



MARIANO ...ARCOS STATE UNIVERSITY
Procurement Division
Request for Quotation (RFQ)
(Goods and Services)

Document Code

PD-FRM-002

Revision No.

4

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Effectivity Date

January 8, 2021

REQUEST FOR QUOTATION (RFQ)

Date: January 31, 2022
 PR No. 2021-12-236(07308603)

Sir/Madam:

Please quote your lowest price on the item/s listed below, and submit your quotation duly signed by you or your duly authorized representative not later than **3 days** subject to the Terms and Conditions provided at the last page of this RFQ.

Delivery period must be at least within **240 days** upon receipt of the Notice to Proceed or Purchase Order.

For any clarification, you may email us at bac@mmsu.edu.ph.

NATHANIEL R. ALBUYOOG
 BAC CHAIR

ITEM	QTY	Unit	ITEM DESCRIPTION	ABC/unit	UNIT PRICE
1	1	lot	<p>Wave flume shall be equipped with 2D wave flume, 2D wave maker, 2D current generator, and computer system for wave testing with the following specifications:</p> <p>Tank conditions: Dimensions: 35 m length, 0.5 m width, 0.8 m depth (inside of wave flume) Material: Stainless steel (inside of wave flume), mild steel (others) Observation window: 29 m with glass window), span between columns of windows shall be 1 meter Rails for carriages: 31 m length</p> <p>Measuring carriages: Type: Manual operation. Manual brake shall be attached to stop carriage Quantity: 2 sets</p> <p>Wave Absorber: Type: stainless frame type (Absorber material: plastic) Size: 1.5 m x 0.5 m x 0.8 m (L/W/H) opposite side of wave maker: 1 set 1.0 m x 0.5 m x 0.8 m (L/W/H) (Behind wave maker: 1 set</p>	29,414,205.00	

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			<p>Wave Maker shall be consisting of wave boards, drive assemblies, and electrical panels, is to generate various waves in the wave flume by mechanical displacement of wave board.</p> <p>Tank conditions: Dimensions: 35 m x 0.5 m 0.8 m (L/W/H) (Inside of wave flume) Water depth : 0.5 m Wave performance: Wave profile: regular, random, and solitary waves Wave height: Max 0.2 m at wave period of 2.0 sec (regular waves) Wave period: 0.5 - 4.0 sec Wave board: Piston type Control: Absorption/Position control</p> <p>Wave Maker:</p> <p>(1) Wave board Type of wave board: Piston type Material: Stainless steel Supporting: Linear guide rail Width: 0.5 m Height: 0.8 m Quantity: 1 set</p> <p>(2) Drive assembly Type: AC motor and ball screw Quantity: 1 set</p> <p>(3) Wave gauge for absorption Type: Capacitance type Quantity: 1 set</p> <p>(4) Electrical Panel Type: Control panel is self-supporting type, mounted on the floor. Operation panel is desktop type Power supply: AC 220 V 3 phase Quantity: 1 set (1 control panel and 1 operation panel) Mounted parts: Servo-controller for the motors, and wave processor Function: Data communication, signal synthesis and wave maker control Data communication: Parameters to determine target waves are transmitted from the computer system mentioned below, through RS 232 C Interface</p>		
			<p>Current Generator</p> <p>1) Pump unit Maximum flow quantity: 6 m³/min</p>		



	<p>Type: Axial flow type Size: 300 A Quantity: 1 set 2) Electro magnetic flow meter Size: 200 A Quantity: 1 set 3) Piping Size: 250 A Material: PVC quantity: 1 set 4) Electrical panel Type: Control panel is self-supporting type, mounted on the floor (same panel was wave maker) Power supply: AC 220 3 phase Quantity: 1 set (1 control panel and 1 operation panel) Mounted parts: inverters, control circuits Function: Current generator control, manual setting of flow speed (constant speed), external flow speed command input</p>		
	<p><u>Computer System: Hardware and system software</u> 1) Computer Type: PC-AT compatible computer Processor: Intel Core i7 or equivalent Memory: 16GB Disk storage: at least 500 GB SSD Display: 17" LCD OS: Microsoft Windows 10 Language: Visual C, Visual Fortran 2) A/D converter for data acquisition Channels: 32 ch. Resolution: 16 bit Sampling : Max 1,000 Hz</p>		
	<p>Application Programs for PC Wave Generation Programs- The programs are to generate desired waves in the flume, by breaking down the specified wave spectrum into sine-wave components and transmitting them to the wave synthesis system for wave maker. 1) Regular wave generation program - 2D regular wave 2) Irregular wave generation program Three types of frequency spectrum are provided</p>		



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		<p>for irregular wave generation:</p> <ul style="list-style-type: none"> - Bretschneider - Mitsuyasu spectrum - JONSWAP spectrum - User specified spectrum <p>The spectrum is defined by superimposing up to 100 sine wave components</p> <ul style="list-style-type: none"> 3) Solitary wave generation program - 2D solitary wave 	
		<p><u>WAVE ANALYSIS PROGRAMS</u></p> <p>(1) Data acquisition programs</p> <p>(1a) Wave gauge calibration program</p> <p>Measured voltage data measured with the A/D converter are compared with reference physical values, to calculate calibration coefficients by least square method.</p> <p>(2b) Analog data gathering program</p> <p>Gathered analog data are converted to physical values with calibration coefficients</p> <p>(2) Statistical & spectral analysis program</p> <p>Such data as Hmax, Hmin, H1/3, H1/10, Hvar, T1/3, T1/10, Tvar, etc. are calculated with zero-up method.</p> <p>Runs analysis is also available.</p> <p>Such data as M0, M1, M2, M3, M4, peak of power and its frequency, etc., are calculated through spectral analysis by means of FFT (Fast Fourier Transform).</p> <p>(3) Incident/reflected wave analysis program</p> <p>Measured power spectrum is separated into incident and reflected ones. The analyzed output is same as (2).</p> <p>Reflection factor on models, etc. is also calculated.</p> <p>(4) Spectral form comparison and adjustment program</p> <p>In order to have a good accordance of spectral shape between target and measured ones, power spectrum is to be adjusted automatically.</p> <p><u>CURRENT GENERATION PROGRAMS</u></p> <p>The program is to generate current in the flume, by outputting the current command to the current generator operation panel.</p> <p>(1) Constant and sinusoidal current generation program</p> <ul style="list-style-type: none"> - Constant current - Sinusoidal current 	
		<p><u>WAVE MAKER AND CURRENT GENERATOR MONITORING PROGRAM</u></p> <p>The program is to monitor the status of the wave maker and the current generator. By monitoring and</p>	



			<p>recording the operating status of the equipment, this program helps to understand the situation when an abnormality occurs.</p> <p>(1) Wave maker monitoring items</p> <ul style="list-style-type: none"> -Wave command signal -Wave board position -Water surface elevation in front of wave board -Wave maker status (Making waves or not, servo or limit error status) -Other sensor signals (Analogue signal such as wave gauge are included.) <p>(2) Current generator monitoring items</p> <ul style="list-style-type: none"> - Current command signal - Flow speed in the piping - Current generator status (Generating current or not, inverter error status) - Other sensor signals (Analogue signal such as current meter included. <p>SENSORS include:</p> <p>Two unit Propeller Type Current Meter: 6 channels, 1-axis/2 direction, measurement range: ± 3-200cm/s, Precision: ± 3 cm/s; Sampling Capacity: 1,000,000</p> <p>Six unit Wave Height Meter: 4 channel, Linearity: ± 0.3% FS, Response Speed: 10Hz, Stability: 0.02%/°C</p> <p>Include all accessories, cable support and connection</p>		
			<p>SCOPE OF WORK</p> <p>Design and manufacturing and shop test of the equipment</p> <p>Installation and acceptance testing at MMSU</p> <p>Training to the end user for operation and maintenance at the site</p> <p>ACCEPTANCE TESTING AT THE SITE</p> <p>The installed system will be tested at the site on:</p> <ul style="list-style-type: none"> - Wave performance test - Irregular waves test - Solitary waves test - Current generation performance test <p>All test should be within 5% margin of error based on the indicate wave performance of the flume. Include all manual of operation, repair & maintenance warranty of parts and services of at least 2 years.</p>		



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		Computer Software Hydro-Wave-Morpho dynamics Software Packaging and modeling of the wave analysis program which include SWAN (wave transformation, CADMAS-SURF (wave force and wave overtopping The package should include installation and one case study within the COASTER project study site. The model shall be based on freely available data		
2	1	set	Instruction/Training manual for the SWAN and CADMAS-SURF containing the installation of the software, theoretical framework of the model/software, method of modeling, execution and expression of output. On-site installation and briefing of the software Provide short training course on coastal engineering for at least 3-days	3,159,860.00

TOTAL ESTIMATED BUDGET: PhP32,574,065.00

REMARKS/NOTE:

After having carefully read and accepted your Terms and Conditions, I/we submit our quotation/s on the item/s at prices indicated above.

Business Name: _____
Business Address: _____
Printed Name of the Owner: _____
TIN: _____
PhilGEPS Registration Number: _____
Business Permit: _____
Omnibus Sworn Statement: _____
Annual Income Tax Return: _____

Canvassed by: _____

Signature over Printed Name _____
Date _____
Tel. No./Cellphone No./e-mail address _____



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TERMS AND CONDITIONS:

1. Bidders shall provide correct and accurate information required in this form.
2. Bidders may quote for any or all of the items.
3. Bidders shall submit a copy of the following documents along with the Quotation:
 - a. Mayor's/Business Permit
 - b. Notarized Omnibus Sworn Statement (if ABC is more than P 50,000.00)
 - c. Income/Business Tax Return (if ABC is more than P 500,000.00)
4. Price quotation/s, to be denominated in Philippine peso, shall include all taxes, duties and/or levies payable.
5. Quotations exceeding the Approved Budget for the Contract shall be rejected.
6. Award of contract shall be made to the lowest quotation which complies with the minimum technical specifications and other terms and conditions stated herein.
7. Any interlineations, erasures or overwriting shall be valid only if they are signed or initialed by you or any of your duly authorized representative/s.
8. The item/s shall be delivered according to the requirements specified in the Technical Specifications.
9. The University has the right to inspect and/or test the goods to confirm their conformity to the technical specifications.
10. Liquidated damages equivalent to one tenth of one percent (0.1%) of the value of the goods not delivered within the prescribed delivery period shall be imposed per day of delay.

Received _____
Received _____
Received _____