Faculty of Engineering at Shoubra
Engineering Consulting and Studies Center

SOIL MECHANICS LABORATORY PROFILE

1st Edition

December 2011

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INTRODUCTION

Soil Mechanics Laboratory in Faculty of Engineering at Shoubra is a reputable soil mechanics laboratory offering his services to the public for more than 25 years. The laboratory located at 108 Shoubra Street, Cairo, Egypt.

The Laboratory has a complete, state of the art Infrastructure in the field of Physical, Mechanical, Chemical, Environmental testing and Geotechnical Investigation. We have state of the art equipment by top world leading manufacturers. All equipment is approved in accordance with the relevant International and Municipality Standards & Specifications.

The Laboratory is empowered with young, skilful and experienced professional to deliver quality services through provision of precise, reliable and timely results. All tests carried out in accordance with internationally accepted standards, procedures and specifications.

VISION

To be a Market Leader in Testing Services and to grow and to aspire towards complete customer satisfaction through quality services at the highest standards to all our customers.

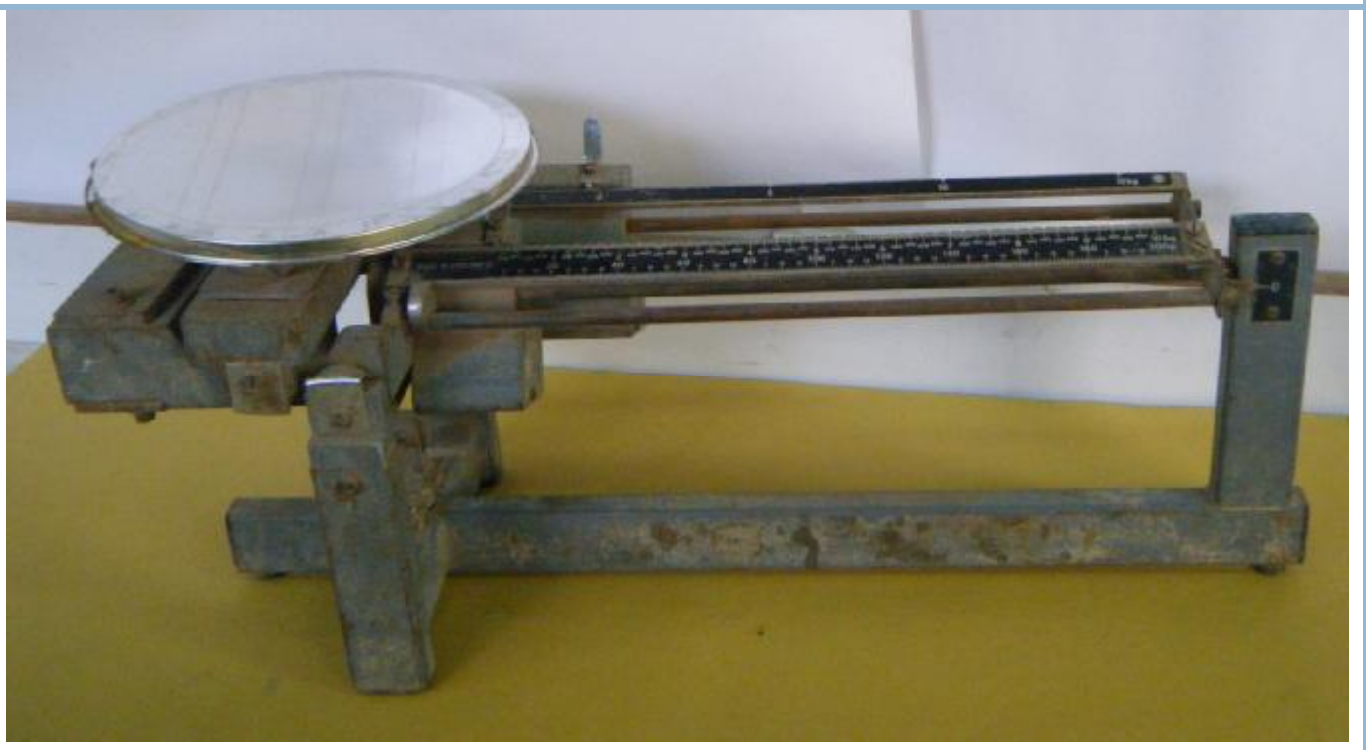
QUALITY POLICY

Soil Mechanics Laboratory in Faculty of Engineering at Shoubra is committed to perform sampling, testing, research, and subsurface investigation in the most efficient and accurate manner in accordance with international standards.

LIST OF LABORATORY EQUIPMENTS

In the following pages, a list of all the available equipments in the laboratory will be briefly introduced.

HEAVY DUTY BALANCE UP TO 15 KG



Specifications:	**Function:**
Heavy duty balance up to 15 kg with accuracy of 1.0 gm	Used for weighing of gravel and boulders.

HEAVY DUTY BALANCE UP TO 15 KG

Specifications:
Heavy duty balance up to 15 kg with accuracy of 1.0 gm

Function:
Used for weighing of gravel and boulders.

ELECTRONIC BALANCE

Specifications:
Electronic balance with accuracy of 0.01 gm

Function:
Used for weighing of fine grained soil.

DIGITAL BALANCE

Specifications:
Electronic balance with accuracy of 0.01 gm

Function:
Used for weighing of fine grained soil.

OVEN 225

Specifications:
Oven with capacity of 225 dc m^3, power of 1hp and 220 V.

Function:
Used for drying soil samples.

OVEN 100

Specifications:
Oven with capacity of 100 dc m^3, power of 1hp and 220 V.

Function:
Used for drying soil samples.

FLAT HEATER

Specifications:	**Function:**
Flat heater, 220 V.	Used for drying soil samples.

AUTOMATIC VIBRATOR

Specifications:
Automatic vibrator with direct current motor, 220 V.

Function:
Used for determination of specific gravity of the solid particles.

SPEEDY MOISTURE TEST APPARATUS

Specifications:	**Function:**
Cylinder with a measuring device.	Used for determination of water content of the soil.

CASSAGRAND'S DEVICE

Specifications:
The hard rubber base is formed in a mold to maintain the uniformity of hardness, size and density of all devices. Precision molded cam control parts and nylon bearings provide accurate cup drop and smooth operation.

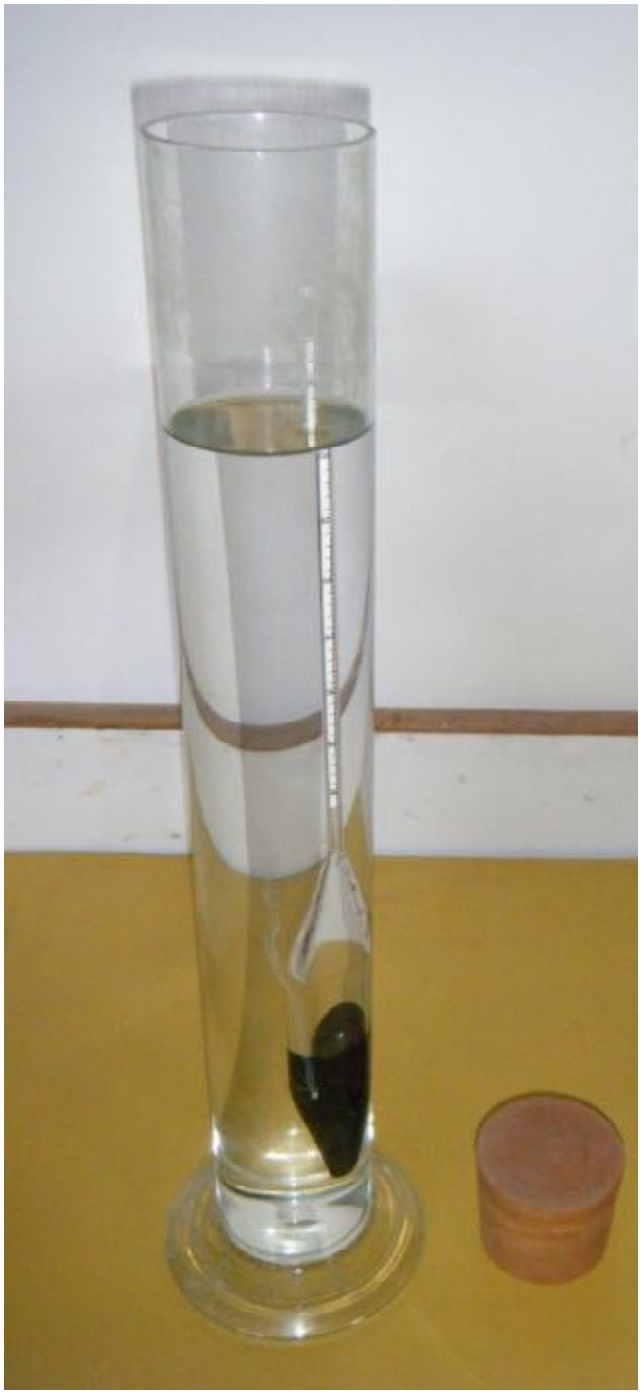
Function:
Used for determination of liquid limit for fine grained soil.

CONE PENETROMETER

Specifications:
The cone penetrometer test is based on the relationship between moisture content and the penetration of a cone into the soil sample under controlled conditions.

Function:
Used for determination of liquid limit for fine grained soil.

HYDROMETER



Specifications:
A conical glass filled with mercury graduated in mm.

Function:
Used for determination of grain sizes for fine grained soils.

SIEVES

Specifications:
A set of sieves mounted in a shaking device.

Function:
Used for determination of grain sizes for coarse grained soils.

STANDARD PROCTOR

Specifications:
A steel cylinder and 2.5 kg hammer.

Function:
Used for determination of compaction parameters using standard procedures.

MODIFIED PROCTOR

Specifications:	**Function:**
A steel cylinder and 4.5 kg hammer.	Used for determination of compaction parameters using modified procedures.

AUTOMATIC VIBRATOR

Specifications:
A motorized 2.5/4.5 kg hammer.

Function:
Used for determination of compaction parameters using standard or modified procedures.

AUTOMATIC COMPACTOR

Specifications:
A motorized 2.5/4.5 kg hammer.

Function:
Used for determination of compaction parameters using standard or modified procedures and determination of California Bearing Ratio.

CBR MOLD

Specifications:
A steel cylinder covered with perforated plate.

Function:
Used for determination of California Bearing Ratio.

CONSTANT HEAD TEST

Specifications:
Water tank to maintain the tank in a constant level, piezometers and a cylindrical cell.

Function:
Used for determination of permeability of coarse grained soil.

FALLING HEAD TEST

Specifications:
A standing pipe, piezometers and a cylindrical cell.

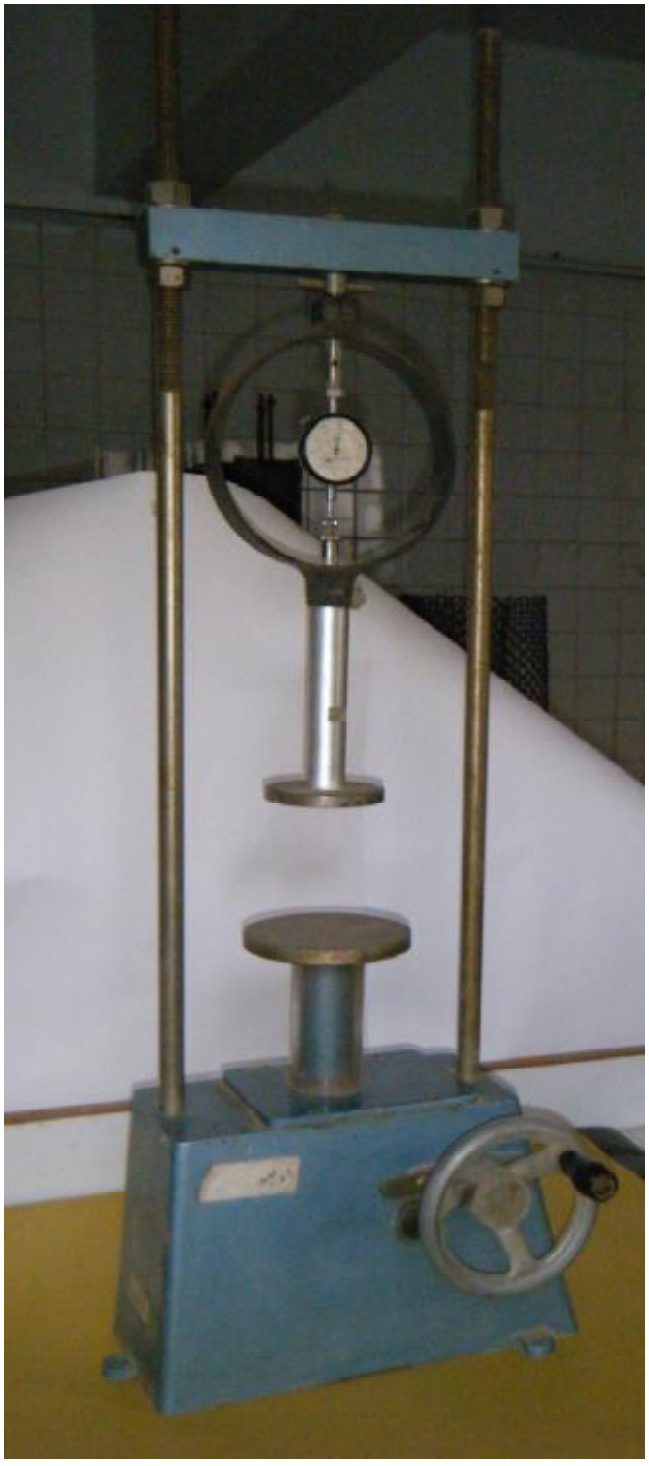
Function:
Used for determination of permeability of fine grained soil.

POCKET PENETROMETER

Specifications:
a measuring device with a metal head.

Function:
Used for determination of unconfined compressive strength of fine grained soils.

MANUAL UNCONFINED COMPRESSIVE STRENGTH



Specifications:
Unconfined compressive strength test apparatus works manually.

Function:
Used for determination of unconfined compressive strength of fine grained soils.

AUTOMATIC UNCONFINED COMPRESSIVE STRENGTH

Specifications:
Unconfined compressive strength test apparatus works automatically.

Function:
Used for determination of unconfined compressive strength of fine grained soils.

FIELD UNCONFINED COMPRESSIVE STRENGTH

Specifications:
Unconfined compressive strength test apparatus.

Function:
Used for determination of unconfined compressive strength of fine grained soils in field.

TRIAXIAL TEST

Specifications:
A triaxial test apparatus with water pressure tank and data logger.

Function:
Used for determination of shear strength parameters of soil.

Direct Shear Test

Specifications:
A direct shear test apparatus.

Function:
Used for determination of shear strength parameters of soil.

OEDOMETER

Specifications:
A metal cylinder with loading apparatus and measuring device.

Function:
Used for determination of consolidation parameters of fully saturated cohesive soil..

SOIL SAMPLES WASHER

PH METER

SAMPLES EXTRUDER

WAX SEALING

REVILS BOX

WATER HEATER

MIXER

VERTICAL EXTRUDER