

السيد الاستاذ الدكتور/ عميد كلية الهندسة

أ.د عصام الدين محمد علي

تحية طيبة وبعد ،،،

مرفق لسيادتكم تقرير عن برنامج زيارة السيد المهندس/ أيمن فتحي فراج السيد مدير إدارة المعايرة للاختبار في المجلس الوطني للاعتماد "إيجاك" لكلية الهندسة جامعة سفنكس يوم الخميس الموافق 2022/3/31 تمهيدا لإتخاذ اللازم نحو اعتماد المعامل الانشائية بكلية الهندسة وفقاً للمواصفة القياسية الدولية ISO/IEC 17025 من قبل المجلس الوطني لاعتماد المعامل "EGAC" حيث ان المجلس الوطني للاعتماد حاصل علي الاعتراف الدولي في مجال معامل المعايرة طبقاً للمواصفة القياسية الدولية ISO/IEC 17025 من منظمة التعاون الدولي لاعتماد المعامل (ILAC) على المستوى الدولي والمنظمة الأفريقية للاعتماد (AFRAC) على المستوى القاري والجهاز العربي للاعتماد (ARAC) على المستوى الإقليمي. و كان برنامج الزيارة يشمل التالي .:

1- ندوه تعريفية عن المجلس الوطني للاعتماد "إيجاك" و تحتوي نقاط محددة وهي:

Egyptian Accreditation Council "EGAC"

- نظام الاعتماد الدولي
 - جودة البنية التحتية للاعتماد
 - نطاق الاعتماد
 - المستندات المطلوبة للاعتماد
 - متطلبات EGAC للاعتماد
- الأقسام الرئيسية من ISO / IEC 17025: 2017

2- المرور على المعامل الإنشائية لتحديد الأجهزة التي يتم معايرتها

هي مجموعة من عمليات القياس التي تتم تحت ظروف محددة باستخدام أجهزة وأدوات قياس مسندة الي وتحدد هذه العمليات مدى دقة أجهزة SI المعايير القومية أو الدولية التي تحقق وحدات النظام الدولي للقياس القياس وملاءمتها للغرض المستخدمة من اجله ومدي مطابقتها للنظام الدولي للقياس طبقا لمعايير دولية محددة ويتم تحديد خصائص أجهزة وأدوات القياس عن طريق إيجاد العلاقة بين القيمة الحقيقية والقيمة المقاسة تم المرور علي (معمل الطرق – معمل خواص المواد و اختبار الخرسانة- معمل خواص و اختبار المواد- معمل التربة و الاساسات) برفقة بعض من مهندسي الإدارة الهندسية لاختيار بعض الأجهزة في المرحلة الاولى لعمل (وذلك طبقا للمواصفات القياسية الدولية تمهيدا لاعتماد المعامل وفقاً (ILAC) لها معايير معتمده من "EGAC من قبل منظمة التعاون الدولي لاعتماد المعامل "ISO/IEC 17025 للمواصفة القياسية الدولية

مرفق جدول باسم الجهاز المقترح معايرته و استخدامه و ملحقاته المطلوب معايرتها طبقا للكودصفحة (4-11
(.علي ان يتم اختيار جهاز او اكثر علي حسب حاجة و سوق العمل مبدئيا

أن عملية المعايرة تركز على الأركان التالية

- (SI). المرجع المعياري: .معدّة فحص وقياس: -
- (درجات الحرارة / الخلو من الاتربة) نسبه (Laboratory) المعمل - (Metrologist) أخصائي قياس -
- الرطوبة / البعد عن الاهتزازات والصدمات الميكانيكية / البعد عن المجالات الكهربيه والمغناطيسيه ومصادر ها
- و البعد عن مصادر الحرارة مثل اشعة الشمس و غيرها
- (Calibration Records) سجلات المعايرة (Procedure) الدليل الإجرائي -
- (Calibration Certificate) شهادة المعايرة -

3- توضيح تفاصيل ومحاور البرنامج التدريبي ISO / IEC 17025: 2017

يقدم هذا البرنامج تأهيلاً وافياً حول نظام ادارة الجودة لمعامل الاختبار والمعايرة طبقاً لمتطلبات المواصفة ويهدف الى صقل خبرات المشاركين العملية والتطبيقية في هذا التخصص .ISO 17025/2017 الدولية

(مرفق صفحة 11 أسماء الدورات و محتوياتها)

لمن هذا البرنامج التدريبي

- مديري معامل الاختبار والمعايرة
- مسئولي الجودة في معامل الاختبار والمعايرة

- الافراد الراغبين في العمل في هذا التخصص

المحاور التي سيتم دراستها في هذا البرنامج التدريبي

- مقدمة عن نظام إدارة الجودة لمعامل الإختبار و المعايرة
 - جهات الاعتماد العالمية لمعامل الإختبار و المعايرة
 - فوائد الحصول علي الاعتماد الدولي
 - عناصر القوة في المعمل المعتمد
 - الفرق بين شهادة ISO 9001 وشهادة اعتماد معامل الإختبار و المعايرة
 - بنود المواصفة القياسية : ISO/IEC 17025:2017

المجال scope

المراجع المعيارية Normative references

مصطلحات وتعريفات Terms and definitions

المتطلبات العامة General requirements

المتطلبات الهيكلية Structural requirements


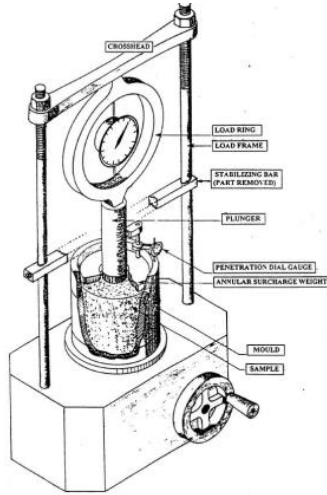
متطلبات الموارد Resource requirements

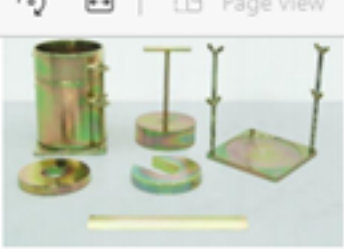




متطلبات العملية Process requirements




متطلبات نظام الإدارة Management system requirements ○





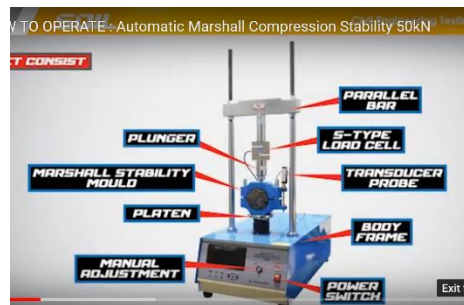
- الوثائق والملفات والسجلات طبقا للمواصفة 17025 : 2017
- المراجعات الداخلية لنظام إدارة الجودة لمعامل الاختبار و المعايرة
- برنامج وخطوات الاعتماد لمعامل الاختبار و المعايرة


Road Lab.



Standard Test device	<i>measure the soil density and therefore its strength</i>	
Equipment tested name	<i>California Bearing Ratio CBR-Test 50</i>	
Product stranded code	<i>BS 1377, EN13286-47 and ASTM D1883</i>	
<i>calibration of the devices used during the test stages</i> ملحوظة القوالب الموجودة غير متوافقة مع الجهاز ولا يمكن استعمالها	<p><i>a) A cylindrical metal plunger, the lower end of which shall be of hardened steel and have a nominal cross-sectional area of 1935 mm², corresponding to a specified diameter of 49.65±0.10 mm. A convenient size would be approximately 250 mm long.</i></p> <p><i>b) A machine for applying the test force through the plunger, having a means for applying the force at a controlled rate. The machine shall be capable of applying at least 45 kN at a rate of penetration of the plunger of 1 mm/min to within ±0.2 mm/min.</i></p> <p><i>c) A calibrated force-measuring device, usually a load ring or proving ring. The device shall be supported by the cross-head of the compression machine so as to prevent its own weight being transferred to the test specimen Note. At least three force-measuring devices should be available, having the following ranges : 0 to 2 kN readable to 2 N for values of CBR up to 8% 0 to 10 kN readable to 10 N for values of CBR from 8% to 40%, 0 to 50 kN readable to 50 N for values of CBR above 40%</i></p> <p><i>d). A dial gauge with 25 mm travel, reading to 0.01 mm and fitted to a bracket attached to the plunger is suitable.. A dial gauge indicating 1</i></p>	




	<p><i>mm/revolution is convenient since the specified rate of penetration of</i></p> <p><i>1 mm/min can be controlled conveniently by keeping the hand of the dial gauge in step with the second hand of a clock or watch. This is particularly convenient when using a non-motorised loading frame.</i></p> <p><i>e) A stop-clock or stopwatch readable to 1 s.</i></p> <p><i>f) The CBR mould as described</i></p> <p><i>g] Swell Plate and Gauge Used to observe the swell of a soaking soil sample. As the perforated plate rises a dial gauge displays the swell</i></p> <p><i>h) Modified Proctor Test Standards ASTM D1557-91</i></p>	  
<p>Specific Test name</p>	<p><i>compact specimens automatically and uniformly,</i></p>	
<p>Equipment tested name</p>	<p><i>Automatic soil Compactor, ASTM</i></p>	
<p>Stranded test</p>	<p><i>ASTM D2168,</i></p>	
<p>Calibration Certification Requirement</p> <p>ملحوظة القوالب الموجودة غير متوافقة مع الجهاز ولا يمكن استعمالها</p>	<p>These machines automatically compact specimens eliminating the laborious hand compaction method. <u>The height and weight of the rammer is adjustable to suit test requirements.</u> An automatic blow pattern ensures optimum compaction for each layer of soil.</p> <p><u>The rammer travels across the mould and the table rotates the mould in equal steps on a base that is extremely stable.</u></p> <p><u>The number of blows per layer can be set at the beginning of the test</u></p>	 

	<p>Calibration Includes:</p> <ul style="list-style-type: none"> • Auto Compactor • Round Compaction Hammer • Pie-Shaped Hammer • Hammer Surcharge Weight (to convert hammers to 10lb) • Hammer Safety Device • 4" Mold • 6" Mold • 1 Year Limited Warranty (from time of purchase) 	
Specific Test name	<i>Automatic Compaction and degree of compaction</i>	
Equipment tested name	<i>Auto comp 100-A Marshall Compactor BS</i>	
Stranded test	<i>BS 598-107</i>	
Calibration certification	<p>The unit incorporates a compaction pedestal comprising a laminated hardwood block secured to a concrete base by a 300 mm square x 25 mm thick steel plate.</p> <p>The mechanism lifts the 4535 g hammer and automatically releases it at the specified height of 457 mm.</p> <p>The conveniently positioned control fascia panel comprises of a mains light, start and stop buttons and a direct-reading counter used to set the required number of blows.</p> <p>Calibration Includes:</p> <p>Compaction Mold</p>	  
Specific Test name	<i>Indicate aggregate toughness and abrasion characteristics.</i>	

Equipment tested name	Los Angeles Absorption machine	  
Stranded test	ASTM:C131	
Calibration certification	<p>The machine consists of a rolled steel drum having an inside dia. of 711 mm and internal length 508 mm.</p> <p>The drum is rotated by a speed reducer driven by an electric motor at a speed of between 31 and 33 r.p.m.</p> <p>The machine is equipped with an automatic counter, which can be preset to the required number of revolutions of the drum or the total working time.</p> <p>The unit is supplied without the abrasive charge, which has to be ordered separately depending on the standard in use</p> <p>Sieves analysis</p> <p>Electric sensitive digital balanced Digital Thermostat Laboratory Oven</p>	
Specific Test name	determine the maximum load and flow values of bituminous mixtures.	 
Equipment tested name	Automatic Marshall Stability Machine	
Stranded test	ASTM D1559	
Calibration certification	<p>The Marshall is composed of a robust and compact two-column frame with an adjustable upper cross beam driven by an electro-mechanical ram with a maximum capacity of 50 KN and a data acquisition and processing system.</p> <p>The Marshall Stability Machine can be hand operated by a lateral hand wheel for calibration purposes.</p> <p>The mechanical jack raises the lower cross beam at a constant speed of 50.8 mm/min.</p> <p>The limit switches are provided for both, bottom and top limit of travel.</p>	

	<p><i>The Automatic measuring system consists of a 50KN capacity strain gauge load cell that is fitted to the upper cross beam to read stability values and 25 mm x 0.001 mm displacement transducer fitted to Break Head</i></p> <p><i>The Manual measuring system consists of a 50 KN capacity load ring and dial gauge graduated 0.01 mm with 25 mm travel.</i></p> <p><i>The Marshall Stability Machine comes complete with a lateral hand wheel for calibration purposes and a 100 mm breaking head.</i></p>	
<p><i>Reinforced concrete and material lab</i></p>		
<p>Specific Test name</p>	<p>determine compressive, splitting and flexural strengths,</p>	
<p>Equipment tested name</p>	<p><i>Compression Machine-36-3320/01 with Digital Readout and Self Centring Platens. ADR Touch SOLO 3000 BS EN</i></p>	
<p>Stranded test</p>	<p><i>BS EN 12390-4,</i></p>	
<p>Calibration certification</p>	<p><i>The force calibration of compression and flexural testing machines may be performed by using load cells connected to a digital tester.</i></p> <p><i>We propose a comprehensive range of measuring instruments for force verification and calibration of various testing machines. It includes load cells, ranging from 5 kN to 3,000 kN, digital indicators for force verification and for load transfer verification according to the main International Standard. Traceable calibration certificate for load cells should be purchased when they are first connected to a digital indicator. As an alternative, the official ACCREDIA calibration certificate can be purchased instead.</i></p>	

Specific Test name	definitive tensile strength, yield strength, highest elongation and reduction and modulus	
Equipment tested name	Tensile testing machine	
Stranded test	□ ASTM A962	
Calibration certification	<p>tensile or tension test method, These testers help measure its unique characteristics such as definitive tensile strength, yield strength, highest elongation and reduction and modulus. Every tensile test machine is configured according to your testing requirements with appropriate controller, grips and required accessories.</p> <p>Elevated Temperature Tensile Testing</p>	
	<p>Tensile testing machine is calibrated before tensile testing machine will do the work, in order to ensure the accuracy of measurement. Tensile testing machine calibration is divided into the following two:</p> <p>1, the tensile strength of the test machine calibration tensile test machine into the computer program to open the calibration interface, press the test button to start, take a standard weight weight hanging on the fixture connection, record the computer to display the power value, and calculate the weight difference with the standard weight, the error should not More than ± 1%.</p> <p>2, the tensile testing machine speed calibrate (1) First record the initial position of the machine crossbar, select the speed value on the control panel (using the standard straight steel ruler crossbar trip). (2) (2) At the same time as the device starts, the electronic stopwatch starts counting and the stopwatch reaches the time while pressing the machine stop key. According to the time of the stopwatch, the crossbar stroke value is recorded as the rate per minute (mm / min) The difference between the stroke value and the straight bar, and calculate the crossbar trip. The error value should not exceed ± 1%.</p>	
	Determination of Flakiness and Elongation	
	Digital calipers	
	BS 812-105	
	Since a caliper is a length-measuring device, gage blocks are the go-to standard, but there are special kits available that provide different	

	versions of length standards for checking the caliper. When checking any measuring device, make sure to check the full range of the instrument, say 25, 50, 75 and 100% of the measuring range	
Specific Test name	Dial indicators translate small linear distances into rotational movement to measure dimensions to 4.000", with accuracies up to 0.0001".	
Equipment tested name	Dial Indicator Accuracy	
Stranded test	Standard: ANSI B89.1.10 Dial Indicators (for Linear Measurement)	
Calibration certification	Comparison readings between a dial indicator and either precision gauge blocks (method A) or a micrometer fixture (method B) are used to determine the accuracy, repeatability, and hysteresis of the dial indicator. The results are used to evaluate the acceptability of dial indicators for laboratory and field use	
Specific Test name	Digital Thermometer for Temperature Measurement of Freshly Mixed Concrete. Temperature Range:	
Equipment tested name	Digital thermometer from -50 to 200 C	
Stranded test	Locate the calibration control for the thermometer. Usually this is either a thumbscrew or nut somewhere along the side or back of the thermometer. When you turn it, either the needle or dial behind it should move slightly. Prepare a condition where you have a known temperature to which you can calibrate your dial thermometer. An ice water bath is the easiest and safest possible way to do this ...	

3- ISO/IEC 17025: 2017 Training Course Overview

1- Understanding ISO/IEC 17025:2017 for Testing & Calibration Laboratories.

- ☐ Understand requirements of [ISO/IEC 17025:2017](#),
- ☐ Learn practical concepts, such as impartiality, documents control, ensuring validity of results and risk management
- ☐ Gain an understanding of an ISO/IEC 17025:2017 laboratory management system
- ☐ Be familiar with the structure and content of ISO/IEC 17025:2017
- ☐ Understand the structure, scope and applicability of the standard in the laboratory
- ☐ Learn what records and documents are required for laboratories ☐

2- ISO/IEC 17025: 2017 Internal Auditing

- ☐ Detailed understanding of the clauses of ISO/IEC 17025 - 2017 standard.
- ☐ How to implement ISO/IEC 17025 requirements in a test or calibration laboratory.
- ☐ Skill for auditing laboratory activities for ISO/IEC 17025 - 2017.

Preparation of laboratory documents such as quality manual, system procedure etc.

3-MEASUREMENT UNCERTAINTY - FOR ALL ISO/IEC 17025 LABORATORY.

- ☐ Clear understanding of Basic Statistical Concepts.
- ☐ Understanding a calibration or testing activity (including microbiological testing) in terms
- ☐ Will be able to estimate measurement uncertainty for all Calibrations,
- ☐ Will be able to formulate effective Quality Control Plan for the laboratory utilizing ☐ .

مقدم لسيادتكم:

منسق البرنامج: د/ لمياء كمال ادريس