3. カウンターパートのプログレスレポート

PROGRESS REPORT, November 1983 - July 1984

Automotive Engineering

EQUIPMENT/MODEL STUS

Item	Equipment/Model	Status
	1. Engine Research and Test Bed, and its accompanying measurement apparatus	In good working condition and in use
	2. Engine Analyzer (2 Models)	One model is not in use
	3. Injection Pump Tester	All are in good working codition and in use
	4. Four-Stroke SI Engine, mobile, cut-away model	
	5. Four-Stroke SI Engine, mobile, with glass case, table model	
	6. Four-Stroke SI Engine, demo. model	
	7. Two-Stroke SI Engine, demo. model	
	8. Diesel Engine, demo. model	
	9. Electrical System, demo. model	
	10. Transmission, demo. model	
	11. Motor Car Rear Axle, demo. model	
	12. Steering System and Front Wheels, demo. model	
	13. Disc Brake, demo. model	
	14. Hydraulic Brake, instruction model	
	15. Combination Type, Brake System, instruction model	

TRAINOR'S TRAINING

ACTIVITIES	TIMEFRAME								
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
1. Operation of the injection pump tester	■								
2. Demonstration of the operation of the steam engine						■ Dr. Y. Yoshizawa			
3. Refrigeration and air conditioning							■		
4. Engine performance using the engine research and test bed							Dr. T. Kamimoto		■

Please turn to the next page for the continuation.

Item	ACTIVITIES	TIMEFRAME								
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
PLANT VISITS	1. Philippine Refining Corporation to observe boiler operation.						■			
	2. National Power Corporation (Tegen Plant)to observe operations in commercial power plant.							■		
	3. National Power Corp. (Tiwi Geothermal plant)								■	
	4. Energy Research and Development Center, Phil. Nat. Oil Co.									■
STUDENT TRAINING	SECOND SEMESTER, 1983-1984									
	1st Cycle (4 Students)	■	■	■	■					
	2nd Cycle (8 Students)				■	■	■			
	FIRST SEMESTER, 1984-1985									
	1st Cycle (3 Students)								■	■
PEER TRAINING	Internal Combustion Engines, coducted for the ME Specialists.					■				

P L A N S F O R T H E S Y 1 9 8 4-1 9 8 5

1.0 Improvement of the training package that is being used

2.0 Development of other training packages both in the basic and the advanced training

3.0 Production of a training manual entitled " Performance Test of an Automotive Spark-Ignition Engine "

4.0 Development of instructional materials such as OHP transparencies, slides, and films to support the training packages

5.0 Initialization of research work on the feasibility of producing a model which will simulate the operation of the test bed using a four-stroke ig-

6.0 Validation of the new training packages and the training manual (March-May, 1985)

REQUIREMENTS TO EXECUTE THE ABOVE PLANS

1.0 TRAINOR'S TRAINING.

1.1 Consultation with,

a. Prof. Yoshida - oscillating circuit in relation to spark ignition system

b. Prof. Maeda - fluid mechanics as applied to charge motion in internal combustion engines

c. Dr. T. Kamimoto- structure (content and form) of the training packages and the training manual, and the area of research

1.2 Additional training in the calibration of the fuel injection pump in com-compression engines

1.3 Practice, under the supervision of Prof. Maeda, in the use of the equipment which measures the gas pressure inside the engine cylinder

1.4 Periodic short training under Dr. T. Kamimoto on the optimization of engine performance

2.0 ADDITIONAL EQUIPMENT.

2.1 Engine, spark ignition, four stroke (new or recoditioned, running condition)

2.2 Engine, compression ignition, four stroke (new or reconditioned, running condition)

2.3 Continuous gas analyzers (CO, HC, NOx) with automatic recorders

2.4 Bosch smoke meter

TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
INTEGRATED RESEARCH AND TRAINING CENTER
MECHANICAL ENGINEERING DIVISION
PROGRESS REPORT

EQUIPMENT	STATUS/CONDITION
One Freezer Unit	Compressor motor is defective
One Ice-Maker Unit	In good working condition, but flow meter packing was damage.
One Commercial Freezer Training Unit	All are in good working condition and in use.
Two No-Frost Refrigerator Unit	
One Split Type Air-Conditioning Unit	
Two Fan Coil Unit	
One Compressor	
We ding Equipment	

	ACTIVITIES	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
T T R R A A I I N N Q I R N ' G S	1.Boiler Operation and Procedures. Lecturer: Dr. Yoshio Yoshizawa				March 21 - April 5, 1984					
	2.Refrigeration and Air Conditioning						May 15 - June 1, 1984			
	3.Engine Performance using the Engine REsearch and Test Bed Lecturer: Dr. Takeyuki Kamimoto							July 18 - July 27, 1984		
P V L I A S N I T T	1.Philippine Refining Co. - to know the application of process steam - to know and observe industrial boiler operation.					April, 1984				
	2.National Power Corp. (Tegen Thermal Power Plant) - to observe operations in commercial power plants.						May , 1984			
	3.International Rice Research Institute (IRRI) - to be familiar with the modern Air Conditioning equipment - to know the different application of Air Conditioning						May, 1984			

P V L I A S N I T T	4.Good Year Philippines -to know the processes involve in tire making	July, 1984
	5.Energy Research and Development Center-Philippine National Oil Company -to Know the ongoing research on the alternative fuel source	July, 1984
S A E T M T I E N N A R S D	1. Short Time Course to Developed Skills on Research	June 29 - July 21, 1984
T C R O A U I N T I E N R I P G A R B T Y	1.Basic Training in Refrigeration and Air Conditioning Seven (7) students/cycle 48 hours/cycle	First cycle June 25 - July 24 ,1984 Afternoon Session June 25 - July 20, 1984 Evening Session Second cycle July 30 - ongoing Afternoon Session July 23 - ongoing Evening Session

Proposed Plan for Fiscal Year 1984-85

A.Equipment Request
1. Cut-away / cross-sectional view of;
   a. rotary compressor
   b. reciprocating compressor
   c. screw-type compressor
   d. centrifugal/centravac compressor

B. Prepare training materials for the advance training in the Refrigeration and Air Conditioning (giving emphasis on design)

Remarks:

The Mechanical Engineering division at present need a supply of technical journals and books that can update us with the fast growing technology.

INTEGRATED RESEARCH AND TRAINING CENTER
PROGRESS REPORT
Mechanical Engineering Division

EQUIPMENT	STATUS
Boiler and Auxiliaries	In good running condition
Superheater and Auxiliaries	In good running condition
Steam Turbine and Generator set	In good running condition
Atmospheric Condenser	In good condition
Water softener	In good condition

	ACTIVITIES	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
TRAINEES	I. Boiler Operations and Procedures a. Equipment Performance Lecturer: DR. YOSHIO YOSHIZAWA					MARCH 21 - APRIL 5, 1984				
	II. Metrology and Hardness Testing Lecturer: MR. KUNIO KAWAKATSU						JUNE - JULY, 1984			
	III. Internal Combustion Engines a. Engine Performance b. Use of smoke meter Lecturer: DR. TAKEYUKI KAMIMOTO						JULY 18 - 27, 1984			
	IV. Refrigeration and Air Conditioning							MAY 15 - JUNE 1, 1984		
PVLASNITT	I. Phil. Refining Company a. Corrective measures and preventive maintenance of boilers b. Applications of process steam						APRIL, 1984			
	II. Tegen Thermal Plant a. Familiarization of equipment b. Techniques of water softening							MAY, 1984		
	III. IRRI - International Rice Research Institute a. Familiarization of Modern Air Conditioning equipment such as Centra-Vac. b. Applications of these Equipment							MAY, 1984		
	IV. Goodyear Tire Company a. Process involved in Tire manufacture								JULY, 1984	
	V. PNOC - Phil. National Oil Company a. Engine Performance Test for alternative fuel b. Solar Air-Con								JULY, 1984	

	ACTIVITIES	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
SEMINARS	I. Basic Computer Programming				FEBRUARY - MARCH, 1984					
	II. Engine Research and Test Bed								JUNE, 1984	
	III. Machine Processing					MARCH, 1984				
TRAINING PROGRAMS	I. Advance Training in Steam Power Generation a. Equipment Performance 1. Plant Efficiency 2. Over-all Thermal Efficiency (5) FIVE STUDENTS PER CYCLE								JUNE 25 - JULY 27, 198 (FIRST CYCLE)	

PROPOSED PLANS FOR FISCAL YEAR 1984-85

A. Equipment request:
   1. Temperature recorder for boiler
   2. Power recorder for electrical output of steam turbine

B. Training
   1. More emphasis on equipment design and production

REMARKS:

The ME Division needs at present a supply of technical journals and books that are vital for its research functions. In this regard, the ME Division is particularly in need of journals concerning Ceramic Turbine and Ceramic Engine Combustion Chambers.

TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
INTEGRATED RESEARCH AND TRAINING CENTER
MECHANICAL ENGINEERING DIVISION
PROGRESS REPORT

EQUIPMENT	STATUS/CONDITION
One Freezer Unit	Compressor motor is defective
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One Split Type Air-Conditioning Unit	
Two Fan Coil Unit	
One Compressor	
Welding Equipment	

	ACTIVITIES	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
TRAINING'S	1.Boiler Operation and Procedures. Lecturer: Dr. Yoshio Yoshizawa				March 21 - April 5, 1984					
	2.Refrigeration and Air Conditioning					May 15 - June 1, 1984				
	3.Engine Performance using the Engine REsearch and Test Bed Lecturer: Dr. Takeyuki Kamimoto						July 18 - July 27, 1984			
PLANT VISITATIONS	1.Philippine Refining Co. - to know the application of process steam - to know and observe industrial boiler operation.						April, 1984			
	2.National Power Corp. (Tegen Thermal Power Plant) - to observe operations in commercial power plants.						May , 1984			
	3.International Rice Research Institute (IRRI) - to be familiar with the modern Air Conditioning equipment - to know the different application of Air Conditioning						May, 1984			

P V L A S N I T T	4.Good Year Philippines -to know the processes involve in tire making 5.Energy Research and Development Center-Philippine National Oil Company -to know the ongoing research on the alternative fuel source	July, 1984 July, 1984
S A E T M T I E N N A D R - S O	1. Short Time Course to Developed Skills on Research	June 29 - July 21, 1984
T C R O A U I N N T I E N R I P G A R B T Y	1.Basic Training in Refrigeration and Air Conditioning Seven (7) students/cycle 48 hours/cycle	First cycle June 25 - July 24 ,1984 Afternoon Session June 25 - July 20, 1984 Evening Session Second cycle July 30 - ongoing Afternoon Session July 23 - ongoing Evening Session

roposed Plan for Fiscal Year 1984-85

A.Equipment Request
1. Cut-away / cross-sectional view of;
   a. rotary compressor
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   d. centrifugal/centravac compressor

B. Prepare training materials for the advance training in the Refrigeration and Air Conditioning (giving emphasis on design)

Remarks:

The Mechanical Engineering division at present need a supply of technical journals and books that can update us with the fast growing technology.

TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
INTEGRATED RESEARCH AND TRAINING CENTER
REFRIGERATION AND AIR CONDITIONING DIVISION

PROGRESS REPORT ON STUDENTS BASIC TRAINING

SCHEDULE¥
DAY SESSION¥MON.to THURS.
1:00 to 4:00

DATE¥	NUMBER OF STUDENTS
NOV.15 1983 to DEC 4 1983	6
JAN.2 1984 to JAN.27 1984	7
JAN 30 1984 to FEB. 27 1984	6
FEB. 21 1984 to MARCH 16 1984	6

EVENING SESSION¥
MON. WED. FRI.
5:15 to 9:15

DATE:	
NOV.15 1983 to DEC 14 1983	9
JAN.4 1984 to JAN 30 1984	9
FEB.1 1984 to FEB.27 1984	9
FEB.29 1984 to MARCH 26 1984	8

TOTAL NO.OF STUDENTS 60

ON GOING BASIC TRAINING

SCDEDULE¥
1:00 to 4:00
MON. to THURS.

DATE¥	NO.OF STUDENTS
JUNE 25 1984 to JULY 23 1984	7
JULY 24 1984 to AUG. 20 1984	7
AUG. 21 1984 to SEPT. 17 1984	7
SEPT.18 1984 to OCT. 15 1984	7

EVENING SESSION¥

5:15to 9:15
MON WED FRI

JUNE 25 1984 to JULY 20 1984	7
JULY 23 to AUG 17 1984	7
AUG 20 1984 to SEPT 14 1984	7
SEPT 17 1984 to OCT 12 1984	7

TOTAL NO. STUDENTS 56

TRAINOR¥
MR.VALENTINO ANGELES
R.A.C.SHOP SPECIALIST

TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
Integrated Research and Training Center
ELECTRICAL ENGINEERING DEPARTMENT

ELECTRONICS PROGRESS REPORT NOVEMBER 1983 - JULY 1984

I. INPUT

EQUIPMENT

Name	Quantity
ET TV2	1 sets
Oscilloscope	3 units
Audio Signal Generator	1 unit
Voltmeter	2 units
Ammeter	3 units
Multitester	3 units

All equipment listed above are carefully utilized and in good working condition.

TRAINOR'S TRAINING by EXPERTS

- o Power Engineering I and II under Dr. Shinji Yamaguchi. The duration of the training covers June 1983 to October 1983.

- o Basic Electronic (ET-EX1) under Dr. Shinji Yamaguchi. The duration of the training covers November 1983 to April 1984.

- o Logics short-term training under the short-term expert Dr. Masazumi Kumagai.

- o Microcomputer Programming (TK-85) under Dr. Masazumi Kumagai starting July 1984 and still on-going. It is going smoothly and is an excellent one. The counterparts are working hand in hand for the improvement of the training programs and the EE Department as well.

SEMINARS/LECTURES ATTENDED

- o TUP Faculty Congress held at TUP Campus last December 14 and 15, 1983.

PLANT VISIT

- o Country-side field trip to Bicol region, to visit the Geothermal plant in Tiwi, Albay from June 15 to 18, 1984.

- o Trip visit to Goodyear Tire Philippines in Las Pinas, Metro Manila.

II. OUTPUT

STUDENT TRAINING

o Basic Electronic Training

First Cycle	12 students	-	Nov. 14 to Dec. 9,1983
Second Cycle	12 students	-	Jan. 9 to Feb. 2,1984
Third Cycle	9 students	-	Feb. 8 to March 7,1984

Trainors: Mr. Wilfredo M. Lopez
Mr. Jerome O. de la Torre

o Basic Training

First Cycle Day 12 students - June 25 to July 23,1984
Evening 14 students - June 25 to July 23,1984

The second cycle is the on-going training which started last July 30 for the day and July 25 for the evening classes.

Trainors: Mr. Jerome O. de la Torre
Mr. Harry A. D. L. Joson

III. PROPOSED PLANS/ACTIVITIES for FY 84-85

1. Open Saturday classes for basic and advance training to working students who cannot attend the regular weekday classes.
2. Request for short term expert for additional training on Microwave devices.
3. Request for additional faculty for additional training classes.
4. Produce more training materials to supplement instructions.

EQUIPMENT REQUEST

1. Provide an additional air-conditioning unit for the simulation training room.
2. Request for multitesters, preferably of a digital type.
3. Request for additional dual-trace oscilloscopes and audio signal generators.

Prepared by:

Jerome O. de la Torre

JEROME O. DE LA TORRE

PROGRESS REPORT (SUMMARY)
NOVEMBER 1983 - JULY 1984

	ACTIVITIES	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
TRAINOR'S TRAINING	Power Engineering I and II - Dr. Yamaguchi (June-Oct 1983)									
	Basic Electronics Training	*****	*****	*****	*****	*****	**			
	- Dr. Yamaguchi									
	Logic Gates		**							
	- Dr. Kumagai									
	TK-85 Microcomputer Programming									*****
	- Dr. Kumagai (on-going)									
	Faculty Congress		**							
	Plant Visits									
	- Bicol Geothermal Plant								**	
	- Goodyear Tire Phil.									**
STUDENT TRAINING	Basic Electronic Training									
	- First Cycle (12 students)	****	**							
	- Second Cycle (12 students)			*****	*					
	- Third Cycle (9 students)				****	**				
	Trainors:									
	Mr. Wilfredo M. Lopez									
	Mr. Jerome O. de la Torre									
	Basic Training									
	- First Cycle									
	Day (12 students)								**	****
	Evening (14 students)								**	****
	- Second Cycle (on-going)									
	Day (12 students)									*
	Evening (14 students)									*
	Trainors:									
	Mr. Jerome O. de la Torre									
	Mr. Harry A. D. L. Joson									

TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
Integrated Research and Training Center
ELECTRICAL ENGINEERING DEPARTMENT

ELECTRONICS PROGRESS REPORT APRIL 1984 - JULY 1984

I. INPUT

EQUIPMENT

Name	Quantity
ET EX-1 Training Package	5 sets
Oscilloscope	3 units
Audio Signal Generator	1 unit
Voltmeter	2 units
Ammeter	3 units
Multitester	3 units

All the utilized equipment are in good working condition. The three (3) units of multitesters used were actually borrowed from the TUP College of Engineering.

TRAINOR'S TRAINING by EXPERTS

- Basic Electronics (ET EX-1) under Dr. Shinji Yamaguchi last April 1984. This was actually a crash training on the Electronics Technology Experiment Package 1, since Dr. Yamaguchi is about to leave for Japan.

- Microcomputer Programming under Dr. Masazumi Kumagai which started last July 1984 and is still on-going. This is a training on assembly language programming, specifically, using the 8085 microprocessor and the TK 85 single-board microcomputer.

SEMINARS/LECTURES ATTENDED

- Disk BASIC Training under Mr. Noboru Suzuki of JOCV last June 1984. This is a training on how to access data from the diskette directly and how to use random and sequential files in the NEC PC-8001B microcomputer.

- CP/M Training under Mr. Noboru Suzuki of JOCV last July 1984. This is a familiarization with the CP/M (Control Program for Microcomputers) Operating System and its utilities as used in the NEC PC-8001B microcomputer.

PLANT VISIT

- Field Trip to Goodyear Tire Company in Las Pinas, M.M. with the Japanese experts.

II. OUTPUT

STUDENT TRAINING

o Basic Electronic training of volunteer TUP College of Industrial Technology students. This training has two parts. I handle the first part which covers the first six topics of the ET-EX1 Training Package and includes a familiarization with the oscilloscope. The topics covered are:

1. Ohm's Law
2. Oscilloscope
3. Kichhoff's Laws
4. Series Resonance
5. Parallel Resonance
6. Meter Circuits
7. Capacitor Charging and Discharging Characteristics

The second part is handled by Mr. Jerome de la Torre. The plan is to have two groups, one in the afternoon, and another in the evening. There will be four cycles per group and each cycle will last for forty-eight (48) hours. The afternoon group will consist of at most twelve (12) students per cycle while the evening, fourteen (14). The first cycle of both had just finished.

The first cycle of the afternoon group started last June 25 and ended last July 23,1984. The trainees were:

1. DELALAMON, Archimedes M.
2. GRAJO, Joey Candido
3. IGNI, Eduardo E.
4. LASALA, Lionel D.
5. MAIGUE, Emerson O.
6. MANATO, Enjelberto M.
7. MANGASAR, Mardonio Jr. B.
8. MIRANDA, Gerald A.
9. PLATON, Amado M.
10. SOLIS, Gerardo F.
11. VELASCO, Gregorio B.
12. VISORIO, Vicente R.

The first cycle of the evening group started last June 25 and ended last July 23,1984. The trainees were:

1. APOSTOL, Salvador Jr. S.
2. CALIBOSO, Manuel T.
3. GONZALES, Nolasco P.
4. MAGA, Jose William V.
5. MENDOZA, Carlo T.
6. MENOR, Bonifacio P.
7. MERCADO, Froilan S.
8. OLBIDO, Cyril Y.
9. PAMPLONA, David Jr. D.
10. PEREZ, Isaac E.
11. PRADO, Edgardo P.
12. RAMOS, Gener L.
13. ROJAS, Roy T.
14. ZAPA, Joventino F.

The second cycle had just started, last July 30 for the afternoon and July 25 for the evening.

III. PROPOSED PLANS/ACTIVITIES for FY 84-85

1. Open Saturday classes for basic and advance training to working students who cannot attend the regular weekday classes.
2. Request for short term expert for additional training on Microwave devices.
3. Request for additional faculty for additional training classes.
4. Produce more training materials to supplement instructions.

EQUIPMENT REQUEST

1. Provide an additional air-conditioning unit for the simulation training room.
2. Request for multitesters, preferably of a digital type.
3. Request for additional dual-trace oscilloscopes and audio signal generators.

Prepared by:

HARRY ALFONSO DL JOSON
ER Specialist

PROGRESS REPORT (SUMMARY)
NOVEMBER 1983 - JULY 1984

	ACTIVITIES	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
TRAINOR'S TRAINING	Basic Electronics Training - Dr. Yamaguchi						**			
	TK-85 Microcomputer Programming - Dr. Kumagai (on-going)									*****
	Plant Visit - Goodyear Tire Co., Phil.									**
TRAININGS ATTENDED	Disk BASIC Training - Mr. Suzuki (JOCV)								***	
	CP/M OS Training - Mr. Suzuki (JOCV)									*
STUDENT TRAINING	Basic Training - First Cycle Day (12 students)								**	****
	Evening (14 students)								**	****
	- Second Cycle (on-going) Day (12 students)									*
	Evening (14 students)									*
	Trainors: Mr. Jerome O. de la Torre Mr. Harry A. D. L. Joson									

EXPERIMENT EQUIPMENT STATUS

NAME	Quantity	Remark
I. BASIC ELECTRIC CIRCUIT TRAINER		
1. ET-EX1 Basic Electric Circuit	1 set	Used
2. ET-SCM3 Semi-conductor Static Characteristics Measurement	1 set	Not Used
3. ET-PS1 Transistor Power Supply Circuit	1 set	''
4. ET-PS2 Semi-conductor Application (Power Supply)	1 set	''
II. TRANSISTOR CIRCUIT TRAINER		
1. ET-OS1 Oscillation Circuit	1 set	''
2. ET-AMP1 Amplifier Circuit	1 set	''
3. ET-AMP3-1 Bias Circuit	1 panel	''
4. ET-AMP3-2 Various Coupling AF Amplifier Circuit	1 panel	''
5. ET-AMP3-3 Differential Amplifier Circuit	1 panel	''
6. ET-MOD1 AM Modulation and Demodulation Circuit	1 set	''
7. ET-ATR1 AM Transmitter and Receiver Circuit	1 set	''
8. ET-MOD2 FM Modulation and Demodulation Circuit	1 set	''
9. ET-PC1 Pulse Circuit	1 set	''
III. TV TRAINING SYSTEM		
1. ET-TV2 Color Television	1 set	Used
IV. SEQUENTIAL CONTROL TRAINER		
1. ET-SEC2 Sequential Control	1 set	Not Used
V. LOGIC CIRCUIT TRAINER		
1. ET-LC10 Basic Logic Circuit	1 set	''
2. ET-LS1 Logic Circuit Group	1 set	''
3. ET-LC20 Logic Circuit	1 set	''
VI. FEEDBACK CONTROL TRAINER		
1. YFB-101 Feedback Circuit	1 set	''
VII. SERVO MECHANIC TRAINING SYSTEM		
1. ET-SA1 Servomechanism	1 set	''
VIII. MICROWAVE MEASURING TRAINER		
1. SPC 14T370 Microwave Measuring Trainer	1 set	''
IX. COMPUTER TRAINING SYSTEM		
1. ET-DC50 Computer Element	1 set	''
2. ET-YEAC10 Computer Basic	1 set	Used
3. ET-SEC-1F Interface	1 set	Not Used
X. A-D TRAINING SYSTEM		
1. ET-AD1 A-D Conversion	1 set	''
2. ET-DA1-1 D-A Converter Circuit	1 panel	''

TEST/MEASURING EQUIPMENT STATUS

NAME	Model	Quantity	Remark
1. Oscilloscope	Iwatsu SS-5215	3 sets	Used
2. Universal Counter	Iwatsu UC-6145	1 set	Not Used
3. RC Oscillator	Leader LAG-120	1 set	USED
4. Sweep Generator	Leader LSW-250	1 set	Not Used
5. Pattern Generator	Leader LCG-391	1 set	Used
6. Distortion Meter	Leader LDM-170	1 set	Not Used
7. Digital Multimeter	Hioki 3205	1 set	Used
8. DC Ammeters			
a. Microammeter	Yokogawa 2051-01	1 set	"
b. Milliammeter	Yokogawa 2051-03	2 set	"
9. DC Voltmeter	Yokogawa 2051-05	2 sets	"
10. AC Voltmeter	Kikusui 1633A	1 set	"
11. Slide Ohm	Yamabishi	1 set	Not Used
12. Power Supply	Metronix 523B	2 sets	Used

PROGRESS REPORT NOV. 1983 - JULY 1984
ELECTRICAL ENGINEERING DIVISION

EQUIPMENT STATUS:

Name/Description	Unit	Qty.	Remarks
DC Motor X DC Generator	set	1	utilized fully
DC Motor X AC Generator	set	1	"
Synch. Motor X DC Generator	set	1	"
MG-Automatic Control System	set	1	"
Ward-Leonard Training System	set	1	"
AC-DC Universal Machine	set	1	"
Transmission Line Testing System	set	1	not used
Synchronizing Generator Parallel Operation System	set	1	utilized fully
Portable Generator with Diesel Engine	set	1	missing
DC Power Source	set	1	utilized fully
3-Phase Transformer (DELTA/STAR 10 KVA)	set	3	not used
3-Phase Transformer (DELTA/STAR 2 KVA)	set	1	"
1-Phase Transformer (0.3 KVA)	set	1	"
Electrostatic Condenser	set	1	"
Electric Dynamometer (DYM-3)	set	1	"
Resistor Load (LR-3S)	set	1	utilized fully
Resistor Load (LR-7-a)	set	1	"
Resistor Load (LR-9-a)	set	1	"
Induction Load (L-3S)	set	1	"
Capacitance Load (C-3S)	set	1	"
L.C.R. Variable Loading Machine	set	1	"
Field Regulator	set	1	"

TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES

Integrated Research and Training Center

ELECTRICAL ENGINEERING DIVISION

PROGRESS REPORT NOV. 1983 - JULY 31, 1984

INPUT:

EQUIPMENT

Name	Unit	Qty.	Remarks
DC Motor X DC Generator	set	1	good running condition
Ward-Leonard Training System	set	1	"
AC-DC Universal Machine	set	1	"
Resistor Load (14-LR-3S)	set	1	good working condition
Ammeter DC 30A YH-670 Panel	set	1	"
Ammeter DC 2A, 10A EDM	set	1	"

TRAINOR'S TRAINING by EXPERTS

Subject	Expert	Duration
Power Engineering I and II	Dr. Shinji Yamaguchi	June - Oct. 1983
Basic Electronics Training	Dr. Shinji Yamaguchi	Nov.'83 - Apr.'84
Microcomputer Programming	Dr. Masazumi Kumagai	July 1984 on-going

SEMINARS/LECTURES ATTENDED

Title	Lecturer	Duration
Lecture Series on Selected Mathematics and Physical Science Concepts	JOCV	Oct. 24-28, 1983
Computer Training	Noboru Suzuki	Feb.-March, 1984
Disk BASIC Training	"	June 1984
CP/M Training	"	July 14, 1984

OUTPUT:

Only one cycle of training in Power Engineering I & II for the Second Semester, 1983-1984 was conducted. The participants were 5th year Electrical Engineering students from the College of Engineering. They were required to submit reports for each experiment. The reports , attendance, and experiment performance were used to evaluate the over-all performance of the students. At the end of the training, they were given certificates of training which they can use as additional qualification for job application.

The following students have satisfactorily completed the Advanced Training Course on:

Direct Current Generators
Direct Current Motors
Synchronous Generators
Synchronous Motors
Ward-Leonard System of Control
Synchronous Generator Parallel Operation
AC-DC Universal Motor-Generator Operation
and Motor-Generator Automatic Control

1. Oscar P. Alonzo
2. Elmer G. Amurao
3. Virgilio J. Asuncion
4. Josefino R. Calamlam
5. Alvin A. Hosmillo
6. Joselito S. Limjap
7. Martin Marlo Lopez II
8. Romeo M. Macapulay
9. Roland C. Oguing
10. Eugene S. Paguirigan

INCLUSIVE DATES: November 14, 1983 to February 15, 1984

TRAINORS:

MARVIL V. GRAZA
MARISSA S. CALMA

UNDER THE SUPERVISION OF:

DR. SHINJI YAMAGUCHI

FIRST SEMESTER, 1984-85

Only ONE cycle of training in Power Engineering I and II is being conducted. The participants are 5th year Electrical Engineering Students from the College of Engineering.

The scope of training for this semester is the same as in the previous one. However, the handouts are better and more detailed. They are also required to submit reports 7 days after completion of each experiment. These, attendance, and experiment performance will be used to evaluate the student's performance in the training. At the start of the training, we conducted a pretest to determine what the students have retained from their instructors in theory. It was observed that they have forgotten most of the theories such that the training served not only as a hands-on exercise but also as a review of the basic concepts and theories they have learned from their subjects in engineering.

The following students are the participants in the on-going training in Power Engineering I and II whose topics include:

Direct Current Generators
Direct Current Motors
Synchronous Generators
Synchronous Motors
Ward-Leonard System of Control
Synchronous Generator Parallel Operation
AC-DC Universal Motor-Generator Operation
Motor-Generator Automatic Control

1. Noel V. Bulanadi
2. Arnel M. Chico
3. Isabelito R. Lapuz
4. Constante D. Palafox
5. Lino D. Reyes
6. Renato C. Roque
7. Marlon U. Segui

DURATION: June 26 to August 2, 1984

TRAINORS:

MARVIL V. GRAZA
ALAN T. SANDOVAL

UNDER THE SUPERVISION OF:

DR. MASAZUMI KUMAGAI

PROPOSED PLANS FOR FY 84-85

The on-going project of complete documentation and printing of the handouts in the training for Power Engineering I and II will be continued. A temporary deadline has been set (August 1984) so that the money set aside for printing will be used as soon as possible, since the prices keep on increasing. It was suggested that the WORDSTAR be used for the production of the original which will be used for printing. If this suggestion is followed, time is needed for the specialists to acquaint themselves with the software in order to be able to use it effectively.

After the documentation project for Power Engineering I and II, it was requested by Dr. Kumagai that I prepare the training manual for Microcomputer Programming using the TK-85 microprocessor kit. This project is speculated to be concluded by March, 1985.

Another cycle of training will be offered in Power Engineering I and II to give chance to students who were unable to take advantage of the offer in the first semester due to conflict in schedule and time constraint. This cycle will cover the same topics as covered in the previous two semesters. The conduct of training will be very much the same as in the last two cycles.

The EE counterparts have not been given training on the Electric Dynamometer and Transmission Line equipment which are conclusive topics in the Power Engineering I and II training. It is, therefore, our plan to request short-term experts to give training on these machines, so that we can include them in our training packages.

Submitted by:

MARVIL V. GRAJA
EE Specialist

PROGRESS REPORT NOV. 1983 - JULY 1984 (SUMMARY)

ITEM	ACTIVITIES	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
TRAINOR'S TRAINING	Power Engineering I & II - Dr. Yamaguchi(June-Oct. 1983)									
	Basic Electronics Training - Dr. Yamaguchi	ooo	ooo	ooo	ooo	ooo	ooo			
	Logic Gates (short-term) - Dr. Kumagai		ooo							
	Computer Training - Noboru Suzuki				ooo	ooo				
	DISK BASIC Training - Noboru Suzuki								ooo	
	CP/M Training - Noboru Suzuki									ooo
	*Microcomputer Programming(TK-85) - Dr. Kumagai									ooo
	Plant Visits: - Tegen Thermal Power Plant - Good Year Tires Phil.							ooo		ooo
STUDENT TRAINING	Power Engineering I & II 10 Students, 1 cycle	ooo	ooo	ooo	ooo					
	*Power Engineering I & II 7 Students, 1 cycle								ooo	ooo
Peer Training	Power Engineering I & II							ooo		
OTHERS	Preparation of the Teaching Manual for Power Engineering I&II		ooo	ooo	ooo	ooo	ooo	ooo		

* - on-going

PROGRESS REPORT
May, 1984 - July 31, 1984

A. INPUT

A.1 Electrical machines used in my training such as the Synchronous Motor, Synchronous Generator, Parallel operation of Synchronous Generator, and Motor-Generator Automatic Control are in perfect running and operating condition.

A.2 Trainor's training on TK-85 conducted by Dr. Masazumi Kumagai started last July 1, 1984. As beginner's Dr. Kumagai provide us with Instruction Set and Training Notes on how mnemonic programs are used on NEC TK-85.

A.3 IRTC specialists together with Japanese experts had a field trip at Goodyear plant in Alabang.

B. OUTPUT

B.1 Before any actual experiment, Marvil and I would first discussed about the principles and operation involved in the electrical machines that each of us would be handling. During actual experiments we divide the group into two(2). One group for Marvil's experiment and the other group for my experiment. Then after completing their respective expeiment, the group of Marvil's will now be performing my experiment and vice-versa. Right now, we are training seven (7) senior electrical student for one cycle for this first semester. Training hours is 48 hours.

ALAN T. SANDOVAL
EE SPECIALIST

PROGRESS REPORT
MAY, 1984 - JULY 31, 1984

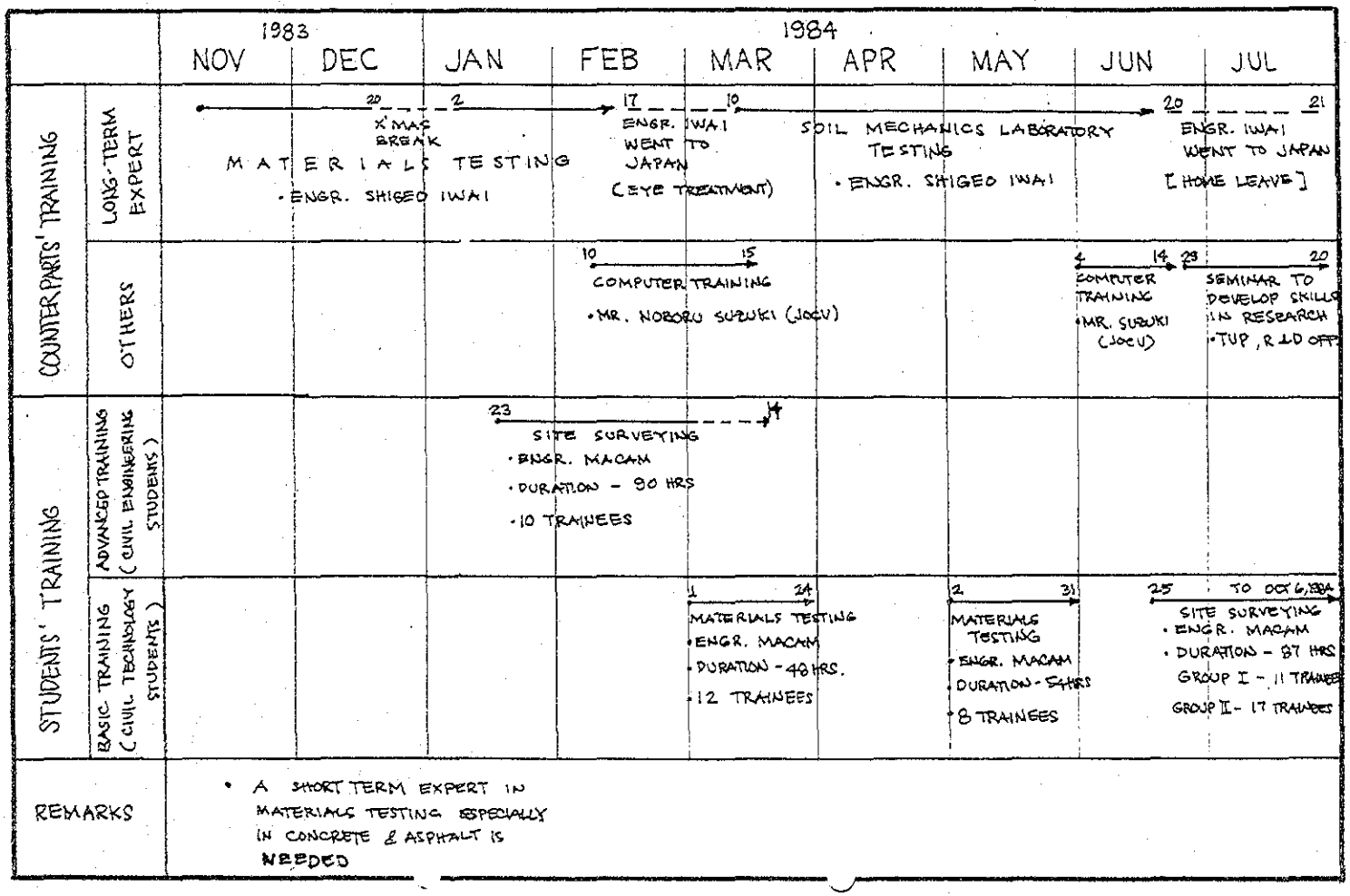
ACTIVITIES	MAY	JUNE	JULY
TRAINOR'S TRAINING :			
Use of Single-board Microcomputer (NEC TK-85) using mnemonic programs - Dr. MASAZUMI KUMAGAI			xxxxxxxx
Plant visit: Goodyear Phils. (Alabang)			xx
STUDENT'S TRAINING :			
Advanced training on Power Eng'g II which includes the following: 1. Synchronous Motor 2. Synchronous Generator 3. Parallel operation of synchronous Generator 4. Motor-Generator Automatic Control			xxxxxxxx
Training hours: 48 hrs No. of students/cycle: 7			

REMARKS :

1. A short term expert to conduct training on transmisson lines, electric dynamometer, and transformers.

CIVIL ENGINEERING DIVISION

Progress Report of Engr. VICTOR R. MACAM JR.



TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
INTEGRATED RESEARCH AND TRAINING CENTER
CIVIL ENGINEERING DIVISION

LIST OF EQUIPMENT

E Q U I P M E N T	QTY.	STATUS	REMARKS
Universal Testing Machine with Accessories	1 set	Good operating condition	Fully used in materials testing
Liquid Limit Test Set	2 sets	Good operating condition	used in trainors' training
Hobert Mixer	2 sets	Good operating condition	not yet used in training
Compaction Test Set	2 sets	Small rammer not aligned	not yet used in training
Consolidation Test Apparatus	1 set	Check plane level setting	not yet used in training
Concrete Core Drilling Machine	1 set	Good operating condition	fully used
Mortar Flow Table	2 sets	1 tamper missing	not yet used in training
Semi-Automatic Vicat Apparatus	2 sets	adjust regulator	not yet used in training
Hydraulic Slabbing Saw	1 set	Good operating condition	fully used
Laboratory Concrete Mixer	1 set	Good operating condition	not yet used in training
Los Angeles Abrasion Testing Machine	1 set	Good operating condition	fully used
Asphalt Oven	1 set	Good operating condition	not yet used in training
Single Door Small Oven	1 set	glass door cracked	fully used
Cement Autoclave	1 set	Good operating condition	not yet used in training
2" - Cube Mold with Base Plate	6 sets	Good operating condition	not yet used in training
Specific Gravity Test Set	3 sets	Good operating condition	used in trainors' training
Centrifugal Extraction Apparatus	1 set	Good operating condition	not yet used in training

continuation...

E Q U I P M E N T	QTY.	STATUS	REMARKS
• Ductility Testing Machine	1 set	Good operating condition	not yet used in training
• Furol Type Saybolt Viscosimeter	1 set	Good operating condition	no gas outlet not yet used in trng
Internal Concrete Vibrator	1 set	Good operating condition	used in trainors' training
Theodolite	6 sets	Good operating condition	fully used
Capping Set for 15 cm Diameter Conc. Cylinder	1 set	Good operating condition	used in trainors' training
Electric Air Compressor	1 set	Good operating condition	used in trainors' training
Proving Ring	1 set	Good operating condition	used in trainors' training

Prepared by :

Prof. Loreto Apilado
Engr. Victor R. Macam Jr.
Engr. Davio Mundo

Noted by :

Engr. Shigeo Iwai

CIVIL ENGINEERING DIVISION
PROGRESS REPORT
Nov.,1983 - July,1984

I. Status Of Equipment:
1. Laboratory facilities are in good condition and fully utilized.
2. Additional equipments are expected to arrive at the end of the semester.

II. Trainors Training:
1. Trainors training is going on smoothly in Soil Mechanics and Materials Testing with special emphasis in the operation of the laboratory equipments.
2. An educational tour was conducted up to the Bicol region and at the Good Year tire plant in Metro Manila.

III. Students Training:
1. Design and preparation of a training program for students
   a. Surveying - Basic and Advance
   b. Soil Mechanics - Basic and Advance
   c. Materials Testing - Basic and Advance
2. Design and construction of instructional devices
3. Number of Students trained - 35 CIT students
   Basic training in materials testing
   Jan. 3 - 31, 1984 - 13 students
   Feb. 1 - 29, 1984 - 11 students
   June 19 - July 26, 1984 - 11 students (evening)

IV. Proposed Plans:
1. Continuation of the on-going trainors training.
2. Continuation of students training - 3 classes in materials testing.
3. Expansion of the CE office and construction of a storage facility.

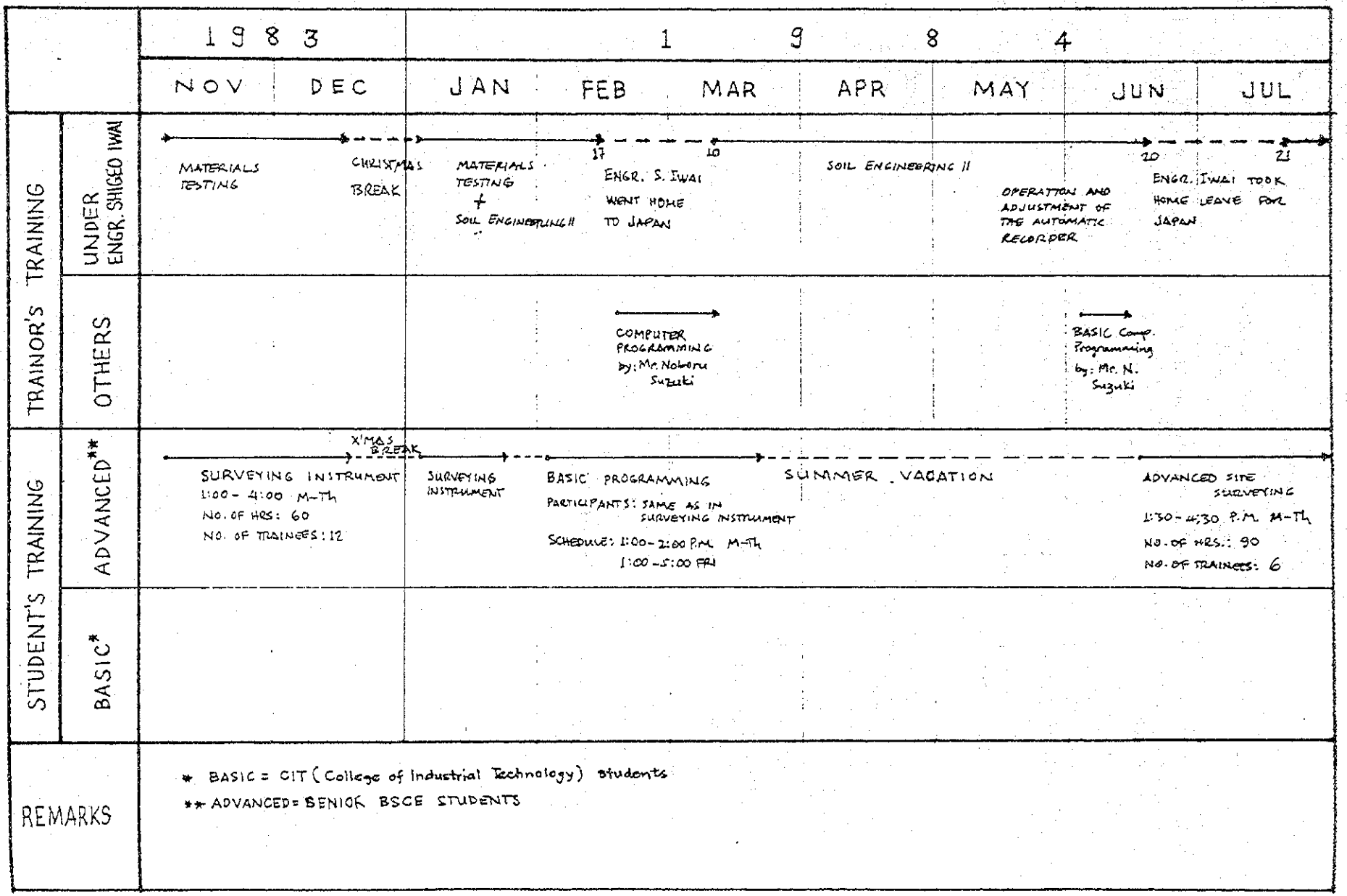
Respectfully submitted:

LORETO D. APILADO
CE counterpart

Noted:

SHIGEO IWAI
CE expert

PROGRESS REPORT: Civil Engineering Division by Engr. David P. Mundo



INTEGRATED RESEARCH AND TRAINING CENTER
Technological University of the Philippines
Ayala Boulevard, Ermita, Manila

PROGRESS REPORT

Nov., 1983 - July, 1984

I. INPUTS

I.1 Equipment and resources status

I.1.1 (SEE attached list)

I.2 Trainor's Training by Expert

The trainor's training given by Engr. Shigeo Iwai are listed below. Schedules are indicated on the first page of this report.

I.2.1 Soil Engineering II

(a) Preparation of disturb soil sample
(b) Moisture content determination of soil
(c) Grain size analysis of soil solids by the sieve method
(d) Consistency tests
(e) Determination of specific gravity of soil solids
(f) Grain size analysis by the hydrometer method (lecture)
  (f.1) Preparation of dispersing agent (lecture)
(g) Soil classification and identification (lecture)

I.2.2 Materials Testing

(a) Los Angeles abrassion test for concrete aggregates
(b) Use and operation of the universal testing machine
  (b.1) Compression test of concrete cylinders
  (b.2) Flexure test of concrete beam
  (b.3) Split cylinder test of concrete
  (b.4) Tensile test of reinforcing bars
  (b.5) Bend test of reinforcing bars
  (b.6) Tensile test of wood
  (b.7) Flexure test of wood
(c) Operation and adjustment of the automatic recorder

I.3 Plant/Field Visits

I.3.1 Underground Tunneling at Caniogan, Pasig, Metro Manila
Project by: MWSS (Metropolitan Waterworks and Sewerage System)
Contracted by: Toyo Construction Company, Japan

I.4 Seminars/Lectures Attended

I.4.1 Lecture Series on Selected Mathematics and Physical Science Concepts by JOCV Oct 24 - 28 , 1983
I.4.2 Computer Seminar by Mr. Noboru Suzuki
I.4.3 BASIC Computer Programming by Mr. Noboru Suzuki

II. OUTPUTS

II.1 Students' Training

II.1.1 Surveying Instrument
Level: Advanced
Duration: Nov 16, 1983 - Jan 19, 1984
Total No. of Hours: 60
Participants: Senior BSCE students
No. of Participants: 12

II.1.2 Advanced Site Surveying
Level: Advanced
Duration: Jun 25 - Aug 16, 1984
Total No. of Hours: 90
Participants: Senior BSCE students
No. of Participants: 6

The training programs listed below will be given as scheduled. Duration and total number of training hours are also indicated. These training programs are open to the senior BS Civil Engineering students only.

II.1.3 Soil Mechanics Laboratory
Level: Advanced
Duration: Aug 20 - Sep 13, 1984
Total No. of Hours: 60
Participants: SEnior BSCE students
No. of Participants: Accepting for registration

II.1.4 Materials Testing
Level: Advanced
Duration: Sep 17 - Oct 11, 1984
Total No. of HRS.: 60
Participants: Senior BSCE students
No. of Participants: Accepting for registration

PROPOSED PLANS AND ACTIVITIES FOR FY 1984 - 1985

1. Equipment request
(List available on files)
2. Calibration of the additional equipment and apparatus that shall arrive.
3. Trainor's training under Engr. Shigeo Iwai about soils and geotechnical engineering.
4. Production of simulation model in soil mechanics
e.g., consolidation, seepage, etc.
5. Conducting laboratory works using the newly arrived additional soil mechanics equipment and apparatus under the supervision of Engr. Shigeo Iwai.
6. Surveying trainor's training using the newly arrived additional surveying equipment.
7. Surveying fieldwork outside Metro Manila
e.g., TUP Cavite
8. Educational visits of soils and materials testing Laboratories around Metro Manila who are undergoing laboratory tests.
9. Additional space for CE Laboratory provided with water supply, electric supply, and drainage.
10. A research about "The Study of Compacted Soil Properties for Road Construction Materials Around Metro Manila."

AUDIO-VISUAL DIVSION
(Progress Report)
Nov. '83-July '84

	ACTIVITIES		NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	
STATUS OF EQUIPMENT	Equipment in good condition	Master Control-52 TV Studio -36 AV Education -25										
	Equipment not operating	Master Control-1 TV Studio -0 AV Education -0										
	Equipment in good condition but not utilized.	Master Control- 1 TV Studio - 0 AV Education -4										
	Additional Equipment	N O N E										
Manpower Resources	Media Specialist	1										
	AV Technician	1										
	Cameraman (part time)	1										
	VTR Editors(part time)	2 (1983) 0 (1984)										
INPUTS	Plant Visits											
	-UPSEC								X			
	-Goodyear Phils.										X	
	Seminars/Lectures											
	-VTR Softwares Planning and Production		X									
	-Computer Operation							X				
	Studies Undergone											
	-Media Specialist											
	Masters Degree in Mass Communications									X	X	up to NOV.
	-Technician											
	BSIE (third year)									X	X	up to NOV.

		NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	
OUTPUTS	ETV and ITV Productions										
	a. Reflection and Refraction of Light				X	X					
	b. IRTC Documentary (Sequel 2)			X	X	X	X				
	c. Electric Current and Light	X									
	d. Stem Power Plant Operation							X	X		
	e. Automotive Engine Research and Testbed Operation									X	(in-process)
	Reproduction of VTR films - Educational 25										
	Documentation - 7 films										
	Technical Services										
	a. slide making 2										
	b. Voice recordings 2										
	c. Paper works writing and editing 10										
	d. film copying 25										
	e. musical scoring 5										
REMARKS	AV needs the following resources:										
	a. KCS 20 Video Cassette tapes										
	b. KCA 60 Video Cassette Tapes										
	c. KCA 30 Video Cassette Tapes										
	d. Betamax 500 Tapes										
	e. Journals and Books on CCTV productions										
	AV needs the following equipment:										
	a. Betamax 2										
	b. Betamax Portable camera ✓										
	c. Betamax Portable Video Cassette Recorder										
	d. Portable Video Camera (3-gun) with portable video cassette recorder										

AUDIO-VISUAL DIVISION
Progress Report: Nov. 7,1983 - July 31,1984

I. Inputs:

1.1 Equipment and Resources:

A complete inventory of equipment and resources was made last June, 1984 by the Audio-Visual Division and the Supply Section of the Technological University of the Philippines. Based on the results of the inventory, the equipment contained in the division which includes units like the Master Control, Television Studio, Audio-Visual Education Room and the Audio Room at the Conference Hall remained intact as originally installed. Except for one equipment at the Master Control, all other equipment of the AV Division were found to be in good condition. Likewise almost all equipment had been fully utilized.

For further reference on the directory of equipment located in every aforementioned unit of the AV Division, the following list are hereby provided:

MASTER CONTROL

Quantity	Description	Model
1	Automatic Editing Control	RM-440
1	Special Effects Generator	SEG-1210
1	Special Effects Generator Power Supply	SEG-1310
1	8 Channel Mixer	MX-20
1	Talkback Unit Microphone	DM-524-B
1	Open Reel Tape Recorder	TC-707
1	Stereo Power Amplifier	TA-AX 4
1	Stereo Turntable System	PSX-55
(1)	Stereo Cassette Deck	TC-K61 not operating
1	Portable Dimmer	SBA-32-18-6-R
2	Video Cassette Player (U-matic)	VO-2860
2	Betamax Video Cassette Recorders	SLO-323
2	Color TV Monitors/Receivers (20 inch)	CVM-1900
5	Color TV Monitors (9 inch)	PVM-8000
1	B/W Video Camera (Viewfinder)	AVC-3260 S
1	Camera Control Unit	CCU-1800
3	AC Camera Adaptor	CMA-7-CE
1	Color Optical Multiplexer	VCR-2
1	Auto Threading 16 mm. TV Film Projector	SC-10-S-E1A
6	Video Selectors	VCS-50 M
1	Multisignal Distributor	MD-1600
2	Audio-Video Distributors	DA-210
2	Speakers	SSR-3
1	Portable Video Camera	DXC-1800
1	Portable Video Cassette Recorder	VU-4800
1	National Panasonic Cassette Recorder	RX-5120-F
3	Headsets	DR-10-A
1	Battery Charger	BC-20-CE
1	AC Power Adaptor Charger	AC-340-B
6	Battery Packs	BP-60
2	Table Microphone Stands	A-12/12-N

TELEVISION STUDIO

1	Betamax Video Cassette Player	SLP-303
1	Color TV Monitor	PVM-1900
2	Colored Cameras with Viewfinder	DXC-1800
2	Tripods with Dolly	SAM-TPD-3
3	Portable Lighting Kit	CAT-KIT-3
1	Tripod w/o Dolly	TVT-1
2	Boom Stands	B-30
3	Dynamic Microphones	F-560
3	Condenser Microphones	ECM-150
2	Quartz Focusing Lights (stand type)	LQF-6N
2	Quartz Spot Lights	LQS-10/LQS-5
3	Quartz Broad Lights	LQB-20
3	Quartz Focusing Lights	LQF-6N
6	1 Kw. Upper Horizon Lights	UHQ-10
2	Speakers	SSR-3
1	VTR Display Stand	UR-176

AUDIO VISUAL EDUCATION ROOM

1	Video Cassette Recorder (Betamax)	SLO-323
1	Video Cassette Recorder (U-matic)	VO-2610
1	Control Amplifier	PAA-100
1	Integrated Stereo Amplifier	TAF-35
1	Remote Controller	VPR-720
1	Projector Power Supply Unit	VPU-720
1	Elmo Film Projector 16 mm.	16-FAV
1	Elmo Slide Projector	AS-3000 A
1	Elmo Slide Projector 8 mm.	ST-1200 HD
1	Elmo Overhead Projector (w/ cabinet)	HP-2450
1	Ceiling Projector	VPK-720
1	Wall Screen with Frame	VPK-720
2	Speaker Systems	
2	Elmo Screen w/o stand	
1	Elmo Screen w/ stand	
1	Elmo AVR System	
1	Wireless Microphone	CRT-500 PA
2	Dynamic Microphones	F-560
4	Ceiling Speakers	
4	Betamax Video Cassette Player	SLP-303

An amount of effort was exerted for the maintenance of the different AV equipment. A total check-up was made by a Sony Expert and AV Technicians last November, 1983. In a way consistent with what was expected, the expert was able to detect some minor troubles with the said equipment. To mention: malalignment of color in the ceiling projector and TV camera color, weak spare parts in the stereo cassette deck recorder and mal-adjustment of "pause" system in the U-matic Video cassette Player. Except for the stereo cassette deck recorder all the equipment were found to be sound.

To be able to function at an orderly pace, a continuous supply of hardware resources was availed of by the AV Division. These resources such as video tapes, lamps and cassette tapes were being continuously used in carrying out the different projects and duty calls of the AV Division.

1.2 Manpower Resources:

In 1983 the AV Division was provided with a team staff composed of the following:

1 Media Specialist - who performs supervising tasks, scriptwriting program directing, voice recordings and other duties as assigned.

1 Audio-Visual Technician - who performs maintenance of equipment a and shops, camera handling, audio recordings and several other technical tasks.

1 Cameraman (part time) - who actually is a Physics technician but had a through experience in camera handling/

2 VTR Editors (part time)- who perform VTR film editing, musical scoring, dubbing, film curing, lighting techniques and camera handling.

At the start of 1984, due to some constraints, the 2 part time editors had to cease their services momentarily. Thus, the AV Division was left with only 2 full time staff and one on-duty call cameraman.

1.3 Plant/Industry Visits :

With the aim of enhancing the theoretical and technical backgrounds of the AV staff, most particularly the Media Specialist on communication technology and TV productions, priviledges for educational trips were provided by the IRTC to achieve such a purpose.

Tour to the University of the Philippines Science Education Center or UPSEC was done recently. This educational visit provided the Media Specialist the opportunity to view the different production outputs of the Center which were entirely educational and instructional by nature. This activity gave a thorough information to the Specialist on the different creative procedures being employed in the production of the various ITV and ETV programs of UPSEC. Furthermore, a variety of modern equipment and esources were also witnessed which were all fully utilized in the operations of the audio-visual unit of the said Center.

By the same token, a field trip to Goodyear Philippines, a tire making industrial plant was conducted. This trip benefitted the Specialist in such a way as the tour involved film showings concerning the mechanics of tire making which could somehow served as good references for creative methods in film making.

1.4 Seminars/lectures

As a follow-up activity to the sporadic training programs conducted by expert Sony Tehnicians on proper equipment operations, a 2-day thorough equipment operation consultation and CCTV softwares planning and production was attended by the AV staff. This was conducted by a Sony Engineer from Japan who gave thorough discussions on the different aspects involved in the production of wholesome ITV programs and the different ways on how to detect early trouble spots in the equipment.

Another area of training which was introduced to the Media Specialist as part of skills development was the Computer operation. The lectures covered such topics as Computer Familiarization, Word Processing and Basic Programming.

1.5 Studies Undergone

In view of the fact that the staff in the IRTC need to develop their capabilities, they were given the priviledge to pursue their university studies on their specific fields of interest.

As an example, the Media Specialist whose major area of studies is Mass Communications, is now in the process of fulfilling her requirements in the Masters Degree in the same field. At present, she is on the halfway of her academic pursuance.

The Audio-Visual Technician has finished a 2-year technician ourse on General Radio Communication Operators. Presently, he is in his third year of studies in BS Industrial Education.

II. OUTPUTS :

2.1 In consonance with the main task of the Audio-Visual Division to produce instructional films to serve as supplementary training resources for the students, the following were its accomplishments:

A. Reflection and Refraction of Light:

This production lays the groundwork for another comprehensive information training package for the Physics students, to give them a full understanding about the behavioural properties of light, such as, its reflection and refraction through some experiments conducted on television.

This project which was carried out jointly by the Audio-Visual Divison and the Physics laboratory came into completion only after the entire duration of one month and a half that covered the whole phase of roduction tasks. The video shootings and the proportions of physical requirements drawn into gathering of video materials were appraised to be 90% for indoor shooting and 10% for outdoor shooting.

Some salient points in the ITV program included the presentation of the wave nature of light through the use of the Optical Through and Laser Instruments. The experiments were video taped completely and the portions that called for measurements were done rigidly and accurately through the use of graphics and telop machine. Various shots of the instructor were included to provide a continuous flow of instructions as the discussions of the subject shift from one aspect to another. A video collection of selected panorama materials were also presented to serve as the introduction of the program's subject matter.

The finished product has a running time os 15 minutes and completely taped in color. It is contained in a KCA 30 U-matic tape with a duplicate copy in a betamax tape.

B. Electric Current and Light: (Physics)

This project was done in a very simple production approach. The objective of which was to present the basic components of electric lamps in a very interesting and vivid manner so that the learner for whom the program message was intended would want to learn more and be able to retain the message he obtained and would be successful in doing so.

It has a running time of 7 minutes only which was designed as an introductory piece to any discussions about electric light. As for the mechanics involved in its production, studio setting was utilized and a minimum number of scenes were taken outdoor. Graphics and illustrations became very functional as well.

The finished product was placed in a master tape and now ready for transmission via the CCTV system.

C. Steam Power Plant Operation Procedures:

This film is comprised of lectures concerning the proper procedure of operating a steam power plant machine. The different parts of the machine were described here and the explanations of the parts' functions were the main concentration.

The film was designed to be used for the Mechanical Engineering students. Its duration is 30 minutes and was taken entirely in color with with actual audio materials.

An evaluation of this film was already done by the counterparts and Japanese Experts. Based on the results of the said evaluation, the film was satisfactorily done, however, there are parts that have to be revised and some salient points of sugestions that have to be taken into major considerations.

D. Automotive Engine Research and Testbed Operation:

This film which basically concerns the operation of the Automotive Engine Research and testbed is now in-process. The production team and the Specialists in the field are yet collecting raw video materials of the experiment on the machine and after which research materials to provide for the audio have to be collated and scripted. Selection of appropriate video materials, voice recordings, film editing and film curing will follow suit.

2.2 Other Related Activities:

In addition to the Division's aim of strengthening the process of teaching via the medium of television, it is also committed to perform other activities complementing its functions. To wit:

a. Reproduction of VTR Films:

In line with this commitment, the Audio-Visual Division has been reproducing film copies of educational and instructional films obtained from other institutions and/or agencies. These films are seened vital to faculty as teaching guides and to students as their supplementary training lessons. The following were the outputs:

Mechanical Engineering:
1. Precision Measuring Tools
2. Dial Indicators
3. Basic Refrigeration System
4. Theory of Refrigeration
5. Safety in Handling Freon Refrigerants
6. Rooftop System for Modern Needs
7. ABC's of Central Air Conditioning
8. Air Distribution Design
9. ABC's of Avoiding Burmont Callbacks

Computer:
1. File Characteristics
2. Tree Structure File
3. Computer Hardware Structure

Science:
1. Life on Earth (2 topics)
2. UPSEC Video Lessons (8 topics)

b. Filming of significant activities in the IRTC which will serve as future references for any documentary projects. However, some of these films are being kept as raw materials because of lack of good background materials concerning their substances/subject. The activities filmed were:

1. National Assembly of Computer Education and Training '83
2. Philippine Association of Graduate Educators Convention
3. Philippine Normal College Groundbreaking Ceremony
4. TUP Faculty Congress '83
5. Micro Teaching
6. 13th Annual Art and Design Exhibit Competition
7. 4th Country Course Opening and Closing Ceremony

c. Presenting of IRTC documentary film to the Center's visitors. The center has now 2 available documentry films about its role, functions and activities.

d. The audio-visual is also providing technical, personnel and accomodation assistance to the other staff in the Center and the University. These services are usually slide making, voice recordings, paper works editing, film copying and musical scoring.

III. PROPOSED PLANS FOR FY 84-85

a. Activities:

The Audio-Visual Division has focused its plans for future activities on the production of several instructional and educational film for the use of the students. In this manner, different experiments will be filmed and counterparts will take part as the potential sources of technical information in the production of the audio and video materials of the films.

The next project that the AV Division envisions to produce will be the experiments on Thermodynamics.

b. Equipment and Resources Needed:

With regard to the on-going and planned activities of the audio-visual Division, added equipment and resources were found necessary inorder to achieve better outputs. Such equipment and resources as:

1. Betamax 2 Player and Recorder
2. Betamax Portable Camera
3. Betamax Portable Video Cassette Recorder
4. U-matic Video Cassette Player
5. Portable Video Camera (3-gun) with portable Cassette Recorder
6. KCS-20 Video Cassette Tapes
7. KCA-60 Video Vassette Tapes
8. KCA-30 Video Cassette Tapes
9. Betamax 500
10. Books and Journals on Instructional and Educational Television Production and CCTV System in Scools.

IV. PROBLEMS:

The following are the problems being confronted by the Division:

1. Lack of books and journals.
2. Lack of tapes , lamps and other accesories.
3. Division being understaffed.

Technological University of the Philippines
INTEGRATED RESEARCH AND TRAINING CENTER
Physics Education, Training and Services

PROGRESS REPORT

	ACTIVITIES	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
STATUS OF APPARATUS	* Apparatus in good condition and utilized — a) Gen. Lab. Apparatus (15); b) Physical Apparatus (94)									
	* Apparatus not operating — a) Gas Bearing Runway (1); b) Air Table (1)									
	* Apparatus not utilized — a) Chemistry (3)									
	* Additional Apparatus — none									
MANPOWER RESOURCES	* Physics Specialist (1) — * MST PHYSICS									
	* Laboratory Technician (1) - 4th YR. BSIE									
INPUTS	* Plant Visits									
	a) Pilipinas Shell Refinery Plant (Batangas City)							x		
	b) Geothermal Plant - Tiwi, Albay								x	
	c) NSTA - Taguig, M.M.				x					
	d) UPSEC - Diliman, Quezon City			x						
	e) Philippine Atomic Energy Commission							x		
	f) Good Year (Phil.) Tire Manufacturing									x
	*Seminars/Lectures									
	a) Computer Training (Suzuki)				x (1wk)					
	b) Electrical Eng'g. Training (Yamaguchi)			x						
	c) Research Techniques and Design (R&D, IRTC)									x
	d) Writing Softwares for Microcomputers	x								

	ACTIVITIES	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JU
INPUTS	* Studies Undergone (University) a) Summer 1984 Upgrading Course for Technician Educators a.1. Physics Course a.2. Educational Technology						x	x		
OUTPUTS	* ETV & ITV Production a) Reflection and Retraction of Light b) Electric Current and Light	x			x	x				
	* EDP for Executives Computer Seminar a) Philippine Textile Research Institute b) Visayas Technician Institute	x	x				x			
	* Preparation of Laboratory Manuals (15 experimants)			x	x	x			x	
	* Lecture Series in Physics for Teachers									
REMARKS	* Team Teaching with the Graduate Schools (MAT) * Conducted classes in the College of Engineering As a commitment the Physics Laboratory will continue to serve in sharing knowledge to the whole University and other institutions.									

TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
M A N I L A
INTEGRATED RESEARCH AND TRAINING CENTER

AN EXECUTIVE BRIEF

FOR: THE JAPANESE MUTUAL CONSULTATION TEAM
JULY 29 - AUGUST 5, 1983

The Integrated Research and Training Center Project:

Perspective

Programs and Activities

August 1983

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I. INTRODUCTION

Implementation of the IRTC project is now picking up its momentum. Major activities are concerned on the preparation and planning of the programs for three levels of training in three major fields of technology and engineering. By November 1983, the training for students are scheduled to open.

The 5-year Technical Cooperation Program which took effect in November 3, 1982 was a timely intervention and was of significance in pushing initial programs to a start. Specifically the arrival of three JICA Experts, Mr. Yasuho Maeda, Mechanical Engineering (Team Leader); Mr. Shinji Yamaguchi, Electrical Engineering; and Mr. Shigeo Iwai, Construction and Civil Engineering was a welcome relief for the counterparts, who are now attending the Trainors Upgrading Program with the experts.

II. PERSPECTIVE

1. Budget

The IRTC budget for Calendar Year 1983 amounts to ₱1,717,000.00. This include a lump sum of ₱1,275,000.00 for its operations plus ₱442,000.00 for acquisition of office furniture and equipment.

The schedule of expenditures or Special Budget* to use this amount is now in process at the Ministry of the Budget. This is a normal procedure for new and added organization units like the IRTC.

Plan of Expenditures

Personal Services	₱1,178,270.00
Maintenance and Operating Services	96,730.00
TOTAL MOE.....	₱1,275,000.00
Acquisition of Equipment	442,000.00
TOTAL APPROPRIATIONS	₱1,717,000.00

2. Counterparts and Staff

As of June 1983, there are a total of 8 engineer specialists and 9 shop specialists at the IRTC. These are complemented by 9 technicians and 10 other support staff.

The breakdown follows.

*Copy is attached

IRTC COUNTERPARTS, TECHNICIANS AND STAFF

TECHNOLOGY AREA/DIVISION	ENGINEER SPECIALISTS	SHOP SPECIALISTS	TECHNICIANS
Mechanical Engineering Mechanical Processes Boiler (Stationary Marine Engineering) Automotive Refrigeration and Air-Conditioning Foundry	Ramon Amoncio Alexander Malonzo Nenet Cotoner Perla Roxas	 Valentino Angeles Quirino Almeniana	Vicente Julian Manuel Cawil
Civil Engineering	Marte Gutierrez David Mundo Carmen Buzar	Loreto Apilado	Benjamin Verdejo Eduardo Quintos
Electrical and Electronics Engineering	Marissa Calma Marvil Graza	Jerome dela Torre Wilfredo Lopez	Alberto Cruz
Woodwork Laboratory		Loreto Apilado	Arnel Gomez

/3..

TECHNOLOGY AREA/DIVISION	ENGINEER SPECIALISTS	SHOP SPECIALISTS	TECHNICIANS
Computer Division	Perla Roxas Nenet Cotoner Marte Gutierrez Marissa Calma Marvil Graza (Borrowed)		Maria Carmela Fajardo
Physics Laboratory	Alfredo Cate		Manuel Cawil
Printing Design and Product Development	Gelacio Dagum		Letecia Caranguian
Audio Visual, Media Services	Nona Sevilla Elizabeth Javier	Wilfredo Lopez	Teodoro Gatioan

Support Staff:

	Senior Planning Officer	- Emma Francisco
	Researcher	- Cynthia Jusay
2	Secretaries	- Michaela Andrada
		- Maria Criste
1	Elevator operator	- Tito Querido
2	Drivers	
3	Janitors	

NOTE: Personal Info Sheet of each specialist/staff are attached.

/4..

These counterparts and staff form the core personnel to start the programs for the IPTC project. As contained in the Special Budget plan submitted to the Ministry of the Budget the Targetted Personnel are as follows:

Requested Positions by Technology Area/Department	No. Requested (Targetted)		No. Actually Hired as of July 1983	
Mechanical Engineer Specialists	4	6 c/p	3	2 ~~2 under~~
Mechanical Laboratory Shop Specialists	2		2	
Mechanical Laboratory Technicians	5		2	
Civil Engineer Specialist	4	5 c/p	3	2 under
Civil Engineering Laboratory Specialist	1		1	
Civil Technician	3		3	
Electrical Engineer Specialist	2	6	2	1 under
Electronic Engineer Specialist	2		1	
Electrical and Electronics Laboratory Shop Specialists	2		2	
Electrical/Electronics Technician	2		1	

Requested Positions by Technology Area/Department	No. Requested (Targetted)	No. Actually Hired as of July 1983
Computer Specialist	2	-
EDP Instructors	2	-
Computer Technician	1	1
Physics Specialist	1	1
Physics Laboratory Technician	1	1
Media Specialist	2	2
Audio Visual Laboratory Specialist	1	
Audio Visual Technician	1	1
Cameraman	1	-
Film Editor	1	-
Vision Mixer	1	1

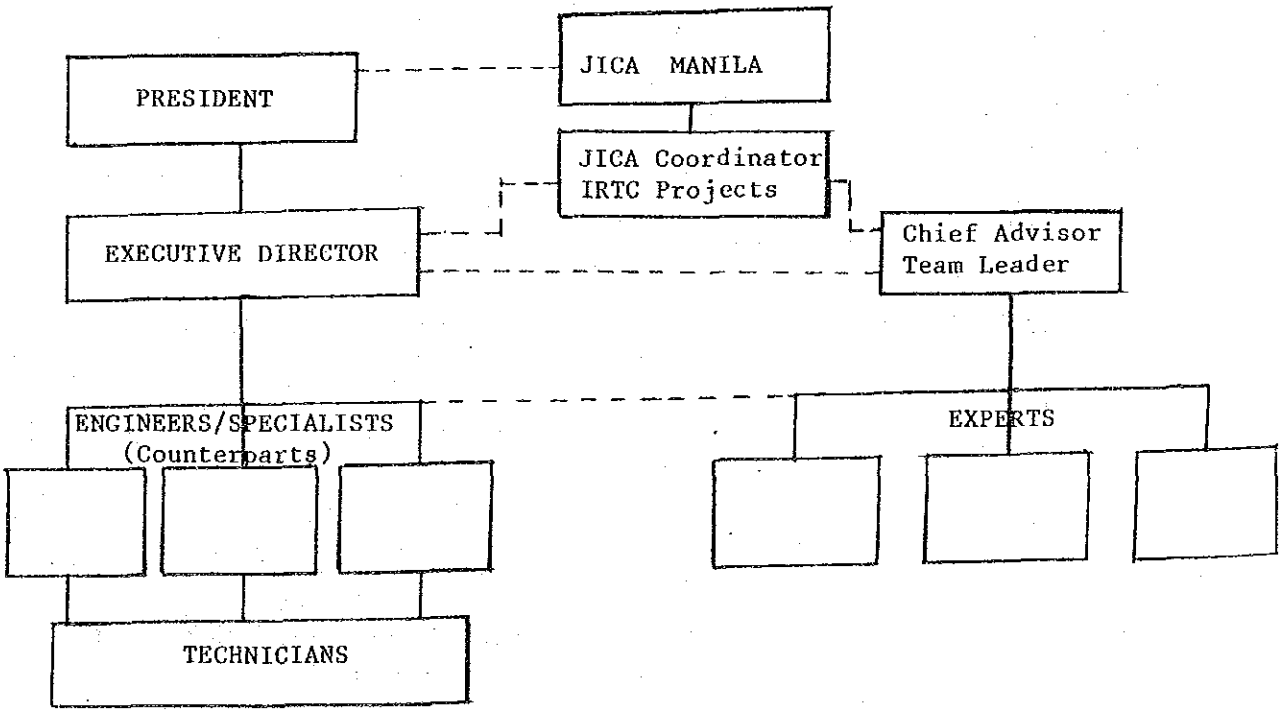
QUALIFICATION OF COUNTERPARTS:

Engineer Specialist
- Appropriate Engineering degree, preferably an M.S. in Engineering
- Passed Board Exam or Licensure Exam
- If a B.S. degree holder evidence of on-going graduate work
- Preferably with one year relevant industry experience

Shop Laboratory Specialist - B.S. Degree in a Technology Area
- Specialized training in the technology field
- At least 2 years industry experience

3. Administration of the Project

The president carries the overall responsibility in the implementation of the project with the executive director as head of the project who will take charge of administration and managerial matters. The working relationship between the IRTC counterparts and experts in the implementation of programs is shown in this structure:



---------- line of coordination
_____ line of responsibility

4. Policy on IRTC Staff

The IRTC as a new unit added to the University was given its individual allotment or Key Budgetary Inclusion (KBI) in the University's annual budget appropriations effective fiscal year 1982.

For Fiscal Year 1983, lump sum appropriations were again provided, in which authority to spend the amount requires approval of a Special Budget or Plan of Expenditures by the Ministry of the Budget. This include the Staffing Pattern or the creation of new position items.

The staff at the IRTC can be categorized into two groups:

a) Permanent faculty and staff of the University detailed to the center and designated as Shop Laboratory Specialists. They carry permanent positions ranging from Instructor to Assistant Professor.

b) New staff made up of Engineer Specialists, technician and Media Specialists who presently are hired on contracts pending approval of the staffing pattern. Out of the 13 counterparts, 7 are permanent and 6 are on contracts.

Incentives to the Staff:

a) Hiring rates (basic pay) recommended for Engineer specialists are equivalent in salary ranks to Assistant Professors.

These rates are comparatively higher than the pay given to engineers hired as instructors in the other colleges and are comparable to the basic pay of permanent faculty.

b) In addition to the basic pay engineer specialists even while on contracts enjoy the same priviliges as the permanent staff such as:

*monthly cost of living allowance
*Christmas vacation pay
*summer vacation pay
*extra pay for evening teaching load
*honoraria for seminars
*13th month pay
*incentive pay

c) The engineer specialists on contracts are given the assurance of a permanent item provided they meet the required standard qualification and shown proof of competence in their performance.

d) Some honoraria is requested for each of the permanent staff on detail to the IRTC to compensate for their lower basic pay compared to new rates of engineer counterparts.

e) Any counterpart sent for training abroad either permanent or on contract has to serve the University an equivalent of ~~two~~ three 3(年) years for every year or fraction thereof of stay abroad.

III. PROGRAMS

MACRO PLAN FOR 1983 AND 1984

	1983						1984					
	Jan-Feb	Mar-Apr	May-June	July-Aug	Sept-Oct	Nov-Dec.	Jan-Feb	Mar-Apr	May-June	July-Aug	Sept- Oct	Nov.-Dec.
1. Needs Identification	xxxxxxx	xxxxxxx	xxxxxxxx									
2. Long Term Experts		xxx	xxx	xxxxxxxx	xxxxxxxx	xxxxxxxx	xxxxxxx	xxxxxxx	xxxxxxxx	xxxxxxxx	xxxxxxxx	
3. Short Term Experts					xxxxxxxx			xxx	xxx			
(4) Sending of Counterparts to Japan for Training							xxx	xxxxxxx	xxxxxxxx	xxxxxxxx	xxxxxxxx	
5. Trainors Upgrading Program for IRTC Counterpart			xxxx	xxxxxxxx	xxxxxxx			xxx	xxx			
(6.) Detailing of Training Course Content for students					xxxxxxxx	xxxxxxxx		xxx	xxx			
7. Program Scheduling and Selection of students				xxx					xxx			
(8.) Trainors Upgrading Program for other faculty					xxxxxxxx	xxxxxxx			xxxx	xxxxxxxx		
(9.) Undergraduate's Basic Training for Technicians					xxxxxxxx	xxxxxxx	xxxxxxx		xxxx	xxxxxxxx	xxxxxxxxx	
(10.) Undergraduate's Advanced Training for Engineering students					xxxxxxxx	xxxxxxx	xxxxxxx		xxxx	xxxxxxxx	xxxxxxxxx	
11. Request for Additional Equipment				xxx	xxxx			xxx	xxx			

/10.

/11··

Program Details for Two Years

1. Needs Identification January - June 1983

1.1 Equipment Inventory

Prior to the arrival of the Japanese experts, the counterparts made an inventory of equipment in each technology area. There were machines which counterparts can operate by themselves, a few machines having some defects and a number which need additional accessories before being made operational. For those which they can not operate, assistance of JICA experts and if possible short term experts is necessary. (Details presented in Progress Reports by technology area).

1.2 Mechanics of Trainors Upgrading Program

The counterparts were to attend a trainors upgrading program based on Curriculum Structure provided with the Records of Discussion. Except for common lectures in Mathematics, training was to be conducted separately by technology area handled by one expert. The methodology and approach include discussion of fundamental theories in the morning followed by Practicum and laboratory in the afternoon. Handouts and training materials are to be made for each topic covered. Expected outcome from this upgrading program is to prepare counterparts to handle the succeeding training program for other faculty; and for students after the training, counterparts are expected to prepare a detailing of course content for Basic and Advanced Course and to prepare for training materials.

2. Long Term Experts - arrived as of March 1983

The arrival of three experts in Mechanical Engineering; Electrical Engineering and Civil Engineering was very timely for the Trainors Program which was started in the latter part of June.

3. Short Term Experts - September - October 1983

There is need for short term experts to assist in some courses including operation of machines. For the present time five short term experts to handle five courses were requested:

* Thermodynamics
* Microwave
* Theory of Gears
* Construction Materials
* Electronic Control

4. Sending of Counterparts to Japan for Training

For CY 1983 two counterparts, one in Civil Engineering and one in Mechanical Engineering will be sent to Japan preferably for a one year training for a specific field in a technology area. One official may also go late this year to study the possible programs for training of counterparts in the next five years.

The sending of counterparts by technology area will be done on a staggered → Flexible program to enable the IPTC training courses to continue without disruption.

CONCEPT PLAN FOR COUNTERPART TRAINING

in Japan

	COUNTERPART	1983	1984	1985	1986	1987
MECHANICAL ENGINEERING	R. Amoncio	xxx	xxxxxxx			
	V. Angeles		xxxxxxx			
	N. Cotoner			xxxxxx		
	O. Almeniana				xxxxxxxx	
	A. Malonzo "A"					
ELECTRICAL ENGINEERING	M. Calma			xxxxxx		
	M. Graza "A"				xxxxxxxx	
	B					
	J. dela Torre		xxxxxxx			
CIVIL ENGINEERING	M. Gutierrez	xxx	xxxxxxx			
	D. Mundo				xxxxxxxx	
	C. Buzar					xxxxxxxx
	L. Apilado					
	"A"					
PHYSICS, PRINTING COMPUTER, AUDIO	A. Cate					
	W. Lopez		xxxxxxx			
	G. Dagum					xxxxxxxx
	E. Javier			xxxxxx		
	N. Sevilla					

5. Trainors Upgrading Program for IPTC Counterparts

The Trainors Program was started on June 27th. It is attended by all the engineers and shop specialists who were grouped according to the technology area and field. The objective of the program is to prepare the counterparts to enable them to conduct the succeeding trainors courses for other faculty and the Basic and Advanced Training courses for students.

The trainors program include a coverage of fundamental theories followed by actual experiments and other practicum with the machines.

The Electrical/Electronics Engineering group under Dr. Yamaguchi have divided the course into seven sub-areas. At the moment they have completed two major topics. Power Engineering I and Power Engineering II.

ELECTRICAL ENGINEERING TRAINORS UPGRADING PROGRAM

DATE	MORNING (9:00 - 12:00)	AFTERNOON (2:00 - 5:00)
June 6-June 16	X	Computer
June 20-June 23	Mathematics	Mathematics
June 27-July 7	Power Engineering I (Theory)	Power Engineering I (Practice)
July 11-July 21	Power Engineering II (Theory)	Power Engineering II (Practice)
July 25-Aug. 4	Fundamental Electronics (Theory)	Fundamental Electronics (Practice)
Aug. 8-Aug. 18	Control Engineering OR Microwave Engineering	Control Engineering OR Microwave Engineering
*NOTE: To be conducted by a shortime JICA Expert		
Sept. 5-Sept.15	Computer (Theory)	Computer (Practice)

In Civil Engineering, under Mr. Iwai there were four major topics in the course. They have already covered Soil Engineering I and II.

CIVIL ENGINEERING TRAINORS UPGRADING PROGRAM

DATE	SUBJECT	TOPICS	L	P	S	REMARKS
June 6 - June 16	1.MATHEMATICS					
		1.1 Advanced Eng'g Math	x		x	
		1.2 Computer Programming	x	x	x	
June 17 - June 30	2.SOIL ENGINEERING I					
		2.1 Introduction (Field soil investigation)	x			
		2.2 Boring	x			
		2.3 Sounding	x			
		2.4 Soil Sampling	x	x		
		2.5 Geophysical and electronical prospecting	x			
		2.6 Other field measurements and testings	x			
July 4 - July 21	3.SOIL ENGINEERING II					
		3.1 Introduction (Laboratory soil testing)	x			
		3.2 Preparation of Soil Sample	x	x		
		3.3 Physical properties, identification and classification of soil	x	x	x	
		3.4 Compaction of soil	x	x	x	
		3.5 Permeability of soil	x		x	
		3.6 Compressibility of soil	x	x	x	
		3.7 Strength of soil	x		x	
		3.8 Calculation of test results	x	x	x	
July 25 - Aug. 16	4.SURVEYING					
		4.1 Introduction (Principles)	x			
		4.2 Measurement of distance	x	x	x	
		4.3 Measurement of angle	x	x	x	
		4.4 Traversing	x	x	x	
		4.5 Levelling	x	x	x	
		4.6 Stadia Surveying	x	x	x	
		4.7 Calculation of Area and Mass	x	x	x	
Aug. 17 - Sept.1	5.CONSTRUCTION MATERIALS					
		5.1 Introduction (Properties and materials	x			Short term Expert
		5.2 Testing machines	x			
		5.3 Outline of testing methods	x			

Legend:
L - Lecture
P - Practice
S - Seat work
X - A plan

The Mechanical Engineering group under Prof. Maeda are now concentrating on Fundamental theories of Engineering Mechanics, Mechanisms and Microcomputer Programming. The operation and application with the machines will be started by September with the assistance of short term experts. There are five sub-fields in Mechanical Engineering i.e.

1. Mechanical processing course
2. Stationary and Marine engine course
3. Refrigeration and Air-Conditioning course
4. Automobile Engineering course
5. Foundry course

Each of these sub-fields are to be covering fundamental theory and practicum. Considering the breadth of the Mechancial Engineering course the need for additional support of short term experts is necessary.

6. Detailing of Training Course Content for Students

Septebmer - October 1983

The Basic Training for Technician students and Advanced Training for Engineering students will start by November (second semester in the academic calendar). As an expected outcome from the trainors program, counterparts will be able to select appropriate content for the training of students. This should be completed by Septembber to October.

7. Program Scheduling and Selection of Students - October 1983

The decision on the selection and scheduling of senior students to attend the courses will be done. Scheduling of courses will have to be prepared in advance to complement the students' overall load and program.

8. Trainors Upgrading Program for Other Faculty

To enable the counterparts to serve several students, other instructors from the College of Industrial Technology and College of Engineering will be given a Trainors Upgrading Program. This will be conducted by counterparts. These instructors may assist in conducting training for students later.

9. Undergraduates' Basic Training for Technicians and

10. Undergraduates' Advanced Training for Engineering Students

To be scheduled in November. Selected topics with curriculum structures are proposed by the counterparts and is attached in this report.

11. Request for Additional Equipment

A list of additional equipment was prepared as part of request for this fiscal year. These list cover equipment which are necessary to complement and make operational some of the installed machines. This include precision tools and accessories which are not available locally. These lists are now being finalized for submission.

IV. STATE OF ACTIVITIES AT THE CENTER AS OF JULY 1983

Fourteen (14) months after the formal turnover (May 15, 1982) and nine (9) months after signing of Record of Discussions (November 3, 1982) the IRTC is now 100% occupied with machines and equipment, 60% utilized.

Summary of Activities:

1. The IRTC is now staffed with a pool of 17 specialists and 9 technicians assigned to the 12 laboratories and shops of the center. Of the 17 specialists, 13 are the counterparts in the three engineering fields.

2. The counterparts have so far accomplished two tasks in their respective laboratories/shops

   2.1 Inventory of machines, equipment and tools

   2.2 Familiarization with operation manuals and actual operation of some machines

   Out of these tasks they were able to:

   a) Identify machines they can operate and use with students

   b) List machines with electrical and mechanical troubles

   c) List accessories and tools which are missing

d) Develop ideas on what experiments to perform with machines and the desigg of special projects.

e) List materials and test specimens and supplies needed for designing experiments.

This is particularly true for all the laboratories and shops except the Foundry laboratory which is still under construction.

3. With the arrival of the three Engineering Experts, the Trainors Upgrading Program for the counterparts is a month underway. The program started in June 27 and will proceed up to mid October.

4. The engineering students from the College of Engineering are utilizing all classrooms and six (6) laboratories i.e. Mechanical Engineering; Stationary and Marine Engineering; Civil Engineering; Automotive Engineering; Refrigeration and Air-Conditioning; Physics and Woodwork laboratories.

5. A number of technician students from the College of Industrial Technology have used the Woodwork laboratory and are now using the Refrigeration and Air-Conditioning laboratory.

6. A number of Graduate students from the Graduate School are using the Physics laboratory.

7. The Computer Division has been operational since June 1982. It is now fully utilized mostly for training and lately by users. A total of 13 training programs ranging from Familiarization courses, Basic Programming and Application has

been conducted. These are mostly in-house training for heads of departments; administrative units, faculty, secretaries and executives from government agencies. An equivalent of 352 man-weeks training have been conducted.

8. At the Physics Laboratory two seminars on Selected Topics and Physics Instrumentation for the engineering faculty and some counterparts was conducted. Special project is the production of Experiments for CCTV in which VTR training materials in Physics will be the output. It has now produced one package on an experiment in Moment of Inertia.

9. The Audio Visual Laboratory and Television studio has been operational since May 1982. It is use mainly for documenting and production of VTR training materials for the technologies. Present output include:

   a) Highway Construction Technology - for Civil Engineering
   b) Moment of Inertia - for Physics
   c) Bored File Foundation for the Light Railway Transit (LRT) - for Civil Engineering (undergoing editing)
   d) Documentary on IRTC, its Role and Function
   e) Documentary on the Technological University of the Philippines

   It has about 12 raw tapes of other documents for editing and is in the process of doing more productions for the other technologies.

10. Woodwork Laboratory is used mainly for production of wooden furniture. All student desks at the center were processed at the Woodwork Laboratory.

11. Printing Laboratory is used mainly for the production and reproduction of brochures, manuals and handouts.

12. Design and Product Development - three training programs have been conducted for faculty of the College of Architecture and Fine Arts.

13. Conference Room - Venue for educational and professional conferences, national workshops and seminars.

V. BASIC CONSIDERATIONS

With the present state of activities at the IRTC and to enable it to implement its programs effectively and efficienctly some priorities are hereby brought to the attention of the mission.

1. Request for Additional Equipment including Accessories

For CY 1983, an equipment list is prepared for the different technology areas. This is based on an additional equipment grant of ¥83,000,000.00 The prioritization of the equipment was based on some criteria agreed forth between the counterparts and experts which include:

a) Equipment which will supplement and complement what are presently installed

b) Precision tools and accessories needed for the operation of machines already installed

c) Equipment which will be used for advanced technology training among engineering students.

2. Request for a check-up from representatives who installed machines with electrical and mechanical troubles.

* Cylindrical Grinder
* Engine Test Bed
* Ice Maker
* Universal Testing Machines

3. Request for Training of Counterparts to Japan should at least be one year and to focus on a specific field of concentration in the technology area.

4. Request for additional short term experts in Mechanical, Electrical and Civil Engineering to include Audio Visual. The short term experts preferably are to handle the very specific or specialized topic or area in the training program. They may be experts on maintenance, operation and application of specific machines.

5. Request for support training materials such as technical journals (English) films and A.V. materials. To complement machine operations and theoretical discussions of principles, use of films, tapes and other audio visual materials will be very useful. This can maximize the use of the CCTV's harnessed to each shop and classroom.

INTEGRATED RESEARCH AND TRAINING CENTER

BIO-DATA OF

COUNTERPARTS AND STAFF

TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
INTEGRATED RESEARCH AND TRAINING CENTER
Ayala Blvd., Manila

LIST OF PHILIPPINE COUNTERPARTS

EXECUTIVE DIRECTOR - PERLA S. ROXAS

CIVIL ENGINEERING

1. MARTE SM. GUTIERREZ
2. MA. CARMEN M. BUZAR
3. DAVID P. MUNDO
4. LORETO D. APILADO

MECHANICAL ENGINEERING

1. ALEXANDER P. MALONZO
2. RAMON Q. AMONCIO
3. NENET T. COTONER
4. VALENTINO J. ANGELES
5. QUIRINO F. ALMENIANA

ELECTRICAL ENGINEERING

1. MARISSA S. CALMA
2. MARVIL V. GRAZA

ELECTRONICS ENGINEERING

1. WILFREDO M. LOPEZ
2. JEROME O. DELA TORRE

MEDIA PRODUCTION

1. NONA D. SEVILLA
2. ELIZABETH P. JAVIER

PHYSICS LABORATORY

1. ALFREDO C. CATE

PRINTING

1. GELACIO T. DAGUM

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TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
INTEGRATED RESEARCH AND TRAINING CENTER
Ayala Blvd., Manila

PERSONAL RESUME

NAME : PERLA S. ROXAS (42 years old)

POSITION : EXECUTIVE DIRECTOR

EDUCATIONAL ATTAINMENT :

M.A. Physics Education
De La Salle University
Graduated - 1976

B.S. Chemical Engineering
Mapua Institute of Technology
Graduated - 1962

Special Training in Research and Statistics
Singapore
Six (6) Weeks - 1980

Special Training in Test Development
Bangkok
Four (4) Weeks - 1982

INDUSTRY/WORK EXPERIENCE :

Executive Director
Technological University of the Phils.
Integrated Research and Training Ctr.
1982 to Present

Dean, College of Engineering
Technological University of the Phils.
1982 to Present

Executive Assistant for Planning & Dev.
Technological University of the Phils.
1978 to Present

Consultant - Statistics
Fund for Assistance for Private Education
Project Dissertation Grants
1982 to Present

- over -

Professorial Lecturer - Graduate School
Technological University of the Phils.
Presently

Chairman, Math and Science Department
Technological University of the Phils.
1978 to 1979

Professorial Lecturer - Physics
De La Salle University
1976 to 1978

EXAMINATIONS TAKEN : Board Examinations for Chemical Engineers
Passed - 1962

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TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
INTEGRATED RESEARCH AND TRAINING CENTER
Ayala Blvd., Manila

PERSONAL RESUME

NAME : MARTE SM. GUTIERREZ (26 years old)

POSITION : Civil Engineering Specialist

EDUCATIONAL ATTAINMENT :

M.S. Civil Engineering
University of the Philippines
Completing Requirements - Present

B.S. Civil Engineering
St. Mary's College
Graduated - 1980

INDUSTRY/WORK EXPERIENCE :

Civil Engineering Specialist
Technological University of the Phils.
Integrated Research and Training Ctr.
1982 to Present

Part-Time Instructor
Advanced Computer Training Center
1982

Structural Engineer
R.S. Caparros Associates
1981 to 1982

Graduate Fellow
University of the Philippines
1980 to 1982

Engineer Trainee
National Irrigation Administration
1980

EXAMINATIONS TAKEN : Licensure Examination for Civil Engineers
Passed - 1981

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TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
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Ayala Blvd., Manila

PERSONAL RESUME

NAME : MA. CARMEN M. BUZAR (22 years old)

POSITION : Civil Engineering Specialist

EDUCATIONAL ATTAINMENT :

M.S. Civil Engineering
University of the Philippines
Earning 6 units - Present

B.S. Civil Engineering
Luzonian University
Graduated - 1981

INDUSTRY/WORK EXPERIENCE :

Civil Engineering Specialist
Technological University of the Phils.
Integrated Research and Training Ctr.
1982 to Present

Appraiser/Project Evaluator
Quezon Development Bank
1982

EXAMINATIONS TAKEN :

Licensure Examinations for Civil Engineers
Passed - 1981

Career Service Professional Examinations
Passed - 1981

Career Service Sub-Professional Examinations
Passed - 1980

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TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
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Ayala Blvd., Manila

PERSONAL RESUME

NAME	:	DAVID P. MUNDO (26 years old)
POSITION	:	CIVIL ENGINEERING SPECIALIST
EDUCATIONAL ATTAINMENT	:	M.S. Civil Engineering University of the Philippines Earning 21 Units - Present B.S. Civil Engineering St. Mary's College Graduated - 1982
INDUSTRY/WORK EXPERIENCE	:	Civil Engineering Specialist Technological Univerisity of the Phils. Integrated Research and Training Ctr. 1983 to Present
EXAMINATIONS TAKEN	:	Licensure Examinations for Civil Engineers Result not yet released

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PERSONAL RESUME

NAME : LORETO D. APILADO (40 years old)

POSITION : Civil Engineering Shop Specialist

EDUCATIONAL ATTAINMENT :

M.A. Industrial Education
Technological University of the Phils.
18 units earned - 1979

B.S. Industrial Education
Phil. College of Arts and Trades
Graduated - 1959

INDUSTRY/WORK EXPERIENCE :

Civil Engineering Shop Specialist
Technological University of the Phils.
Integrated Research and Training Ctr.
1982 to Present

Assistant Professor
Technological University of the Phils.
-Civil Technology
1977 to 1982

Instructor
Technological University of the Phils.
Civil Technology
1964 to 1977

Industrial Arts Teacher
Ministry of Education and Culture
1959 to 1964

EXAMINATIONS TAKEN :

Vocational Teacher Examinations
Passed - 1966

Secondary Teacher Examinations
Passed - 1965

Junior Teacher Industrial Arts Exams.
Passed - 1961

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TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
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PERSONAL RESUME

NAME : ALEXANDER P. MALONZO (25 years old)

POSITION : Mechanical Engineering Specialist

EDUCATIONAL ATTAINMENT :

M.S. Mechanical Engineering
De La Salle University
Earned 30 units - 1983

B.S. Mechanical Engineering
Adamson University
Graduated - 1981

INDUSTRY/WORK EXPERIENCE :

Mechanical Engineering Specialist
Technological University of the Phils.
Integrated Research and Training Ctr.
1983 to Present

Instructor
Adamson University
Rizal Technological College
1981 to 1983

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PERSONAL RESUME

NAME : RAMON Q. AMONCIO (28 years old)

POSITION : Mechanical Engineering Shop Specialist

EDUCATIONAL ATTAINMENT : B.S. Mechanical Engineering
Manuel L. Quezon University
Graduated - 1978

INDUSTRY/WORK EXPERIENCE : Mechanical Engineering Shop Specialist
Technological University of the Phils.
Integrated Research and Training Ctr.
1983 - Present

Instructor - Mechanical Technology
Technological University of the Phils.
1978 to 1983

First Line Supervisor
Peerless Engineering Corporation
1978 to 1980

Machinist
Peerless Engineering Corporation
1975 to 1978

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PERSONAL RESUME

AME	:	NENET T. COTONER (30 years old)
POSITION	:	Automotive Engineering Specialist
EDUCATIONAL ATTAINMENT	:	M.S. Engineering Science - Mech. Eng'g. University of Melbourne, Australia Completed - 1982 B.S. Computer Engineering Rizal Technological College Units Earned - 1981 B.S. Industrial Education Philippine College of Arts and Trades Graduated - 1977 B.S. Chemical Engineering Adamson University Graduated - 1973
INDUSTRY/WORK EXPERIENCE	:	Automotive Engineering Specialist Technological University of the Phils. Integrated Research and Training Ctr. 1983 to Present University Lecturer Technological University of the Phils. 1975 to 1982 Research Assistant Chemical Industries of the Phils. 1974 to 1975
EXAMINATIONS TAKEN	:	Chemical Engineers Board Examinations Passed - 1977

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INTEGRATED RESEARCH AND TRAINING CENTER
Ayala Blvd., Manila

PERSONAL RESUME

NAME	:	VALENTINO J. ANGELES (24 years old)
POSITION	:	Refrigeration and Air-Conditioning Specialist
EDUCATIONAL ATTAINMENT	:	B.S. Industrial Education Technological University of the Phils. Graduated - 1982 Refrigeration and Air-Conditioning Technology Technological University of the Phils. Graduated - 1979
INDUSTRY/WORK EXPERIENCE	:	Refrigeration and Air-Conditioning Specialist Technological University of the Phils. Integrated Research and Training Ctr. 1983 to Present Assistant Instructor Technological University of the Phils. 1980 to 1983

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TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
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PERSONAL RESUME

NAME : QUIRINO F. ALMENIANA (45 years old)

POSITION : Foundry Shop Specialist

EDUCATIONAL ATTAINMENT :

Doctor of Education
Technological University of the Phils.
27 units earned - 1983

M.A. Industrial Education
Technological University of the Phils.
Graduated - 1980

Group Training in Foundry Engineering
Colombo Plan Staff College
Nagoya, Japan
April to September 1974

B.S. Industrial Education
Philippine College of Arts and Trades
Graduated - 1968

Foundry Technology
Philippine College of Arts and Trades
Graduated - 1964

INDUSTRY/WORK EXPERIENCE :

Foundry Shop Specialist
Technological University of the Phils.
Integrated Research and Training Ctr.
1982 to Present

Instructor - Foundry Technology
Technological University of the Phils.
1970 to Present

Consultant-Industrial Experience
1975 to 1976

Project Implementor - Industrial Experience
1974 to 1975

Foundry Technologist
National Institute of Science and Technology
1969 to 1970

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TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
INTEGRATED RESEARCH AND TRAINING CENTER
Ayala Blvd., Manila

PERSONAL RESUME

NAME	:	MARISSA S. CALMA (23 years old)
POSITION	:	Electrical Engineering Specialist
EDUCATIONAL ATTAINMENT	:	M.S. Industrial Engineering University of the Philippines Earning 12 units - Present B.S. Electrical Engineering University of the Philippines Graduated - 1982
INDUSTRY/WORK EXPERIENCE	:	Electrical Engineering Specialist Technological University of the Phils. Integrated Research and Training Ctr. 1982 to Present Technical Editor Japan International Cooperation Agency (Mr. Kobayashi) 1982
EXAMINATIONS TAKEN	:	Licensure Examinations for Assistant Electrical Engineers Passed - 1982 Civil Service Career Professional Examinations Passed - 1982

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Ayala Blvd.,Manila

PERSONAL RESUME

NAME	:	MARVIL V. GRAZA (22 years old)
POSITION	:	Electrical Engineering Specialist
EDUCATIONAL ATTAINMENT	:	B.S. Electrical Engineering University of the Philippines Graduated - 1983
INDUSTRY/WORK EXPERIENCE	:	Electrical Engineering Specialist Technological University of the Phils. Integrated Research and Training Ctr. 1983 to Present

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TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
INTEGRATED RESEARCH AND TRAINING CENTER
Ayala Blvd., Manila

PERSONAL RESUME

NAME : WILFREDO M. LOPEZ (35 years old)

POSITION : Electronics Shop Specialist

EDUCATIONAL ATTAINMENT :

M.A. Industrial Education
Technological University of the Phils.
Diploma - 1982

Curriculum Design and Development
Colombo Plan Staff College
Certificate - 1980

B.S. Industrial Education
- Applied Electronics
Philippine College of Arts and Trades
Graduated - 1970

INDUSTRY/WORK EXPERIENCE :

Electronics Shop Specialist
Technological University of the Phils.
Integrated Research and Training Ctr.
1983 to Present

Media Specialist
Technological University of the Phils.
Curriculum Dev. and Education Tech.
1980 to 1983

Instructor - Electronics Technology
Technological University of the Phils.
1981 to Present

On-The-Job Training Coordinator
Technological University of the Phils.
1978 to 1981

EXAMINATIONS TAKEN :

National Teacher Examinations
Passed - 1972

First Class Commercial Radio
Telephone Operator Examinations
Passed - 1972

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TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
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PERSONAL RESUME

NAME	:	JEROME O. DELA TORRE (49 years old)
POSITION	:	Electronics Shop Specialist
EDUCATIONAL ATTAINMENT	:	B.S.Industrial Education Philippine College of Arts and Trades Graduated - 1966 Correspondence Training National Technical School Los Angeles, California
INDUSTRY/WORK EXPERIENCE	:	Electronics Shop Specialist Technological University of the Phils. Integrated Research and Training Ctr. 1982 to Present Instructor - Electronics Technology Technological University of the Phils. 1972 to Present Vocational Teacher Eulogio Rodriguez Memorial School of Arts and Trades 1966 to 1972

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PERSONAL RESUME

NAME	:	NONA D. SEVILLA (31 years old)
POSITION	:	Supervising Media Specialist
EDUCATIONAL ATTAINMENT	:	A.B. Communication Arts University of Sto. Tomas Graduated - 1973
INDUSTRY/WORK EXPERIENCE	:	Supervising Media Specialist Technological University of the Phils. Integrated Research and Training Ctr, 1983 to Present
EXAMINATIONS TAKEN	:	Civil Service Career Professional Exams. Passed - 1982

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PERSONAL RESUME

NAME : ELIZABETH P. JAVIER (29 years old)

POSITION : MEDIA SPECIALIST I

EDUCATIONAL ATTAINMENT :

Master of Arts
University of the Philippines
11 units earned - 1980

A.B. Mass Communications
University of Sto. Tomas
Graduated - 1980

Educational Broadcasting Course
Asia-Pacific Institute for Broadcasting Development, Kuala Lumpur, Malaysia
June 5 to July 7, 1978

INDUSTRY/WORK EXPERIENCE :

Media Specialist I
Technological University of the Philippines
Integrated Research and Training Center
1982 to Present

Junior Reporter
Bureau of Broadcasts
1976 to 1980

Radio/TV Announcer/Producer
Bureau of Broadcasts
1975

Assistant Production Staff
Bureau of Broadcasts
1974 to 1975

EXAMINATIONS TAKEN :

Broadcaster Licensure Examination
Passed - 1982

First Grade Civil Examination
Passed - 1974

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TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
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PERSONAL RESUME

NAME	:	ALFREDO C. CATE (31 years old)
POSITION	:	Physics Laboratory Specialist
EDUCATIONAL ATTAINMENT	:	M.S. Teaching - Physics De La Salle University Completing Requirements - Present M.A. Industrial Education Technological University of the Phils. 30 units earned - 1980 B.S. Education - Math & Gen. Science National Teachers' College Graduated - 1974
INDUSTRY/WORK EXPERIENCE	:	Physics Laboratory Specialist Technological University of the Phils. Integrated Research and Training Ctr. 1983 to Present Instructor Technological University of the Phils. 1975 to 1983 Teacher Marikina School of Arts and Trades 1974 to 1975 Teacher Geronimo Santiago Elementary School 1974
EXAMINATIONS TAKEN	:	Teachers' Professional Examinations Passed - 1975

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TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
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Ayala Blvd., Manila

PERSONAL RESUME

NAME	:	GELACIO T. DAGUM (49 years old)
POSITION	:	Printing Shop Specialist
EDUCATIONAL ATTAINMENT	:	B.S. Industrial Education Philippine College of Arts and Trades Graduated - 1964 Printing Technology Philippine School of Arts and Trades Certificate - 1959 Colombo Plan Scholar in Photo-Offset-Lithography Osaka, Japan 1970
INDUSTRY/WORK EXPERIENCE	:	Printing Shop Specialist Technological University of the Phils. Integrated Research and Training Ctr. 1982 to Present Instructor - Printing Technology Technological University of the Phils. 1960 to Present
EXAMINATIONS TAKEN	:	Vocational Teacher Eligibility Exams Passed - 1966

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INTEGRATED RESEARCH AND TRAINING CENTER

PROGRESS REPORT

AUGUST 1983

FOUNDRY LABORATORY

TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
INTEGRATED RESEARCH AND TRAINING CENTER
AYALA BLVD.,Manila

AUGUST 2,1983

Progress Report: FOUNDRY LABORATORY

1. The foundry building to house the foundry laboratory is 35 percent completed
2. All equipment are still intact in the crates
3. Theory class and Computer lessons were attended under Prof. Maeda, JICA Expert at IRTC.
4. Prepared three levels of programs/curriculum to suit the needs of students to be trained.

LEVEL 1:

Technician Level: Sand Testing, Met. Lab. Equip. Operation

Skill Development Training in the operation of apparatus

Training Package I: Basic Sand Testing Training

Test Activities:
1. Compactability
2. Moisture Teller
3. Density
4. Permeability
5. Green Compression
6. Dry Compression
7. Splitting Tensile
8. Mold Hardness
9. Methalene
10. Methalane BLUE Total clay
11. A.F.S. Clay content
12. A.F.S. Sieve Analysis
13. Combustible materials
14. Volatiles at 900°F

Equipment Needed:
1. Balance Weight
2. Moisture Teller
3. Rammer
4. Rammer Base
5. Speciment Tube conditioner
6. Compactability
7. Tube Filler
8. Permeter
9. U-strength machine
10. Splitting
11. Green hardness tester
12. Drying oven
13. Volatile Apparatus
14. Combustible test
15. Sand washer
16. Sieves
17. Auto clay
18. M.B. Clay tester
19. Ultrasonic
20. Sieve Shaker
21. Transverse adapter
22. Density Indicator

Training Package II: Operation of Foundry Equipment

Operation activities:	Equipment needed
1. Sand conditioning	1. Sand Muller
2. Molding	2. Sand Shifter
3. Coremaking	3. Jolt Squeeze molding machine
4. Casting cleaning	4. Shell Core blow machine
	5. Shot Blasting
	6. Cupola Operation
	7. Induction furnace operation

Training Package III: Metallurgical Laboratory

Training Activities	Met. Lab. Equip./Apparatus
1. Chemical Analysis	1. Carbon Determinator
2. Grain Structure	2. Sulfur Analyzer
3. Physical Characteristic	3. Manganese crause analyzer
	4. Polishing machine
	5. U-testing machine
	6. Microscope
	7. Rockwell hardness tester

Level 2: Trainor's Training Program

Training Content:	Operation Activities:
1. Principles in metal castings	2. Operation and practice of the melting equipment, sand testing and Met. Lab. Foundry Equip.,etc.
2. Sandology & Refractory	
3. materials and Testing	
4. Research and Development	

Level 3: Engineering Training Program

Engineering training Activities:	Facilities needed
1. Machine design	1. Pattern shop
2. Implementation of design and product development	2. Foundry shop
	3. Machine shop
	4. Lab. facilities

Projected Input and Output

Level 1: *Technician level*
Three sessions per day:

First sem/months:				Output
June-July	July-Aug.	Aug.-Sept.	Sept.-Oct.	
40	40	40	40	160/sem
Second sem./months:				
Oct.-Nov.	Nov.-Dec.	Jan.-Feb.	Feb.-March	
40	40	40	40	160/sem

For levels 2 and 3, trainees can be accomodated as a maj or field of training or specialization.

Trainor's Training.

Mathematics.

The training was conducted by Prof. Matulac. He stressed,

a. Methods of Teaching

b. The Important Mathematics Tools in Teaching Engineering Sciences.

Applied Mechanics.

This is still going on, and is handled by Prof. Y. Maeda. The lectures have already covered solutions to problems on,

a. Kinematics of Rectilinear Motion

b. Systems of Forces in Equilibrium

c. Complex Functions

Computer.

This is still going on, and is conducted by Prof Y. Maeda. The participants are taught how to prepare short and simple programs.

INTEGRATED RESEARCH AND TRAINING CENTER

PROGRESS REPORT

AUGUST 1983

PRINTING LABORATORY
DESIGN AND PRODUCT
DEVELOPMENT

Republic of the Philippines
TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
(Formerly Philippine College of Arts and Trades)
P.O. Box 3171, Manila-2801

PROGRESS REPORT - IRTC PRINTING AND PRODUCT DESIGN AREA

(January 1 - July 31, 1983)

1. FUNCTIONS

1.1 Serve as a service arm of the IRTC in its various reproduction needs.

1.2 Serve as a venue for short training programs in reprographics for advanced students of the University and from other public and private agencies.

1.3 Serve as an auxiliary arm of the University in its reproduction needs.

1.4. Serve faculty needs for training in reprographics.

2. ACCOMPLISHMENTS

2.1 Instruction
- Conducted workshop-seminar for the faculty of the College of Architecture and Fine Arts (TUP)
- Conducted special training program for a reprographics technician

2.2 Production
Reproduced by xerox process various technical literature and reports for the Office of the IRTC Director
- Printed the 1983 Educational Congress programs, brochures, etc
- Printed portions of the 1983 Graduation Program of the University
- Printed the IRTC Brochure
- Printed the TUP-APEID Bulletin
- Printed portions of Enrollment forms for the University
- Printed the TUP Bulletin of Information
- Printed the TUP Students' Conduct and Discipline

2.3 Maintenance
- Observed regular check-up and lubrication of all machinery in the area.

Republic of the Philippines
TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
(Formerly Philippine College of Arts and Trades)
P.O. Box 3171, M a n i l a - 2801

3. CONDITION OF EQUIPMENT

Equipment	Condition
2.1 Process Camera	Good
3.2 Vacuum Contact Printer	"
3.3 Temperature-controlled Sink	"
3.4 Plate Printing Machine	"
3.5 Plate Drying Machine	"
3.6 Film Drying Machine	"
3.7 Offset Press (big)	"
3.8 Offset Duplicating machine	"
3.9 Paper Cutter (automatic)	Needs repair
3.10 Small Spot Cooler	Good
3.11 Big Spot Cooler	"
3.12 Darkroom Enlarger	"
3.13 Blueprinting Machine	"
3.14 Slide Printer	"
3.15 Transparency Maker	"
3.16 Copying Machines	Frequent Breakdowns
3.17 IBM Composing machine	Needs major servicing/ replacement
3.18 Drafting Machines	Good

4. PROBLEMS AND RECOMMENDATIONS

The Area, with its complement of light and heavy machinery, is still unable to achieve optimum output due to the following causes:

1. Lack of well-trained personnel to assist the Area Custodian in the various aspects of reproduction work for the IRTC and the University.
2. Lack of highly-essential hand tools and supportive equipment.
3. Temperature in the Area, usually between 80 and 90 degrees F, is harmful to temperature and light-sensitive materials used in the graphic arts.
4. Lake of essential graphic arts materials like films, chemicals, paper, etc.

To meet desired instructional and production objectives, the above-mentioned conditions should be remedied.

8/4/83

G. T. DAGUE
Area Custodian

INTEGRATED RESEARCH AND TRAINING CENTER

PROGRESS REPORT

AUGUST 1983

AUTOMOTIVE LABORATORY

PROGRESS REPORT

Automotive Laboratory

1.0 Activities.

1.1 Inventory.

An inventory of resources (Equipment, Apparatus and Devices) had been conducted in January, 1983. The finding are shown in the table below.

Equipment/Model	Remarks
A. Instruction Models	
1. Glass motor. Four-cylinder, 110 v, mounted in woodgrain base.	Used by eng'g students
2. Two-stroke engine with all engine parts, carburetor and ignition; dc.	"
3. Four-stroke engine with all engine parts, valve gear, ignition and carburetor.	"
4. Four-stroke diesel engine with all engine parts and detailed fuel injection system.	"
5. Transmission. Permits gear changing; Has single plate clutch operated by pedal.	"
6. Steering. Complete with steering wheel, worm gear assembly, linkage, brake drums, brake shoes, etc.	"
7. Rear Axle	"
8. Wankel Motor. Exact Replica.	"
9. Planetary Gear	"
10. Ignition System	"
11. Hydraulic Brake	"
12. Disc Brake	"
13. Hydraulic Dual Braking Sys.	"

Equipment/Model	Remarks
14. Diesel Fuel Injection Pump	"
15. Gasoline Engine. The cut-away engine is supplied complete with transmission and all standard accessories and auxiliaries req'd for.	"
A. Equipment.	
1. Engine Research and Test Bed	Have not been used since June, 1982.

1.2 Study of the User's Mannual.

1.3 Trainors' Training.

1.3.1 Mathematics.

The training was conducted by Prof. Matulac. He stressed,

a. Methods of Teaching;

b. The Important Mathematics Tools in Teaching Engineering Sciences.

1.3.2 Applied Mechanics (Dynamics)

This is still going on, and is handled by Prof. Y. Maeda. The lectures have already covered solutions to problems on,

a. Kinematics of Rectilinear Motion

b. Systems of Forces in Equilibrium

c. Complex Functions

d. Vibratory Motion

1.3.2 Computer.

This is still going on, and is conducted by Prof Y. Maeda. The participants are taught how to prepare short and simple programs.

1.4 Preparation of the Model of the Taining Package.

MODEL OF THE TRAINING PACKAGE IN INTERNAL COMBUSTION ENGINES FOR ADVANCED ENGINEERING STUDENTS

1.0 Course Description.

This is a 25-hour course on the parts and operation of the internal combustion engines (petrol and diesel). The course includes a detailed study of the changes in the values of the engine variables with the change in operation point. The training will be accomplished through short lectures, demonstrations and experiments.

2.0 Objectives.

At the end of the training the students should be able to,

2.1 Recognize the parts of both petrol and diesel engines;

2.2 Understand the operation of the above parts;

2.3 Determine the efficiency and power output of the engine from measurements taken from actual engine runs;

2.4 Relate the factors affecting engine performance with both efficiency and power output;

2.5 Make an engine map.

3.0 Contents.

I. Petrol Engines.....15 Hours

A. Four-Stroke Engine.....12 Hours

1. Parts

a. Fuel Preparation
b. Combustion
c. Exhaust
d. Peripherals

2. Operation

3. Computation of Efficiency

a. Indicated Thermal Efficiency
b. Brake Thermal Efficiency
c. Mechanical Efficiency

4. Computation of Power Output

a. Indicated Power Output
b. Brake Power Output

5. Variation of Power and Efficiency

a. With Speed
b. With Mixture Strength

6. Engine Map

B. Two-Stroke Engine

1. Parts

a. Fuel Prepation
b. Combustion
c. Exhaust
d. Peripherals

2. Operation

3. Computation of Efficiency

4. Computation of Power Output

5. Variation of Power and Efficiency with

a. Speed
b. Mixture Strength

II. Diesel Engines.....10 Hours

A. Four-Stroke Engine

1. Parts

a. Fuel Injection
b. Combustion
c. Exhaust
d. Peripherals

2. Operation

3. Computation of Power Output and Efficiency

a. Governed Range
b. Ungoverned Range

INTEGRATED RESEARCH AND TRAINING CENTER

PROGRESS REPORT

AUGUST 1983

REFRIGERATION AND AIR-CONDITIONING DIVISION

TECNOLOGICAL UNIVERSITY OF THE PHILIPPINES
INTEGRATED RESEARCH AND TRAINING CENTER
REFRIGERATION AND AIR CONDITIONING DIVISION

PROGRESS REPORT:

ACTIVITIES:

1) Refrigeration and air conditioning machines/equipment installed at the laboratory were all maintained.
2) Inventory of the accessories and machines at the automotive office and storage for R.A.C. division.
3) Put into operation the:

A) Ice Maker Unit
Different blocks of ice were produced for operational purposes.Daily maintenance on the machines is made for constant and normal operation. Periodical checks is applied to detect abnormal or worn parts of the unit. Periodical check includes:
a)Refrigeration oil
b)V-Belt adjustment
c)Shaft seals
d)Operating pressures
e)Current,noise,vibration etc.

NOTE:
Expansion valve is icing and running abnormally.

B) Commercial Air Conditioning Trainer Unit
Operated the machine.Researches were done for the different training jobs to be employed in the use of the training unit.Training unit found out to be running abnormally.Trouble shoot the unit and found out defects both electrical and mechanical. Leakage was found by the use of the halide leak detector. During its operation, the automatic side particularly the water cooled condenser is running abnormally. Electrical interlockings, particularly the compressor is hereby recommended for further check-up and possible re-wiring.
Training activities will be prepared both for basic and advance courses.

C) Condensing Units
Units were operated and found out to be in good running condition. Training jobs with the use of the units were prepared for the teaching and learning processes for basic and advance.

D) Freezer Units
Unit was operated and maintained daily. Periodical checks were done and found out leakage on the high pressure side. Training jobs are further prepared for basic and advance.

E) Welding Equipment
Equipment were operated and running normally. They were used in assembling welding tables for the welding booths, grinding stands and vacuum pump stands. Engineering students were designated to assemble the jobs as part of their actual training jobs on the welding blocks. It was done through the supervision of the laboratory in-charge.

Note: Further maintenace operations for the machine equipment in done. Assembly of the needs of the R.A.C. laboratory through instruction will be done. Machines are to be operated at least once a week in order to avoid abnormal operation and early detection of possible troubles.

Trainors' Training

Training started on June 26, 1983 and the topics or contents which are discussed by the Mechanical Engineering experts (Prof. Maeda) are being applied effectively and efficiently by the trainors. Basic theoretical data are imparted by the experts in preparation to the training jobs of the basic and advance courses. Proper schedules were made in order to devote more time and effort in the discussion of the different important topics. Counterparts are deloaded for their teaching loads in order to concentrate more on the training.

Training is very interesting. Suggestions are freely accepted by the experts in order to have a fruitful training for it is the basic Fundamental theory of the counterparts in the preparation of the training activities in the different fields of the Mechanical Engineering. Assesment and evaluation of trainors and experts on the trainors course is done every Friday in order to discuss the problems and suggestions of expert and counterparts for remedial purposes.

PROGRESS REPORT:

The following are the result of the inventory of equipment, tools at the refrigeration and air conditioning division.

Name of equipment	Condition	Remarks
1) Ice Maker Unit	Expansion valve icing	Abnormal Operation Needs repair
2) Commercial Refrigeration Trainer	System is undercharge.	
	Water cooled condenser not operating.	Elimination of leak and rewiring of compressor is needed.
	Continous operation of compressor even in off position.	
3) Freezer Unit	Blown fuse	For further repair
	Leakage at high pressure side	
4) Condensing Units	Normal operation	OK
5) Fan Coil Units	Normal operation	OK
6) Welding Equipments	Normal operation	OK
7) Exhaust Fan	Normal operation	OK
		Used by Eng'r stududents
8) National Refrigerators	Normal operation	OK
9) Flaring tools	OK	OK
10) Halide torch	OK	OK
11) Tube Bender	OK	OK
12) Welding mask	OK	OK
13) Bench vice	OK	OK
14) Portable grinder	OK	Used by Eng'r students
15) Bench grinder	OK	Used by Eng'r students
16) Oxy-Acytelene gage and hoses	OK	OK
17) Refrigerant charger	OK	OK
18) Multi Tester	OK	OK
19) Power Hi tester	OK	OK
20) Digital Clamp Tester	OK	OK
21) Tube cutter	OK	OK

TECNOLOGICAL UNIVERSITY OF THE PHILIPPINES
INTEGRATED RESEARCH AND TRAINING CENTER
REFRIGERATION AIR CONDITIONING DIVISION

PROPOSED TRAINING PROGRAM FOR BASIC COURSEX

Block No.1 Condensing Units

Objectives: 1)To acquaint the student with the different type of condensers
2)To know the different operations w/c will enable the students to do the job practically
3)to develop skills in the installation of condensers applied to the system

Content
Topic:

1)Types of condensers
a)Air cooled
b)Evaporative
c)Cooling towers

3)Electrical connections
a)Condenser fan motor
b)3 Phase and single phase
c)Magnetic starter
d)Rated amperage
e)I.C Timers
f)Interlocking operations

Machines to be used:

1)Fan coil units
2)Condensing units
3)Package air conditioner

Total number of hours:60

Block no 2:Fan coil units

Objectives:To acquaint the students on the application of fan coil units in refrigeration
To learn the methods of assembling/repairing and construction of the system
To know the basic characteristic and components of the different types of freezers .

Contents:
Topics:

1. Types of evaporators
2. Electrical controls
3. Motor installation
4. Refrigerant pipings
5. Expansion valves
6. Pressures
7. Mathematical computations

Machines to be used:

1. Fan coil units
2. Commercial refrigerations trainer unit

Block No. 3: Ice Maker

Objectives: 1. To enable the students to make atual ice through experiment.
2. To acquire skills and knowledge in the used of measuring tools.
3. To compute refrigerating capacity through actal application.

Contents:
Topics:

I. Calculation
  a. Ton of refrigeration
  b. Phase of brine solution
  c. Agitator of brine solution
  d. Refrigerating capacity
II. Type of Ice
III. Refrigerants
  a. R-502
  b. Ammonia
  c. F-12, and 22.
  d. Brine solution
IV. Electrical Wirings

Machines to be used:

1. Ice makers
2. Frostless refrigerator

TOTAL NUMBER OF HRS: 60

Block No. 4: Air Conditioning Units.

Objectives: 1. To indentify the different processes involved in the operation of Air Conditioning Units.
2. To upgrade the students to the modern air conditioning controls.
3. To provide basic information for future development.

Contents:
Topics:

1. Refrigeration and air conditioning theories
  a. Commmercial
  b. industrial
2. Psycometrics
3. Air handling units
4. Air conditioning accessories
  a. oil separator
  b. muffler
  c. vibration absorber
  d. relief valves
5. Cooling water lines

Machines to be used:

1.Packaged Air Conditioner
2.Commercial Refrigeration Trainer
3. Fan Coil
4. Condesning Units

TOTAL NUMBER OF HRS: 60

Trainor's Training.

Mathematics.

The training was conducted by Prof. Matulac. He stressed,

a. Methods of Teaching

b. The Important Mathematics Tools in Teaching Engineering Sciences.

Applied Mechanics.

This is still going on, and is handled by Prof. Y. Maeda. The lectures have already covered solutions to problems on,

a. Kinematics of Rectilinear Motion

b. Systems of Forces in Equilibrium

c. Complex Functions

Computer.

This is still going on, and is conducted by Prof Y. Maeda. The participants are taught how to prepare short and simple programs.

INTEGRATED RESEARCH AND TRAINING CENTER

PROGRESS REPORT

AUGUST 1983

CIVIL ENGINEERING

CONSTRUCTION AND CIVIL ENGINEERING

PROGRESS REPORT

List of Activities as of August 1983

1. Inventory and Assesment of Laboratory Equipment at the Civil Engineering Division.

An inventory and assesment of the laboratory equipment at the Civil Engineering Laboratory was made. The inventory was made together with Mr. S. Iwai, JICA expert. A list of the equipment and the findings made is attached to this report. The inventory was also used as a basis for the addtional request of equipment of the Civil Engineering Division

2. Familiarization with the Equipment at the Civil Engineering Division.

As of August 1983 the following equipment have already been operated by the Civil Engineering Division Staff.

1. Universal Testing Machine
2. Liquid Limit Test Set
3. Hobert Mixer
4. Laboratory Concrete Mixer
5. Single Door Small Oven
6. Internal Concrete Vibrator
7. Transit
8. Capping Set for 15 cm diameter cylinder concrete
9. Electric Air Compressor
10. Proving Ring for Compressive Load

3. Preparation of Course Programs for Trainors' Training

Training programs were prepared in the following areas:

1. Surveying
2. Soil Engineering I
3. Soil Engineerign II
4. Construction Materials

A schedule of the training programs and the proposed syllabus are attached to this report. The training programs are now being attended by the staff of the Civil Engineering Division.

4. Preparation of List for Request of Additional Equipment.

A list of additional equipment for 1983 was made. The Civil Engineering Division was alloted 24,000,000 yen out of the 80,000,000 yen total budget for IRTC for 1983. The list includes equipment and apparatus for surveying, soils engineering and construction materials. The breakdown of the equipment/apparatus is given below.

AREA	TOTAL PRICE	PERCENTAGE
1. Surveying	7,750	8.48%
2. General Equipment	7,709	8.34%
3. Ordinary Laboratory Equipment and Apparatus	9,130	9.88%
4. Field Testing Equipment	5,775	6.25%
5. Soil Laboratory Testing Equipment	45,687	49.42%
6. Materials Testing Equipment	13,537	14.64%
7. Computer	2,858	3.09%
	$92,448	

CIVIL ENGINEERING DIVISION

List of Equipment

EQUIPMENT	REMARKS/CONDITION
1. Universal Testing Machine with accessories	calibration device rusted extensometer not proper size linear former stucked
2. Liquid Limit Test Set	O.K.
3. Hobert Mixer	O.K.
4. Comapction Test Set	small rammer not aligned
5. Consolidation Test Apparatus	check plane level setting
6. Concrete Core Drilling Machine	test run engine
7. Mortar Flow Table	one tamper missing
8. Semi-Automatic Vicat Apparatus	adjust regulator
9. Hydraulic Slabbing Saw	no water line trial run
10. Laboratory Concrete Mixer	oultlet must be relocated
11. Los Angeles Abrasion Testing Machine	O.K.
12. Asphalt Oven	O.K.
13. Single Door Small Oven	glass door cracked
14. Cement Autocalve	O.K.
15. 2"-cube mold with base plate	O.K.
16. Specific Gravity Test Set	O.K.
17. Centrifugal Extraction Apparatus	O.K.
18. Ductility Testing Machine	O.K.
19. Furol Type Saybolt Viscosimeter	no gas outlet
20. Internal Concrete Vibrator	O.K.

EQUIPMENT	REMARKS/CONDITION
21. Transit	O.K.
22. Capping Set for 15cmΦ concrete cylinder	temperature controller not functioning P.C. board must be replaced
23. Electric Air Compressor	O.K.
24. Proving Ring for Compressive Load	O.K.

CIVIL ENGINEERING DIVISION
Integrated Research and Training Center

TRAINORS' TRAINING PROGRAM

Schedule:

DATE	SUBJECT/TOPICS	L	P	S	REMARKS
June 6-June 16	1. Mathematics				
	1.1 Advance Eng'g. Math.	x		x	
	1.2 Computer Programming	x	x	x	
June 17-June 30	2. Soil Engineering I				
	2.1 Introduction (Field Soil Investigation)	x			
	2.2 Boring	x			
	2.3 Sounding	x			
	2.4 Soil Smapling	x		x	
	2.5 Geophysical and Electronic Prospecting	x			
	2.6 Other field measurements and testings	x			
July 4-July 21	3. Soil Engineering II				
	3.1 Introduction (Laboratory Soil Testing)	x			
	3.2 Preparation of Soil Sample	x	x		
	3.3 Physical properties, identification and classification of soil	x	x	x	
	3.4 Compaction of soil	x	x	x	
	3.5 Permeability of soil	x		x	
	3.6 Compressibility of soil	x	x	x	
	3.7 Strength of soil				
	3.8 Calculation of test results	x	x	x	
July 25-Aug. 16	4. Surveying				
	4.1 Introduction (principles)	x			
	4.2 Measurement of distance	x	x	x	
	4.3 Measurement of angle	x	x	x	
	4.4 Traversing	x	x	x	
	4.5 Levelling	x	x	x	
	4.6 Stadia surveying	x	x	x	
	4.7 Calculation of area and mass	x	x	x	
Aug. 17-Sept.1	5. Construction Materials				¥
	5.1 Introdcution (properties of materials)	x			
	5.2 Testing Machines	x			
	5.3 Outline of testing methods	x			

Legend:
L - Lecture
P - Practice
S - Seatwork
¥ - A plan. Schedule to be revised upon arrival of short term expert.

CIVIL ENGINEERING DIVISION
Integrated Research and Training Center

TRAINORS' TRAINING PROGRAM IN SURVEYING

OBJECTIVES:

After completing the training program, the participants are expected to be able to:

1. be familiar with the general aspects of surveying.
2. be familiar with the use and cafe of surveying instruments
3. make calculations on area determination, error analysis, astronomical observations, etc., and
4. use microcomputers in surveying computations.

PARTICIPANTS:

IRTC Civil Engineering Division Staff

OVERVIEW:

This training program is designed to upgrade the knowledge of Civil Engineers, Geodetic Engineers, Technicians, and other persons involved in surveying as a course in Civil Engineering. The training program is a two-week course covering lectures, field work, computer hands-on and seatwork.

ACTIVITIES:

I. LECTURES
- 1.1 Principles and practices of surveying
- 1.2 Surveying instruments and their use
- 1.3 Measurement of distance
- 1.4 Measurement of angle
- 1.5 Error analysis
- 1.6 Calculation of areas and mass

II. FIELDWORK
- 2.1 Distance measurement
- 2.2 Transit Surveying
- 2.3 Levelling
- 2.4 Adjustment of Instruments

III. SEATWORK
- 3.1 Area calculation
- 3.2 Calculation of mass and mass diagrams
- 3.3 Error Analysis

IV. COMPUTER HANDS-ON
- 4.1 Area calculation using a cpmputer package
- 4.2 Developing computer programs for simple surveying caculations

Integrated Research and Training Center

TRAINORS' TRAINING PROGRAM IN SOIL ENGINEERING I

OBJECTIVES:

After completing the training program, the participants are expected to be able to:

1. be familiar with the general aspects of soil mechanics
2. be familiar with the different soil properties and the importance of these soil properties in foundation engineering
3. be familiar with soil exploration and soil sampling techniques.

OVERVIEW:

This training program is designed to upgrade the technical know-how of Civil Engineers and other persons involved in Soil Engineering. The training program is 100 hours of intensive lectures, field works and laboratory practice.

PARTICIPANTS:

IRTC Civil Engineering Division Staff

ACTIVITIES:

I. LECTURES
- 1.1 Soil mechanics in foundation engineering
- 1.2 Soil properties and their importance in soil engineering
- 1.3 Soil Exploration
- 1.4 Soil Sampling
- 1.5 In-Situ soil measurements

II. FIELD WORK
- 2.1 Soil Exploration
- 2.2 Soil sampling
- 2.3 In-situ soil measurement

III. SEATWORK
- 3.1 Physical properties of soil
- 3.2 Soil classification

CIVIL ENGINEERING DIVISION
Integrated Research and Training Center

TRAINORS' TRAINING PROGRAM IN SOIL ENGINEERING II

OBJECTIVES:

After completing the training program, the participants are expected to be able to:

1. be familiar with the different aspects of laboratory soil testing from soil sample preparation to interpration of results
2. perform laboratory soil tests
3. make soil property calculations, estimates of soil behavior and correlations of soil properties
4. make design calculation of foundation structures

OVERVIEW:

This training program is a continuation of Soils Engineering I. It is three-week extensive training consisting of lectures, seatworks and laboratory works.

PARTICIPANTS:

IRTC Civil Engineering Division Staff

ACTIVITIES:

I. LECTURES
- 1.1 General aspects of soil testing
- 1.2 Soil sample preparation
- 1.3 Engineering properties of soils and their measurement
- 1.4 Soil water relationships
- 1.5 Soil strength and compressibility
- 1.6 Soil consolidation

II. LABORATORY WORKS
- 2.1 Preparation of disturbed and undisturbed samples
- 2.2 Moisture content determination
- 2.3 Grain size analysis
- 2.4 Consistency limits tests
- 2.5 Permeability test
- 2.6 Consolidation test
- 2.7 Unconfined compression test
- 2.8 Direct Shear tests
- 2.9 Triaxial test

III. SEATWORK
- 3.1 Bearing Capacity Calculation
- 3.2 Soil settlement (amount and rate) calculation
- 3.3 Slope stability
- 3.4 Seepage Calculation
- 3.5 Design of footing, retaining walls and embankments

CIVIL ENGINNERING DIVISION
Integrated Research and Training Center

TRAINORS' TRAINING PROGRAM IN CONTRUCTION MATERIALS

OBJECTIVES:

After completing the training program, the participants are expected to be able to:

1. be familiar with the principles of materials testing
2. be familiar with the mechanical behavior of materials
3. be familiar with the techniques of load, length and deformation measurement
4. be familiar with common testing apparatus
5. analyze and present data and results of materials tests
6. be familiar with different testing procedures for specimen preparation to presentaion of results
7. perform tests on engineering maferials

OVERVIEW:

The course is designed to build up the general concepts of materials testing and to provide methods of conducting common tests. The course is a two-week course of intensive lectures, laboratory works and classroom exercises.

PARTICIPANTS:

IRTC Civil Engineering Division Staff

ACTIVITIES:

I. LECTURES
- 1.1 Principles of Testing
- 1.2 Mechanical properties of engineering materials
- 1.3 Measurement of load, length and defomation
- 1.4 Common testing apparatus
- 1.5 Analysis and presentation of data
- 1.6 Static tension and compression tests
- 1.7 Static shear and bending tests
- 1.8 Hardness tests
- 1.9 Impact Tests

II. LABORATORY WORK
- 2.1 General instructions on laboratory work
- 2.2 Study of a Universal Testing Machine (UTM)
- 2.3 Calibration of a UTM
- 2.4 Calibration of deformation measuring apparatus
- 2.5 Tension test of reinforcing bars
- 2.6 Compression test of concrete
- 2.7 Bend test of reinforcing bars
- 2.8 Hardness tests of steel
- 2.9 Impact test of steel
- 2.10 Test of Portland Cement
- 2.11 Test of Concrete Aggregates
- 2.12 Test of Asphalt and Bituminous mixtures

III. SEATWORK
- 3.1 Analysis and presentation of data

CIVIL ENGINEERING

PROPOSED PLANS/PROJECTED ACTIVITIES

I. The On-going Trainor's Training Program in Civil Engineering

Four training program for trainors in Civil Engineering are now being conducted. These training programs are in the following areas:

1. Surveying
2. Soils Engineering I
3. Soils Engineering II
4. Construction Materials

Aside from the lectures, discussions and laboratory works the following activities are being planned:

1. Field trips in soil exploration sites.

The Civil Engineering Division does not yet have equipment for soil exploration and to enable the participants to be acquainted with these equipment and their operation, field trips to soil exploration sites shall be arranged. These soil explorations are usually done by companies involved in geotechnical engineering.

2. Field work in surveying.

The TUP Cavite campus has been chosen as the site of the fieldwork of the trainor's training program in Surveying.

II. The Training Programs for Trainors' and Students

a) Training programs to be opened.

After the trainors' training programs, training programs in the three levels (Basic, Advance and Trainors' training) will be conducted in the same areas of the present trainors training programs. The other areas will be opened for training until the arrival of addtional equipment and after training of the counterparts in these areas have been conducted by JICA experts.

A concept plan on scheduling of the training programs and a list of the proposed training programs is attached.

b) Preparation of course syllabus

After the present trainors' training programs, the specialists will prepare course syllabus on their areas of concentration. The course syllabus preparation will follow some guidelines to be determined later. However, while attending the present training programs they are expected to identify possible ideas for training in three levels: basic, advance and trainors'.

III Preparation of Instructional Materials

a) A direct outcome of the present trainors' training program is the developement of instructional materials in the form of manuals, lecture notes and other handout materials.

b) CCTV programs - the Civil Engineering Division is now providing technical inputs in the developement of a CCTV program on the LRT project of the Media Production and Training Services Staff. Proposals for other CCTV programs include the following areas:

1. Soil Exploration and Sampling
2. Soil Testing
3. Materials Testing

c) Development of models and mock-ups in structural engineering and soils engineering.

IV. Request for Additional Equipment

A comparison of the equipment listings of the different IRTC laboratories would show that the Civil Engineering Division is the least equipped. Plans for request of additional equipment have already been prepared. A list of additional request of equipment for 1983 has already been accomplished. The list includes only equipment and apparatus for surveying, soils engineering and a small portion of the budget was devoted to the request of additional equipment/apparatus in construction materials. Future request would include equipment/apparatus in construction materials, structural engineering, and construction engineering. Proposals for including equipment/apparatus in fluid mechanics and hydraulic engineering will be made.

V. Research

Possible areas of research are now being identified. Proposed research topics include:

1. Classification of Philippine Soils
2. Developement of a Database of Soil Characteristics of Philippines Soils.

CONCEPT PLAN ON SCHEDULING OF TRAINING PROGRAMS FOR TRAINORS AND STUDENTS

TRAINING PROGRAM	LEVELS	EXPERT	SPECIALISTS
1. Surveying	[3]	S. Iwai	D.P. Mundo C.M. Buzar
2. Soil Engineering	[1],[2],[3]	S. Iwai	M.S. Gutierrez D.P. Mundo
3. Construction Materials	[1],[2],[3]		C.M. Buzar L.D. Apilado M.S. Gutierrez
4. Structural Engineering	[2],[3]		C.M. Buzar M.S. Gutierrez D.P. Mundo
5. Construction Engineering	[1],[2],[3]		L.D. Apilado C.M. Buzar M.S. Gutierrez D.P. Mundo

Levels of Training:
[1] - Basic
[2] - Advance
[3] - Trainors

CONSTRUCTION AND CIVIL ENGINEERING

PROPOSED TRAINING PROGRAMS

	AREA/TRAINING PROGRAM	LEVEL
1.	SURVEYING	
	1.1 Plane Surveying	[3]
	1.2 Topographic Surveying	[3]
	1.3 Route Surveying	[3]
	1.4 Use of Microcomputers in Surveying	[3]
2.	SOIL ENGINEERING	
	2.1 Soil Mechanics in Foundation Engineering	[3]
	2.2 Soil Exploration and Soil Sampling	[3],[2],[1]
	2.3 Soil Testing	[3],[2],[1]
3.	CONSTRUCTION MATERIALS	
	3.1 Materials Engineering	[3]
	3.2 Materials Testing Equipment and Apparatus	[3],[2],[1]
	3.3 Testing of Concrete	[3],[2],[1]
	3.4 Testing of Portland Cement	[3],[2],[1]
	3.5 Testing of Concrete Aggregates	[3],[2],[1]
	3.6 Testing of Asphalt and Bituminous Mixtures	[3],[2],[1]
	3.7 Testing of Metals	[3],[2],[1]
	3.8 Testing of Wood	[3],[2],[1]
	3.9 Testing of Reinforced Concrete	[3],[2]

LEVELS:

[1] - Basic Training for Technician Students
[2] - Advance Training for Undergraduate Engineering Students
[3] - Trainors' Upgrading Program

INTEGRATED RESEARCH AND TRAINING CENTER

PROGRESS REPORT

AUGUST 1983

ELECTRICAL ENGINEERING

ELECTRICAL ENGINEERING DEPARTMENT
INTEGRATED RESEARCH AND TRAINING CENTER
TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES

In accordance with the objectives of the Integrated Research and Training Center, the EE Dept. of IRTC has the following functions:

1. To provide structured training program to cater to 3rd year Electronics and Electrical technology students; 5th year EE students and to faculty members of the CIT, TUP COE, and other TUP branches.

2. To conduct scientific studies and researches in specialized topics in Electrical Engineering.

3. To provide services to different units within TUP and to other external agencies.

EE DEPARTMENT PROGRESS REPORT

1. Past Activities

A. Inventory of Equipment

A complete documentated listing of the equipment in both Electrical and Electronics Laboratory was made. The rationale behind this activity is the assessment of present resources of the EE department.

Report on Equipment:

LEGEND: 1 - good working condition
2 - can be operated by counterpart
3 - defective
4 - already used by students

EQUIPMENT	REMARKS/CONDITION
1. M-G Control Training Unit	1 , 2
a. DC Motor & DC Generator	
b. DC Motor & AC Generator	
2. M-G Automatic Control Unit	1 , 2
3. Ward-Leonard Training System	1 , 2
4. DC Power Source	1 , 2
5. Basic Electric Circuit Experiment Equipment	1 , 2 , 4
6. Semiconductor Static Characteristics Measurement Circuit Experiment Eqp't.	1 , 2 , 4
7. Transistor Power Supply Circuit Experiment	1 , 2 , 4
8. Semiconductor Application Experiment Equipment	1 , 2 , 4
9. Oscillation Circuit Experiment Eqp't.	1 , 2 , 4
10. Amplifier Circuit Experiment Eqp't.	1 , 2 , 4
11. AM Modulation and Demodulation Circuit Experiment Equipment	1 , 2 , 4
12. AM Transmitter and Receiving Circuit Experiment Equipment	1 , 2 , 4
13. FM Modulation & Demodulation Circuit Experiment Equipment	1 , 2 , 4
14. Pulse Circuit Experiment Panel	1 , 2 , 4
15. TV Training System	1 , 2
16. Sequential Control Trainer	1 , 2 , 4
17. Basic Logic Circuit Panels	1 , 2 , 4
18. Logic Circuit Group Experiment Eqp't.	1 , 2 , 4
19. Logic Circuit Experiment Equipment	1 , 4
20. Microwave Measuring Trainer	1 , 2

21.	Servo Mechanic Training System	1 , 2
22.	Computer Element Experiment Equipment	1 , 2 ,4
23.	Computer Basic Experiment Equipment	1 , 2
24.	A-D Conversion Experiment Equipment	1 , 2
25.	D-A Converter Circuit Panel	1 , 2
26.	Oscilloscope	1 , 2 1 set defective, no horizontal & vertical deflection
27.	Universal Counter	1
28.	RC Oscillator	1 , 2
29.	AC Voltmeter	1 , 2
30.	Sweep Generator	1 , 2
31.	Pattern Generator	1 , 2
32.	Digital Multimeter	1 , 2 , 4
33.	Distortion Meter	1 , 2
34.	Ammeters	1 , 2
35.	Slide Ohm	1 , 2
36.	Power Supplies	1 , 2 , 4

II. Present Activities

A. Trainor's Training

A.1 Objectives:

The Trainor's Training Program aims to

A.1.1 Strengthen the technological knowledge of the counterparts

A.1.2 Preparation for the counterparts to handle the advanced and basic training for students.

A.2 METHODOLOGY

A.2.1 Lecture

Hand-outs containing the topic to be discussed are given before the start of the lecture. Then Dr. Yamaguchi will give a detailed discussion of the fundamental concepts related to the operation of the equipment /machine. Lecture sessions are generally scheduled in the morning.

A.2.2 Experiment

Experiments concerning the operation of the machines are performed in the afternoon. These experiments are designed to allow the counterparts to operate the machines and recognize the applications of the fundamental concepts discussed in the lecture. Data on operation of machines are collected.

A.2.3 Reports

Data collected in the experiment has to be tabulated. Graphs are made based on these data.

The hand-outs, the graphs and a summary of information on the particular machines are compiled. These documents will be a good reference material in the preparation of the training packages for the Advance and Basic Training for students.

B. Preparation for BASIC and ADVANCED TRAINING

A study is in progress on the training packages to be given to the students starting on the second semester of the academic year 1983-84.

Thus , the counterparts have been busy identifying specific training areas and designing these training packets.

B.1 PROPOSED TRAINING PACKAGES

B.1.1 TRAINOR'S TRAINING

POWER:

1. Protective Relaying
2. Preventive Maintenance for Electrical Systems
3. Electric Power Distribution for Commercial and Industrial Plants
4. Power System Engineering Course
5. Load Flow Analysis in Electrical Transmission Systems

B.1.2 ADVANCED TRAINING

POWER:

1. DC Generators and Motors
2. Ward-Leonard System
3. Synchronous Machines

ELECTRONICS:

1. Digital computations in Electric Circuit Theory
2. Silicon Controlled Rectifiers
3. Different Amplifier Configurations
4. Introduction to Logic Circuits
5. Logic Circuit Design I
6. Logic Circuit Design II

CONTROLS:

1. Classical Approach to Analysis of Feedback Control Systems
2. State Variable Approach to Analysis of Linear Control Systems
3. Servomechanics and its Industrial Applications

COMPUTERS:

1. Introduction to Microprocessors
2. Microprocessor Workshop I

B.1.3 BASIC TRAINING

1. Introduction to Electrical Engineering Circuits
2. Fundamentals of Electronics
3. Transients in Electrical Circuits
4. Basic Electric Circuit Trainer
5. Transistor Circuit Trainer
6. Television Training System
7. Sequential Control Trainer
8. Logic Circuit Trainer
9. Feedback Control Trainer
10 Microwave Masuring Trainer
11. Servomechanic Training System
12. Computer Training System

INTEGRATED RESEARCH AND TRAINING CENTER

PROGRESS REPORT

AUGUST 1983

MECHANICAL ENGINEERING

M.E. Laboratory
Mechanical Processes

I. Progress on the trainors training course

a) Theories :

Theories in mechanics and Kinematics were presented to us (M.E. Counter-parts) in the easiest and logical way, by our professor mr Maeda. Topics such the ff. are already discussed

1. Problem and solution on center of gravity.
2. Problem and solution on Linkages
3. Problem and solution on Acceleration and
4. Problem and solution on Angular displacement.

I would say, he's doing the best as he can to transfer his expertise to us counter-parts.

B) Computer Hands on Training:

The training in the computer is good. And we the counterparts are happy and very appreciative on the way he is presenting the introduction in the operation of computer. Topics of diff. Application and function of Key board, character were introduced to us participants.

II. Inventory of Mechanical Engineering Laboratory:

A complete inventory of hand tools measuring tools and accessories present at the M.E. Laboratory, includes also the equipment was conducted.

Last June 1983 partial inventory on the equipment and accessories of the Stationary Marine Engine Engineering Laboratory were accomplished. Boiler room and Injection pump calibration room where temporarily closed so that stationary marine engine room could be utilized by M.E. students for their lecture room.

Trainor's Training.

Mathematics.

The training was conducted by Prof. Matulac. He stressed,

a. Methods of Teaching

b. The Important Mathematics Tools in Teaching Engineering Sciences.

Applied Mechanics.

This is still going on, and is handled by Prof. Y. Maeda. The lectures have already covered solutions to problems on,

a. Kinematics of Rectilinear Motion

b. Systems of Forces in Equilibrium

c. Complex Functions

Computer.

This is still going on, and is conducted by Prof Y. Maeda. The participants are taught how to prepare short and simple programs.

EQUIPMENT INVENTORY SUMMARY

Machine equipment	Condition
1. Wasino Precision Lathe	Operating condition
2. Vertival Milling Mach.	Operaring condition
3. Universal Tool & Cutter Grinder	Operating condition
4. Gear Shaping Mach.	Operarting condition
5. Gear Hobbing Mach.	Operating condition
6. Electric Discharge Machine	Operating condition
7. Cylindrical Grinding Mach.	With Electrical Trouble & Haydraulic leakage
8. Electric Heat Treatment furnace	Operating condition
FOR THE PRECISION MECHANICAL MEASURING SECTION	
1. Brinell Hardness Testing Machine	With Hydraulic Trouble
FOR STATIONARY MARINE ENGINE SECTION	
1. Boiler,Superheater, Steam Turbine, Electrical generator and Electrical Pannel Board.	Operatinbg condition
2. Injection pump calibration machine.	Operating condition but with electrical trouble.

INTEGRATED RESEARCH AND TRAINING CENTER
TRAINING CURICULUM

Model: Machine Processing for students

contents

IRTC PACKAGE TRAINING COURSES FOR STUDENTS

101	IRTC MT - ME	Lathe processes and instrumentation.
102	IRTC MT - ME	Milling processes and instrumentation.
103	IRTC MT - ME	Gear Shaping Machine Processes
104	IRTC MT - ME	Gear Hobbing Machine Processes
105	IRTC MT - ME	Cylindrical Grinding Processes
106	IRTC MT - ME	Universal cutter and tool grinding process
	ME	Injection Moulding Machine Processes
	ME	Electrical Discharge Machining Processes
	ME	Heat Treatment Processes and Instrumentation

WHERE TO TRAIN: IRTC - TUP Campus
Room 108, Mechanical Engineering Laboratory and precision measuring room

MINIMUM TARGET OF TRAINING

EXPOSURE TO LEVEL I

1. Aquisition of skills, familiarization with major and minor parts and its function
2. Operating principles, awareness of applied physical science and technological, engineering concepts.
3. Safety consciousness.

Level II

4. Solving problems and application of principles.
5. Execution for job specimens, creativity and developing alternatives.

Level III

6. Design, machining and fabrication
7. Standardization and design for industrial application
8. Other considerations and aspects, such as:
   a) Costing/cost estimates of the job
   b) Preparation of instructional materials
   c) Preparation of measuring instrument to monitor student progress.

1. Linear Instruction
2. Audiovisual Presentations
3. Films/Tapes
4. Laboratory Exercises - operation of machines and listing various measuring instruments, guages, etc.
5. Hand-outs, Workbooks and Textbooks
6. Reference Materials
7. Learn-by-doing sessions
8. Spaced Quizzes
9. Person-to-person tutorial assistance

¥ Audiovisual presentations, films, texts, and linear instruction enable the trainee to absorb the vital subject matter with relative ease.

¥ Each course has many checkpoints to ensure that the trainee fully understands the material he has studied. He moves to the next stage of learning only when he passes a checkpoint correctly.

¥ Instead of passive listening, IRTC-MEDIA Instruction requires the trainee to respond actively and often.

¥ To hold the trainee the interest, lesson should vary in length and :employ different instructional techniques.

MODEL CURRICULUM: Trainors Training in the Operation of Gear Shaper - Principles, Theory and Practice

MACHINE : Gear Shaper

MODEL : GS - 101

DESCRIPTION :

Gear Shaping process is a trainor's training course designed for Mechanical Engineer specialist and Shop Specialist. The training provides basic and advance principles, theories, skills in all level with the end view of preparing them to transfer the training to undergraduate students, machinists, industrial technicians, shop instructors and engineers with no or with little background in gear shaping. The training provides basic, advance theories and skills, attitudes, techniques necessary for highly precision gear manufacturing, with special emphasis on gear design. The trainors (specialists) will learn to know and understand the following:

1. The machine, operation and maintenance both mechanical and electrical
2. Gear Machining (Shaping)
3. Gear Designing
4. Gear Production

In a deeper way, to develop high degree skills, theories, principles and creativity in process, design planning, method consciousness for highly precision productivity.

OBJECTIVES:

To provide the participants (specialist) the advanced theory, skills and principles necessary to enable them to impart/transfer the technology to all of participants.

Equipment training will be integrated with instructional technology including the preparation and production of instructional materials.

MODEL CURRICULUM: Trainors Training in the Operation of Gear Hobber - Principles, Theory and Practice

MACHINE : Gear Hobber

MODEL :

DESCRIPTION :

Gear hobbing process is a trainor's training course designed for Mechanical Engineer specialist and Shop Specialist. The training provides basic and advance principles, theories, skills in all levels with the end view of preparing them to transfer the training to undergraduate students, machinists, industrial technicians, shop instructors and engineers with no or with little background in gear hobbing. The training provides basic, advance theories and skills, attitudes, techniques necessary for highly precision gear manufacturing, with special emphasis on gear design. The trainors (specialists) will learn to know and understand the following:

1. The machine, operation and maintenance both mechanical and electrical
2. Gear Machining (hobbing)
3. Gear Designing
4. Gear Production

In a deeper way, to develop high degree skills, theories, principles and creativity in process, design planning, method consciousness for highly precision productivity.

OBJECTIVES:

To provide the participants (specialist) the advanced theory, skills and principles necessary to enable them to impart/transfer the technology to all of participants.

Equipment training will be integrated with instructional technology including the preparation and production of instructional materials.

MODEL CURRICULUM: Trainors Training in Plastic Injection Machine

MACHINE : Plastic Injection Machine

MODEL : PLAKI PN - 60

DESCRIPTION :

Plastic Injection process is a trainor's training course designed for Mechanical Engineer specialist. The training provides basic and advance principles, theories, skills in all level with the end view of preparing them to transfer the training to undergraduate students, industrial technicians, shop instructors and engineers with no or with little background in plastic production. The training provides attitudes and techniques necessary for production engineering and industrial engineering with special emphasis on the design of plastic mould and machine operations. The trainee (training specialist) will learn to know and understand the following:

1. The machine, operation and maintenance both mechanical and electrical
2. The mould design
3. The production of plastic using injection machine

In a deeper way, to develop high degree skills, theories, principles and creativity in process, design planning, method consciousness for highly precision productivity.

OBJECTIVES:

To provide the participants (specialist) the advanced theory, skills and principles necessary to enable them to impart/transfer the technology to all of participants.

Equipment training will be integrated with instructional technology including the preparation and production of instructional materials.

MODEL CURRICULUM: Trainors Training in Electric Discharge Machining - Principles and Practice

MACHINE : Electric Discharge Machine

MODEL : DP 20 JAPAX

DESCRIPTION :

Electric discharge machining process is a trainor's training course designed for Mechanical Engineer specialist and Shop Specialist. The training provides basic and advance principles, theories, skills in all levels with the end view of preparing them to transfer the training to undergraduate students, industrial technicians, shop instructors and engineers with no or with little background in electrical discharge machining. The training provides basic, advance theories and skills, attitudes, techniques necessary for highly precision production engineering, industrial engineering, with special emphasis on die design using electrical discharge machine(E.D.M.). The trainee (training specialist) will learn to know and understand the following:

1. The machine, operation and maintenance both mechanical and electrical
2. Die design using EDM in machining
3. The production of mould/die using EDM

In a deeper way, to develop high degree skills, theories, principles and creativity in process, design planning, method consciousness for highly precision productivity.

OBJECTIVES:

To provide the participants (specialist) the advanced theory, skills and principles necessary to enable them to impart/transfer the technology to all of participants.

Equipment training will be integrated with instructional technology including the preparation and production of instructional materials.

MODEL CURRICULUM: Trainors Training in Heat Furnace-Heat Treatment of metals, Principles, Theory and Practice

MACHINE : Heat Treatment Furnace

MODEL :

DESCRIPTION :

Heat Treatment process is a trainor's training course designed for Mechanical Engineer specialist. The training provides basic and advance principles, theories, skills in all level with the end view of preparing them to transfer the training to industrial technicians, shop instructors and mechanical engineers with no or with little background in heat treatment technology. The training provides attitudes, techniques theory, principles, and high degree skills with special emphasis on specimen testing using the available equipment the precisionmechanical measuring. The trainees (participans) will learn to know and understand the following:

1. The furnace operation and maintenance
2. Heat Treatment of Metals
3. Testing the treated metals using various testing equipment

In a deeper way, to develop high degree skills, theories, principles and creativity in process, design planning, method consciousness for highly precision productivity.

OBJECTIVES:

To provide the trainee (specialist) the advanced theory, skills and principles necessary to enable them to impart/transfer the technology to all of participants.

Equipment training will be integrated with instructional technology including the preparation and production of instructional materials.

MODEL CURRICULUM: Trainors Training in Universal Cutter and Tool Grinder Principles, Theory and Practice

DESCRIPTION :

Universal cutter and tool grinder theory principles and practice is a trainor's training course designed for Mechanical Engineer specialist and Shop Specialist. The participants (trainors) learn the basic and advance principles, theories, skills in all level with the end view of preparing them to transfer the training to undergraduate students, industrial technicians, shop instructors and engineers with no or with little background in cutter grinding. The training provides basic, advance theories and skills, attitudes, techniques necessary for highly precision production engineering with special emphasis on grinding technology. The participant will learn to know and understand the following:

1. The machine, operation and maintenance both mechanical and electrical
2. Cutter and Tool Grinding using extra attachment
3. Other application or operation of grinding workpiece(not cutter and tool)

In a deeper way, to develop high degree skills, theories, principles and creativity in grinding process.

OBJECTIVES:

To provide the participants (specialist) the advanced theory, skills and principles necessary to enable them to impart/transfer the technology to all of participants.

Equipment training will be integrated with instructional technology including the preparation and production of instructional materials.

INTEGRATED RESEARCH AND TRAINING CENTER

PROGRESS REPORT

AUGUST 1983

PHYSICS LABORATORY

TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
INTEGRATED RSEARCH AND TRAINING CENTER
M a r i l a

Physics Laboratory
Progress Report for 1982-1983

I. The Physics Laboratory, a supportive area of the IRTC has done the following:
   1. Served the students of the MAT-PHYSICS Course of the TUP Graduate School and the College of Engineering in their laboratory classes.
   2. Conducted a Physics Experiment Apparatus Orientation Seminar for Faculty Members of the University in cooperation with the JOCV members.
   3. Prepared an experiment lesson via the CCTV in cooperation with the Media Production Center.
   4. Prepared manuals for some apparatus.
   5. Assembled and tested the apparatus thru experiment.
   6. Maintained a smooth operation of the laboratory.

II. However, the following apparatus need an English Manual of Operation from the manufacturer (Shimadzu)
   1. Frank-Hertz Apparatus type FH-200 Mod. 137-441
   2. Torricelli's Law Experimental Kit type TOR-100 Mod. 126-050
   3. Magnetic Circuit Experimental Apparatus type KMC-5 Mod. 100-090
   4. Electromagnetic Force Experimental Apparatus type KEM-3 Mod. 100-110

III. While the Physics Laboratory continues to serve the students of the Graduate School and College of Engineering in their laboratory classes, a simultaneous program of activities is being proposed for the SY 1983-1984.

ACTIVITIES:

1. Prepare manuals of existing apparatus in the fields of:
   a. Mechanics
   b. Electricity and Magnetism
   c. Heat/Wave
2. Produce Low-Cost Apparatus
   a. Mechanics
   b. Electricity and Magnetism
   c. Heat/Wave
3. Conduct in-house seminar about the apparatus and manuals produced.
4. Prepare experiment lesson via the CCTV.
5. Prepare Computer-Assisted Instructional Materials
6. Prepare Engineering Student Laboratory Manuals
   a. Physics 213 (Heat, Thermo., Fluids)
   b. Physics 223 (Electricity and Magnetism)

INTEGRATED RESEARCH AND TRAINING CENTER

PROGRESS REPORT

AUGUST 1983

COMPUTER DIVISION

TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
INTEGRATED RESEARCH AND TRAINING CENTER
M a n i l a

Computer Division
Progress Report for 1982-1983

I. FUNCTION

The computer division is a support division to all the departments of IRTC. It has so far provided the following services:

1. Training services
2. Computing services
3. Word processing services
4. Programming services

II. ACTIVITIES

1. The Computer Division has provided in-house trainings to the TUP personnel

   Types of training provided:
   a. Computer Familiarization
   b. Word Procesing Operation
   c. Database Operation
   d. EDP for Executives
   e. BASIC Programming

2. The Computer Division has expanded to give training to selected personnel of requesting ministries and organizations:
   a. Ministry of Labor and Employment
   b. Ministry of Budget
   c. Commision on Audit
   d. Ministry of Education, Culture ans Sports
   e. Philippine Association of State Universities and Colleges

III. PROPOSED ACTIVITIES

1. To continue the training programs conducted before:
   a. Computer Familiarization
   b. BASIC Programming
   c. Word Processing and Database Operation
   d. EDP for Executives

2. To expand training programs to accomodate the proposed training programs
   a. Computer Oriented Science/Math Courses
   b. Computer Applications in Engineering
   c. Data Structures

3. To conduct feasibility study on the possibility of offering a BS Computer Science program and Computer Technology Course in the university

4. Identification of other manual's clerical works in the university that could be computerized

IV. MAN - WEEKS

I. Training Package in EDP

A. EDP Fundamentals, Uses and Applications of PC, BASIC Programming

1. Faculty members and staff of the TUP college	16 man x 3 weeks =	48 man-weeks
2. College of Engineering and IRTC staff	12 man x 3 weeks =	36 man-weeks
3. College of Arts and Sciences CIT and CAFA staff	16 man x 3 weeks =	48 man-weeks
	11 man x 3 weeks =	33 man-weeks
4. Personnel Staff and Secretaries	8 man x 3 weeks =	24 man-weeks

B. Word Processing Operation

1. Personnel Staff and Secretaries	8 man x 3 weeks =	24 man-weeks
	3 man x 3 weeks =	9 man-weeks
		222 man-weeks

II. Computer Training Package for Executives

A. Introduction of the role and effective utilization of EDP in management, BASIC Programming, Word Processor and Data Base Operations

1. National Government Officials	9 man x 2 weeks =	18 man-weeks
2. Ministry of Labor and Employment: Directors and Chiefs of Units	20 man x 2 weeks =	40 man-weeks
3. Ministry of Budget: Management Personnels	15 man x 2 weeks =	30 man-weeks
4. Ministry of Education, Culture and Sports: Directors and Chiefs	21 man x 2 weeks =	42 man-weeks
		130 man-weeks

TOTAL	352 man-weeks

INTEGRATED RESEARCH AND TRAINING CENTER

PROGRESS REPORT

AUGUST 1983

PRINTING LABORATORY
DESIGN AND PRODUCT
DEVELOPMENT

Republic of the Philippines
TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
(Formerly Philippine College of Arts and Trades)
P.O. Box 3171, Manila - 2801

PROGRESS REPORT - IRTC PRINTING AND PRODUCT DESIGN AREA

(January 1 - July 31, 1983)

1. FUNCTIONS

1.1 Serve as a service arm of the IRTC in its various reproduction needs.

1.2 Serve as a venue for short training programs in reprographics for advanced students of the University and from other public and private agencies.

1.3 Serve as an auxiliary arm of the University in its reproduction needs.

1.4. Serve faculty needs for training in reprographics.

2. ACCOMPLISHMENTS

2.1 Instruction
- Conducted workshop-seminar for the faculty of the College of Architecture and Fine Arts (TUP)
- Conducted special training program for a reprographics technician

2.2 Production
Reproduced by xerox process various technical literature and reports for the Office of the IRTC Director
- Printed the 1983 Educational Congress programs, brochures, etc
- Printed portions of the 1983 Graduation Program of the University
- Printed the IRTC Brochure
- Printed the TUP-APEID Bulletin
- Printed portions of Enrollment forms for the University
- Printed the TUP Bulletin of Information
- Printed the TUP Students' Conduct and Discipline

2.3 Maintenance - Observed regular check-up and lubrication of all machinery in the area.

Republic of the Philippines
TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
(Formerly Philippine College of Arts and Trades)
P.O. Box 3171, Manila - 2801

3. CONDITION OF EQUIPMENT

Equipment	Condition
3.1 Process Camera	Good
3.2 Vacuum Contact Printer	"
3.3 Temperature-controlled Sink	"
3.4 Plate Printing Machine	"
3.5 Plate Drying Machine	"
3.6 Film Drying Machine	"
3.7 Offset Press (big)	"
3.8 Offset Duplicating machine	"
3.9 Paper Cutter (automatic)	Needs repair
3.10 Small Spot Cooler	Good
3.11 Big Spot Cooler	"
3.12 Darkroom Enlarger	"
3.13 Blueprinting Machine	"
3.14 Slide Printer	"
3.15 Transparency Maker	"
3.16 Copying Machines	Frequent Breakdowns
3.17 IBM Composing machine	Needs major servicing/ replacement
3.18 Drafting Machines	Good

4. PROBLEMS AND RECOMMENDATIONS

The Area, with its complement of light and heavy machinery, is still unable to achieve optimum output due to the following causes:

1. Lack of well-trained personnel to assist the Area Custodian in the various aspects of reproduction work for the IRTC and the University.
2. Lack of highly-essential hand tools and supportive equipment.
3. Temperature in the Area, usually between 80 and 90 degrees F, is harmful to temperature and light-sensitive materials used in the graphic arts.
4. Lake of essential graphic arts materials like films, chemicals, paper, etc.

To meet desired instructional and production objectives, the above-mentioned conditions should be remedied.

8/4/83

G. T. DAGUL
Area Custodian

INTEGRATED RESEARCH AND TRAINING CENTER

PROGRESS REPORT

AUGUST 1983

PRINTING LABORATORY
DESIGN AND PRODUCT
DEVELOPMENT

Republic of the Philippines
TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
(Formerly Philippine College of Arts and Trades)
P.O. Box 3171, Manila - 2801

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Republic of the Philippines
TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
(Formerly Philippine College of Arts and Trades)
P.O. Box 3171, Manila-2801

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3.11 Big Spot Cooler	"
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3.13 Blueprinting Machine	"
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8/4/83

G. T. DAGUL
Area Custodian

INTEGRATED RESEARCH AND TRAINING CENTER

PROGRESS REPORT

AUGUST 1983

AUDIO VISUAL

AND

MEDIA PRODUCTION SERVICES

TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
INTEGRATED RESEARCH AND TRAINING CENTER
M A N I L A

Media Production and Training Services Section-
Progress Report for 1982-1983:

The Media Production and Training Services Section's main objective is to serve as a supportive arm of the center in achieving its aim of providing basic and advance training in Engineering and other related technology through the full utilization of the audio-visual equipment for the dissemination of considerable subjects relating to such fields of education.

Functions:

a.To initiate and/or seek out program and training concepts and ideas for the development and ultimate utilization of the audio-visual technology.

b.To produce instructional programs relating to the various significant subjects in Engineering and other related technology that will serve as integral components in the learning process of the students and other staff.

c. Plan, organize and effect specific in-house and outside services in conformity with the center's policies, objectives and guidelines.

Based on the above-mentioned functions, the MPTS has the following detailed progress report and descriptions of its tasks, which basically include projects/programs, other related activities and plans:

A. PROJECTS/PROGRAMS :

1. Highway Construction Instructional Documentation Project:

This project is a 17-minute instructional program about the different modern technology employed in constructing the highway grounds in the Don Mariano Marcos Avenue.

The ITV program illustrated the procedures involved in highway engineering which covered stages such as, planning and design, earthwork structures and the actual construction work.

The program is designed for Civil Engineering students who actually need basic knowledge on highway engineering.

The ITV program was produced through an entire location shooting at the construction job site. The finished product was stored in a colored U-matic tape which could be fed on the television sets installed inside the classrooms through the closed circuit television line network system.

The program was shown to the students and the initial evaluation results revealed that it was able to disseminate its message to its target audience very effectively.

2. Physics CCTV Project:

The project's title is the "Physics Experiments Via the CCTV." Its main fare is the dissemination of diversified facts and priniciples on the use of the different Physics apparatus available in the center to the students through the CCTV. And from the program, the students are expected to acquire the basic and advance knowldge on the methods of mani pulating the modern Physics instruments and correlate these with their antecedent practical lessons.

The Physics ITV program has been taped completely inside the studio with a Physics specialist as the presentor. It is in color and with a twenty five (25)-minute duration.

Furthermore, to make the program stimulating and captivating, a play up of the experiment was made by means of a film clip and visual aids. In addition, studio sets which include the devices for the actual demonstrations of the experiment were presented.

The ITV program will be shown to the students by way of the CCTV line network system and the evaluation and analyses of feedback results will be done to validate its effectiveness.

The outcome of the instructional television program is apparent to be a useful pattern for designing other materials for instructional technology.

3. The Light Rail Transit System Documentation Project:

This is an on-going project of the section which is another instructional documentary film which embraces only the subject on bored pile method of constructing a foundation.

The initial plan of the project team was to cover the entire LRT construction activities at the Pasig River site, however, due to some immediate reconsiderations made by the LRT authorities on building an ordinary bridge instead of a modern LRT structure at the said location, the team reached an agreement, to start working out on the video materials with the most complete sequence of parts which is the bored pile foundation construction.

The video materials for this project were obtained from a complete location shooting at the sites where the construction work were actually done.

The production staff had a daily monitoring lists of activities of the project's construction work which were gathered from the LRT contractors' office. Likewise, the staff were able to avail of the technical assistance from the from the LRT project's contractors and authorities, such as, the LRTA, Electrowatt Engineering Services and CDCP during the actual shooting and the audio script production.

At present, the video materials are being previewed thoroughly by the production team to initiate the editing process of the raw tapes. Audio and video scripts are complete, together with the graphics and some other visual aids.

Tape reproductions through commercial Betamax machines are still in-process and the feasibility of utilizing the computer devices for graphics are still being studied intently.

Voicing of the audio script will follow the editing of the video materials and the musical scoring shall complete the whole production work.

This instructional documentary project is intended to be utilized as a supplementary training material for Civil Engineering students.

B. OTHER RELATED ACTIVITIES :

In addition to the section's aim of strengthening the scheme of teaching via the medium of television, it is also committed to perform other activities complementing its functions, and to wit:

1.Filming of significant activities in the IRTC which will serve as future references for any documentary projects of the center.

A number of documented significant activities have already been scripted, edited and dubbed, and to mention a few:

a.Conferment of Dr. of Technology Honoris Causa to Ambassador Hideho Tanaka
b.APEID Mobile Seminar for Technical Teachers Educators
c.Signing of Records of Manuscripts between TUP and JICA
d.Visit by the members and officers of the Federation of Accrediting Agencies of the Philippines to IRTC
e.Visit by JICA Representatives to IRTC

However,several other documented films were just filed as raw tapes due to the reason that scripts cannot be provided because of the lack of good background materials regarding the substance/subjects of the films.

2. Presenting of informative films produced by the section to the IRTC's visitors.

The IRTC documentary film is one of the best examples of an informative film that is commonly being presented to the center's visitors.

It brings before the viewers the latest technological equipment and tools available in the center which as described, are being fully utilized to carry out the center's role and functions which are training, research and services.

3. Writing/composing and designing of promotional materials, such as, brochures, articles and other documents, for the benefit of the center's institutional linkages as part of its public relations activities.

4. Coordinating closely with the center's linkages, either public or private entities, with audio-visual technology inorder to avail of appropriate acquisition and transfer of skills on equipment operation.

At present, the MPTS staff is undergoing a sporadic training on the mechanics of audio and video editing. Basic and general knowledge about the operation of the other equipment installed at the Master Control, television studio and projector room have been acquired by the staff from the said in-house training.

5. Providing technical assistance to the other staff in the center, university and to other interested parties through slide making, tape reproductions,paper works editing, film copying, dubbing and musical scoring.

C. PLANS :

The MPTS Section has programmed its plans and activities as follows:

Projects/Activities	Schedule
1. Accomplish the LRT project	July-August
2. Revision (update) of IRTC Informative Film	August-September
3. Physics Experiments Via the CCTV Second Project	September-November
4. Soil Testing (Civil Engineering Instructional Film)	November-December

In relation to these plans of activities, the section is certain to achieve a better production of the said planned projects if the following equipment will be added to its technology requirements:

1. Time base corrector - this is being used to provide special effects on pre-recorded materials such as computer graphics. Likewise, it is used to correct the video level of video signals.

2. Portable battery light system - this is suitable for correcting outdoor lighting system.

3. Chroma key unit - to provide special effects on live or canned presentations.

4. Portable camera and video cassette recorder - these are important and handy for location shootings.

5. Waveform monitor - to monitor video levels and sync levels.

6. Vectorscope -this being used to adjust camera colors.

INTEGRATED RESEARCH AND TRAINING CENTER

PROGRESS REPORT

AUGUST 1983

REFRIGERATION AND AIR-CONDITIONING DIVISION

TECNOLOGICAL UNIVERSITY OF THE PHILIPPINES
INTEGRATED RESEARCH AND TRAINING CENTER
REFRIGERATION AND AIR CONDITIONING DIVISION

PROGRESS REPORT:

ACTIVITIES:

1) Refrigeration and air conditioning machines/equipment installed at the laboratory were all maintained.
2) Inventory of the accessories and machines at the automotive office and storage for R.A.C. division.
3) Put into operation the:

A) Ice Maker Unit
Different blocks of ice were produced for operational purposes.Daily maintenance on the machines is made for constant and normal operation. Periodical checks is applied to detect abnormal or worn parts of the unit. Periodical check includes:
a)Refrigeration oil
b)V-Belt adjustment
c)Shaft seals
d)Operating pressures
e)Current,noise,vibration etc.

NOTE:
Expansion valve is icing and running abnormally.

B) Commercial Air Conditioning Trainer Unit
Operated the machine.Researches were done for the different training jobs to be employed in the use of the training unit.Training unit found out to be running abnormally.Trouble shoot the unit and found out defects both electrical and mechanical. Leakage was found by the use of the halide leak detector. During its operation, the automatic side particularly the water cooled condenser is running abnormally. Electrical interlockings, particularly the compressor is hereby recommended for further check-up and possible re-wiring.
Training activities will be prepared both for basic and advance courses.

C) Condensing Units
Units were operated and found out to be in good running condition. Training jobs with the use of the units were prepared for the teaching and learning processes for basic and advance.

D) Freezer Units
Unit was operated and maintained daily. Periodical checks were done and found out leakage on the high pressure side. Training jobs are further prepared for basic and advance.

E) Welding Equipment

Equipment were operated and running normally. They were used in assembling welding tables for the welding booths, grinding stands and vacuum pump stands. Engineering students were designated to assemble the jobs as part of their actual training jobs on the welding blocks. It was done through the supervision of the laboratory in-charge.

Note: Further maintenace operations for the machine equipment in done. Assembly of the needs of the R.A.C. laboratory through instruction will be done. Machines are to be operated at least once a week in order to avoid abnormal operation and early detection of possible troubles.

Trainors' Training

Training started on June 26, 1983 and the topics or contents which are discussed by the Mechanical Engineering experts (Prof. Maeda) are being applied effectively and efficiently by the trainors. Basic theoretical data are imparted by the experts in preparation to the training jobs of the basic and advance courses. Proper schedules were made in order to devote more time and effort in the discussion of the different important topics. Counterparts are deloaded for their teaching loads in order to concentrate more on the training.

Training is very interesting. Suggestions are freely accepted by the experts in order to have a fruitful training for it is the basic Fundamental theory of the counterparts in the preparation of the training activities in the different fields of the Mechanical Engineering. Assesment and evaluation of trainors and experts on the trainors course is done every Friday in order to discuss the problems and suggestions of expert and counterparts for remedial purposes.

PROGRESS REPORT:

The following are the result of the inventory of equipment, tools at the refrigeration and air conditioning division.

Name of equipment	Condition	Remarks
1) Ice Maker Unit	Expansion valve icing	Abnormal Operation Needs repair
2) Commercial Refrigeration Trainer	System is undercharge.	
	Water cooled condenser not operating.	Elimination of leak and rewiring of compressor is needed.
	Continous operation of compressor even in off position.	
3) Freezer Unit	Blown fuse	For further repair
	Leakage at high pressure side	
4) Condensing Units	Normal operation	OK
5) Fan Coil Units	Normal operation	OK
6) Welding Equipments	Normal operation	OK
7) Exhaust Fan	Normal operation	OK
		Used by Eng'r stududents
8) National Refrigerators	Normal operation	OK
9) Flaring tools	OK	OK
10) Halide torch	OK	OK
11) Tube Bender	OK	OK
12) Welding mask	OK	OK
13) Bench vice	OK	OK
14) Portable grinder	OK	Used by Eng'r students
15) Bench grinder	OK	Used by Eng'r students
16) Oxy-Acytelene gage and hoses	OK	OK
17) Refrigerant charger	OK	OK
18) Multi Tester	OK	OK
19) Power Hi tester	OK	OK
20) Digital Clamp Tester	OK	OK
21) Tube cutter	OK	OK

TECNOLOGICAL UNIVERSITY OF THE PHILIPPINES
INTEGRATED RESEARCH AND TRAINING CENTER
REFRIGERATION AIR CONDITIONING DIVISION

PROPOSED TRAINING PROGRAM FOR BASIC COURSEX

Block No.1 Condensing Units

Objectives: 1)To acquaint the student with the different type of condensers
2)To know the different operations w/c will enable the students to do the job practically
3) to develop skills in the installation of condensers applied to the system

Content
Topic:

1)Types of condensers
a)Air cooled
b)Evaporative
c)Cooling towers

3)Electrical connections
a)Condenser fan motor
b)3 Phase and single phase
c)Magnetic starter
d)Rated amperage
e)I.C Timers
f)Interlocking operations

Machines to be used:

1)Fan coil units
2)Condensing units
3)Package air conditioner

Total number of hours:60

Block no 2:Fan coil units

Objectives:To acquaint the students on the application of fan coil units in refrigeration
To learn the methods of assembling/repairing and construction of the system
To know the basic characteristic and components of the different types of freezers .

Contents:
Topics:

1. Types of evaporators
2. Electrical controls
3. Motor installation
4. Refrigerant pipings
5. Expansion valves
6. Pressures
7. Mathematical computations

Machines to be used:

1. Fan coil units
2. Commercial refrigerations trainer unit
3. Freezers
4. Ice maker

Totai Number of Hours: 60

Block No. 3: Ice Maker

Objectives: 1. To enable the students to make atual ice through experiment.
2. To acquire skills and knowledge in the used of measuring tools.
3. To compute refrigerating capacity through actal application.

Contents:
Topics:

I. Calculation
  a. Ton of refrigeration
  b. Phase of brine solution
  c. Agitator of brine solution
  d. Refrigerating capacity
II. Type of Ice
III. Refrigerants
  a. R-502
  b. Ammonia
  c. F-12, and 22.
  d. Brine solution
IV. Electrical Wirings

Machines to be used:

1. Ice makers
2. Frostless refrigerator

TOTAL NUMBER OF HRS: 60

Block No. 4: Air Conditioning Units.

Objectives: 1. To indentify the different processes involved in the operation of Air Conditioning Units.
2. To upgrade the students to the modern air conditioning controls.
3. To provide basic information for future development.

Contents:
Topics:

1. Refrigeration and air conditioning theories
  a. Commmercial
  b. industrial
2. Psycometrics
3. Air handling units
4. Air conditioning accessories
  a. oil separator
  b. muffler
  c. vibration absorber
  d. relief valves
5. Cooling water lines

Machines to be used:

1.Packaged Air Conditioner
2.Commercial Refrigeration Trainer
3. Fan Coil
4. Condesning Units

Trainor's Training.

Mathematics.

The training was conducted by Prof. Matulac. He stressed,

a. Methods of Teaching

b. The Important Mathematics Tools in Teaching Engineering Sciences.

Applied Mechanics.

This is still going on, and is handled by Prof. Y. Maeda. The lectures have already covered solutions to problems on,

a. Kinematics of Rectilinear Motion

b. Systems of Forces in Equilibrium

c. Complex Functions

Computer.

This is still going on, and is conducted by Prof Y. Maeda. The participants are taught how to prepare short and simple programs.