.



LAB EQUIPMENT

AUTOMATIC PENETROMETER

HYDROMETER APPARATUS

Nature of Equipment

The combinations of these equipment are to determine the basic soil properties, characteristic and soil behavior such as texture, classification, and permeability.



LAB EQUIPMENT

POINT LOAD TEST

BRAZILIAN TEST

SLAKE DURABILITY

PORTABLE ROCK SHEAR

Nature of Equipment

The combinations of these equipment are to determine the rock properties, characteristic and behavior such as texture, hardness, and strength.



SITE INVESTIGATION EQUIPMENT

RESISTIVITY METER WITH LUND
IMAGING SYSTEM

JET FILL TENSIOMETER

Nature of Equipment

The combinations of these equipment are to carrying out investigations on land to determine whether there is contamination present and to collect sufficient, suitable data for the purpose of risk assessment without which the hazards in the ground beneath the site cannot be known.



SITE INVESTIGATION EQUIPMENT

PLATE BEARING APPARATUS

MOTORISED HAND AUGER

FIELD DENSITY TEST

Nature of Equipment

The combinations of these equipment are to carrying out investigations on land to determine whether there is contamination present and to collect sufficient, suitable data for the purpose of risk assessment without which the hazards in the ground beneath the site cannot be known.



RESEARCH SUPPORT SERVICES

The laboratory plays a key role in supporting research activities by providing advanced testing facilities, field investigation services and technical expertise to ensure accurate and high-quality research outputs.



CONSULTANCY & TECHNICAL SERVICES

The laboratory provides consultancy and technical services in geotechnical engineering, site investigation, laboratory testing and field sampling. With experienced technical staff and specialised equipment, the laboratory delivers accurate, reliable and high-quality services to support industry needs.



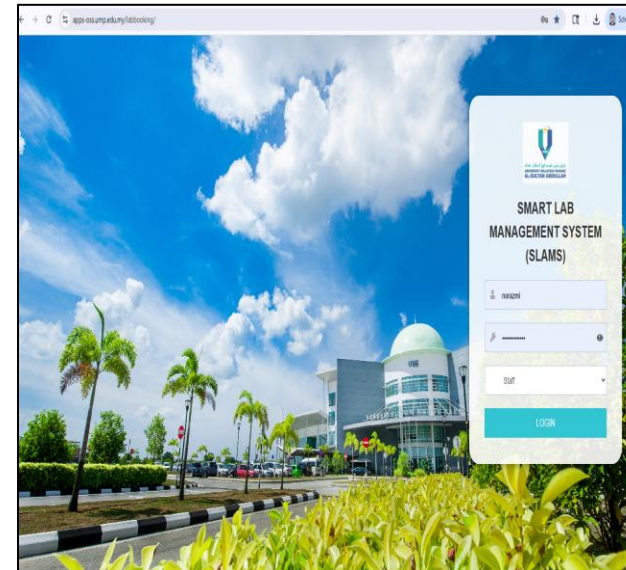
ACHIEVEMENT

The **FLOORSYS** team, comprising technical staff from the **Soil Mechanics & Geotechnics Laboratory** and members of the Faculty of Civil Engineering Technology (FTKA), Universiti Malaysia Pahang (UMP), was awarded a **Gold Medal** at the **16th Public University Innovative and Creative Group (KIK) Convention** held at **Universiti Tun Hussein Onn Malaysia (UTHM)** for developing the **Faculty Lab Online Open Reservation System (FLOORS)**.



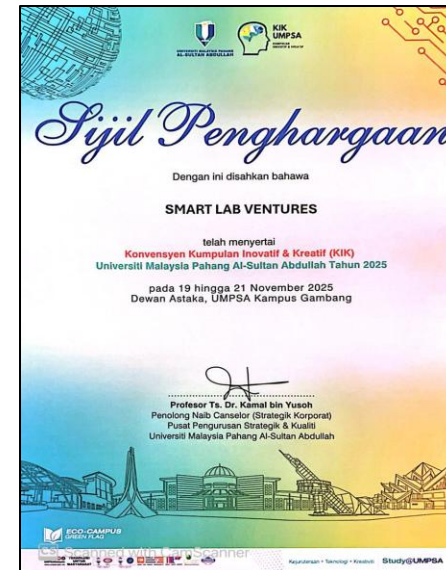
ACHIEVEMENT

The *Smart Lab Ventures* innovation project was honoured with the **Promising Award** and **Silver Rating Award** at the Innovative and Creative Group (KIK) Convention UMPSA 2024. These recognitions reflect the team's commitment to advancing digital innovation and improving laboratory management systems through the development of the *Smart Lab Management System (SLAMS)* at Universiti Malaysia Pahang Al-Sultan Abdullah.



ACHIEVEMENT

The innovation project **ACUTERRA** (Soil Testing Sample Preparation Device), developed by laboratory staff and Geotechnical Engineering lecturers, received the **Special Jury Award** and **Gold Rating Award** at the **UMPSA Creative and Innovative Convention (KIK) 2025**.



ACHIEVEMENT

Following its recognition at the **UMPSA Creative and Innovative Convention (KIK) 2025**, the innovation project **ACUTERRA** (Soil Testing Sample Preparation Device) further achieved a **Gold Award at Creation, Innovation, Technology & Research Exposition (CITREX) 2026, UMPSA**.

