

Quezon City Government



PO Number 2311073

Purchase Order Date: DEC 13 2023

Procuring Unit

: QUEZON CITY UNIVERSITY

Project Number

:QCU-23-ELTE-1295B

Company Name

HYTEC POWER, INC.

Mode of

:Public Bidding

Procurement

:23-PB-862

Address

; 2 T. Cruz St., Cruzville Subdivision, Zabarte Road, Novaliches, Quezon City

Resolution No.

Business Type

TIN Number

: 229-283-188-000

: Corporation Registration #CS200401804

Contact Number :09158093937

Sir/Madam:

Please furnish this office the following articles subject to the terms and conditions contained here

Place of Delivery : Upon end-user's instruction subject to proper coordination with CGSD

Delivery Schedule One Hundred Twenty (120) Calendar days

Payment Term :

Credit

Stock No.	Item	Unit of Issue	QTY	Unit Cost	Amount
1,	DIGITAL ELECTRONICS FUNDAMENTALS MODULE - KL-300	set	1,	1,547,900.00	1,547,900.00
	Features:				
	* at least 13 modules cover a large variety of essential topics for				
	digital logic		1	1 1	
	Suitable for combination logic, sequential logic and		1	1 1	
	microprocessor circuits design and experiments		1	1 1	
	* Experiments are expandable and flexible with universal		1	1	
	breadboard		1	1 1	
	* Capable of processing TTL, CMOS, NMOS, PMOS and ECL circuit		1	1 1	
	* All supply units are equipped with overload protection for safety		1		
	purpose		1	1 1	
	All modules equipped with 8-bit DIP switch for fault simulations				
	Specification:				
	1. Dual DC Power Supply		1	1 1	(1)
	(1) Voltage Range		1	1 1	
	(2) With output overload protection				
	2. Adjustable DC Power Supply				
	(1) Voltage range: +1.5V~+15V			1 1	
	(2) Maximum current output: 0.5A			1 1	
	(3) With output overload protection			1 1	
	3. Standard Frequency			1 1	
	(1) Frequency: 1MHz, 60Hz, 1Hz	1		1	
	(2) Accuracy: +0.01% (1MHz)			1 1	
	(3) Fan out: 10 TTL load			200	
	4. Clock Signal Generator				
	(1) Frequency: 1Hz-1MHz (6 ranges)				

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Funds Available:

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Approved Budget for the Contract: 14,095,125.00

OBR: UN-ZARM, II. (Zhoù)



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tock No.	Item	Unit of Issue	QTY	Unit Cost	Amount
	a. 1Hz ~ 10Hz				
	b. 10Hz ~ 100Hz	1	1 1		
	c. 100Hz ~ 1KHz	1	1 1		
	d. 1KHz~10KHz	1			
	e. 10KHz~100KHz	1			
	f. 100KHz~1MHz	1			
	(2) Fan out: 10 TTL load	1			
	5. Data Switch				
	(1) 8-bit DIP switchx2, 16-bit TTL level output	1			
	(2) Toggle switchx4, each with DEBOUNCE circuit	1		1 1	
	(3) Fan out: 10 TTL load				
	6. Pulser Switch				
	(1) 2 sets of independent control output	1		1 1	
	(2) Each set with Q, /Q output, pulse width > 5ms	1		1 1	
	(3) Each set of switch with DEBOUNCE circuit			1 1	
	(4) Fan out: 10 TTL load				
	7. Line Signal Generator	1			
	(1) Frequency: 50 /60Hz			1 1	
	(2) Output voltage: 6Vrms			1 1	
	(3) With overload protection				
	8. Thumbwheel Switch				
	(1) 2-digit, BCD code output and common point Input				
	9. Logic Indicator			17 14 14 1	
	(1) 16 sets of Independent LED Indicates high and low logic state				
	(2) Input Impedance: 100KΩ				

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ock Vo.	Item	Unit of Issue	QTY	Unit Cost	Amount
	10. Logic Indicator				
	(1) 4 sets of independent 7-segment LED display				
- 1	(2) With BCD, 7-segment decoder/driver and DP input		1 1		
	(3) Input with 8-4-2-1 code				
	11. Logic Probe				
1	(1) TTL and CMOS level			1	
	(2) 5mm LED displays				
	(3) "Lo" and "Hi" LED display low and high logic state respectively		1		
	12. Speaker				
	(1) One 8Ω, 0.25W speaker with driver circuit				
	13. Breadboard Modules				
	(1) 1,680 tie-point breadboard on top panel can be easily put into			1 1	
	and taken off				
	Experiment Modules Specification:				
	All modules are equipped with an 8-bit DIP switch for fault			1 1	
	simulation. Users learn how to solve various problems by setting the			1 1	
	DIP switch to different positions			1 1	
	2. Solutions for all fault test are listed in the experiment manual for	12		1 1	
	user's reference.			1 1	
	3. 2mm plugs and sockets are used throughout the main unit and all			1 1	
	modules.			1 1	
	4. Comprehensive experiment manual and instructor's manual			1 1	
	5. Module dimension: at least 255mm x 165mm x 30mm				
	6. Connection plugs are used on the modules to prevent accidental			25 (60)	
	damages.				
	7. Individual keeping case for each module			1	

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2,	AM/FM/ASK/FSK TRANSMITTER AND RECEIVER SYSTEM - KL-900C - Features: - AM transmitter and Receiver modules - FM transmitter and Receiver modules - ASK/AM Transmitter and Receiver modules - FSK/FM Transmitter and Receiver modules - Comprehensive and self-contained system carrying out AM/ASK and FM/FSK transmission - The Modules equipped with 8-bit DIP switch for fault-finding experiment - Provided with comprehensive experimental manual An Actual mini broadcasting Station  Specification: 1) AM/DSB Transmitter a. With perfect AM Transmitter for producing 1MHz b. Equipped with 8-bit DIP switch for circuits fault simulations  2) AM Transistorize Radio a. AM Receiver frequency range: 535KHz - 1605KHz b. Intermediate frequency: 455KHz c. Equipped with 8-bit DIP switch for circuits fault simulations	set/	1 ,	2,121,700.00	2,121,700.00
	3) FM Transmitter a. With perfect FM Transmitter for producing 10.7MHz Intermediate frequency b. Equipped with 8-bit DIP switch for circuits fault simulations c. Digital probe: 1Hz=8999999Hz  4) FM Stereo Radio				

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tock No.	Item	Unit of Issue	QTY	Unit Cost	Amount
	a. FM Receiver frequency range: 88MHz-108MHz				
- 1	b. Frequency shown by 7 segment LED display				
	c. Equipped with 8-bit DIP switch for circuits fault simulations				
	5) ASK/AM Transmitter				
	a. Amplitude-shift keying (ASK) transmitter				
	1) Carrier frequency: 1.0MHz and 1.6MHz	1			
- 4	b. Data transmission format:				
	1) Start bit				
- 1	2) 64-bit encoded data: 8-bit data encoded by 8-bit spread				
- 1	spectrum set				
- 3	3) Stop bit				
3	c. Data transmission:				
	1) Direct modulation				
	2) Manchester encoding				
1	d. Data rate:				
	1) 100/62.5Hz				
	2) 160/100Hz				
	3) 1.6K/1KHz				
	e, AM audio modulation signal:				
	1) Audio input: mono microphone input				
	6) ASK/AM Receiver				
	a. AM receiver frequency range: 535KHz ~ 1605KHz				
	b. Intermediate frequency: 455Khz				
	c. Data receive mode:				
	1) Direct demodulation				
	2) Manchester decoding			10.000	
	d. Data rate:				
	1) 100/62.5Hz			1 1	
	2) 160/100Hz				

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Unit of QTY Unit Cost Amount Item Stock Issue No. 3) 1.6K/1KHz e. AM audio demodulation signal: 1) Audio output: 0.2W 8Ω speak (7) FSK/FM Transmitter a. Frequency-shift keying (FSK) transmitter, which is able to produce 10.7 MHz intermediate frequency b. Data transmission format: 1) Start bit 2) 64-bit encoded data: 8-bit data encoded by 8-bit spread spectrum setting 3) Stop bit c. Data transmission: 1) Direct modulation 2) Manchester encoding d. Data rate: 1) 100/62.5Hz 2) 160/100Hz e. FM audio modulation signal: 1) Audio input: Mono microphone input f. Digital probe: 1Hz~89999999Hz 8) FSK/AM Receiver a. FM receiver frequency: 10.7MHz b. Data receive mode: 1) Direct demodulation 2) Manchester decoding c. Data rate: 1) 100/62.5Hz 2) 160/100Hz d. FM Audio demodulation signal:

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ck o.	Item	Unit of Issue	QTY	Unit Cost	Amount
	1) Audio output: 0.2W 8Ω speaker				
	LIST OF EXPERIMENTS:				
1	AM Experiments				
	1. Sine wave/Voice Modulator		1 1		
	Modulator Measurement		1		
-1	3. DSBSC/Sine wave Pattern		1	l 10	
- 1	Modulator percentage			1 1	
	5. Trapezoid Pattern		1	1	
-	6. Voice/Antenna Adjust			1	
	7. First IF Amplifier		1		
- 3	8. Secson IF Amplifier			1	
3	<ol> <li>Frequency Transmitter/Receiver and Modulator/Demodulator</li> </ol>		1		
1	10. Music Transmitter and Receiver				
3	FM Experiments				
- 9	Voltage Measurements of Varactor Diode			1 1	
3	2. Crystal Oscillator Measurements			1 1	
	3. Frequency Multiplier Adjustments (For Second Harmonic)			1 1	
	4. RF Amplifier Tuning Circuit Adjustments (For Second Harmonic)			1 1	
	5. Frequency Multiplier Adjustments (For Third Harmonic)			1 1	
	6. RF Amplifier Tuning Circuit Adjustments (For Third Harmonic)			1 1	
	7. Audio Amplifier Measurements			1 1	
	8. Reference Oscillator Measurements				
	9. FM IF Amplifier				
	10. Counter				
	11. Music Transmitter and Receiver			V7 11 70	
	ASK/AM Experiments				
	1. RF Amplifier Adjustment (underlined data are reference values) ,				

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tock No.	Item	Unit of Issue	QTY	Unit Cost	Amount
	Digital data coding (CDMA and Manchester encoding)				
	3. Calibration of Transmitter and Receiver				
- 1	Transmitter and Receiver Communication Experiment				
1	5. Analog transmission of digital signals				
- 1	<ol><li>Analog signal transmitted by analog transmission</li></ol>			1	
	7. Music signal transmission				
	FSK/FM Experiments				
	Voltage Measurement of Varactor Diode			1 1	
	Crystal Oscillator Frequency Measurement		1		
	3. Frequency Multiplier Adjustment (Doubler)		1	1 1	
	Frequency Multiplier Adjustment (Tripler)				
	5. RF Amplifier Tuned Circuit Adjustment	1		1 1	
	6. Digital Data Transmission (Direct Sequence and Manchester		1	1 1	
	Encoding)	1			
	7. Audio Amplifier Adjustment	1		1 1	
	8. Calibration of RF Amplifier	1			
	Receiver Frequency Detector Adjustment	1		1 1	
	10. Decoding Sequence Adjustment	1		1 1	
	11. Digital Data Transmission and Receiving (Direct Sequence and	1		1 1	
	Manchester Encoding)			1 1	
	12. Digital Data Transmission and Receiving Example	10		1 1	
	13. Analog transmission of digital signals			1 1	
	14. Analog signal transmitted by analog transmission			1 1	
	15. Music signal transmission				
	ACCESSORIES				
	1. CI -18001 Power Supply x 2			1 110	
	(1) Output: +5V, 0.5A; +12V, 0.5A				
	(2) Input: AC 110/220V	1	1		
	2. Connection leads and plugs x 1 set				

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3,	3. Telescope antenna x 3 pieces 4. Mini-microphone x 2 pieces 5. Experiment manual 6. Digital logic probe x 1 set 7. Storage Cabinet 8. Rack Frame 9. Digital Storage Oscilloscope with FFT ANALOG AND DIGITAL COMMUNICATION TRAINER (BASIC COMMUNICATION SYSTEM) - KL-900A  Features:  * It offers the beginner complete courses of basic analog and digital communication.  * Familiarization with the operative aspects of the work in telecommunication laboratory  * The building block and components symbols of the circuits are printed on the surface of each modules	set	1.	2,423,400.00	2,423,400.00
	List of Modules  1. Analog Communication Modules  (1) Oscillator/Second Order LPF & HPF  (2) AM Modulator/Demodulator  (3) DSB-SC and SSB Modulator/Demodulator  (4) FM Modulator/Demodulator  (5) PLL Frequency Synthesizer  (6) TDM and PAM-TDM Multiplexer/Demultiplexer  (7) FDM Multiplexer/Demultiplexer  (8) Signal Converter/Recovery/Regeneration  2. Digital Communication Modules				

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(:	1) A/D, D/A Converter Applications				
	2) PWM Modulator/Demodulator		1		
	3) FSK Modulator/Demodulator		1 1		
(4	4) CVSD Modulator/Demodulator, Manchester Code				
	ncode/Decode	1			
(2	5) ASK Modulator/Demodulator				
	6) PSK/QPSK Modulator				
(	7) PSK/QPSK Demodulator				
3	. Power Supply and Signal Generator Unit				
(	1) Main Unit				
L	ist of Experiments				
A	analog Communication				
12	. RF oscillator experiment				
2	. Second order LPF and HPF experiment			1	
3	3. AM modulator experiment			1 1	
4	L AM demodulator experiment			1 1	
5	5. DSB-SC and SSB modulator experiment			1 1	
6	i. DSB-SC and SSB demodulator experiment			1 1	
17	7. FM modulator experiment			1 1	
8	3. FM demodulator experiment			1 1	
9	). Frequency synthesizer			1 1	
1	10. TDM multiplexer experiments				
1	11. TDM demultiplexer experiments				
1	12. FDM multiplexer experiments				
1	13. FDM demultiplexer experiments				
	14. Frequency converter experiment			out to Tell 1	
	15. Carrier frequency recovery experiment				
1	16. Manchester clock regeneration experiment			1	

MA. JOSEFINA G. BELMONTE City Mayor

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	Digital Communication				
	Analog to digital experiment		1 1		
	Digital to analog experiment		1 1	- 1	
	3. PWM modulator experiment		1 1	- 1	
	4. PWM demodulator experiment		1 1	- 1	
	5. FSK modulator experiment		1 1		
	6. FSK demodulator experiment		1 1	- 1	
	7. CVSD modulators and demodulators		1 1	- 1	1
	8. Manchester code encode/decode		1 1		
	ASK modulator/demodulator		1 1		
	10. PSK/QPSK modulator/demodulator				
	Accessories:		1 1		
	1. Connector Leads	1	1 1		
	2. Experiment Manual	1	1 1		
3	3. Teacher's Guide	1			
	4. Storage Cabinet x 2	1	1 1		
	5. Rack Frame	10			
	6. Digital Storage Oscilloscope				
	7. Hand-held Digital Multimeter		1 1		
4	ELECTRIC CIRCUIT LAB FUNDAMENTALS - KL-100	set ,	1,	1,298,300.00	1,298,300.00
	Features:	14052500		10.3 00.	~ ~ ~ ~
	1. Ideal for electric circuit experiments and design exercises and				
	integrated trainer with complete curriculum			11 1	
	2. Complete with power supplies and test systems for easy and		1	II I	
	efficient experimentation				
	3. With Universal breadboard (1,680 tie-points) for circuit design				
	and prototyping	1	1 1		
	4. All modules equipped with an 8-bit DIP switch for circuits fault			-	
	simulations or fault insertion			E4	
	/				

MA. JOSEFINA G. BELMONTE City Mayor

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Stock No.	Item	Unit of Issue	QTY	Unit Cost	Amount
	Technical Specification:				
	Main Unit				
	1. DC Power Supply	1	1 1		
1	1) Fixed DC power supply	1			
- 8	a. Voltage range: : +5DCV to -5DCV , +12DCV to - 12DCV				
3	b. With output overload protection		1		
	2) Dual DC power supply	1			
- 8	a. +3V to +18DCV, continuously adjustable	1			
- 1	b. With output overload protection			1 1	
	Z. AC Power Supply				
	1, 9ACV - 0ACV - 9ACV		1		
	2. With output overload protection	1			
	3. Function Generator				
	Sine, square and triangle			1 1	
	10 Hertz to 100 Kilohertz, 4 settings, continuously adjustable				
	+5 percent of scale value	1		1 1	
	50 Ohms	1		1 1	
	>18V peak to peak (open loop) >9V peak to peak (with 50Ω load)	1			
	4. 3 1/2-Digit Digital Voltmeter /Ammeter				
	2DCV to 200DCV	1		1 1	
	+0.3% of reading + 1 digit	1			
	200µA, to 2000mA				
	+0.5% of reading + 1 digit				
	5. Analog Meters			1014 221	
	0 to 100mA up to 1A				
	0 to 15V				
	H (45.1년) (대한민국) (15.17.4년) (대한민국)				

MA. JOSEFINA G. BELMONTE City Mayor

12-22-2013 rinted Name of Supplier / Date

Funds Available:

0 to 100mA up to 1A

OBR: M. WM-11 (2MW)

RUBY G. MANANGU City Accountant

Approved Budget for the Contract: 14,095,125.00

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Quezon City Government



PO Number 2311073

Purchase Order Date: DEC 13 2023

: QUEZON CITY UNIVERSITY Procuring Unit

Project Number

:QCU-23-ELTE-1295B

Company Name

: HYTEC POWER, INC.

Mode of

:Public Bidding

Procurement.

Address

2 T. Cruz St., Cruzville Subdivision, Zabarte Road,

Resolution No.

:23-PB-862

Novaliches, Quezon City

TIN Number

; 229-283-188-000

Business Type

: Corporation Registration #CS200401804

Contact Number

:09158093937

Sir/Madam:

Please furnish this office the following articles subject to the terms and conditions contained here

Place of Delivery : Upon end-user's instruction subject to proper coordination with CGSD

Delivery Schedule One Hundred Twenty (120) Calendar days

Payment Term:

Credit

Stock No.	Item	Unit of Issue	QTY	Unit Cost	Amount
	0 to 20V				
	6. Speaker				
	1) 8O, 0.25W speaker with driver amplifier circuit				
1	7. Variable Resistors				
	1) 1KΩ, 0.25W variable resistor with 3 terminals (A,B,C)				
	2) 10KO, 0.25W variable resistor with 3 terminals (A,B,C)			1 1	
	3) 100KΩ, 0.25 W variable resistor with 3 terminals (A,B,C)			1 1	
	4) 1MΩ, 0.25W variable resistor with 3 terminals (A,B,C)			1 1	
	B. Solderless Breadboard		1 0	1 1	
	1) 1,680 tie-points breadboard on top panel can be easily put into			1 1	
	and taken off				
	The Equipment must have the following Experiment Modules:				
	Basic Electricity Experiments and Magnetism Element Introduction			1 1	
	Module			1 1	
	Magnetic Field, Ampere's Rule, Fleming's Rule Module			1 1	
	Electromagnetic Induction Module     Constitution Module			1	
	Electronic Circuit Fundamental Experiments Module				
	Basic Electronic Circuit Experiments (1 and 2) Module			1	
	Special Electronic Components Experiments Module     Special Electronic Components Experiments Module		1	1	
	Oscillator Experiments and Applications Module     The Applications Module		1	1 1	
	The package equipment must have the following list of Experiment			1	
	1. Experiments for Basic Electricity				
	a. DC voltage measurement, Using an ohmmeter, Resistor			1 1	
	characteristics, DC current measurement			11.04	
	b. AC voltage and AC Current measurement				
	c. AC RC, RL, and RLC circuit				
	d. Power in AC circuit				

MA. JOSEFINA G. BELMONTE City Mayou

12-22-2013 North Villoyth 12-12-1013
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Funds Available:

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Approved Budget for the Contract: 14,095,125.00

OBR: M. DARA IL RARD

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#### PO Number 2311073

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: QUEZON CITY UNIVERSITY Procuring Unit

Project Number

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tock No.	Item	Unit of Issue	QTY	Unit Cost	Amount
	e. Transformer characteristics				
- 1	f. Series-resonant and Parallel-resonant circuit				
	g. LC filter			1	
	2. Experiments for Magnetism				
- 1/	a. Magnetic devices and Magnetic field			1 1	
- 0	<ul> <li>b. Drawing magnetic curves and Magnetic field strength</li> </ul>			1 1	
	c. Lenz's and Faraday's laws		1	1	
	d. Ampere's rule, Fleming's rule and Self-Induction		1 0		
	e. Mutual Induction and Magnetic flux detection		1		
	3. Experiments for Basic Electronic Circuits				
	a. Diode characteristics, Rectifier circuit, Filter circuit,	1	1	1 1	
	b. Zener diode, LED, Transistor characteristics	1	1	1 1	
	c. Multimeter functions	1	1	1 1	
	d. FET, SCR, UJT characteristics		1		
	4. Experiments for Simple Electronic Circuits	1	1		
	a, Simple, Complementary, Push-pull and Multistage cascading	1	1	1 1	
	amplifier	1		1 1	
	b. Voltage regulator	1		1 1	
	c. Wheatstone bridge	1			
	d. Dimmer circuit	1		1 1	
	e. Relay characteristics	1			
	f. Touch-controlled switch		4		
	5. Experiments for Industrial Control Applications				
	a. CDS and Thermistor characteristics	1		20 711	
	b. Light-controlled, Temperature-controlled and Sound controlled	1			
	circuit	1			
				1	

MA. JOSEFINA G. BELMONTE City Mayor

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Quezon City Government



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Project Number

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Stock No.	Item	Unit of Issue	QTY	Unit Cost	Amount
5	6. Experiments for Oscillator Characteristics and Applications a. Blocking oscillator b. Electronic birdcall, LC resonant and LED flasher circuit c. Astable multivibrator  The Equipment must package with the following standard accessories: • Experiment manual and instructor's manual • Connection leads and plugs: 1 set • Inductors: 0.1H, 0.5H each 1 piece • Magnet: 1 piece • Key (Allen Wrench): 1 piece • Handheld Digital Multi Meter • Digital Oscilloscope ELECTRONICS FUNDAMENTALS MODULE - KL-200  Features: 1. All modules must be equipped with an 8-bit DIP switch for fault insertion/ simulation 2. Individual keeping case for easy carrying and Storage. 3. With universal breadboard for designing own circuits. 4. Uses 2mm connecting plug for the socket  Technical Specification:	set	1	1,370,700.00	1,370,700.00
	Main Unit     DC Power Supply     Fixed DC power supply     Voltage range: +5DCV to - 5DCV, +12DCV to - 12DCV			UITTER	
	b. With output overload protection			Lysu I	

MA. JOSEFINA G. BELMONTE City Mayor

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Approved Budget for the Contract: 14,095,125.00

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Purchase Order Date:

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Procuring Unit : QUEZON CITY UNIVERSITY

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No.	Item	Unit of Issue	QTY	Unit Cost	Amount
	2) Dual DC power supply			9-	
	a. +3V to +18 DCV, continuously adjustable				
	b. With output overload protection				
	2. AC Power Supply				
	1. 9ACV - 0ACV - 9ACV	1			
	2. With output overload protection				
	3. Function Generator				
	Sine, square and triangle	1			
	10 Hertz to 100 Kilohertz, 4 settings, continuously adjustable				
	+5 percent of scale value	1			
	50 Ohms	1		li illi	
	>18V peak to peak (open loop) ≥9Vpeak to peak (with 50Ω load)				
	4. 3 1/2-Digit Digital Voltmeter/Ammeter				
	2DCV to 200DCV	1			
	+0.3% of reading + 1 digit				
	200μA, to 2000mA	1		1 1	
	+0.5% of reading + 1 digit				
	S. Analog Meters	1			
	0 to 100mA up to 1A	1	1		
	0 to 15V	1			
	0 to 100mA up to 1A	1		1	
	0 to 20V				
	6. Speaker			sa et na	
	1) 8Ω, 0.25W speaker with driver amplifier circuit			100 100 100	
	7. Variable Resistors				

MA. JOSEFINA G. BELMONTE City Mayor

12-22-2023 inted Name of Supplier / Date

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Quezon City Government

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Purchase Order Date:

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Procuring Unit

: QUEZON CITY UNIVERSITY

Project Number

QCU-23-ELTE-1295B

Company Name

: HYTEC POWER, INC.

Mode of

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Address

; 2 T. Cruz St., Cruzville Subdivision, Zabarte Road,

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:23-PB-862

Novaliches, Quezon City

TIN Number

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Delivery Schedule One Hundred Twenty (120) Calendar days

Payment Term:

Credit

tock No.	Item	Unit of Issue	QTY	Unit Cost	Amount
	1) 1KΩ, 0.25W variable resistor with 3 terminals (A,B,C)				
	2) 10KΩ, 0.25W variable resistor with 3 terminals (A,B,C)				
	3) 100KΩ, 0.25W variable resistor with 3 terminals (A,B,C)				
	4) 1MQ, 0.25W variable resistor with 3 terminals (A,B,C)				
	8. Solderless Breadboard				
	1) 1,680 tie-points breadboard on top panel can be easily put into				
	and taken off				
	The equipment modules shall have the following specification:				
	Each module is secured in a solid-body plastic housing and each				
	module shall equipped with DIP switch (8-bit) for fault		1		
	insertion/simulations. Students can practice trouble shooting by				
	setting the DIP switch to different positions				
	2. Detailed solutions for the fault simulation are included in the				
	instructor's manual				
	The equipment shall be able to perform the following experiments:				
	1. Characteristics of Diodes				
	Clipping and Clamping Circuits with Diodes				
	3. Rectifier Circuits		1	1 1	
	4. Differential and Integrator Circuits		1		
	5. Transistors		1	1 1	
	6. Transistor Amplification Circuits	100			
	7. Field Effect Transistors (FET)		1	231115 2016	
	8. FET Amplification Circuits				
	9. Multi - Stage Amplification Circuits				
	10. Transistor Negative Feedback Circuits		1		

MA. JOSEFINA G. BELMONTE City Mayon

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Quezon City Government



PO Number 2311073

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: HYTEC POWER, INC.

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Address

Resolution No.

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; 2 T. Cruz St., Cruzville Subdivision, Zabarte Road, Novaliches, Quezon City

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Stock No.	Item	Unit of Issue	QTY	Unit Cost	Amount
	11. Transistor Positive Feedback Circuits				
	12. Regulated Voltage /Constant Current Circuits	1			
	13. Modulation and Demodulation		1 1		
	14. Op Amp	1			
	15. Basic Characteristics of OP Amplifier	1			
	<ol> <li>Basic Characteristics of OP Amplifier (1 and 2) -Negative</li> </ol>	1			
	Feedback				
	17. Basic Characteristics of OP Amplifier - Positive Feedback			1	
	The set shall come with the following accessories:				
	Experiment manual and instructor's manual	1	1	1. 11	
	2. Connection leads and plugs (2mm): 1 set	1			
	3. Allen wrench Key: 1 piece				
	4. Handheld Digital Multi Meter	1			
	5. Digital Oscilloscope		1		
	The software shall have the following capabilities:				
	1. Schematic Editor		1		
	2. Schematic Symbol Editor		1	1 1	
	3. Footprint Editor		1		
	4. Netlist Editor		1		
	5. Live 3D Breadboard Tool		1	1 1	
	6. Advanced PCB Designer	1		1 1	
	1) Automatic and Manual Design Tools			1 1	
	2) Creating flex PCB's				
	3) Animated 3D view				
	7. Electrical Rules Check (ERC)				
	8. Interpreter				
	9. Library Manager			0.64 0.0 0.0	
	10. Parameter Extractor				
	11. Text and Equation Editor				

MA. JOSEFINA G. BELMONTE City Mayor

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Quezon City Government



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Address

; 2 T. Cruz St., Cruzville Subdivision, Zabarte Road,

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:23-PB-862

Novaliches, Quezon City

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No.	Item	Unit of Issue	QTY	Unit Cost	Amount
	12. DC analysis				
	13. Transient Analysis				
	14. Fourier analysis				
	15. Digital Simulation				
	16. HDL Simulation (VHDL, Verilog, Verilog-A, Verilog-AMS)				
	17. Microcontrollers (MCU) Simulation				
	1) MCU Simulation and Debugging (PIC, AVR, 8051,8085, HCS, ARM)			1	
	2) Linux and Android Simulation (ARM)				
	Mixed Spice Simulation (Berkeley and XSpice)				
	18. Flowchart Editor and Debugger				
	19. AC analysis				
	20. Network analysis			1 4	
	21. Noise analysis				
	22. Symbolic analysis			1	
	23. Monte-Carlo and Worst-case analysis		1	1	
	24. Design Tool			1	
	25. Optimization				
	26. Post-processor				
	27. Presentation				
	28. Interactive mode				
	29. Virtual Instruments				
	1) Digital Multimeter			1	
	2) Function Generator				
	3) Storage Oscilloscope		1		
	4) Signal and Network Analyzer		1		
	5) Digital Signal Generator				
	6) Logic Analyzer				
	30. Real-time Test and Measurements		1	ALC: DA	
	31. Mechatronics Extension				
	1) Sensing and Controlling				
	2) Robotics				

MA. JOSEFINA G. BELMONTE City Mayor

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Quezon City Government



2311073

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Stock No.	Item	Unit of Issue	QTY	Unit Cost	Amount
	3) Automotive Electronics				
	32. Faster MCU simulation, real time simulation of delays				
	33. Verilog-AMS: analogue events in digital context				
	34. New format at Fourier analysis: D * cos (kwt + fi)				
	35. The software accepts both M and MEG as mega (1e6), but mega		1		
	is always displayed as MEG (Spice)				
	36. Macro wizard: Configurable pin order & name at auto generated		1	1	
	shapes			1	
1	37. Zoom or Scroll with mouse wheel, as set at View Options		1		
	38. New features in the HDL editor		1	1 1	
	39. Added reference voltage in the Fourier spectrum dialog			1	
	40. Added MicroBasic 1st file handling support in the hex/1st		1	1 1	
	debugger		1		
	41. Multilanguage capability, instant language change for licensed		1	1 1	
	languages		1	1 1	
	42. Open project files with preview of schematics and mechatronics		1	1 1	
	43. EDIF import			1 1	
	44. Global Spice variables			1 1	
	45. KLU - a faster linear solver and better convergence on large-size			1 1	
	or special circuits			1 1	
	46. Enhanced and accelerated VHDL and Verilog simulation 10x			1 1	
	times faster than in v9			1 1	
	47. Xilinx simprim simulation in digital and in mixed mode			1 1	
	48. Verilog A			1 1	
	49. Verilog AMS			1 1	
	50. MCU C compiling on 8051, AVR, PIC16, PIC18, PIC32, ARM			1 1	
	51. Spice compatible AD-DA interface	100			
	52. Oscilloscope works together with the interactive mode			152 1 133	
	53. Frequency and waveform parameters are shown with cursors		0.0		
	54. Hotkeys to AC and Transient Analysis				
	55. Cursor Max and Min functions added to the Process menu	-			

MA. JOSEFINA G. BELMONTE City Mayor

n-12-2023 nted Name of Supplier / Date

Funds Available:

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G. MANANGU City Accountant

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Quezon City Government



PO Number 2311073

Purchase Order Date:

DEC 13 2023

Procuring Unit

: QUEZON CITY UNIVERSITY

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Company Name

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Stock No.	Item	Unit of Issue	QTY	Unit Cost	Amount
6	FIBER OPTIC COMMUNICATION TRAINER - KL-900D	set -	1,	1,556,700.00	1,556,700.00
1					
	Features:				
	* With four different data transmission ways (self-module				
	transmission, module-to-module transmission, PC-to-module	1			
	transmission, and module-to-PC to-module transmission				
	* The experiment will show you how easy it is to make productive				
	use of fiber optic materials.				
	* The equipment that you assemble will transmit voice from one	1		1	
	point to another, using light traveling through an optical fiber.				
	Specifications:				
	Main Unit	1			
	1. Power: AC-DC Adapter	1	1		
	a. AC input: 100V ~ 240V		1	1	
	b. DC output: 15V, 500mA				
	2. Microphone Circuit			1	
	a. Frequency range: 20Hz ~ 12KHz		1	1 1	
	b. With gain 20 amplified circuit				
	3. Push-button Switch				
	a. N.O. Type		1	1	
	b. With LED indication	1		1 1	
	4. Function generator			1 1	
1	a. Output sine wave with adjustable output amplitude	1	1	1 1	
	b. Output square wave, with CMOS level	1		100000	
	c. Frequency range: 6Hz ~ 2KHz			7,000 0 0 0 0	
	5. Output Speaker				

MA. JOSEFINA G. BELMONTE City Mayor

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Quezon City Government



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ck o.	Item	Unit of Issue	QTY	Unit Cost	Amount
	a. 8Ω, 1/4W				
-	6. Transmitter Module				
- 1	a. Optical fiber light: Red LED, λ = 660nm				
- 1	b. Max. drive current: 50mA				
- 1	c. Effective coupling micro-lens spotlight				
- 1	d. Emitter follower				
ļ	7. Receiver Module				
- 1	a. Optical receiving diode				
- 1	i. λ peak: 880nm		1		
- 1	ii. Connectable plastic optical fiber with 1,000m core		1		
	iii. Effective coupling micro lens spotlight		1	1 1	
	iv. Max. consumption power: 100mW		1	1 1	
	b. With amplified, gain, restoring sharpness circuit				
4	8. Data transmission elements		1		
	a. Chip set: AVR8515, 8bits, 8MHz crystal		1		
- 3	b. LCD: back light 20 x 2 letter chip			1 1	
1	c. Keyboard: 4 x 4 16Key		1	1	
-	d. Character mode: single letter or string letter available			1 1	
3	e. Send mode: OFF (self-module transmission), transceiver (module-			1 1	
- 9	to-module), PC module PC			1 1	
3	f. With reset function			1	
3	g. Communication interface: RS 232C, 9600 baud rate			1 1	
1	h. Software environment: Windows base			1 1	
	Experiment Modules			277774	
	2mm connection leads are used throughout the system				
	The building blocks and components symbols of the circuits are				
	printed on the surface of each module	0			

MA. JOSEFINA G. BELMONTE City Mayor

ted Name of Supplier / Date

Funds Available:

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Mode of

:Public Bidding

HYTEC POWER, INC.

Procurement

Address

2 T. Cruz St., Cruzville Subdivision, Zabarte Road,

Resolution No.

:23-PB-862

Novaliches, Quezon City

TIN Number

: 229-283-188-000

Business Type

: Corporation Registration #CS200401804

Contact Number

:09158093937

Sir/Madam:

Please furnish this office the following articles subject to the terms and conditions contained here

Place of Delivery : Upon end-user's instruction subject to proper coordination with CGSD

Delivery Schedule One Hundred Twenty (120) Calendar days

Payment Term :

Credit

Stock No.	Item	Unit of Issue	QTY	Unit Cost	Amount
	3. Modules are secured in plastic housings				
	Comprehensive experimental manual		1 1		
	5. Use bridge plugs on circuit loop to reduce the possibility of errors				
	List of Experiments				
	Characteristic of fiber optics experiment		1		
	Applications of fiber optics experiment		1 1		
	3. Light sources of fiber optics		1		
	4. Light and fiber optics interaction experiment		1 1		1
	5. Fiber optic transmitters experiment		1		- 4
	Receivers for fiber optic system experiment		1		- 1
	7. Fiber optic expand and network experiment		1		- 1
	8. Fiber optic connectors and lose-polishing experiment		1		- (1
	Fiber optical data-transmission-self-transceiver experiment				- 1
	10. Fiber optical data-transmission-double-transceiver experiment				
	11. Fiber optical data-transmission - PC module experiment			1 1	
	12. Fiber optical data-transmission - module PC experiment		1		
	Accessories				
	1. 2mm test lead: 1 set		1		
	2. Plastic fiber optics: 1 set		1		
	3. Experiment manual		1	1 1	
	4. RS-232 to USB adapter				
	5. Connection plug pitch=10mm			1 1	
	6. Headphone and microphone		100	commission (Asymptotic	720 HARRISTON
7	INDUSTRIAL ELECTRONICS TRAINER -KL-500 /	set	1	3,481,300.00	3,481,300.00
1	Features:				
	* Comprehensive study including the theoretical study and practical			MINISTER WAS	
	exercises				
	* Use of industrial-type components, devices and circuits				
	Market				

MA. JOSEFINA G. BELMONTE City Mayor

12-22-2013 ed Name of Supplier / Date

OBR: W. MAM. IL PANDU

Funds Available:

RUBY G. MANANGU

Approved Budget for the Contract: 14,095,125.00

City Accountant

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Quezon City Government



2311073

Purchase Order Date:

DEC 13 2023

Procuring Unit

: QUEZON CITY UNIVERSITY

Project Number

:QCU-23-ELTE-1295B

Company Name

Mode of

Public Bidding

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ck o.	Item	Unit of Issue	QTY	Unit Cost	Amount
	The Industrial Electronic Trainer is a self-contained training				
	equipment allowing students to learn more than 70 experiments				
1	through a power supply unit and 16 replaceable modules.				
-	Specification:				
	1. Power Supply Unit	1			
	(1) ACV output voltage: 18V-0V-18V, 0.5A	1			
ı	(2) ACV output voltage: 12V-0V-12V, 0.5A	1			
	(3) DC output voltage: +12V, 0.5A	1		1 1	
	(4) DCV output voltage: +5V, 0.5A				
	2. Meter/Motor Unit				
-	(1) Dual-scale ACV: 150V-300V, class 2.5	1		1	
- 1	(2) Dual-scale ACA: 0-100mA-1A, class 2.5	1			
- 1	(3) Dual-scale DCV: 0-10V-20V, class 2.5	1		1 1	
- 1	(4) Dual-scale DCA: 0-100mA-1A, class 2.5	1		1 1	
	(5) AC110V/220V motor				
	List of Experiments				
	Power Supply Unit Experiments	1			
- 1	(1) AC voltage measurement			1 1	
- 1	(2) DC voltage measurement				
-	2. UJT Experiments		1		
- 1	UJT Characteristic and Equivalent Circuit		1	1 1	
- 1	(1) UJT introduction				
- 1	(2) UJT characteristic			1 50	
	(3) UJT equivalent circuit				
- 1	(4) CDS trigger, RTH trigger			1	

MA. JOSEFINA G. BELMONTE City Mayon

12-22-2023 Signature Over Printed Name of Supplier / Date

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City Accountant

Approved Budget for the Contract: 14,095,125.00

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Quezon City Government



PO Number 2311073

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Stock No.	Item	Unit of Issue	QTY	Unit Cost	Amount
	UT Oscillator Circuit and Timer Switch				
	(1) UJT relaxation oscillator				
	(2) UJT timer switch				
	3. PUT Experiments				
	PUT Characteristic and Equivalent Circuit				
	(1) PUT introduction				
	(2) PUT characteristic				
	(3) PUT equivalent circuit	1			
	(4) CDS trigger		1		
	(5) RTH trigger		1	1 1	
	PUT Oscillator Circuit and Timer Switch	1	1		
	(1) PUT circuit oscillator		1		
	(2) PUT timer switch				
	4. PUT and SCR Experiments				
	PUT Staircase Generator and Voltage Control Ramp Circuit		1	1 1	
	(1) PUT staircase generator circuit		1		
	(2) PUT voltage control ramp circuit		1		
	SCR Characteristic and RC Shift Control Circuit		1	1 1	
	(1) SCR principle			1 1	
	(2) SCR characteristic curve			1 1	
	(3) SCR construction			1 1	
	(4) SCR trigger mode	1		1 1	
	(5) SCR RC phase control circuit				
	5. SCS Experiments				
	SCS Characteristic Experiment			128.015.950	
	(1) SCS construction and operation mode				
	(2) Use VOM meter measuring SCS				
	(3) SCS Schmitt circuit				

MA. JOSEFINA G. BELMONTE City Mayor

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Approved Budget for the Contract: 14,095,125.00

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Quezon City Government



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No.	Item	Unit of Issue	QTY	Unit Cost	Amount
	(4) SCS simulate PUT circuit				
	SCS Trigger Circuit Experiment				
	(1) CDS trigger				
	(2) RTH trigger				
	6. UJT and PUT Trigger SCR Experiments				
	UT Trigger SCR Phase Control Circuit	1			
	(1) Phase control basic circuit	1			
	(2) Phase control analysis				
	(3) AC phase control circuit analysis	1			
	(4) UJT trigger SCR phase control circuit	1		0 11	
	PUT Trigger SCR Phase Control Circuit				
	7. SCR Control DC Motor and DIAC, TRIAC				
	SCR Characteristic Experiments	1			
	SCR Control DC Motor Forward/Reverse Experiment	1	1		
	(1) SCR cut-off principle	1		11	
	(2) SCR control DC motor forward/reverse control experiment	1	1	1	
	DIAC, TRIAC Characteristic Experiment		1	1	
	(1) DIAC construction and characteristic		1		
	(2) DIAC operation mode and measurement				
	(3) TRIAC construction and characteristic	1	1	1 1	
	(4) TRIAC trigger mode	1	1	1 1	
	(5) TRIAC static measurement		1		
	8. Automatic Control Lamp, TRIAC Control Speed Experiments		1		
	Automatic Control Lamp Experiment				
	(1) TRIAC shift control			1131 11119	
	(2) TRIAC automatic control lamp experiment				
	TRIAC Control Motor Speed Experiment				
	(1) Different motor Introduction			1	

MA. JOSEFINA G. BELMONTE City Mayor

12-12-2073 Printed Name of Supplier / Date

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G. MANANGU RUBY City Accountant

Approved Budget for the Contract: 14,095,125.00



Quezon City Government



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2 T. Cruz St., Cruzville Subdivision, Zabarte Road, Novaliches, Quezon City

TIN Number

: 229-283-188-000

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Stock No.	Item	Unit of Issue	QTY	Unit Cost	Amount
	(2) TRIAC control motor speed experiment				
	9. Temperature Ratio, Photo-Couple and Touch Control Experiments				
	Bridge Temperature Ratio Control Experiment				
	(1) Electronic component of thermal resistor				
	(2) SCR bridge temperature ratio control experiment				
	Photo-Couple and Touch Control Experiment				
	(1) Photo-couple control circuit			0.00	
	(2) FET construction and characteristic				
	(3) Touch alarm circuit				
	10. Over/Under Voltage Breaker and Flasher Control Experiments				
	Over/Under Voltage Breaker Experiment		1		
	(1) OPA characteristic with reverse & non-reverse circuit				
	(2) Voltage comparison circuit		1	1	
	Flasher Control Experiment				
	(1) Application of TRIAC power control		1	1 1	
	(2) AC circuit control		1		
	(3) Multivibrator		1		
	11. TRIAC Liquid Level and IC Timer Switch Experiments				
	TRIAC Liquid Level Control Experiment			1	
	(1) Digital circuit introduction			1 1	
	(2) TRIAC liquid level control experiment			1 1	
	IC Timer Switch Experiment			1 1	
	(1) NE 555 IC circuit introduction			1 1	
	(2) IC timer switch experiment				
	12. Digital Signal Driver and Zero-Voltage Switch Experiments			·488	
	Digital Signal Driver Control Experiment				
	Zero-Voltage Switch Experiments (I)				

MA. JOSEFINA G. BELMONTE City Mayor

12-12-123 Signature Over Printed Name of Supplier / Date

Funds Available:

RUBY G. MANANGU City Accountant

Approved Budget for the Contract: 14,095,125.00

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Quezon City Government



PO Number 2311073

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tack No.	Item	Unit of Issue	QTY	Unit Cost	Amount
	Ideal half-wave zero-voltage switch experiments				
	13. Zero-Voltage Switch Experiments				
	Zero-Voltage Switch Experiments (II)	1			
	(1) TRIAC zero-voltage switch experiments		1		
	(2) IC mode zero-voltage switch experiments				
	14. SCR Converter Experiments				
	(1) Parallel converter introduction			11	
	(2) Series converter introduction				
	(3) Converter trigger source		1		
	(4) Converter voltage adjustment				
	(5) Converter output-waveform improvement				
	15. SCR Rectifier Circuit Experiments				
	(1) Single-phase half-wave rectifier				
	(2) Single-phase full-wave rectifier				
	(3) Single-phase bridge rectifier		1	1	
	(4) Three-phase half-wave rectifier				
	(5) Three-phase full-wave rectifier				
	16. JFET/MOSFET Characteristic and MOSFET Speed Control		1		
	Experiments		1	1 1	
	(1) JFET characteristic experiment	1	1	1 1	
	(2) MOSFET characteristic experiment			1 1	
	(3) MOSFET speed control experiment		1		
	17. IGBT Characteristic and IGBT Speed Control Experiments			karrani	
	(1) IGBT characteristic experiment			45014.0	
	(2) IGBT speed control experiment				
			1		

MA. JOSEFINA G. BELMONTE City Mayor

Inted Name of Supplier / Date

Funds Available:

RUBY G. MANANGU City Accountant

OBR: Warn-11- (2m2)

Approved Budget for the Contract: 14,095,125.00

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Quezon City Government



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ock o.	Item	Unit of Issue	QTY	Unit Cost	Amount
	18. Accessories (Including Storage Cabinet 2 pieces)				
	19. Rack Frame				
	20. Power Supply (0+-30V, 3A)				
	21. Transformer (For local 3 phase power not 220V)				
	22. Digital Storage Oscilloscope				
	23. Hand-held digital multimeter				
	Terms and Conditions:				
	Attach proof of ISO certification to ensure that the quality of products and services complies with industry and international standards.				
	Bidder must submit brochure catalog indicating the brand name and model of bid items as additional requirements.				
	Supplier must conduct after sales training for the end-user after the completion of delivery for 18				
- 1	Engineering faculty members and Laboratory personnel for 5 days.  4. Supplier must provide continuous technical support to equipment parts including services and repair as long as the equipment is				
- 1	functional.  5. Equipment must be supplied with training manuals in English.				
_	6. Please attach Trainor's certification from the manufacturer to				
	assure the quality of training that will be provided.			SELL AND	
	After Sales Service:				
	Free trainer's training		1		

MA. JOSEFINA G. BELMONTE City Mayor

Signature Over Printed Name of Supplier / Date

12-22-23

Funds Available:

RUBY G. MANANGU City Accountant

OBR: Wayn 12 12/120

Approved Budget for the Contract: 14,095,125.00



Quezon City Government



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tock No.	Item	Unit of Issue	QTY	Unit Cost	Amount
Free Consult     Free Annual	nnual Re-training with certificate, on request. ation/Seminar, on request product inspection, on request demonstration, on Request				
	****** Nothing Follows ******				
			-		
				XI 1130	

Total Amount :

13,800,000.00

Total Amount In Words (Pesos):

Thirteen Million Eight Hundred Thousand Pesos and 00/100 Only

MA. JOSEFINA G. BELMONTE City Mayor

12-22-2013 Signature Over Printed Name of Supplier / Date

Funds Available:

RUBY G. MANANGU City Accountant

MO. 2020- 11. 12/20 OBR:

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