



## Bid Notice Abstract

### Invitation to Bid (ITB)

**Reference Number** 7916182  
**Procuring Entity** DEPARTMENT OF TRADE AND INDUSTRY - REGION IV-A  
**Title** Supply, Delivery, Installation, and Commissioning of Shared Service Facility for the Establishment of Innovation Laboratory of DTI Cavite Provincial Office (1 Lot)  
**Area of Delivery** Cavite

<b>Solicitation Number:</b>	ITB-21-0011	<b>Status</b>	<b>Pending</b>
<b>Trade Agreement:</b>	Implementing Rules and Regulations		
<b>Procurement Mode:</b>	Public Bidding	<b>Associated Components</b>	8
<b>Classification:</b>	Goods		
<b>Category:</b>	Industrial Machinery and Equipment	<b>Bid Supplements</b>	0
<b>Approved Budget for the Contract:</b>	PHP 24,625,086.98		
<b>Delivery Period:</b>	65 Day/s	<b>Document Request List</b>	0
<b>Client Agency:</b>			
<b>Contact Person:</b> Harvin Bob P. Puno AO III, Supply Officer 3rd Floor, Marcelita Bldg, Brgy Real, Calamba City Laguna Philippines 4027 63-49-5457571 63-49-5457573 harvinbobpuno@dti.gov.ph		<b>Date Published</b>	12/08/2021
		<b>Last Updated / Time</b>	11/08/2021 23:48 PM
		<b>Closing Date / Time</b>	01/09/2021 08:30 AM

#### Description

Invitation to Bid for Supply, Delivery, Installation, and Commissioning of Shared Service Facility for the Establishment of Innovation Laboratory of DTI Cavite Provincial Office (1 Lot)

1. The Department of Trade and Industry Region IV-A, through the General Appropriations Act FY 2021 intends to apply the sum of One Million Four Hundred Thousand Pesos (Php 24,625,086.98) being the ABC to payments under the contract for Supply, Delivery, Installation, and Commissioning of Shared Service Facility for the Establishment of Innovation Laboratory of DTI Cavite Provincial Office (1 Lot) (Bidding No.: 7916182). Bids received in excess of the ABC shall be automatically rejected at bid opening.

2. The Department of Trade and Industry Region IV-A now invites bids for the above Procurement Project. Delivery, installation, and commissioning of the Goods is required within sixty-five (65) calendar days upon receipt of Notice to Proceed and Purchase Order. Bidders should have completed, within three (3) years from the date of submission and receipt of bids, a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).

3. Bidding will be conducted through open competitive bidding procedures using a non- discretionary "pass/fail" criterion as specified in the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.

Bidding is restricted to Filipino citizens/sole proprietorships, partnerships, or organizations with at least sixty percent (60%) interest or outstanding capital stock belonging to citizens of the Philippines, and to citizens or organizations of a country the laws or regulations of which grant similar rights or privileges to Filipino citizens, pursuant to RA No. 5183.

4. Prospective Bidders may obtain further information from Department of Trade and Industry Region IV-A and inspect the Bidding Documents at the address given below during Monday to Friday except holidays, 8:00 AM to 5:00 PM.

5. A complete set of Bidding Documents may be acquired by interested Bidders on August 12, 2021 from the given

address and website(s) below and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of Twenty-Four Thousand Six Hundred Twenty-Five Pesos (Php 24,625.00). The Procuring Entity shall allow the bidder to present its proof of payment for the fees by presenting the hard copy or electronic copy of the official receipt.

6. The Department of Trade and Industry Region IV-A will hold a Pre-Bid Conference on August 19, 2021, 9:00 AM through video conferencing via Zoom, which shall be open to prospective bidders.

7. Bids must be duly received by the BAC Secretariat through manual submission at the office address indicated below, on or before September 01, 2021, 8:30 AM. Late bids shall not be accepted.

8. All Bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in ITB Clause 14.

9. Bid opening shall be on September 01, 2021, 9:00 AM at the given address below and via Zoom video conferencing. Bids will be opened in the presence of the bidders' authorized representatives who choose to attend the activity.

10. The Department of Trade and Industry Region IV-A reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised IRR of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.

11. For further information, please refer to:

Josephine G. Lusitro  
Head Secretariat  
Bids and Awards Committee  
Department of Trade and Industry Region IV-A  
3/F Marcelita Building, National Highway,  
Brgy. Real, Calamba City, Laguna 4027  
Contact No.: 0917-503-5349  
Email: JosephineLusitro@dti.gov.ph cc: HarvinBobPuno@dti.gov.ph  
Website: www.dti.gov.ph

12. You may visit the following websites:

View posting: PhilGEPS website (<http://notices.ps-philgeps.gov.ph/main/>)

August 12, 2021

MARISSA C. ARGENTE  
Assistant Regional Director & BAC Chairperson  
DTI Region IV-A – Bids and Awards Committee

#### Line Items

Item No.	Product/Service Name	Description	Quantity	UOM	Budget (PHP)
1	Complete Metal 3D Printing System	An accessible end-to-end Metal 3D printing solution designed to yield functional metal parts. With a separate unit for wash and sinter. Applications: • Functional Prototyping • Jigs & Fixtures • Repair & Replacement parts • Complex metal parts...	1	Set	12,568,000.00
2	Carbon Fiber 3D Printer – Desktop Series	Print Continuous Carbon Fiber reinforced parts on your desktop – stiff, strong, extremely durable, and capable of replacing machined aluminum. Applications: • Functional Prototyping • Jigs & Fixtures • Stamping Dies • Repair & Replacement parts	1	Unit	1,856,000.00
3	Large-Scale FDM 3D Printer	• Fully Enclose large scale 3D Printer with Dual Extruder • Technology: Fused Deposition Modeling (FDM) • Build Size: at least 1200 x 600 x 630mm • Filaments Size: 1.75 mm, Open Source...	1	Unit	1,118,000.00
4	FDM 3D Printer (5 Units)	• Print Technology: Fused Deposition Modeling (FDM) • Build Volume: at least 250x210x190mm • Filaments Size: 1.75 mm, Open Source • Extruder: Single...	1	Set	205,000.00
5	Compact CNC Milling System	To cut challenging materials like titanium as well as softer materials such as aluminum, plastic and wood. • Operating Range: at least X: 356mm (14in); Y: 191mm (7.5in); Z: 337mm (13.25in) • Table Size: At least 660mm x 200 mm;...	1	Unit	1,900,000.00

6	80 Watts CO2 Laser Cutter/Engraver	Open architecture offers the versatility you need for endless product creation. Customize items of all sizes; as small as a peanut to a large granite memorial. • Engraving Area: 710 x 400 mm (Continuous Feed) • Focal Lens: 2 Inches...	1	Unit	2,200,000.00
7	Handheld 3D Scanner	Hand-held 3D scanner meant to capture medium and large objects; with built-in touchscreen for ease-of-use during scanning. • 3D point accuracy: Up to 0.1 mm • Accuracy over distance: Up to 0.1 mm over 1 m...	1	Unit	650,000.00
8	Filament Maker	The unique vertical extrusion setup in the filament makers ensures precise roundness and accurately guides the filament to the spool. A dual air cooling system, with adjustable fan speeds and positions, ensures optimal cooling settings...	1	Unit	900,000.00
9	Multi Tool 3D Printer	Toolhead Technology: FDM/FFF, CNC Milling, Laser Engraving and Cutting, Paste Extrusion...	1	Unit	450,000.00
10	Integrated Services Router Bundle 1 and 2	Bundle 1: • 4221 Integrated Services Router (2GE, 2NIM.8G FLASH.4G • SNTC-8X5XNBD (2GE, (12)) • IP Base License Integrated Services Router 4000 Series...	1	Unit	563,544.58
11	Drone Set Kit Launcher (2 Units)	• Carbon Fiber Frame: Tarot T960 c/F Folding Hexacopter • Carbon Fiber Frame: Tarot IronMan 1000 • Brushless Motors: Tarot 5008 340Kv high power motors...	1	Set	415,542.40
12	PLC Simulation Board with I/O Devices	• Start, Stop, Emergency Buttons • Conductive and Inductive Sensors • Thru Beam Sensors • Pneumatic Cylinders with 4/3 way Valve • Hydraulic Cylinders with 4/3 way Valve...	1	Unit	1,000,000.00
13	Design Software Suit Virtual Simulation	• SCADA license for instructor - Adv Dev Studio • SCADA license for students • Laptop - I58265U processor, 8GB DDR4 memory, 1TB storage, 2GB MX130 Graphics Window 10, 15.6 HD Display...	1	Unit	799,000.00

#### Pre-bid Conference

Date	Time	Venue
19/08/2021	9:00:00 AM	The Department of Trade and Industry Region IV-A will hold a Pre-Bid Conference through video conferencing via Zoom, which shall be open to all interested bidders. For invitation, please email our BAC Secretariat: HarvinBobPuno@dti.gov.ph

#### Other Information

For the copy of Terms of Reference, please kindly download the file in the link provide below. Thank you.

<https://drive.google.com/file/d/1CDqtYc9glWsyUC-71iMojXFfa10h84iY1/view?usp=drivesdk>

**Created by** Harvin Bob P. Puno

**Date Created** 11/08/2021

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## **TERMS OF REFERENCE**

### **Shared Service Facility for Fabrication Laboratory Establishing the Innovation Laboratory (Integration of Fabrication Laboratory and Artificial Intelligence Laboratory) in Region IV-A Cavite in Support to Technology- Driven Macro, Small, and Medium Enterprises in the Region**

#### **I. Background**

De La Salle University Dasmariñas was established on July 18, 1977, as a private nonsectarian tertiary school named General Emilio Aguinaldo College-Cavite and managed by the YamanLahi Foundation. In 1987, ownership and management were transferred to Frère (St.) Bénilde Romançon Educational Foundation Inc., a sister corporation of De La Salle University-Manila. It became a Catholic institution under the name De La Salle University-Emilio Aguinaldo College. In 1992, the name DLSU-EAC was changed to De La Salle University-Aguinaldo. In 1997, the institution's name was changed again. It is now called De La Salle University – Dasmariñas to avoid confusion with the Emilio Aguinaldo College Cavite campus. DLSUD aims to provide exceptional education and holistic trainings to its students, thus, the College of Engineering, Architecture, and Technology (CEAT) always ensure to give quality education through its upgraded curriculum, effective instruction, and state of the art facilities. The Engineering Department holds the Center for Development for degree program in electronics engineering and level 2 PAASCU in civil, industrial, electronics, and mechanical engineering courses. With this, many industries in the region partner with the university and thus, the research units of the college continuously develop various researches and prototypes such as disc cracker testing machine, solar boat, four station loading machine for disc gauge testing, and others. These technologies are produced by the CEAT Center of Innovation (CCOI) under the guidance of the experts in the said department.

The CEAT Center of Innovation (CCOI) is a startup project whose main purpose is to help industry partners and other partner communities solve problems associated with launching a startup project by providing a space to work, mentoring, training and other benefits.

#### **II. Project Location and Contact Persons**

##### **Project Location:**

Lower Ground, New CEAT Building,  
De La Salle University – Dasmariñas,  
Dasmariñas City, Cavite

##### **Contact Persons:**

Revelyn A. Cortez  
OIC-Provincial Director  
DTI Cavite Provincial Office  
Email: RevelynCortez@dti.gov.ph



Rebecca S. Tarasona  
OIC-Chief Trade-Industry Development Specialist  
DTI Cavite Provincial Office  
Email: RebeccaTarasona@dti.gov.ph

Rico P. Chavez  
Senior Trade-Industry Development Specialist  
DTI Cavite Provincial Office  
RicoChavez@dti.gov.ph

Engr. Rizaldy de Armas  
Dean, College of Engineering, Architecture, and Technology  
De La Salle University – Dasmariñas  
Mobile No.: 0927-487-7935

### **III. Approved Budget for the Contract (ABC)**

The Approved Budget for the Contract (ABC) is Twenty-Four Million Six Hundred Twenty-Five Thousand Eighty-Six Pesos and Ninety-Eight Centavos (Php 24,625,086.98).

### **IV. Scope of Work and Deliverables**

The assistance required for the DTI-SSF is the direct infusion of capital equipment by way of infusing machineries into one facility stated herein.

The program shall entail the supervision, and coordination of all activities for the supply and delivery of equipment for the Shared Service Facility of the College of Engineering, Architecture, and Technology of De La Salle University Dasmariñas which shall include the following parameters.

#### **1. Scope of Work**

- Deliver, install, and commission the machineries equipment required within sixty-five (65) days from issuance of notice to proceed or the signed contract agreement.
- Supervision during the installation of the machineries, to include trial testing required at the cost of the External Provider.
- Provide a minimum prescribed number of training hours for the machine operation, to a minimum of 5 workers/participants.
- Provide manual of operation and handouts on the proper care and use of the facility.

#### **2. Deliverables**

- Complete SSF machines shall be fully delivered at the identified location of the contract.
- Check payment and issuance of acknowledgment receipt for equipment upon delivery and acceptance of the property.
- Test-run of the machines to be conducted and its documentation (recording of test result/parameter in accordance to item number 5.
- Training of personnel on machine operation, maintenance and troubleshooting in accordance to item number 5.

# **V. Technical Specifications**

Item No.	Qty.	Unit	Item Description	Unit Cost	Amount
1	1	set	<p><b>Complete Metal 3D Printing System</b></p> <p>An accessible end-to-end Metal 3D printing solution designed to yield functional metal parts. With a separate unit for wash and sinter.</p> <p><b>Applications:</b></p> <ul style="list-style-type: none"> <li>• Functional Prototyping</li> <li>• Jigs &amp; Fixtures</li> <li>• Repair &amp; Replacement parts</li> <li>• Complex metal parts</li> <li>• Low volume production</li> </ul> <p><b>System Inclusions:</b></p> <p>I. 1 unit Metal 3D Printer</p> <p>II. 1 unit Wash Station (for debinding)</p> <p>III. 1 unit Sintering Furnace</p> <p><b>I. Metal 3D Printer</b></p> <ul style="list-style-type: none"> <li>• Print Technology: Material Extrusion, Metal Fused Filament Fabrication</li> <li>• Build Size (LxWxH): At least 300mm x 200mm x 180mm</li> <li>• Material Type: Spool -based</li> <li>• Z Resolution: must be able to reach 50 microns, 125microns</li> <li>• Printer must be able to print with a width of 0.3mm.</li> <li>• Print Chamber: Heated chamber to ensure controlled environment during printing</li> <li>• Print bed: Heated, vacuum-sealed print sheet, auto bed leveling</li> <li>• The print bed will auto-calibrated at preprint stage</li> <li>• Print System: 2 Nozzles - Metal Material and Support Release</li> <li>• Different layers settings do not require any nozzle change.</li> <li>• Different metal materials do not require any nozzle change.</li> </ul>	12,568,000.00	12,568,000.00

		<ul style="list-style-type: none"> <li>• System contains out-of-material detection</li> <li>• System contains build-in vacuum Sealed function to secure print sheet</li> <li>• Part will be printed on the print sheet, for ease removal purpose</li> <li>• Printer must be able to lay both materials in the XY plane.</li> <li>• Controller: System uses build in touch screen controller to control system</li> <li>• Materials Compatibility: At least Stainless Steel, Tool Steel, Titanium, Inconel, Copper, etc.</li> <li>• Supplied Software: Compatible Slicing Software with Security Two-factor authentication, org admin access, single sign-on</li> <li>• Software Compliance: ISO 27001</li> <li>• Printer are capable of printing infill part or solid parts</li> <li>• The system is able to print and sinter successfully for vertical wall thickness &gt;4mm and solid parts &gt;5mm.</li> <li>• Electrical Requirements: 220-240 VAC, 50-60HZ, Single Phase</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• 1 unit Vacuum Built Plate (Proprietary)</li> <li>• 200cc Stainless Steel 17-4PH Material (Proprietary)</li> <li>• 200cc Ceramic Release Material (Proprietary)</li> <li>• 200cc Copper Material (Proprietary)</li> <li>• 3 pcs. Metal quick-change nozzles (Proprietary)</li> <li>• 3 pcs. Release quick-change nozzles (Proprietary)</li> <li>• 1 unit 5KVA UPS</li> </ul> <p><b>II. Washing Station</b></p> <ul style="list-style-type: none"> <li>• The Debinder must be able to accommodate and debind parts of size greater than or equal to the maximum extruded part size that the printing system printed.</li> </ul>		
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		<ul style="list-style-type: none"> <li>• Washing Size: at least 356 x 254 x 203 mm</li> <li>• Washing Volume: not be less than 18,000 cubic cm (1120 cubic in)</li> <li>• The debinder uses a common nonproprietary and readily available fluid which is approved to be used in Philippines</li> <li>• Wash Fluid: Open Source non-proprietary, Available Locally</li> <li>• Controller: Integrated Control System</li> <li>• Work holding: Stainless Steel Basket</li> <li>• Wash system requires external exhaust</li> <li>• The Debinder Must have a Close-Loop Solvent Circulation System to eliminate Fume Exhaust</li> <li>• The debinder must have distillation system, in order to keep the efficiency of the process</li> <li>• System contains cool coil, and it helps to separate the solvent and condensed water</li> </ul> <p><b>Safety Management includes:</b></p> <ul style="list-style-type: none"> <li>• High vapour Shutoff</li> <li>• Over-temperature Shutoff</li> <li>• Low fluid level Shutoff</li> <li>• Electrical Requirement: 220-240 VAC, 60Hz, single phase</li> </ul> <p><b>III. Sintering Furnace</b></p> <ul style="list-style-type: none"> <li>• System contains express sinter function, its cycle is less than 17 hours</li> <li>• Featuring 4760 cubic cm of working volume, The Sinter effortlessly converts washed parts into their dense final metallic form.</li> <li>• The Sintering Capacity must be at least Cylindrical - 141 mm ID x 305 mm Length</li> <li>• Sintering volume is not less than 4700 cm<sup>3</sup></li> <li>• All metal materials from printing system are able to be sintered in furnace</li> </ul>		
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		<ul style="list-style-type: none"> <li>• Kanthal is the heating element for system</li> <li>• It must be carbon free retort to maintain right steel compound</li> <li>• Furnace is a carbon free retort system</li> <li>• Maximum Sintering Temperature 1,300 °C</li> <li>• Sinterable volume temperature uniformity is +/- 5 °C</li> <li>• Gas Type: Inert and Mix Gases non-proprietary, Available locally</li> <li>• Gas Requirement: Mixed Gas - 2.9% hydrogen 97.1% Argon, Pure Argon gas</li> <li>• The External Provider shall ensure the installation of pressurized cylinders in compliance with DOLE safety requirements or manufacturer safety standards.</li> <li>• System allows Auto gas supply changeover</li> <li>• The Sinter come with inlet gas filtration system</li> <li>• The Sinter come with outlet gas filtration system</li> <li>• Exhaust Rate (m3/min or CFM) &lt;150 CFM, &gt;100CFM</li> <li>• The furnace unit must have clear visible signage to inform user of ongoing sintering, and ensure its door is securely locked during sintering to prevent accidents for users.</li> <li>• Sinter machine should comes with gas panel from OEM</li> <li>• System can be monitored by software, and the user is able to check via the internet.</li> <li>• The normal sintering cycle should consume &lt; 30 hours</li> <li>• Sinter machine can help on annealing process (optional for material)</li> <li>• Furnace contains temperature sensor</li> <li>• Furnace contains moisture sensor</li> <li>• Furnace contains pressure sensor</li> </ul>		
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		<ul style="list-style-type: none"> <li>• System contains a self-diagnose function at the pre sintering stage.</li> <li>• System use touch screen controller to control it</li> <li>• Electrical Requirement: Single Phase, 200-240 VAC 30A, 50-60Hz</li> <li>• Gas Supply Panel Mounting Requirement: - Cryogenic liquid cylinder + gas cylinder footprint: 1.40m (55in) wide, 700mm (27in) deep at cryogenic liquid cylinder, 300mm (12in) deep at gas cylinder.</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• 2 units Argon</li> <li>• 2 units Mixed Gas</li> <li>• 2 buckets Opteon Fluid</li> </ul> <p><b>Software</b></p> <ul style="list-style-type: none"> <li>• OS requirements:</li> <li>• Windows: 7 or later</li> <li>• Mac: OS X Yosemite version 10.10 or later</li> <li>• All operating systems must be 64-bit for proper use</li> <li>• File Format Compatibility: .stl</li> <li>• Any 3D CAD Software that is compatible with .stl format is acceptable.</li> <li>• The information Security Management System must conform to the requirements of ISO/IEC 27001</li> <li>• The Information Security Management System (ISMS), is to appropriately</li> <li>• preserve privacy, confidentiality, integrity, and availability (CIA) of the manufacturers information assets, including, but not limited to, its and its clients' intellectual property.</li> <li>• The software used should leverage FIPS 140-2 compliant encryption standards. All data is in transit using TLS. HTTPS is required for all services, including vendors' public website and cloud applications. Additionally, part files are protected with data encryption at rest by</li> </ul>		
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			<p>encrypting the Amazon Web Services (AWS) Simple Storage Service (S3) buckets where part files are stored using AES-256. Vendors shall implement controls to appropriately limit the creation, storage, usage, and deletion of encryption keys</p> <ul style="list-style-type: none"> <li>• All print files sent to printers are formatted as encrypted format, containing details about the part geometry, orientation, and fiber and material layout. This means that encrypted files transferred from software to printers by USB mass storage devices are secured via encryption.</li> <li>• The slicing software provides users with the option to enable two-factor authentication (2FA) for additional security. The 2FA utilizes time-based one time passwords (TOTP) and can be configured using well known 2FA apps like Google Authenticator. User passwords are securely hashed, salted, and stored using AWS Cognito, which employs the SRP protocol.</li> <li>• The software development lifecycle (SDLC) employs manual code reviews and automated integration testing before each deployment. Several pre-release environments are used for quality assurance and testing prior to releasing any code to production. Vendor utilizes a continuous deployment model, which allows customers to immediately benefit from new functionality, vulnerability remediation, and bug fixes.</li> <li>• Slicing software support Multi-Factor Authentication using Time-Based One Time Password (TOTP) Apps</li> <li>• The 3D printing software shall be able to import 3D models from major CAD software in STL format</li> </ul>		
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		<ul style="list-style-type: none"> <li>• The 3D Printing software shall include slicing tools with integrity checking for 3D printing</li> <li>• The 3D printing software shall be able to monitor and control the printing parameters.</li> <li>• The software must be able to calculate printing time, wash time and consumables usage during preprocessing of each print job.</li> <li>• The Software must be able to show the material printing route and release ceramic layer in 2d and 3d, so that it can be manipulated</li> <li>• The 3D printing software must be able to manage multiple printers, wash and sinter machines</li> <li>• The software must be able to host different users in the same virtual organization</li> <li>• The software must provide a library setting so that users can share parts</li> <li>• The software must provide a dashboard so that users can monitor their utilization of printer time and other statistics</li> <li>• User is able to monitor printing status via live Corp image from live camera</li> <li>• Software must be allowed users to start prints remotely on printers within the same organization</li> <li>• The software must be ability to download the printer logs remotely</li> <li>• The software must send an email notification if there this an out of material incident of when the spools runs out during a print</li> <li>• The Software must be able to allow the user to open a support request directly from the software UI</li> <li>• Users are able to add ceramic released layer as needed</li> <li>• User can manipulate either printing with raft, or w/o raft</li> <li>• User can manipulate either printing with support, or w/o support</li> <li>• Metal printing is available for chunkable support structure</li> </ul>		
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			<ul style="list-style-type: none"> <li>• Design scale will enlarge per axis automatically to compensate shrinkage from actual process</li> <li>• Wall thickness is adjustable via software</li> <li>• Solid printing function is available</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Installation: All installation costs and other incidental cost and activity will be shouldered by the winning bidder (Ventilation, construction, finishing, etc.)</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty</li> </ul>		
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			<p>and has available technical support locally.</p> <ul style="list-style-type: none"> <li>Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> <li>English Operations Manual included</li> </ul>		
2	1	unit	<p><b>Carbon Fiber 3D Printer – Desktop Series</b></p> <p>Print Continuous Carbon Fiber reinforced parts on your desktop – stiff, strong, extremely durable, and capable of replacing machined aluminum.</p> <p><b>Applications:</b></p> <ul style="list-style-type: none"> <li>Functional Prototyping</li> <li>Jigs &amp; Fixtures</li> <li>Stamping Dies</li> <li>Repair &amp; Replacement parts</li> </ul> <p><b>Specifications:</b></p> <ul style="list-style-type: none"> <li>Print Technology: Continuous Fiber Reinforcement (CFR)</li> <li>Build Volume: at least 320 x 130 x 150 mm</li> <li>Layer Height: 100 Micron or better</li> <li>Slicing Software: With Cloud control and Two-factor authentication</li> <li>Nozzle System: Dual Extruder, out of plastic detection</li> <li>Print System: 2 Nozzles - One for Base Material and One for Reinforcement Material</li> <li>Power Requirements: 100–240 VAC, 150 W (2 A peak)</li> <li>Printing Materials: Base Filaments - Onyx, Nylon,</li> <li>Reinforcement Fiber - Carbon Fiber, Fiberglass, High Strength High Temperature Fiberglass, Kevlar</li> <li>Print Bed: Kinematic coupling — flat to within 160 micron</li> <li>The print bed must use kinematic coupling to provide precision and certainty of location, enabling pausing and removal of bed mid-print</li> </ul>	1,856,000.00	1,856,000.00

		<ul style="list-style-type: none"> <li>• Material Tensile Strength: 800 MPa (25.8x ABS, 2.6x 6061-T6 Aluminum)</li> <li>• Material Tensile Modulus: 60 GPa (26.9x ABS, 0.87x 6061-T6 Aluminum)</li> <li>• Infill: Closed cell infill: multiple geometries available</li> <li>• The print bed has the ability to be decoupled and recoupled with 10 microns repeatability during the middle of a print</li> <li>• A fiber cutting blade must be integrated inside the printhead and controlled automatically by software.</li> <li>• Printer must be able to embed fiber into prints, and the width of the fiber extrusion must be no more than 0.9mm</li> <li>• Fiber must be able to be placed in a wall with 2.8mm thickness</li> <li>• When the printer is laying down fiber, it must be able to turn the fiber direction and lay down continuously with maximum 180 degrees</li> <li>• The printer must be able to print in any selectable resolution without changing the printhead or nozzles.</li> </ul> <p><b>Software:</b></p> <ul style="list-style-type: none"> <li>• File Format Compatibility: .stl Any 3D CAD Software that is compatible with .stl format is acceptable.</li> <li>• The information Security Management System must conform to the requirements of SO/IEC 27001</li> <li>• The Information Security Management System (ISMS), is to appropriately</li> <li>• preserve privacy, confidentiality, integrity, and availability (CIA) of the manufacturers</li> <li>• information assets, including, but not limited to, its and its clients' intellectual property.</li> <li>• The software used should leverage FIPS 140-2 compliant encryption</li> </ul>		
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		<p>standards. All data is in transit using TLS. HTTPS is required for all services, including vendor's public website and cloud applications. Additionally, part files are protected with data encryption at rest by encrypting the Amazon Web Services (AWS) Simple Storage Service (S3) buckets where part files are stored using AES-256. Vendors must implement controls to appropriately limit the creation, storage, usage, and deletion of encryption keys.</p> <ul style="list-style-type: none"> <li>• All print files sent to printers are formatted as encrypted format, containing details about the part geometry, orientation, and fiber and material layout. This means that encrypted files transferred from software to printers by USB mass storage devices are secured via encryption.</li> <li>• The slicing software provides users with the option to enable two-factor authentication (2FA) for additional security. The 2FA utilizes time-based one time passwords (TOTP) and can be configured using well known 2FA apps like Google Authenticator or Authy. User passwords are securely hashed, salted, and stored using AWS Cognito, which employs the SRP protocol.</li> <li>• The software development lifecycle (SDLC) employs manual code reviews and automated integration testing before each deployment. Several pre-release environments are used for quality assurance and testing prior to releasing any code to production. Vendor utilizes a continuous deployment model, which allows customers to immediately benefit from new functionality, vulnerability remediation, and bug fixes.</li> </ul>		
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		<ul style="list-style-type: none"> <li>• The 3D printing software must be able to import 3D models from any major CAD software in STL format</li> <li>• The 3D Printing software must include slicing tools with integrity checking for 3D printing</li> <li>• The 3D printing software must be able to monitor and control the printing parameters, including layer thickness, infill type and material choice</li> <li>• The software must be able to calculate printing time and consumables usage during preprocessing of each print job.</li> <li>• The software must be able to calculate the cost of each part during preprocessing of each print job</li> <li>• The software must be able to show the continuous fiber routing in 2d and 3d, so that it can be manipulated.</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• 1 pc. 3D Printer Kit</li> <li>• 1 pc. True Print Bed</li> <li>• 1 pc. Filament Drybox</li> <li>• 800cc Onyx Spool</li> <li>• 100cc Carbon Fiber</li> <li>• 50cc Fiberglass</li> <li>• 50cc Kevlar</li> <li>• 50cc HSHT</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation,</li> </ul>		
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			<p>maintenance and service. The External Provider does not need to outsource the job.</p> <ul style="list-style-type: none"> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> <li>• Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> <li>• English Operations Manual included</li> </ul>		
3	1	unit	<p><b>Large-Scale FDM 3D Printer</b></p> <ul style="list-style-type: none"> <li>• Fully Enclose large scale 3D Printer with Dual Extruder</li> <li>• Technology: Fused Deposition Modeling (FDM)</li> <li>• Build Size: at least 1200 x 600 x 630mm</li> <li>• Filaments Size: 1.75 mm, Open Source</li> <li>• Extruder: Dual Print Head</li> <li>• Nozzle Diameter Available: 0.4, 0.6 &amp; 0.8 mm brass Volcano nozzles</li> <li>• Enclosure: Fully Enclosed made of 3mm black Aluminum Composite Panels (ACP)</li> <li>• 3D Printer Controller: 7-inch touchscreen – integrated with the controller</li> <li>• Connectivity: WIFI web access for remote control from either mobile or PC allowing users to upload print files directly from their workstation</li> </ul>	1,118,000.00	1,118,000.00

		<ul style="list-style-type: none"> <li>• SD card slot and USB</li> <li>• Motion System: Linear guide rails</li> <li>• Position accuracy: X-10 Micron, Y-10 Micron, Z-0.5 Micron</li> <li>• Print speed – Normal quality 60 mm/sec, Draft 100 mm/sec, Calculated for 0.4 nozzle.</li> <li>• Print Bed; heated, Tempered Glass</li> <li>• Max temperature: 120 degree Celsius</li> <li>• Calibration: Auto Bed Leveling</li> <li>• Software: Open source Duet RepRap firmware. The leading firmware for 3D printing allowing numerous configurations and easy customization using the macro system.</li> <li>• File Format Compatibility: .stl Any 3D CAD Software that is compatible with .stl format is acceptable.</li> <li>• Filament Run-Out Sensor – The filament run-out detection sensor will pause the print job when the filament has been used up.</li> <li>• Open Filament – Any filament from any vendor can be used.</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• 1 set 3D Printer Kit</li> <li>• 2 spools ABS Filament Spool, 1kg</li> <li>• 1 set Enclosure</li> <li>• 1 unit 2nd Print Head</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and</li> </ul>		
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			<p>capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</p> <ul style="list-style-type: none"> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer,</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> <li>• Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> <li>• English Operations Manual included</li> </ul>		
4	1	Set	<p><b>FDM 3D Printer (5 Units)</b></p> <ul style="list-style-type: none"> <li>• Print Technology: Fused Deposition Modeling (FDM)</li> <li>• Build Volume: at least 250x210x190mm</li> <li>• Filaments Size: 1.75 mm, Open Source</li> <li>• Extruder: Single</li> <li>• Layer Resolution: 0.05-0.3 mm</li> <li>• Print Speed: 20~150mm/s</li> <li>• Supported Materials: ABS, TPU, PLA, HIPS, etc.</li> <li>• Ambient Operating Temperature: 8°C - 40°C</li> <li>• Operational Extruder Temperature: max 260°C</li> <li>• Operational Print Bed Temperature: max 100°C</li> <li>• Software Input Formats: .STL, .OBJ, JPG, PNG</li> </ul>	205,000.00	205,000.00



		<ul style="list-style-type: none"> <li>Any 3D CAD Software that is compatible with Software Input Formats is acceptable.</li> <li>Connectivity: SD Card; USB cable</li> <li>Printer Dimensions: 454mm×466mm×410mm</li> <li>Net Weight: ~18.8kg</li> </ul> <p><b>Package Inclusion per unit:</b></p> <ul style="list-style-type: none"> <li>1 Spool of 1kg. PLA Filaments</li> <li>3D Printer Kit</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty</li> </ul>		
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			<p>and has available technical support locally.</p> <ul style="list-style-type: none"> <li>Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> <li>English Operations Manual included</li> </ul>		
5	1	unit	<p><b>Compact CNC Milling System</b></p> <p>To cut challenging materials like titanium as well as softer materials such as aluminum, plastic and wood.</p> <ul style="list-style-type: none"> <li>Operating Range: at least X: 356mm (14in); Y: 191mm (7.5in); Z: 337mm (13.25in)</li> <li>Table Size: At least 660mm x 200 mm;</li> <li>Feed Rate: XY: At least 135 inches per min; Z: At least 110 inches per minute</li> <li>Three Table Slots: 15.9 mm</li> <li>Spindle Power: 1.5 hp</li> <li>Speed: At least 10,000 RPM</li> <li>Spindle Nose to Table Max Clearance: 330mm</li> <li>Spindle Centerline to Machine Column: 215 mm</li> <li>Tapping: Tension/Compression, Auto-Reversing, Treadmill</li> <li>Spindle Taper: R8</li> <li>Machine Controller: Support for up to four axis continuous machining, conversational programming, Usable G-Code Memory: Brix Controller: 80 GB / Controller Operator Console: 40 GB, Built-in Dropbox</li> <li>Power Requirements: Single-Phase 115Vac, 50/60Hz, 15A Breaker Voltage regulator included</li> <li>Materials Compatibility: Titanium, Steel, Aluminum, Plastic, Composites, Wood, PCB Boards.</li> <li>Machine Dimension: 1500 mm x 1300 mm x 2300 mm</li> <li>Machine Weight: 450 kg</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>Full Machine Enclosure</li> </ul>	1,900,000.00	1,900,000.00

		<ul style="list-style-type: none"> <li>• Heavy Duty Steel Stand with Chip Tray and Coolant Tank</li> <li>• System Controller with Water proof Mouse, keyboard, LCD Screen, Jog Shuttle Controller</li> <li>• Pneumatic Drawbar Kit</li> <li>• 18 Piece Carbide End Mill Kit. Includes Square, Ball and .030 in. Radius Carbide End Mills with TiAlN Coating. Recommended for steel machining.</li> <li>• 14 Piece Carbide End Mill Kit. Includes Square, Ball and .030 in. Radius Carbide End Mills with Bright Finish. Recommended for aluminum machining.</li> <li>• Complete kit of Operator Set for Cooling System quick change tool holders</li> <li>• Coolant Kit (1/8 hp) flushes chips and swarf from the cutting zone.</li> <li>• Automatic Tool Change 10 pocket, umbrella-style automatic tool changer air compressor</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> </ul>		
		<ul style="list-style-type: none"> <li>• Training and Installation: 5 days onsite training and installation for atleast 5 personnel. Attached</li> </ul>		



			<p>training certificate provided by manufacturer's certified trainer.</p> <ul style="list-style-type: none"> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> <li>• Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> <li>• English Operations Manual included</li> </ul>		
6	1	unit	<p><b>80 Watts CO2 Laser Cutter/Engraver</b></p> <p>Open architecture offers the versatility you need for endless product creation. Customize items of all sizes; as small as a peanut to a large granite memorial.</p> <ul style="list-style-type: none"> <li>• Engraving Area: 710 x 400 mm (Continuous Feed)</li> <li>• Focal Lens: 2 Inches</li> <li>• Laser Wattage: 80 watts</li> <li>• Cooling System: Utilize a uniquely integrated, self-contained cooling system.</li> <li>• Laser Tubes: Glass tubes</li> <li>• Resolution: User controlled from 75 to 1200 dpi</li> <li>• Operating Modes: Raster, vector or combined modes</li> <li>• Motion Control: continuous-loop, DC servomotors</li> <li>• Print Interface: Ethernet or USB connection</li> <li>• Auto focus (Automatically focus the engraving table to the correct focal distance.)</li> <li>• Features: Removable Laser Top, EZ Leveling system</li> </ul>	2,200,000.00	2,200,000.00



		<ul style="list-style-type: none"> <li>• operating systems: Windows® XP/7/8/10 32-bit and 64-bit</li> <li>• Memory Controller: standalone controller with 128MB of independent memory allows for processing and storage of large sized files.</li> <li>• Starting Positions: 9 different starting positions in reference to the image or file to be engraved or cut, breaking the confines of a "home position</li> <li>• Resolution: Up to 1000dpi, The standard 2 inch condensing lens has a point of impact of .003 inches, allowing for approximately 300 dpi.</li> <li>• Operating Mode: Engrave (faster) mode will engrave bitmap images and/or vector files. Cut mode cuts or traces vector file formats.</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• Air Compressor</li> <li>• Floor Stand or Utility Carriage</li> <li>• Rotary attachment</li> <li>• Air Assist</li> <li>• Exhaust</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for at</li> </ul>		
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			<p>least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</p> <ul style="list-style-type: none"> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> <li>• Attached certification of parts availability issued by the manufacturer for the project.</li> <li>• English Operations Manual included</li> </ul>		
7	1	unit	<p><b>Handheld 3D Scanner</b></p> <p>Hand-held 3D scanner meant to capture medium and large objects; with built-in touchscreen for ease-of-use during scanning.</p> <ul style="list-style-type: none"> <li>• 3D point accuracy: Up to 0.1 mm</li> <li>• Accuracy over distance: Up to 0.1 mm over 1 m</li> <li>• 3D resolution: Up to 0.6 mm</li> <li>• Texture resolution: 2.3 MP or better</li> <li>• 3D Light source: White LED</li> <li>• Frame Rate: 25-30 fps</li> <li>• Linear Field of View HxW @ closest range: 280 × 360 mm; Linear Field of View HxW @ furthest range: 490 × 650 mm;</li> <li>• Data acquisition speed up to: 3 mln points /sec</li> <li>• Multi core processing: Yes;</li> <li>• 3D Formats: OBJ, PLY, STL, etc.</li> <li>• Software: Include license operating software that can Fill holes, simplify the mesh, apply texture.</li> <li>• Interface: Built in touchscreen - 4 inches</li> </ul>	650,000.00	650,000.00

		<ul style="list-style-type: none"> <li>• Tracking Modes; Geometry, Markers, Texture</li> <li>• Capable of scanning: Black surfaces, Glossy objects, Sharp edges, Human hair</li> <li>• Weight: 0.9 kg (1.9 lb.) or equivalent</li> <li>• Dimensions: 165 × 85 × 274 mm</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• 1x Software</li> <li>• 1x Carry Case</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty</li> </ul>		
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			<p>and has available technical support locally.</p> <ul style="list-style-type: none"> <li>• Attached certification of parts availability issued by the manufacturer for the project.</li> <li>• English Operations Manual included</li> </ul>		
8	1	unit	<p><b>Filament Maker</b></p> <p>The unique vertical extrusion setup in the filament makers ensures precise roundness and accurately guides the filament to the spool.</p> <p>A dual air cooling system, with adjustable fan speeds and positions, ensures optimal cooling settings for the materials you work with. A sophisticated optical sensor and a dynamic puller system work together to achieve a diameter precision tolerance of +/- 0.05mm*.</p> <ul style="list-style-type: none"> <li>• Temp. Peek Point: 450°C</li> <li>• Filament Type: Benchtop</li> <li>• Heating Zones: 4 – Independent Controllable</li> <li>• Mixing screw: High-flow screw</li> <li>• Extrusion Data Analysis: Real-time</li> <li>• Extrusion Direction: Vertical</li> <li>• Compatible Materials: PLA, ABS, PC, PS, PETG, TPU, TPE, PPS, PVA, Bio PE, NEW</li> <li>• PET, PA (6,12, 66), PEEK, PC, PS, PEKK, PAEK, PEI, PSU, PES, PTFE, PVD+, and many more</li> <li>• RPM Range: up to 15 rpm</li> <li>• Filament Diameter Range: 0.5 – 3 mm</li> <li>• Sensor Accuracy: 43 microns (1.69 mils)</li> <li>• Nozzle extruder: Diameter 4 mm (0.16 inches)</li> <li>• Replaceable</li> <li>Screw Barrel Alloy: High chromium and molybdenum steel alloy -Nitride – 3 stage Compression</li> <li>• Dimension: 506 x 448 x 216 mm or equivalent</li> </ul>	900,000.00	900,000.00



		<ul style="list-style-type: none"> <li>• Weight: 24.5 or equivalent</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• 10 Spools</li> <li>• 1200g Pouch PLA</li> <li>• 1x Spool Holder</li> <li>• 1x Extra Nozzle Package 4mm</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> <li>• Attached certification of parts availability issued by the manufacturer for the project.</li> </ul>		
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9	1	unit	<ul style="list-style-type: none"> <li>English Operations Manual Included</li> </ul> <p><b>Multi Tool 3D Printer</b></p> <p>Toolhead Technology: FDM/FFF, CNC Milling, Laser Engraving and Cutting, Paste Extrusion</p> <p><b>I. 3D Printing Parameters: Fused Filament Fabrication (FFF)</b></p> <ul style="list-style-type: none"> <li>Work Area: at least 230 x 250 x 165 mm</li> <li>Toolhead: Single Extruder Toolhead 1.75, Dual Extruder Toolhead</li> <li>Layer Resolution: 0.05 - 0.4 mm or better</li> <li>Bed temperature: at least 115°C</li> <li>Printing temperature: at least 250 °C</li> <li>Work area leveling method: Automatic, Manual</li> <li>Available Materials: PLA, ABS, PET, Nylon, PVA, HIPS, ASA, TPE, PP, PC, PMMA, PC/ABS</li> <li>Support structures: Mechanically and chemically removed - printed with the same material as the model</li> <li>Material diameter: 1.75mm, 3.00mm</li> <li>Connectivity: USB, Ethernet, SD card</li> <li>Third party materials: Applicable, open source</li> </ul> <p><b>II. CNC Milling Parameters: Toolhead CNC Spindle</b></p> <ul style="list-style-type: none"> <li>Work Area: at least 230 x 250 x 80 mm</li> <li>Travel Speed: at least 120 mm/s</li> <li>Available Materials: ABS, Nylon, HDPE, PTFE, PC, PP, POM, PMMA, PVC, HIPS, LDPE, PET, Carbon, CCL FR4, Dibond, TCF, Wood, Wood-like, Aluminum, Brass, Copper, Cardboard, Wax, Modeling board, Styrofur</li> <li>Spindle max power: 300W</li> <li>Work area leveling method: Manual</li> <li>Tool holding: ER-11 collet</li> </ul>	450,000.00	450,000.00
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		<p><b>III. Laser Engraving/Cutting</b> <b>Parameters: Tool head laser</b></p> <ul style="list-style-type: none"> <li>• Laser spot size for 50mm 0.1 x 0.1 mm</li> <li>• Laser spot size for 80mm 0.1 x 0.18 mm</li> <li>• Work Area: at least 230 x 250 x 80 mm</li> <li>• Software Supported files: .stl, .obj, .step, .dxf, .png, .bmp Filter type: HEPA/Carbon</li> <li>• Laser Power: 2.8W</li> <li>• Wavelength: 450nm</li> <li>• Laser class: 4</li> <li>• Available Materials: Wood, wood-like, leather, paper, cardboard, felt, foil, laminate, EPP, EVA Foam, CCL FR4</li> <li>• Software: The all-in-one software for 3D printing, CNC milling, and laser engraving and cutting.</li> <li>• Supported File Types: .stl, .obj, .step, .dxf, .png, .bmp</li> <li>• Supported Operating Systems: Windows 7/10 (64 bit) (or higher) / macOS 10.13 (or higher)</li> <li>• Software Feature: features CAM-standard workflow for CNC procedures with STEP operations, ability to change the tool within one G-code, and path visualization.</li> <li>• Machine Dimension: 520 x 500 x 570mm or equivalent</li> <li>• Weight: 30kg or equivalent</li> <li>• Electrical Requirements: 100 [VAC] ~ 4 [A] 50/60 [Hz] 240 [VAC] ~ 2 [A] 50/60 [Hz]</li> <li>• Voltage regulator included</li> <li>• Filtration Parameters: HEPA/Carbon, 1.54 Ventilation Power</li> </ul> <p><b>Accessories Included:</b></p> <ul style="list-style-type: none"> <li>• 1 unit 1.75 mm Plastic Extruder with 0.3 mm nozzle</li> <li>• 1 unit Dual Plastic Extruder with Mixer hot end</li> <li>• 1 unit CNC Milling toolhead</li> </ul>		
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		<ul style="list-style-type: none"> <li>• 1 unit Laser PRO toolhead (2.8 W)</li> <li>• 1 unit Thick Paste Extruder</li> <li>• 1 unit Heated worktable for 3D printing</li> <li>• 1 unit CNC Worktable for milling and cutting</li> <li>• 1 unit Dust Collector</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for atleast 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> <li>• Attached certification of parts availability issued by the manufacturer for the project.</li> </ul>		
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10	1	Unit	<ul style="list-style-type: none"> <li>English Operations Manual included</li> </ul> <b>Integrated Services Router Bundle 1 and 2</b>	563,544.58	563,544.58
			<b>Bundle 1:</b> <ul style="list-style-type: none"> <li>4221 Integrated Services Router (2GE, 2NIM, 8G FLASH, 4G)</li> <li>SNTC-8X5XNBD (2GE, (12))</li> <li>IP Base License Integrated Services Router 4000 Series</li> <li>AC Power Supply</li> <li>AC Power Cord</li> <li>Blank Faceplate for NIM SLOT compatible</li> <li>Universal</li> <li>CATALYST 2960 PLUS 24 10/100 + 2T/SFP LN BASE</li> <li>SNTC-8X5XNBD CATALYST 2960 PLUS 24 10/100 +2T/SFP LA</li> <li>AC Power Cord</li> <li>CONSOLE Cable 6FT WITH RJ45 AND DB9F</li> <li>WIRELESS N (2.4 GHZ) Fast Ethernet 4 Port Switch, High Speed UP TO 300 MBPS</li> </ul> <b>Bundle 2:</b> <ul style="list-style-type: none"> <li>4321 Integrated Services Router (2GE, 2NIM, 4G FLASH, 4GDRAM, IPB)</li> <li>SNTC-8X5XNBD 4321 Integrated Services Router (2GE, 2NIM, 4G FLASH, 4GDRAM, IPB)</li> <li>IP Base License for 4321 Integrated Services Router</li> <li>AC Power Supply for 4321 Integrated Services Router</li> <li>AC POWER CORD TYPE C5, US, CANADA</li> <li>4G Flash Memory for ISR 4300(Soldered On Motherboard)</li> <li>4G DRAM FOR ISR 4320 (Soldered On Motherboard)</li> <li>Blank Faceplate for NIM SLOT ON Integrated Services Router for 4400</li> <li>ISR 4300 SERIES IOS XE UNIVERSAL</li> </ul>		

			<ul style="list-style-type: none"> <li>• CATALYST 2960 PLUS 24 10/100 +2T/SFP LAN BASE</li> <li>• SNTC-8X5XNBD CATALYST 2960 PLUS 24 10/100 +2T/SFP LAN BASE</li> <li>• AC Power Cord C13, NEMA 5-15P, 2.1M</li> <li>• CONSOLE CABLE 6FT WITH RJ45 AND DB9F</li> <li>• WIRELESS N (2.4 GHZ) Fast Ethernet 4 Port Switch, High Speed UP TO 300 MBPS</li> </ul>		
11	1	set	<b>Drone Set Kit Launcher (2 Units)</b> <ul style="list-style-type: none"> <li>• Carbon Fiber Frame: Tarot T960 c/F Folding Hexacopter</li> <li>• Carbon Fiber Frame: Tarot IronMan 1000</li> <li>• Brushless Motors: Tarot 5008 340Kv high power motors</li> <li>• Carbon Propellers: Carbon Propeller 18 x 5.5 PM11029</li> <li>• Electronic Speed Controller: Hobbywing flyfun 40A OPTO PM03002</li> <li>• Flight Controller with GPS and Gyro: DJI Naza-M V2 Multirotor Gyro System with GPS PM04005</li> <li>• 22.2V Battery: Tiger 22.2v 5400mah 35c PB01009</li> <li>• Radio Transmitter with Receiver - FRISKY TARANIS X9D PLUS COMBO PT02022</li> <li>• MINI On Screen Display Module: DJI i OSD Mini on screen Display</li> <li>• Bluetooth Module: DJI Naza M BTU (Bluetooth Unit)</li> <li>• Camera: SJ4000 Action Camera Non Wifi PM02005</li> <li>• FPV System TX 5.8G 200mW FPV Video Audio 8CH AV Transmitter TX 5.8 GHz RX Receiver Set 2KM 2000m</li> <li>• Cable Pack Set               <ol style="list-style-type: none"> <li>1. XT60 and XT90</li> <li>2. 20 Pairs Gold Tone Metal RC Banana Bullet Plug Connector</li> <li>3. AWG Silicone Wire Flexible High Temperature 1m Red and Black</li> </ol> </li> </ul>	415,542.40	415,542.40



			<ul style="list-style-type: none"> <li>4. 20 pairs 3.5mm Gold plated Banana plugs Engine Electronic Connector</li> <li>5. 10pcs 50 cm Servo Extension Cord Cable Lead Wire JR 50cm 26 AWG</li> <li>6. 10 pairs 2 pin JST Plug Socket Connector M to F 110mm Cable Wire Red Black</li> <li>7. Pair of RC XT90 to plug Male to Female Lipo Battery Adapters Charger Cable</li> <li>• FPV System (Monitor and Transmitter) BOSCAM RX-LCD5802 5.8 Dual Diversity 7 white</li> <li>• Battery Charger 15-30V SKYRC D200</li> <li>• Camera Positioning Kit/Gimbal Mounting Rail - Tarot T4-3D 3 Axis FPV Brushless Camera Gimbal</li> <li>• Antenna 5.8 GHz Circular Polarized Mushroom Antenna RP-SMA Set Tx/Rx for Multicopter</li> <li>• FPV System TX - Skyzone TX-5D HDMI to AV Transmitter Module - Black 142193701 with 600mw and 32 channel</li> </ul>		
12	1	unit	<b>PLC Simulation Board with I/O Devices</b> <ul style="list-style-type: none"> <li>• Start, Stop, Emergency Buttons</li> <li>• Conductive and Inductive Sensors</li> <li>• Thru Beam Sensors</li> <li>• Pneumatic Cylinders with 4/3 way Valve</li> <li>• Hydraulic Cylinders with 4/3 way Valve</li> <li>• 24V Stepper Motor with Driver</li> <li>• 24V Servo Motor with Driver</li> <li>• 1 Ball Screw Platform</li> <li>• Load Cell</li> <li>• Pneumatic Control Valve</li> <li>• I2P Converter</li> <li>• Flow Switch and Transmitter</li> </ul> <b>PLC Simulation Board</b> <ul style="list-style-type: none"> <li>• With pneumatic Circuit</li> <li>• Hydraulic Circuit</li> <li>• Servo motor</li> </ul>	1,000,000.00	1,000,000.00

			<ul style="list-style-type: none"> <li>• Stepper motor</li> <li>• Heater, etc.</li> </ul>		
13	1	unit	<b>Design Software Suit Virtual Simulation</b> <ul style="list-style-type: none"> <li>• SCADA license for instructor - Adv Dev Studio</li> <li>• SCADA license for students</li> <li>• Laptop - I58265U processor, 8GB DDR4 memory, 1TB storage, 2GB MX130 Graphics Window 10, 15.6 HD Display</li> <li>• HMI (Touch Panel PC) - 10" widescreen display, aluminum chassis, capacitive touchscreen, Windows 10 LTSB Enterprise</li> <li>• PLC - Supply Voltage 100, 240V AC, 9DI, 2 AI 0, 10V dc7 DO Relay NO, 1 USB A, 1RJ45(serial), 1RJ45 (Ethernet)</li> <li>• Pre-assembled CAT5e cable with RJ45 plugs, 2m</li> <li>• Training kit Assembly - Base frame for TM221CE16R PLC, Front panel with cutout for Aveva 10" Touch Panel PC, with 6 toggle switches</li> <li>• PLC Training</li> <li>• SCADA Training</li> </ul>	799,000.00	799,000.00
<b>Approved Budget for the Contract (ABC)</b>					<b>24,625,086.98</b>

## VI. Commissioning, Training, and Acceptance

- **Acceptance:** The external provider must conform to all specifications requirements and terms and conditions of the project before issuance of Certificate of Acceptance.
- Acceptance certificate signatories should be from DLSU-D and DTI Committee.
- Provide Installation and Training Guidelines/checklist for the conformity of machine performance and parameters of the delivered equipment.

### 1. Complete Metal 3D Printing System

- **Commissioning:** The winning bidders shall provide all materials related to machine installation, construction and all requirements related to the installation of equipment – steel tables, tooling, start-up lubricants, cable ready for connection to electrical supply, connection to gas supply and ventilation and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.
- **Training:** Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (3D CAD Literate) for five (5) days.

- **Acceptance:** The machine shall produce one (1) output product using each material specified in the technical specifications as identified by the Project Team.

## 2. Carbon Fiber 3D Printer – Desktop Series

- **Commissioning:** The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling, cable ready for connection to electrical supply and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.
- **Training:** Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (3D CAD Literate) for two (2) days.
- **Acceptance:** The machine shall produce one (1) output product using each material specified in the technical specifications as identified by the Project Team.

## 3. Large-Scale FDM 3D Printer

- **Commissioning:** The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling, cable ready for connection to electrical supply and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.
- **Training:** Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (3D CAD Literate) for two (2) days.
- **Acceptance:** The machine shall produce one (1) output product using each material specified in the technical specifications as identified by the Project Team.

## 4. FDM 3D Printer

- **Commissioning:** The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling, cable ready for connection to electrical supply and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.
- **Training:** Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (3D CAD Literate) for two (2) days.
- **Acceptance:** The machine shall produce five (5) output product using material specified in the technical specifications as identified by the Project Team.

## 5. Compact CNC Milling System

- **Commissioning:** The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling, start-up lubricants, cable ready for connection to electrical supply, connection to compressed air complete setup and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.



- **Training:** Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (CAD/CAM Literate) for three (3) days.
- **Acceptance:** The machine shall produce five (5) output product using material specified in the technical specifications as identified by the Project Team.

#### 6. 80 Watts CO2 Laser Cutter/Engraver

- **Commissioning:** The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling, ventilation, cable ready for connection to electrical supply, connection to compressed air complete setup and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.
- **Training:** Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (CAD Literate) for three (3) days.
- **Acceptance:** The machine shall produce five (5) output product using material specified in the technical specifications as identified by the Project Team.

#### 7. Handheld 3D Scanner

- **Commissioning:** The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to calibration tools, cable ready for connection to electrical supply and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.
- **Training:** Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (3D CAD Literate) for two (2) days.
- **Acceptance:** The machine shall produce three (3) output product using scanning modes specified in the technical specifications as identified by the Project Team.

#### 8. Filament Maker

- **Commissioning:** The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling, cable ready for connection to electrical supply and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.
- **Training:** Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs for three (3) days.
- **Acceptance:** The machine shall produce two (2) output product using material specified in the technical specifications as identified by the Project Team.

#### 9. Multi Tool 3D Printer

- **Commissioning:** The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited

to tooling, cable ready for connection to electrical supply, connection to dust collector and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.

- **Training:** Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (3D CAD Literate) for two (2) days.
- **Acceptance:** The machine shall produce five (5) output product using material specified in the technical specifications as identified by the Project Team.

## VII. Other Project Terms and Conditions

The External Provider is required to provide all of the following services including additional services, if any, specified in the schedule of requirements:

- Provision of Bidder's accreditation and license.
- Furnishing of detailed operations and maintenance manual for each unit of the supplied machine/equipment.
- Provide at least one (1) year warranty on parts and services. In case machine/equipment breakdown, provide appropriate parts and local technician for the whole duration of contract warranty period. Attached warranty certificate.
- Maintenance: Visit at least once a month onsite machine maintenance for each equipment during warranty period.
- Pre-Delivery Site Inspection: Prior to delivery to client the winning bidder shall conduct installation site inspection.
- Delivery period: Within sixty-five (65) calendar days upon receipt of Notice to Proceed (NTP) and Purchase Order (PO). Free delivery at DLSU-D InnoLab.
- Testing and trial runs: Testing/demonstration of equipment must be done by the External Provider upon delivery. Validating the specifications and performance capability as intended for each machine parameter stated in the technical specifications.
- Transmittal and other pertinent documents should be turn over after commissioning.
- All certifications required in the schedule of requirements/Technical specifications must be attached to the bid.
- The External Provider must secure a certificate of acceptance from End-User and DTI Cavite for the facilitation of payment.

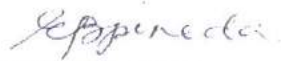
## VIII. Terms of Payment

Full payment within thirty (30) working days after complete delivery, installation, commissioning, inspection and acceptance of all machineries and equipment.

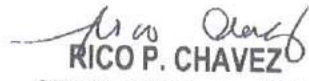
## IX. Tie-Breaking Method

Where, after post-qualification, an occurrence of a tie takes place among bidders determined and declared as the Lowest Calculated and Responsive Bidder (LCRB), the measure to resolve the case is by "toss coin (best of 7)".

Prepared by:



**MA. ESTRELLA NATALIE B. PINEDA**  
Chairperson, Engineering Department,  
CEAT, DLSU-D



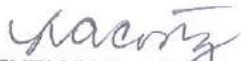
**RICO P. CHAVEZ**  
STIDS, DTI Cavite-BDD

Reviewed by:



**REBECCA S. TARASONA**  
OIC CTIDS, DTI Cavite-BDD

Approved by:



**REVELYN A. CORTEZ**  
OIC Provincial Director, DTI Cavite



**MARILOU Q. TOLEDO**  
Regional Director



## ANNEX A

### CONSUMABLES REQUIRED DURING COMMISSIONING

Machine/Equipment	Consumables
1 Set Complete Metal 3D Printing System	<ul style="list-style-type: none"> <li>• At least 2 Spools 200cc Stainless Steel 17-4PH</li> <li>• At least 2 Spools 200cc D2 Tool Steel</li> <li>• At least 2 Spools 200cc Copper</li> <li>• At least 3 Spools 200cc Ceramic Support</li> </ul>
1 Unit Carbon Fiber 3D Printer – Desktop Series	<ul style="list-style-type: none"> <li>• At least 5 spools 800cc Onyx Spool</li> <li>• At least 2 spool 50cc Carbon Fiber</li> <li>• At least 2 spool 50cc Fiberglass</li> <li>• At least 1spool 50cc Kevlar</li> </ul>
1 Unit Large-Scale FDM 3D Printer	<ul style="list-style-type: none"> <li>• At least 10 Spool 1kg ABS Filaments</li> <li>• At least 10 Spool 1kg PLA Filaments</li> </ul>

## ANNEX B

### DOCUMENTARY REQUIREMENTS FOR SUBMISSION OF BID DOCUMENTS

#### I. TECHNICAL COMPONENT ENVELOPE

##### A. Legal Documents

1. Valid PhilGEPS Registration Certificate (Platinum Membership)
  - Registration certificate from Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives or its equivalent document.
  - Mayor's or Business permit issued by the city or municipality where the principal place of business of the prospective bidder is located, or the equivalent document for Exclusive Economic Zones or Areas; and
  - Tax clearance per E.O. No. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR).

##### **Clarification:**

- a. The Class "A" eligibility documents (Registration Certificate, Mayor's/Business Permit or its equivalent document, Tax Clearance, PCAB license and registration, and Audited Financial Statements) covered by PhilGEPS Registration Certificate are not mandatory attachments (GPPB Resolution No. 18-2017). However, if there is expired document listed in the PhilGEPS Registration Certificate, the renewal of such document must be attached. The complete supporting documents will be validated during the post-qualification process.

##### B. Technical Documents

1. Statement of bidder's all on-going government and private contracts covering the period 2018-present using the prescribed template.

##### **Clarification:**

- a. The copy of contracts are not mandatory attachments. The said documents will be validated during the post-qualification process.

2. Statement of Single Largest Completed Contract with similar contract of at least 50% of the ABC (Php 12,312,543.49) covering the period 2018-present using the prescribed template.

##### **Clarification:**

- a. Please list down the top ten (10) completed contracts with contract amount equal to or greater than 50% of the ABC for the period 2018 to present using the prescribed template and highlight the SLCC.
- b. The SLCC must be accompanied by End User's Acceptance or Official Receipt(s) or Sales Invoice issued for the contract (GPPB Resolution No. 16-2020).
- c. The copy of contracts are not mandatory attachments. The said documents will be validated during the post-qualification process.

3. Bid security payable to or in favor of "Department of Trade and Industry Region IV-A (DTI IV-A)" in any of the following forms:
  - At least 2% of the ABC (Php 492,501.74) if bid security is in cash, cashier's/manger's check, bank draft/guarantee or irrevocable letter of credit
  - 5% of the ABC (Php 1,231,254.35) if bid security is in Surety Bond
  - Bid Securing Declaration (BSD)

**Clarification:**

- a. If bid security is in the form of Bid Securing Declaration (BSD), please use the prescribed template provided in GPPB Resolution No. 16-2020.
4. Conformity with Technical Specifications using the prescribed template as provided in Section VII of the bidding documents. Bidders must state either "Comply" or "Not Comply" in each parameter.
5. Omnibus Sworn Statement in accordance with Sec. 25.3 of the IRR of RA 9184 and accompanied by any of the following supporting documents, whichever is applicable:
  - Duly notarized Special Power of Attorney
  - Duly notarized Board/Partnership Resolution
  - Duly notarized Secretary's Certificate

**Clarification:**

- a. For Sole Proprietorship, Omnibus Sworn Statement is sufficient if the owner will represent the company; supporting documents are not applicable.
- b. Please use the prescribed template for Omnibus Sworn Statement provided in GPPB Resolution No. 16-2020.

**C. Financial Documents**

1. Audited financial statement, showing, among others, the service provider's total and current assets and liabilities, stamped "received" by the BIR or its duly accredited and authorized institutions, for the preceding calendar year which should not be earlier than two (2) years from the date of bid submission.

**Clarification:**

- a. Under BIR Revenue Memorandum Circular No. 49-2020 dated May 20, 2020, taxpayers may opt to submit 2019 Income Tax Return and required attachments online through the eAFS system of the BIR. Thus, the bidder may submit the AFS submitted online through the eAFS provided that the bidder also submits the Transaction Reference Number as proof of submission, in lieu of the manual "Received" stamping.
2. Computation of Net Financial Contracting Capacity (NFCC) must be
  - At least equal to or greater than the ABC (Php 24,625,086.98) or
  - Credit Line Commitment (CLC) of at least equal to 10% of the ABC (Php 2,462,508.70) for this project
3. Joint Venture Agreement (JVA) or the Duly Notarized Statement in accordance with Sec. 23.1(b) of the IRR, if applicable.



## II. FINANCIAL COMPONENT ENVELOPE

1. Original of duly signed and accomplished Financial Bid Form

**Clarification:**

- a. Please use the prescribed template for Financial Bid Form provided in GPPB Resolution No. 16-2020.

2. Original of duly signed and accomplished Price Schedule(s)

**Clarification:**

- a. Please use the prescribed template for Financial Bid Form provided in GPPB Resolution No. 16-2020.



**PHILIPPINE BIDDING DOCUMENTS**  
**Department of Trade and Industry**  
**Region IV-A**

**Supply, Delivery, Installation, and  
Commissioning of Shared Service Facility for  
the Establishment of Innovation Laboratory  
of DTI Cavite Provincial Office (1 Lot)**

**BIDDING NUMBER: 7916182**

**August 12, 2021**

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# ***Glossary of Acronyms, Terms, and Abbreviations***

**ABC** – Approved Budget for the Contract.

**BAC** – Bids and Awards Committee.

**Bid** – A signed offer or proposal to undertake a contract submitted by a bidder in response to and in consonance with the requirements of the bidding documents. Also referred to as *Proposal* and *Tender*. (2016 revised IRR, Section 5[c])

**Bidder** – Refers to a contractor, manufacturer, supplier, distributor and/or consultant who submits a bid in response to the requirements of the Bidding Documents. (2016 revised IRR, Section 5[d])

**Bidding Documents** – The documents issued by the Procuring Entity as the bases for bids, furnishing all information necessary for a prospective bidder to prepare a bid for the Goods, Infrastructure Projects, and/or Consulting Services required by the Procuring Entity. (2016 revised IRR, Section 5[e])

**BIR** – Bureau of Internal Revenue.

**BSP** – Bangko Sentral ng Pilipinas.

**Consulting Services** – Refer to services for Infrastructure Projects and other types of projects or activities of the GOP requiring adequate external technical and professional expertise that are beyond the capability and/or capacity of the GOP to undertake such as, but not limited to: (i) advisory and review services; (ii) pre-investment or feasibility studies; (iii) design; (iv) construction supervision; (v) management and related services; and (vi) other technical services or special studies. (2016 revised IRR, Section 5[i])

**CDA** - Cooperative Development Authority.

**Contract** – Refers to the agreement entered into between the Procuring Entity and the Supplier or Manufacturer or Distributor or Service Provider for procurement of Goods and Services; Contractor for Procurement of Infrastructure Projects; or Consultant or Consulting Firm for Procurement of Consulting Services; as the case may be, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

**CIF** – Cost Insurance and Freight.

**CIP** – Carriage and Insurance Paid.

**CPI** – Consumer Price Index.

**DDP** – Refers to the quoted price of the Goods, which means “delivered duty paid.”

**DTI** – Department of Trade and Industry.

**EXW** – Ex works.

**FCA** – “Free Carrier” shipping point.

**FOB** – “Free on Board” shipping point.

**Foreign-funded Procurement or Foreign-Assisted Project**– Refers to procurement whose funding source is from a foreign government, foreign or international financing institution as specified in the Treaty or International or Executive Agreement. (2016 revised IRR, Section 5[b]).

**Framework Agreement** – Refers to a written agreement between a procuring entity and a supplier or service provider that identifies the terms and conditions, under which specific purchases, otherwise known as “Call-Offs,” are made for the duration of the agreement. It is in the nature of an option contract between the procuring entity and the bidder(s) granting the procuring entity the option to either place an order for any of the goods or services identified in the Framework Agreement List or not buy at all, within a minimum period of one (1) year to a maximum period of three (3) years. (GPPB Resolution No. 27-2019)

**GFI** – Government Financial Institution.

**GOCC** – Government-owned and/or –controlled corporation.

**Goods** – Refer to all items, supplies, materials and general support services, except Consulting Services and Infrastructure Projects, which may be needed in the transaction of public businesses or in the pursuit of any government undertaking, project or activity, whether in the nature of equipment, furniture, stationery, materials for construction, or personal property of any kind, including non-personal or contractual services such as the repair and maintenance of equipment and furniture, as well as trucking, hauling, janitorial, security, and related or analogous services, as well as procurement of materials and supplies provided by the Procuring Entity for such services. The term “related” or “analogous services” shall include, but is not limited to, lease or purchase of office space, media advertisements, health maintenance services, and other services essential to the operation of the Procuring Entity. (2016 revised IRR, Section 5[r])

**GOP** – Government of the Philippines.

**GPPB** – Government Procurement Policy Board.

**INCOTERMS** – International Commercial Terms.

**Infrastructure Projects** – Include the construction, improvement, rehabilitation, demolition, repair, restoration or maintenance of roads and bridges, railways, airports, seaports, communication facilities, civil works components of information technology projects, irrigation, flood control and drainage, water supply, sanitation, sewerage and solid waste management systems, shore protection, energy/power and electrification facilities, national

buildings, school buildings, hospital buildings, and other related construction projects of the government. Also referred to as *civil works or works*. (2016 revised IRR, Section 5[u])

**LGUs** – Local Government Units.

**NFCC** – Net Financial Contracting Capacity.

**NGA** – National Government Agency.

**PhilGEPS** - Philippine Government Electronic Procurement System.

**Procurement Project** – refers to a specific or identified procurement covering goods, infrastructure project or consulting services. A Procurement Project shall be described, detailed, and scheduled in the Project Procurement Management Plan prepared by the agency which shall be consolidated in the procuring entity's Annual Procurement Plan. (GPPB Circular No. 06-2019 dated 17 July 2019)

**PSA** – Philippine Statistics Authority.

**SEC** – Securities and Exchange Commission.

**SLCC** – Single Largest Completed Contract.

**Supplier** – refers to a citizen, or any corporate body or commercial company duly organized and registered under the laws where it is established, habitually established in business and engaged in the manufacture or sale of the merchandise or performance of the general services covered by his bid. (Item 3.8 of GPPB Resolution No. 13-2019, dated 23 May 2019). Supplier as used in these Bidding Documents may likewise refer to a distributor, manufacturer, contractor, or consultant.

**UN** – United Nations.



## ***Section I. Invitation to Bid***

## INVITATION TO BID FOR Supply, Delivery, Installation, and Commissioning of Shared Service Facility for the Establishment of Innovation Laboratory of DTI Cavite Provincial Office (1 Lot)

1. The *Department of Trade and Industry Region IV-A*, through the *General Appropriations Act FY 2021* intends to apply the sum of ***One Million Four Hundred Thousand Pesos (Php 24,625,086.98)*** being the ABC to payments under the contract for ***Supply, Delivery, Installation, and Commissioning of Shared Service Facility for the Establishment of Innovation Laboratory of DTI Cavite Provincial Office (1 Lot)*** (***Bidding No.: 7916182***). Bids received in excess of the ABC shall be automatically rejected at bid opening.
  
2. The *Department of Trade and Industry Region IV-A* now invites bids for the above Procurement Project. Delivery, installation, and commissioning of the Goods is required within ***sixty-five (65) calendar days upon receipt of Notice to Proceed and Purchase Order***. Bidders should have completed, within ***three (3) years*** from the date of submission and receipt of bids, a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).
  
3. Bidding will be conducted through open competitive bidding procedures using a non-discretionary “*pass/fail*” criterion as specified in the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.  
  
Bidding is restricted to Filipino citizens/sole proprietorships, partnerships, or organizations with at least sixty percent (60%) interest or outstanding capital stock belonging to citizens of the Philippines, and to citizens or organizations of a country the laws or regulations of which grant similar rights or privileges to Filipino citizens, pursuant to RA No. 5183.
  
4. Prospective Bidders may obtain further information from *Department of Trade and Industry Region IV-A* and inspect the Bidding Documents at the address given below during ***Monday to Friday except holidays, 8:00 AM to 5:00 PM***.
  
5. A complete set of Bidding Documents may be acquired by interested Bidders on ***August 12, 2021*** from the given address and website(s) below and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of ***Twenty-Four Thousand Six Hundred Twenty-Five Pesos (Php 24,625.00)***. The Procuring Entity shall allow the bidder to present its proof of payment for the fees by presenting the hard copy or electronic copy of the official receipt.
  
6. The *Department of Trade and Industry Region IV-A* will hold a Pre-Bid Conference on ***August 19, 2021, 9:00 AM*** through video conferencing via Zoom, which shall be open to prospective bidders.

7. Bids must be duly received by the BAC Secretariat through manual submission at the office address indicated below, on or before ***September 01, 2021, 8:30 AM***. Late bids shall not be accepted.
8. All Bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in **ITB** Clause 14.
9. Bid opening shall be on ***September 01, 2021, 9:00 AM*** at the given address below and via Zoom video conferencing. Bids will be opened in the presence of the bidders' authorized representatives who choose to attend the activity.
10. The ***Department of Trade and Industry Region IV-A*** reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised IRR of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.
11. For further information, please refer to:

Josephine G. Lusitro  
Head Secretariat  
Bids and Awards Committee  
Department of Trade and Industry Region IV-A  
3/F Marcelita Building, National Highway,  
Brgy. Real, Calamba City, Laguna 4027  
Contact No.: 0917-503-5349  
Email: JosephineLusitro@dti.gov.ph cc: HarvinBobPuno@dti.gov.ph  
Website: www.dti.gov.ph

12. You may visit the following websites:

View posting: PhilGEPS website (<http://notices.ps-philgeps.gov.ph/main/>)

August 12, 2021

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**MARISSA C. ARGENTE**  
Assistant Regional Director & BAC Chairperson  
DTI Region IV-A – Bids and Awards Committee

## ***Section II. Instructions to Bidders***



## **1. Scope of Bid**

The Procuring Entity, *Department of Trade and Industry Region IV-A* wishes to receive Bids for the *Supply, Delivery, Installation, and Commissioning of Shared Service Facility for the Establishment of Innovation Laboratory of DTI Cavite Provincial Office (1 Lot)*, with identification number *2021-08-11*.

## **2. Funding Information**

2.1. The GOP through the source of funding as indicated below for *2021* in the amount of *Twenty-Four Million Six Hundred Twenty-Five Thousand Eighty-Six Pesos and Ninety-Eight Centavos (Php 24,625,086.98)*.

2.2. The source of funding is:

NGA, the General Appropriations Act of 2021.

## **3. Bidding Requirements**

The Bidding for the Project shall be governed by all the provisions of RA No. 9184 and its 2016 revised IRR, including its Generic Procurement Manuals and associated policies, rules and regulations as the primary source thereof, while the herein clauses shall serve as the secondary source thereof.

Any amendments made to the IRR and other GPPB issuances shall be applicable only to the ongoing posting, advertisement, or **IB** by the BAC through the issuance of a supplemental or bid bulletin.

The Bidder, by the act of submitting its Bid, shall be deemed to have verified and accepted the general requirements of this Project, including other factors that may affect the cost, duration and execution or implementation of the contract, project, or work and examine all instructions, forms, terms, and project requirements in the Bidding Documents.

## **4. Corrupt, Fraudulent, Collusive, and Coercive Practices**

The Procuring Entity, as well as the Bidders and Suppliers, shall observe the highest standard of ethics during the procurement and execution of the contract. They or through an agent shall not engage in corrupt, fraudulent, collusive, coercive, and obstructive practices defined under Annex “I” of the 2016 revised IRR of RA No. 9184 or other integrity violations in competing for the Project.

## 5. Eligible Bidders

- 5.1. Only Bids of Bidders found to be legally, technically, and financially capable will be evaluated.
- 5.2. Foreign ownership exceeding those allowed under the rules may participate pursuant to:
  - i. When a Treaty or International or Executive Agreement as provided in Section 4 of the RA No. 9184 and its 2016 revised IRR allow foreign bidders to participate;
  - ii. Citizens, corporations, or associations of a country, included in the list issued by the GPPB, the laws or regulations of which grant reciprocal rights or privileges to citizens, corporations, or associations of the Philippines;
  - iii. When the Goods sought to be procured are not available from local suppliers; or
  - iv. When there is a need to prevent situations that defeat competition or restrain trade.
- 5.3. Pursuant to Section 23.4.1.3 of the 2016 revised IRR of RA No.9184, the Bidder shall have an SLCC that is at least one (1) contract similar to the Project the value of which, adjusted to current prices using the PSA's CPI, must be at least equivalent to:

The Bidder must have completed a single contract that is similar to this Project, equivalent to at least fifty percent (50%) of the ABC.
- 5.4. The Bidders shall comply with the eligibility criteria under Section 23.4.1 of the 2016 IRR of RA No. 9184.

## 6. Origin of Goods

There is no restriction on the origin of goods other than those prohibited by a decision of the UN Security Council taken under Chapter VII of the Charter of the UN, subject to Domestic Preference requirements under **ITB** Clause 18.

## 7. Subcontracts

- 7.1. The Bidder may subcontract portions of the Project to the extent allowed by the Procuring Entity as stated herein, but in no case more than twenty percent (20%) of the Project.

The Procuring Entity has prescribed that:

**Subcontracting is not allowed.**

- 7.2. Subcontracting of any portion of the Project does not relieve the Supplier of any liability or obligation under the Contract. The Supplier will be responsible for the acts, defaults, and negligence of any subcontractor, its agents, servants, or workmen as fully as if these were the Supplier's own acts, defaults, or negligence, or those of its agents, servants, or workmen.

## **8. Pre-Bid Conference**

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time and either at its physical address and/or through video conferencing as indicated in paragraph 6 of the **IB**.

## **9. Clarification and Amendment of Bidding Documents**

Prospective bidders may request for clarification on and/or interpretation of any part of the Bidding Documents. Such requests must be in writing and received by the Procuring Entity, either at its given address or through electronic mail indicated in the **IB**, at least ten (10) calendar days before the deadline set for the submission and receipt of Bids.

## **10. Documents comprising the Bid: Eligibility and Technical Components**

- 10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Section VIII (Checklist of Technical and Financial Documents)**.
- 10.2. The Bidder's SLCC as indicated in **ITB** Clause 5.3 should have been completed within *three (3) years* prior to the deadline for the submission and receipt of bids.
- 10.3. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. Similar to the required authentication above, for Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.

## **11. Documents comprising the Bid: Financial Component**

- 11.1. The second bid envelope shall contain the financial documents for the Bid as specified in **Section VIII (Checklist of Technical and Financial Documents)**.
- 11.2. If the Bidder claims preference as a Domestic Bidder or Domestic Entity, a certification issued by DTI shall be provided by the Bidder in accordance with Section 43.1.3 of the 2016 revised IRR of RA No. 9184.
- 11.3. Any bid exceeding the ABC indicated in paragraph 1 of the **IB** shall not be

accepted.

- 11.4. For Foreign-funded Procurement, a ceiling may be applied to bid prices provided the conditions are met under Section 31.2 of the 2016 revised IRR of RA No. 9184.

## 12. Bid Prices

- 12.1. Prices indicated on the Price Schedule shall be entered separately in the following manner:

- a. For Goods offered from within the Procuring Entity's country:
  - i. The price of the Goods quoted EXW (ex-works, ex-factory, ex-warehouse, ex-showroom, or off-the-shelf, as applicable);
  - ii. The cost of all customs duties and sales and other taxes already paid or payable;
  - iii. The cost of transportation, insurance, and other costs incidental to delivery of the Goods to their final destination; and
  - iv. The price of other (incidental) services, if any, listed in e.
- b. For Goods offered from abroad:
  - i. Unless otherwise stated in the **BDS**, the price of the Goods shall be quoted delivered duty paid (DDP) with the place of destination in the Philippines as specified in the **BDS**. In quoting the price, the Bidder shall be free to use transportation through carriers registered in any eligible country. Similarly, the Bidder may obtain insurance services from any eligible source country.
  - ii. The price of other (incidental) services, if any, as listed in **Section VII (Technical Specifications)**.

## 13. Bid and Payment Currencies

- 13.1. For Goods that the Bidder will supply from outside the Philippines, the bid prices may be quoted in the local currency or tradeable currency accepted by the BSP at the discretion of the Bidder. However, for purposes of bid evaluation, Bids denominated in foreign currencies, shall be converted to Philippine currency based on the exchange rate as published in the BSP reference rate bulletin on the day of the bid opening.
- 13.2. Payment of the contract price shall be made in:

**Philippine Pesos.**



## **14. Bid Security**

- 14.1. The Bidder shall submit a Bid Securing Declaration<sup>2</sup> or any form of Bid Security in the amount indicated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the schedule in the **BDS**.
- 14.2. The Bid and bid security shall be valid until ***December 30, 2021 (120 calendar days upon Opening of Bids)***. Any Bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

## **15. Sealing and Marking of Bids**

Each Bidder shall submit one copy of the first and second components of its Bid.

The Procuring Entity may request additional hard copies and/or electronic copies of the Bid. However, failure of the Bidders to comply with the said request shall not be a ground for disqualification.

If the Procuring Entity allows the submission of bids through online submission or any other electronic means, the Bidder shall submit an electronic copy of its Bid, which must be digitally signed. An electronic copy that cannot be opened or is corrupted shall be considered non-responsive and, thus, automatically disqualified.

## **16. Deadline for Submission of Bids**

- 16.1. The Bidders shall submit on the specified date and time and either at its physical address or through online submission as indicated in paragraph 7 of the **IB**.

## **17. Opening and Preliminary Examination of Bids**

- 17.1. The BAC shall open the Bids in public at the time, on the date, and at the place specified in paragraph 9 of the **IB**. The Bidders' representatives who are present shall sign a register evidencing their attendance. In case videoconferencing, webcasting or other similar technologies will be used, attendance of participants shall likewise be recorded by the BAC Secretariat.

In case the Bids cannot be opened as scheduled due to justifiable reasons, the rescheduling requirements under Section 29 of the 2016 revised IRR of RA No. 9184 shall prevail.

- 17.2. The preliminary examination of bids shall be governed by Section 30 of the 2016 revised IRR of RA No. 9184.

## **18. Domestic Preference**

- 18.1. The Procuring Entity will grant a margin of preference for the purpose of comparison of Bids in accordance with Section 43.1.2 of the 2016 revised IRR of RA No. 9184.

## 19. Detailed Evaluation and Comparison of Bids

- 19.1. The Procuring BAC shall immediately conduct a detailed evaluation of all Bids rated “*passed*,” using non-discretionary pass/fail criteria. The BAC shall consider the conditions in the evaluation of Bids under Section 32.2 of the 2016 revised IRR of RA No. 9184.
- 19.2. If the Project allows partial bids, bidders may submit a proposal on any of the lots or items, and evaluation will be undertaken on a per lot or item basis, as the case maybe. In this case, the Bid Security as required by **ITB** Clause 15 shall be submitted for each lot or item separately.
- 19.3. The descriptions of the lots or items shall be indicated in **Section VII (Technical Specifications)**, although the ABCs of these lots or items are indicated in the **BDS** for purposes of the NFCC computation pursuant to Section 23.4.2.6 of the 2016 revised IRR of RA No. 9184. The NFCC must be sufficient for the total of the ABCs for all the lots or items participated in by the prospective Bidder.
- 19.4. The Project shall be awarded as follows:

One Project having several items that shall be awarded as one contract.
- 19.5. Except for bidders submitting a committed Line of Credit from a Universal or Commercial Bank in lieu of its NFCC computation, all Bids must include the NFCC computation pursuant to Section 23.4.1.4 of the 2016 revised IRR of RA No. 9184, which must be sufficient for the total of the ABCs for all the lots or items participated in by the prospective Bidder. For bidders submitting the committed Line of Credit, it must be at least equal to ten percent (10%) of the ABCs for all the lots or items participated in by the prospective Bidder.

## 20. Post-Qualification

Within a non-extendible period of five (5) calendar days from receipt by the Bidder of the notice from the BAC that it submitted the Lowest Calculated Bid, the Bidder shall submit its latest income and business tax returns filed and paid through the BIR Electronic Filing and Payment System (eFPS) and other appropriate licenses and permits required by law and stated in the **BDS**.

## 21. Signing of the Contract

- 21.1. The documents required in Section 37.2 of the 2016 revised IRR of RA No. 9184 shall form part of the Contract. Additional Contract documents are indicated in the **BDS**.

### ***Section III. Bid Data Sheet***

# Bid Data Sheet

ITB Clause											
5.3	For this purpose, contracts similar to the Project shall be:  a. Fabrication Laboratory Equipment  b. completed within three (3) years prior to the deadline for the submission and receipt of bids.										
7.1	Subcontracting is not allowed.										
12	The price of the Goods shall be quoted DDP Cavite or the applicable International Commercial Terms (INCOTERMS) for this Project.										
14.1	The bid security shall be in the form of a Bid Securing Declaration, or any of the following forms and amounts:  a The amount of not less than <b><i>Four Hundred Ninety-Two Thousand Five Hundred One Pesos and Seventy-Four Centavos (Php 492,501.74)</i></b> , if bid security is in cash, cashier’s/manager’s check, bank draft/guarantee or irrevocable letter of credit; or  b The amount of not less than <b><i>One Million Two Hundred Thirty-One Thousand Two Hundred Fifty-Four Pesos and Thirty-Five Centavos (Php 1,231,254.35)</i></b> if bid security is in Surety Bond.										
19.3	Supply, Delivery, Installation, and Commissioning of Shared Service Facility for the Establishment of Innovation Laboratory of DTI Cavite Provincial Office (1 Lot). <table><tr><th>Qty.</th><th>Unit</th><th>Item Description</th><th>Unit Cost</th><th>Amount</th></tr><tr><td>1</td><td>set</td><td><b>Complete Metal 3D Printing System</b>  An accessible end-to-end Metal 3D printing solution designed to yield functional metal parts. With a separate unit for wash and sinter.  <b>Applications:</b><ul style="list-style-type: none"><li>• Functional Prototyping</li><li>• Jigs &amp; Fixtures</li><li>• Repair &amp; Replacement parts</li><li>• Complex metal parts</li><li>• Low volume production</li></ul><b>System Inclusions:</b><ul style="list-style-type: none"><li>I. 1 unit Metal 3D Printer</li><li>II. 1 unit Wash Station (for debinding)</li><li>III. 1 unit Sintering Furnace</li></ul></td><td>12,568,000.00</td><td>12,568,000.00</td></tr></table>	Qty.	Unit	Item Description	Unit Cost	Amount	1	set	<b>Complete Metal 3D Printing System</b>  An accessible end-to-end Metal 3D printing solution designed to yield functional metal parts. With a separate unit for wash and sinter.  <b>Applications:</b> <ul style="list-style-type: none"><li>• Functional Prototyping</li><li>• Jigs &amp; Fixtures</li><li>• Repair &amp; Replacement parts</li><li>• Complex metal parts</li><li>• Low volume production</li></ul> <b>System Inclusions:</b> <ul style="list-style-type: none"><li>I. 1 unit Metal 3D Printer</li><li>II. 1 unit Wash Station (for debinding)</li><li>III. 1 unit Sintering Furnace</li></ul>	12,568,000.00	12,568,000.00
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			<p><b>I. Metal 3D Printer</b></p> <ul style="list-style-type: none"> <li>• Print Technology: Material Extrusion, Metal Fused Filament Fabrication</li> <li>• Build Size (LxWxH): At least 300mm x 200mm x 180mm</li> <li>• Material Type: Spool -based</li> <li>• Z Resolution: must be able to reach 50 microns, 125microns</li> <li>• Printer must be able to print with a width of 0.3mm.</li> <li>• Print Chamber: Heated chamber to ensure controlled environment during printing</li> <li>• Print bed: Heated, vacuum-sealed print sheet, auto bed leveling</li> <li>• The print bed will auto-calibrated at preprint stage</li> <li>• Print System: 2 Nozzles - Metal Material and Support Release</li> <li>• Different layers settings do not require any nozzle change.</li> <li>• Different metal materials do not require any nozzle change.</li> <li>• System contains out-of-material detection</li> <li>• System contains build-in vacuum Sealed function to secure print sheet</li> <li>• Part will be printed on the print sheet, for ease removal purpose</li> <li>• Printer must be able to lay both materials in the XY plane.</li> <li>• Controller: System uses build in touch screen controller to control system</li> <li>• Materials Compatibility: At least Stainless Steel, Tool Steel, Titanium, Inconel, Copper, etc.</li> <li>• Supplied Software: Compatible Slicing Software with Security Two-factor authentication, org admin access, single sign-on</li> </ul>		
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		<ul style="list-style-type: none"> <li>• Software Compliance: ISO 27001</li> <li>• Printer are capable of printing infill part or solid parts</li> <li>• The system is able to print and sinter successfully for vertical wall thickness &gt;4mm and solid parts &gt;5mm.</li> <li>• Electrical Requirements: 220-240 VAC, 50-60HZ, Single Phase</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• 1 unit Vacuum Built Plate (Proprietary)</li> <li>• 200cc Stainless Steel 17-4PH Material (Proprietary)</li> <li>• 200cc Ceramic Release Material (Proprietary)</li> <li>• 200cc Copper Material (Proprietary)</li> <li>• 3 pcs. Metal quick-change nozzles (Proprietary)</li> <li>• 3 pcs. Release quick-change nozzles (Proprietary)</li> <li>• 1 unit 5KVA UPS</li> </ul> <p><b>II. Washing Station</b></p> <ul style="list-style-type: none"> <li>• The Debinder must be able to accommodate and debind parts of size greater than or equal to the maximum extruded part size that the printing system printed.</li> <li>• Washing Size: at least 356 x 254 x 203 mm</li> <li>• Washing Volume: not be less than 18,000 cubic cm (1120 cubic in)</li> <li>• The debinder uses a common nonproprietary and readily available fluid which is approved to be used in Philippines</li> <li>• Wash Fluid: Open Source non-proprietary, Available Locally</li> <li>• Controller: Integrated Control System</li> <li>• Work holding: Stainless Steel Basket</li> </ul>		
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			<ul style="list-style-type: none"> <li>• Wash system requires external exhaust</li> <li>• The Debinder Must have a Close-Loop Solvent Circulation System to eliminate Fume Exhaust</li> <li>• The debinder must have distillation system, in order to keep the efficiency of the process</li> <li>• System contains cool coil, and it helps to separate the solvent and condensed water</li> </ul> <p><b>Safety Management includes:</b></p> <ul style="list-style-type: none"> <li>• High vapour Shutoff</li> <li>• Over-temperature Shutoff</li> <li>• Low fluid level Shutoff</li> <li>• Electrical Requirement: 220-240 VAC, 60Hz, single phase</li> </ul> <p><b>III. Sintering Furnace</b></p> <ul style="list-style-type: none"> <li>• System contains express sinter function, its cycle is less than 17 hours</li> <li>• Featuring 4760 cubic cm of working volume, The Sinter effortlessly converts washed parts into their dense final metallic form.</li> <li>• The Sintering Capacity must be at least Cylindrical - 141 mm ID x 305 mm Length</li> <li>• Sintering volume is not less than 4700 cm<sup>3</sup></li> <li>• All metal materials from printing system are able to be sintered in furnace</li> <li>• Kanthal is the heating element for system</li> <li>• It must be carbon free retort to maintain right steel compound</li> <li>• Furnace is a carbon free retort system</li> <li>• Maximum Sintering Temperature 1,300 °C</li> <li>• Sinterable volume temperature uniformity is +/- 5 °C</li> <li>• Gas Type: Inert and Mix Gases non-proprietary, Available locally</li> </ul>		
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			<ul style="list-style-type: none"> <li>• Gas Requirement: Mixed Gas - 2.9% hydrogen 97.1% Argon, Pure Argon gas</li> <li>• The External Provider shall ensure the installation of pressurized cylinders in compliance with DOLE safety requirements or manufacturer safety standards.</li> <li>• System allows Auto gas supply changeover</li> <li>• The Sinter come with inlet gas filtration system</li> <li>• The Sinter come with outlet gas filtration system</li> <li>• Exhaust Rate (m<sup>3</sup>/min or CFM) &lt;150 CFM, &gt;100CFM</li> <li>• The furnace unit must have clear visible signage to inform user of ongoing sintering, and ensure its door is securely locked during sintering to prevent accidents for users.</li> <li>• Sinter machine should comes with gas panel from OEM</li> <li>• System can be monitored by software, and the user is able to check via the internet.</li> <li>• The normal sintering cycle should consume &lt; 30 hours</li> <li>• Sinter machine can help on annealing process (optional for material)</li> <li>• Furnace contains temperature sensor</li> <li>• Furnace contains moisture sensor</li> <li>• Furnace contains pressure sensor</li> <li>• System contains a self-diagnose function at the pre sintering stage.</li> <li>• System use touch screen controller to control it</li> <li>• Electrical Requirement: Single Phase, 200-240 VAC 30A, 50-60Hz</li> <li>• Gas Supply Panel Mounting Requirement: - Cryogenic liquid cylinder + gas cylinder footprint: 1.40m</li> </ul>		
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			<p>(55in) wide, 700mm (27in) deep at cryogenic liquid cylinder, 300mm (12in) deep at gas cylinder.</p> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• 2 units Argon</li> <li>• 2 units Mixed Gas</li> <li>• 2 buckets Opteon Fluid</li> </ul> <p><b>Software</b></p> <ul style="list-style-type: none"> <li>• OS requirements: Windows: 7 or later Mac: OS X Yosemite version 10.10 or later</li> <li>• All operating systems must be 64-bit for proper use</li> <li>• File Format Compatibility: .stl</li> <li>• Any 3D CAD Software that is compatible with .stl format is acceptable.</li> <li>• The information Security Management System must conform to the requirements of ISO/IEC 27001</li> <li>• The Information Security Management System (ISMS), is to appropriately</li> <li>• preserve privacy, confidentiality, integrity, and availability (CIA) of the manufacturers information assets, including, but not limited to, its and its clients' intellectual property.</li> <li>• The software used should leverage FIPS 140-2 compliant encryption standards. All data is in transit using TLS. HTTPS is required for all services, including vendors' public website and cloud applications. Additionally, part files are protected with data encryption at rest by encrypting the Amazon Web Services (AWS) Simple Storage Service (S3) buckets where part files are stored using AES-256. Vendors shall implement controls to appropriately limit the</li> </ul>		
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			<p>creation, storage, usage, and deletion of encryption keys</p> <ul style="list-style-type: none"> <li>• All print files sent to printers are formatted as encrypted format. containing details about the part geometry, orientation, and fiber and material layout. This means that encrypted files transferred from software to printers by USB mass storage devices are secured via encryption.</li> <li>• The slicing software provides users with the option to enable two-factor authentication (2FA) for additional security. The 2FA utilizes time-based one time passwords (TOTP) and can be configured using well known 2FA apps like Google Authenticator. User passwords are securely hashed, salted, and stored using AWS Cognito, which employs the SRP protocol.</li> <li>• The software development lifecycle (SDLC) employs manual code reviews and automated integration testing before each deployment. Several pre-release environments are used for quality assurance and testing prior to releasing any code to production. Vendor utilizes a continuous deployment model, which allows customers to immediately benefit from new functionality, vulnerability remediation, and bug fixes.</li> <li>• Slicing software support Multi-Factor Authentication using Time-Based One Time Password (TOTP) Apps</li> <li>• The 3D printing software shall be able to import 3D models from major CAD software in STL format</li> <li>• The 3D Printing software shall include slicing tools</li> </ul>		
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			<p>with integrity checking for 3D printing</p> <ul style="list-style-type: none"> <li>• The 3D printing software shall be able to monitor and control the printing parameters.</li> <li>• The software must be able to calculate printing time, wash time and consumables usage during preprocessing of each print job.</li> <li>• The Software must be able to show the material printing route and release ceramic layer in 2d and 3d, so that it can be manipulated</li> <li>• The 3D printing software must be able to manage multiple printers, wash and sinter machines</li> <li>• The software must be able to host different users in the same virtual organization</li> <li>• The software must provide a library setting so that users can share parts</li> <li>• The software must provide a dashboard so that users can monitor their utilization of printer time and other statistics</li> <li>• User is able to monitor printing status via live Corp image from live camera</li> <li>• Software must be allowed users to start prints remotely on printers within the same organization</li> <li>• The software must be ability to download the printer logs remotely</li> <li>• The software must send an email notification if there this an out of material incident of when the spools runs out during a print</li> <li>• The Software must be able to allow the user to open a support request directly from the software UI</li> <li>• Users are able to add ceramic released layer as needed</li> <li>• User can manipulate either printing with raft, or w/o raft</li> </ul>		
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		<ul style="list-style-type: none"> <li>• User can manipulate either printing with support, or w/o support</li> <li>• Metal printing is available for chunkable support structure</li> <li>• Design scale will enlarge per axis automatically to compensate shrinkage from actual process</li> <li>• Wall thickness is adjustable via software</li> <li>• Solid printing function is available</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Installation: All installation costs and other incidental cost and activity will be shouldered by the winning bidder (Ventilation, construction, finishing, etc.)</li> <li>• Warranty: 12 Months warranty for parts and</li> </ul>		
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			<p>service, attached warranty certificate</p> <ul style="list-style-type: none"> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> <li>• Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> <li>• English Operations Manual included</li> </ul>		
	1	unit	<p><b>Carbon Fiber 3D Printer – Desktop Series</b></p> <p>Print Continuous Carbon Fiber reinforced parts on your desktop – stiff, strong, extremely durable, and capable of replacing machined aluminum.</p> <p><b>Applications:</b></p> <ul style="list-style-type: none"> <li>• Functional Prototyping</li> <li>• Jigs &amp; Fixtures</li> <li>• Stamping Dies</li> <li>• Repair &amp; Replacement parts</li> </ul> <p><b>Specifications:</b></p> <ul style="list-style-type: none"> <li>• Print Technology: Continuous Fiber Reinforcement (CFR)</li> <li>• Build Volume: at least 320 x 130 x 150 mm</li> <li>• Layer Height: 100 Micron or better</li> <li>• Slicing Software: With Cloud control and Two-factor authentication</li> <li>• Nozzle System: Dual Extruder, out of plastic detection</li> <li>• Print System: 2 Nozzles - One for Base Material and</li> </ul>	1,856,000.00	1,856,000.00



			<p>One for Reinforcement Material</p> <ul style="list-style-type: none"> <li>• Power Requirements: 100–240 VAC, 150 W (2 A peak)</li> <li>• Printing Materials: Base Filaments -Onyx, Nylon,</li> <li>• Reinforcement Fiber - Carbon Fiber, Fiberglass, High Strength High Temperature Fiberglass, Kevlar</li> <li>• Print Bed: Kinematic coupling — flat to within 160 micron</li> <li>• The print bed must use kinematic coupling to provide precision and certainty of location, enabling pausing and removal of bed mid-print</li> <li>• Material Tensile Strength: 800 MPa (25.8x ABS, 2.6x 6061-T6 Aluminum)</li> <li>• Material Tensile Modulus: 60 GPa (26.9x ABS, 0.87x 6061-T6 Aluminum)</li> <li>• Infill: Closed cell infill: multiple geometries available</li> <li>• The print bed has the ability to be decoupled and recoupled with 10 microns repeatability during the middle of a print</li> <li>• A fiber cutting blade must be integrated inside the printhead and controlled automatically by software.</li> <li>• Printer must be able to embed fiber into prints, and the width of the fiber extrusion must be no more than 0.9mm</li> <li>• Fiber must be able to be placed in a wall with 2.8mm thickness</li> <li>• When the printer is laying down fiber, it must be able to turn the fiber direction and lay down continuously with maximum 180 degrees</li> <li>• The printer must be able to print in any selectable resolution without changing the printhead or nozzles.</li> </ul>		
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			<p><b>Software:</b></p> <ul style="list-style-type: none"> <li>• File Format Compatibility: .stl Any 3D CAD Software that is compatible with .stl format is acceptable.</li> <li>• The information Security Management System must conform to the requirements of SO/IEC 27001</li> <li>• The Information Security Management System (ISMS), is to appropriately preserve privacy, confidentiality, integrity, and availability (CIA) of the manufacturers information assets, including, but not limited to, its and its clients' intellectual property.</li> <li>• The software used should leverage FIPS 140-2 compliant encryption standards. All data is in transit using TLS. HTTPS is required for all services, including vendor's public website and cloud applications. Additionally, part files are protected with data encryption at rest by encrypting the Amazon Web Services (AWS) Simple Storage Service (S3) buckets where part files are stored using AES-256. Vendors must implement controls to appropriately limit the creation, storage, usage, and deletion of encryption keys.</li> <li>• All print files sent to printers are formatted as encrypted format. containing details about the part geometry, orientation, and fiber and material layout. This means that encrypted files transferred from software to printers by USB mass storage devices are secured via encryption.</li> <li>• The slicing software provides users with the option to enable two-factor</li> </ul>		
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			<p>authentication (2FA) for additional security. The 2FA utilizes time-based one time passwords (TOTP) and can be configured using well known 2FA apps like Google Authenticator or Authy. User passwords are securely hashed, salted, and stored using AWS Cognito, which employs the SRP protocol.</p> <ul style="list-style-type: none"> <li>• The software development lifecycle (SDLC) employs manual code reviews and automated integration testing before each deployment. Several pre-release environments are used for quality assurance and testing prior to releasing any code to production. Vendor utilizes a continuous deployment model, which allows customers to immediately benefit from new functionality, vulnerability remediation, and bug fixes.</li> <li>• The 3D printing software must be able to import 3D models from any major CAD software in STL format</li> <li>• The 3D Printing software must include slicing tools with integrity checking for 3D printing</li> <li>• The 3D printing software must be able to monitor and control the printing parameters, including layer thickness, infill type and material choice</li> <li>• The software must be able to calculate printing time and consumables usage during preprocessing of each print job.</li> <li>• The software must be able to calculate the cost of each part during preprocessing of each print job</li> <li>• The software must be able to show the continuous fiber</li> </ul>		
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			<p>routing in 2d and 3d, so that it can be manipulated.</p> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• 1 pc. 3D Printer Kit</li> <li>• 1 pc. True Print Bed</li> <li>• 1 pc. Filament Drybox</li> <li>• 800cc Onyx Spool</li> <li>• 100cc Carbon Fiber</li> <li>• 50cc Fiberglass</li> <li>• 50cc Kevlar</li> <li>• 50cc HSHT</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached</li> </ul>		
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			<p>After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</p> <ul style="list-style-type: none"> <li>• Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> <li>• English Operations Manual included</li> </ul>		
	1	unit	<p><b>Large-Scale FDM 3D Printer</b></p> <ul style="list-style-type: none"> <li>• Fully Enclose large scale 3D Printer with Dual Extruder</li> <li>• Technology: Fused Deposition Modeling (FDM)</li> <li>• Build Size: at least 1200 x 600 x 630mm</li> <li>• Filaments Size: 1.75 mm, Open Source</li> <li>• Extruder: Dual Print Head</li> <li>• Nozzle Diameter Available: 0.4, 0.6 &amp; 0.8 mm brass Volcano nozzles</li> <li>• Enclosure: Fully Enclosed made of 3mm black Aluminum Composite Panels (ACP)</li> <li>• 3D Printer Controller: 7-inch touchscreen – integrated with the controller</li> <li>• Connectivity: WIFI web access for remote control from either mobile or PC allowing users to upload print files directly from their workstation</li> <li>• SD card slot and USB</li> <li>• Motion System: Linear guide rails</li> <li>• Position accuracy: X-10 Micron, Y-10 Micron, Z-0.5 Micron</li> <li>• Print speed – Normal quality 60 mm/sec, Draft 100 mm/sec, Calculated for 0.4 nozzle.</li> <li>• Print Bed; heated, Tempered Glass</li> <li>• Max temperature: 120 degree Celsius</li> </ul>	1,118,000.00	1,118,000.00



			<ul style="list-style-type: none"> <li>• Calibration: Auto Bed Leveling</li> <li>• Software: Open source Duet RepRap firmware. The leading firmware for 3D printing allowing numerous configurations and easy customization using the macro system.</li> <li>• File Format Compatibility: .stl Any 3D CAD Software that is compatible with .stl format is acceptable.</li> <li>• Filament Run-Out Sensor – The filament run-out detection sensor will pause the print job when the filament has been used up.</li> <li>• Open Filament – Any filament from any vendor can be used.</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• 1 set 3D Printer Kit</li> <li>• 2 spools ABS Filament Spool, 1kg</li> <li>• 1 set Enclosure</li> <li>• 1 unit 2nd Print Head</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> </ul>		
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			<ul style="list-style-type: none"> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> <li>• Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> <li>• English Operations Manual included</li> </ul>		
	1	set	<b>FDM 3D Printer (5 Units)</b> <ul style="list-style-type: none"> <li>• Print Technology: Fused Deposition Modeling (FDM)</li> <li>• Build Volume: at least 250x210x190mm</li> <li>• Filaments Size: 1.75 mm, Open Source</li> <li>• Extruder: Single</li> <li>• Layer Resolution: 0.05-0.3 mm</li> <li>• Print Speed: 20~150mm/s</li> <li>• Supported Materials: ABS, TPU, PLA, HIPS, etc.</li> <li>• Ambient Operating Temperature: 8°C - 40°C</li> <li>• Operational Extruder Temperature: max 260°C</li> <li>• Operational Print Bed Temperature: max 100°C</li> <li>• Software Input Formats: .STL, .OBJ, JPG, PNG</li> </ul>	205,000.00	205,000.00

		<ul style="list-style-type: none"> <li>Any 3D CAD Software that is compatible with Software Input Formats is acceptable.</li> <li>Connectivity: SD Card; USB cable</li> <li>Printer Dimensions: 454mm×466mm×410mm</li> <li>Net Weight: ~18.8kg</li> </ul> <p><b>Package Inclusion per unit:</b></p> <ul style="list-style-type: none"> <li>1 Spool of 1kg. PLA Filaments</li> <li>3D Printer Kit</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of</li> </ul>		
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			<p>notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</p> <ul style="list-style-type: none"> <li>• Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> <li>• English Operations Manual included</li> </ul>		
	1	unit	<p><b>Compact CNC Milling System</b></p> <p>To cut challenging materials like titanium as well as softer materials such as aluminum, plastic and wood.</p> <ul style="list-style-type: none"> <li>• Operating Range: at least X: 356mm (14in); Y: 191mm (7.5in); Z: 337mm (13.25in)</li> <li>• Table Size: At least 660mm x 200 mm;</li> <li>• Feed Rate: XY: At least 135 inches per min; Z: At least 110 inches per minute</li> <li>• Three Table Slots:15.9 mm</li> <li>• Spindle Power: 1.5 hp</li> <li>• Speed: At least 10,000 RPM</li> <li>• Spindle Nose to Table Max Clearance: 330mm</li> <li>• Spindle Centerline to Machine Column: 215 mm</li> <li>• Tapping: Tension/Compression, Auto-Reversing, Treadmill</li> <li>• Spindle Taper: R8</li> <li>• Machine Controller: Support for up to four axis continuous machining, conversational programming, Usable G-Code Memory: Brix Controller: 80 GB / Controller Operator Console: 40 GB, Built-in Dropbox</li> <li>• Power Requirements: Single-Phase 115Vac,</li> </ul>	1,900,000.00	1,900,000.00

			<p>50/60Hz, 15A Breaker Voltage regulator included</p> <ul style="list-style-type: none"> <li>• Materials Compatibility: Titanium, Steel, Aluminum, Plastic, Composites, Wood, PCB Boards.</li> <li>• Machine Dimension: 1500 mm x 1300 mm x 2300 mm</li> <li>• Machine Weight: 450 kg</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• Full Machine Enclosure</li> <li>• Heavy Duty Steel Stand with Chip Tray and Coolant Tank</li> <li>• System Controller with Water proof Mouse, keyboard, LCD Screen, Jog Shuttle Controller</li> <li>• Pneumatic Drawbar Kit</li> <li>• 18 Piece Carbide End Mill Kit. Includes Square, Ball and .030 in. Radius Carbide End Mills with TiAlN Coating. Recommended for steel machining.</li> <li>• 14 Piece Carbide End Mill Kit. Includes Square, Ball and .030 in. Radius Carbide End Mills with Bright Finish. Recommended for aluminum machining.</li> <li>• Complete kit of Operator Set for Cooling System quick change tool holders</li> <li>• Coolant Kit (1/8 hp) flushes chips and swarf from the cutting zone.</li> <li>• Automatic Tool Change 10 pocket, umbrella-style automatic tool changer air compressor</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The</li> </ul>		
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			<p>External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</p> <ul style="list-style-type: none"> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for atleast 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> <li>• Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> <li>• English Operations Manual included</li> </ul>		
	1	unit	<p><b>80 Watts CO2 Laser Cutter/Engraver</b></p> <p>Open architecture offers the versatility you need for endless product creation. Customize items of all sizes; as small as a peanut to a large granite memorial.</p>	2,200,000.00	2,200,000.00

		<ul style="list-style-type: none"> <li>• Engraving Area: 710 x 400 mm (Continuous Feed)</li> <li>• Focal Lens: 2 Inches</li> <li>• Laser Wattage: 80 watts</li> <li>• Cooling System: Utilize a uniquely integrated, self-contained cooling system.</li> <li>• Laser Tubes: Glass tubes</li> <li>• Resolution: User controlled from 75 to 1200 dpi</li> <li>• Operating Modes: Raster, vector or combined modes</li> <li>• Motion Control: continuous-loop, DC servomotors</li> <li>• Print Interface: Ethernet or USB connection</li> <li>• Auto focus (Automatically focus the engraving table to the correct focal distance.)</li> <li>• Features: Removable Laser Top, EZ Leveling system</li> <li>• operating systems: Windows® XP/7/8/10 32-bit and 64-bit</li> <li>• Memory Controller: standalone controller with 128MB of independent memory allows for processing and storage of large sized files.</li> <li>• Starting Positions: 9 different starting positions in reference to the image or file to be engraved or cut, breaking the confines of a “home position</li> <li>• Resolution: Up to 1000dpi, The standard 2 inch condensing lens has a point of impact of .003 inches, allowing for approximately 300 dpi.</li> <li>• Operating Mode: Engrave (faster) mode will engrave bitmap images and/or vector files. Cut mode cuts or traces vector file formats.</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• Air Compressor</li> <li>• Floor Stand or Utility Carriage</li> <li>• Rotary attachment</li> <li>• Air Assist</li> </ul>		
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			<ul style="list-style-type: none"> <li>• Exhaust</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> <li>• Attached certification of parts availability issued by</li> </ul>		
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			<p>the manufacturer for the project.</p> <ul style="list-style-type: none"> <li>English Operations Manual included</li> </ul>		
	1	unit	<p><b>Handheld 3D Scanner</b></p> <p>Hand-held 3D scanner meant to capture medium and large objects; with built-in touchscreen for ease-of-use during scanning.</p> <ul style="list-style-type: none"> <li>3D point accuracy: Up to 0.1 mm</li> <li>Accuracy over distance: Up to 0.1 mm over 1 m</li> <li>3D resolution: Up to 0.6 mm</li> <li>Texture resolution: 2.3 MP or better</li> <li>3D Light source: White LED</li> <li>Frame Rate: 25-30 fps</li> <li>Linear Field of View HxW @ closest range: 280 × 360 mm; Linear Field of View HxW @ furthest range: 490 × 650 mm;</li> <li>Data acquisition speed up to: 3 mln points /sec</li> <li>Multi core processing: Yes;</li> <li>3D Formats: OBJ, PLY, STL, etc.</li> <li>Software: Include license operating software that can Fill holes, simplify the mesh, apply texture.</li> <li>Interface: Built in touchscreen - 4 inches</li> <li>Tracking Modes; Geometry, Markers, Texture</li> <li>Capable of scanning: Black surfaces, Glossy objects, Sharp edges, Human hair</li> <li>Weight: 0.9 kg (1.9 lb.) or equivalent</li> <li>Dimensions: 165 × 85 × 274 mm</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>1x Software</li> <li>1x Carry Case</li> </ul>	650,000.00	650,000.00

			<p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> <li>• Attached certification of parts availability issued by the manufacturer for the project.</li> </ul>		
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			English Operations Manual included		
	1	unit	<b>Filament Maker</b>  The unique vertical extrusion setup in the filament makers ensures precise roundness and accurately guides the filament to the spool.  A dual air cooling system, with adjustable fan speeds and positions, ensures optimal cooling settings for the materials you work with. A sophisticated optical sensor and a dynamic puller system work together to achieve a diameter precision tolerance of +/- 0.05mm*.  <ul style="list-style-type: none"> <li>• Temp. Peek Point: 450°C</li> <li>• Filament Type: Benchtop</li> <li>• Heating Zones: 4 – Independent Controllable</li> <li>• Mixing screw: High-flow screw</li> <li>• Extrusion Data Analysis: Real-time</li> <li>• Extrusion Direction: Vertical</li> <li>• Compatible Materials: PLA, ABS, PC, PS, PETG, TPU, TPE, PPS, PVA, Bio PE, NEW PET, PA (6,12, 66), PEEK, PC, PS, PEKK, PAEK, PEI, PSU, PES, PTFE, PVD+, and many more</li> <li>• RPM Range: up to 15 rpm</li> <li>• Filament Diameter Range: 0.5 – 3 mm</li> <li>• Sensor Accuracy: 43 microns (1.69 mils)</li> <li>• Nozzle extruder: Diameter 4 mm (0.16 inches)</li> <li>• Replaceable Screw Barrel Alloy: High chromium and molybdenum steel alloy - Nitride – 3 stage Compression</li> <li>• Dimension: 506 x 448 x 216 mm or equivalent</li> <li>• Weight: 24.5 or equivalent</li> </ul>	900,000.00	900,000.00



			<p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• 10 Spools</li> <li>• 1200g Pouch PLA</li> <li>• 1x Spool Holder</li> <li>• 1x Extra Nozzle Package 4mm</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and</li> </ul>		
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			has available technical support locally. <ul style="list-style-type: none"> <li>• Attached certification of parts availability issued by the manufacturer for the project.</li> <li>• English Operations Manual Included</li> </ul>		
	1	unit	<b>Multi Tool 3D Printer</b>  Toolhead Technology: FDM/FFF, CNC Milling, Laser Engraving and Cutting, Paste Extrusion  <b>I. 3D Printing Parameters:</b> <b>Fused Filament Fabrication (FFF)</b> <ul style="list-style-type: none"> <li>• Work Area: at least 230 x 250 x 165 mm</li> <li>• Toolhead: Single Extruder Toolhead 1.75, Dual Extruder Toolhead</li> <li>• Layer Resolution: 0.05 - 0.4 mm or better</li> <li>• Bed temperature: at least 115°C</li> <li>• Printing temperature: at least 250 °C</li> <li>• Work area leveling method: Automatic, Manual</li> <li>• Available Materials: PLA, ABS, PET, Nylon, PVA, HIPS, ASA, TPE, PP, PC, PMMA, PC/ABS</li> <li>• Support structures: Mechanically and chemically removed - printed with the same material as the model</li> <li>• Material diameter: 1.75mm, 3.00mm</li> <li>• Connectivity: USB, Ethernet, SD card</li> <li>• Third party materials: Applicable, open source</li> </ul> <b>II. CNC Milling Parameters:</b> <b>Toolhead CNC Spindle</b> <ul style="list-style-type: none"> <li>• Work Area: at least 230 x 250 x 80 mm</li> <li>• Travel Speed: at least 120 mm/s</li> </ul>	450,000.00	450,000.00

		<ul style="list-style-type: none"> <li>• Available Materials: ABS, Nylon, HDPE, PTFE, PC, PP, POM, PMMA, PVC, HIPS, LDPE, PET, Carbon, CCL FR4, Dibond, TCF, Wood, Wood-like, Aluminum, Brass, Copper, Cardboard, Wax, Modeling board, Styrofur</li> <li>• Spindle max power: 300W</li> <li>• Work area leveling method: Manual</li> <li>• Tool holding: ER-11 collet</li> </ul> <p><b>III. Laser Engraving/Cutting Parameters: Tool head laser</b></p> <ul style="list-style-type: none"> <li>• Laser spot size for 50mm 0.1 x 0.1 mm</li> <li>• Laser spot size for 80mm 0.1 x 0.18 mm</li> <li>• Work Area: at least 230 x 250 x 80 mm</li> <li>• Software Supported files: .stl, .obj, .step, .dxf, .png, .bmp Filter type: HEPA/Carbon</li> <li>• Laser Power: 2.8W</li> <li>• Wavelength: 450nm</li> <li>• Laser class: 4</li> <li>• Available Materials: Wood, wood-like, leather, paper, cardboard, felt, foil, laminate, EPP, EVA Foam, CCL FR4</li> <li>• Software: The all-in-one software for 3D printing, CNC milling, and laser engraving and cutting.</li> <li>• Supported File Types: .stl, .obj, .step, .dxf, .png, .bmp</li> <li>• Supported Operating Systems: Windows 7/10 (64 bit) (or higher) / macOS 10.13 (or higher)</li> <li>• Software Feature: features CAM-standard workflow for CNC procedures with STEP operations, ability to change the tool within one G-code, and path visualization.</li> <li>• Machine Dimension: 520 x 500 x 570mm or equivalent</li> <li>• Weight: 30kg or equivalent</li> </ul>		
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		<ul style="list-style-type: none"> <li>• Electrical Requirements: 100 [VAC] ~ 4 [A] 50/60 [Hz] 240 [VAC] ~ 2 [A] 50/60 [Hz]</li> <li>• Voltage regulator included</li> <li>• Filtration Parameters: HEPA/Carbon, 1.54 Ventilation Power</li> </ul> <p><b>Accessories Included:</b></p> <ul style="list-style-type: none"> <li>• 1 unit 1.75 mm Plastic Extruder with 0.3 mm nozzle</li> <li>• 1 unit Dual Plastic Extruder with Mixer hot end</li> <li>• 1 unit CNC Milling toolhead</li> <li>• 1 unit Laser PRO toolhead (2.8 W)</li> <li>• 1 unit Thick Paste Extruder</li> <li>• 1 unit Heated worktable for 3D printing</li> <li>• 1 unit CNC Worktable for milling and cutting</li> <li>• 1 unit Dust Collector</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for atleast 5 personnel. Attached training certificate provided by</li> </ul>		
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			<p>manufacturer's certified trainer.</p> <ul style="list-style-type: none"> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> <li>• Attached certification of parts availability issued by the manufacturer for the project.</li> <li>• English Operations Manual included</li> </ul>		
	1	unit	<p><b>Integrated Services Router Bundle 1 and 2</b></p> <p><b>Bundle 1:</b></p> <ul style="list-style-type: none"> <li>• 4221 Integrated Services Router (2GE, 2NIM.8G FLASH.4G</li> <li>• SNTC-8X5XNBD (2GE, (12))</li> <li>• IP Base License Integrated Services Router 4000 Series</li> <li>• AC Power Supply</li> <li>• AC Power Cord</li> <li>• Blank Faceplate for NIM SLOT compatible</li> <li>• Universal</li> <li>• CATALYST 2960 PLUS 24 10/100 + 2T/SFP LN BASE</li> <li>• SNTC-8X5XNBD CATALYST 2960 PLUS 24 10/100 +2T/SFP LA</li> <li>• AC Power Cord</li> <li>• CONSOLE Cable 6FT WITH RJ45 AND DB9F</li> <li>• WIRELESS N (2.4 GHZ) Fast Ethernet 4 Port Switch, High Speed UP TO 300 MBPS</li> </ul>	563,544.58	563,544.58

			<b>Bundle 2:</b> <ul style="list-style-type: none"> <li>• 4321 Integrated Services Router (2GE, 2NIM, 4G FLASH, 4GDRAM, IPB)</li> <li>• SNTC-8X5XNBD 4321 Integrated Services Router (2GE, 2NIM, 4G FLASH, 4GDRAM, IPB)</li> <li>• IP Base License for 4321 Integrated Services Router</li> <li>• AC Power Supply for 4321 Integrated Services Router</li> <li>• AC POWER CORD TYPE C5, US, CANADA</li> <li>• 4G Flash Memory for ISR 4300(Soldered On Motherboard)</li> <li>• 4G DRAM FOR ISR 4320 (Soldered On Motherboard)</li> <li>• Blank Faceplate for NIM SLOT ON Integrated Services Router for 4400</li> <li>• ISR 4300 SERIES IOS XE UNIVERSAL</li> <li>• CATALYST 2960 PLUS 24 10/100 +2T/SFP LAN BASE</li> <li>• SNTC-8X5XNBD CATALYST 2960 PLUS 24 10/100 +2T/SFP LAN BASE</li> <li>• AC Power Cord C13, NEMA 5-15P, 2.1M</li> <li>• CONSOLE CABLE 6FT WITH RJ45 AND DB9F WIRELESS N (2.4 GHZ) Fast Ethernet 4 Port Switch, High Speed UP TO 300 MBPS</li> </ul>		
	1	set	<b>Drone Set Kit Launcher (2 Units)</b> <ul style="list-style-type: none"> <li>• Carbon Fiber Frame: Tarot T960 c/F Folding Hexacopter</li> <li>• Carbon Fiber Frame: Tarot IronMan 1000</li> <li>• Brushless Motors:Tarot 5008 340Kv high power motors</li> <li>• Carbon Propellers:Carbon Propeller 18 x 5.5 PM11029</li> <li>• Electronic Speed Controller: Hobbywing flyfun 40A OPTO PM03002</li> </ul>	415,542.40	415,542.40



			<ul style="list-style-type: none"> <li>• Flight Controller with GPS and Gyro: DJI Naza-M V2 Multirotor Gyro System with GPS PM04005</li> <li>• 22.2V Battery: Tiger 22.2v 5400mah 35c PB01009</li> <li>• Radio Transmitter with Receiver - FRSKY TARANIS X9D PLUS COMBO PT02022</li> <li>• MINI On Screen Display Module: DJI iOSD Mini on screen Display</li> <li>• Bluetooth Module: DJI Naza M BTU (Bluetooth Unit)</li> <li>• Camera: SJ4000 Action Camera Non Wifi PM02005</li> <li>• FPV System TX 5.8G 200mW FPV Video Audio 8CH AV Transmitter TX 5.8 GHz RX Receiver Set 2KM 2000m</li> <li>• Cable Pack Set             <ol style="list-style-type: none"> <li>1. XT60 and XT90</li> <li>2. 20 Pairs Gold Tone Metal RC Banana Bullet Plug Connector</li> <li>3. AWG Silicone Wire Flexible High Temperature 1m Red and Black</li> <li>4. 20 pairs 3.5mm Gold plated Banana plugs Engine Electronic Connector</li> <li>5. 10pcs 50 cm Servo Extension Cord Cable Lead Wire JR 50cm 26 AWG</li> <li>6. 10 pairs 2 pin JST Plug Socket Connector M to F 110mm Cable Wire Red Black</li> <li>7. Pair of RC XT90 to plug Male to Female Lipo Battery Adapters Charger Cable</li> </ol> </li> <li>• FPV System (Monitor and Transmitter) BOSCAM RX-LCD5802 5.8 Dual Diversity 7 white</li> <li>• Battery Charger 15-30V SKYRC D200</li> <li>• Camera Positioning Kit/Gimbal Mounting Rail -</li> </ul>		
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			Tarot T4-3D 3 Axis FPV Brushless Camera Gimbal <ul style="list-style-type: none"> <li>• Antenna 5.8 GHz Circular Polarized Mushroom Antenna RP-SMA Set Tx/Rx for Multicopter</li> </ul> FPV System TX - Skyzone TX-5D HDMI to AV Transmitter Module – Black 142193701 with 600mw and 32 channel		
	1	unit	<b>PLC Simulation Board with I/O Devices</b> <ul style="list-style-type: none"> <li>• Start, Stop, Emergency Buttons</li> <li>• Conductive and Inductive Sensors</li> <li>• Thru Beam Sensors</li> <li>• Pneumatic Cylinders with 4/3 way Valve</li> <li>• Hydraulic Cylinders with 4/3 way Valve</li> <li>• 24V Stepper Motor with Driver</li> <li>• 24V Servo Motor with Driver</li> <li>• 1 Ball Screw Platform</li> <li>• Load Cell</li> <li>• Pneumatic Control Valve</li> <li>• I2P Converter</li> <li>• Flow Switch and Transmitter</li> </ul> <b>PLC Simulation Board</b> <ul style="list-style-type: none"> <li>• With pneumatic Circuit</li> <li>• Hydraulic Circuit</li> <li>• Servo motor</li> <li>• Stepper motor</li> <li>Heater, etc.</li> </ul>	1,000,000.00	1,000,000.00
	1	unit	<b>Design Software Suit Virtual Simulation</b> <ul style="list-style-type: none"> <li>• SCADA license for instructor - Adv Dev Studio</li> <li>• SCADA license for students</li> <li>• Laptop - I58265U processor, 8GB DDR4 memory, 1TB storage, 2GB MX130 Graphics Window 10, 15.6 HD Display</li> <li>• HMI (Touch Panel PC) - 10” widescreen display, aluminum chassis,</li> </ul>	799,000.00	799,000.00

			capacitive touchscreen, Windows 10 LTSC Enterprise <ul style="list-style-type: none"><li>• PLC - Supply Voltage 100, 240V AC, 9DI, 2 AI 0, 10V dc7 DO Relay NO, 1 USB A, 1RJ45(serial), 1RJ45 (Ethernet)</li><li>• Pre-assembled CAT5e cable with RJ45 plugs, 2m</li><li>• Training kit Assembly - Base frame for TM221CE16R PLC, Front panel with cutout for Aveva 10” Touch Panel PC, with 6 toggle switches</li><li>• PLC Training SCADA Training</li></ul>		
	Approved Budget for the Contract (ABC)				24,625,086.98
20.2	Within a non-extendible period of five (5) calendar days from receipt by the Bidder of the notice from the BAC that it submitted the Lowest Calculated Bid, the Bidder must present the original copies of the following:  1. Certificate of PhilGEPS Registration (Platinum Membership) 2. Certificate of Business Name or SEC Registration 3. Valid Business Permit 4. Tax Clearance 5. Latest income and business tax returns stamped and received by the BIR 6. Original Government-issued ID of Authorized Representative/s and signatories 7. Other Documentary Requirements as specified in the Terms of Reference				
21.2	Not applicable.				

## ***Section IV. General Conditions of Contract***

## **1. Scope of Contract**

This Contract shall include all such items, although not specifically mentioned, that can be reasonably inferred as being required for its completion as if such items were expressly mentioned herein. All the provisions of RA No. 9184 and its 2016 revised IRR, including the Generic Procurement Manual, and associated issuances, constitute the primary source for the terms and conditions of the Contract, and thus, applicable in contract implementation. Herein clauses shall serve as the secondary source for the terms and conditions of the Contract.

This is without prejudice to Sections 74.1 and 74.2 of the 2016 revised IRR of RA No. 9184 allowing the GPPB to amend the IRR, which shall be applied to all procurement activities, the advertisement, posting, or invitation of which were issued after the effectivity of the said amendment.

Additional requirements for the completion of this Contract shall be provided in the **Special Conditions of Contract (SCC)**.

## **2. Advance Payment and Terms of Payment**

- 2.1. Advance payment of the contract amount is provided under Annex “D” of the revised 2016 IRR of RA No. 9184.
- 2.2. The Procuring Entity is allowed to determine the terms of payment on the partial or staggered delivery of the Goods procured, provided such partial payment shall correspond to the value of the goods delivered and accepted in accordance with prevailing accounting and auditing rules and regulations. The terms of payment are indicated in the **SCC**.

## **3. Performance Security**

Within ten (10) calendar days from receipt of the Notice of Award by the Bidder from the Procuring Entity but in no case later than prior to the signing of the Contract by both parties, the successful Bidder shall furnish the performance security in any of the forms prescribed in Section 39 of the 2016 revised IRR of RA No. 9184.

## **4. Inspection and Tests**

The Procuring Entity or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Project specifications at no extra cost to the Procuring Entity in accordance with the Generic Procurement Manual. In addition to tests in the **SCC, Section IV (Technical Specifications)** shall specify what inspections and/or tests the Procuring Entity requires, and where they are to be conducted. The Procuring Entity shall notify the Supplier in writing, in a timely manner, of the identity of any representatives retained for these purposes.

All reasonable facilities and assistance for the inspection and testing of Goods, including access to drawings and production data, shall be provided by the Supplier to the authorized inspectors at no charge to the Procuring Entity.

## **5. Warranty**

- 6.1. In order to assure that manufacturing defects shall be corrected by the Supplier, a warranty shall be required from the Supplier as provided under Section 62.1 of the 2016 revised IRR of RA No. 9184.
- 6.2. The Procuring Entity shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall, repair or replace the defective Goods or parts thereof without cost to the Procuring Entity, pursuant to the Generic Procurement Manual.

## **6. Liability of the Supplier**

The Supplier's liability under this Contract shall be as provided by the laws of the Republic of the Philippines.

If the Supplier is a joint venture, all partners to the joint venture shall be jointly and severally liable to the Procuring Entity.



## ***Section V. Special Conditions of Contract***

## Special Conditions of Contract

GCC Clause	
1	<p><b>Delivery and Documents –</b></p> <p>For purposes of the Contract, “EXW,” “FOB,” “FCA,” “CIF,” “CIP,” “DDP” and other trade terms used to describe the obligations of the parties shall have the meanings assigned to them by the current edition of INCOTERMS published by the International Chamber of Commerce, Paris. The Delivery terms of this Contract shall be as follows:</p> <p>Delivery of the Goods shall be made by the Supplier in accordance with the terms specified in Section VI (Schedule of Requirements).</p> <p>For purposes of this Clause the Procuring Entity’s Representatives are the following personnel:</p> <p style="padding-left: 40px;"><b>Revelyn A. Cortez</b> OIC Provincial Director DTI Cavite Provincial Office Email: RevelynCortez@dti.gov.ph</p> <p style="padding-left: 40px;"><b>Rebecca S. Tarasona</b> OIC Chief Trade-Industry Development Specialist DTI Cavite Provincial Office Email: RebeccaTarasona@dti.gov.ph</p> <p style="padding-left: 40px;"><b>Rico P. Chavez</b> Senior Trade-Industry Development Specialist DTI Cavite Provincial Office Email: RicoChavez@dti.gov.ph</p> <p><b>Packaging –</b></p> <p>The Supplier shall provide such packaging of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in this Contract. The packaging shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packaging case size and weights shall take into consideration, where appropriate, the remoteness of the Goods’ final destination and the absence of heavy handling facilities at all points in transit.</p> <p>The packaging, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract, and in any subsequent instructions ordered by the Procuring Entity.</p> <p>A packaging list identifying the contents and quantities of the package is to be</p>

	<p>placed on an accessible point of the outer packaging if practical. If not practical the packaging list is to be placed inside the outer packaging but outside the secondary packaging.</p> <p><b>Transportation –</b></p> <p>Where the Supplier is required under Contract to deliver the Goods CIF, CIP, or DDP, transport of the Goods to the port of destination or such other named place of destination in the Philippines, as shall be specified in this Contract, shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price.</p> <p>Where the Supplier is required under this Contract to transport the Goods to a specified place of destination within the Philippines, defined as the Project Site, transport to such place of destination in the Philippines, including insurance and storage, as shall be specified in this Contract, shall be arranged by the Supplier, and related costs shall be included in the contract price.</p> <p>Where the Supplier is required under Contract to deliver the Goods CIF, CIP or DDP, Goods are to be transported on carriers of Philippine registry. In the event that no carrier of Philippine registry is available, Goods may be shipped by a carrier which is not of Philippine registry provided that the Supplier obtains and presents to the Procuring Entity certification to this effect from the nearest Philippine consulate to the port of dispatch. In the event that carriers of Philippine registry are available but their schedule delays the Supplier in its performance of this Contract the period from when the Goods were first ready for shipment and the actual date of shipment the period of delay will be considered force majeure.</p> <p>The Procuring Entity accepts no liability for the damage of Goods during transit other than those prescribed by INCOTERMS for DDP deliveries. In the case of Goods supplied from within the Philippines or supplied by domestic Suppliers risk and title will not be deemed to have passed to the Procuring Entity until their receipt and final acceptance at the final destination.</p> <p><b>Intellectual Property Rights –</b></p> <p>The Supplier shall indemnify the Procuring Entity against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the Goods or any part thereof.</p> <p><b>The terms of payment shall be as follows:</b></p> <p>Processing of payment is within thirty (30) working days upon receipt of original copy of following documents:</p> <ol style="list-style-type: none"> <li>1. Delivery Receipt and/or Sales Invoice</li> <li>2. Inspection and Acceptance Report c/o DTI Cavite Provincial Office and De La Salle University - Dasmariñas</li> <li>3. Property Acknowledgement Receipt (PAR) c/o DTI Cavite Provincial Office</li> </ol>
2.2	
4	<p>The inspections that will be conducted are:</p> <ol style="list-style-type: none"> <li>1. Completeness of items</li> </ol>

	2. Compliance to required specifications 3. Testing/Commissioning
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## ***Section VI. Schedule of Requirements***

# *Schedule of Requirements*

The delivery schedule expressed as weeks/months stipulates hereafter a delivery date which is the date of delivery to the project site.

Item Number	Description	Quantity	Total	Delivered, Weeks/Months
1	<p><b>Complete Metal 3D Printing System</b></p> <p>An accessible end-to-end Metal 3D printing solution designed to yield functional metal parts. With a separate unit for wash and sinter.</p> <p><b>Applications:</b></p> <ul style="list-style-type: none"> <li>• Functional Prototyping</li> <li>• Jigs &amp; Fixtures</li> <li>• Repair &amp; Replacement parts</li> <li>• Complex metal parts</li> <li>• Low volume production</li> </ul> <p><b>System Inclusions:</b></p> <p>I. 1 unit Metal 3D Printer</p> <p>II. 1 unit Wash Station (for debinding)</p> <p>III. 1 unit Sintering Furnace</p> <p><b>I. Metal 3D Printer</b></p> <ul style="list-style-type: none"> <li>• Print Technology: Material Extrusion, Metal Fused Filament Fabrication</li> <li>• Build Size (LxWxH): At least 300mm x 200mm x 180mm</li> <li>• Material Type: Spool - based</li> <li>• Z Resolution: must be able to reach 50 microns, 125microns</li> <li>• Printer must be able to print with a width of 0.3mm.</li> <li>• Print Chamber: Heated chamber to ensure</li> </ul>	1 set	1 set	Sixty-Five (65) calendar days upon receipt of Notice to Proceed (NTP) and Purchase Order (PO)

	<p>controlled environment during printing</p> <ul style="list-style-type: none"> <li>• Print bed: Heated, vacuum-sealed print sheet, auto bed leveling</li> <li>• The print bed will auto-calibrated at preprint stage</li> <li>• Print System: 2 Nozzles - Metal Material and Support Release</li> <li>• Different layers settings do not require any nozzle change.</li> <li>• Different metal materials do not require any nozzle change.</li> <li>• System contains out-of-material detection</li> <li>• System contains build-in vacuum Sealed function to secure print sheet</li> <li>• Part will be printed on the print sheet, for ease removal purpose</li> <li>• Printer must be able to lay both materials in the XY plane.</li> <li>• Controller: System uses build in touch screen controller to control system</li> <li>• Materials Compatibility: At least Stainless Steel, Tool Steel, Titanium, Inconel, Copper, etc.</li> <li>• Supplied Software: Compatible Slicing Software with Security Two-factor authentication, org admin access, single sign-on</li> <li>• Software Compliance: ISO 27001</li> <li>• Printer are capable of printing infill part or solid parts</li> <li>• The system is able to print and sinter successfully for vertical wall thickness</li> </ul>			
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	<p>&gt;4mm and solid parts &gt;5mm.</p> <ul style="list-style-type: none"> <li>• Electrical Requirements: 220-240 VAC, 50-60HZ, Single Phase</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• 1 unit Vacuum Built Plate (Proprietary)</li> <li>• 200cc Stainless Steel 17- 4PH Material (Proprietary)</li> <li>• 200cc Ceramic Release Material (Proprietary)</li> <li>• 200cc Copper Material (Proprietary)</li> <li>• 3 pcs. Metal quick-change nozzles (Proprietary)</li> <li>• 3 pcs. Release quick- change nozzles (Proprietary)</li> <li>• 1 unit 5KVA UPS</li> </ul> <p><b>II. Washing Station</b></p> <ul style="list-style-type: none"> <li>• The Debinder must be able to accommodate and debind parts of size greater than or equal to the maximum extruded part size that the printing system printed.</li> <li>• Washing Size: at least 356 x 254 x 203 mm</li> <li>• Washing Volume: not be less than 18,000 cubic cm (1120 cubic in)</li> <li>• The debinder uses a common nonproprietary and readily available fluid which is approved to be used in Philippines</li> <li>• Wash Fluid: Open Source non-proprietary, Available Locally</li> <li>• Controller: Integrated Control System</li> <li>• Work holding: Stainless Steel Basket</li> <li>• Wash system requires external exhaust</li> </ul>			
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	<ul style="list-style-type: none"> <li>• The Debinder Must have a Close-Loop Solvent Circulation System to eliminate Fume Exhaust</li> <li>• The debinder must have distillation system, in order to keep the efficiency of the process</li> <li>• System contains cool coil, and it helps to separate the solvent and condensed water</li> </ul> <p><b>Safety Management includes:</b></p> <ul style="list-style-type: none"> <li>• High vapour Shutoff</li> <li>• Over-temperature Shutoff</li> <li>• Low fluid level Shutoff</li> <li>• Electrical Requirement: 220-240 VAC, 60Hz, single phase</li> </ul> <p><b>III. Sintering Furnace</b></p> <ul style="list-style-type: none"> <li>• System contains express sinter function, its cycle is less than 17 hours</li> <li>• Featuring 4760 cubic cm of working volume, The Sinter effortlessly converts washed parts into their dense final metallic form.</li> <li>• The Sintering Capacity must be at least Cylindrical - 141 mm ID x 305 mm Length</li> <li>• Sintering volume is not less than 4700 cm<sup>3</sup></li> <li>• All metal materials from printing system are able to be sintered in furnace</li> <li>• Kanthal is the heating element for system</li> <li>• It must be carbon free retort to maintain right steel compound</li> <li>• Furnace is a carbon free retort system</li> <li>• Maximum Sintering Temperature 1,300 °C</li> </ul>			
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	<ul style="list-style-type: none"> <li>• Sinterable volume temperature uniformity is +/- 5 °C</li> <li>• Gas Type: Inert and Mix Gases non-proprietary, Available locally</li> <li>• Gas Requirement: Mixed Gas - 2.9% hydrogen 97.1% Argon, Pure Argon gas</li> <li>• The External Provider shall ensure the installation of pressurized cylinders in compliance with DOLE safety requirements or manufacturer safety standards.</li> <li>• System allows Auto gas supply changeover</li> <li>• The Sinter come with inlet gas filtration system</li> <li>• The Sinter come with outlet gas filtration system</li> <li>• Exhaust Rate (m3/min or CFM) &lt;150 CFM, &gt;100CFM</li> <li>• The furnace unit must have clear visible signage to inform user of ongoing sintering, and ensure its door is securely locked during sintering to prevent accidents for users.</li> <li>• Sinter machine should comes with gas panel from OEM</li> <li>• System can be monitored by software, and the user is able to check via the internet.</li> <li>• The normal sintering cycle should consume &lt; 30 hours</li> <li>• Sinter machine can help on annealing process (optional for material)</li> <li>• Furnace contains temperature sensor</li> </ul>			
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	<ul style="list-style-type: none"> <li>• Furnace contains moisture sensor</li> <li>• Furnace contains pressure sensor</li> <li>• System contains a self-diagnose function at the pre sintering stage.</li> <li>• System use touch screen controller to control it</li> <li>• Electrical Requirement: Single Phase, 200-240 VAC 30A, 50-60Hz</li> <li>• Gas Supply Panel Mounting Requirement: - Cryogenic liquid cylinder + gas cylinder footprint: 1.40m (55in) wide, 700mm (27in) deep at cryogenic liquid cylinder, 300mm (12in) deep at gas cylinder.</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• 2 units Argon</li> <li>• 2 units Mixed Gas</li> <li>• 2 buckets Opteon Fluid</li> </ul> <p><b>Software</b></p> <ul style="list-style-type: none"> <li>• OS requirements: Windows: 7 or later Mac: OS X Yosemite version 10.10 or later</li> <li>• All operating systems must be 64-bit for proper use</li> <li>• File Format Compatibility: .stl</li> <li>• Any 3D CAD Software that is compatible with .stl format is acceptable.</li> <li>• The information Security Management System must conform to the requirements of ISO/IEC 27001</li> <li>• The Information Security Management System (ISMS), is to appropriately</li> <li>• preserve privacy, confidentiality, integrity,</li> </ul>			
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	<p>and availability (CIA) of the manufacturers information assets, including, but not limited to, its and its clients' intellectual property.</p> <ul style="list-style-type: none"> <li>• The software used should leverage FIPS 140-2 compliant encryption standards. All data is in transit using TLS. HTTPS is required for all services, including vendors' public website and cloud applications. Additionally, part files are protected with data encryption at rest by encrypting the Amazon Web Services (AWS) Simple Storage Service (S3) buckets where part files are stored using AES-256. Vendors shall implement controls to appropriately limit the creation, storage, usage, and deletion of encryption keys</li> <li>• All print files sent to printers are formatted as encrypted format. containing details about the part geometry, orientation, and fiber and material layout. This means that encrypted files transferred from software to printers by USB mass storage devices are secured via encryption.</li> <li>• The slicing software provides users with the option to enable two-factor authentication (2FA) for additional security. The 2FA utilizes time-based one time passwords (TOTP) and can be configured using well known 2FA apps like Google Authenticator.</li> </ul>			
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	<p>User passwords are securely hashed, salted, and stored using AWS Cognito, which employs the SRP protocol.</p> <ul style="list-style-type: none"> <li>• The software development lifecycle (SDLC) employs manual code reviews and automated integration testing before each deployment. Several pre-release environments are used for quality assurance and testing prior to releasing any code to production. Vendor utilizes a continuous deployment model, which allows customers to immediately benefit from new functionality, vulnerability remediation, and bug fixes.</li> <li>• Slicing software support Multi-Factor Authentication using Time-Based One Time Password (TOTP) Apps</li> <li>• The 3D printing software shall be able to import 3D models from major CAD software in STL format</li> <li>• The 3D Printing software shall include slicing tools with integrity checking for 3D printing</li> <li>• The 3D printing software shall be able to monitor and control the printing parameters.</li> <li>• The software must be able to calculate printing time, wash time and consumables usage during preprocessing of each print job.</li> <li>• The Software must be able to show the material printing route and release ceramic layer in 2d and</li> </ul>			
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	<p>3d, so that it can be manipulated</p> <ul style="list-style-type: none"> <li>• The 3D printing software must be able to manage multiple printers, wash and sinter machines</li> <li>• The software must be able to host different users in the same virtual organization</li> <li>• The software must provide a library setting so that users can share parts</li> <li>• The software must provide a dashboard so that users can monitor their utilization of printer time and other statistics</li> <li>• User is able to monitor printing status via live Corp image from live camera</li> <li>• Software must be allowed users to start prints remotely on printers within the same organization</li> <li>• The software must be ability to download the printer logs remotely</li> <li>• The software must send an email notification if there this an out of material incident of when the spools runs out during a print</li> <li>• The Software must be able to allow the user to open a support request directly from the software UI</li> <li>• Users are able to add ceramic released layer as needed</li> <li>• User can manipulate either printing with raft, or w/o raft</li> <li>• User can manipulate either printing with support, or w/o support</li> </ul>			
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	<ul style="list-style-type: none"> <li>• Metal printing is available for chunkable support structure</li> <li>• Design scale will enlarge per axis automatically to compensate shrinkage from actual process</li> <li>• Wall thickness is adjustable via software</li> <li>• Solid printing function is available</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Installation: All installation costs and other incidental cost and activity will be shouldered by the</li> </ul>			
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	<p>winning bidder (Ventilation, construction, finishing, etc.)</p> <ul style="list-style-type: none"> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> <li>• Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> </ul> <p>English Operations Manual included</p>			
2	<p><b>Carbon Fiber 3D Printer – Desktop Series</b></p> <p>Print Continuous Carbon Fiber reinforced parts on your desktop – stiff, strong, extremely durable, and capable of replacing machined aluminum.</p> <p><b>Applications:</b></p> <ul style="list-style-type: none"> <li>• Functional Prototyping</li> <li>• Jigs &amp; Fixtures</li> <li>• Stamping Dies</li> <li>• Repair &amp; Replacement parts</li> </ul> <p><b>Specifications:</b></p> <ul style="list-style-type: none"> <li>• Print Technology: Continuous Fiber Reinforcement (CFR)</li> <li>• Build Volume: at least 320 x 130 x 150 mm</li> </ul>	1 unit	1 unit	Sixty-Five (65) calendar days upon receipt of Notice to Proceed (NTP) and Purchase Order (PO)

	<ul style="list-style-type: none"> <li>• Layer Height: 100 Micron or better</li> <li>• Slicing Software: With Cloud control and Two-factor authentication</li> <li>• Nozzle System: Dual Extruder, out of plastic detection</li> <li>• Print System: 2 Nozzles - One for Base Material and One for Reinforcement Material</li> <li>• Power Requirements: 100–240 VAC, 150 W (2 A peak)</li> <li>• Printing Materials: Base Filaments -Onyx, Nylon,</li> <li>• Reinforcement Fiber - Carbon Fiber, Fiberglass, High Strength High Temperature Fiberglass, Kevlar</li> <li>• Print Bed: Kinematic coupling — flat to within 160 micron</li> <li>• The print bed must use kinematic coupling to provide precision and certainty of location, enabling pausing and removal of bed mid-print</li> <li>• Material Tensile Strength: 800 MPa (25.8x ABS, 2.6x 6061-T6 Aluminum)</li> <li>• Material Tensile Modulus: 60 GPa (26.9x ABS, 0.87x 6061-T6 Aluminum)</li> <li>• Infill: Closed cell infill: multiple geometries available</li> <li>• The print bed has the ability to be decoupled and recoupled with 10 microns repeatability during the middle of a print</li> <li>• A fiber cutting blade must be integrated inside the printhead and controlled automatically by software.</li> </ul>			
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	<ul style="list-style-type: none"> <li>• Printer must be able to embed fiber into prints, and the width of the fiber extrusion must be no more than 0.9mm</li> <li>• Fiber must be able to be placed in a wall with 2.8mm thickness</li> <li>• When the printer is laying down fiber, it must be able to turn the fiber direction and lay down continuously with maximum 180 degrees</li> <li>• The printer must be able to print in any selectable resolution without changing the printhead or nozzles.</li> </ul> <p><b>Software:</b></p> <ul style="list-style-type: none"> <li>• File Format Compatibility: .stl Any 3D CAD Software that is compatible with .stl format is acceptable.</li> <li>• The information Security Management System must conform to the requirements of SO/IEC 27001</li> <li>• The Information Security Management System (ISMS), is to appropriately preserve privacy, confidentiality, integrity, and availability (CIA) of the manufacturers information assets, including, but not limited to, its and its clients' intellectual property.</li> <li>• The software used should leverage FIPS 140-2 compliant encryption standards. All data is in transit using TLS. HTTPS is required for all services, including vendor's public website and cloud applications. Additionally,</li> </ul>			
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	<p>part files are protected with data encryption at rest by encrypting the Amazon Web Services (AWS) Simple Storage Service (S3) buckets where part files are stored using AES-256. Vendors must implement controls to appropriately limit the creation, storage, usage, and deletion of encryption keys.</p> <ul style="list-style-type: none"> <li>• All print files sent to printers are formatted as encrypted format. containing details about the part geometry, orientation, and fiber and material layout. This means that encrypted files transferred from software to printers by USB mass storage devices are secured via encryption.</li> <li>• The slicing software provides users with the option to enable two-factor authentication (2FA) for additional security. The 2FA utilizes time-based one time passwords (TOTP) and can be configured using well known 2FA apps like Google Authenticator or Authy. User passwords are securely hashed, salted, and stored using AWS Cognito, which employs the SRP protocol.</li> <li>• The software development lifecycle (SDLC) employs manual code reviews and automated integration testing before each deployment. Several pre-release environments are used for quality assurance and testing prior to releasing any code to</li> </ul>			
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	<p>production. Vendor utilizes a continuous deployment model, which allows customers to immediately benefit from new functionality, vulnerability remediation, and bug fixes.</p> <ul style="list-style-type: none"> <li>• The 3D printing software must be able to import 3D models from any major CAD software in STL format</li> <li>• The 3D Printing software must include slicing tools with integrity checking for 3D printing</li> <li>• The 3D printing software must be able to monitor and control the printing parameters, including layer thickness, infill type and material choice</li> <li>• The software must be able to calculate printing time and consumables usage during preprocessing of each print job.</li> <li>• The software must be able to calculate the cost of each part during preprocessing of each print job</li> <li>• The software must be able to show the continuous fiber routing in 2d and 3d, so that it can be manipulated.</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• 1 pc. 3D Printer Kit</li> <li>• 1 pc. True Print Bed</li> <li>• 1 pc. Filament Drybox</li> <li>• 800cc Onyx Spool</li> <li>• 100cc Carbon Fiber</li> <li>• 50cc Fiberglass</li> <li>• 50cc Kevlar</li> <li>• 50cc HSHT</li> </ul>			
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	<p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and</li> </ul>			
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	<p>has available technical support locally.</p> <ul style="list-style-type: none"> <li>• Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> <li>• English Operations Manual included</li> </ul>			
<b>3</b>	<p><b>Large-Scale FDM 3D Printer</b></p> <ul style="list-style-type: none"> <li>• Fully Enclose large scale 3D Printer with Dual Extruder</li> <li>• Technology: Fused Deposition Modeling (FDM)</li> <li>• Build Size: at least 1200 x 600 x 630mm</li> <li>• Filaments Size: 1.75 mm, Open Source</li> <li>• Extruder: Dual Print Head</li> <li>• Nozzle Diameter Available: 0.4, 0.6 &amp; 0.8 mm brass Volcano nozzles</li> <li>• Enclosure: Fully Enclosed made of 3mm black Aluminum Composite Panels (ACP)</li> <li>• 3D Printer Controller: 7-inch touchscreen – integrated with the controller</li> <li>• Connectivity: WIFI web access for remote control from either mobile or PC allowing users to upload print files directly from their workstation</li> <li>• SD card slot and USB</li> <li>• Motion System: Linear guide rails</li> <li>• Position accuracy: X-10 Micron, Y-10 Micron, Z-0.5 Micron</li> <li>• Print speed – Normal quality 60 mm/sec, Draft</li> </ul>	1 unit	1 unit	Sixty-Five (65) calendar days upon receipt of Notice to Proceed (NTP) and Purchase Order (PO)

	<p>100 mm/sec, Calculated for 0.4 nozzle.</p> <ul style="list-style-type: none"> <li>• Print Bed; heated, Tempered Glass</li> <li>• Max temperature: 120 degree Celsius</li> <li>• Calibration: Auto Bed Leveling</li> <li>• Software: Open source Duet RepRap firmware. The leading firmware for 3D printing allowing numerous configurations and easy customization using the macro system.</li> <li>• File Format Compatibility: .stl Any 3D CAD Software that is compatible with .stl format is acceptable.</li> <li>• Filament Run-Out Sensor – The filament run-out detection sensor will pause the print job when the filament has been used up.</li> <li>• Open Filament – Any filament from any vendor can be used.</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• 1 set 3D Printer Kit</li> <li>• 2 spools ABS Filament Spool, 1kg</li> <li>• 1 set Enclosure</li> <li>• 1 unit 2nd Print Head</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The</li> </ul>			
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	<p>External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</p> <ul style="list-style-type: none"> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> <li>• Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> </ul> <p>English Operations Manual included</p>			
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4	<p><b>FDM 3D Printer (5 Units)</b></p> <ul style="list-style-type: none"> <li>• Print Technology: Fused Deposition Modeling (FDM)</li> <li>• Build Volume: at least 250x210x190mm</li> <li>• Filaments Size: 1.75 mm, Open Source</li> <li>• Extruder: Single</li> <li>• Layer Resolution: 0.05-0.3 mm</li> <li>• Print Speed: 20~150mm/s</li> <li>• Supported Materials: ABS, TPU, PLA, HIPS, etc.</li> <li>• Ambient Operating Temperature: 8°C - 40°C</li> <li>• Operational Extruder Temperature: max 260°C</li> <li>• Operational Print Bed Temperature: max 100°C</li> <li>• Software Input Formats: .STL, .OBJ, JPG, PNG</li> <li>• Any 3D CAD Software that is compatible with Software Input Formats is acceptable.</li> <li>• Connectivity: SD Card; USB cable</li> <li>• Printer Dimensions: 454mm×466mm×410mm</li> <li>• Net Weight: ~18.8kg</li> </ul> <p><b>Package Inclusion per unit:</b></p> <ul style="list-style-type: none"> <li>• 1 Spool of 1kg. PLA Filaments</li> <li>• 3D Printer Kit</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has</li> </ul>	1 set	1 set	Sixty-Five (65) calendar days upon receipt of Notice to Proceed (NTP) and Purchase Order (PO)
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	<p>manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</p> <ul style="list-style-type: none"> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> <li>• Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> <li>• English Operations Manual included</li> </ul>			
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5	<p><b>Compact CNC Milling System</b></p> <p>To cut challenging materials like titanium as well as softer materials such as aluminum, plastic and wood.</p> <ul style="list-style-type: none"> <li>• Operating Range: at least X: 356mm (14in); Y: 191mm (7.5in); Z: 337mm (13.25in)</li> <li>• Table Size: At least 660mm x 200 mm;</li> <li>• Feed Rate: XY: At least 135 inches per min; Z: At least 110 inches per minute</li> <li>• Three Table Slots:15.9 mm</li> <li>• Spindle Power: 1.5 hp</li> <li>• Speed: At least 10,000 RPM</li> <li>• Spindle Note to Table Max Clearance: 330mm</li> <li>• Spindle Centerline to Machine Column: 215 mm</li> <li>• Tapping: Tension/Compression, Auto-Reversing, Treadmill</li> <li>• Spindle Taper: R8</li> <li>• Machine Controller: Support for up to four axis continuous machining, conversational programming, Usable G-Code Memory: Brix Controller: 80 GB / Controller Operator Console: 40 GB, Built-in Dropbox</li> <li>• Power Requirements: Single-Phase 115Vac, 50/60Hz, 15A Breaker Voltage regulator included</li> <li>• Materials Compatibility: Titanium, Steel, Aluminum, Plastic, Composites, Wood, PCB Boards.</li> </ul>	1 unit	1 unit	Sixty-Five (65) calendar days upon receipt of Notice to Proceed (NTP) and Purchase Order (PO)
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	<ul style="list-style-type: none"> <li>• Machine Dimension: 1500 mm x 1300 mm x 2300 mm</li> <li>• Machine Weight: 450 kg</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• Full Machine Enclosure</li> <li>• Heavy Duty Steel Stand with Chip Tray and Coolant Tank</li> <li>• System Controller with Water proof Mouse, keyboard, LCD Screen, Jog Shuttle Controller</li> <li>• Pneumatic Drawbar Kit</li> <li>• 18 Piece Carbide End Mill Kit. Includes Square, Ball and .030 in. Radius Carbide End Mills with TiAlN Coating. Recommended for steel machining.</li> <li>• 14 Piece Carbide End Mill Kit. Includes Square, Ball and .030 in. Radius Carbide End Mills with Bright Finish. Recommended for aluminum machining.</li> <li>• Complete kit of Operator Set for Cooling System quick change tool holders</li> <li>• Coolant Kit (1/8 hp) flushes chips and swarf from the cutting zone.</li> <li>• Automatic Tool Change 10 pocket, umbrella-style automatic tool changer air compressor</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> </ul>			
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	<ul style="list-style-type: none"> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for atleast 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> <li>• Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> <li>• English Operations Manual included</li> </ul>			
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6	<p><b>80 Watts CO2 Laser Cutter/Engraver</b></p> <p>Open architecture offers the versatility you need for endless product creation. Customize items of all sizes; as small as a peanut to a large granite memorial.</p> <ul style="list-style-type: none"> <li>• Engraving Area: 710 x 400 mm (Continuous Feed)</li> <li>• Focal Lens: 2 Inches</li> <li>• Laser Wattage: 80 watts</li> <li>• Cooling System: Utilize a uniquely integrated, self-contained cooling system.</li> <li>• Laser Tubes: Glass tubes</li> <li>• Resolution: User controlled from 75 to 1200 dpi</li> <li>• Operating Modes: Raster, vector or combined modes</li> <li>• Motion Control: continuous-loop, DC servomotors</li> <li>• Print Interface: Ethernet or USB connection</li> <li>• Auto focus (Automatically focus the engraving table to the correct focal distance.)</li> <li>• Features: Removable Laser Top, EZ Leveling system</li> <li>• operating systems: Windows® XP/7/8/10 32-bit and 64-bit</li> <li>• Memory Controller: standalone controller with 128MB of independent memory allows for processing and storage of large sized files.</li> <li>• Starting Positions: 9 different starting positions in reference to the image or file to be engraved or</li> </ul>	1 unit	1 unit	Sixty-Five (65) calendar days upon receipt of Notice to Proceed (NTP) and Purchase Order (PO)
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	<p>cut, breaking the confines of a “home position</p> <ul style="list-style-type: none"> <li>• Resolution: Up to 1000dpi, The standard 2 inch condensing lens has a point of impact of .003 inches, allowing for approximately 300 dpi.</li> <li>• Operating Mode: Engrave (faster) mode will engrave bitmap images and/or vector files. Cut mode cuts or traces vector file formats.</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• Air Compressor</li> <li>• Floor Stand or Utility Carriage</li> <li>• Rotary attachment</li> <li>• Air Assist</li> <li>• Exhaust</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> </ul>			
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	<ul style="list-style-type: none"> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> <li>• Attached certification of parts availability issued by the manufacturer for the project.</li> <li>• English Operations Manual included</li> </ul>			
7	<p><b>Handheld 3D Scanner</b></p> <p>Hand-held 3D scanner meant to capture medium and large objects; with built-in touchscreen for ease-of-use during scanning.</p> <ul style="list-style-type: none"> <li>• 3D point accuracy: Up to 0.1 mm</li> <li>• Accuracy over distance: Up to 0.1 mm over 1 m</li> <li>• 3D resolution: Up to 0.6 mm</li> <li>• Texture resolution: 2.3 MP or better</li> <li>• 3D Light source: White LED</li> </ul>	1 unit	1 unit	Sixty-Five (65) calendar days upon receipt of Notice to Proceed (NTP) and Purchase Order (PO)

	<ul style="list-style-type: none"> <li>• Frame Rate: 25-30 fps</li> <li>• Linear Field of View HxW @ closest range: 280 × 360 mm; Linear Field of View HxW @ furthest range: 490 × 650 mm;</li> <li>• Data acquisition speed up to: 3 mln points /sec</li> <li>• Multi core processing: Yes;</li> <li>• 3D Formats: OBJ, PLY, STL, etc.</li> <li>• Software: Include license operating software that can Fill holes, simplify the mesh, apply texture.</li> <li>• Interface: Built in touchscreen - 4 inches</li> <li>• Tracking Modes; Geometry, Markers, Texture</li> <li>• Capable of scanning: Black surfaces, Glossy objects, Sharp edges, Human hair</li> <li>• Weight: 0.9 kg (1.9 lb.) or equivalent</li> <li>• Dimensions: 165 × 85 × 274 mm</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• 1x Software</li> <li>• 1x Carry Case</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training</li> </ul>			
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	<p>certificate issued by manufacturer.</p> <ul style="list-style-type: none"> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> <li>• Attached certification of parts availability issued by the manufacturer for the project.</li> <li>• English Operations Manual included</li> </ul>			
8	<p><b>Filament Maker</b></p> <p>The unique vertical extrusion setup in the filament makers ensures precise roundness and accurately guides the filament to the spool.</p>	1 unit	1 unit	Sixty-Five (65) calendar days upon receipt of Notice to Proceed (NTP) and Purchase Order (PO)

	<p>A dual air cooling system, with adjustable fan speeds and positions, ensures optimal cooling settings for the materials you work with. A sophisticated optical sensor and a dynamic puller system work together to achieve a diameter precision tolerance of +/- 0.05mm*.</p> <ul style="list-style-type: none"> <li>• Temp. Peek Point: 450°C</li> <li>• Filament Type: Benchtop</li> <li>• Heating Zones: 4 – Independent Controllable</li> <li>• Mixing screw: High-flow screw</li> <li>• Extrusion Data Analysis: Real-time</li> <li>• Extrusion Direction: Vertical</li> <li>• Compatible Materials: PLA, ABS, PC, PS, PETG, TPU, TPE, PPS, PVA, Bio PE, NEW</li> <li>• PET, PA (6,12, 66), PEEK, PC, PS, PEKK, PAEK, PEI, PSU, PES, PTFE, PVD+, and many more</li> <li>• RPM Range: up to 15 rpm</li> <li>• Filament Diameter Range: 0.5 – 3 mm</li> <li>• Sensor Accuracy: 43 microns (1.69 mils)</li> <li>• Nozzle extruder: Diameter 4 mm (0.16 inches)</li> <li>• Replaceable Screw Barrel Alloy: High chromium and molybdenum steel alloy - Nitride – 3 stage Compression</li> <li>• Dimension: 506 x 448 x 216 mm or equivalent</li> <li>• Weight: 24.5 or equivalent</li> </ul> <p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>• 10 Spools</li> <li>• 1200g Pouch PLA</li> <li>• 1x Spool Holder</li> </ul>			
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	<ul style="list-style-type: none"> <li>• 1x Extra Nozzle Package 4mm</li> </ul> <p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the</li> </ul>			
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	<p>External Provider has the capability to do after sales support after warranty and has available technical support locally.</p> <ul style="list-style-type: none"> <li>• Attached certification of parts availability issued by the manufacturer for the project.</li> <li>• English Operations Manual Included</li> </ul>			
9	<p><b>Multi Tool 3D Printer</b></p> <p>Toolhead Technology: FDM/FFF, CNC Milling, Laser Engraving and Cutting, Paste Extrusion</p> <p><b>I. 3D Printing Parameters: Fused Filament Fabrication (FFF)</b></p> <ul style="list-style-type: none"> <li>• Work Area: at least 230 x 250 x 165 mm</li> <li>• Toolhead: Single Extruder Toolhead 1.75, Dual Extruder Toolhead</li> <li>• Layer Resolution: 0.05 - 0.4 mm or better</li> <li>• Bed temperature: at least 115°C</li> <li>• Printing temperature: at least 250 °C</li> <li>• Work area leveling method: Automatic, Manual</li> <li>• Available Materials: PLA, ABS, PET, Nylon, PVA, HIPS, ASA, TPE, PP, PC, PMMA, PC/ABS</li> <li>• Support structures: Mechanically and chemically removed - printed with the same material as the model</li> <li>• Material diameter: 1.75mm, 3.00mm</li> <li>• Connectivity: USB, Ethernet, SD card</li> </ul>	1 unit	1 unit	Sixty-Five (65) calendar days upon receipt of Notice to Proceed (NTP) and Purchase Order (PO)



	<ul style="list-style-type: none"> <li>• Third party materials: Applicable, open source</li> </ul> <p><b>II.CNC Milling</b> <b>Parameters: Toolhead</b> <b>CNC Spindle</b></p> <ul style="list-style-type: none"> <li>• Work Area: at least 230 x 250 x 80 mm</li> <li>• Travel Speed: at least 120 mm/s</li> <li>• Available Materials: ABS, Nylon, HDPE, PTFE, PC, PP, POM, PMMA, PVC, HIPS, LDPE, PET, Carbon, CCL FR4, Dibond, TCF, Wood, Wood-like, Aluminum, Brass, Copper, Cardboard, Wax, Modeling board, Styrofur</li> <li>• Spindle max power: 300W</li> <li>• Work area leveling method: Manual</li> <li>• Tool holding: ER-11 collet</li> </ul> <p><b>III.Laser</b> <b>Engraving/Cutting</b> <b>Parameters: Tool head</b> <b>laser</b></p> <ul style="list-style-type: none"> <li>• Laser spot size for 50mm 0.1 x 0.1 mm</li> <li>• Laser spot size for 80mm 0.1 x 0.18 mm</li> <li>• Work Area: at least 230 x 250 x 80 mm</li> <li>• Software Supported files: .stl, .obj, .step, .dxf, .png, .bmp Filter type: HEPA/Carbon</li> <li>• Laser Power: 2.8W</li> <li>• Wavelength: 450nm</li> <li>• Laser class: 4</li> <li>• Available Materials: Wood, wood-like, leather, paper, cardboard, felt, foil, laminate, EPP, EVA Foam, CCL FR4</li> </ul>			
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	<ul style="list-style-type: none"> <li>• Software: The all-in-one software for 3D printing, CNC milling, and laser engraving and cutting.</li> <li>• Supported File Types: .stl, .obj, .step, .dxf, .png, .bmp</li> <li>• Supported Operating Systems: Windows 7/10 (64 bit) (or higher) / macOS 10.13 (or higher)</li> <li>• Software Feature: features CAM-standard workflow for CNC procedures with STEP operations, ability to change the tool within one G-code, and path visualization.</li> <li>• Machine Dimension: 520 x 500 x 570mm or equivalent</li> <li>• Weight: 30kg or equivalent</li> <li>• Electrical Requirements: 100 [VAC] ~ 4 [A] 50/60 [Hz] 240 [VAC] ~ 2 [A] 50/60 [Hz]</li> <li>• Voltage regulator included</li> <li>• Filtration Parameters: HEPA/Carbon, 1.54 Ventilation Power</li> </ul> <p><b>Accessories Included:</b></p> <ul style="list-style-type: none"> <li>• 1 unit 1.75 mm Plastic Extruder with 0.3 mm nozzle</li> <li>• 1 unit Dual Plastic Extruder with Mixer hot end</li> <li>• 1 unit CNC Milling toolhead</li> <li>• 1 unit Laser PRO toolhead (2.8 W)</li> <li>• 1 unit Thick Paste Extruder</li> <li>• 1 unit Heated worktable for 3D printing</li> <li>• 1 unit CNC Worktable for milling and cutting</li> <li>• 1 unit Dust Collector</li> </ul>			
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	<p><b>Other Requirements:</b></p> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> <li>• Training and Installation: 5 days onsite training and installation for atleast 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and</li> </ul>			
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	<p>has available technical support locally.</p> <ul style="list-style-type: none"> <li>• Attached certification of parts availability issued by the manufacturer for the project.</li> <li>• English Operations Manual included</li> </ul>			
<b>10</b>	<p><b>Integrated Services Router Bundle 1 and 2</b></p> <p><b>Bundle 1:</b></p> <ul style="list-style-type: none"> <li>• 4221 Integrated Services Router (2GE, 2NIM.8G FLASH.4G</li> <li>• SNTC-8X5XNBD (2GE, (12))</li> <li>• IP Base License Integrated Services Router 4000 Series</li> <li>• AC Power Supply</li> <li>• AC Power Cord</li> <li>• Blank Faceplate for NIM SLOT compatible</li> <li>• Universal</li> <li>• CATALYST 2960 PLUS 24 10/100 + 2T/SFP LN BASE</li> <li>• SNTC-8X5XNBD CATALYST 2960 PLUS 24 10/100 +2T/SFP LA</li> <li>• AC Power Cord</li> <li>• CONSOLE Cable 6FT WITH RJ45 AND DB9F</li> <li>• WIRELESS N (2.4 GHZ) Fast Ethernet 4 Port Switch, High Speed UP TO 300 MBPS</li> </ul> <p><b>Bundle 2:</b></p> <ul style="list-style-type: none"> <li>• 4321 Integrated Services Router (2GE, 2NIM, 4G FLASH, 4GDRAM, IPB)</li> <li>• SNTC-8X5XNBD 4321 Integrated Services Router (2GE, 2NIM, 4G FLASH, 4GDRAM, IPB)</li> <li>• IP Base License for 4321 Integrated Services Router</li> </ul>	1 unit	1 unit	Sixty-Five (65) calendar days upon receipt of Notice to Proceed (NTP) and Purchase Order (PO)

	<ul style="list-style-type: none"> <li>• AC Power Supply for 4321 Integrated Services Router</li> <li>• AC POWER CORD TYPE C5, US, CANADA</li> <li>• 4G Flash Memory for ISR 4300(Soldered On Motherboard)</li> <li>• 4G DRAM FOR ISR 4320 (Soldered On Motherboard)</li> <li>• Blank Faceplate for NIM SLOT ON Integrated Services Router for 4400</li> <li>• ISR 4300 SERIES IOS XE UNIVERSAL</li> <li>• CATALYST 2960 PLUS 24 10/100 +2T/SFP LAN BASE</li> <li>• SNTC-8X5XNBD CATALYST 2960 PLUS 24 10/100 +2T/SFP LAN BASE</li> <li>• AC Power Cord C13, NEMA 5-15P, 2.1M</li> <li>• CONSOLE CABLE 6FT WITH RJ45 AND DB9F</li> <li>• WIRELESS N (2.4 GHZ) Fast Ethernet 4 Port Switch, High Speed UP TO 300 MBPS</li> </ul>			
<b>11</b>	<b>Drone Set Kit Launcher (2 Units)</b> <ul style="list-style-type: none"> <li>• Carbon Fiber Frame: Tarot T960 c/F Folding Hexacopter</li> <li>• Carbon Fiber Frame: Tarot IronMan 1000</li> <li>• Brushless Motors:Tarot 5008 340Kv high power motors</li> <li>• Carbon Propellers:Carbon Propeller 18 x 5.5 PM11029</li> <li>• Electronic Speed Controller: Hobbywing flyfun 40A OPTO PM03002</li> </ul>	1 set	1 set	Sixty-Five (65) calendar days upon receipt of Notice to Proceed (NTP) and Purchase Order (PO)

	<ul style="list-style-type: none"> <li>• Flight Controller with GPS and Gyro: DJI Naza-M V2 Multirotor Gyro System with GPS PM04005</li> <li>• 22.2V Battery: Tiger 22.2v 5400mah 35c PB01009</li> <li>• Radio Transmitter with Receiver - FRSKY TARANIS X9D PLUS COMBO PT02022</li> <li>• MINI On Screen Display Module: DJI iOSD Mini on screen Display</li> <li>• Bluetooth Module: DJI Naza M BTU (Bluetooth Unit)</li> <li>• Camera: SJ4000 Action Camera Non Wifi PM02005</li> <li>• FPV System TX 5.8G 200mW FPV Video Audio 8CH AV Transmitter TX 5.8 GHz RX Receiver Set 2KM 2000m</li> <li>• Cable Pack Set             <ol style="list-style-type: none"> <li>1. XT60 and XT90</li> <li>2. 20 Pairs Gold Tone Metal RC Banana Bullet Plug Connector</li> <li>3. AWG Silicone Wire Flexible High Temperature 1m Red and Black</li> <li>4. 20 pairs 3.5mm Gold plated Banana plugs Engine Electronic Connector</li> <li>5. 10pcs 50 cm Servo Extension Cord Cable Lead Wire JR 50cm 26 AWG</li> <li>6. 10 pairs 2 pin JST Plug Socket Connector M to F 110mm Cable Wire Red Black</li> <li>7. Pair of RC XT90 to plug Male to Female Lipo Battery Adapters Charger Cable</li> </ol> </li> </ul>			
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	<ul style="list-style-type: none"> <li>• FPV System (Monitor and Transmitter) BOSCAM RX-LCD5802 5.8 Dual Diversity 7 white</li> <li>• Battery Charger 15-30V SKYRC D200</li> <li>• Camera Positioning Kit/Gimbal Mounting Rail - Tarot T4-3D 3 Axis FPV Brushless Camera Gimbal</li> <li>• Antenna 5.8 GHz Circular Polarized Mushroom Antenna RP-SMA Set Tx/Rx for Multicopter</li> <li>• FPV System TX - Skyzone TX-5D HDMI to AV Transmitter Module – Black 142193701 with 600mw and 32 channel</li> </ul>			
<b>12</b>	<p><b>PLC Simulation Board with I/O Devices</b></p> <ul style="list-style-type: none"> <li>• Start, Stop, Emergency Buttons</li> <li>• Conductive and Inductive Sensors</li> <li>• Thru Beam Sensors</li> <li>• Pneumatic Cylinders with 4/3 way Valve</li> <li>• Hydraulic Cylinders with 4/3 way Valve</li> <li>• 24V Stepper Motor with Driver</li> <li>• 24V Servo Motor with Driver</li> <li>• 1 Ball Screw Platform</li> <li>• Load Cell</li> <li>• Pneumatic Control Valve</li> <li>• I2P Converter</li> <li>• Flow Switch and Transmitter</li> </ul> <p><b>PLC Simulation Board</b></p> <ul style="list-style-type: none"> <li>• With pneumatic Circuit</li> <li>• Hydraulic Circuit</li> <li>• Servo motor</li> <li>• Stepper motor</li> <li>• Heater, etc.</li> </ul>	1 unit	1 unit	Sixty-Five (65) calendar days upon receipt of Notice to Proceed (NTP) and Purchase Order (PO)

13	<b>Design Software Suit Virtual Simulation</b> <ul style="list-style-type: none"> <li>• SCADA license for instructor - Adv Dev Studio</li> <li>• SCADA license for students</li> <li>• Laptop - I58265U processor, 8GB DDR4 memory, 1TB storage, 2GB MX130 Graphics Window 10, 15.6 HD Display</li> <li>• HMI (Touch Panel PC) - 10" widescreen display, aluminum chassis, capacitive touchscreen, Windows 10 LTSC Enterprise</li> <li>• PLC - Supply Voltage 100, 240V AC, 9DI, 2 AI 0, 10V dc7 DO Relay NO, 1 USB A, 1RJ45(serial), 1RJ45 (Ethernet)</li> <li>• Pre-assembled CAT5e cable with RJ45 plugs, 2m</li> <li>• Training kit Assembly - Base frame for TM221CE16R PLC, Front panel with cutout for Aveva 10" Touch Panel PC, with 6 toggle switches</li> <li>• PLC Training</li> <li>• SCADA Training</li> </ul>	1 unit	1 unit	Sixty-Five (65) calendar days upon receipt of Notice to Proceed (NTP) and Purchase Order (PO)
	<b>I. Scope of Work and Deliverables</b> <p>The assistance required for the DTI-SSF is the direct infusion of capital equipment by way of infusing machineries into one facility stated herein.</p> <p>The program shall entail the supervision, and coordination of all activities for the supply and delivery of equipment for the Shared Service Facility of the College of Engineering, Architecture, and</p>			



	<p>Technology of De La Salle University Dasmariñas which shall include the following parameters.</p> <p><b>1. Scope of Work</b></p> <ul style="list-style-type: none"> <li>• Deliver, install, and commission the machineries equipment required within sixty-five (65) days from issuance of notice to proceed or the signed contract agreement.</li> <li>• Supervision during the installation of the machineries, to include trial testing required at the cost of the External Provider.</li> <li>• Provide a minimum prescribed number of training hours for the machine operation, to a minimum of 5 workers/participants.</li> <li>• Provide manual of operation and handouts on the proper care and use of the facility.</li> </ul> <p><b>2. Deliverables</b></p> <ul style="list-style-type: none"> <li>• Complete SSF machines shall be fully delivered at the identified location of the contract.</li> <li>• Check payment and issuance of acknowledgment receipt for equipment upon delivery and acceptance of the property.</li> <li>• Test-run of the machines to be conducted and its documentation (recording of test</li> </ul>			
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	<p>result/parameter in accordance to item number 5.</p> <ul style="list-style-type: none"> <li>• Training of personnel on machine operation, maintenance and troubleshooting in accordance to item number 5.</li> </ul>			
	<p><b>II. Commissioning, Training, and Acceptance</b></p> <ul style="list-style-type: none"> <li>• Acceptance: The external provider must conform to all specifications requirements and terms and conditions of the project before issuance of Certificate of Acceptance.</li> <li>• Acceptance certificate signatories should be from DLSU-D and DTI Committee.</li> <li>• Provide Installation and Training Guidelines/checklist for the conformity of machine performance and parameters of the delivered equipment.</li> </ul> <p><b>1. Complete Metal 3D Printing System</b></p> <ul style="list-style-type: none"> <li>• <b>Commissioning:</b> The winning bidders shall provide all materials related to machine installation, construction and all requirements related to the installation of equipment – steel tables, tooling, start-up lubricants, cable ready for connection to electrical supply, connection to gas</li> </ul>			

	<p>supply and ventilation and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.</p> <ul style="list-style-type: none"> <li>• <b>Training:</b> Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (3D CAD Literate) for five (5) days.</li> <li>• <b>Acceptance:</b> The machine shall produce one (1) output product using each material specified in the technical specifications as identified by the Project Team.</li> </ul> <p><b>2. Carbon Fiber 3D Printer – Desktop Series</b></p> <ul style="list-style-type: none"> <li>• <b>Commissioning:</b> The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling, cable ready for connection to electrical supply and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.</li> <li>• <b>Training:</b> Provide comprehensive training on Operations, Maintenance and troubleshooting to at</li> </ul>			
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	<p>least five (5) Project Staffs (3D CAD Literate) for two (2) days.</p> <ul style="list-style-type: none"> <li>• <b>Acceptance:</b> The machine shall produce one (1) output product using each material specified in the technical specifications as identified by the Project Team.</li> </ul> <p><b>3. Large-Scale FDM 3D Printer</b></p> <ul style="list-style-type: none"> <li>• <b>Commissioning:</b> The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling, cable ready for connection to electrical supply and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.</li> <li>• <b>Training:</b> Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (3D CAD Literate) for two (2) days.</li> <li>• <b>Acceptance:</b> The machine shall produce one (1) output product using each material specified in the technical specifications as identified by the Project Team.</li> </ul>			
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	<p><b>4. FDM 3D Printer</b></p> <ul style="list-style-type: none"> <li>• <b>Commissioning:</b> The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling, cable ready for connection to electrical supply and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.</li> <li>• <b>Training:</b> Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (3D CAD Literate) for two (2) days.</li> <li>• <b>Acceptance:</b> The machine shall produce five (5) output product using material specified in the technical specifications as identified by the Project Team.</li> </ul> <p><b>5. Compact CNC Milling System</b></p> <ul style="list-style-type: none"> <li>• <b>Commissioning:</b> The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling,</li> </ul>			
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	<p>start-up lubricants, cable ready for connection to electrical supply, connection to compressed air complete setup and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.</p> <ul style="list-style-type: none"> <li>• <b>Training:</b> Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (CAD/CAM Literate) for three (3) days.</li> <li>• <b>Acceptance:</b> The machine shall produce five (5) output product using material specified in the technical specifications as identified by the Project Team.</li> </ul> <p><b>6. 80 Watts CO2 Laser Cutter/Engraver</b></p> <ul style="list-style-type: none"> <li>• <b>Commissioning:</b> The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling, ventilation, cable ready for connection to electrical supply, connection to compressed air complete setup and labor needed in the installation, commissioning and</li> </ul>			
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	<p>test-running of the supplied machine where applicable.</p> <ul style="list-style-type: none"> <li>• <b>Training:</b> Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (CAD Literate) for three (3) days.</li> <li>• <b>Acceptance:</b> The machine shall produce five (5) output product using material specified in the technical specifications as identified by the Project Team.</li> </ul> <p><b>7. Handheld 3D Scanner</b></p> <ul style="list-style-type: none"> <li>• <b>Commissioning:</b> The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to calibration tools, cable ready for connection to electrical supply and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.</li> <li>• <b>Training:</b> Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (3D CAD Literate) for two (2) days.</li> <li>• <b>Acceptance:</b> The machine shall produce</li> </ul>			
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	<p>three (3) output product using scanning modes specified in the technical specifications as identified by the Project Team.</p> <p><b>8. Filament Maker</b></p> <ul style="list-style-type: none"> <li>• <b>Commissioning:</b> The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling, cable ready for connection to electrical supply and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.</li> <li>• <b>Training:</b> Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs for three (3) days.</li> <li>• <b>Acceptance:</b> The machine shall produce two (2) output product using material specified in the technical specifications as identified by the Project Team.</li> </ul> <p><b>9. Multi Tool 3D Printer</b></p> <ul style="list-style-type: none"> <li>• <b>Commissioning:</b> The winning bidders shall provide all materials related to machine installation, and all</li> </ul>			
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	<p>requirements related to the installation of equipment such as but not limited to tooling, cable ready for connection to electrical supply, connection to dust collector and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.</p> <ul style="list-style-type: none"> <li>• <b>Training:</b> Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (3D CAD Literate) for two (2) days.</li> <li>• <b>Acceptance:</b> The machine shall produce five (5) output product using material specified in the technical specifications as identified by the Project Team.</li> </ul>			
	<p><b>III. Other Project Terms and Conditions</b></p> <p>The External Provider is required to provide all of the following services including additional services, if any, specified in the schedule of requirements:</p> <ul style="list-style-type: none"> <li>• Provision of Bidder's accreditation and license.</li> <li>• Furnishing of detailed operations and maintenance manual for each unit of the supplied machine/equipment.</li> <li>• Provide at least one (1) year warranty on parts and services. In case machine/equipment</li> </ul>			

	<p>breakdown, provide appropriate parts and local technician for the whole duration of contract warranty period. Attached warranty certificate.</p> <ul style="list-style-type: none"> <li>• Maintenance: Visit at least once a month onsite machine maintenance for each equipment during warranty period.</li> <li>• Pre-Delivery Site Inspection: Prior to delivery to client the winning bidder shall conduct installation site inspection.</li> <li>• Delivery period: Within sixty-five (65) calendar days upon receipt of Notice to Proceed (NTP) and Purchase Order (PO). Free delivery at DLSU-D InnoLab.</li> <li>• Testing and trial runs: Testing/demonstration of equipment must be done by the External Provider upon delivery. Validating the specifications and performance capability as intended for each machine parameter stated in the technical specifications.</li> <li>• Transmittal and other pertinent documents should be turn over after commissioning.</li> <li>• All certifications required in the schedule of requirements/Technical specifications must be attached to the bid.</li> <li>• The External Provider must secure a certificate of acceptance from End-User and DTI Cavite for the facilitation of payment.</li> </ul>			
	<p><b>IV. Terms of Payment</b></p> <p>Full payment within thirty</p>			

	(30) working days after complete delivery, installation, commissioning, inspection and acceptance of all machineries and equipment.			
	<b>V. Tie-Breaking Method</b>  Where, after post-qualification, an occurrence of a tie takes place among bidders determined and declared as the Lowest Calculated and Responsive Bidder (LCRB), the measure to resolve the case is by “toss coin (best of 7)”.			

## ***Section VII. Technical Specifications***

# Technical Specifications

Item	Specification	Statement of Compliance <i>(Bidders must state here either "Comply" or "Not Comply" in each parameter)</i>
1	<b>Complete Metal 3D Printing System – 1 set</b>	
2	An accessible end-to-end Metal 3D printing solution designed to yield functional metal parts. With a separate unit for wash and sinter.	
3	<b>Applications:</b> <ul style="list-style-type: none"> <li>• Functional Prototyping</li> <li>• Jigs &amp; Fixtures</li> <li>• Repair &amp; Replacement parts</li> <li>• Complex metal parts</li> <li>• Low volume production</li> </ul>	
4	<b>System Inclusions:</b> <ul style="list-style-type: none"> <li>I. 1 unit Metal 3D Printer</li> <li>II. 1 unit Wash Station (for debinding)</li> <li>III. 1 unit Sintering Furnace</li> </ul>	
5	<b>I. Metal 3D Printer</b> <ul style="list-style-type: none"> <li>• Print Technology: Material Extrusion, Metal Fused Filament Fabrication</li> </ul>	
6	<ul style="list-style-type: none"> <li>• Build Size (LxWxH): At least 300mm x 200mm x 180mm</li> </ul>	
7	<ul style="list-style-type: none"> <li>• Material Type: Spool-based</li> </ul>	
8	<ul style="list-style-type: none"> <li>• Z Resolution: must be able to reach 50 microns, 125microns</li> </ul>	
9	<ul style="list-style-type: none"> <li>• Printer must be able to print with a width of 0.3mm.</li> </ul>	
10	<ul style="list-style-type: none"> <li>• Print Chamber: Heated chamber to ensure controlled environment during printing</li> </ul>	
11	<ul style="list-style-type: none"> <li>• Print bed: Heated, vacuum-sealed print sheet, auto bed leveling</li> </ul>	
12	<ul style="list-style-type: none"> <li>• The print bed will auto-calibrated at preprint stage</li> </ul>	
13	<ul style="list-style-type: none"> <li>• Print System: 2 Nozzles - Metal Material and Support Release</li> </ul>	
14	<ul style="list-style-type: none"> <li>• Different layers settings do not require any nozzle change.</li> </ul>	
15	<ul style="list-style-type: none"> <li>• Different metal materials do not require any nozzle change.</li> </ul>	
16	<ul style="list-style-type: none"> <li>• System contains out-of-material detection</li> </ul>	
17	<ul style="list-style-type: none"> <li>• System contains build-in vacuum Sealed function to secure print sheet</li> </ul>	

18	<ul style="list-style-type: none"> <li>Part will be printed on the print sheet, for ease removal purpose</li> </ul>	
19	<ul style="list-style-type: none"> <li>Printer must be able to lay both materials in the XY plane.</li> </ul>	
20	<ul style="list-style-type: none"> <li>Controller: System uses build in touch screen controller to control system</li> </ul>	
21	<ul style="list-style-type: none"> <li>Materials Compatibility: At least Stainless Steel, Tool Steel, Titanium, Inconel, Copper, etc.</li> </ul>	
22	<ul style="list-style-type: none"> <li>Supplied Software: Compatible Slicing Software with Security Two-factor authentication, org admin access, single sign-on</li> </ul>	
23	<ul style="list-style-type: none"> <li>Software Compliance: ISO 27001</li> </ul>	
24	<ul style="list-style-type: none"> <li>Printer are capable of printing infill part or solid parts</li> </ul>	
25	<ul style="list-style-type: none"> <li>The system is able to print and sinter successfully for vertical wall thickness &gt;4mm and solid parts &gt;5mm.</li> </ul>	
26	<ul style="list-style-type: none"> <li>Electrical Requirements: 220-240 VAC, 50-60HZ, Single Phase</li> </ul>	
27	<b>Package Inclusions:</b> <ul style="list-style-type: none"> <li>1 unit Vacuum Built Plate (Proprietary)</li> <li>200cc Stainless Steel 17-4PH Material (Proprietary)</li> <li>200cc Ceramic Release Material (Proprietary)</li> <li>200cc Copper Material (Proprietary)</li> <li>3 pcs. Metal quick-change nozzles (Proprietary)</li> <li>3 pcs. Release quick-change nozzles (Proprietary)</li> <li>1 unit 5KVA UPS</li> </ul>	
28	<b>II. Washing Station</b> <ul style="list-style-type: none"> <li>The Debinder must be able to accommodate and debind parts of size greater than or equal to the maximum extruded part size that the printing system printed.</li> </ul>	
29	<ul style="list-style-type: none"> <li>Washing Size: at least 356 x 254 x 203 mm</li> </ul>	
30	<ul style="list-style-type: none"> <li>Washing Volume: not be less than 18,000 cubic cm (1120 cubic in)</li> </ul>	
31	<ul style="list-style-type: none"> <li>The debinder uses a common nonproprietary and readily available fluid which is approved to be used in Philippines</li> </ul>	
32	<ul style="list-style-type: none"> <li>Wash Fluid: Open Source non-proprietary, Available Locally</li> </ul>	
33	<ul style="list-style-type: none"> <li>Controller: Integrated Control System</li> </ul>	
34	<ul style="list-style-type: none"> <li>Work holding: Stainless Steel Basket</li> </ul>	
35	<ul style="list-style-type: none"> <li>Wash system requires external exhaust</li> </ul>	
36	<ul style="list-style-type: none"> <li>The Debinder Must have a Close-Loop Solvent Circulation System to eliminate Fume Exhaust</li> </ul>	

37	<ul style="list-style-type: none"> <li>The debinder must have distillation system, in order to keep the efficiency of the process</li> </ul>	
38	<ul style="list-style-type: none"> <li>System contains cool coil, and it helps to separate the solvent and condensed water</li> </ul>	
39	<b>Safety Management includes:</b> <ul style="list-style-type: none"> <li>High vapour Shutoff</li> <li>Over-temperature Shutoff</li> <li>Low fluid level Shutoff</li> <li>Electrical Requirement: 220-240 VAC, 60Hz, single phase</li> </ul>	
40	<b>III. Sintering Furnace</b> <ul style="list-style-type: none"> <li>System contains express sinter function, its cycle is less than 17 hours</li> </ul>	
41	<ul style="list-style-type: none"> <li>Featuring 4760 cubic cm of working volume, The Sinter effortlessly converts washed parts into their dense final metallic form.</li> </ul>	
42	<ul style="list-style-type: none"> <li>The Sintering Capacity must be at least Cylindrical - 141 mm ID x 305 mm Length</li> </ul>	
43	<ul style="list-style-type: none"> <li>Sintering volume is not less than 4700 cm<sup>3</sup></li> </ul>	
44	<ul style="list-style-type: none"> <li>All metal materials from printing system are able to be sintered in furnace</li> </ul>	
45	<ul style="list-style-type: none"> <li>Kanthal is the heating element for system</li> </ul>	
46	<ul style="list-style-type: none"> <li>It must be carbon free retort to maintain right steel compound</li> </ul>	
47	<ul style="list-style-type: none"> <li>Furnace is a carbon free retort system</li> </ul>	
48	<ul style="list-style-type: none"> <li>Maximum Sintering Temperature 1,300 °C</li> </ul>	
49	<ul style="list-style-type: none"> <li>Sinterable volume temperature uniformity is +/- 5 °C</li> </ul>	
50	<ul style="list-style-type: none"> <li>Gas Type: Inert and Mix Gases non-proprietary, Available locally</li> </ul>	
51	<ul style="list-style-type: none"> <li>Gas Requirement: Mixed Gas - 2.9% hydrogen 97.1% Argon, Pure Argon gas</li> </ul>	
52	<ul style="list-style-type: none"> <li>The External Provider shall ensure the installation of pressurized cylinders in compliance with DOLE safety requirements or manufacturer safety standards.</li> </ul>	
53	<ul style="list-style-type: none"> <li>System allows Auto gas supply changeover</li> </ul>	
54	<ul style="list-style-type: none"> <li>The Sinter come with inlet gas filtration system</li> </ul>	
55	<ul style="list-style-type: none"> <li>The Sinter come with outlet gas filtration system</li> </ul>	
56	<ul style="list-style-type: none"> <li>Exhaust Rate (m<sup>3</sup>/min or CFM) &lt;150 CFM, &gt;100CFM</li> </ul>	
57	<ul style="list-style-type: none"> <li>The furnace unit must have clear visible signage to inform user of ongoing sintering, and ensure its</li> </ul>	

	door is securely locked during sintering to prevent accidents for users.	
58	<ul style="list-style-type: none"> <li>Sinter machine should come with gas panel from OEM</li> </ul>	
59	<ul style="list-style-type: none"> <li>System can be monitored by software, and the user is able to check via the internet.</li> </ul>	
60	<ul style="list-style-type: none"> <li>The normal sintering cycle should consume &lt; 30 hours</li> </ul>	
61	<ul style="list-style-type: none"> <li>Sinter machine can help on annealing process (optional for material)</li> </ul>	
62	<ul style="list-style-type: none"> <li>Furnace contains temperature sensor</li> </ul>	
63	<ul style="list-style-type: none"> <li>Furnace contains pressure sensor</li> </ul>	
64	<ul style="list-style-type: none"> <li>System contains a self-diagnose function at the pre sintering stage.</li> </ul>	
65	<ul style="list-style-type: none"> <li>System use touch screen controller to control it</li> </ul>	
66	<ul style="list-style-type: none"> <li>Electrical Requirement: Single Phase, 200-240 VAC 30A, 50-60Hz</li> </ul>	
67	<ul style="list-style-type: none"> <li>Gas Supply Panel Mounting Requirement: - Cryogenic liquid cylinder + gas cylinder footprint: 1.40m (55in) wide, 700mm (27in) deep at cryogenic liquid cylinder, 300mm (12in) deep at gas cylinder.</li> </ul>	
68	<b>Package Inclusions:</b> <ul style="list-style-type: none"> <li>2 units Argon</li> <li>2 units Mixed Gas</li> <li>2 buckets Opteon Fluid</li> </ul>	
69	<b>Software</b> <ul style="list-style-type: none"> <li>OS requirements: Windows: 7 or later Mac: OS X Yosemite version 10.10 or later</li> </ul>	
70	<ul style="list-style-type: none"> <li>All operating systems must be 64-bit for proper use</li> </ul>	
71	<ul style="list-style-type: none"> <li>File Format Compatibility: .stl</li> </ul>	
72	<ul style="list-style-type: none"> <li>Any 3D CAD Software that is compatible with .stl format is acceptable.</li> </ul>	
73	<ul style="list-style-type: none"> <li>The Information Security Management System must conform to the requirements of ISO/IEC 27001</li> </ul>	
74	<ul style="list-style-type: none"> <li>The Information Security Management System (ISMS), is to appropriately preserve privacy, confidentiality, integrity, and availability (CIA) of the manufacturers information assets, including, but not limited to, its and its clients' intellectual property.</li> </ul>	
75	<ul style="list-style-type: none"> <li>The software used should leverage FIPS 140-2 compliant encryption standards. All data is in transit using TLS. HTTPS is required for all services, including vendors' public website and cloud applications. Additionally, part files are protected with</li> </ul>	



	data encryption at rest by encrypting the Amazon Web Services (AWS) Simple Storage Service (S3) buckets where part files are stored using AES-256. Vendors shall implement controls to appropriately limit the creation, storage, usage, and deletion of encryption keys	
76	<ul style="list-style-type: none"> <li>All print files sent to printers are formatted as encrypted format. containing details about the part geometry, orientation, and fiber and material layout. This means that encrypted files transferred from software to printers by USB mass storage devices are secured via encryption.</li> </ul>	
77	<ul style="list-style-type: none"> <li>The slicing software provides users with the option to enable two-factor authentication (2FA) for additional security. The 2FA utilizes time-based one time passwords (TOTP) and can be configured using well known 2FA apps like Google Authenticator. User passwords are securely hashed, salted, and stored using AWS Cognito, which employs the SRP protocol.</li> </ul>	
78	<ul style="list-style-type: none"> <li>The software development lifecycle (SDLC) employs manual code reviews and automated integration testing before each deployment. Several pre-release environments are used for quality assurance and testing prior to releasing any code to production. Vendor utilizes a continuous deployment model, which allows customers to immediately benefit from new functionality, vulnerability remediation, and bug fixes.</li> </ul>	
79	<ul style="list-style-type: none"> <li>Slicing software support Multi-Factor Authentication using Time-Based One Time Password (TOTP) Apps</li> </ul>	
80	<ul style="list-style-type: none"> <li>The 3D printing software shall be able to import 3D models from major CAD software in STL format</li> </ul>	
81	<ul style="list-style-type: none"> <li>The 3D Printing software shall include slicing tools with integrity checking for 3D printing</li> </ul>	
82	<ul style="list-style-type: none"> <li>The 3D printing software shall be able to monitor and control the printing parameters.</li> </ul>	
83	<ul style="list-style-type: none"> <li>The software must be able to calculate printing time, wash time and consumables usage during preprocessing of each print job.</li> </ul>	
84	<ul style="list-style-type: none"> <li>The Software must be able to show the material printing route and release ceramic layer in 2d and 3d, so that it can be manipulated</li> </ul>	
85	<ul style="list-style-type: none"> <li>The 3D printing software must be able to manage multiple printers, wash and sinter machines</li> </ul>	
86	<ul style="list-style-type: none"> <li>The software must be able to host different users in the same virtual organization</li> </ul>	
87	<ul style="list-style-type: none"> <li>The software must provide a library setting so that users can share parts</li> </ul>	
88	<ul style="list-style-type: none"> <li>The software must provide a dashboard so that users can monitor their utilization of printer time and other statistics</li> </ul>	

89	<ul style="list-style-type: none"> <li>User is able to monitor printing status via live Corp image from live camera</li> </ul>	
90	<ul style="list-style-type: none"> <li>Software must be allowed users to start prints remotely on printers within the same organization</li> </ul>	
91	<ul style="list-style-type: none"> <li>The software must be ability to download the printer logs remotely</li> </ul>	
92	<ul style="list-style-type: none"> <li>The software must send an email notification if there this an out of material incident of when the spools runs out during a print</li> </ul>	
93	<ul style="list-style-type: none"> <li>The Software must be able to allow the user to open a support request directly from the software UI</li> </ul>	
94	<ul style="list-style-type: none"> <li>Users are able to add ceramic released layer as needed</li> </ul>	
95	<ul style="list-style-type: none"> <li>User can manipulate either printing with raft, or w/o raft</li> </ul>	
96	<ul style="list-style-type: none"> <li>User can manipulate either printing with support, or w/o support</li> </ul>	
97	<ul style="list-style-type: none"> <li>Metal printing is available for chunkable support structure</li> </ul>	
98	<ul style="list-style-type: none"> <li>Design scale will enlarge per axis automatically to compensate shrinkage from actual process</li> </ul>	
99	<ul style="list-style-type: none"> <li>Wall thickness is adjustable via software</li> </ul>	
100	<ul style="list-style-type: none"> <li>Solid printing function is available</li> </ul>	
101	<b>Other Requirements:</b> <ul style="list-style-type: none"> <li>Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> </ul>	
102	<ul style="list-style-type: none"> <li>Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> </ul>	
103	<ul style="list-style-type: none"> <li>Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> </ul>	
104	<ul style="list-style-type: none"> <li>Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> </ul>	
105	<ul style="list-style-type: none"> <li>Installation: All installation costs and other incidental cost and activity will be shouldered by the winning bidder (Ventilation, construction, finishing, etc.)</li> </ul>	
106	<ul style="list-style-type: none"> <li>Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> </ul>	
107	<ul style="list-style-type: none"> <li>After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the</li> </ul>	

	capability to do after sales support after warranty and has available technical support locally.	
108	<ul style="list-style-type: none"> <li>Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> </ul>	
109	<ul style="list-style-type: none"> <li>English Operations Manual included</li> </ul>	
110	<b>Carbon Fiber 3D Printer – Desktop Series – 1 unit</b>	
111	Print Continuous Carbon Fiber reinforced parts on your desktop – stiff, strong, extremely durable, and capable of replacing machined aluminum.	
112	<b>Applications:</b> <ul style="list-style-type: none"> <li>Functional Prototyping</li> <li>Jigs &amp; Fixtures</li> <li>Stamping Dies</li> <li>Repair &amp; Replacement parts</li> </ul>	
113	<b>Specifications:</b> <ul style="list-style-type: none"> <li>Print Technology: Continuous Fiber Reinforcement (CFR)</li> </ul>	
114	<ul style="list-style-type: none"> <li>Build Volume: at least 320 x 130 x 150 mm</li> </ul>	
115	<ul style="list-style-type: none"> <li>Layer Height: 100 Micron or better</li> </ul>	
116	<ul style="list-style-type: none"> <li>Slicing Software: With Cloud control and Two-factor authentication</li> </ul>	
117	<ul style="list-style-type: none"> <li>Nozzle System: Dual Extruder, out of plastic detection</li> </ul>	
118	<ul style="list-style-type: none"> <li>Print System: 2 Nozzles - One for Base Material and One for Reinforcement Material</li> </ul>	
119	<ul style="list-style-type: none"> <li>Power Requirements: 100–240 VAC, 150 W (2 A peak)</li> </ul>	
120	<ul style="list-style-type: none"> <li>Printing Materials: Base Filaments -Onyx, Nylon, Reinforcement Fiber - Carbon Fiber, Fiberglass, High Strength High Temperature Fiberglass, Kevlar</li> </ul>	
121	<ul style="list-style-type: none"> <li>Print Bed: Kinematic coupling — flat to within 160 micron</li> </ul>	
122	<ul style="list-style-type: none"> <li>The print bed must use kinematic coupling to provide precision and certainty of location, enabling pausing and removal of bed mid-print</li> </ul>	
123	<ul style="list-style-type: none"> <li>Material Tensile Strength: 800 MPa (25.8x ABS, 2.6x 6061-T6 Aluminum)</li> </ul>	
124	<ul style="list-style-type: none"> <li>Material Tensile Modulus: 60 GPa (26.9x ABS, 0.87x 6061-T6 Aluminum)</li> </ul>	
125	<ul style="list-style-type: none"> <li>Infill: Closed cell infill: multiple geometries available</li> </ul>	
126	<ul style="list-style-type: none"> <li>The print bed has the ability to be decoupled and recoupled with 10 microns repeatability during the middle of a print</li> </ul>	
127	<ul style="list-style-type: none"> <li>A fiber cutting blade must be integrated inside the printhead and controlled automatically by software.</li> </ul>	

128	<ul style="list-style-type: none"> <li>Printer must be able to embed fiber into prints, and the width of the fiber extrusion must be no more than 0.9mm</li> </ul>	
129	<ul style="list-style-type: none"> <li>Fiber must be able to be placed in a wall with 2.8mm thickness</li> </ul>	
130	<ul style="list-style-type: none"> <li>When the printer is laying down fiber, it must be able to turn the fiber direction and lay down continuously with maximum 180 degrees</li> </ul>	
131	<ul style="list-style-type: none"> <li>The printer must be able to print in any selectable resolution without changing the printhead or nozzles.</li> </ul>	
132	<b>Software:</b> <ul style="list-style-type: none"> <li>File Format Compatibility: .stl Any 3D CAD Software that is compatible with .stl format is acceptable.</li> </ul>	
133	<ul style="list-style-type: none"> <li>The information Security Management System must conform to the requirements of SO/IEC 27001</li> </ul>	
134	<ul style="list-style-type: none"> <li>The Information Security Management System (ISMS), is to appropriately preserve privacy, confidentiality, integrity, and availability (CIA) of the manufacturers information assets, including, but not limited to, its and its clients' intellectual property.</li> </ul>	
135	<ul style="list-style-type: none"> <li>The software used should leverage FIPS 140-2 compliant encryption standards. All data is in transit using TLS. HTTPS is required for all services, including vendor's public website and cloud applications. Additionally, part files are protected with data encryption at rest by encrypting the Amazon Web Services (AWS) Simple Storage Service (S3) buckets where part files are stored using AES-256. Vendors must implement controls to appropriately limit the creation, storage, usage, and deletion of encryption keys.</li> </ul>	
136	<ul style="list-style-type: none"> <li>All print files sent to printers are formatted as encrypted format. containing details about the part geometry, orientation, and fiber and material layout. This means that encrypted files transferred from software to printers by USB mass storage devices are secured via encryption.</li> </ul>	
137	<ul style="list-style-type: none"> <li>The slicing software provides users with the option to enable two-factor authentication (2FA) for additional security. The 2FA utilizes time-based one time passwords (TOTP) and can be configured using well known 2FA apps like Google Authenticator or Authy. User passwords are securely hashed, salted, and stored using AWS Cognito, which employs the SRP protocol.</li> </ul>	
138	<ul style="list-style-type: none"> <li>The software development lifecycle (SDLC) employs manual code reviews and automated integration testing before each deployment. Several pre-release environments are used for quality assurance and testing prior to releasing any code to production. Vendor</li> </ul>	

	utilizes a continuous deployment model, which allows customers to immediately benefit from new functionality, vulnerability remediation, and bug fixes.	
139	<ul style="list-style-type: none"> <li>The 3D printing software must be able to import 3D models from any major CAD software in STL format</li> </ul>	
140	<ul style="list-style-type: none"> <li>The 3D Printing software must include slicing tools with integrity checking for 3D printing</li> </ul>	
141	<ul style="list-style-type: none"> <li>The 3D printing software must be able to monitor and control the printing parameters, including layer thickness, infill type and material choice</li> </ul>	
142	<ul style="list-style-type: none"> <li>The software must be able to calculate printing time and consumables usage during preprocessing of each print job.</li> </ul>	
143	<ul style="list-style-type: none"> <li>The software must be able to calculate the cost of each part during preprocessing of each print job</li> </ul>	
144	<ul style="list-style-type: none"> <li>The software must be able to show the continuous fiber routing in 2d and 3d, so that it can be manipulated.</li> </ul>	
145	<b>Package Inclusions:</b> <ul style="list-style-type: none"> <li>1 pc. 3D Printer Kit</li> <li>1 pc. True Print Bed</li> <li>1 pc. Filament Drybox</li> <li>800cc Onyx Spool</li> <li>100cc Carbon Fiber</li> <li>50cc Fiberglass</li> <li>50cc Kevlar</li> <li>50cc HSHT</li> </ul>	
146	<b>Other Requirements:</b> <ul style="list-style-type: none"> <li>Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> </ul>	
147	<ul style="list-style-type: none"> <li>Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> </ul>	
148	<ul style="list-style-type: none"> <li>Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> </ul>	
149	<ul style="list-style-type: none"> <li>Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> </ul>	
150	<ul style="list-style-type: none"> <li>Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> </ul>	
151	<ul style="list-style-type: none"> <li>After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and</li> </ul>	

	has available technical support locally.	
152	<ul style="list-style-type: none"> <li>Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> </ul>	
153	<ul style="list-style-type: none"> <li>English Operations Manual included</li> </ul>	
154	<b>Large-Scale FDM 3D Printer – 1 unit</b>	
155	<ul style="list-style-type: none"> <li>Fully Enclose large scale 3D Printer with Dual Extruder</li> </ul>	
156	<ul style="list-style-type: none"> <li>Technology: Fused Deposition Modeling (FDM)</li> </ul>	
157	<ul style="list-style-type: none"> <li>Build Size: at least 1200 x 600 x 630mm</li> </ul>	
158	<ul style="list-style-type: none"> <li>Filaments Size: 1.75 mm, Open Source</li> </ul>	
159	<ul style="list-style-type: none"> <li>Extruder: Dual Print Head</li> </ul>	
160	<ul style="list-style-type: none"> <li>Nozzle Diameter Available: 0.4, 0.6 &amp; 0.8 mm brass Volcano nozzles</li> </ul>	
161	<ul style="list-style-type: none"> <li>Enclosure: Fully Enclosed made of 3mm black Aluminum Composite Panels (ACP)</li> </ul>	
162	<ul style="list-style-type: none"> <li>3D Printer Controller: 7-inch touchscreen – integrated with the controller</li> </ul>	
163	<ul style="list-style-type: none"> <li>Connectivity: WIFI web access for remote control from either mobile or PC allowing users to upload print files directly from their workstation</li> </ul>	
164	<ul style="list-style-type: none"> <li>SD card slot and USB</li> </ul>	
165	<ul style="list-style-type: none"> <li>Motion System: Linear guide rails</li> </ul>	
166	<ul style="list-style-type: none"> <li>Position accuracy: X-10 Micron, Y-10 Micron, Z-0.5 Micron</li> </ul>	
167	<ul style="list-style-type: none"> <li>Print speed – Normal quality 60 mm/sec, Draft 100 mm/sec, Calculated for 0.4 nozzle.</li> </ul>	
168	<ul style="list-style-type: none"> <li>Print Bed; heated, Tempered Glass</li> </ul>	
169	<ul style="list-style-type: none"> <li>Max temperature: 120 degree Celsius</li> </ul>	
170	<ul style="list-style-type: none"> <li>Calibration: Auto Bed Leveling</li> </ul>	
171	<ul style="list-style-type: none"> <li>Software: Open source Duet RepRap firmware. The leading firmware for 3D printing allowing numerous configurations and easy customization using the macro system.</li> </ul>	
172	<ul style="list-style-type: none"> <li>File Format Compatibility: .stl Any 3D CAD Software that is compatible with .stl format is acceptable.</li> </ul>	
173	<ul style="list-style-type: none"> <li>Filament Run-Out Sensor – The filament run-out detection sensor will pause the print job when the filament has been used up.</li> </ul>	

174	<ul style="list-style-type: none"> <li>Open Filament – Any filament from any vendor can be used.</li> </ul>	
175	<b>Package Inclusions:</b> <ul style="list-style-type: none"> <li>1 set 3D Printer Kit</li> <li>2 spools ABS Filament Spool, 1kg</li> <li>1 set Enclosure</li> <li>1 unit 2nd Print Head</li> </ul>	
176	<b>Other Requirements:</b> <ul style="list-style-type: none"> <li>Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> </ul>	
177	<ul style="list-style-type: none"> <li>Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> </ul>	
178	<ul style="list-style-type: none"> <li>Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> </ul>	
179	<ul style="list-style-type: none"> <li>Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> </ul>	
180	<ul style="list-style-type: none"> <li>Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> </ul>	
181	<ul style="list-style-type: none"> <li>After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> </ul>	
182	<ul style="list-style-type: none"> <li>Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> </ul>	
183	<ul style="list-style-type: none"> <li>English Operations Manual included</li> </ul>	
184	<b>FDM 3D Printer (5 Units) – 1 set</b>	
185	<ul style="list-style-type: none"> <li>Print Technology: Fused Deposition Modeling (FDM)</li> </ul>	
186	<ul style="list-style-type: none"> <li>Build Volume: at least 250x210x190mm</li> </ul>	
187	<ul style="list-style-type: none"> <li>Filaments Size: 1.75 mm, Open Source</li> </ul>	
188	<ul style="list-style-type: none"> <li>Extruder: Single</li> </ul>	
189	<ul style="list-style-type: none"> <li>Layer Resolution: 0.05-0.3 mm</li> </ul>	
190	<ul style="list-style-type: none"> <li>Print Speed: 20~150mm/s</li> </ul>	
191	<ul style="list-style-type: none"> <li>Supported Materials: ABS, TPU, PLA, HIPS, etc.</li> </ul>	

192	<ul style="list-style-type: none"> <li>Ambient Operating Temperature: 8°C - 40°C</li> </ul>	
193	<ul style="list-style-type: none"> <li>Operational Extruder Temperature: max 260°C</li> </ul>	
194	<ul style="list-style-type: none"> <li>Operational Print Bed Temperature: max 100°C</li> </ul>	
195	<ul style="list-style-type: none"> <li>Software Input Formats: .STL, .OBJ, JPG, PNG</li> </ul>	
196	<ul style="list-style-type: none"> <li>Any 3D CAD Software that is compatible with Software Input Formats is acceptable.</li> </ul>	
197	<ul style="list-style-type: none"> <li>Connectivity: SD Card; USB cable</li> </ul>	
198	<ul style="list-style-type: none"> <li>Printer Dimensions: 454mm×466mm×410mm</li> </ul>	
199	<ul style="list-style-type: none"> <li>Net Weight: ~18.8kg</li> </ul>	
200	<b>Package Inclusion per unit:</b> <ul style="list-style-type: none"> <li>1 Spool of 1kg. PLA Filaments</li> <li>3D Printer Kit</li> </ul>	
201	<b>Other Requirements:</b> <ul style="list-style-type: none"> <li>Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> </ul>	
202	<ul style="list-style-type: none"> <li>Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> </ul>	
203	<ul style="list-style-type: none"> <li>Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> </ul>	
204	<ul style="list-style-type: none"> <li>Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> </ul>	
205	<ul style="list-style-type: none"> <li>Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> </ul>	
206	<ul style="list-style-type: none"> <li>After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> </ul>	
207	<ul style="list-style-type: none"> <li>Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> </ul>	
208	<ul style="list-style-type: none"> <li>English Operations Manual included</li> </ul>	
209	<b>Compact CNC Milling System – 1 unit</b>	
210	To cut challenging materials like titanium as well as softer materials such as aluminum, plastic and wood.	



211	<ul style="list-style-type: none"> <li>Operating Range: at least X: 356mm (14in); Y: 191mm (7.5in); Z: 337mm (13.25in)</li> </ul>	
212	<ul style="list-style-type: none"> <li>Table Size: At least 660mm x 200 mm;</li> </ul>	
213	<ul style="list-style-type: none"> <li>Feed Rate: XY: At least 135 inches per min; Z: At least 110 inches per minute</li> </ul>	
214	<ul style="list-style-type: none"> <li>Three Table Slots: 15.9 mm</li> </ul>	
215	<ul style="list-style-type: none"> <li>Spindle Power: 1.5 hp</li> </ul>	
216	<ul style="list-style-type: none"> <li>Speed: At least 10,000 RPM</li> </ul>	
217	<ul style="list-style-type: none"> <li>Spindle Nose to Table Max Clearance: 330mm</li> </ul>	
218	<ul style="list-style-type: none"> <li>Spindle Centerline to Machine Column: 215 mm</li> </ul>	
219	<ul style="list-style-type: none"> <li>Tapping: Tension/Compression, Auto-Reversing, Treadmill</li> </ul>	
220	<ul style="list-style-type: none"> <li>Spindle Taper: R8</li> </ul>	
221	<ul style="list-style-type: none"> <li>Machine Controller: Support for up to four axis continuous machining, conversational programming, Usable G-Code Memory: Brix Controller: 80 GB / Controller Operator Console: 40 GB, Built-in Dropbox</li> </ul>	
222	<ul style="list-style-type: none"> <li>Power Requirements: Single-Phase 115Vac, 50/60Hz, 15A Breaker Voltage regulator included</li> </ul>	
223	<ul style="list-style-type: none"> <li>Materials Compatibility: Titanium, Steel, Aluminum, Plastic, Composites, Wood, PCB Boards.</li> </ul>	
224	<ul style="list-style-type: none"> <li>Machine Dimension: 1500 mm x 1300 mm x 2300 mm</li> </ul>	
225	<ul style="list-style-type: none"> <li>Machine Weight: 450 kg</li> </ul>	
226	<p><b>Package Inclusions:</b></p> <ul style="list-style-type: none"> <li>Full Machine Enclosure</li> <li>Heavy Duty Steel Stand with Chip Tray and Coolant Tank</li> <li>System Controller with Water proof Mouse, keyboard, LCD Screen, Jog Shuttle Controller</li> <li>Pneumatic Drawbar Kit</li> <li>18 Piece Carbide End Mill Kit. Includes Square, Ball and .030 in. Radius Carbide End Mills with TiAlN Coating. Recommended for steel machining.</li> <li>14 Piece Carbide End Mill Kit. Includes Square, Ball and .030 in. Radius Carbide End Mills with Bright Finish. Recommended for aluminum machining.</li> <li>Complete kit of Operator Set for Cooling System quick change tool holders</li> <li>Coolant Kit (1/8 hp) flushes chips and swarf from the cutting zone.</li> <li>Automatic Tool Change 10 pocket, umbrella-style automatic tool changer</li> </ul>	

	air compressor	
227	<b>Other Requirements:</b> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> </ul>	
228	<ul style="list-style-type: none"> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> </ul>	
229	<ul style="list-style-type: none"> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> </ul>	
230	<ul style="list-style-type: none"> <li>• Training and Installation: 5 days onsite training and installation for atleast 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> </ul>	
231	<ul style="list-style-type: none"> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> </ul>	
232	<ul style="list-style-type: none"> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> </ul>	
233	<ul style="list-style-type: none"> <li>• Attached certification of parts and consumables availability issued by the manufacturer for the project.</li> </ul>	
234	<ul style="list-style-type: none"> <li>• English Operations Manual included</li> </ul>	
235	<b>80 Watts CO2 Laser Cutter/Engraver – 1 unit</b>	
236	Open architecture offers the versatility you need for endless product creation. Customize items of all sizes; as small as a peanut to a large granite memorial.	
237	<ul style="list-style-type: none"> <li>• Engraving Area: 710 x 400 mm (Continuous Feed)</li> </ul>	
238	<ul style="list-style-type: none"> <li>• Focal Lens: 2 Inches</li> </ul>	
239	<ul style="list-style-type: none"> <li>• Laser Wattage: 80 watts</li> </ul>	
240	<ul style="list-style-type: none"> <li>• Cooling System: Utilize a uniquely integrated, self-contained cooling system.</li> </ul>	
241	<ul style="list-style-type: none"> <li>• Laser Tubes: Glass tubes</li> </ul>	
242	<ul style="list-style-type: none"> <li>• Resolution: User controlled from 75 to 1200 dpi</li> </ul>	
243	<ul style="list-style-type: none"> <li>• Operating Modes: Raster, vector or combined modes</li> </ul>	
244	<ul style="list-style-type: none"> <li>• Motion Control: continuous-loop, DC servomotors</li> </ul>	

245	<ul style="list-style-type: none"> <li>• Print Interface: Ethernet or USB connection</li> </ul>	
246	<ul style="list-style-type: none"> <li>• Auto focus (Automatically focus the engraving table to the correct focal distance.)</li> </ul>	
247	<ul style="list-style-type: none"> <li>• Features: Removable Laser Top, EZ Leveling system</li> </ul>	
248	<ul style="list-style-type: none"> <li>• operating systems: Windows® XP/7/8/10 32-bit and 64-bit</li> </ul>	
249	<ul style="list-style-type: none"> <li>• Memory Controller: standalone controller with 128MB of independent memory allows for processing and storage of large sized files.</li> </ul>	
250	<ul style="list-style-type: none"> <li>• Starting Positions: 9 different starting positions in reference to the image or file to be engraved or cut, breaking the confines of a “home position</li> </ul>	
251	<ul style="list-style-type: none"> <li>• Resolution: Up to 1000dpi, The standard 2 inch condensing lens has a point of impact of .003 inches, allowing for approximately 300 dpi.</li> </ul>	
252	<ul style="list-style-type: none"> <li>• Operating Mode: Engrave (faster) mode will engrave bitmap images and/or vector files. Cut mode cuts or traces vector file formats.</li> </ul>	
253	<b>Package Inclusions:</b> <ul style="list-style-type: none"> <li>• Air Compressor</li> <li>• Floor Stand or Utility Carriage</li> <li>• Rotary attachment</li> <li>• Air Assist</li> <li>• Exhaust</li> </ul>	
254	<b>Other Requirements:</b> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> </ul>	
255	<ul style="list-style-type: none"> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> </ul>	
256	<ul style="list-style-type: none"> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> </ul>	
257	<ul style="list-style-type: none"> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> </ul>	
258	<ul style="list-style-type: none"> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> </ul>	
259	<ul style="list-style-type: none"> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> </ul>	

300	<ul style="list-style-type: none"> <li>Attached certification of parts availability issued by the manufacturer for the project.</li> </ul>	
301	<ul style="list-style-type: none"> <li>English Operations Manual included</li> </ul>	
302	<b>Handheld 3D Scanner – 1 unit</b>	
303	Hand-held 3D scanner meant to capture medium and large objects; with built-in touchscreen for ease-of-use during scanning.	
304	<ul style="list-style-type: none"> <li>3D point accuracy: Up to 0.1 mm</li> </ul>	
305	<ul style="list-style-type: none"> <li>Accuracy over distance: Up to 0.1 mm over 1 m</li> </ul>	
306	<ul style="list-style-type: none"> <li>3D resolution: Up to 0.6 mm</li> </ul>	
307	<ul style="list-style-type: none"> <li>Texture resolution: 2.3 MP or better</li> </ul>	
308	<ul style="list-style-type: none"> <li>3D Light source: White LED</li> </ul>	
309	<ul style="list-style-type: none"> <li>Frame Rate: 25-30 fps</li> </ul>	
310	<ul style="list-style-type: none"> <li>Linear Field of View HxW @ closest range: 280 × 360 mm; Linear Field of View HxW @ furthest range: 490 × 650 mm;</li> </ul>	
311	<ul style="list-style-type: none"> <li>Data acquisition speed up to: 3 mln points /sec</li> </ul>	
312	<ul style="list-style-type: none"> <li>Multi core processing: Yes;</li> </ul>	
313	<ul style="list-style-type: none"> <li>3D Formats: OBJ, PLY, STL, etc.</li> </ul>	
314	<ul style="list-style-type: none"> <li>Software: Include license operating software that can Fill holes, simplify the mesh, apply texture.</li> </ul>	
315	<ul style="list-style-type: none"> <li>Interface: Built in touchscreen - 4 inches</li> </ul>	
316	<ul style="list-style-type: none"> <li>Tracking Modes; Geometry, Markers, Texture</li> </ul>	
317	<ul style="list-style-type: none"> <li>Capable of scanning: Black surfaces, Glossy objects, Sharp edges, Human hair</li> </ul>	
318	<ul style="list-style-type: none"> <li>Weight: 0.9 kg (1.9 lb.) or equivalent</li> </ul>	
319	<ul style="list-style-type: none"> <li>Dimensions: 165 × 85 × 274 mm</li> </ul>	
320	<b>Package Inclusions:</b> <ul style="list-style-type: none"> <li>1x Software</li> <li>1x Carry Case</li> </ul>	
321	<b>Other Requirements:</b> <ul style="list-style-type: none"> <li>Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> </ul>	
322	<ul style="list-style-type: none"> <li>Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job.</li> </ul>	

	Attached Training certificate issued by manufacturer.	
323	<ul style="list-style-type: none"> <li>Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> </ul>	
324	<ul style="list-style-type: none"> <li>Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> </ul>	
325	<ul style="list-style-type: none"> <li>Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> </ul>	
326	<ul style="list-style-type: none"> <li>After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> </ul>	
327	<ul style="list-style-type: none"> <li>Attached certification of parts availability issued by the manufacturer for the project.</li> </ul>	
328	<ul style="list-style-type: none"> <li>English Operations Manual included</li> </ul>	
329	<b>Filament Maker – 1 unit</b>	
330	The unique vertical extrusion setup in the filament makers ensures precise roundness and accurately guides the filament to the spool.	
331	A dual air cooling system, with adjustable fan speeds and positions, ensures optimal cooling settings for the materials you work with. A sophisticated optical sensor and a dynamic puller system work together to achieve a diameter precision tolerance of +/- 0.05mm*.	
332	<ul style="list-style-type: none"> <li>Temp. Peek Point: 450°C</li> </ul>	
333	<ul style="list-style-type: none"> <li>Filament Type: Benchtop</li> </ul>	
334	<ul style="list-style-type: none"> <li>Heating Zones: 4 – Independent Controllable</li> </ul>	
335	<ul style="list-style-type: none"> <li>Mixing screw: High-flow screw</li> </ul>	
336	<ul style="list-style-type: none"> <li>Extrusion Data Analysis: Real-time</li> </ul>	
337	<ul style="list-style-type: none"> <li>Extrusion Direction: Vertical</li> </ul>	
338	<ul style="list-style-type: none"> <li>Compatible Materials: PLA, ABS, PC, PS, PETG, TPU, TPE, PPS, PVA, Bio PE, NEW PET, PA (6,12, 66), PEEK, PC, PS, PEKK, PAEK, PEI, PSU, PES, PTFE, PVD+, and many more</li> </ul>	
339	<ul style="list-style-type: none"> <li>RPM Range: up to 15 rpm</li> </ul>	
340	<ul style="list-style-type: none"> <li>Filament Diameter Range: 0.5 – 3 mm</li> </ul>	

341	<ul style="list-style-type: none"> <li>• Sensor Accuracy: 43 microns (1.69 mils)</li> </ul>	
342	<ul style="list-style-type: none"> <li>• Nozzle extruder: Diameter 4 mm (0.16 inches)</li> </ul>	
343	<ul style="list-style-type: none"> <li>• Replaceable Screw Barrel Alloy: High chromium and molybdenum steel alloy - Nitride – 3 stage Compression</li> </ul>	
344	<ul style="list-style-type: none"> <li>• Dimension: 506 x 448 x 216 mm or equivalent</li> </ul>	
345	<ul style="list-style-type: none"> <li>• Weight: 24.5 or equivalent</li> </ul>	
346	<b>Package Inclusions:</b> <ul style="list-style-type: none"> <li>• 10 Spools</li> <li>• 1200g Pouch PLA</li> <li>• 1x Spool Holder</li> <li>• 1x Extra Nozzle Package 4mm</li> </ul>	
347	<b>Other Requirements:</b> <ul style="list-style-type: none"> <li>• Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> </ul>	
348	<ul style="list-style-type: none"> <li>• Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> </ul>	
349	<ul style="list-style-type: none"> <li>• Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> </ul>	
350	<ul style="list-style-type: none"> <li>• Training and Installation: 5 days onsite training and installation for at least 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> </ul>	
351	<ul style="list-style-type: none"> <li>• Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> </ul>	
352	<ul style="list-style-type: none"> <li>• After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> </ul>	
353	<ul style="list-style-type: none"> <li>• Attached certification of parts availability issued by the manufacturer for the project.</li> </ul>	
354	<ul style="list-style-type: none"> <li>• English Operations Manual Included</li> </ul>	
355	<b>Multi Tool 3D Printer – 1 unit</b>	
356	Toolhead Technology: FDM/FFF, CNC Milling, Laser Engraving and Cutting, Paste Extrusion	
357	<b>I. 3D Printing Parameters: Fused Filament Fabrication (FFF)</b>	

358	<ul style="list-style-type: none"> <li>Work Area: at least 230 x 250 x 165 mm</li> </ul>	
359	<ul style="list-style-type: none"> <li>Toolhead: Single Extruder Toolhead 1.75, Dual Extruder Toolhead</li> </ul>	
360	<ul style="list-style-type: none"> <li>Layer Resolution: 0.05 - 0.4 mm or better</li> </ul>	
361	<ul style="list-style-type: none"> <li>Bed temperature: at least 115°C</li> </ul>	
362	<ul style="list-style-type: none"> <li>Printing temperature: at least 250 °C</li> </ul>	
363	<ul style="list-style-type: none"> <li>Work area leveling method: Automatic, Manual</li> </ul>	
364	<ul style="list-style-type: none"> <li>Available Materials: PLA, ABS, PET, Nylon, PVA, HIPS, ASA, TPE, PP, PC, PMMA, PC/ABS</li> </ul>	
365	<ul style="list-style-type: none"> <li>Support structures: Mechanically and chemically removed - printed with the same material as the model</li> </ul>	
366	<ul style="list-style-type: none"> <li>Material diameter: 1.75mm, 3.00mm</li> </ul>	
367	<ul style="list-style-type: none"> <li>Connectivity: USB, Ethernet, SD card</li> </ul>	
368	<ul style="list-style-type: none"> <li>Third party materials: Applicable, open source</li> </ul>	
369	<b>II. CNC Milling Parameters: Toolhead CNC Spindle</b>	
370	<ul style="list-style-type: none"> <li>Work Area: at least 230 x 250 x 80 mm</li> </ul>	
371	<ul style="list-style-type: none"> <li>Travel Speed: at least 120 mm/s</li> </ul>	
372	<ul style="list-style-type: none"> <li>Available Materials: ABS, Nylon, HDPE, PTFE, PC, PP, POM, PMMA, PVC, HIPS, LDPE, PET, Carbon, CCL FR4, Dibond, TCF, Wood, Wood-like, Aluminum, Brass, Copper, Cardboard, Wax, Modeling board, Styrofur</li> </ul>	
373	<ul style="list-style-type: none"> <li>Spindle max power: 300W</li> </ul>	
374	<ul style="list-style-type: none"> <li>Work area leveling method: Manual</li> </ul>	
375	<ul style="list-style-type: none"> <li>Tool holding: ER-11 collet</li> </ul>	
376	<b>III. Laser Engraving/Cutting Parameters: Tool head laser</b>	
377	<ul style="list-style-type: none"> <li>Laser spot size for 50mm 0.1 x 0.1 mm</li> </ul>	
378	<ul style="list-style-type: none"> <li>Laser spot size for 80mm 0.1 x 0.18 mm</li> </ul>	
379	<ul style="list-style-type: none"> <li>Work Area: at least 230 x 250 x 80 mm</li> </ul>	
380	<ul style="list-style-type: none"> <li>Software Supported files: .stl, .obj, .step, .dxf, .png, .bmp Filter type: HEPA/Carbon</li> </ul>	
381	<ul style="list-style-type: none"> <li>Laser Power: 2.8W</li> </ul>	

382	<ul style="list-style-type: none"> <li>Wavelength: 450nm</li> </ul>	
383	<ul style="list-style-type: none"> <li>Laser class: 4</li> </ul>	
384	<ul style="list-style-type: none"> <li>Available Materials: Wood, wood-like, leather, paper, cardboard, felt, foil, laminate, EPP, EVA Foam, CCL FR4</li> </ul>	
385	<ul style="list-style-type: none"> <li>Software: The all-in-one software for 3D printing, CNC milling, and laser engraving and cutting.</li> </ul>	
386	<ul style="list-style-type: none"> <li>Supported File Types: .stl, .obj, .step, .dxf, .png, .bmp</li> </ul>	
387	<ul style="list-style-type: none"> <li>Supported Operating Systems: Windows 7/10 (64 bit) (or higher) / macOS 10.13 (or higher)</li> </ul>	
388	<ul style="list-style-type: none"> <li>Software Feature: features CAM-standard workflow for CNC procedures with STEP operations, ability to change the tool within one G-code, and path visualization.</li> </ul>	
389	<ul style="list-style-type: none"> <li>Machine Dimension: 520 x 500 x 570mm or equivalent</li> </ul>	
390	<ul style="list-style-type: none"> <li>Weight: 30kg or equivalent</li> </ul>	
391	<ul style="list-style-type: none"> <li>Electrical Requirements: 100 [VAC] ~ 4 [A] 50/60 [Hz] 240 [VAC] ~ 2 [A] 50/60 [Hz]</li> </ul>	
392	<ul style="list-style-type: none"> <li>Voltage regulator included</li> </ul>	
393	<ul style="list-style-type: none"> <li>Filtration Parameters: HEPA/Carbon, 1.54 Ventilation Power</li> </ul>	
394	<b>Accessories Included:</b> <ul style="list-style-type: none"> <li>1 unit 1.75 mm Plastic Extruder with 0.3 mm nozzle</li> </ul>	
395	<ul style="list-style-type: none"> <li>1 unit Dual Plastic Extruder with Mixer hot end</li> </ul>	
396	<ul style="list-style-type: none"> <li>1 unit CNC Milling toolhead</li> </ul>	
397	<ul style="list-style-type: none"> <li>1 unit Laser PRO toolhead (2.8 W)</li> </ul>	
398	<ul style="list-style-type: none"> <li>1 unit Thick Paste Extruder</li> </ul>	
399	<ul style="list-style-type: none"> <li>1 unit Heated worktable for 3D printing</li> </ul>	
400	<ul style="list-style-type: none"> <li>1 unit CNC Worktable for milling and cutting</li> </ul>	
401	<ul style="list-style-type: none"> <li>1 unit Dust Collector</li> </ul>	
402	<b>Other Requirements:</b> <ul style="list-style-type: none"> <li>Certificate of Distributorship: The External Provider has a certificate of authority to sell issued by the manufacturer or its Philippine Distributor/Reseller.</li> </ul>	
403	<ul style="list-style-type: none"> <li>Training Availability: The External Provider has manpower and capability to conduct training. The External Provider does not need to outsource the job. Attached Training certificate issued by manufacturer.</li> </ul>	



404	<ul style="list-style-type: none"> <li>Installation, Maintenance and Service Availability: The External Provider has manpower and capability to conduct installation, maintenance and service. The External Provider does not need to outsource the job.</li> </ul>	
405	<ul style="list-style-type: none"> <li>Training and Installation: 5 days onsite training and installation for atleast 5 personnel. Attached training certificate provided by manufacturer's certified trainer.</li> </ul>	
406	<ul style="list-style-type: none"> <li>Warranty: 12 Months warranty for parts and service, attached warranty certificate</li> </ul>	
407	<ul style="list-style-type: none"> <li>After Sale Support: Ensure the availability of after sales services and prompt response of not more than 5 working days from date of notice of need. Attached After-Sales Support certificate issued by the manufacturer that the External Provider has the capability to do after sales support after warranty and has available technical support locally.</li> </ul>	
408	<ul style="list-style-type: none"> <li>Attached certification of parts availability issued by the manufacturer for the project.</li> </ul>	
409	<ul style="list-style-type: none"> <li>English Operations Manual included</li> </ul>	
410	<b>Integrated Services Router Bundle 1 and 2 – 1 unit</b>	
411	<b>Bundle 1:</b> <ul style="list-style-type: none"> <li>4221 Integrated Services Router (2GE, 2NIM.8G FLASH.4G</li> </ul>	
412	<ul style="list-style-type: none"> <li>SNTC-8X5XNBD (2GE, (12))</li> </ul>	
413	<ul style="list-style-type: none"> <li>IP Base License Integrated Services Router 4000 Series</li> </ul>	
414	<ul style="list-style-type: none"> <li>AC Power Supply</li> </ul>	
415	<ul style="list-style-type: none"> <li>AC Power Cord</li> </ul>	
416	<ul style="list-style-type: none"> <li>Blank Faceplate for NIM SLOT compatible</li> </ul>	
417	<ul style="list-style-type: none"> <li>Universal</li> </ul>	
418	<ul style="list-style-type: none"> <li>CATALYST 2960 PLUS 24 10/100 + 2T/SFP LN BASE</li> </ul>	
419	<ul style="list-style-type: none"> <li>SNTC-8X5XNBD CATALYST 2960 PLUS 24 10/100 +2T/SFP LA</li> </ul>	
420	<ul style="list-style-type: none"> <li>AC Power Cord</li> </ul>	
421	<ul style="list-style-type: none"> <li>CONSOLE Cable 6FT WITH RJ45 AND DB9F</li> </ul>	
422	<ul style="list-style-type: none"> <li>WIRELESS N (2.4 GHZ) Fast Ethernet 4 Port Switch, High Speed UP TO 300 MBPS</li> </ul>	
423	<b>Bundle 2:</b> <ul style="list-style-type: none"> <li>4321 Integrated Services Router (2GE, 2NIM, 4G FLASH, 4GDRAM, IPB)</li> </ul>	

424	• SNTC-8X5XNBD 4321 Integrated Services Router (2GE, 2NIM, 4G FLASH, 4GDRAM, IPB)	
425	• IP Base License for 4321 Integrated Services Router	
426	• AC Power Supply for 4321 Integrated Services Router	
427	• AC POWER CORD TYPE C5, US, CANADA	
428	• 4G Flash Memory for ISR 4300(Soldered On Motherboard)	
429	• 4G DRAM FOR ISR 4320 (Soldered On Motherboard)	
430	• Blank Faceplate for NIM SLOT ON Integrated Services Router for 4400	
431	• ISR 4300 SERIES IOS XE UNIVERSAL	
432	• CATALYST 2960 PLUS 24 10/100 +2T/SFP LAN BASE	
433	• SNTC-8X5XNBD CATALYST 2960 PLUS 24 10/100 +2T/SFP LAN BASE	
434	• AC Power Cord C13, NEMA 5-15P, 2.1M	
435	• CONSOLE CABLE 6FT WITH RJ45 AND DB9F	
436	• WIRELESS N (2.4 GHZ) Fast Ethernet 4 Port Switch, High Speed UP TO 300 MBPS	
437	<b>Drone Set Kit Launcher (2 Units) – 1 set</b>	
438	• Carbon Fiber Frame: Tarot T960 c/F Folding Hexacopter	
439	• Carbon Fiber Frame: Tarot IronMan 1000	
440	• Brushless Motors:Tarot 5008 340Kv high power motors	
441	• Carbon Propellers:Carbon Propeller 18 x 5.5 PM11029	
442	• Electronic Speed Controller: Hobbywing flyfun 40A OPTO PM03002	
443	• Flight Controller with GPS and Gyro: DJI Naza-M V2 Multirotor Gyro System with GPS PM04005	
444	• 22.2V Battery: Tiger 22.2v 5400mah 35c PB01009	
445	• Radio Transmitter with Receiver - FRISKY TARANIS X9D PLUS COMBO PT02022	
446	• MINI On Screen Display Module: DJI iOSD Mini on screen Display	
447	• Bluetooth Module: DJI Naza M BTU (Bluetooth Unit)	
448	• Camera: SJ4000 Action Camera Non Wifi PM02005	
449	• FPV System TX 5.8G 200mW FPV Video Audio 8CH	

	AV Transmitter TX 5.8 GHz RX Receiver Set 2KM 2000m	
450	<ul style="list-style-type: none"> <li>Cable Pack Set               <ol style="list-style-type: none"> <li>XT60 and XT90</li> <li>20 Pairs Gold Tone Metal RC Banana Bullet Plug Connector</li> <li>AWG Silicone Wire Flexible High Temperature 1m Red and Black</li> <li>20 pairs 3.5mm Gold plated Banana plugs Engine Electronic Connector</li> <li>10pcs 50 cm Servo Extension Cord Cable Lead Wire JR 50cm 26 AWG</li> <li>10 pairs 2 pin JST Plug Socket Connector M to F 110mm Cable Wire Red Black</li> <li>Pair of RC XT90 to plug Male to Female Lipo Battery Adapters Charger Cable</li> </ol> </li> </ul>	
451	<ul style="list-style-type: none"> <li>FPV System (Monitor and Transmitter) BOSCAM RX-LCD5802 5.8 Dual Diversity 7 white</li> </ul>	
452	<ul style="list-style-type: none"> <li>Battery Charger 15-30V SKYRC D200</li> </ul>	
453	<ul style="list-style-type: none"> <li>Camera Positioning Kit/Gimbal Mounting Rail - Tarot T4-3D 3 Axis FPV Brushless Camera Gimbal</li> </ul>	
454	<ul style="list-style-type: none"> <li>Antenna 5.8 GHz Circular Polarized Mushroom Antenna RP-SMA Set Tx/Rx for Multicopter</li> </ul>	
455	<ul style="list-style-type: none"> <li>FPV System TX - Skyzone TX-5D HDMI to AV Transmitter Module – Black 142193701 with 600mw and 32 channel</li> </ul>	
456	<b>PLC Simulation Board with I/O Devices – 1 unit</b>	
457	<ul style="list-style-type: none"> <li>Start, Stop, Emergency Buttons</li> </ul>	
458	<ul style="list-style-type: none"> <li>Conductive and Inductive Sensors</li> </ul>	
459	<ul style="list-style-type: none"> <li>Thru Beam Sensors</li> </ul>	
460	<ul style="list-style-type: none"> <li>Pneumatic Cylinders with 4/3 way Valve</li> </ul>	
461	<ul style="list-style-type: none"> <li>Hydraulic Cylinders with 4/3 way Valve</li> </ul>	
462	<ul style="list-style-type: none"> <li>24V Stepper Motor with Driver</li> </ul>	
463	<ul style="list-style-type: none"> <li>24V Servo Motor with Driver</li> </ul>	
464	<ul style="list-style-type: none"> <li>1 Ball Screw Platform</li> </ul>	
465	<ul style="list-style-type: none"> <li>Load Cell</li> </ul>	
466	<ul style="list-style-type: none"> <li>Pneumatic Control Valve</li> </ul>	
467	<ul style="list-style-type: none"> <li>I2P Converter</li> </ul>	

468	<ul style="list-style-type: none"> <li>Flow Switch and Transmitter</li> </ul>	
469	<b>PLC Simulation Board</b> <ul style="list-style-type: none"> <li>With pneumatic Circuit</li> </ul>	
470	<ul style="list-style-type: none"> <li>Hydraulic Circuit</li> </ul>	
471	<ul style="list-style-type: none"> <li>Servo motor</li> </ul>	
472	<ul style="list-style-type: none"> <li>Stepper motor</li> </ul>	
473	<ul style="list-style-type: none"> <li>Heater, etc.</li> </ul>	
474	<b>Design Software Suit Virtual Simulation – 1 unit</b>	
475	<ul style="list-style-type: none"> <li>SCADA license for instructor - Adv Dev Studio</li> </ul>	
476	<ul style="list-style-type: none"> <li>SCADA license for students</li> </ul>	
477	<ul style="list-style-type: none"> <li>Laptop - I58265U processor, 8GB DDR4 memory, 1TB storage, 2GB MX130 Graphics Window 10, 15.6 HD Display</li> </ul>	
478	<ul style="list-style-type: none"> <li>HMI (Touch Panel PC) - 10” widescreen display, aluminum chassis, capacitive touchscreen, Windows 10 LTSB Enterprise</li> </ul>	
479	<ul style="list-style-type: none"> <li>PLC - Supply Voltage 100, 240V AC, 9DI, 2 AI 0, 10V dc7 DO Relay NO, 1 USB A, 1RJ45(serial), 1RJ45 (Ethernet)</li> </ul>	
480	<ul style="list-style-type: none"> <li>Pre-assembled CAT5e cable with RJ45 plugs, 2m</li> </ul>	
481	<ul style="list-style-type: none"> <li>Training kit Assembly - Base frame for TM221CE16R PLC, Front panel with cutout for Aveva 10” Touch Panel PC, with 6 toggle switches</li> </ul>	
482	<ul style="list-style-type: none"> <li>PLC Training</li> </ul>	
483	<ul style="list-style-type: none"> <li>SCADA Training</li> </ul>	
484	<b>VI. Scope of Work and Deliverables</b>  The assistance required for the DTI-SSF is the direct infusion of capital equipment by way of infusing machineries into one facility stated herein.  The program shall entail the supervision, and coordination of all activities for the supply and delivery of equipment for the Shared Service Facility of the College of Engineering, Architecture, and Technology of De La Salle University Dasmarias which shall include the following parameters.	
485	<b>3. Scope of Work</b> <ul style="list-style-type: none"> <li>Deliver, install, and commission the machineries equipment required within sixty-five (65) days from</li> </ul>	

	issuance of notice to proceed or the signed contract agreement.	
486	<ul style="list-style-type: none"> <li>Supervision during the installation of the machineries, to include trial testing required at the cost of the External Provider.</li> </ul>	
487	<ul style="list-style-type: none"> <li>Provide a minimum prescribed number of training hours for the machine operation, to a minimum of 5 workers/participants.</li> </ul>	
488	<ul style="list-style-type: none"> <li>Provide manual of operation and handouts on the proper care and use of the facility.</li> </ul>	
489	<b>4. Deliverables</b> <ul style="list-style-type: none"> <li>Complete SSF machines shall be fully delivered at the identified location of the contract.</li> </ul>	
490	<ul style="list-style-type: none"> <li>Check payment and issuance of acknowledgment receipt for equipment upon delivery and acceptance of the property.</li> </ul>	
491	<ul style="list-style-type: none"> <li>Test-run of the machines to be conducted and its documentation (recording of test result/parameter in accordance to item number 5.</li> </ul>	
492	<ul style="list-style-type: none"> <li>Training of personnel on machine operation, maintenance and troubleshooting in accordance to item number 5.</li> </ul>	
493	<b>I. Commissioning, Training, and Acceptance</b> <ul style="list-style-type: none"> <li>Acceptance: The external provider must conform to all specifications requirements and terms and conditions of the project before issuance of Certificate of Acceptance.</li> <li>Acceptance certificate signatories should be from DLSU-D and DTI Committee.</li> <li>Provide Installation and Training Guidelines/checklist for the conformity of machine performance and parameters of the delivered equipment.</li> </ul>	
494	<b>1. Complete Metal 3D Printing System</b> <ul style="list-style-type: none"> <li><b>Commissioning:</b> The winning bidders shall provide all materials related to machine installation, construction and all requirements related to the installation of equipment – steel tables, tooling, start-up lubricants, cable ready for connection to electrical supply, connection to gas supply and ventilation and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.</li> <li><b>Training:</b> Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (3D CAD Literate) for five (5) days.</li> </ul>	

	<ul style="list-style-type: none"> <li>• <b>Acceptance:</b> The machine shall produce one (1) output product using each material specified in the technical specifications as identified by the Project Team.</li> </ul>	
495	<b>2. Carbon Fiber 3D Printer – Desktop Series</b> <ul style="list-style-type: none"> <li>• <b>Commissioning:</b> The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling, cable ready for connection to electrical supply and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.</li> <li>• <b>Training:</b> Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (3D CAD Literate) for two (2) days.</li> <li>• <b>Acceptance:</b> The machine shall produce one (1) output product using each material specified in the technical specifications as identified by the Project Team.</li> </ul>	
496	<b>3. Large-Scale FDM 3D Printer</b> <ul style="list-style-type: none"> <li>• <b>Commissioning:</b> The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling, cable ready for connection to electrical supply and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.</li> <li>• <b>Training:</b> Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (3D CAD Literate) for two (2) days.</li> <li>• <b>Acceptance:</b> The machine shall produce one (1) output product using each material specified in the technical specifications as identified by the Project Team.</li> </ul>	
497	<b>4. FDM 3D Printer</b> <ul style="list-style-type: none"> <li>• <b>Commissioning:</b> The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling, cable ready for connection to electrical supply and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.</li> <li>• <b>Training:</b> Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (3D CAD Literate) for</li> </ul>	

	<p>two (2) days.</p> <ul style="list-style-type: none"> <li>• <b>Acceptance:</b> The machine shall produce five (5) output product using material specified in the technical specifications as identified by the Project Team.</li> </ul>	
498	<p><b>5. Compact CNC Milling System</b></p> <ul style="list-style-type: none"> <li>• <b>Commissioning:</b> The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling, start-up lubricants, cable ready for connection to electrical supply, connection to compressed air complete setup and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.</li> <li>• <b>Training:</b> Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (CAD/CAM Literate) for three (3) days.</li> <li>• <b>Acceptance:</b> The machine shall produce five (5) output product using material specified in the technical specifications as identified by the Project Team.</li> </ul>	
499	<p><b>6. 80 Watts CO2 Laser Cutter/Engraver</b></p> <ul style="list-style-type: none"> <li>• <b>Commissioning:</b> The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling, ventilation, cable ready for connection to electrical supply, connection to compressed air complete setup and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.</li> <li>• <b>Training:</b> Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (CAD Literate) for three (3) days.</li> <li>• <b>Acceptance:</b> The machine shall produce five (5) output product using material specified in the technical specifications as identified by the Project Team.</li> </ul>	
500	<p><b>7. Handheld 3D Scanner</b></p> <ul style="list-style-type: none"> <li>• <b>Commissioning:</b> The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to calibration tools, cable ready for connection to electrical supply and labor</li> </ul>	

	<p>needed in the installation, commissioning and test-running of the supplied machine where applicable.</p> <ul style="list-style-type: none"> <li>• <b>Training:</b> Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (3D CAD Literate) for two (2) days.</li> <li>• <b>Acceptance:</b> The machine shall produce three (3) output product using scanning modes specified in the technical specifications as identified by the Project Team.</li> </ul>	
501	<p><b>8. Filament Maker</b></p> <ul style="list-style-type: none"> <li>• <b>Commissioning:</b> The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling, cable ready for connection to electrical supply and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.</li> <li>• <b>Training:</b> Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs for three (3) days.</li> <li>• <b>Acceptance:</b> The machine shall produce two (2) output product using material specified in the technical specifications as identified by the Project Team.</li> </ul>	
502	<p><b>9. Multi Tool 3D Printer</b></p> <ul style="list-style-type: none"> <li>• <b>Commissioning:</b> The winning bidders shall provide all materials related to machine installation, and all requirements related to the installation of equipment such as but not limited to tooling, cable ready for connection to electrical supply, connection to dust collector and labor needed in the installation, commissioning and test-running of the supplied machine where applicable.</li> <li>• <b>Training:</b> Provide comprehensive training on Operations, Maintenance and troubleshooting to at least five (5) Project Staffs (3D CAD Literate) for two (2) days.</li> <li>• <b>Acceptance:</b> The machine shall produce five (5) output product using material specified in the technical specifications as identified by the Project Team.</li> </ul>	
503	<p><b>II. Other Project Terms and Conditions</b></p> <p>The External Provider is required to provide all of the following services including additional services, if any, specified in the schedule of requirements:</p>	
504	<ul style="list-style-type: none"> <li>• Provision of Bidder's accreditation and license.</li> </ul>	



505	<ul style="list-style-type: none"> <li>Furnishing of detailed operations and maintenance manual for each unit of the supplied machine/equipment.</li> </ul>	
506	<ul style="list-style-type: none"> <li>Provide at least one (1) year warranty on parts and services. In case machine/equipment breakdown, provide appropriate parts and local technician for the whole duration of contract warranty period. Attached warranty certificate.</li> </ul>	
507	<ul style="list-style-type: none"> <li>Maintenance: Visit at least once a month onsite machine maintenance for each equipment during warranty period.</li> </ul>	
508	<ul style="list-style-type: none"> <li>Pre-Delivery Site Inspection: Prior to delivery to client the winning bidder shall conduct installation site inspection.</li> </ul>	
509	<ul style="list-style-type: none"> <li>Delivery period: Within sixty-five (65) calendar days upon receipt of Notice to Proceed (NTP) and Purchase Order (PO). Free delivery at DLSU-D InnoLab.</li> </ul>	
510	<ul style="list-style-type: none"> <li>Testing and trial runs: Testing/demonstration of equipment must be done by the External Provider upon delivery. Validating the specifications and performance capability as intended for each machine parameter stated in the technical specifications.</li> </ul>	
511	<ul style="list-style-type: none"> <li>Transmittal and other pertinent documents should be turn over after commissioning.</li> </ul>	
512	<ul style="list-style-type: none"> <li>All certifications required in the schedule of requirements/Technical specifications must be attached to the bid.</li> </ul>	
513	<ul style="list-style-type: none"> <li>The External Provider must secure a certificate of acceptance from End-User and DTI Cavite for the facilitation of payment.</li> </ul>	
514	<p><b>III. Terms of Payment</b></p> <p>Full payment within thirty (30) working days after complete delivery, installation, commissioning, inspection and acceptance of all machineries and equipment.</p>	
515	<p><b>IV. Tie-Breaking Method</b></p> <p>Where, after post-qualification, an occurrence of a tie takes place among bidders determined and declared as the Lowest Calculated and Responsive Bidder (LCRB), the measure to resolve the case is by “toss coin (best of 7)”.</p>	

I hereby certify that the statement of compliance to the foregoing technical specifications are true and correct, otherwise, if found to be false either during bid evaluation or post-qualification, the same shall result to automatic disqualification of our bid.

\_\_\_\_\_  
Name of Company/Bidder

\_\_\_\_\_  
Signature over printed Name of  
Authorized Representative

\_\_\_\_\_  
Date

## ***Section VIII. Checklist of Technical and Financial Documents***

# Checklist of Technical and Financial Documents

## I. TECHNICAL COMPONENT ENVELOPE

### *Class “A” Documents*

#### Legal Documents

- ☐ (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages);  
**or**
- ☐ (b) Registration certificate from Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives or its equivalent document,  
**and**
- ☐ (c) Mayor’s or Business permit issued by the city or municipality where the principal place of business of the prospective bidder is located, or the equivalent document for Exclusive Economic Zones or Areas;  
**and**
- ☐ (d) Tax clearance per E.O. No. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR).

#### Technical Documents

- ☐ (f) Statement of the prospective bidder of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid; **and**
- ☐ (g) Statement of the bidder’s Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided for in Sections 23.4.1.3 and 23.4.2.4 of the 2016 revised IRR of RA No. 9184, within the relevant period as provided in the Bidding Documents; **and**
- ☐ (h) Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission;  
**or**  
Original copy of Notarized Bid Securing Declaration; **and**
- ☐ (i) Conformity with the Technical Specifications, which may include production/delivery schedule, manpower requirements, and/or after-sales/parts, if applicable; **and**
- ☐ (j) Original duly signed Omnibus Sworn Statement (OSS);  
**and** if applicable, Original Notarized Secretary’s Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.

#### Financial Documents

- ☐ (k) The Supplier’s audited financial statements, showing, among others, the Supplier’s total and current assets and liabilities, stamped “received” by the BIR or its duly accredited and authorized institutions, for the preceding calendar year which should not be earlier than two (2) years from the date of bid submission; **and**
- ☐ (l) The prospective bidder’s computation of Net Financial Contracting

Capacity (NFCC);

**or**

A committed Line of Credit from a Universal or Commercial Bank in lieu of its NFCC computation.

***Class “B” Documents***

- ☐ (m) If applicable, a duly signed joint venture agreement (JVA) in case the joint venture is already in existence;

**or**

duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.

***Other documentary requirements under RA No. 9184 (as applicable)***

- ☐ (n) *[For foreign bidders claiming by reason of their country’s extension of reciprocal rights to Filipinos]* Certification from the relevant government office of their country stating that Filipinos are allowed to participate in government procurement activities for the same item or product.
- ☐ (o) Certification from the DTI if the Bidder claims preference as a Domestic Bidder or Domestic Entity.

**25 FINANCIAL COMPONENT ENVELOPE**

- ☐ (a) Original of duly signed and accomplished Financial Bid Form; **and**
- ☐ (b) Original of duly signed and accomplished Price Schedule(s).

