DIV	CTG	ID NUMBER	NAME OF EQUIPMENT	DESCRIPTION	@ PRICE
AV	E1	J2-348	Compact Public Address System	PA-100	429000
AV	E1	J2-349	Integrated Stereo Power Amplifier	TA-F35	62000
AV	E1	J2-350	U-matic Videocassette Recorder	VO-2610	440000
AV	E1	J2-351	16mm Film Projector	16-F	530000
AV	E1	J2-352	8mm Film Projector	ST-1200HD	396000
AV	E1	J2-353	35mm Slide Projector	AS-3000A	329000
AV	E1	J2-354	Betamax Videocassette Recorder	SLO-323	393000
AV	E1	J2-355	Overhead Projector	HP-2450	619000
AV	E1	J2-356	Controlling Console	WL-615KN	1129000
AV	E1	J2-357	Power Amplifier	WU-P23	245000
AV	E1	J2-358	Disk Player	SL-Q2XL	73000
AV	E1	J2-359	Audiocassette Recorder	RS-M88-NT	250000
AV	E1	J2-370	Wireless Microphone Receiver	WX-940	0
AV	E1	J2-371-1/5	Betamax Video Cassette Deck	SLP-303	393000
AV	E1	J2-373-1/3	Video & Audio Distributor	DA-210	415000
AV	E1	J2-384-1/3	Connecting Cable & Mount Metal		316000
AV	E1	J2-385	Lecture Table with Video Console		1017000
AV	E1	J3-199-1/2	Digital Time Base Corrector	BVT-800	2000000
AV	E1	J3-200	Three-Tube Color Video Camera	DXC-M3PK	1550000
AV	E1	J3-201	Portable Videocassette Recorder	VO-4800	618000
AV	E1	J3-202	Condenser Microphone Complete Kit	C-74CK	216300
AV	E1	J3-205	Universal Chromakeyer	CRK-2000	496500
AV	E1	J3-206	Vector Scope	1420	932000
AV	E1	J3-207	Wave Form Monitor	528A	628300
AV	Ax	J2-318-1/2	Elevator Tripod with Dolly	SAM-TPD-3	135000
AV	Ax	J2-319	Tripod without Dolly	TVT-1	0
AV	Ax	J2-321	Color Optical Multiplexer for Trinicon Cameras	VCR-2	486000
AV	Ax	J2-322	Battery Charger	BC-20CE	42000
AV	Ax	J2-323-1/6	Rechargeable Battery Pack	BP-60	11000
AV	Ax	J2-328	Phono Player System	PS-X55	0
AV	Ax	J2-329-1/2	Studio Speaker System	SS-R3	44000

DIV	CTG	ID NUMBER	NAME OF EQUIPMENT	DESCRIPTION	@ PRICE
AV	Ax	J2-330-1/3	Cardioid Dynamic Microphone	F-560	24000
AV	Ax	J2-331-1/3	Electret Condenser Microphone	ECM-150	13000
AV	Ax	J2-332-1/2	Microphone Boom Stand	B-302	35000
AV	Ax	J2-333-1/3	Microphone Table Stand	A-12	9000
AV	Ax	J2-336-1/6	1kw Upper Horizon Light	UHQ-10	42000
AV	Ax	J2-337-1/3	Quartz Broad Light	LQB-20	73000
AV	Ax	J2-338-1/3	Quartz Focusing Light	LQF-6N	57000
AV	Ax	J2-339-1/2	Quartz Spot Light	LQS-5	97000
AV	Ax	J2-340	Portable Lighting Kit	CAT-KIT-3	192000
AV	Ax	J2-341-1/2	Camera Cable (10m)	CQA-10AR	42000
AV	Ax	J2-342-1/4	Intercommunication Headset	DR-10A	13000
AV	Ax	J2-343-1/6	Video & Audio Selector	VCS-50M	139000
AV	Ax	J2-347	100" Projection Screen	VPS-1000C	700000
AV	Ax	J2-361	Monitor Speaker	WS-1250	20000
AV	Ax	J2-364-1/2	Volume Box	WZ-530A	20000
AV	Ax	J2-365-1/4	Wireless Microphone	WX-470	197000
AV	Ax	J2-366-1/2	Speaker	WS-3250	197000
AV	Ax	J2-3671/2	Dynamic Microphone	WM-323B	20000
AV	Ax	J2-368	Floor Stand	WN-501	29000
AV	Ax	J2-369	Wireless Microphone	WX-480	49000
AV	Ax	J2-372-1/2	King Light with Stand	LQK-5, SSRS	73000
AV	Ax	J2-374	Mounting Panel for Dimmer Console	MLD-1	276000
AV	Ax	J2-375	Mounting Panel for SEG Console	MDS-1	263000
AV	Ax	J2-376-1/2	Mounting Panel for VTR Machines	EDS-1	[illegible]
AV	Ax	J2-377	Mounting Panel for Betamax Machine	BTS-1	119000
AV	Ax	J2-378-1/3	Mounting Panel for Audio Equipment	MSD-1	206000
AV	Ax	J2-379	Mounting Panel for Telop Console	TED-1	117000
AV	Ax	J2-380	Telecine Desk	TLD-1	110000
AV	Ax	J2-381	Mounting Panel for Camera Control Unit		287000
AV	Ax	J2-382-1/2	Rack Mounting Panel	PMN-1800	24000
AV	Ax	J2-383	Connecting Panel for Camera Cables,Microphones etc		0
AV	Ax	J2-386	Blackboard with Screen		393000
AV	Ax	J2-387	Speeker System	SS-X100	49000
AV	Ax	J3-203	Portable Battery Light	250-18	205000
AV	Ax	J3-204	Lamp for Portable Battery Light	2581-50, Box-10 pcs	40800

DIV	CTG	ID NUMBER	NAME OF EQUIPMENT	DESCRIPTION	@ PRICE
AV	Ax	J3-208	Rack Mount Kit for Vector Scope & Monitor		107500

Ph

DIV	CTG	ID NUMBER	NAME OF EQUIPMENT	DESCRIPTION	@ PRICE
PH	To	J2-509	Electrician Tool Set		45000
PH	To	J2-511-1/2	Jacky Table	TYPE JT-18	10000
PH	To	J2-512	LPG Blast Burner	TYPE BN-P	12000
PH	To	J2-514-1/12	LPG Burner	TYPE BN-LP	2000
PH	To	J2-537	Bromine Tubes		5000
PH	To	J2-538	Mercurialized Tubes	TYPE GH-2	16000
PH	To	J2-541-1/3	Sodium Tube		16000
PH	To	J2-542-1/3	Mercury Tube		15000
PH	To	J2-543-1/3	Cadmium Tube		16000
PH	To	J2-554	Absorption Sodium Flame Tube	TYPE NA-10	9000
PH	Pr	J2-516-1/10	Experimental Kit for Fundamental Dynamics		46000
PH	Pr	J2-517	Gas Bearing Runway	TYPE GB-200N, with Recorder	118000
PH	Pr	J2-518	Air Table	TYPE GT-50	118000
PH	Pr	J2-520	Rotational Inertia Apparatus	TYPE AE-120	33000
PH	Pr	J2-521	Angular Momentum Kit	TYPE AE-420	86000
PH	Pr	J2-522-1/4	Fall Tube	TYPE VF-100	13000
PH	Pr	J2-523	Ballistic Cart	TYPE FI-60	30000
PH	Pr	J2-524	Young's Modulus Apparatus	TYPE NY-2000	53000
PH	Pr	J2-525-1/10	Simple Pendulum	TYPE TN-3	7000
PH	Pr	J2-526	Ripple Tank with Adjustable Phase Wave Generator	TYPE PT-3,with Light	78000
PH	Pr	J2-527	Shive's Wave Machine	TYPE WM-70N,WMK-70	181000
PH	Pr	J2-529	String Vibration	TYPE MV-160	38000
PH	Pr	J2-530-1/10	Pascal's Principle Apparatus	TYPE A	9000
PH	Pr	J2-531	Torricelli's Law Experimental Kit	TYPE TOR-100	37000
PH	Pr	J2-532	Magdeburg Hemispheres	TYPE MA-110	13000
PH	Pr	J2-536	Mechanical Gas Model	TYPE GMM-35N	33000
PH	Pr	J2-545	Optical Through	TYPE OT-30	9000
PH	Pr	J2-546	Reflection & Refraction Apparatus	TYPE OT-620	17000
PH	Pr	J2-547-1/10	Lenses & Prisms Kit	TYPE OH-7	5000
PH	Pr	J2-548-1/10	Optical Bench	TYPE OB-S	12000
PH	Pr	J2-549	Optics Experimental Bench	Spectro- & Photometry Attach.	127000
PH	Pr	J2-555	Sound Experiment Apparatus		167000
PH	Pr	J2-556	Vacuum Cylinder	TYPE VT-15	13000
PH	Pr	J2-557-1/10	Magnetic Field Creater		8000
PH	Pr	J2-558	Electrostatic Experimental Kit	TYPE SES-30	118000

DIV	CTG	ID NUMBER	NAME OF EQUIPMENT	DESCRIPTION	@ PRICE
PH	Pr	J2-559	Magnetic Circuit Experimental Apparatus	TYPE KMC-5	182000
PH	Pr	J2-560	Electromagnetic Force Experimental Apparatus	TYPE KEM-5	110000
PH	Pr	J2-561	Electromagnetic Induction Experimental Apparatus	TYPE KIS-15	95000
PH	Pr	J2-562	Primary & Secondary Coils	TYPE S1-T	24000
PH	Pr	J2-565	Tesla's High Frequency Current Apparatus	TYPE TE-1	77000
PH	Pr	J2-566-1/10	Ohm's Law Demonstrator	TYPE OF-3	18000
PH	Pr	J2-569	Circuit Trainer	TYPE ECT-2	77000
PH	Pr	J2-572	Discharge Phenomenon Experimental Apparatus	TYPE DES-20	254000
PH	Pr	J2-573	Spectrum Tubes (five set, Neon, Argon, stand)	TYPE SH-5,SH-Ne,SH-Ar,SH-SA	45000
PH	Pr	J2-577	Electric Resonance Experimental Set	TYPE ER-3	33000
PH	Pr	J2-578	Radio Wave Experimental Apparatus	TYPE EU-60	96000
PH	Pr	J2-580	Frank-Hertz Apparatus	TYPE FH-200	107000
PH	Pr	J2-581	Plank's Constant Apparatus	TYPE HA-4N	73000
PH	Pr	J2-601	Electrolysis H-Tube	TYPE HE-50	19000
PH	Pr	J2-602-1/10	Electrolysis H-Tube	TYPE EG-20	7000
PH	Pr	J2-606-1/10	Reduction Reactor	TYPE RR-18	8000
PH	Ms	J2-501	Screw Micrometer	101-100	6000
PH	Ms	J2-502-1/13	Objective Micrometer	TYPE F	3000
PH	Ms	J2-503-1/13	Eyepiece Micrometer	TYPE B	1500
PH	Ms	J2-504-1/10	Table Balance	TYPE TB-200	9000
PH	Ms	J2-505-1/10	Newton's Spring Balance	TYPE NB-B	2000
PH	Ms	J2-506-1/10	Stop Watch	TYPE D	13000
PH	Ms	J2-507	Electro-Thermometer	TYPE TH-150	76000
PH	Ms	J2-508	Electric Hygrometer	TYPE HU 90 with Transformer	128000
PH	Ms	J2-513-1/12	Optical Microscope	TYPE SGL-600	38000
PH	Ms	J2-515	Astronomical Telescope	TYPE SGT-80	254000
PH	Ms	J2-534-1/10	Pressure Gauge	TYPE CT-1	9000
PH	Ms	J2-540-1/2	Comprising Stand, Lamphouse & Transformer		171000
PH	Ms	J2-544	Luxmeter	TYPE IM-1S	24000
PH	Ms	J2-550	Optical Slit	TYPE OS-27	20000
PH	Ms	J2-551	Biprism fo Interference of Light	TYPE BK-30	15000
PH	Ms	J2-552	Interference Plates	TYPE IL-2	4000
PH	Ms	J2-553	Spectrometer	TYPE S-6	192000

DIV	CTG	ID NUMBER	NAME OF EQUIPMENT	DESCRIPTION	@ PRICE
PH	Ms	J2-582-1/10	D.C. Voltmeter	TYPE HQ-300	8000
PH	Ms	J2-583-1/10	D.C. Ammeter	TYPE HQ-5	8000
PH	Ms	J2-584-1/10	A.C. Voltmeter	TYPE HQ-150	8000
PH	Ms	J2-585-1/10	A.C. Ammeter	TYPE HQ-10	8000
PH	Ms	J2-586-1/10	Micro Ammeter	TYPE HQ-100	9000
PH	Ms	J2-587-1/10	Galvanometer	TYPE HQ-30	9000
PH	Ms	J2-590-1/10	Circuit Tester	TYPE TC-6	6000
PH	Ms	J2-591	Sensitive Universal Circuit Tester	TYPE MT-200A	20000
PH	Ms	J2-593-1/10	Braun Tube Oscilloscope	TYPE JCD-75R	47000
PH	Ms	J2-594	Dual Trace Synchroscope	TYPE SDS-125N	140000
PH	Ms	J2-595	Gauss Meter	TYPE GK-600	182000
PH	Ms	J2-603	Electric pH Meter	TYPE NPH-30	86000
PH	Gn	J2-510	Automatic Water Distillation Apparatus	TYPE E-3	149000
PH	Gn	J2-533	Rotary Vacuum Pump	TYPE S50-2	142000
PH	Gn	J2-539	Laser Apparatus with Bench	TYPE GLG-5014, LD-14	139000
PH	Gn	J2-596	Power Supply	TYPE SPH-5F	64000
PH	Gn	J2-597-1/10	Power Supply	TYPE ES-5N	59000
PH	Gn	J2-598-1/2	Regulated D.C. Power Supply	TYPE RDS-3N	75000
PH	Gn	J2-599-1/10	Gas Generator	TYPE KG-5	18000
PH	Gn	J2-600-1/10	Gas Generator	TYPE GG-5	17000
PH	Gn	J2-604	Electric Drying Oven	TYPE EDO-12N	133000
PH	Gn	J2-605	Electric Thermostat Bath	TYPE ETB-2	393000
PH	Gn	J2-607-1/10	H-Gas Generator	TYPE HR-G	5000
PH	El	J2-579	D.C. Amplifier	TYPE DCA-100	75000
PH	El	J2-592	Low Frequency Oscillator	TYPE CR-200	39000
PH	Dm	J2-519	Demonstrator of Newton's Laws		65000
PH	Dm	J2-528	Wave Motion Demonstrator	TYPE HB-24	30000
PH	Dm	J2-535	Brownian Motion Apparatus	TYPE BMA-30	7000
PH	Dm	J2-563	Self-Induction Current Demonstrator		12000
PH	Dm	J2-564	Electromagnetic Phenomena Demonstration Outfit	TYPE EF-4, with Case	124000
PH	Dm	J2-567	Fleming's Law Demonstrator	TYPE FY-2	48000
PH	Dm	J2-568	A.A. de la Rive's Discharge Tube	TYPE LZ-10	9000
PH	Dm	J2-570	Demonstrator for Conversion of Energy	TYPE WE-3	18000

DIV	CTG	ID NUMBER	NAME OF EQUIPMENT	DESCRIPTION	@ PRICE
PH	Dm	J2-571	Demonstrator for Conversion of Electric Energy	TYPE WE-5	21000
PH	Dm	J2-574	Crook's Tube Set	TYPE CG-H	37000
PH	Dm	J2-575-1/2	Vacuum Discharge Tube	TYPE VD-40	7000
PH	Dm	J2-576	Crook's Tube Deflection Effect	TYPE CG-E	25000
PH	Dm	J2-588-1/2	Demonstrator for Galvanometer	TYPE DG-30	46000
PH	Dm	J2-589-1/4	Demonstrator for Volt-Ammeter	TYPE DU-6N	96000
PH	Dm	J2-608	Crystal Model Kit	TYPE HGS-C5	45000
PH	Dm	J2-609	Crystal Model Kit	TYPE HGS-E3	45000
PH	Dm	J2-610	Tripartite Planetarium	TYPE TPR-3	71000

DIV	CTG	ID NUMBER	NAME OF EQUIPMENT	DESCRIPTION	@ PRICE
MT	To	J3-710	Tool Set	TYPE C	10000
MT	Mc	J2-729	Wood Copying Lathe	CL-3AS	2732000
MT	Mc	J2-730	Corner Locking Machine	CL-32	1178000
MT	Mc	J2-731	Router Machine	RO-116	1032000
MT	Mc	J2-732	Wood Band Saw	JB-870	1178000
MT	Mc	J2-733	Spindle Sander	SS-111	590000
MT	Mc	J2-734	Disc Belt Sander	DB-500	787000
MT	Mc	J2-735	Single Surface Planer	SP-153	1391000
MT	Mc	J2-736	Hand Planer	HP-152D	1000000
MT	Mc	J2-737	Automatic Carbide Tool Grinder	SG-113A	1474000
MT	Mc	J2-738	Bench Grinder	EBT-2	46000
MT	Mc	J2-739	Bench Drill Press	BE-360B	90000
MT	Ax	J2-701	Motor Car	COASTER	3744000
MT	Ax	J2-702	Composing Machine	SELECTRIC	3370000
MT	Ax	J2-703	Process Camera	C-650-D	3318000
MT	Ax	J2-704	Offset Press	640K	11138000
MT	Ax	J2-705	Vacuum Contact Printer	P-804-C	1365000
MT	Ax	J2-706	Paper Cutter	NC-61SH	2083000
MT	Ax	J2-707	Plate Drying Cabinet	D-2-G	538000
MT	Ax	J2-708-1/2	Temperature Controlled Sink	51x61	777000
MT	Ax	J2-709	Vacuum Contact Printer	P-604-D	585000
MT	Ax	J2-710	Offset Press Duplicator	2700CD	2529000
MT	Ax	J2-711-1/2	Light Table	LT-7-F	263000
MT	Ax	J2-712	Digital Reflection Densitometer	DM-273	533000
MT	Ax	J2-713	Digital Transmission Densitometer	DM-257	585000
MT	Ax	J2-714	Sink-Top Light Table	LT-8-F	315000
MT	Ax	J2-715	Temperature Controlled Sink	29x36	654000
MT	Ax	J2-716	Film Drying Cabinet	S-24-D	479000
MT	Ax	J2-717-1/2	Dry Copying Machine	DT-5200	1264000
MT	Ax	J2-718	Diazo Copying Machine	SUPER DRY 100	370000
MT	Ax	J2-719-1/2	35mm Camera	F-1, Lens:55mm F1.2, 50mm F3.5	295000
MT	Ax	J2-721-1/4	Track Type Drafter Set	WA220	222000
MT	Ax	J2-722-1/4	Drawing Instruement Set		32000
MT	Ax	J2-723	8mm Movie Projector	GS-1200	474000
MT	Ax	J2-724	Projection Screen	HS-4	52000
MT	Ax	J2-725-1/2	Overhead Projector	HP2450	633000
MT	Ax	J2-726	Slide Projector	AS-3000A	450000
MT	Ax	J2-728	Transparency Maker	RISO 261	315000
MT	Ax	J2-740	Slide Processor	PANACOPY KV-5100	0
MT	Ax	J2-741-1/27	Class Room Monitor System with Rack & Transformer	CVM-2150	584000

DIV	CTG	ID NUMBER	NAME OF EQUIPMENT	DESCRIPTION	@ PRICE
MT	Ax	J2-742	Land Cruiser (Diesel Station Wagon)	BJ60LV-KC	2580000
MT	Ax	J2-743	Land Cruiser (Diesel Hard Top)	BJ40LV-KC	2043000
MT	Ax	J3-701	Air-Conditioner	RA-30	124000
MT	Ax	J3-702	Air-Conditioner	RA-45	146000
MT	Ax	J3-703	Air-Conditioner	SP-75	412000
MT	Ax	J3-704-1/2	Air-Conditioner	SP-90	516000
MT	Ax	J3-705	Air-Conditioner	RA-60	180000
MT	Ax	J3-706	Camera	Autoboy	35000
MT	Ax	J3-707	Pocket Computer with Printer & Transformer	PC1251, CE125	50000
MT	Ax	J3-708	Radio Cassette Recorder	CFM-155	10000
MT	Ax	J3-709	Typewriter with Transformer	Praxis-35	60000
MT	Ax	J4-403	Rolling Black Board	BB-R3666S	70000
MT	Ax	J4-404	White Board	FB-23MWN	19000
MT	Ax	J4-405	Cutter	No.13-D	13400
MT	Ax	J4-406	Floor Case	B4-10	22900
MT	Ax	J4-407	Z Light with Transformer	Z102	11400
MT	Ax	J4-408	Punch with Transformer	EM-501	89000
MT	Ax	J4-409-1/2	Filing Cabinet	B4-3V	36000
MT	Ax	J4-410-1/5	Letter Case	B4-10	14000
MT	Ax	J4-411	Electric Typewriter with Transformer	CE-70	179000
MT	Ax	J4-412	White Board	BB-H34AW, 90 x 120cm	21500
MT	Ax	J4-413-1/2	Air-Conditioner	RA-45	158000
MT	Ax	J5-301-1/8	Japanese Language Cassette Tape	8 pcs/set with Text Book 2ivol	16000
MT	Ax	J5-302	Book Locker	4642AZ	33000
MT	Ax	J5-303	Book Locker	4622AZ	28300
MT	Ax	J5-304	Enlarger	35M, AC 100v	36400
MT	Ax	J5-305	Typewriter	PRO LETTRA 34	40600
MT	Ax	J5-306	"KARAOKE" Dual Deck Music Amplifier & Microphone	MW-1000	50000
MT	Ax	J5-307	"KARAOKE" Japanese Songs Audio Tapes	23 + 3 pcs	40000
MT	Ax	J5-308	Air-Conditioner	SP-90EV	527000
MT	Ax	J5-309	Paper Copier	DC-142RE	1163000

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

8. ISANG PARANGAL
(A TRIBUTE)

PART II

Theme: The IRTC and Transfer of Technology

on March 12, 1986

at 4:00 P.M.

IRTC Conference Hall

AN ASSESSMENT : THE IRTC ON ITS FOURTH YEAR
March 18, 1986

I. Concept/Nature:

The Isang Parangal Part II is an undertaking that presented the assessment of the input and output activities of the Integrated Research and Training Center project in the context of its fourth year of technology transfer. The presentation of the total assessment of the project revolved around the theme : IRTC and Transfer of Technology.

In full recognition of the flow of technological know-how, from the Japanese experts to counterparts to the trainors and students, the Technological University of the Philippines paid a tribute through the awards presented to the Japanese experts. The value of this technology transfer was seen in the light of the improvement of technical and engineering education in TUP and in other academic institutions.

To effectively present the Fourth Year Assessment Report of the IRTC Project, it was guided by the following objectives:

1. To describe the future of technological education in the Technological University of the Philippines.

2. To identify some trends/interventions which have influence on technological education.

3. To describe the state of technology transfer through the IRTC and its future.

4. To describe the role of IRTC in the expansion and improvement of technological education.

II. Implementation:

1. The Isang Parangal Part II commenced with the welcome message given by Dr. Galicano J. Datu, Vice President for Academic Affairs wherein he shed light to the importance of the occasion and the gratifying meaning of honors and recognition to a person and an institution. The whole text of the message was as follows:

"Welcome for the 9th time to the Integrated Research and Training Center. Most of our fond memories especially those of our youth are focused toward the significant events when one is to the above of the other because he was different. And how does one become different?

I could remember a teacher of mine, he kept on telling our class that there are two types of students he clearly remembers, those who are intelligent and brilliant and those who make the most noise and trouble. Obviously, those who are in between, very much like the middle child in the line of siblings in the family are given the importance but not important enough to be remembered. Even the Bible speaks of the first and the last and not of the middle or in betweens. And so in this recognition program, we have with us your teachers, your guests, the trainees, many of whom are ahead of you and those of your other teachers and friends and who have come from the great beyond and who could not come except for the memory.

The history of recognition or honors can be traced to the golden age of Greece when the Greeks through a season of festival or arts engaged in lively competition. One clearly remembers the olympics, semblances of which we hold annually among our schools. But equal important were the Greek festivals which gave the world a priceless tradition of tragedies and comedies, of dramatics, orators and playwrights. The Greek was forever seeking and soaring of the human spirit by developing the total man and we have been following this for sometime now in the Integrated Research and Training Center. Then for a poet to have depth, intensity and power in his writings he must equally be adroit as a soldier. The fascination perhaps with achievement or graduation at a time was an effort to go beyond the limitations of being man and the desire to acquire God like qualities, like the swiftness of the feet and the ability of the mind.

The term honor which is indicative of this activity of ours this afternoon applies to the staff, the specialists, the assistants and the technicians in the Integrated Research and Training Center and is, therefore, as seen derived from honors meaning honor. At that time, it meant esteem or repute or concrete marks of esteem or rewards. As to public office, it was associated with a course or career of a Roman magistrate. The word came to me in a personal character, consciously maintained such as my deserved esteem or expected esteem. In the United Kingdom, honor is a standard, an examination higher than that of a simple past. A university honors degree usually has a different syllabus and a more specialized syllabus than that for a past degree.

'Ano ngayon ang kahulugan ng parangal na ito?' In the light of the foregoing, let me give you three viewpoints, that of self-image, the perception of other people and the responsibility to society as a whole. Recognition and the honors that go with it improve one's image of self, it comes as a reward, a reinforcement of outstanding behaviour, surely one sees himself in a new perspective and is encourage to equally excel in other

activities. While this is inherently good, one may overestimate himself, unaware of his own limitations. This may result in a resolution of rising expectations. When expectations fall short of achievements, the result is frustration. This is equally true of people's expectations of honors who are recognized for their merits, somehow they expect success to be incremental, a ladder which goes over higher and to remain on the same step of the said ladder would mean a failure. Because of the invisible but real pressure to succeed, an honor student or any graduate acquires a moral responsibility to contribute meaningfully to every task he sets his mind on, this is true with the IRTC. There are some students who take this pleasure in stride but there are those who do not, they fall out.

Often we hear of people who do not conform to society. Who are believers before in the success, ethic and later, the solutions they are not believers anymore. They refuse to heed to the expectations of people and struggle just to be different. To show that people's stereotype concept of failure is not deplorable. All these apply to IRTC. Its 4 years of existence would be remembered and the Japanese experts and the Filipino counterparts and technicians together who are assigned to carry on the work in the center should be congratulated for their efforts in this matter. Truly, this is the recognition that we are giving them. Let us give them a big, big hand."

2. Dr. Jose R. Vergara, President, spoke about his "Visions for the Future of Technological Education in the Technological University of the Philippines." In his speech, Dr. Vergara pointed out that the Philippines is a rich country, endowed with natural resources that can make it possible for technology to be transferred, disseminated, developed and popularized. He also stated that background knowledge and number of manpower are needed so that technology can be judged as appropriate.

To present the speaker's points of view in detail is the succeeding delivered paper:

"On this occasion of the second part of our honoring - Parangal II should like to congratulate the newcomer as well as those who are about to leave in honoring them for the success of their mission in coming to the Philippines.

As you very well know, the mission of the Integrated Research and Training Center is to provide opportunity for training and for research in technology paying more attention to the transfer, development, dissemination and popularization of technology.

As a country, we are endowed with land. We are 114,000 square miles, 7,083 islands and some of the smallest islands do not even have water. We have as a matter of natural resource, sea water. Together with the sea water, we have tides, we have waves. Another natural resource that we have are typhoons, strong winds, earthquakes and steam coming from the bowels of the earth. All these are part of our endowments. We are so endowed with these bountiful things, energy, land and also people. People that are growing more and more everyday and people is another resource, a human resource. The Filipinos are these natural resource of people, people that needs to be educated, trained, used. These are all part of our endowments that are to be utilized in the development and dissemination of technology. Another endowment are skills, manpower which are part of the population of people.

We have markets. Markets that are necessary for the dissemination of technology and the products of technology. Among these endowments, one thing that we do not have is money. We do not have money, but that is no problem if we have no money, we can borrow money, we can borrow from the Government of Japan. We are again credible to the Japanese Government so we can borrow the money that we will need in the development of this technology that we would want.

We go to the psychological point of view, can we really transfer technology? Can we? Can we transfer the technology from Japan to the Philippines? What studies do we have in the psychology of learning if such can actually be transferred. The answer is yes. Yes, we can transfer as long as we learn how to transfer, we can transfer the technology. But the components of transfer are again must be present and such components are equipment. We send some people to Japan and they are being trained on those pieces of equipment and upon return, if they do not find those pieces of equipment here, there will be a zero transfer. So much so that the other component of the training abroad upon coming back there must be pieces of equipment that are necessary upon which the training was previously taken and therefore those knowledge should be transferred with a person in another country. So it is possible to transfer the technology.

So we face another problem, in Japan, research has indicated that the volume of technology doubles its quantity once every seven years. In the US it is also similar, once every seven years. How about the number of technology? Inside this room alone you can find the application of technology in many ways. There is a wide variation in the application of technology. If I were to make an analogy of technology, let me bring you in a supermarket. Try to imagine yourselves inside a supermarket and

you can see rose of shelves that are full of goods. Let me take you to a shelf of sardines, how many kinds of sardines can you find? Japanese sardines, American sardines, South African sardines, Portuguese sardines, Spanish sardines, "hot na hot" sardines, "no hot" sardines, sardines in salt and water, sardines in tomato sauce and the like. So you begin to feel ignorant and you say, what kind of sardines will you buy. Or put it this way, what kind of technology will you buy. So when you say, "Oh I like this technology, it's nice". Then you begin to ask yourself, "Do you have the money to buy the technology?" And you say, "yes why not, I will buy that technology." But do you have the background of the technology? Do you have the people so that they can be trained for that technology. So you said "no, you don't have any." So you begin to look for some qualities such as, appropriate technology.

What is appropriate technology? In the western countries particularly in neo-classicist or neo-colonialism, the superpower or the rich country will say, "this is the kind of technology you should use." Instead of saying , let us go to basic issues. What are the basic needs? What are these 'pang-unang pangangailangan?' In a country such as the Philippines, for instance, in the selection of appropriate technology, I think we should look to what we call as basic needs. What are they? Well, certainly the very very first basic need will be food. Something to eat and something to nourish the body. Something that is full of the elements that are needed to survive. You need water, clothes, shelter. There are so many things that you will need, basically. You will need also employment. All these things are necessary but I will give you another example.

When I was a boy, we use laundry soap, "jabon" in Spanish, "sabon" in Pilipino, for washing clothes. We also use the same soap for cleaning our body or when we take a bath. But would you know that under this neo-colonialism we are not using soap anymore. The soap has disappeared. Yet we have very many coconut trees. We have copra, oil to make soap, but no, we are told on radio, television, on the newspapers that this detergent is very good. They are always singing that this bar is very hard, it is very good and it will last very long. All that is being shown, what is its? It is a technology that is good for a wealthy country. How come that it is applied to us. That is what I call neo-colonialism when you use such detergent. These detergents harm our hands, our fingers. But what do the technologies do? They pack it well so that you can use it for washing clothes. Powdered detergent is not usable in our country because few people can afford washing machine. Now this is just one example that I am bringing to your attention. So what is the kind of technology then should we get into?

The appropriateness of this technology that we are bringing thru the IRTC is something that has been practical. Something that we have the background, something that we have the manpower also.

Some of these things that I would like to review, for instance, when we had an expert on concrete. Many of our buildings are made of concrete and an understanding of concrete as a technology becomes necessary. Another one is the asphalt. This thing is ordinary yet you will notice that if the technology is really correct and that is appropriate you will notice that it has a long life. These are things that sometimes we wonder, they are so ordinary, yet, they need a consumate knowledge in their applications. So much so that the technology can be raised, can be increased. All of these are studies that I can envision is improving the human life in the Philippines. The utilization of various technologies as for instance those who are designing houses that they should utilize the abundance of sunlight, the abundance of energy coming from the sun, that probably could be utilized in cooling or even designing the home, so much so, that Filipino house can be improved. I have forgotten probably or even our architects at the moment had forgotten that the Spanish technologies were better in the design of our houses because when I was a boy, the windows were not only there but there were also varendillas below the windows in order that the house can be cooled. So much so that even during the Japanese occupation of the Philippines I find that the Japanese soldiers will open everything not only the windows but even below the window, to admit more air. So, these are things that some are old and some are new, so let us make a combination for all of these things in order that we can improve our lives but at the same time, improve and compete with the other people of the world in terms of products and technology, so to speak.

So my friends, again I would like to congratulate all of you in your endeavour and I hope that what I have you will try to recall them and find out how well can we really transfer the technology, utilize the technology, disseminate the technology. Remember that let us get what is really suitable for us."

3. Prof. Perla S. Roxas, Executive Director for IRTC described the "State of Technological Transfer through the IRTC." Her report presented the total input and output of the IRTC in reference to the 5-year technical cooperation program. She gave a summary of what has been done by the IRTC with the initial grant aid that started in 1982 up to this date that IRTC, in its fourth year has undergone a major modification in its resources and facilities that caused it to be maturely adept to undertake experiments and research. In which case, she cited that drastic shift of emphasis from training to advanced research that can be proven by the increasing number of its material output.

Her report underscored the role of IRTC in the future, in which case she stated the following:

a. Staff development for the TUP faculty and other engineering schools through the conduct of seminar courses in engineering fields.

b. Increase in the participation of students in training programs by integrating IRTC training courses into COE curriculum and some selected courses in the technical education departments.

c. Design package computer courses for students.

d. Prepare degree courses in Computer Science or Computer Engineering; attempt to offer degree courses in graduate engineering program; attempt to offer degree courses in Audio-Visual education.

The whole report was presented as follows:

"The Integrated Research and Training Center is now on its 4th year and we would like to present this assessment. Today we are priviledged to present an assessment of the IRTC project now on its 4th year of implementation. This is also a rare occasion for us to share our visions in the future role of the IRTC in the context of effecting technology sharing and transfer and influencing the trends of engineering, education and technology not only in TUP but also in other educational sectors, as well.

May I start with the status of the project. Where it took off as an $8.5M grant aid, the added interventions from the 5-year technical cooperation program through the JICA increased the equipment resources in the center to an amount of $748,608 or roughly P 15M. These donated equipment came with four shipments in 1983, two shipments in 1984 and one shipment in 1985 which just arrived 2 weeks ago. The 8th and the last shipment is expected during the FY 1986.

In the words of our outgoing team leader, Prof. Juzo Yoshida, the 1982 grant aid equipment gave emphasis to the vocational and technical training component in our system. However, this was changed with the new equipment from the 5-year technical cooperation program which drastically shifted emphasis to the advanced research and test equipment for engineering fields. Thus, now we have organized new laboratories in the center. We now have a precision measuring laboratory and this is now equipped with the latest precision measuring devices from an electronic micrometer, a tool microscope, a surface measuring

meter, all digital and electronically operated. The latest edition is a digital chemical balance. We have now a metallurgical laboratory equipped with a scanning electron microscope and this is the only one available in the country at the moment. We now have the NC and machine processing laboratory equipped with our NC machine. We now have a hydraulics experimental laboratory which is designed to perform experiments in hydraulics engineering. We have an automotive engineering laboratory complete with equipment for test bed for testing gasoline and diesel engines plus the injection pump tester and even this machine for measurement or determining the electrical component in cars. We now have the thermodynamics laboratory where we have installed a boiler. We have a soil and material testing laboratory, a concrete testing research laboratory and we have the advanced electronic experimental laboratory and power engineering laboratory. These are added on top of the original that were there in existence since the 1982 grant aid. All these were made possible with the assistance of the long term and short term JICA experts who personally supervised the selection, identification, listing and requestitioning of all these new equipment now available in these laboratories.

The inputs from the JICA experts : as their commitment to the project, JICA has dispatched long term and short term experts who are directly responsible in teaching counterpart engineers. As of this date, JICA has dispatched the following - a total of 11 long term experts equivalent to 17 man years, a total of 12 short term experts equivalent to 33 man weeks. From then the engineering counterparts were primed and exposed to the depths of engineering disciplines.

The inputs on the counterparts: for its part the TUP allowed the hiring of the present staff of 25 counterparts. Of this number, the following had completed training in Japan and who have already arrived. Engineer Ramon Amoncio in Mechanical Engineering, Engineer Marte Gutierrez in Civil Engineering, Prof. Loreto Apilado in Construction Technology, Prof. Jerome de la Torre in Electronics and Mr. Val Angeles in Refrigeration Engineering. The following are still in Japan and about to complete their training. Engineer David Mundo in Civil Engineering, Engineer Marlon Gonzales in Mechanical Engineering, Engineer Harry Joson in Computer Engineering and we have Engineer Marvil Graza who just left for Australia for Computer Engineering. The following are scheduled to leave for Japan shortly, Engineer Marte Gutierrez for the second time, this time to finish a PHD in Civil Engineering, Engineer Vic Macam in Civil Engineering, Engineer Edwin Koh in Computer Engineering and Ms. Elizabeth Javier in Audio Visual Education and Technology.

What are the outputs and accomplishments in the center as of this date? We categorized them into 4 major categories. One is we have conducted trainors training for faculty and peers and outside agencies, total 295 participants. This includes computer training and trainor's training in the 3 engineering fields. We conducted student training for technical and technician students and engineering students totalling 976 students. At the moment, this year, we stopped this student training to give more emphasis to adaption and understanding of the new equipment that are installed in the new laboratories. And the third output is our materials production. We have attempted at writing our own textbooks and manuals. We have already published 3 textbooks and they are already circulated for those who are undergoing training in the center. These manuals are now being processed in our printing department and about 10 manuals are in the writing stage. We have also produced computer softwares, totalling two and we have produced audio-visual softwares for engineering and technology totalling four.

Our fourth output is in research activities. The CE division has completed two researches, one of them with Marte Gutierrez also as a participant and this is entitled Fractional Characteristics of Sand Geotextile Interfacing. This research is already published in our journal of Engineering Education in the University of the Philippines. A second publication also with the UP Engineering Journal was supervised by Dr. Yamao & our Civil Engineers conducted it and this is a survey of concrete aggregates from different sources near Metro Manila.

In Mechanical Engineering, Dr. Uesaki, our expert in Metallurgy has completed his research and these are in the mechanical properties of commercial metals and alloys which are selected in Manila.

In Electrical Engineering, under Dr. Karasawa, we are finishing the complete report of this research, 'Measurement of Traffic Noise and Survey of Noise Consciousness in Selected Cities' which brought us to Baguio, Cebu and of course Manila.

What then is the role of IRTC and what are our plans for the future? Now in this aspect, we are presenting this to the academic community and we are open to suggestions on how we could best well serve the purpose for which the IRTC was established. One idea is we would put emphasis on the conduct of staff development in the form of seminar courses in specific engineering fields. This is for faculty in the whole TUP system and faculty from other engineering schools. Second, we will increase the participation of students in our training programs by integrating the IRTC training courses into the curriculum of the COE and hopefully some selected courses in the technical education department. Third, we will try to design package

computer courses for student, the target of which is to spread computer literacy to the whole student population. Fourth, we are in the process of preparation or we will be in the process of preparing degree courses in Computer Science or Computer Engineering. Then we will attempt to offer degree courses in Graduate engineering programs. We will also offer in the future degree courses in AV education. And as our main thrust in the future, we will continue to conduct research in the three engineering fields. Now, considering these directions, what are our needs at the moment? Our needs were already presented in the last steering committee when the mission arrived in September and among these are : we need an increase in the number of counterparts and technicians. As you could see in this 5 years, almost 1/3 of the staff are out in Japan or abroad for training. But when they finished their courses then we will be ready to offer the highest or advanced engineering courses. We will request for an increase in our operational budget which we already did and although we now really have sizable budget the main problem now in the center is we need to improve our internal efficiency in the implementation of the project. And by this we mean, routine operational request for purchases or movement of papers that somehow delay the implementation of the project because of the processing. So we need to look into the processes in which these are done so we could improve the internal efficiency. Then, when the project is about to end, we would like to establish a secretariat which will take charge of data banking, publication, documentation of information and dissemination of all the activities and all the products of research that we will be able to do.

As a mechanism for the implementation of our project in 1987 and after the JICA project is over, when we are on our own by 1988 we would still look into the dimension of the IRTC being a venue for technology transfer in advanced engineering. We would like to point out that the equipment that were given to us in the center at the moment are so advanced that even some universities in Japan have not even received them. As a one case in point, JICA purchased a hewlett packard computer because Japan is not producing an HP but they still imported one for us yet some universities in Japan will not get a hewlett packard except on their own personal expense. So we would like therefore to request the academic community through the deans, thru the different colleges to share with us and tell us in what way we could be of service. As an alternative forms in our desire to share the center as we have been in so many occasions before branded that this center is an elite and that not so many people and students can use it. We would like to say that this end of the project maybe we'll be ready to offer the following alternative forms. One is we are transferring all the Physics equipment to the College of Arts and Sciences when their building and their room is ready because these were part of the 1982 grant

which were really intended to upgrade our Physics in the university and not necessarily for the IRTC. We would like also to sequester, if that is the term, the Foundry equipment because these were also part of the '82 grant which were really intended to upgrade our Foundry engineering in the College of Industrial Technology. We would like also to transfer in the future the design equipment which we know really belongs to the College of Architecture and Fine Arts. The very reason for this is before we are still trying to look around exactly what really is the direction of the center but right now I think we already know because our experts who came, the long and short term experts have taught us already what is the real meaning of engineering in the context of the Japanese professor, what really a Japanese engineering professor does. But nevertheless in our desire to do this, the IRTC counterparts, we, engineers in the IRTC cannot do this alone. And so we request the deans to ask their engineers or their faculty to come to us and share with us in the research programs that we are doing. I think it is only thru this team research where we work as a team. They have their skills and we also have ours and we could work as a team so that this university which possess a center equipped with all these resources would really in the future be productive in terms of research."

4. In behalf of the long term JICA experts who became instrumental in the transfer of technology thru the IRTC, Prof. Juzo Yoshida, Chief Advisor and Team Leader, gave the 'Report on the IRTC Project and the Challenges for the Future.'

His report was stated in this way:

"I was given the opportunity to visit many universities in Metro Manila through the favor of Prof. Perla Roxas. And I gathered two major impressions in my visits to Adamson, Ateneo, Dela Salle, University of Sto. Tomas, Mapua, Pamantasan ng Lungsod ng Maynila, University of the Philippines, Far Eastern University, Technical Institute of the Philippines, Manila University and Don Bosco Institute of Technology.

My first impression, is from my visit to the De la Salle University - that they are offering a new course named as Production Engineering and its curriculum features the following:

1. About 10 subjects are constituted of lectures and laboratory works.

2. The curricula are concentrated on mechanical engineering, machine shop work, electronics and computer.

3. Students are required to complete a 45-week actual work experience in private factories during their fourth year level in the course.

These features will make a very hopeful system in producing capable engineers whose ability and skills are suited for the development of the Philippine industry. Though, I was informed by Dr. Vergara that this curricula, will require two years to prepare and construct.

The fundamental thought of engineering education of the De la Salle resembles that of our IRTC project. The fact that this De la Salle's system is supported by MECS and private sectors means that this country strongly need the engineers developed and trained out of this sort of system.

We, the people who are striving to construct the system, must have strong confidence to the IRTC project, and also must possess self-confidence and determination to pursue this noble endeavour.

The second impression I have is on the qualities of the universities and qualifications of their faculty members.

With my chance to visit many universities and through the observations and studies I have conducted, I came to a conclusion that excellent universities only can possess excellent faculty members. This means that a university which can offer greater opportunities and bigger incentives can have the service of an excellent teacher as part of its faculty staff.

There are many factors that can be counted as encouraging points such as good salary and allowances, wider economical support from outside, complete university facilities and equipment, and so on. But from my observations, this has to be worked out by the management through a persuasive policy and strong will.

As for the qualifications of teachers, I have computed the ratio of number of qualified faculties to the total number of faculty members (excluding the people involved in administrative and management functions).

This, then was computed relative to the data gathered from each university.

Rough figures are as follows:

over 30%	excellent	for UP, Ateneo, DeLa Salle, TUP (COE)
10% - 29%	"	for UST, Mapua, IRTC
under 10%	"	for others

In the case of IRTC, reliability of the data is still low, since the total number of faculty staff is only 22, and is still young. As I have observed, still some of the counterparts are attending universities to get masters degree, and we can still expect to get a higher ratio. At present, 50% of the IRTC's counterparts are UP graduates. These are the reasons that I have a high expectation for IRTC.

Furthermore, the fact that counterparts and technicians are working energetically gives me high hope for the success of the project. I have high confidence that the status of the IRTC will reach an excellent state if we concentrate our effort to finish this project with an effective transfer of technology. I hope that IRTC will become a center for research and development in the Philippines."

5. In response to the report presented by the outgoing Team Leader, the new Team Leader, Prof. Kikuo Nishida presented a response:

"I arrived in Manila yesterday afternoon when I left Tokyo it was 10 degrees centigrade. I could see the snow around the airport. And in Manila it was 30 degree centigrade and it was very difficult for me to adjust and I began to consider more seriously what I can do in this country. This temperature difference gave me a strong shock.

Of course, our chief mission is to make as much contribution as possible for the development of the host country by the technical cooperation, however, unfortunately we have a very little knowledge about in what condition technology transfer can take place effectively in different countries of different socio-cultural background. Some believe that technology is universal and so socio-cultural background seems to do nothing about it. However, I believe that technology is not mere narration nor simple techniques but it is I think systematic and practical way of doing to attain a certain goal. If we define this way technology as a way of doing, it is nothing but a human behaviour. It is strongly characterized by personal motivation and social incentives from the human. By this way I think the key factor of technology transfer is human being instead of any machine or instrument.

Now, I hope to start my job to know all persons in this project. Human being is the key factor and I hope to know everyone in the project and hope to discuss very frankly what has been done in the past and what can be done by the end of this project, November 1987, this is the time limit. So I sincerely hope for your kind cooperation."

6. The Technological University of the Philippines presented the awards of recognition to the following:

a. **Engr. HIDEKI TANIMOTO**
Project Coordinator for IRTC
(June, 1983 - June, 1986)

"In grateful recognition of his contributions towards the effective implementation of the IRTC project as a Project Coordiantor, having demonstrated patience or zeal in monitoring schedules and commitments to their completion."

b. **Prof. SHINJI KARASAWA**
JICA Expert in Electric/Electronic Engineering
(April, 1985 - April, 1986)

"In grateful recognition of his efforts in sharing his expertise in the conduct of trainors' course for counterparts and for having provided effective technology transfer in the field of Electric/Electronic Engineering."

c. **Prof. KOICHI UESAKI**
JICA Expert in Mechanical Engineering
(March, 1985 - April, 1986)

"In grateful recognition of his efforts in sharing his expertise in the conduct of trainors' course for counterparts and for having provided effective technology transfer in the field of Mechanical Engineering."

d. **Prof. TADASHI SHINKAWA**
JICA Expert in Mechanical Engineering
(March, 1985 - April, 1986)

"In grateful recognition of his efforts in sharing his expertise in the conduct of trainors' course for counterparts and for having provided effective technology transfer in the field of Mechanical Engineering."

e. **Prof. JUZO YOSHIDA**
Chief Advisor for the IRTC project
(March, 1984 - March, 1986)

"In grateful recognition of his contributions towards effective implementation of the IRTC project as Chief Advisor and Team Leader. Having introduced program innovation that facilitates infusion and internalization of technology transfer."

6. A VTR film was presented to the academes and this contained the synthesized input and output of the IRTC that started in 1982 up to its fourth year of technology transfer.

7. As a closing remark, Dr. Erlinda F. Manalang said the following:

"I join everybody in commemorating the 4th year of service of the IRTC and also acknowledge the center's contribution toward establishing closer bonds between our people. Over this time, we have seen how cooperation can effect the transfer of modern idea and technology. Japanese experts have come and worked closely with us in order that we in turn can pass on to the students, the youth, these new ideas we have received. By living with us, our Japanese friends have also experienced the problems that confront the technological education as well as the recent upheaval which we hoped has redeemed somehow some negative images about the Filipino. We are happy to have shared the university as well as the country with them.

Forgive me if I have to say that my heart , our hearts go out to Dr. Yoshida. He is to us, from his first day here, a friend and a most honored colleague. As he shared his expertise he also extended friendship and gentle presence that we will surely miss when he returns to Japan."

JICA