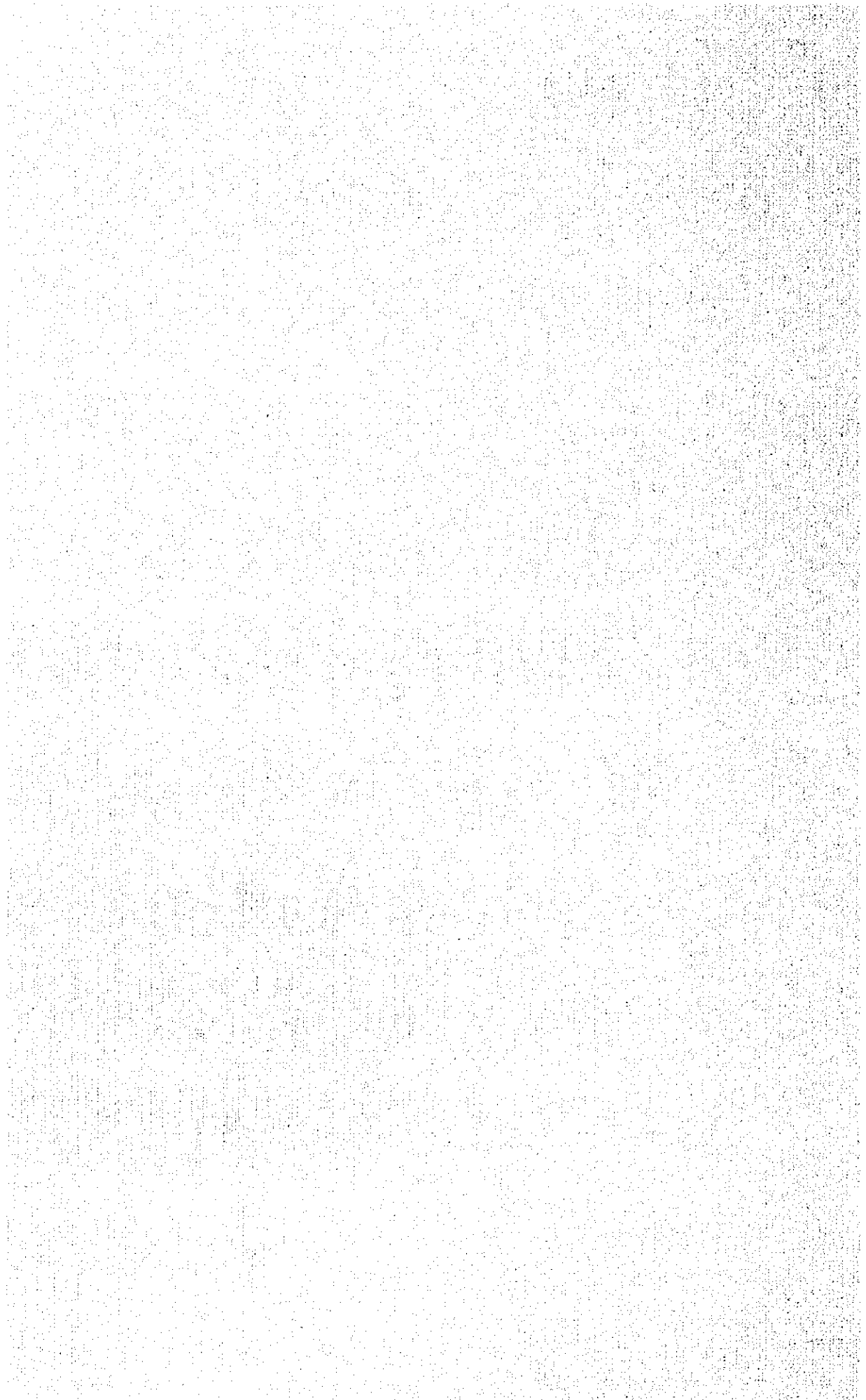
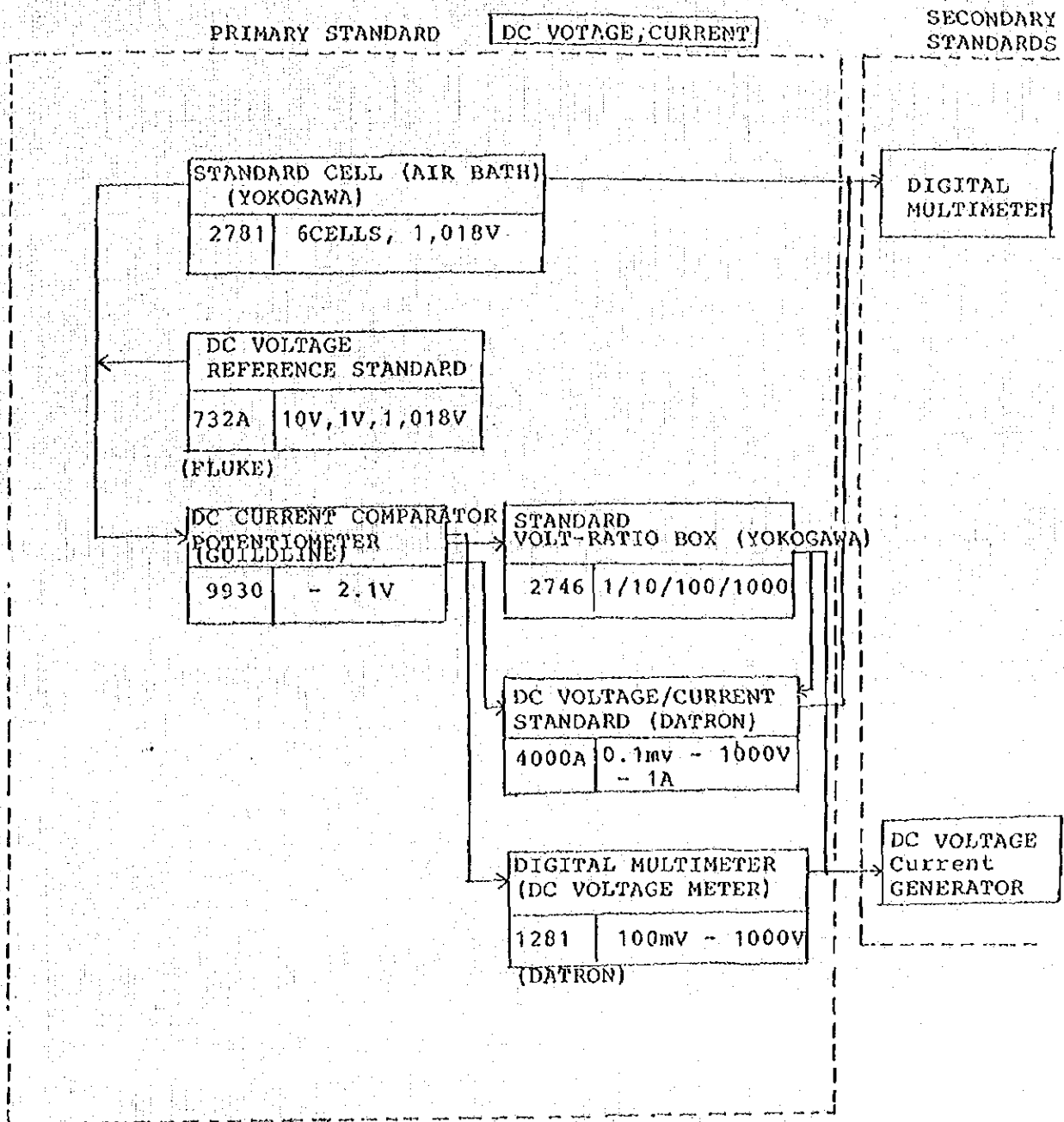


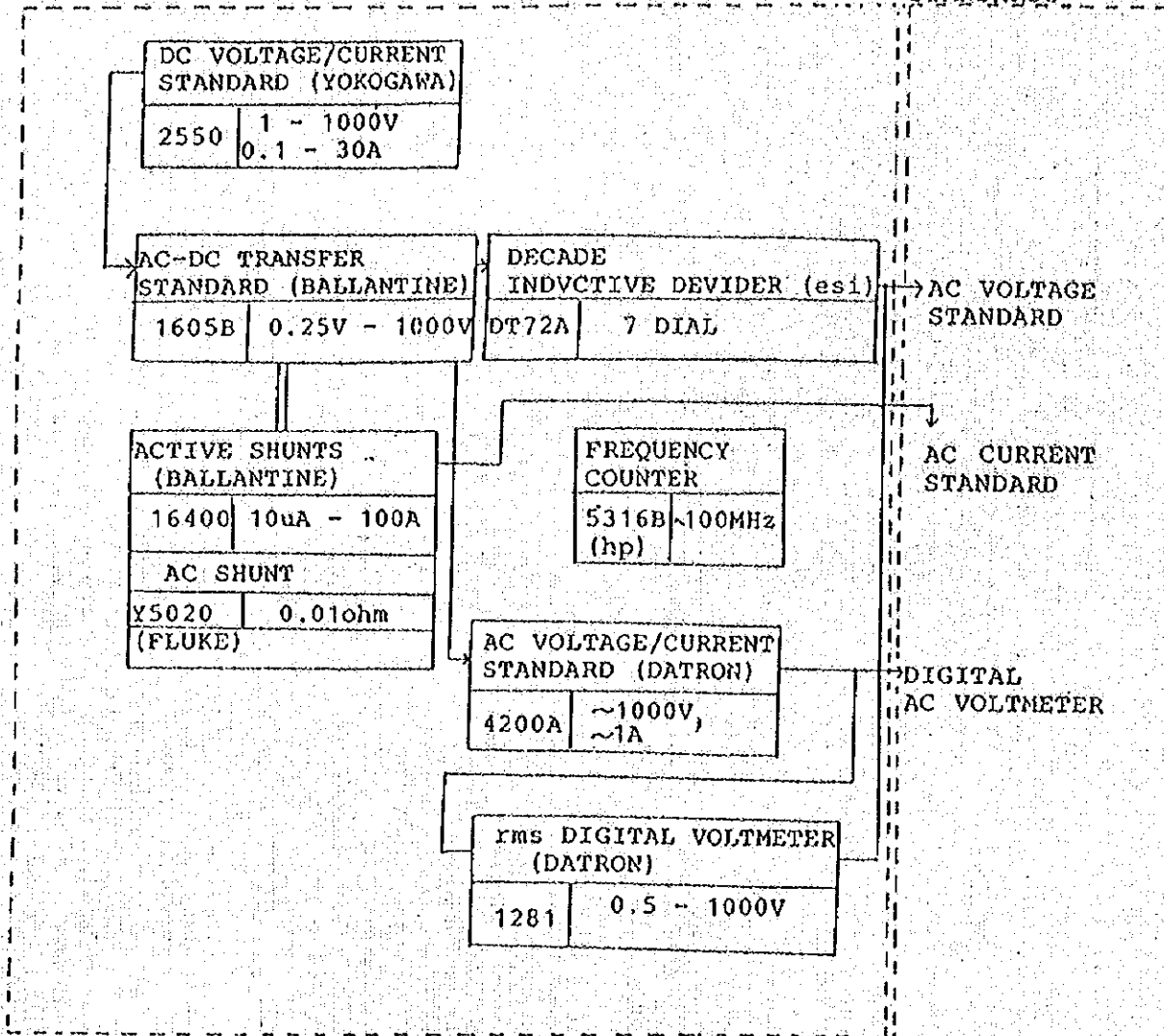
A N N E X - 7 -





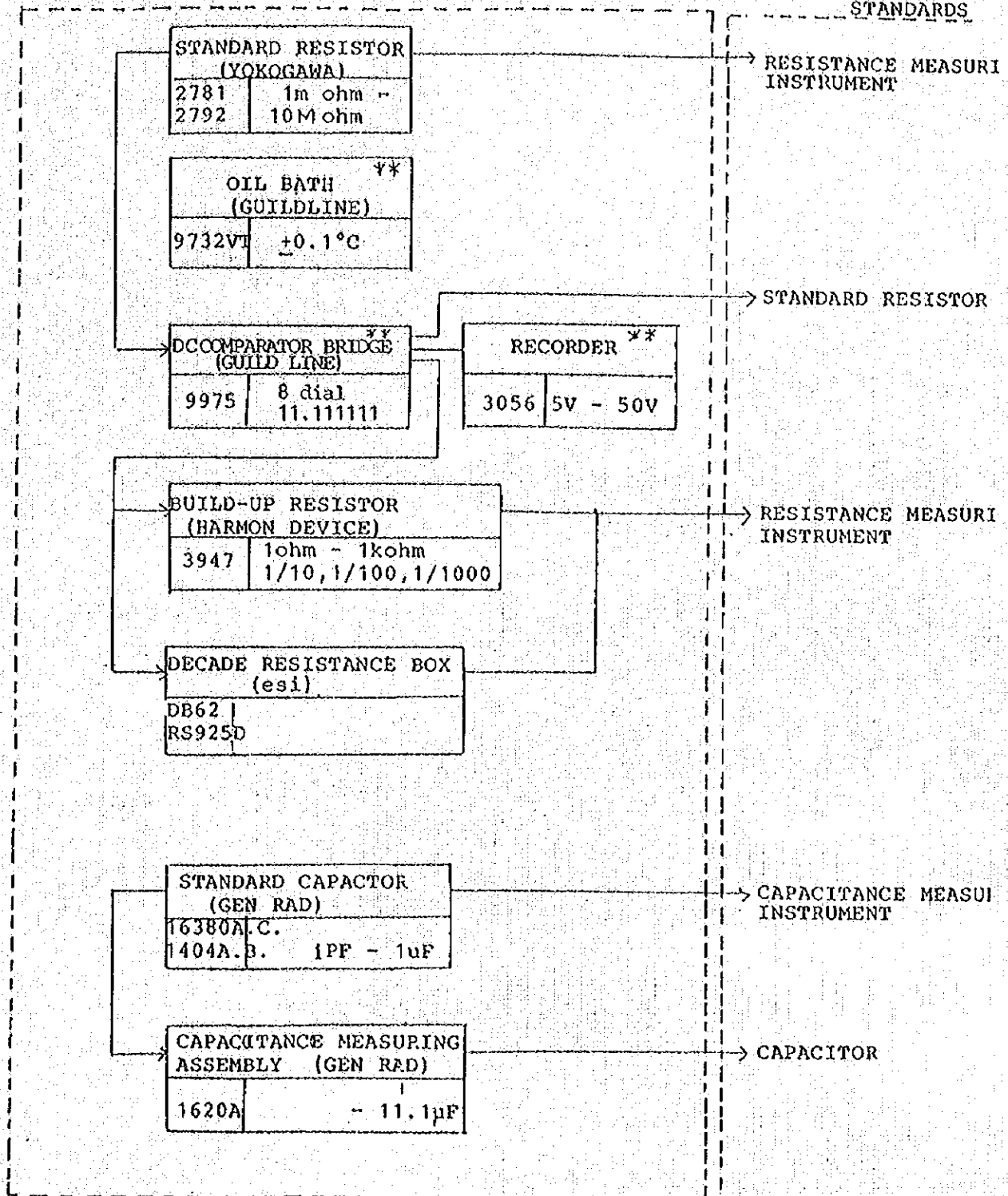
PRIMARY STANDARDS AC VOLTAGE, CURRENT

SECONDARY STANDARDS



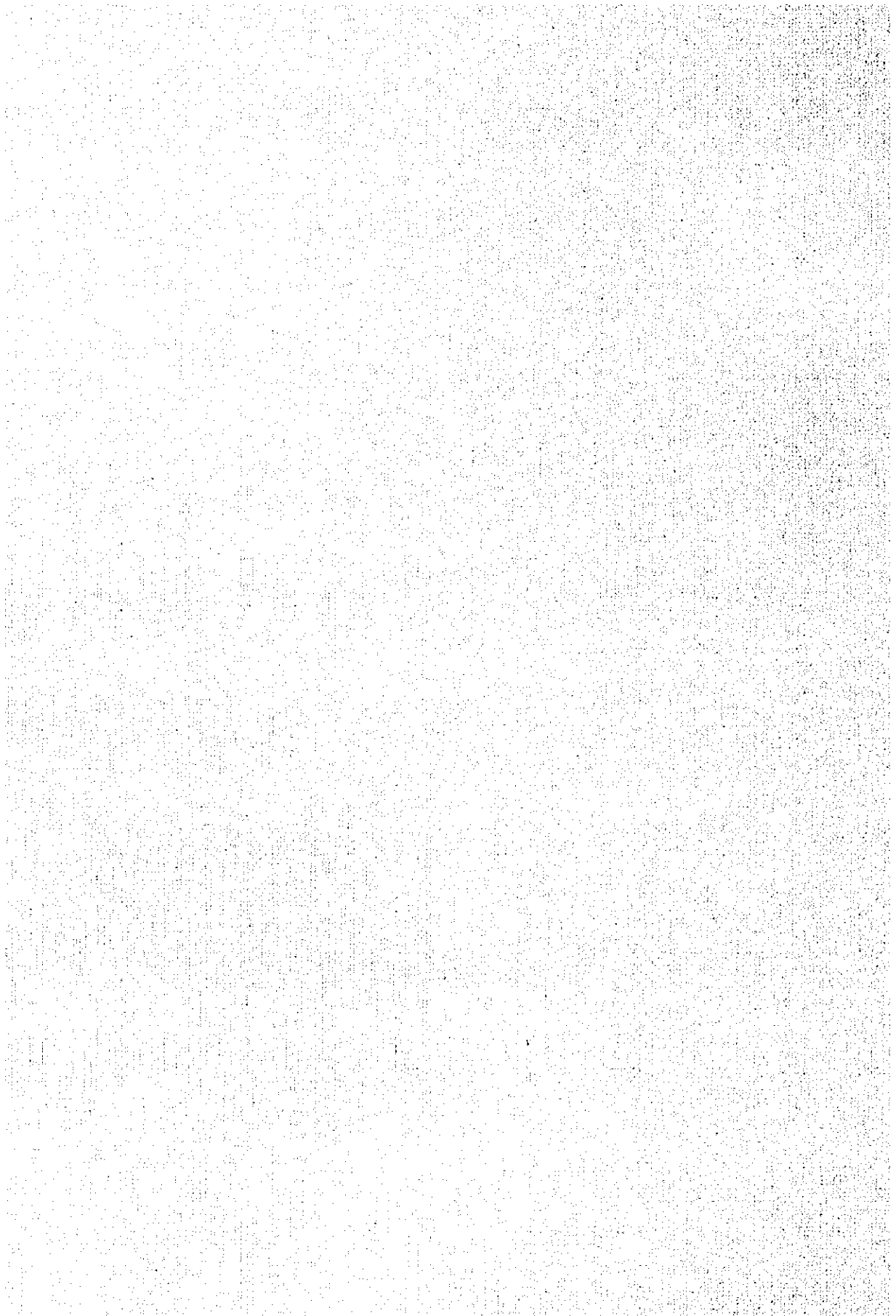
PRIMARY STANDARD RESISTANCE, CAPACITANCE

SECONDARY STANDARDS



[The page contains extremely faint and illegible text, likely due to low contrast or scanning quality. The text is arranged in several paragraphs, but the characters are too light to be transcribed accurately.]

A N N E X - 8 -





ANNEX - -

Requirements for actual laboratories

- DC labs.
- AC lab.
- Tem. lab.
- RF lab.
- Rep. lab.

EQUIPMENTS NEEDED FOR DC&RC LABORATORY

P	TYPE	DESCRIPTION	Manufacturer	QTY.
1	9923	Range Etender; for measuring standard resistors from 0.001 ohm-0.1 ohm at DC current from 1 A to 100 A Accuracy : 0,5 ppm Ratios : 1000: 1 , 100: 1 , 10 , 1	Guild line	1
2	9730 CR	Constant temperature oil baths , temperature stability $\pm 0.002$ °C chamber capacity , 93 liters (25 gallons )	Guild line	1
3	720 A	Kilven - vary voltage divider ; Ratio range: 0 to 1.0 and 0 to 1.1, Resolution : 0.1 PPM, "seven decaded" Absolute linearity: $\pm 0.1$ PPM	Fluke	1
4	721 A	Lead Compensator Resolution of resistance compensation: 0.1 m ohm Max ratio between divider resistance: 4000/1	Fluke	1
5	1404 - C	10 PF standard Capacitor stability : 20 PPM/year	G.R	1
6	1404	1 PF standard capacitor	G.R	1
7	1422 - cL	Precision capacitor Capacitance range: from 10 PF to 110 PF Scale, PF/Division : 0.02 Stabilty: 0.02 %/ Year Accuracy: $\pm 0.6$ PF	G.R	1
8	1406 - A	1000 PF coaxial capacitance standard stabilty : 0.05 %/year Dissipation factor : $50 \times 10^{-6}$ at 1 Mhz	G.R	1
9	1406 - D	100 PF coaxial capacitor standard stability : 0.05 %/ Year Dissipation factor: $20 \times 10^{-6}$ at 1 MHz	G.R	1

P : Prioriyt

EQUIPMENTS NEEDED FOR DC&RC LABORATORY

P	TYPE	DESCRIPTION	Manufacturer	QTY.
10	1615 - P 2	Coaxial Adapter	G.R.	1
11	1232 - A	Tuned amplifier and null detector Frequency response: 20Hz to 20 KHz Sensitivity : 0.1 $\mu$ V	R.R	2
12		Standard Capacitors : From 10 $\mu$ F to 1 MF Accuracy : $\pm$ 0.01 %		1
13	1491 - G	Decade inductor : Inductance range:0.0001 H to 11.111 H	R.R	1
14	1482 - L	Standard Inductor Inductance : 100 mH Accuracy : $\pm$ 0.1 % Stability : $\pm$ 0.01 % / Year	G.R	
15		Tunable phase and amplitude detector Lock in amplifier EG type 5208		1
16		Insulation transformer " for capacitance measurements"		2
17	2792 - 09	100 K ohm, standard resistor, Accuracy : $\pm$ 20 PPM	Yokogawa	1
18	2792 - 10	1 M ohm standard resistor, Accuracy: $\pm$ 50 PPM	Yokogawa	1
19	2792	10 M ohm standard resistor , Accuracy : $\pm$ 50 PPM	Yokogawa	1
20	2804 Pt - 100	Digital Resistance thermometer Probe	Yokogawa Yokogawa	1 1

P : Priority

EQUIPMENTS NEEDED FOR DC&RC LABORATORY

P	TYPE	DESCRIPTION	Manufacturer	QTY.
21	6500	Digital Teraohmmeter Range : $10^5$ to $10^{16}$ ohm or $10^{12}$ to $10^{-4}$ amps. Test voltage : from 1 V to 1000 V	Guildline	1
22		Megohm resistor Range : $10^9$ to $10^{16}$ ohm		1

P : Priority

EQUIPMENTS NEEDED FOR AC LABORATORY

P	TYPE	DESCRIPTION	Manufacturer	QTY.
2		AC current source O/P 0 ~15 A Freq. 1 KHz		1
1		AC Null detector		1
5		AC generator with variable phase & Ampalitude		1
3		AC voltmeter Range 1 mV		1
6		Isolation transformer KROHN-HITE		1
4		AC transformer calibartion system range up to 6.6 KV.		1

P : Priority

EQUIPMENTS NEEDED FOR RF LABORATORY

P	TYPE	DESCRIPTION	Manufacturer	QTY.
17	MA 610 A	50 ohm to 75 ohm impedance convertor; N type	Anritsu	8
18		BNC to BNC 50 ohm to 75 ohm impedance convertor; 75 ohm to 50 female 50 ohm to 75 female		5 each
19		BNC cables 75 ohm 0.5 m , 1m , 1.5m 2m, 3 m ...		5 each
20		N type cables 75 ohm the same above		=
21	MA 4603 A	Power sensor 75 ohm [100K - 2 GHz] [-30dB - +20dB]	Anritsu	4
22		Power sensor 50 ohm [ 100K - 10 mHz ] [-60dB - -20dB m]		4
23	BNC	50 ohm feed through, 2w for calibrating counters		10
24	436 A	Power meter	h.p	3
25	11692 D	Dual directional	h.p	1
26	8484 A	Power sensor	h.p	2
27	8481 A	Std power sensor	h.p	1
28	11583 A	Attenuator set	h.p	1
		Global positioning system Gps. Antenna Receiver/Processor with RS232 & GPIB capability Frequency standard & Digital clock PC with RS 232 & GPIB capability		

P : Priority

EQUIPMENTS NEEDED FOR RF LABORATORY

P	TYPE	DESCRIPTION	Manufacturer	QTY.
1		Time interval counter		2
2		True RMS millivoltmeter		
6		Pulse generator with		1
4		Extend printed circuit	HP	1 set
3		Programable filter; Fc 140KHz 1.2 GHz Outoff band att. 50 dB		2
1		Termination 75 ohm feed through BNC and N type		
		Termination 50 ohm feed through BNC and N type.		
		Termination 600 ohm feed through BNC and N type		
		Termination 300 ohm feed through BNC and N type		
1		Directional bridge for 75		1
14		IEEE 488 cable s for GPIB interface 2 mm		6
13		instruments made by Anritsu	Anritsu	
9		Logarithmic level meter		1
10	ME 642 A Or WITRON	Level and Attenuation calibration receiver	Anritsu	1
13	MS61A0/hp 8901 A	FM linear detector 500 Khz-1300MHz	Anritsu/hp	2
12	8901	AM linear detector 250K-1300 Hz AM modulation factor residual AM	Hp	1
8	11667 A	Power splitter	Hp	1
1		Adaptor 75 ohm (4 cases; N to BNC	HP	5 each

P : Priority

EQUIPMENTS NEEDED FOR RF and Time LABORATORY

P	TYPE	DESCRIPTION	Manufacturer	QTY.
		Global positioning system GPS . Antenna Receiver / Processor with RS 232 & GPIB capability Frequency standard & Digital clock PC with RS 232 & GPIB capability		

P : Priority



EQUIPMENTS NEEDED FOR TM LABORATORY

P.	TYPE	DESCRIPTION	Manufacturer	QTY.
1	2553	DC voltage standard	Yokogawa	1
2	2793	Standard Decade resistance box 0.1 k ohm 50 mA	=	1
4		Furnace with big calibration hole		
5		Small Dewar Jar ;		2
6		Filter to protect against NAOH and HCL		
3	2792	Standard Resistance 1 K ohm , 50 PPM	Yokogawa	1

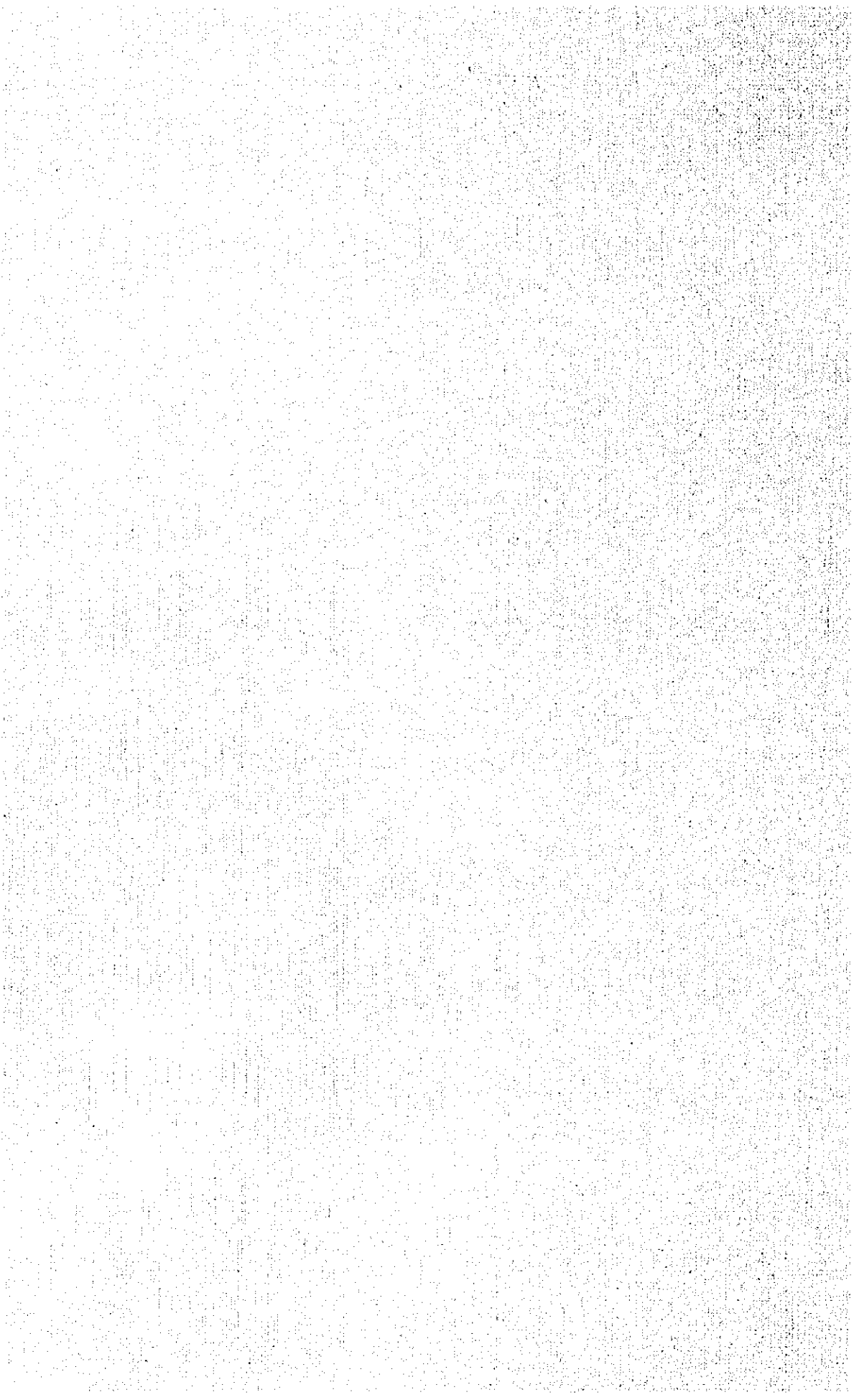
P : Priority

EQUIPMENTS NEEDED FOR Rep. LABORATORY

P	TYPE	DESCRIPTION	Manufacturer	QTY.
1	577/177	Curve tracer - with all options	Tek	1
2	MO 1	Universal high capacity fine - wire winding machine	Meteor	1
3	66 - 740	Screw driver box special for opening Tek oscilloscopes	Hovmen	1
4	9010 A	Micro-system trouble-shooters	Fluke	
	8085 A	Interface/pad Model 9000 A-8085		
	8086	Interface / Pad Model 9000 A- 8086		
	Z 80 A	= = 9000 A-Z 80		
	6800	= = 9000 A- 6800		
	68000	= = 9000 A-68000		
	8088	= = 9000 A-8088		
	Z 8001	= = 9000 A- Z 8000		
	80186	= = 9000 A- 80186		
5	045X200	Model 90-6809(type 6809)	Fluke	
6	045X205	Model 90-8085(type 8085)	"	
7	045X210	Model 90-Z80 (type Z 80)	"	
8	456 X 450	Smart cable 817 ( Female )	"	
9	411 X 232	232 LT Line tester	"	
10	414 X 100	Tracker 2000	HUNTRON	
11	Logic prog	Logic programmer model 860 dig&lec		
12	414 X 050	Board walker 101A functional IC teste	HUNTRON	
13		Memory test system model HP 9430		
14	414 X 325	HSR 410 Switcher " for Tracker 2000"		
15		Video and Audio repair bench		
16		- Color TV. pattern generator		
17		- Stereo Generator		
17		- Versatile Instrument		
18		- Flutter Meter		

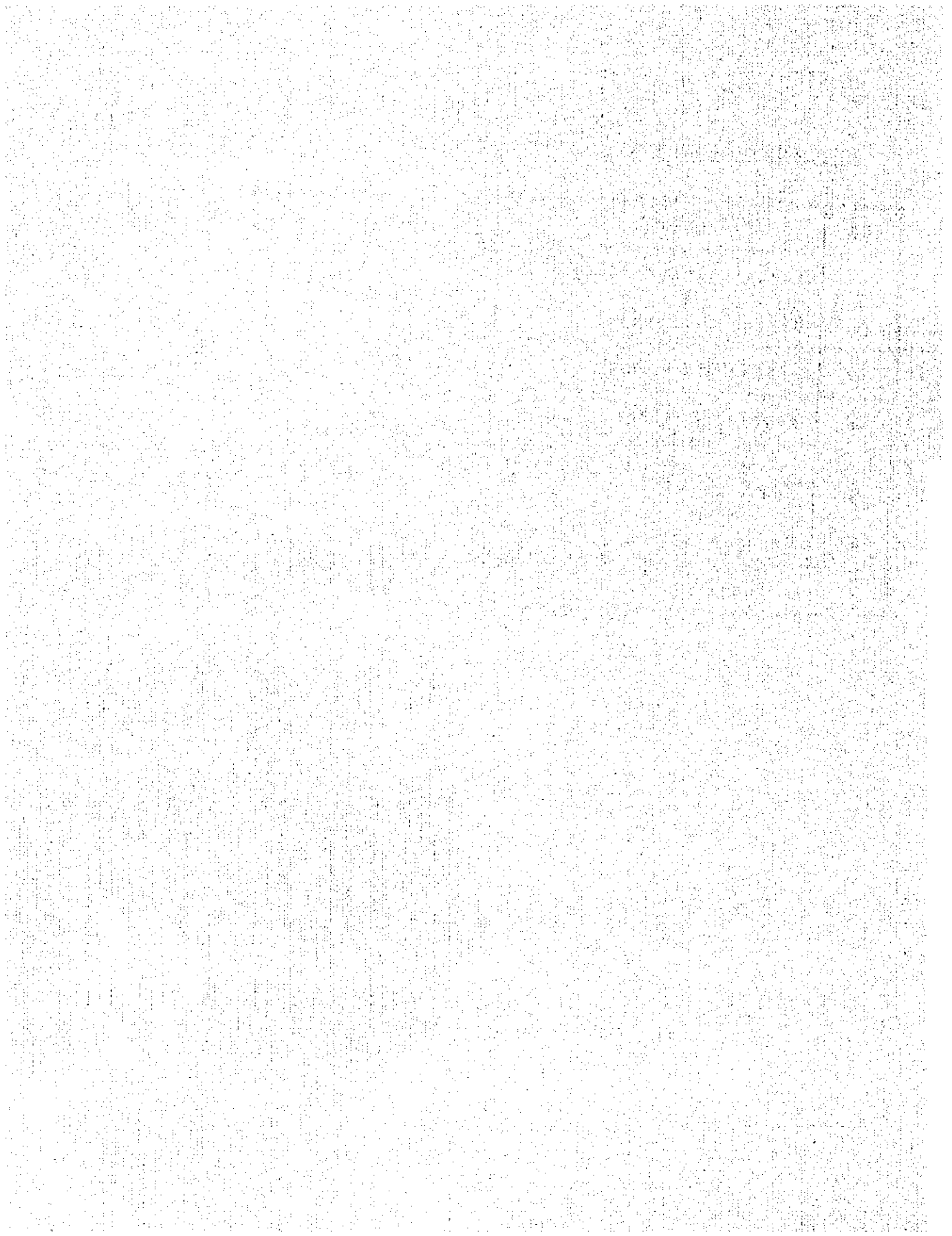
P : Priority

A N N E X - 9 -

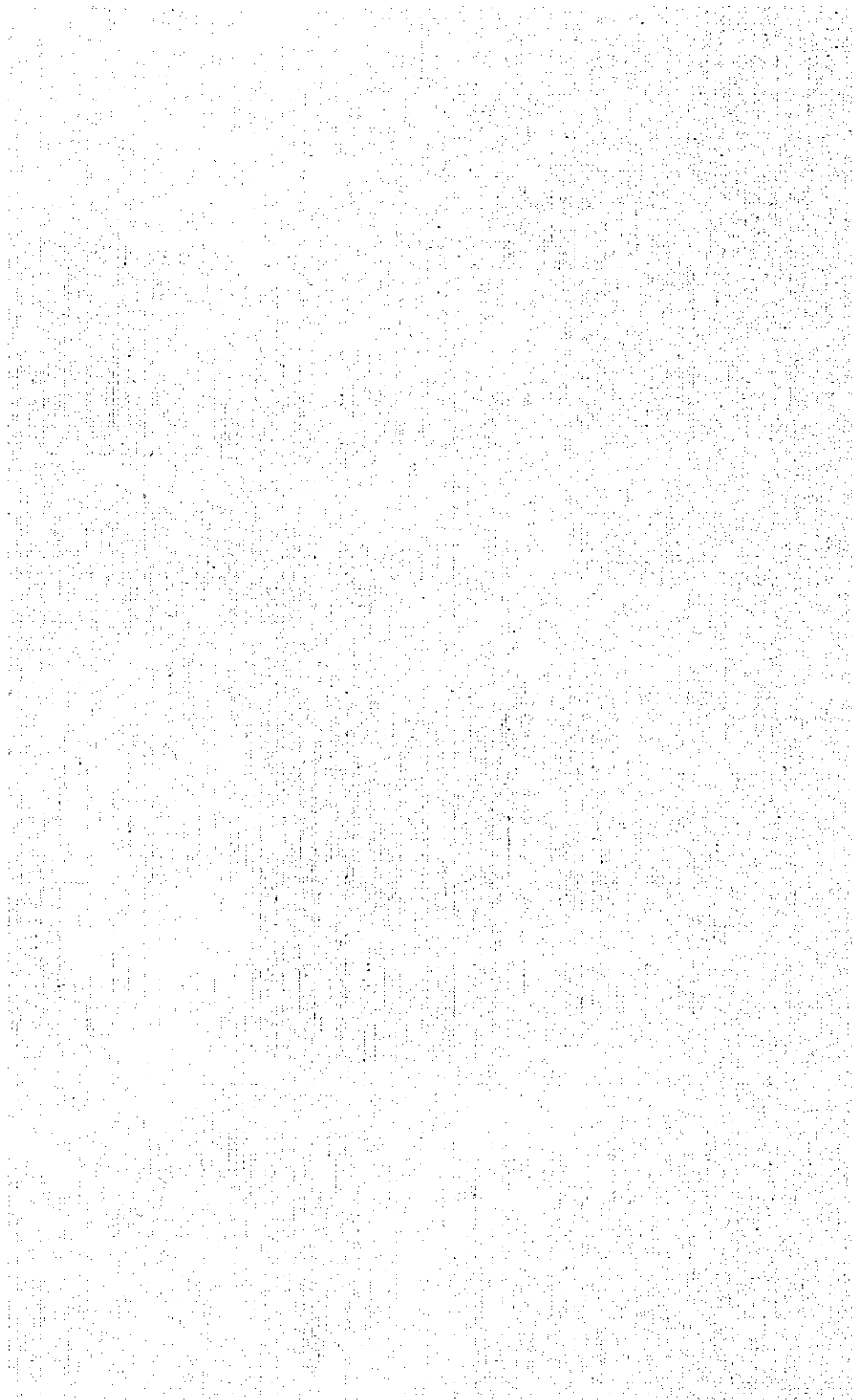


**BUDGET OF N. S. C. L. PROJECT**

REF	ITEM	Payment During 1990 (SP)
①	Technical Furniture & Office Equipment	1000.000
②	Wages & Salaries	1870.000
③	Running & Miscelinouos Costs	600.000
④	Spare-Parts	800.000
⑤	General Site	300.000
	Total	4070.000



A N N E X - 1 0 -

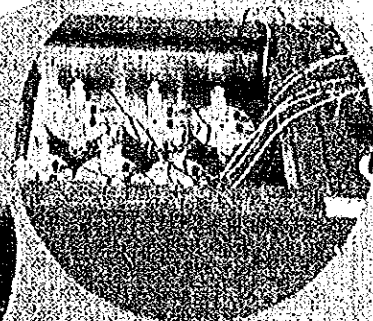
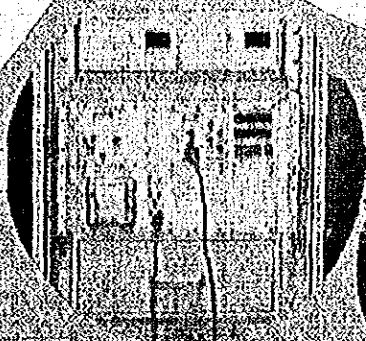




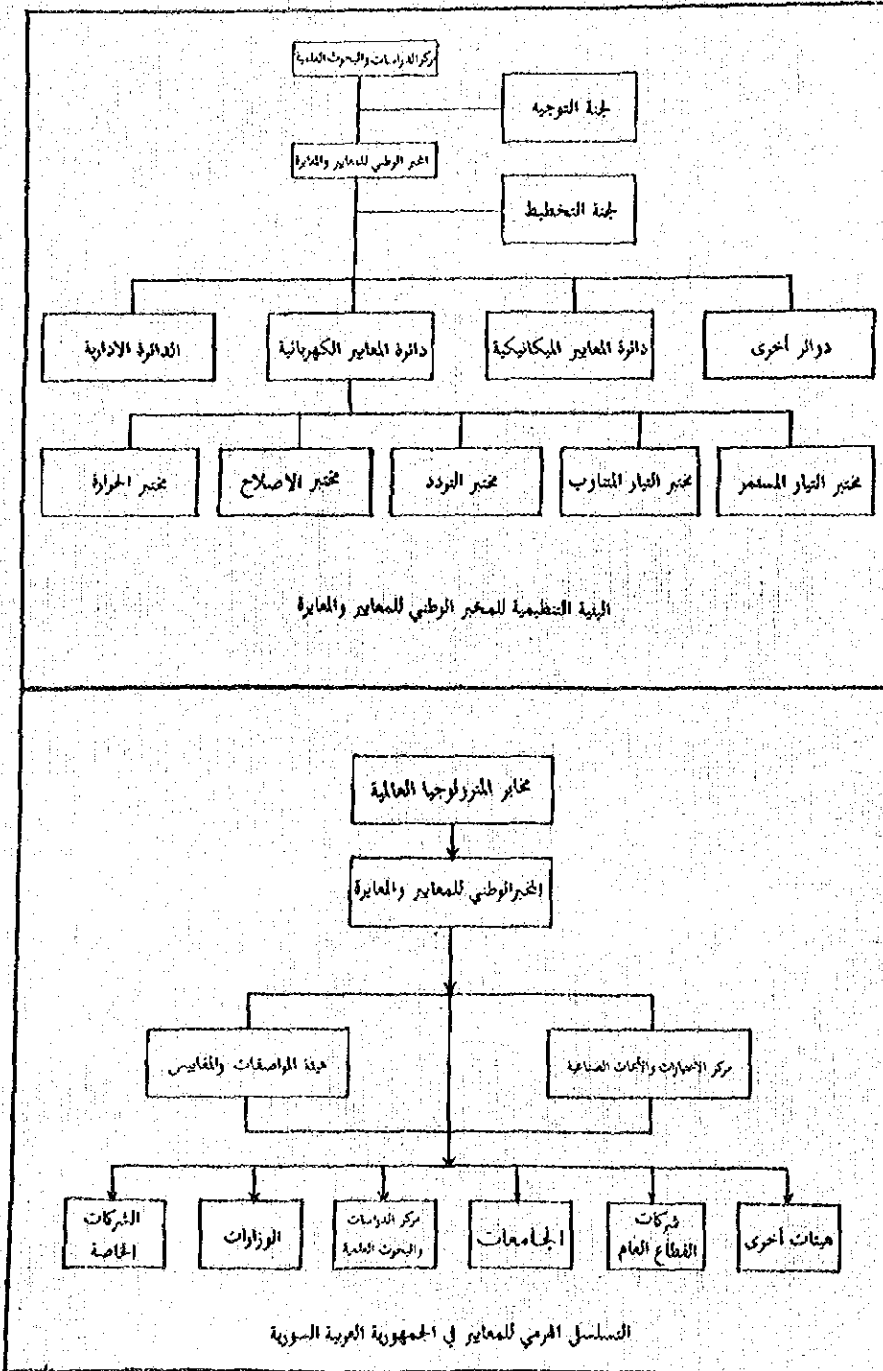
# الدراسات والبحوث في العلوم الطبيعية



مركز البحوث والدراسات العلمية



ان الهدف الاساسي من اقامة المختبر الوطني\* هو اقتناء وحفظ المعايير النظامية واستخدامها في معايرة اجهزة القياس المتوفرة في مختلف الفعاليات والهيئات المعنية بهذا الموضوع في القطر ، بحيث يتحقق تسلسل هرمي لجميع المخابر التي تهتم بعلم القياس والمعايرة بدلالة مستوى دقتها.



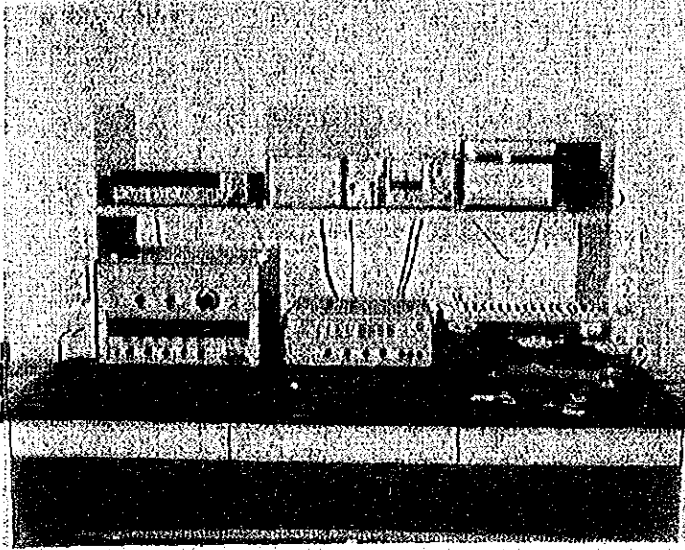
يسمى المختبر الوطني الى الحصول على جميع المعايير اللازمة لتغطية جملة الواحدات الدولية (SI). كما سيعمل على تحقيق تسلسل هرمي مترابط وذلك بالتنسيق مع سائر الجهات المعنية في القطر مثل مركز الاختبارات والابحاث الصناعية وهيئة المواصفات والمقاييس وغيرها. وسوف يرتبط المختبر الوطني بأحد مخابر المترولوجيا الدولية.

يعتبر لذلك هذا المختبر المرجع الرئيسي لكافة مخابر القطر، يمكن حالياً اجراء المعايرات والقياسات الدقيقة المتعلقة بالواحدات الكهربائية، الحرارية، والتردد المبنية في الجدول المرفق. وذلك ضمن الشروط المناخية

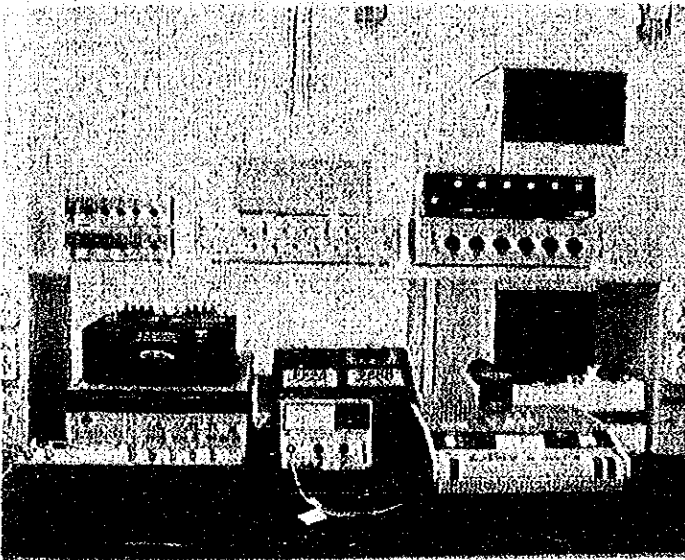
التالية : درجة الحرارة :  $(23 \pm 1)^\circ\text{C}$  الرطوبة النسبية  $(50 \pm 10)\%$  ، يتألف المختبر الوطني حالياً من :

\* المختبر الوطني للمعايير والمعايرة

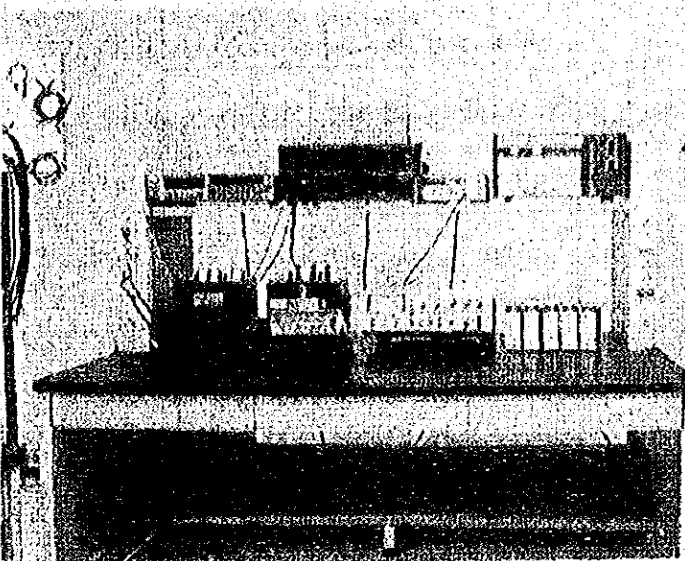
### ● مختبر التيار المستمر



تظهر الصورة بعض تجهيزات مختبر التيار المستمر



بعض تجهيزات معايرة المكثفات في مختبر التيار المستمر



محطة معايرة الجهود المتناوبة في مختبر التيار المتناوب

يقوم هذا المختبر بالمحافظة على المعايير الوطنية للجهود المستمر والمقاومة، والسعة ويعمل على إجراء المعايرات اللازمة المتعلقة بهذه المعايير.

سيتجسد المعيار الوطني للجهود المستمر بمجموعة مرجعية مؤلفة من خمس خلايا قياسية ذات دقة  $(\pm 2 \times 10^{-6})$  ويتكون المعيار الوطني للمقاومة من مجموعة مرجعية مؤلفة من خمس مقاومات عيارية بدقة  $(\pm 2 \times 10^{-6})$  محفوظة في حمام زيتي ذو ثباتية حرارية  $(\pm 0.01 \text{ ر } 0.001)^\circ\text{C}$ . أما المعيار الوطني للسعة فسيتجسد بمجموعة مرجعية مؤلفة من خمس مكثفات عيارية (نوع سيلكا منصهرة) بقيمة  $(2 \times 10^{-8} \text{ بيكوفاراد})$ ،  $(3 \times 10^{-8} \text{ بيكوفاراد})$  وبدقة قدرها  $(\pm 10 \times 10^{-6})$  عند تردد 1 كهرتز.

### ● مختبر التيار المتناوب

يقوم هذا المختبر بالمحافظة على المعايير الوطنية للجهود والتيار المتناوب. وتستخدم أجهزة هذا المختبر في إجراء المعايرات الدورية والضبط اللازمة لذلك.

ويتجسد نظام المعايرة الحالي (الثانوي) بمولدي جهد وتيار معياريين وجهاز قياس جهد دقيق بالإضافة الى مقاومة معايرة لقياس التيار. ويمكن أتمتة هذه الأجهزة بربطها مع الحاسب.

سيزود هذا المختبر مستقبلاً بالمعيار الوطني للجهود المتناوب وأجهزة مختبر الطاقة الكهربائية.

## ● مختبر الحرارة



غرفة القياسات في مختبر الحرارة

يقوم هذا المختبر بالمحافظة على المعيارين الوطنيين لقياس الحرارة: حساس المقاومة الحرارية (PT-25) والمزدوجة الحرارية (S).  
تم في هذا المختبر معايرة أجهزة قياس الحرارة بأنواعها باستخدام المعيارين الثانويين (PT-100) والمزدوجة الحرارية (R).  
حيث تستخدم الأفران الحرارية لتأمين الوسط الحراري الملائم بغية إجراء المقارنة بين قراءات المرجع والقياس تحت الاختبار.  
تم أتمتة نظام القياس ومعالجة النتائج بواسطة نظام الحاسب الحظي (YEWMAC-50).

## ● مختبر التردد



مختبر التردد، تظهر الغرفة المحجبة في الداخل

يقوم هذا المختبر بالمحافظة على المعيار الوطني للتردد ومرتبط بهذا التردد من معايير الـ (تحماد - بمانعة - استطاعة - جهد).  
يتركز عمل هذا المختبر بمعايرة أجهزة قياس وتوليد الاشارة الترددية في المجال الترددي من ١٠ هرتز وحتى ١ غيغا هرتز.  
كما يحتوي هذا المختبر على غرفة محجبة لمنع الأمواج الترددية الدخيلة وذلك حسب المواصفات العالمية في موضوع التحييب (MIL-STD-285).

## ● مختبر الإصلاح ومعايرة المستوى الثالث

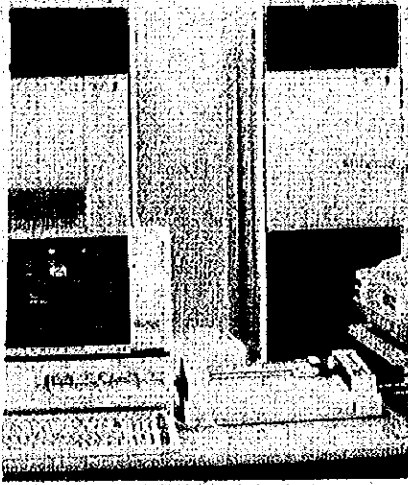
يقوم هذا المختبر بإصلاح ومعايرة أنواع مختلفة من أجهزة القياس الكهربائية الالكترونية اعتماداً على ثلاث محطات :  
١ - محطة اصلاح وضبط أجهزة القياس المتعددة الأغراض والمسجلات البيانية .  
٢ - محطة اصلاح وضبط وحدات التغذية للتيارات المستمرة والمتناوبة .  
٣ - محطة إصلاح ومعايرة رؤاسم الاشارة .

هذا المختبر مجهز لإجراء اختبارات الحرارة والرطوبة على الأجهزة التي تتطلب ذلك، ويتم معايرة أجهزة القياس والتابع الكهربائية المعيارية الموجودة في المختبر بالمقارنة مع معايير المختبرات السابقة .

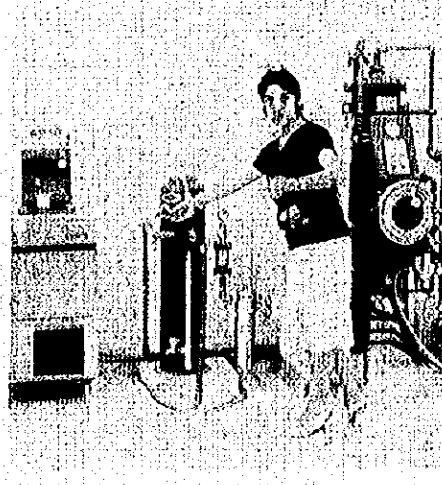


مسورة عامة لمختبر الإصلاح والمعايرة مستوي ثالث

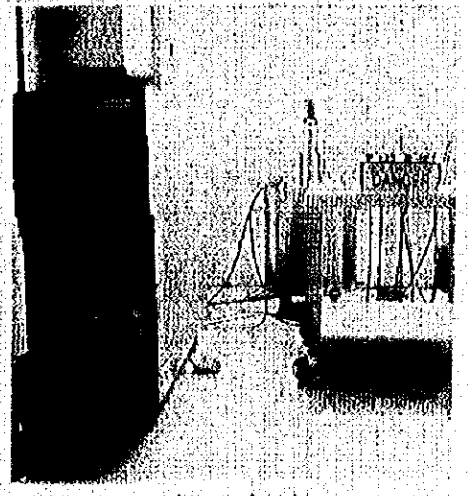




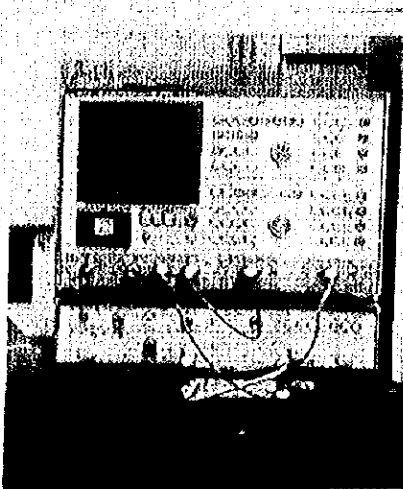
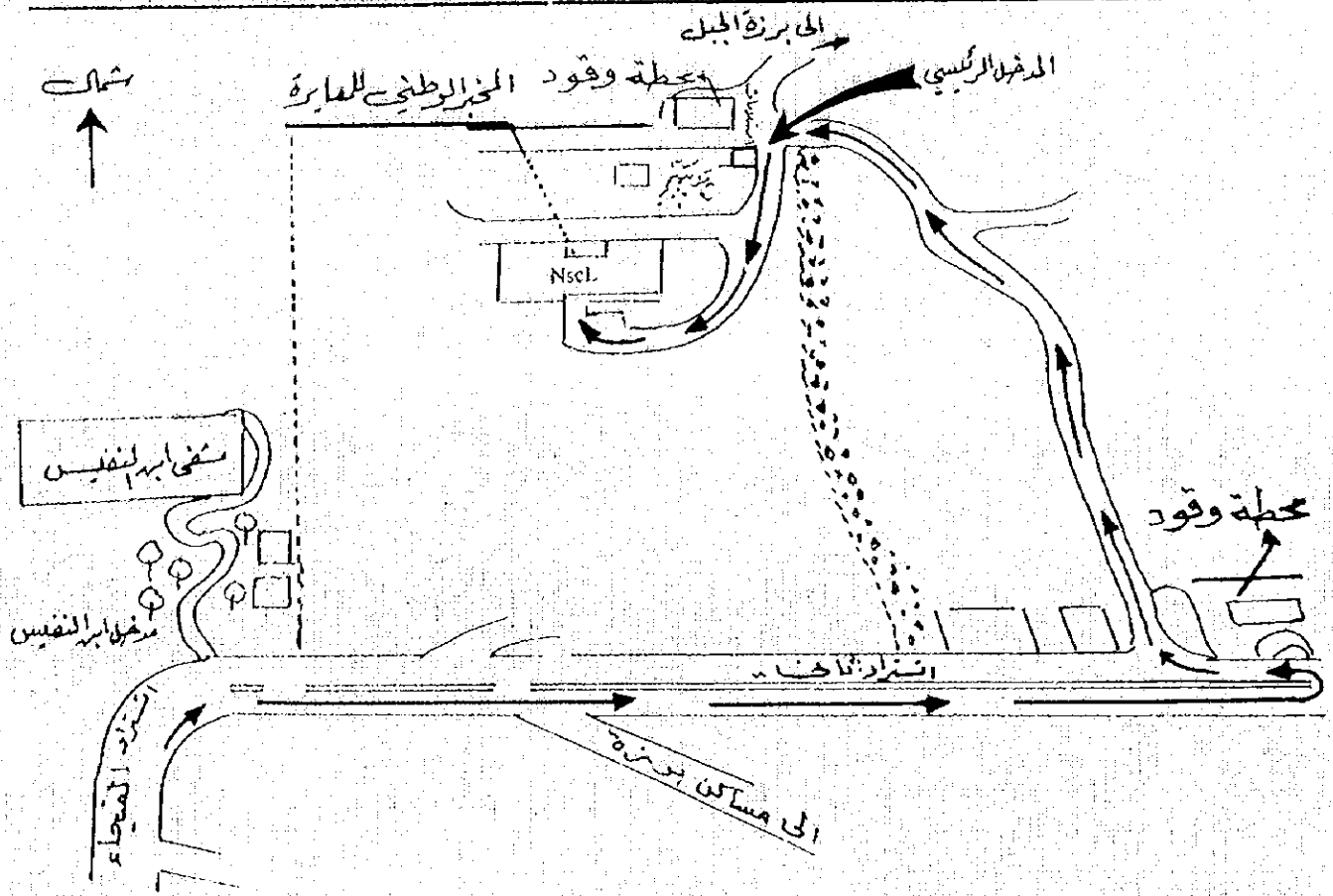
نظام الكمبيوتر YEWMAC-50



نظام تنقية المياه وتصنيع الثلج



منابع الحرارة في مختبر الحرارة

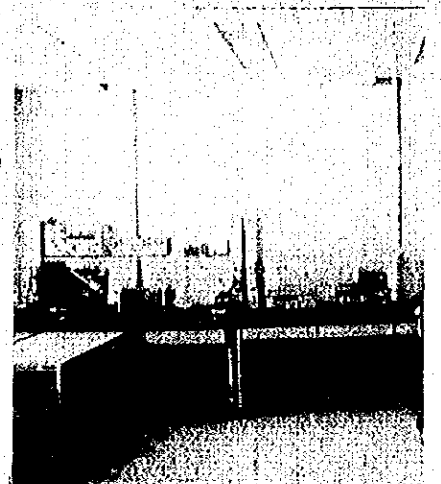


مختبر التردد - محال شابيكي

الجمهورية العربية السورية  
مركز الدراسات والبحوث العلمية  
مختبر المعايرة الوطني

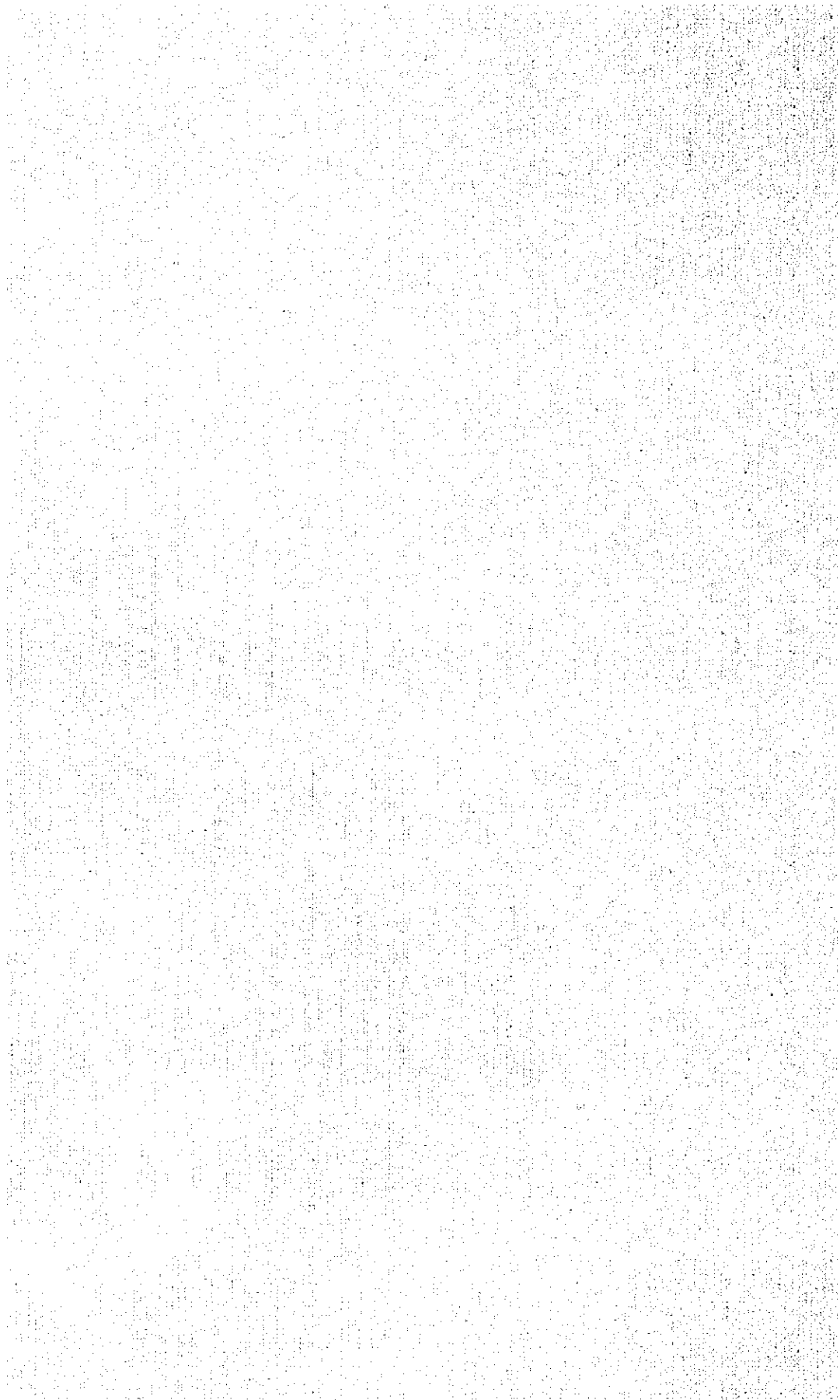
ص.ب. ٤٤٧٠٠  
رقم هاتف ٧٧٢٦٠٣  
٢٠٢٥  
٢٠٢٦  
تلكس ٤١١٢٧٤١

مطبعة العتار ٢٠٠٥



مخطة إصلاح ومعايرة رؤس الأبار

A N N E X - 11 -





**ENVIRONMENTAL AND POLLUTION MONITORING PROJECT**

The rapid industrialisation and urbanisation which took place in Syria , during the 70th has led to environmental problems which affect the health and welfare of Syrian citizen and degrade the environmental conditions.

The major problems concern :

- Water quality
- Ambient air quality.
- Workplace air quality .
- Soil , plants and foods quality.
- Health situations .

In spite of the consciousness of authority , there is a great lack of scientific evaluation of the environmental damage caused , which make any solution of problem inopportun , and years the environmental situations continue to degrade.

In our project we propose to install a national environmental laboratory which has the role of :

- + The control of environment by making analysis for the detection of pollutants.
- + Undertaking environmental studies in :
  - Adaptation of treatment process to Syria and arid Zones.
  - Environmental control and monitoring.
  - Implementation of water and air quality standards for Syria .
- + Improvement of health conditions.
- + Collaboration with international institution in environment preservation .

This laboratory will be divided to three sections or laboratories :

- 1- Water , soil & plants pollution
- 2- Air and workplace pollution
- 3- Environmental toxicologie .

Water , soil and plant pollution  
Laboratory

---

The major aim of the water , soil and plant pollution laboratory is the detection of pollutants in the water soil and plant environment and the proposal of methods for the abatement of these pollution

- This Lab will be divided to two section :

- + Sampling and Analysis Laboratory
- + Treatment and pilot plant workshop

- This Lab will undertake research and studies concerning waste management , and residues in the environment .

## Equipments For

### 1-1- Chemical analysis Lab.

- General Lab. equipments.
- automatic water samplers
- soil , plant samplers.
- portable instrument for measuring :
  - + PH .
  - + Turbidity
- BOD, COD ,measurment instruments
- Spectrophotometer
- I.R. instrument .
- Atomic absorption
- gas chromatographie
- Liquid chromatographie
- gas chromatographie - Mass spectrometer

### 1-2- Microbiological analysis Lab .

- general instruments ( incubators ..... )
- Direct measurment of cells in the environment
- Safety Cabinets
- Microscope .
- Identification of bacteria kits .

1-3- Treatment workshop :

- general tools .
- aerobic water treatment pilot plant
- anaerobic water treatment pilot plant
- fixed cell water treatment pilot plant
- aerators
- chemical treatment pilot plant
- sludge dewatering pilot plant

Training programmes :

- Water treatment technique
- environmental analysis
- microbiological analysis

for engineers and technicians .

Air and Workplace Pollution Lab .

This Laboratory will be devoted to the ambient air and workplace pollution problems in the Syrian environment and factories .

The laboratory will , also , propose the necessary techniques for the abatement of pollution .

On the other hand , the laboratory will help the ministry of environment in the risk assessment studies of industrial projects .

## - Instruments

- + mobile van for ambient air pollution measurement .
- + Particles counter
- + Aerosols counter
- + Airborn microbial samplers
- + Portable gas chromatograph .
- + Portable I.R.
- + Stack samplers .
- + Smog chamber .
- + Standard gas mixture preparation instrument .
- + Wind Tunnel for pollution studies
- + Micro computers with programmes for dispersion studies .
- + Instantaneous air samplers and analyser for dispersion studies
- + Pilot plants for air pollution abatement ( oxydation and absorption towers ).

## +Training programmes

- Risk assessment
- gas dispersion
- Air analysis
- Air pollution abatement techniques

for Engineers and Technicians

- 8 -

Environmental Toxicology

Laboratory

The major aim of this laboratory is to study the toxic effect of some environmental pollution on the Syrian citizen and animals .

The control and monitoring of discharge of some chemicals in the environment will be the charge of the laboratory .

The lab . will undertake studies on the water and air quality standards implementation in Syria .



+Instruments

+ Exposure cabinets for Air pollutants

+ Exposure cabinets for water pollutants

+ Instruments for monitoring toxic effects

- Pulmonary effects

- Cardiac and circulation effects

- Neurological effects

Training Programme

+ Exposure techniques and control for Biologist and technicians .

Estimated Costs

- Water , soil and plant pollution Laboratory	2 000 000 \$
- Air and Workplace Pollution Laboratory .	1 800 000 \$
- Environmental Toxicology Laboratory	800 000 \$

## Proposal for Speech Training System for Hearing-Impaired Children

### Introduction

Hearing-impaired children have almost or entirely, no auditory feedback LOOP, so they will become dumb if they do not learn how to utter and speak. The proposed project is intended to provide a training system in Arabic, helping them to utter speech. Using this system, hearing-impaired children can see their articulation and compare it with a reference articulation.

### General description:

The system must satisfy the following conditions :

- IT should possess high performance and be easy to use.
- Results displayed should be concise, clear and easy to see and understand
- Results must be displayed in real time or almost in real time.
- It should be easy for the system to be adapted to a child's progress in learning.
- IT should be made suitable for self-teaching.

### Principal Parts:

The system is composed of the following principal parts:

- Two microcomputers with Arabic/Latin keyboard
- RAM memory ) 2MB
- Arabic MS/DOS
- Hard disk = 40 MB
- Color graphic display unit
- Speech acquisition unit (microphone, filters, A/D, interface with microcomputer,...).
- High speed processing cards for: extract pitch frequency,? Identify uttered vowels, instruct which vowel the uttered vowel resembles, and define the degree of similarity, estimate shapes of the vocal tract of vowels, phoneme sequences,...
- Suitable software :
  - \* processing
  - \* graphic,

- \* control and interactive teaching
- UPS unit
- A small anechoic chamber
- A recording package of high quality

Requirements:

- Equipments hardware and software: Japanese side (approximately US 80,000\$)
- Development and realisation of a prototype : Syrian side
  - 9 months / P.H.D
  - 24 months / engineer
  - 12 months / technician

# THE ARCHIMEDES PROJECT

## CONTENTS

- I. Scope
- II. Historical Background
- III. The Bathyscaphe Specification
- IV. Applications of the ARCHIMEDES Bathyscaphe
- V. The Budget
- VI. Time Scheduling
- VII. Foreign Partnership

### I. SCOPE

The objective of the HIAST ARCHIMEDES project is to build and to equip a small autonomous bathyscaphe for low fathom oceanographic research. Its direct application will be the recovering the lost hordes of ancient shipwreck off the Syrian shore.

### II. HISTORICAL BACKGROUND

The prowess of the Eastern Mediterranean People as sea riders has had great implication on human race. Through their lengthy nautical adventures they have succeeded in bringing together many old world civilizations. The first Phoenicians explorations which go back to the neo-bronze age, used very strong sailing ships made from cedar woods. Their ships use to be carried with all kind of wealth varying from the pottery of Egypt to the fine metalwork of Asia minor and Gaul. Although that such adventures were carefully planed the hazardous elements were many and so were the tragedies. Some of these ships have failed to reach its destination and ended in a wrong land and many have capsized to the bottom of the sea and their hordes of merchandize and object of art scattered on the seabed. Recovering this treasure will be of great importance to increase our knowledge about the history of the region

and about the dawn of civilization. Unfortunately, unlike its counter-part on land, this treasure has been neglected for longtime and its presence rarely was recognized. However, the recent discovery of a trading ship dated from the crusaders era off Tartuso shores has unveiled the hidden secret and showed the need of a organized and systematic search along the strip of seabed off the Syrian coast in order to recover all lost ships and hidden treasures.

### III. THE BATHYSCAPHE SPECIFICATION

The bathyscaphe has to be autonomous and compact capable of navigating for few hours in low fathom water. Its navigating system is remotely controlled through either a cable link or a sonar link, and enabling an operator in the support vessel to guide the bathyscaph in a sweep mode at variable speed or maneuvering for picking or removing some items. This can be realized through combination of proximity sensors and visual monitoring. In addition the bathyscaphe has to be equipped with a manipulator capable of executing several function such as directing a jet hose for mud removing, picking objects and placing them in a surface suspended container, connect a cable link to heavy items and assisting the operator in placing equipments. This specifications allow us to identify the main sub-systems of the bathyscaph and its support vessel:

1. the bathyscaph hull of about few cube meters,
2. on board navigating system and its reciprocal on board the support vessel,
3. visual monitoring system composed of one or more camera and video recorder and lighting control,
4. SONAR communication link,
5. a manipulator with its versatile gripper and sensing system,
6. power supply storage for few hours or a cable power link from the support vessel,
7. accessories such as auto-floating system and transport container with a crane.

#### IV. APPLICATIONS OF ARCHIMEDES BATHYSCAPHE

The direct application of the bathyscaph will be the search of ancient shipwreck along the Syrian coast. However, this will not be the single benefit as such bathyscaph can be used for ecological applications, oceanographical study and dockyard activities. Having a small and unmanned versatile bathyscaph by a small country like Syria is a low cost solution for many of its off shore problems. In fact, despite that many governmental organization recognize the need for a new oceanographical study off Syrian coast, this has been delayed for longtime for technical and financial reasons .

#### V. THE BUDGET

It is very difficult at this stage to give an accurate figure concerning the total cost of the project. However, a preliminary study has put forward a sum of about \$ 0.5 M. in the current prices to undergo the major part of the project. This sum can be allocated in the following way;

1. Equipping a support vessel	% 15
2. The bathyscaphe itself	% 60
3. Maintenance, testing and analysis facilities	% 20
4. Premises and Preliminary oceanographic study	% 05

#### VI. TIME SCHEDULING

The duration of the project might vary excessively according to the relative weight of specially developed sub-systems to the entire project and according the size of the international assistance. A preliminary study recommended from 2 to 3 years as a reasonable period to build and to test the bathyscaph. Therefore, the navigating team will be able to start its work during 1975 at worst.

## VII. FOREIGN PARTNERSHIP

Undoubtedly this ambitious project is beyond the HIAST resources and it is difficult for a single organization to undergo a project of such dimension. The participation of other research and educational organizations is decisive for the success of the project. Foreign cooperation, in particular, will be of great benefit and might be a required element. This cooperation can be in many forms;

1. Financial assistance destined to equip the bathyscaph and its support vessel with the required sub-systems and to buy primary components when assembly of special items has to be considered.
2. Technical assistance in building and assembling the bathyscaph and in training some technicians on underwater equipments and related technology.

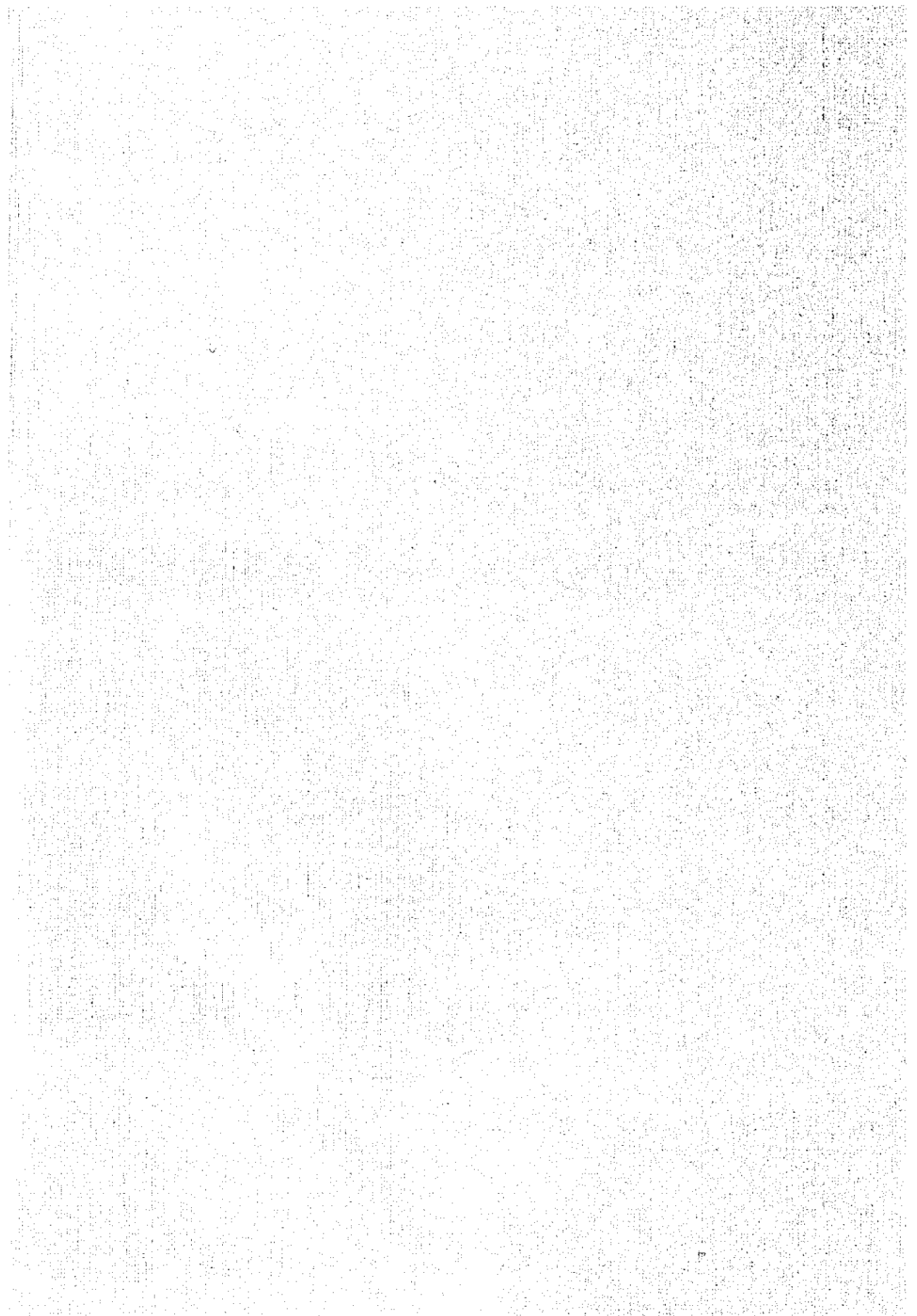
The HIAST and its parent body (the SSRC) will use their research and development potential to build and assemble many of the sub-systems and to subsidize the cost of working premises and the support vessel. Coastal survey and archaeological pre and post operations can be executed by the HIAST and its local partners. In exchange any national or international partners will benefit from the bathyscaph and the supplied information in relation to its share within the project

HIAST is the Higher Institute of Applied Science and Technology. It is a educational and research institute peered by the SSRC.

SSRC is the Scientific Study and Research Center an independant governmental body promoting research projects in Syria.



A N N E X - 1 2 -



## THIRD COUNTRY GROUP TRAINING PROGRAMME

### (1) TRAINING COURSE IMPLEMENTED BY DEVELOPING COUNTRIES

The "Third Country Training Programme (TCTP)" was introduced to Japan's technical cooperation when the Japan International Cooperation Agency (JICA) initiated a training course on sericulture in Thailand in March, 1975.

Since then, Japan's TCTP has been expanded and improved to offer 33 courses in 16 different countries under JICA's TCTP scheme in the Japanese fiscal year of 1986 (April, 1986 - March, 1987).

Unlike the conventional type of training programme in which participants from the developing countries have training in the developed countries, TCTP is so designed that a leading country in a certain developing area provides training for the other developing countries within the area which have common or similar social, cultural and linguistic background with the cooperation and assistance of a developed country.

### (2) TECHNICAL COOPERATION AMONG DEVELOPING COUNTRIES

The basic idea of JICA's TCTP is two folds; the one is to provide training which better fits the needs and indigenous conditions of the participating countries, and the other is to promote Technical Cooperation among Developing Countries (TCDC) by extending technical and financial assistance to the host country. For the former purpose, JICA provides fellowship for the participants from the third countries. For the latter purpose, JICA provides necessary experts under its Expert-Assistance Programme and furnishes the training institution concerned with necessary fund to operate the training course through the government of the host country.

### (3) ROLES OF THE HOST COUNTRY AND JAPAN

The training course under TCTP is organized and conducted by the host country and JICA extends such cooperation in holding the course as provisions of fellowship for the participants from neighbouring countries, dispatches of Japanese experts who give advice and lectures on specific subjects, furnishing the training institute concerned in the host country with the fund necessary for carrying out the training courses.

Each training course of TCTP is carried out in accordance with a Record of Discussions to be signed between the host country and Japan, and JICA dispatches a survey team and a consultation team to discuss with the authorities concerned in the host country details of the training course as well as roles and responsibilities on each side of the host country and Japan.

Under the present scheme of Japan's TCTP, the both governments are supposed to assume the following responsibilities.

#### HOST COUNTRY

- a. Provisions of training facilities and equipment
- b. Formulation of curriculum
- c. Assignment of lecturers, instructors and coordinations
- d. Preparation of textbooks and other training aids
- e. Draft of a Course Information
- f. Distribution of a Course Information to the governments which the course is offered to
- g. Acceptance and screening of applications and notifications of the results
- h. Arrangements of overseas travel and accommodations for participants
- i. Operation and administration of the course
- j. Submission of a statement of expenditures and a course report to Japan

#### JAPAN

- a. Dispatch of expert(s) for giving advice and lectures
- b. Provision of textbooks and other training aids which are not available in the host country
- c. Bearing expenses for invitation of participants (i.e. international economy-class flight fare, accommodation, per-diem and medical insurance premium)
- d. Bearing training expenses (i.e. honoraria for external lecturers, transportation, secretarial services and material procurement)

THE THIRD-COUNTRY TRAINING PROGRAMME IN THE JAPANESE FISCAL YEAR OF 1988 (April, 1988 - March, 1989)

Host Country	Training Institution	Course Title	Period	Number of Participants	Invited Countries
1. Philippines	Transport Training Center (TTC)	A Senior Course on Transport Technology	Nov. 7, '88 - Dec. 15, '88	21	Bangladesh, Brunei, Indonesia, Malaysia, Papua New Guinea, Sri Lanka, Thailand
2. Philippines	Research Institute of Tropical Medicine (RITM)	Workshop on the Laboratory Diagnosis and Research Techniques in Acute Respiratory Infections and Diarrheal Diseases	Oct. 3, '88 - Oct. 28, '88	16	Brunei, Burma, China, Hong Kong, R. of Korea, Malaysia, Singapore, Papua New Guinea, Indonesia, Thailand, Solomon Is., Fiji, Vanuatu, Tonga, F. Samoa
3. Thailand	King Mongkut's Institute of Technology (AMIT)	Group Training Course in Telecommunications Technology	Feb. 20, '89 - Apr. 21, '89	24	Bangladesh, Bhutan, Brunei, Burma, China, Iran, Indonesia, R. of Korea, Maldives, Malaysia, Nepal, Pakistan, Papua New Guinea, Philippines, Sri Lanka, Singapore
4. Thailand	Suphan Buri Experiment and Training Center	Group Training Course in Rice Cultivation Technique and Extension	Oct. 31, '88 - Dec. 23, '88	18	Philippines, Malaysia, Indonesia, Brunei, Singapore, Fiji, Papua New Guinea, Tonga, Tuvalu, Solomon Islands, Kiribati, Niue, Western Samoa, Cook Islands, Nauru, Vanuatu
5. Thailand	Royal Forest Department	Regional Training Course in Community Forestry Development Techniques	Mar. 17, '89 - Apr. 19, '89	15	Philippines, Malaysia, Indonesia, Brunei, Singapore, Fiji, Papua New Guinea, Tonga, Tuvalu, Solomon Is., Kiribati, Niue, Western Samoa, Cook Is., Nauru, Vanuatu
5. Thailand	Institute of Dermatology	Diploma Course in Dermatology	Apr. 4, '88 - Feb. 2, '89	21	Bangladesh, Brunei, Burma, China, India, Indonesia, R. of Korea, Nepal, Malaysia, Pakistan, Philippines, Papua New Guinea, Sri Lanka, Singapore
7. Thailand	ASEAN Training Center for Primary Health Care (ATC/PHC)	Master's Degree Programme in Primary Health Care Management (M.P.H.M)	Aug. 25, '88 - June 29, '89	16	Philippines, Brunei, Malaysia, Singapore, Papua New Guinea, Indonesia, Burma, Bhutan, Nepal, India, Bangladesh, Pakistan
8. Thailand	Department of Public Welfare	Leadership Training Seminar for Disabled People	Aug. 27, '88 - Sep. 2, '88	54	Bangladesh, Burma, Bhutan, Brunei, China, Fiji, India, Indonesia, R. of Korea, Malaysia, Maldives, Nepal, Pakistan, PNG, Philippines, Singapore, Sri Lanka, Solomon Islands, Tonga, Western Samoa

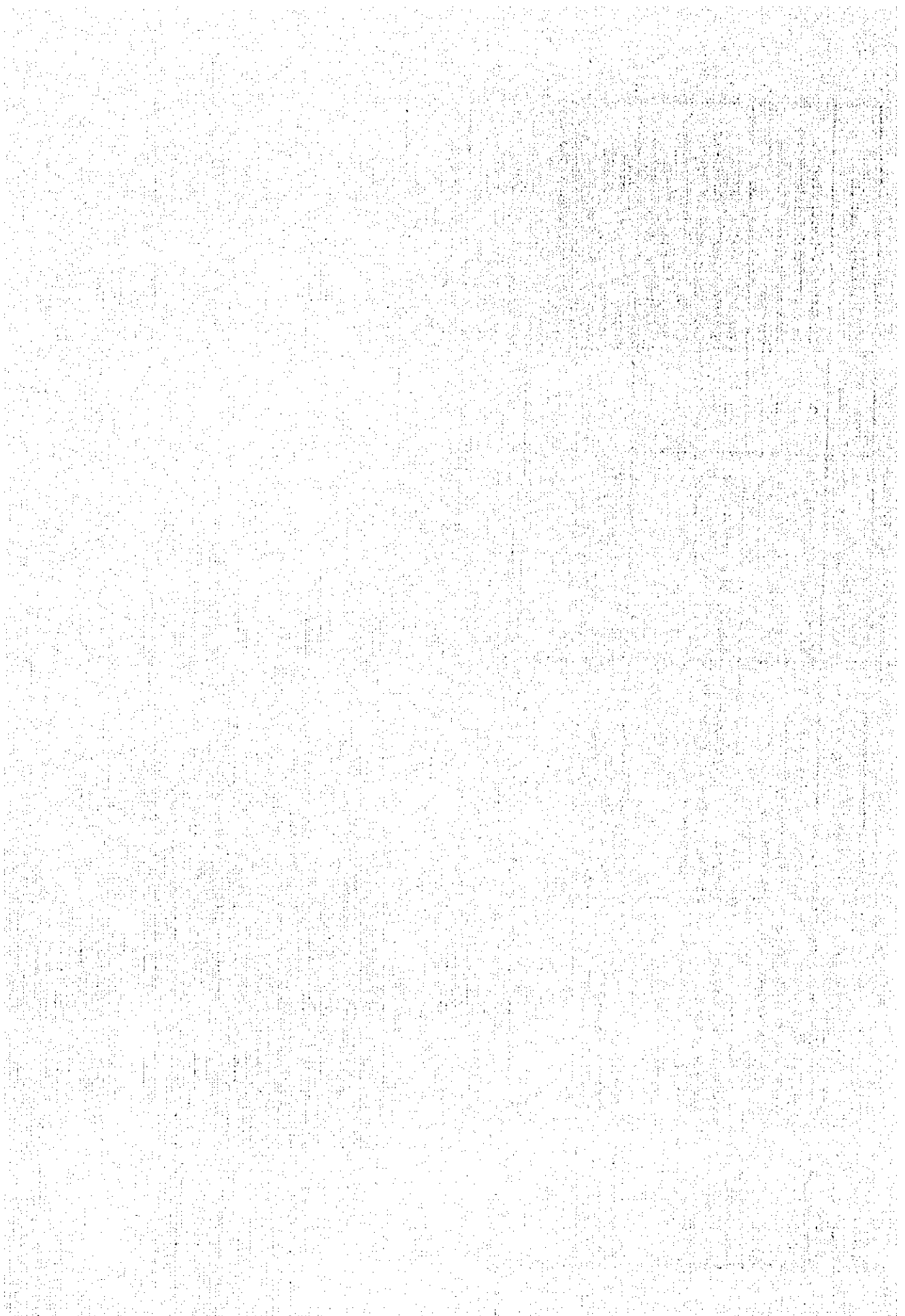
Host Country	Training Institution	Course Title	Period	Number of Participants	Invited Countries
9. Singapore	Singapore Polytechnic	A Regional Training Course in Electric Supply and Transmission	Mar. 13 '88 - Mar. 28 '88	24	India, Malaysia, Thailand, Philippines, Brunei
10. Indonesia	Institute of Human Settlements (IHS), Agency for Research and Development, Ministry of Public Works	International Advanced Course on Seismology and Earthquake Engineering for Structural Engineers	Jan. 14 '88 - Feb. 25 '88	22	Burma, Papua New Guinea, Philippines, Thailand, Fiji, India, Pakistan, Malaysia, Nepal, Samoa, Singapore, Sri Lanka, Bangladesh
11. Indonesia	Construction Guidance Service Center	International Training Course in Irrigation Engineering	Nov. 8 '88 - Dec. 9 '88	15	Philippines, Malaysia, Thailand, Brunei, Singapore, Papua New Guinea, Fiji, Solomon Is., Tonga, Tuvalu, Kiribati, Niue, W. Samoa, Cook Is., Vanuatu
12. Indonesia	Disease Investigation Center in Medan Directorate of Livestock Services	International Course on Diagnosis of Animal Diseases and Their Control Programme	Jan. 22 '88 - Mar. 4 '88	15	Bangladesh, Bhutan, Brunei, Burma, Malaysia, Nepal, Philippines, Sri Lanka, Thailand, Samoa, Papua New Guinea, Solomon Is., PNG, Fiji, Vanuatu
13. Indonesia	Institute of Human Settlements (IHS), Agency for Research and Development, Ministry of Public Works	Third Country Training Course on Housing Strategies for Urban Low Income Groups	Nov. 5 '88 - Dec. 4 '88	24	Bangladesh, Burma, India, Malaysia, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Brunei, Fiji, PNG, W. Samoa
14. Indonesia	Volcanic Sabo Technical Centre, Ministry of Public Works	International Training Course in SBO Engineering (Erosion and Sediment Control Engineering)	Sep. 6 '88 - Oct. 16 '88	15	Bangladesh, Bhutan, Burma, India, Maldives, Nepal, Pakistan
15. Malaysia	Metall Industry Development Center (AIPEC)	Regional Training Course in Welding and Electroplating	Mar. 27 '88 - Apr. 30 '88	20	Bangladesh, Burma, Indonesia, Maldives, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Brunei, Fiji, PNG
15. Malaysia	ASEAN Poultry Diseases Research and Training-Centre Veterinary Research Inst.	ASEAN Seminar on Poultry Diseases and their Control	Mar. 8 '88 - Mar. 17 '88	25	Indonesia, Philippines, Thailand, Singapore, Brunei
15. Malaysia	ASEAN Poultry Diseases Research and Training-Centre Veterinary Research Inst.	ASEAN Course in Basic Diagnostic Techniques on Poultry Diseases	Oct. 22 '88 - Dec. 11 '88	7	
17. Pakistan	Pakistan International Air Lines (PIA)	International Training Course in Civil Aviation Transport	Jan. 15 '88 - Feb. 9 '88	20	Bangladesh, India, Nepal, Bhutan, Sri Lanka, Maldives, Saudi Arabia, Kuwait, Oman, Bahrain, Turkey, Zimbabwe, Tanzania, Somalia, Niger

					Participants	Invited Countries
18. Sri Lanka	Sri Lanka Rupavahini Corporation	International Training Course on Colour-Television Engineering	Oct. 15, '88 - Nov. 27, '88	15	Bangladesh, Bhutan, Burma, India, Maldives, Maldives, Nepal	
19. Fiji	Telecommunication Training Center (TTC)	Regional Training Course in Telecommunications	Sep. 12, '88 - Nov. 21, '88	20	Cook Is., Tuvalu, Vanuatu, Kiribati, Marshall Is., Nauru, Niue, Palau, Papua New Guinea, Solomon Is., Tonga, W. Samoa, Micronesia	
20. Papua New Guinea	Dept. of Fisheries, P.N.G. University (UPNG)	Regional Training Course in Coastal Fisheries Development	Nov. 21, '88 - Dec. 10, '88	16	Cook Is., Tuvalu, Vanuatu, Kiribati, Marshall Is., Nauru, Niue, Palau, Papua New Guinea, Solomon Is., Tonga, W. Samoa, Micronesia, Maldives	
21. Egypt	Arab Maritime Transport Academy (AMTA)	International Course on Maritime Education and Training	Nov. 26, '88 - Dec. 14, '88	20	Morocco, Algeria, Tunisia, Sudan, Ethiopia, Somalia, Djibouti, Kenya, Tanzania, Comoro Is., Madagascar, Angola, Congo, Zaire, Gabon, Cameroon, Nigeria, Togo, Ghana, Ivory Coast, Liberia, Sierra Leone, Guinea, Gambia, Senegal, Mauritania	
22. Egypt	Roda Education Technology Center, etc.	International Course on Nurse Training	Nov. 6, '88 - Dec. 15, '88	30	Morocco, Algeria, Tunisia, Togo, Ethiopia, Somalia, Djibouti, Kenya, Tanzania, Comoro Is., Gabon, Cameroon, Nigeria, Ghana, Guinea, Ivory Coast, Sudan, Senegal, Mauritania, Brundi, Angola, Madagascar, Rwanda, Uganda, Zaire, Sao Tome and Principe, Zambia, Zimbabwe, Seychelles, Malawi, Sierra Leone	
23. Egypt	Egyptian International Training Center for Agriculture (EICA)	International Course on Rice Cultivation Techniques	May 21, '88 - Oct. 16, '88	20	Cameroon, Chad, Ghana, Guinea-Bissau, Kenya, Liberia, Madagascar, Malawi, Mali, Nigeria, Rwanda, Senegal, Sudan, Tanzania, Burkina Faso, Zaire, Zambia	
24. Kenya	Central Training School (CTS) Kenya Posts and Telecommunications Corporation (KPTC)	Regional Training Course in Microwave Radio Engineering	Oct. 3, '88 - Dec. 2, '88	23	Ethiopia, Malawi, Zambia, Zimbabwe, Lesotho, Somalia, Tanzania, Uganda, Sudan, Swaziland, Ghana, Liberia, Nigeria	
25. Ivory Coast	University Hospital Center of Treichville	Regional Training Course in Endoscopy of Gastroenterology	Jan. 10, '89 - Apr. 10, '89	10	Senegal, Guinea, Mali, Niger, Togo, Brundi, Gabon, Cameroon, Central Africa	

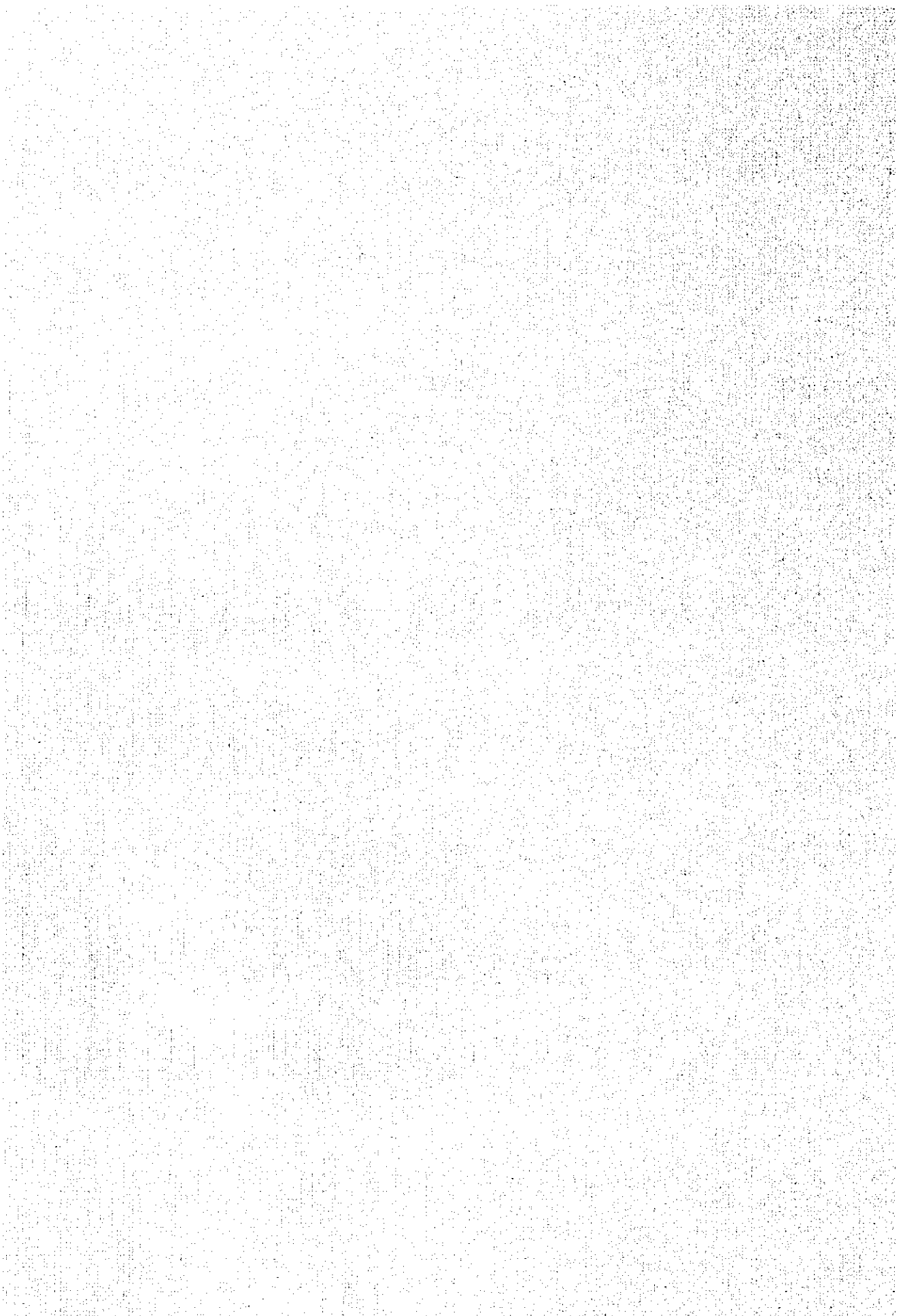
Host Country	Training Institution	Course Title	Period	Number of Participants	Invited Countries
26. Mexico	Escuela Nacional de Telecomunicaciones (ENTEL)	International Course in Transmission Engineering	Sept. 5. '88 - Oct. 17. '88	24	Costa Rica, Cuba, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, Panama
27. Mexico	Comision de Fomento Minero (CFM), Secretaria de Energia, Minas e Industria Paralela	International Training Course on Mineral Processing and Analytical Technology of Minerals	Sept. 25. '88 - Nov. 25. '88	24	Bolivia, Colombia, Costa Rica, Cuba, Dominican Republic, Guatemala, Nicaragua, Honduras, Panama, Peru, Venezuela
28. Mexico	Laboratorio de Hidraulica Maritima	International Training Course on Port Hydraulics Engineering	Nov. 3. '88 - Oct. 7. '88	15	Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Peru
29. Costa Rica	Universidad de Costa Rica (UCR)	International Training Programme in Electron Microscopy	Jun. 5. '88 - Dec. 2. '88	12	Jamaica, Colombia, Peru, Guatemala, Dominican Republic, Ecuador, Venezuela, Mexico, Panama, Honduras, El Salvador, Nicaragua
30. Costa Rica	Centro Agronomico Tropical de Investigacion y Enseñanza (CATIE)	Intensive Training Course on Implementation of Agroforestry	Jun. 27. '88 - Sep. 9. '88	15	Central and South American Countries ( 25 countries )
31. Costa Rica	United Nations Latin American Institute for Crime Prevention of Offenders (IRANUD)	Regional Seminar on Effective Countermeasures against Drug Offenses and Advancement of Criminal Justice Administration	Mar. 6. '89 - Mar. 18. '89	22	Argentina, Bolivia, Brazil, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Paraguay, Peru, Trinidad and Tobago, Venezuela
32. Brazil	Servico Nacional de Aprendizagem Industrial	Regional Training Course in Applied Electronic Circuit and in Micro Computer	Aug. 31. '88 - Nov. 30. '88	30	Argentina, Uruguay, Paraguay, Peru, Ecuador, Colombia, Cuba, Venezuela, Guiana, Panama, Dominican Republic, Costa Rica, Mexico, Bolivia, Chile, Honduras, El Salvador, Guatemala
33. Brazil	Corpo de Bombeiros do Distrito Federal	International Training Course on Rescue and Fire Fighting	Mar. 13. '88 - May. 19. '88	25	Argentina, Bolivia, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, Venezuela
34. Brazil	Sao Paulo State Institute for Technological Research (IPT)	International Training Course on Housing Technology and Planning	Oct. 2. '88 - Dec. 16. '88	18	Argentina, Bolivia, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, Venezuela
35. Brazil	Oswald Cruz Foundation	International Training Course on Quality Control of the Measles Vaccine	Aug. 7. '88 - Nov. 3. '88	10	Argentina, Bolivia, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, Venezuela



Host Country	Training Institution	Course Title	Period	Number of Participants	Invited Countries
36. Peru	Instituto Nacional de Investigación y Capacitación de Telecomunicación (INICTEL)	International Training Course in Digital Communication Engineering	Oct. 17 '88 - Nov. 26 '88	28	Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Panama, Surinam, Uruguay, Venezuela, Paraguay
37. Peru	Instituto Tecnológico Pesquero del Perú (ITP)	International Training Course in Fishery Product Processing Technology	Aug. 1 '88 - Sept. 14 '88	24	Argentina, Brazil, Chile, Bolivia, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Honduras, Mexico, Nicaragua, Panama, Paraguay, Uruguay, Venezuela
38. Chile	Centro Diagnóstico del Cáncer Gástrico	Advance Course in Gastroenterology	Feb. 19 '89 - Mar. 15 '89	28	Argentina, Bolivia, Brazil, Colombia, Ecuador, Paraguay, Peru, Uruguay, Venezuela, Mexico, Guatemala, Honduras, Costa Rica, El Salvador, Panama, Dominican Republic
39. Chile	Faculty of Veterinary Science, Universidad Austral de Chile	International Training Course in Animal Reproduction	Nov. 7 '88 - Dec. 10 '88	18	Argentina, Bolivia, Brazil, Colombia, Ecuador, Paraguay, Peru, Uruguay, Venezuela
40. Chile	Faculty of Marine Science, Universidad del Norte	International Training Course on Molluscan Culture	Oct. 24 '88 - Nov. 18 '88	20	Argentina, Brazil, Colombia, Costa Rica, Ecuador, Peru, Uruguay, Venezuela



ANNEX -13-



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- \* Optoelectronics 1ed.
- \* Optoelectronics Discontinued Devices 1ed.
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- \* IC Generic Source Guide 2eds.
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- \* Thyristor Replacement & Alternate Source Guide 2eds.
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- \* Additives for Plastics 1ed.

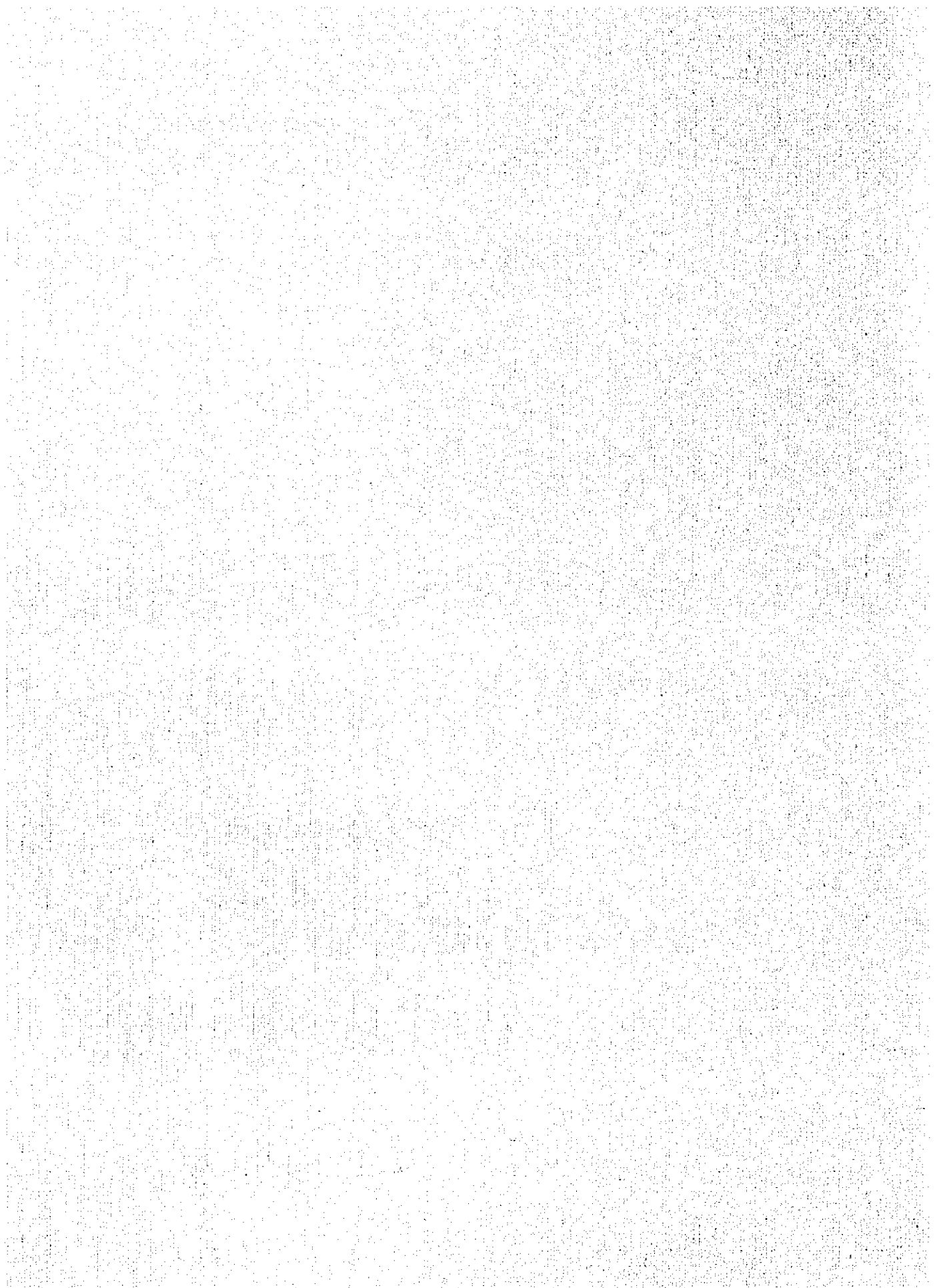
\* Adhesives led.

\* Composites & Laminates led.

\* Plastics--Thermoplastics & Thermosets led.



ANNEX - 14 -



## LIST OF GENERAL LECTURES

<u>TITLE OF LECTURE</u>	<u>NAME OF LECTURER</u>	<u>DATE:</u>
1- DC voltage standards and their measurements	Mr. AS.Karouni	17-12-1988
2- Frequency measurement & traceability in Japan	Dr. M.Aghbar	15-11-1989
3- IPTS - 68 and practical temperature measurements	Dr. M.Aghbar	21-6-1989
4- Precise measurement by using superconductivity	Mr. Nakamura	11-7-1989
5- Temperature ( standards & measurements) in temperature laboratory	Mr. M.Harb	26-8-1989
6- Calibration philosophy and explanation of some terms	Mr. M.Zaawite	18-9-1989
7- The comparison and maintenance of standards of electromotive force.	Mr. AS.Karouni	27-9-1989
8- National standard & calibration laboratory	Dr.M.Aghbar	25-11-1989

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