

BIDDING DOCUMENTS

(As Harmonized with Development Partners)

Procurement of GOODS

Government of the Republic of the Philippines

SMART CAMPUS PROGRAM

ROMBLON STATE UNIVERSITY

**Sixth Edition
July 2020**

Preface

These Philippine Bidding Documents (PBDs) for the procurement of Goods through Competitive Bidding have been prepared by the Government of the Philippines for use by any branch, constitutional commission or office, agency, department, bureau, office, or instrumentality of the Government of the Philippines, National Government Agencies, including Government-Owned and/or Controlled Corporations, Government Financing Institutions, State Universities and Colleges, and Local Government Unit. The procedures and practices presented in this document have been developed through broad experience, and are for mandatory use in projects that are financed in whole or in part by the Government of the Philippines or any foreign government/foreign or international financing institution in accordance with the provisions of the 2016 revised Implementing Rules and Regulations of Republic Act No. 9184.

The Bidding Documents shall clearly and adequately define, among others: (i) the objectives, scope, and expected outputs and/or results of the proposed contract or Framework Agreement, as the case may be; (ii) the eligibility requirements of Bidders; (iii) the expected contract or Framework Agreement duration, the estimated quantity in the case of procurement of goods, delivery schedule and/or time frame; and (iv) the obligations, duties, and/or functions of the winning bidder.

Care should be taken to check the relevance of the provisions of the PBDs against the requirements of the specific Goods to be procured. If duplication of a subject is inevitable in other sections of the document prepared by the Procuring Entity, care must be exercised to avoid contradictions between clauses dealing with the same matter.

Moreover, each section is prepared with notes intended only as information for the Procuring Entity or the person drafting the Bidding Documents. They shall not be included in the final documents. The following general directions should be observed when using the documents:

- a. All the documents listed in the Table of Contents are normally required for the procurement of Goods. However, they should be adapted as necessary to the circumstances of the particular Procurement Project.
- b. Specific details, such as the “*name of the Procuring Entity*” and “*address for bid submission*,” should be furnished in the Instructions to Bidders, Bid Data Sheet, and Special Conditions of Contract. The final documents should contain neither blank spaces nor options.
- c. This Preface and the footnotes or notes in italics included in the Invitation to Bid, Bid Data Sheet, General Conditions of Contract, Special Conditions of Contract, Schedule of Requirements, and Specifications are not part of the text of the final document, although they contain instructions that the Procuring Entity should strictly follow.
- d. The cover should be modified as required to identify the Bidding Documents as to the Procurement Project, Project Identification Number, and Procuring Entity, in addition to the date of issue.
- e. Modifications for specific Procurement Project details should be provided in the Special Conditions of Contract as amendments to the Conditions of Contract. For easy completion, whenever reference has to be made to specific clauses in the Bid Data Sheet or Special Conditions of Contract, these terms shall be

printed in bold typeface on Sections I (Instructions to Bidders) and III (General Conditions of Contract), respectively.

- f. For guidelines on the use of Bidding Forms and the procurement of Foreign-Assisted Projects, these will be covered by a separate issuance of the Government Procurement Policy Board.

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INVITATION TO BID SMART CAMPUS PROGRAM

1. The **Romblon State University**, through the **General Appropriations Act (GAA) of 2022**, intends to apply the sum of **Seven Hundred Fifty Million Pesos (Php 750,000,000.00)**, being the Approved Budget for the Contract (ABC), to payments under the contract for the **SMART CAMPUS PROGRAM**. Bids received in excess of the ABC shall be automatically rejected at bid opening.
2. The **Romblon State University** now invites bids for the **SMART CAMPUS PROGRAM**. Delivery of the Goods is required within **270 calendar days**. Bidders should have completed, within **five (5) 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.

4. Prospective Bidders may obtain further information from Romblon State University and inspect the Bidding Documents at the address given below during office from 8:00 am – 5:00 pm, Mondays to Fridays.
5. A complete set of Bidding Documents may be acquired by interested Bidders from **March 2, 2022 – March 21, 2022** from the address 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 **Seventy-Five Thousand Pesos Only (Php 75,000.00)**
6. It may also be downloaded free of charge from the website of the Philippine Government Electronic Procurement System (PhilGEPS) and the Romblon State University website (<https://www.rsu.edu.ph>), provided that Bidders shall pay the applicable fee for the Bidding Documents not later than the submission of their bids.
7. The Romblon State University will hold a Pre-Bid Conference on **March 9, 2022 @ 8 o'clock in the morning** at **Romblon State University-Main Campus** which shall be open to prospective bidders.
8. Bids must be duly received by the BAC Secretariat at the address below **on or before 8:00 AM of March 21, 2022**. 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 **March 21, 2022, @ 8:00 AM at RSU, Odiongan, Romblon**. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity. Late bids shall not be accepted.
10. The Romblon State University 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 Section 41 of RA 9184 and its IRR, without thereby incurring any liability to the affected bidder or bidders.

11. For further information, please refer to:

(SGD) MS. VEE F. FRANCISCO

Office of the BAC Secretariat

Telephone No.: 042-567-5952

E-mail address: bacrsu2016@gmail.com

University Website: www.rsu.edu.ph

Issued this 2nd day of March, 2022.

(SGD) ATTY. GLENN NIÑO M. SARTILLO
BAC Chairperson

Section II. Instructions to Bidders

Notes on the Instructions to Bidders

This Section on the Instruction to Bidders (ITB) provides the information necessary for bidders to prepare responsive bids, in accordance with the requirements of the Procuring Entity. It also provides information on bid submission, eligibility check, opening and evaluation of bids, post-qualification, and on the award of contract.

1. Scope of Bid

The Procuring Entity, **Romblon State University** wishes to receive Bids for the **SMART CAMPUS PROGRAM**.

The Procurement Project (referred to herein as “Project”) is composed of **One Lot** the details of which are described in Section VII (Technical Specifications).

2. Funding Information

2.1. The GOP through the source of funding as indicated below for *CY 2022* in the amount of ***Php750,000,000.00***.

2.2. The source of funding is:

The General Appropriations Act of 2022.

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. 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 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 allowed. The portions of Project and the maximum percentage allowed to be subcontracted are indicated in the **BDS**, which shall not exceed twenty percent (20%) of the contracted Goods

7.2. The Bidder must submit together with its Bid the documentary requirements of the subcontractor(s) complying with the eligibility criteria stated in **ITB** Clause 5 in accordance with Section 23.4 of the 2016 revised IRR of RA No. 9184 pursuant to Section 23.1 thereof.

7.3. The Supplier may identify its subcontractor during the contract implementation stage. Subcontractors identified during the bidding may be changed during the implementation of this Contract. Subcontractors must submit the documentary requirements under Section 23.1 of the 2016 revised IRR of RA No. 9184 and comply with the eligibility criteria specified in **ITB** Clause 5 to the implementing or end-user unit.

7.4. 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 videoconferencing/webcasting} 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 *Five (5) 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.

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 Declaration¹ 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 within the period specified in the **BDS**. 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

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.

¹ In the case of Framework Agreement, the undertaking shall refer to entering into contract with the Procuring Entity and furnishing of the performance security or the performance securing declaration within ten (10) calendar days from receipt of Notice to Execute Framework Agreement.

18. Domestic Preference

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 may be. 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 ABC.
- 19.4. The Project 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 ABC. 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

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

Notes on the Bid Data Sheet

The Bid Data Sheet (BDS) consists of provisions that supplement, amend, or specify in detail, information, or requirements included in the ITB found in Section II, which are specific to each procurement.

This Section is intended to assist the Procuring Entity in providing the specific information in relation to corresponding clauses in the ITB and has to be prepared for each specific procurement.

The Procuring Entity should specify in the BDS information and requirements specific to the circumstances of the Procuring Entity, the processing of the procurement, and the bid evaluation criteria that will apply to the Bids. In preparing the BDS, the following aspects should be checked:

- a. Information that specifies and complements provisions of the ITB must be incorporated.
- b. Amendments and/or supplements, if any, to provisions of the ITB as necessitated by the circumstances of the specific procurement, must also be incorporated.

Bid Data Sheet

ITB Clause	
5.3	<p>For this purpose, contracts similar to the Project shall be Information, Communications and Technology Projects, completed within Five (5) Years prior to the deadline for the submission and receipt of bids.</p> <p>The Single Largest Completed Contract shall be equivalent to at least 50% of the Approved Budget of Contract (ABC).</p>
7.1	<i>No further instructions.</i>
12	The price of the Goods shall be quoted in Philippine Peso .
14.1	<p>The bid security shall be in the form of a Bid Securing Declaration, or any of the following forms and amounts:</p> <ul style="list-style-type: none"> a. The amount of not less than <i>two percent (2%) of ABC</i>, 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 <i>five percent (5%) of ABC</i> if bid security is in Surety Bond.
19.3	<i>No further instructions.</i>
20.2	<i>Not applicable</i>
21.2	<i>Not applicable</i>

Section IV. General Conditions of Contract

Notes on the General Conditions of Contract

The General Conditions of Contract (GCC) in this Section, read in conjunction with the Special Conditions of Contract in Section V and other documents listed therein, should be a complete document expressing all the rights and obligations of the parties.

Matters governing performance of the Supplier, payments under the contract, or matters affecting the risks, rights, and obligations of the parties under the contract are included in the GCC and Special Conditions of Contract.

Any complementary information, which may be needed, shall be introduced only through the Special 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

Notes on the Special Conditions of Contract

Similar to the BDS, the clauses in this Section are intended to assist the Procuring Entity in providing contract-specific information in relation to corresponding clauses in the GCC found in Section IV.

The Special Conditions of Contract (SCC) complement the GCC, specifying contractual requirements linked to the special circumstances of the Procuring Entity, the Procuring Entity's country, the sector, and the Goods purchased. In preparing this Section, the following aspects should be checked:

- a. Information that complements provisions of the GCC must be incorporated.
- b. Amendments and/or supplements to provisions of the GCC as necessitated by the circumstances of the specific purchase, must also be incorporated.

However, no special condition which defeats or negates the general intent and purpose of the provisions of the GCC should be incorporated herein.

Special Conditions of Contract

GCC Clause	
1	<p>Delivery and Documents –</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><i>[For Goods supplied from abroad, state:]</i> “The delivery terms applicable to the Contract are DDP delivered [<i>indicate place of destination</i>]. In accordance with INCOTERMS.”</p> <p><i>[For Goods supplied from within the Philippines, state:]</i> “The delivery terms applicable to this Contract are delivered [<i>indicate place of destination</i>]. Risk and title will pass from the Supplier to the Procuring Entity upon receipt and final acceptance of the Goods at their final destination.”</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 Representative at the Project Site is _____.</p> <p>Incidental Services –</p> <p>The Supplier is required to provide all of the following services, including additional services, if any, specified in Section VI. Schedule of Requirements:</p> <ol style="list-style-type: none"> a. performance or supervision of on-site assembly and/or start-up of the supplied Goods; b. furnishing of tools required for assembly and/or maintenance of the supplied Goods; c. furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods; d. performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and
	<ol style="list-style-type: none"> e. training of the Procuring Entity’s personnel, at the Supplier’s plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied Goods. <p>The Contract price for the Goods shall include the prices charged by the Supplier for incidental services and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services.</p> <p>Spare Parts –</p>

The Supplier is required to provide all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier:

- a. such spare parts as the Procuring Entity may elect to purchase from the Supplier, provided that this election shall not relieve the Supplier of any warranty obligations under this Contract; and
- b. in the event of termination of production of the spare parts:
 - i. advance notification to the Procuring Entity of the pending termination, in sufficient time to permit the Procuring Entity to procure needed requirements; and
 - ii. following such termination, furnishing at no cost to the Procuring Entity, the blueprints, drawings, and specifications of the spare parts, if requested.

The spare parts and other components required are listed in **Section VI (Schedule of Requirements)** and the cost thereof are included in the contract price.

The Supplier shall carry sufficient inventories to assure ex-stock supply of consumable spare parts or components for the Goods for a period of three years.

Spare parts or components shall be supplied as promptly as possible, but in any case, within three months of placing the order.

Packaging –

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.

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, including additional requirements, if any, specified below, and in any subsequent instructions ordered by the Procuring Entity.

The outer packaging must be clearly marked as follows:

- Name of the Procuring Entity
- Name of the Supplier
- Contract Description

	<p>A packaging list identifying the contents and quantities of the package is to be 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>Transportation –</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>Intellectual Property Rights –</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>
2.2	<p>The terms of payment shall be as follows pursuant to the following Milestones:</p> <p>Payment Schedule:</p> <p>25% - upon submission and approval of the Project Plan and System Architecture and Design</p> <p>30% - upon delivery of software components</p> <p>30% - upon delivery of hardware components</p> <p>10%- upon completion of installation and configuration</p> <p>4% - upon training completion and end user acceptance</p>

	<p>1% - Retention</p> <p>Warranty Retention:</p> <p>The obligations of the warranty shall be covered by either retention money in an amount equivalent to one percent (1%) of each payment, or special bank guarantee equivalent to one percent (1%) of the total contract price, or surety callable on demand equivalent to 10% of the total contract price. The said amounts shall only be released after the lapse of the warranty period.</p>
<p>4</p>	<p>Deadline for approval of Project Plan and Systems Architecture and Design –</p> <p>The deadline for approved plan design must occur before the delivery start date and any adjustments on such design/specifications shall not be permissible after fifteen (15) calendar days following the start date. There shall only be two (2) allowable revisions and/or adjustments thereto, provided, that it is within the fifteen-day period. Any delay resulting from any change of the design/specifications of the PE shall be treated as PE’s delay.</p> <p>Material Adverse Government Action –</p> <p>“Material Adverse Government Action" means any action or inaction of any Governmental Authority, national or local, which has a material adverse effect on any of the rights and privileges of, or on the performance or exercise thereof by the Winning Bidder or any of its subcontractors as may be allowed by law, or which has a material adverse effect on a Milestone or the ability of the Winning Bidder or its subcontractors as may be allowed by law, to comply with its contractual obligations in connection with the Project.</p> <p>The Winning Bidder shall not be imposed Liquidated Damages due to a MAGA Event. Further, MAGA Event may be considered for the purpose of suspending or extending implementation period.</p> <p>The PE shall assist the Winning Bidder in securing all necessary permits from other Governmental Authority or Entity, whether national or local.</p> <p>The inspections and tests that will be conducted shall be in accordance with Section VII. (Technical Specifications)</p>

Section VI. 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.

The delivery schedule for the **SMART CAMPUS PROGRAM**

Item No.	Description	Qty	Delivered Weeks/Months
1	University Information System	1 Lot	270 Days after Receipt of Notice to Proceed
2	Learning Management System	1 Lot	270 Days after Receipt of Notice to Proceed
3	University Accounting System	1 Lot	270 Days after Receipt of Notice to Proceed
4	University Human Resource Management System	1 Lot	270 Days after Receipt of Notice to Proceed
5	Executive Information System	1 Lot	270 Days after Receipt of Notice to Proceed
6	Campus Portal System	1 Lot	270 Days after Receipt of Notice to Proceed
7	Upgrade the Existing Campus Data Center	1 Lot	270 Days after Receipt of Notice to Proceed
8	Data Center Compute System	1 Lot	270 Days after Receipt of Notice to Proceed
9	Data Center Block and File Storage System	1 Lot	270 Days after Receipt of Notice to Proceed
10	Data Center Network Switches	1 Lot	270 Days after Receipt of Notice to Proceed
11	Cyber Security Equipment	1 Lot	270 Days after Receipt of Notice to Proceed
12	Data Center Backup and Recovery System	1 Lot	270 Days after Receipt of Notice to Proceed
13	RSU Cloud Infrastructure	1 Lot	270 Days after Receipt of Notice to Proceed
14	Campus Network System	1 Lot	270 Days after Receipt of Notice to Proceed
15	Fiber Optics Works	1 Lot	270 Days after Receipt of Notice to Proceed
16	Internet Connectivity	1 Lot	270 Days after Receipt of Notice to Proceed
17	Campus Security System	1 Lot	270 Days after Receipt of Notice to Proceed
18	Teacher's Laptop	1 Lot	270 Days after Receipt of Notice to Proceed
19	Student's Laptop	1 Lot	270 Days after Receipt of Notice to Proceed
20	E-Classroom	1 Lot	270 Days after Receipt of Notice to Proceed
21	E-Library	1 Lot	270 Days after Receipt of Notice to Proceed
22	Engineering (CAD) E-Laboratories	1 Lot	270 Days after Receipt of Notice to Proceed
23	3D Modelling E-Laboratories	1 Lot	270 Days after Receipt of Notice to Proceed
24	General Purpose E-Laboratories	1 Lot	270 Days after Receipt of Notice to Proceed

25	Software and Network Laboratories	1 Lot	270 Days after Receipt of Notice to Proceed
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I hereby commit to comply and deliver all the above requirements in accordance with the above stated schedule.

Name of Company	Signature Over Printed Name of Authorized Representative	Date

Section VII. Technical Specifications

Notes for Preparing the Technical Specifications

A set of precise and clear specifications is a prerequisite for Bidders to respond realistically and competitively to the requirements of the Procuring Entity without qualifying their Bids. In the context of Competitive Bidding, the specifications (*e.g.* production/delivery schedule, manpower requirements, and after-sales service/parts, descriptions of the lots or items) must be prepared to permit the widest possible competition and, at the same time, present a clear statement of the required standards of workmanship, materials, and performance of the goods and services to be procured. Only if this is done will the objectives of transparency, equity, efficiency, fairness, and economy in procurement be realized, responsiveness of bids be ensured, and the subsequent task of bid evaluation and post-qualification facilitated. The specifications should require that all items, materials and accessories to be included or incorporated in the goods be new, unused, and of the most recent or current models, and that they include or incorporate all recent improvements in design and materials unless otherwise provided in the Contract.

Samples of specifications from previous similar procurements are useful in this respect. The use of metric units is encouraged. Depending on the complexity of the goods and the repetitiveness of the type of procurement, it may be advantageous to standardize the General Technical Specifications and incorporate them in a separate subsection. The General Technical Specifications should cover all classes of workmanship, materials, and equipment commonly involved in manufacturing similar goods. Deletions or addenda should then adapt the General Technical Specifications to the particular procurement.

Care must be taken in drafting specifications to ensure that they are not restrictive. In the specification of standards for equipment, materials, and workmanship, recognized Philippine and international standards should be used as much as possible. Where other particular standards are used, whether national standards or other standards, the specifications should state that equipment, materials, and workmanship that meet other authoritative standards, and which ensure at least a substantially equal quality than the standards mentioned, will also be acceptable. The following clause may be inserted in the Special Conditions of Contract or the Technical Specifications.

Sample Clause: Equivalency of Standards and Codes

Wherever reference is made in the Technical Specifications to specific standards and codes to be met by the goods and materials to be furnished or tested, the provisions of the latest edition or revision of the relevant standards and codes shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national or relate to a particular country or region, other authoritative standards that ensure substantial equivalence to the standards and codes specified will be acceptable.

Reference to brand name and catalogue number should be avoided as far as possible; where unavoidable they should always be followed by the words “*or at least equivalent.*” References to brand names cannot be used when the funding source is the GOP.

Where appropriate, drawings, including site plans as required, may be furnished by the Procuring Entity with the Bidding Documents. Similarly, the Supplier may be requested to provide drawings or samples either with its Bid or for prior review by the Procuring Entity during contract execution.

Bidders are also required, as part of the technical specifications, to complete their statement of compliance demonstrating how the items comply with the specification.

SECTION VII. TECHNICAL SPECIFICATIONS

Bidders must state here either “Comply” or “Not Comply” against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of “Comply” or “Not Comply” must be supported by evidence in a Bidders Bid and cross referenced to that evidence. Evidence shall be in the form of manufacturer’s un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidders statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the provisions of **ITB** Clause 3.1.(a)(ii) and/or **GCC** Clause 2.1(a)(ii).

Item	Specification	Statement of Compliance
A	<p>Project Overview</p> <p>This project intends to modernize Romblon State University (RSU) through technology-led transformation which is set to provide outstanding experiences and capabilities to foster innovation, academic excellence and be at par with universities in progressing countries.</p>	
B	<p>Purpose of the Project</p> <p>This project intends to modernize the following facilities and student services of the university:</p> <ol style="list-style-type: none"> 1. University Operations and Services 2. University Financial System 3. Online Learning Platform 4. Data Center Infrastructure 5. Network Backbone Infrastructure 6. Campus Security 7. Classrooms 8. Laboratories 9. Library 	
C	<p>Project Objectives</p> <p>To fulfill the purpose of the project, the following objectives was included in the scope of the project:</p> <ol style="list-style-type: none"> 1. Supply, Delivery, and Implementation of University Information System 2. Supply, Delivery, and Implementation of Learning Management System 3. Supply, Delivery, and Implementation of University Accounting System 4. Supply, Delivery, and Implementation of University Human Resource Management System 5. Supply, Delivery, and Implementation of Executive Information System 6. Supply, Delivery, and Implementation of Campus Portal System 7. Supply, Delivery, and Implementation of Equipment and Services necessary to Upgrade the Existing Campus Data Center 8. Supply, Delivery, and Implementation of Data Center Compute System 9. Supply, Delivery, and Implementation of Data Center Block and File Storage System 	

	<ol style="list-style-type: none"> 10. Supply, Delivery, and Implementation of Data Center Network Switches 11. Supply, Delivery, and Implementation of Cyber Security Equipment 12. Supply, Delivery, and Implementation of Data Center Backup and Recovery System 13. Supply, Delivery, and Implementation of RSU Cloud Infrastructure 14. Supply, Delivery, and Implementation of Campus Network System 15. Supply, Delivery, and Implementation of Fiber Optics Works 16. Supply, Delivery, and Implementation of Internet Connectivity 17. Supply, Delivery, and Implementation of Campus Security System 18. Supply, and Delivery Teacher’s Laptop 19. Supply, and Delivery Student’s Laptop 20. Supply, Delivery and Implementation of E-Library 21. Supply, Delivery and Implementation of Engineering (CAD) E-Laboratories 22. Supply, Delivery and Implementation of 3D Modelling E-Laboratories 23. Supply, Delivery and Implementation of Multimedia E-Laboratories 24. Supply, Delivery and Implementation of General-Purpose E-Laboratories 25. Supply, Delivery, and Implementation of Software and Networking Laboratories 	
<p style="text-align: center;">D</p>	<p style="text-align: center;">General Scope of Works</p> <p>To give a high-level understanding of the various works and services inclusive in this project, outlined below are service coverage and deliverables that are expected to be fulfilled by the winning bidder. Note that these are high level scope of works and services. As such, the winning bidder shall be responsible in fulfilling these additional requirements:</p> <ol style="list-style-type: none"> 1. Component 1: Supply, Delivery, and Implementation of University Information System – these are systems and modules the govern and automate all the university processes from enrollment to alumni management. The winning bidder must supply the following modules and services: <ol style="list-style-type: none"> a. Registrar Module b. Finance Module c. Academe Module d. Curriculum Module e. Scheduling Module f. Enrollment Module g. Student Service Module h. Project Management Module i. Alumni Module j. Short Courses Module k. Web Based Query of Grades and Balances Module l. Interactive Student Kiosk Module m. Installation and Configuration Services <ol style="list-style-type: none"> i. Application Installation ii. User workflow integration iii. SSL and DNS Configuration iv. Integration to RSU RDBMS Database v. Data Migration (Limited to migration of 2 years existing University Data) vi. Project Management Services vii. User Training 2. Component 2: Supply, Delivery, and Implementation of Learning Management System – this is platform that allow students to conduct their learning using tools and resources available in this system. The winning bidder must supply the following modules and services: <ol style="list-style-type: none"> a. LMS Administration Module 	

- b. Professor Module
- c. Student Module
- d. Parents Module
- e. Installation and Configuration Services
 - i. Application Installation
 - ii. User workflow integration
 - iii. SSL and DNS Configuration
 - iv. Integration to RSU RDBMS Database
 - v. Data Migration (Limited to migration of 2 years existing University Data)
 - vi. Project Management Services
 - vii. User Training

3. **Component 3: Supply, Delivery, and Implementation of University Accounting System** - This system represents a full accounting system compliance to BIR, COA and DBM regulations which covers from chart of accounts, procurement, inventory, disbursement, budget, and revenue monitoring. Such would be in accordance with Government Accounting and would be fully customized to suit the needs of the Accounting Department. This winning bidder must provide the following modules and services:

- a. Card File Module
- b. Accounts Module
- c. Budget Module
- d. Inventory Module
- e. Property Module
- f. Disbursement Module
- g. Revenue Module
- h. Control Panel Module
- i. Installation and Configuration Services
 - i. Application Installation
 - ii. User workflow integration
 - iii. SSL and DNS Configuration
 - iv. Integration to RSU RDBMS Database
 - v. Data Migration (Limited to migration of 2 years existing University Data)
 - vi. Project Management Services
 - vii. User Training

4. **Component 4: Supply, Delivery, and Implementation of University Human Resource Management System** – This system must have the following modules:

- a. Time Keeping Monitoring Modules
- b. Automated Payroll System
- c. Personnel Information System/Human Resources Information System
- d. Installation and Configuration Services
 - i. Application Installation
 - ii. User workflow integration
 - iii. SSL and DNS Configuration
 - iv. Integration to RSU RDBMS Database
 - v. Data Migration (Limited to migration of 2 years existing University Data)
 - vi. Project Management Services
 - vii. User Training

5. **Component 5: Supply, Delivery, and Implementation of Executive Information System** – this system is composed of the following components:

- a. EIS Warehouse
- b. Reporting and Dashboard Modules
- c. RDBMS Database

- d. Installation Services
 - i. ETL Design Services
 - ii. Data Design Services
 - iii. System Installation Services
 - iv. System Design and Consultation
 - v. Project Management Services
 - vi. Training and Knowledge Transfer

6. **Component 6: Supply, Delivery, and Implementation of Campus Portal System** – Equipment and services includes the following:

- a. LDAP Based User Management System
- b. RSU Faculty and Student Portal
- c. Installation Services
 - i. Application Design Services
 - ii. LDAP Implementation Services
 - iii. System Installation Services
 - iv. System Design and Consultation
 - v. Project Management Services
 - vi. Training and Knowledge Transfer

7. **Component 7: Supply, Delivery, and Implementation of Equipment and Services necessary to Upgrade the Existing Campus Data Center** – Equipment and services to be supplied includes the following:

- a. Data Racks
- b. Precision Air-conditioning Units (PACU) for Data Center
- c. Uninterruptable Power Supply
- d. Electrical Components
 - i. Power Management System
 - ii. Power Distribution Units
 - iii. 175 KW Generator System
- e. Environmental Monitoring System
- f. Fire Suppression System
- g. Installation Services
 - i. Civil Works Services
 - ii. Electrical Services
 - iii. Mechanical Services
 - iv. Project Design and Consultation
 - v. Project Management
 - vi. Training and Knowledge Transfer

8. **Component 8: Supply, Delivery, and Implementation of Data Center Compute System** – Equipment and services includes the following:

- a. Windows based Server Cluster
- b. Linux based Server Cluster
- c. GPU Capable Server Cluster
- d. Enterprise Server Virtualization Software
- e. Installation and Configuration Services
 - i. Electrical and Racking Design Services
 - ii. Project Design and Consultation
 - iii. Project Management
 - iv. OS Installation
 - v. Server Virtualization Services
 - vi. Network Configuration Services
 - vii. Server Storage Configuration Services
 - viii. Training or Knowledge Transfer

9. **Component 9: Supply, Delivery, and Implementation of Data Center Block and File Storage System** – Equipment and services includes the following:

- a. Block Storage System
- b. File Storage System
- c. SAN Switch
- d. Installation and Configuration Services
 - i. Electrical and Racking Design Services
 - ii. Project Design and Consultation
 - iii. Project Management
 - iv. Storage System Installation
 - v. Storage Network Configuration Services
 - vi. Storage Configuration Services
 - vii. Training or Knowledge Transfer

10. **Component 10: Supply, Delivery, and Implementation of Data Center Network Switches** – Equipment and services includes the following:

- a. Core Switch
- b. TOR/Border Leaf Switch
- c. Management Switch
- d. Installation and Configuration Services
 - i. Electrical and Racking Design Services
 - ii. Network Design and Consultation
 - iii. Project Management
 - iv. Switch Installation
 - v. Network Configuration Services
 - vi. Training and Knowledge Transfer

11. **Component 11: Supply, Delivery, and Implementation of Cyber Security Equipment** – Equipment and services includes the following:

- a. SDWAN with Firewall
- b. Cyber Security Threat Intelligence Appliance
- c. Enterprise Network Management System
- d. Installation and Configuration Services
 - i. Electrical and Racking Design Services
 - ii. Network Design and Consultation
 - iii. Project Management
 - iv. Appliance Installation
 - v. Network Configuration Services
 - vi. Training and Knowledge Transfer

12. **Component 12: Supply, Delivery, and Implementation of Data Center Backup and Recovery System** – Equipment and services includes the following:

- a. Enterprise On-Premise Data Backup System
- b. Cloud Based Elastic Disaster Recovery System
- c. Installation and Configuration Services
 - i. Electrical and Racking Design Services
 - ii. Network Design and Consultation
 - iii. Disaster Recovery Site provisioning and testing
 - iv. Project Management
 - v. Appliance Installation
 - vi. Network Configuration Services
 - vii. Training and Knowledge Transfer

13. **Component 13: Supply, Delivery, and Implementation of RSU Cloud Infrastructure** – Equipment and services includes the following:

- a. IAAS Cloud Services
- b. VPN Routing Services

14. **Component 14: Supply, Delivery, and Implementation of Campus Network System** – Equipment and services includes the following:

- a. Network Distribution Switches
 - 1. Switch for Main Campus
- b. Access POE Switches
 - 1. 24 Ports Switch
 - 2. 48 Ports Switch
- c. WIFI Access Points
 - 1. 256 Client Capable WIFI Access Point
 - 2. 1,024 Client Capable WIFI Access Point
 - 3. Access Point Controller for 64 APs
 - 4. Access Point Controller for 32 Aps
 - 5. Main AP Controller

15. **Component 15: Supply, Delivery, and Implementation of Fiber Optics Works**

- a. Installation of Fiber Optic Backbone to Several RSU Sites
- b. Structured Cabling Works to Several RSU Sites and Building

16. **Component 16: Supply, Delivery, and Implementation of Internet Connectivity**

- a. Installation of Internet Connectivity to several RSU Sites
 - i. 1Gpbs Internet Line
 - 1. RSU Main Campus
 - ii. 200 Mpbs Internet Line
 - 1. RSU San Andres Campus
 - 2. RSU San Agustin Campus

17. **Component 17: Supply, Delivery, and Implementation of Campus Security System** – Equipment and services includes the following:

- a. CCTV System
 - i. CCTV Cameras
 - 1. Dome Cameras
 - 2. Bullet Cameras
- b. Security Center Equipment
 - i. Network Video Recorder
 - ii. Desktop PC for CCTV
 - iii. LED Displays
 - iv. Command and Control Modules
 - v. Furnitures
- c. University Mobile Application for Student and Faculties
- d. Installation and Configuration Services
 - i. Electrical and Racking Design Services
 - ii. Network Design and Consultation
 - iii. CCTV Camera Installation
 - iv. Project Management
 - v. LED Monitor Installation
 - vi. Mobile Application Customization Services
 - vii. Network Configuration Services
 - viii. Training and Knowledge Transfer

18. **Component 18: Supply, and Delivery of Teacher's Laptop** – Equipment and services includes the following:

- a. Teacher's Laptop
 - i. Core i5 Based Laptop
 - ii. Core i3 Based Laptop
- b. Training Services

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| | <p>19. Component 19: Supply, and Delivery of Student’s Laptop – Equipment and services includes the following:</p> <ul style="list-style-type: none"> a. Students’s Laptop <ul style="list-style-type: none"> i. Core i3 Based Laptop b. Training Services <p>20. Component 20: Supply, and Delivery of E-Classroom– Equipment and services includes the following:</p> <ul style="list-style-type: none"> a. Interactive Board b. Training Services <p>21. Component 21: Supply, Delivery and Implementation of E-Library – Equipment and services includes the following:</p> <ul style="list-style-type: none"> a. Desktop Computers b. Cabling Works c. Furnitures <p>22. Component 22: Supply, Delivery and Implementation of Engineering (CAD) E-Laboratories – Equipment and services includes the following:</p> <ul style="list-style-type: none"> a. Desktop Computers b. Interactive Board c. Furnitures d. AutoCAD e. Large Format Printer f. Cabling Works <p>23. Component 23: Supply, Delivery and Implementation of 3D Modelling E-Laboratories – Equipment and services includes the following:</p> <ul style="list-style-type: none"> a. Desktop Computers b. Interactive Board c. Furnitures d. 3D Studio Max e. 3D Printer f. Cabling Works g. Installation and Configuration Services <p>24. Component 24: Supply, Delivery and Implementation of General Purpose E-Laboratories – Equipment and services includes the following:</p> <ul style="list-style-type: none"> a. Desktop Computers b. Interactive Board c. Furnitures d. Cabling Works <p>25. Component 25: Supply, Delivery, and Implementation of Software and Network Laboratories – Equipment and services includes the following:</p> <ul style="list-style-type: none"> a. Desktop Computers b. Interactive Board c. Tower Server d. Network Labs Equipment e. Installation and Configuration Services | |
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<p>D</p>	<p>Technical Requirements</p> <p>Listed below are the required technical and installation requirements for each component of the project:</p>	
<p>1</p>	<p>Component 1: University Information System</p> <ul style="list-style-type: none"> a. Quantity: One (1) Lot b. Installation Site: To be installed on both On-Premise RSU Servers and RSU Cloud Infrastructure c. Database Support: Distributed SQL Database (Postgres based) d. License Type: Perpetual License with Two (2) years Support Services e. Included Modules: <ul style="list-style-type: none"> i. Registrar Module ii. Finance Module iii. Academe Module iv. Curriculum Module v. Scheduling Module vi. Enrollment Module vii. Student Service Module viii. Project Management Module ix. Alumni Module x. Short Courses Module xi. Web Based Query of Grades and Balances Module xii. Interactive Student Kiosk Module f. Warranty – Two (2) years support and services included g. Included Services <ul style="list-style-type: none"> i. Application Installation ii. User workflow integration iii. SSL and DNS Configuration iv. Integration to RSU RDBMS Database v. Data Migration (Limited to migration of 2 years existing University Data) vi. Project Management Services vii. User Training h. Technical Requirements <ul style="list-style-type: none"> i. Registrar Module - This module handles all transactions and processes of the Registrar Department from submission of students' records and documents during enrollment up to student graduation and issuance of transcript of records. This module provides easy data access and simplify various tasks of registrar department. <ul style="list-style-type: none"> 1. System Features, Transactions and Reports <ul style="list-style-type: none"> a. Must have tools to monitor and manage various operations of the registrar like monitoring screen for records, certification and documents requested by students and alumnus. b. Must contain Complete Student information, academic data file and scanned submitted documents of students converted into PDF. c. Must support Fast generation of TOR and Form 9 d. Must be capable to generate List of Candidates for Graduation, scholarships and honors. e. Must be able to receives approved electronic grades from Deans. 	

	<p>f. Must be able to apply Tags to document being submitted by new enrollees and remind the user for documents that students needs to submit.</p> <p>ii. Finance Module - This module handles the students' enrollment charges, account receivable, payment, adjustment of student's charges and fees. Grants and scholarship payments are also processed in this module. The ledger of student's charges and payment are also part of this module. This module also handles the collection from cashier up to deposits with detailed and summary revenue and collection reports.</p> <p>1. System Features, Transactions and Reports</p> <ol style="list-style-type: none"> Student enrollment charges are part of the one-page enrollment form with payment schedule for easy payment reference. Enrollment charges are automatically updated for any changes in the tuition and misc fees due to adding and dropping of subjects. A detailed maintenance of fees helps the user assign fees easily on a per course and year level making it flexible to assign different rates of tuition or misc fees per course. Every student has a detailed ledger and balance. Making it easy to trace the charges, payments and balance. The solution must allow Automatic calculation of tuition, lab other and misc fees. The solution must have detailed Student receivable for easy query, tracking and analysis. The solution must allow Generation of 'List of Delinquent Student Accounts' The solution must allow Generation of Enrollment Lists, Waiting Lists, and Official Receipts The solution must allow Generation of the following reports: Tally sheets, deposit slips, Daily & Monthly Collection, etc. <p>iii. Academe Module - Easy Recording and computation of grades, and batch printing of 'List of Grades' to be given to students. Forwarding of Grades to Dean's and Registrar's Office is very easy and fast. Online submission of grades and online review of grades submitted by each faculty can be easily done using this module</p> <p>1. System Features, Transactions and Reports</p> <ol style="list-style-type: none"> Must generate and replace Class Cards issued by the school with Electronic Student's Lists Must have Automatic computation of grades by the system to eliminate human error and manipulation based on the school grading policy. Must allow Electronic submission of grades by the professors to Dean and Registrar <p>iv. Curriculum Module - This module handles all transactions regarding curriculum tagging, revision and printing of all active and in active courses. It can generate reports on all approved curriculum and its effectivity. Also, prospectus of the student under such curriculum can be generated including the summary of all units on all of the offered courses</p> <p>v. Scheduling Module - This module standardizes the University-wide schedule preparation.</p> <p>1. System Features, Transactions and Reports</p> <ol style="list-style-type: none"> Solution must have a scheduling module that will minimize problems in scheduling like class room conflict with other class at the same time, room utilization, and professors class loading. 	
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	<ul style="list-style-type: none"> b. Solution must enable easy scheduling of class assignment. c. The Solution must be able to predict how many class to offer for a particular subject with the use of enrolment forecast. d. The solution must be able to enroll Students into courses and sections using standard scheduling schemes and must also accommodates non-standard term configurations. e. Must be able to print the class lists, the designated teacher, room schedules as well as the master schedules. f. The solution must have block and team scheduling to meet the needs of the University. It must also automatically balances seating enrolments. <p>vi. Enrollment Module - On-line registration with automatic assessment of fees, interconnected with the other modules to facilitate the automatic advising of subjects, automatic generation of slips, reports, and many more Post-Enrolment (Adding/Changing/Dropping) are also part of this module.</p> <p>1. System Features, Transactions and Reports</p> <ul style="list-style-type: none"> a. Must support easy generation of ‘List of grades and unpaid school fees’ b. Must support automatic generation of ‘List of Allowed Subjects to be taken & Schedules’ c. Must support the ability to prevent the choosing of subjects with pre-requisites not yet taken d. Must support the ability to show the maximum number of allowed units a particular student can enroll based on previous semester grades with the capability to add and decrease units by the registrar department e. Must support Enlistment to ROTC and PE subjects f. Must support Automatic generation of assessment slips and registration slips g. Must support Online query of available subjects by students h. Must support generation or Report such as, Summary of enrolled students, Summary of unpaid school fees, Summary of Tuition Fees collected. <p>vii. Student Service Module - A more personalized monitoring and care to students can now be implemented because of a comprehensive data that the system can offer to Guidance Department. From complete personal information, achievements, awards, special talents, absences, admission test and interview results. It records also the details of trainings conducted by the department.</p> <p>1. System Features, Transactions and Reports</p> <ul style="list-style-type: none"> a. Solution must be able to monitor students referred for counseling b. Solution must be able to monitor students with failing grades c. Solution must be able to record the results of exams and interview d. Solution must be able to assign working scholars to various departments and monitor their performance and attendance <p>viii. Project Management Module - This module handles all maintenance of the above modules and all transactions related to User Access Rights, Audit Trail, Currently Log Users, List of Screens and Reports, List of Users and its access Screens and Reports.</p> <p>1. System Features, Transactions and Reports</p> <ul style="list-style-type: none"> a. Solution must have comprehensive user access rights entry and monitoring b. Solution must be able to monitor who is currently log-in in the system. 	
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	<ul style="list-style-type: none"> c. Solution must have complete audit trail of user d. Solution must have User access reports to help the administrator review the access given to users and check who has access to a specific reports and screens <p>ix. Alumni Module - Alumni is one area that needs attention. With this module you can now start to populate the Alumni Master file and utilize the system to contact your alumni.</p> <p>1. System Features, Transactions and Reports</p> <ul style="list-style-type: none"> a. Solution must be able to Update Alumni information b. Solution must be able to Search the directory of Alumni c. Solution must be able to create, edit, and update Alumni Profile <p>x. Short Courses Module - This module contains enrollment details, charges and course contents of TESDA courses and other short modules. This module will also contain student's list, class schedules, faculty assignments, assessment results and issuance of certificate of trainings and other related reports about short term courses.</p> <p>xi. Web-based Query of Grades and Balances Module - once the system is fully running, the system can be connected to the existing website of the UNIVERSITY for viewing of the students' schedule, grades and charges.</p> <p>xii. Interactive Student Kiosks Module - This is a first one-stop student information retrieval system, allowing for easy and safe access of student records. Its presence in the UNIVERSITY demonstrates the concern for students' welfare.</p> <p>1. System Features, Transactions and Reports</p> <ul style="list-style-type: none"> a. Must provide Cross functional linkages of the UNIVERSITY's academic, administrative and finance functions b. Must be able to provide Information related to grades, schedules of subjects per semester, faculty teaching assignments are part of this module. c. Must have a Faculty Portal for their class schedules and information relative to their teaching functions d. Must contain information on passing percentages of the board examination, scholars listing, highlights, updates and news about the University wide activities and other related information. e. Must be able to print Testing Permit for those fully paid students 	
2	<p>Component 2: Learning Management System</p> <ul style="list-style-type: none"> a. Quantity: One (1) Lot b. Installation Site: To be installed on both On-Premise RSU Servers and RSU Cloud Infrastructure c. License Type: Perpetual with two (2) years support services d. Database Support: Distributed SQL Database (Postgres based) e. Included Modules: <ul style="list-style-type: none"> i. LMS Administration Module ii. Professor Module iii. Student Module iv. Parents Module f. Included Installation and Configuration Services <ul style="list-style-type: none"> i. Application Installation 	

	<ul style="list-style-type: none"> ii. User workflow integration iii. SSL and DNS Configuration iv. Integration to RSU RDBMS Database v. Data Migration (Limited to migration of 2 years existing University Data) vi. Project Management Services vii. User Training <p>g. Technical Requirements</p> <ul style="list-style-type: none"> i. Administration Module <ol style="list-style-type: none"> 1. The solution must have a Database that is connected to cloud server that can be accessed from 8:30am to 10:00pm 2. The solution must allow the migration of the following data (Programs, Subjects, Teachers, Students, Subject code) 3. The solution must allow the use of the following syntax: Username and password will be default to firstname.lastname 4. All password created by the system must be Key sensitive 5. The solution must allow Users to change password and username upon first log in 6. The solution must allow Incoming Events and School Mission, Vision to be viewable on Newsfeed 7. The solution must allow upload photo for profile picture per User 8. The solution must allow Live - Chat and Messaging between Users ii. Professor Module <ol style="list-style-type: none"> 1. The solution must allow Classes assigned to the teachers to be easily migrated 2. The solution must allow Students enrolled in each classes is easily migrated 3. The solution must allow Teacher can view the attendance of students 4. The solution must allow creation of lessons and attached related files such as module, powerpoint, excel, PDF, text and word with the maximum file size of 20mb 5. The solution must allow adding of User activities (Homework, Quiz and Exam) 6. The solution must allow Teacher to set up the time limit on activities questions 7. The solution must allow setting of date ranges for users to take the assigned activities 8. The solution must allow Scores on activity be viewable immediately upon completion 9. The solution must allow List of created questions to be viewable and editable by the activity creator 10. The solution must allow creation of lessons and quiz one at a time with the same subject description iii. Student Modules <ol style="list-style-type: none"> 1. The solution must allow Classes enrolled to a certain student to be automatically be posted his user account 2. The solution must allow User/Class attendance within the LMS 3. The solution must allow File attachment to the lesson downloadable to the users gadgets 4. The solution must allow result of student activities to be be viewable after the activity 5. The solution must allow Detailed activity result to be posted within 24 hours 6. The solution must have a Summary table for Current activities, Conducted activities and Missed Activities iv. Parents Modules 	
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	<ol style="list-style-type: none"> 1. The solution must allow Parents to monitor the activities and progress of their children 2. The solution must have no limitation on adding children 	
<p>3</p>	<p>Component 3: University Accounting System</p> <ol style="list-style-type: none"> a. Quantity: One (1) Lot b. Installation Site: To be installed on both On-Premise RSU Servers and RSU Cloud Infrastructure c. License Type: Perpetual with two (2) years support services d. Database Support: Distributed SQL Database (Postgres based) e. Included Modules: <ol style="list-style-type: none"> i. Card File Module ii. Accounts Module iii. Budget Module iv. Inventory Module v. Property Module vi. Disbursement Module vii. Revenue Module viii. Control Panel Module f. Included Installation and Configuration Services <ol style="list-style-type: none"> i. Application Installation ii. User workflow integration iii. SSL and DNS Configuration iv. Integration to RSU RDBMS Database v. Data Migration (Limited to migration of 2 years existing University Data) vi. Project Management Services vii. User Training g. Technical Requirements <ol style="list-style-type: none"> i. Card File Module - The solution must have a complete listing of Customer's details, Supplier's details and Employee's details. Details include their complete name (for individual) / university name (for non-individual) together with their TIN, addresses, contact information and other helpful information which is needed by the organization. <ol style="list-style-type: none"> 1. Transactions and Reports <ol style="list-style-type: none"> a. Card File List - Solution must have Complete listing of Customer's details, Supplier's details and Employee's details. Details include their complete name (for individual) / university name (for non-individual) together with their TIN, addresses, contact information and other helpful information which is needed by the organization b. Customer summary - Solution must have Complete list of Customer's details. Details include their complete name (for individual) / university name (for non-individual) together with their TIN, addresses, contact information and other helpful information which is needed by the organization c. Supplier Summary - Solution must have Complete list of Supplier's details. Details include their complete name (for individual) / university name (for non-individual) together with their TIN, addresses, contact information and other helpful information which is needed by the organization d. Employee Summary - Solution must have Complete list of Employee's details. Details include their complete name (for individual) / university name (for non-individual) together with 	

	<p style="text-align: center;">their TIN, addresses, contact information and other helpful information which is needed by the organization</p> <p>ii. Accounts Module – The solution must include setup of chart of accounts and beginning balance of amounts based on cut-off date. Journal entries and books of accounts. Financial reports. Automated Balance Sheet and Income Statement. Summary entries by Accounts, by header and detail.</p> <p>1. System Transactions – The solution must have the following system transactions:</p> <ul style="list-style-type: none"> a. Account Set-up – Allows the setting up an account for Income/Expense Summary b. Chart of Accounts – The solution must have a chart of accounts (COA) which is a created list of the accounts used by an organization to define each class of items for which money or the equivalent is spent or received. It is used to organize the finances of the entity and to segregate expenditures, revenue, assets and liabilities in order to give interested parties a better understanding of the financial health of the entity. c. Enter Beginning Balance – The solution must have Amount balances for each accounting title/name d. Record Journal Entry - The solution must have Record Journal Entry screen that will help users to record transactions which is not recorded in the Disbursement Module, Revenue Module and Inventory Module. Sample entries are the reclassification entries, adjusting entries and etc. e. Journal Voucher Status – The solution must show the status of all journal entries that was made whether "for approval" (for posting) and "already approved" (posted) f. Book of Accounts - The solution must have a book of accounts that contains transaction records for commercial accounts. This must be divided as follows: General Ledger Book, Disbursement Book, Cash Receipts Book, Sales Book and Purchases Books <p>2. Generated Reports- The solution must have the following system generated reports:</p> <ul style="list-style-type: none"> a. Account Transactions – The solution must be able to generate reports that contains history of all accounts relating to a university’s assets, liabilities, owners' equity, revenue, and expenses b. General Ledger - The solution must be able to generate reports that contains all the accounts relating to a university’s assets, liabilities, owners' equity, revenue, and expenses c. Subsidiary Ledger - The solution must be able to generate reports that contains subset of the general ledger d. Trial Balance - The solution must be able to generate reports which contains of all the General ledger accounts (both revenue and capital) e. Income Statement - The solution must be able to generate reports which shows financial performance of the university f. Balance Sheet - The solution must be able to generate reports which shows financial position of the university <p>iii. Budget Module - This module handles the budget allocation of the whole university distributed to different section of for utilization connected to purchasing module</p> <p>1. Management and Setup - The solution must have the following management and setup controls:</p> <ul style="list-style-type: none"> a. Budget Management Set-up – The solution must be able to allow the setting-up of responsible signatories for approval of budget 	
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	<ul style="list-style-type: none"> b. Approved Budget Set-up – The solution must be able to allow the setting-up of yearly approved Budget (per department and/ per activities) <p>2. System Transactions - The solution must have the following system transactions:</p> <ul style="list-style-type: none"> a. Request for Fund Appropriation (RFA) – Must have a screen that is intended to create a request for fund appropriation by requesting department b. Request for Payment (RFP) – Must have a screen that is intended to create a request for payment based on RFA c. Budget Realignment – Must have a screen which allows to reclassify forecasted budget <p>3. Generated Report - The solution must have the following system generated reports:</p> <ul style="list-style-type: none"> a. Budgeted Vs. Actual - The solution must be able to generate reports that shows variances between budgeted and actual transactions b. Summary of RFA - The solution must be able to generate reports for RFA for a given period c. Summary of RFP - The solution must be able to generate reports for RFP for a given period <p>iv. Inventory Module - The solution must have a module handles the item list, processing of purchase request and procurement and receiving.</p> <p>1. System Transactions - The solution must have the following system transactions:</p> <ul style="list-style-type: none"> a. Item List – Allows the setting up of complete item list. This consist of supplies, inventorable, and fixed assets b. Enter Beginning balance – Allows the setting up of beginning balance of all items already exist before any transactions related to inventory c. Purchase requisition – Allows notification to the purchasing department for items it needs to order, their quantity, and the time frame that will be given in the future. Details also include the requesting department d. Request for quotation – Allows the purchasing department to invite suppliers into a bidding process to bid on specific products. e. Abstract of canvass – Allows aiding in decision making when ordering or purchasing item/s f. Purchase order – Must have a screen that shows the record of all the approved item/s to order g. Purchase order adjustment – Must have a screen that allow adjustment in the amount of approved purchase order h. Receiving item with P.O – Allows automated receiving of items with P.O from the concerned users/department. Accounting entries is automatically made when you receive such item/s i. Receiving item without P.O - Allows automated receiving of items even without P.O from the concerned users/department. Accounting entries is automatically made when you receive such item/s j. Item inspection and return – The solution must have a screen that is intended to record and monitor returned items to the supplier. k. Stock Issuance - The solution must have a screen that record all Supplies items issued to a requesting department. It also records who receive of such for recording/audit purposes <p>2. Generated Reports - The solution must have the following system generated reports:</p>	
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	<ul style="list-style-type: none"> a. Item Stock Level - The solution must be able to generate reports which shows quantity on hand of every item, it's minimum and maximum stock level. b. Purchase Order summary - The solution must be able to generate reports which shows of all purchase order in a given period c. Receiving report summary - The solution must be able to generate reports that shows summary of all received item/s in a given period d. Stock issuance summary - The solution must be able to generate reports that shows the consumption of all office supplies in the given period e. Inventory return summary - The solution must be able to generate reports that shows returned item/s in a given period f. Inventory ledger - The solution must be able to generate reports that shows the movement of all inventory in the given period <p>v. Property Module - This module handles the item or property issuance and monitoring.</p> <ul style="list-style-type: none"> 1. System Transactions - The solution must have the following system transactions: <ul style="list-style-type: none"> a. Property Acquisition - Detailed list of property. It must have a screen that includes history of acquisition of each item b. Property List - The solution must have screen to monitor/track the location of every item. It includes the accountable person in this screen c. Property Issuance - The solution must be able to generate reports that issue Property item/s (Fixed asset) to the requesting department and authorized officer/employee. It also records who receive of such for recording/audit purposes <p>vi. Disbursement Module - This module handles Aging of accounts payable. Subsidiary ledgers for suppliers. Disbursement details by check vouchers, checks and type of expense.</p> <ul style="list-style-type: none"> 1. System Transactions - The solution must have the following system transactions: <ul style="list-style-type: none"> a. Disbursement Setup – Must allow the setting up default accounting entry. b. Voucher preparation – Must allow the system to prepare and record all transaction/s for payment. This screen has a linkage in the "Receiving with P.O." which is found in the Inventory Module. Voucher preparation screen creates an automatic entry base on the given transaction c. Check Issuance registry – Must have a process that allow the system to issue a check or pay the organization's obligation by a check. This screen also includes status of every check made whether checks is cancelled, stale, released and etc. d. Shows status of all the voucher that was prepared in a given period 2. Generated Reports - The solution must have the following system generated reports: <ul style="list-style-type: none"> a. Check voucher summary – Must have a status summary of all issued check in a given period <p>vii. Revenue Module - The solution must have a module that handles the capturing of collections.</p> <ul style="list-style-type: none"> 1. System Transactions - The solution must have the following system transactions: <ul style="list-style-type: none"> a. Revenue Set-Up - Setting up appropriate accounting titles for revenue transactions and approved signatories b. Job order – Must have a process that allows the system to create job order for clients 	
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	<ul style="list-style-type: none"> c. Receiving of Client's items – Must have a screen to monitor all customer's item/deliveries for storage in warehouse d. Delivery of Client's Item – Must have a screen that allows delivery of customer's items to their client e. Sales Invoice – Must have a screen that allows the creation of statement of account / Sales invoice f. Collection – Must have a screen that is intended to apply payments from clients <p>2. Generated Reports - The solution must have the following system generated reports:</p> <ul style="list-style-type: none"> a. Job Order summary - The solution must be able to generate reports that shows details of job order by the given period b. Summary of received goods/items - The solution must be able to generate reports that shows details of received goods/items of customer by the given period c. Summary of delivered items/goods - The solution must be able to generate reports that shows details of delivered goods/items of customer's costumer by the given period d. Warehouse ledger - The solution must be able to generate reports that shows movement of goods/items in warehouse (In-and-Out of goods report) e. Sales Invoice summary - The solution must be able to generate monthly report of sales invoice f. Collection report - The solution must be able to generate reports that shows collection in a given period g. Aging of Account Receivables - The solution must be able to generate reports that shows outstanding balances of customer and aged receivables <p>viii. Control Panel Module - This module must handle the access rights of all systems users. It also must include the maintenance setup procedures related to all modules</p> <p>1. Management and Setup - The solution must have the following management and setup controls:</p> <ul style="list-style-type: none"> a. Department List- Must allow setting up appropriate department of the organization b. Item Category List - Must allow setting up inventory/supplies/property category c. Unit of Measures - Must allow setting up different kinds of unit of measures (UOM) for purchases d. Payment Item List - Must allow setting up appropriate payment terms of the organization e. Tax Code List- Must allow setting up appropriate taxes for remittance <p>2. System Transactions - The solution must have the following system transactions:</p> <ul style="list-style-type: none"> a. University Information- Allows the setting up university information, such as TIN, departments, contact information b. System Users- allows the generation of list of all system users of the accounting system. This will allow only approved/authorized users to transaction and generate reports. c. System Audit Trail – Must have the ability to generate reports that shows movement of all transactions related in the accounting entries. It must also show the system’s transaction history. d. Fiscal Year setup – Allows the setting up appropriate fiscal/calendar year of the organization e. Transaction No. Setup- Allows the setting up of a transaction number of journal voucher, disbursement voucher, receipts, sales invoice, etc. of the organization f. Migrate Data – Allows the system to do a one time migration datum of chart of accounts/item list/card list 	
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4	<p>Component 4: University Human Resource Management System</p> <p>a. Quantity: One (1) Lot</p> <p>b. Installation Site: To be installed on both On-Premise RSU Servers and RSU Cloud Infrastructure</p> <p>c. License Type: Perpetual with two (2) years support services</p> <p>d. Database Support: Distributed SQL Database (Postgres based)</p> <p>e. Included Modules:</p> <ol style="list-style-type: none"> i. Time Keeping Monitoring Modules ii. Automated Payroll System iii. Personnel Information System/Human Resources Information System <p>f. Installation and Configuration Services</p> <ol style="list-style-type: none"> i. Application Installation ii. User workflow integration iii. SSL and DNS Configuration iv. Integration to RSU RDBMS Database v. Data Migration (Limited to migration of 2 years existing University Data) vi. Project Management Services vii. User Training <p>g. Technical Requirements</p> <ol style="list-style-type: none"> i. Timekeeping Monitoring System <ol style="list-style-type: none"> 1. Solution must be able to link with Biometrics Attendance System 2. Solution must be able to do Auto tracking of sick leave and vacation leave balances 3. Solution must be able to monitor regular and special holidays with automated computation of pay rates 4. Solution must be able to prepare summary of attendance and absences 5. Solution must be able to prepare summary of overtime for validation and approval ii. Automated Payroll System <ol style="list-style-type: none"> 1. Solution must generate pay slips, payroll registers, and deduction lists, including Tax/BIR forms and reports for government agencies on a monthly, quarterly and annual basis 2. Solution must be able to do automated table of deductions for SSS, Phil-health and Withholding taxes 3. Solution must be able to do Automated scheduling of other deductions like salary loans, advances and other deductions 4. Solution must be able to do Auto computation of payroll based on specified cut-off dates 5. Solution must be able to do Auto generation of payslips and softcopy for banks uploading to individual accounts 6. Solution must be able to maintain database for historical payroll summary, withholding taxes and contributions iii. Personnel Information System/Human Resources Information System (HRIS) <ol style="list-style-type: none"> 1. Solution must be able to do maintenance of personnel data and information 2. Solution must be able to do encoding and tagging of service accomplishments and trainings attended 3. Solution must be able to allow linkage of personnel file to UNIVERSITY INFORMATION SYSTEM 4. Solution must be able to identify training needs based on structured training programs per position 	
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<p>5</p>	<p>Component 5: Executive Information System</p> <ul style="list-style-type: none"> a. Quantity: One (1) Lot b. Installation Site: RSU DataCenter and RSU Cloud c. License Type <ul style="list-style-type: none"> i. EIS Warehouse : Open Source with 2 years Support Services ii. Reporting and Dashboard: Perpetual License iii. RDBMS Database: One (1) Year License d. Components <ul style="list-style-type: none"> i. EIS Warehouse ii. Reporting and Dashboard iii. RDBMS Database e. Included Installation and Configuration Services <ul style="list-style-type: none"> i. ETL Design Services ii. Data Design Services iii. System Installation Services iv. System Design and Consultation v. Project Management Services vi. Training and Knowledge Transfer f. Technical Requirements <ul style="list-style-type: none"> i. EIS Warehouse <ul style="list-style-type: none"> 1. Scalability and Extensibility <ul style="list-style-type: none"> a. The EIS platform must take a scale-out approach, achieving scale by pooling industry-standard commodity servers and storage devices. b. The solution must also be scalable in the performance dimension, that applications experience no degradation in performance as the volume of data in the system is increased. c. The solution should have the ability to combine multiple sources in a single repository d. The solution should support no limits on the number of users. It shall support all the users that need to simultaneously utilize it. It shall be able to accommodate increasing data volumes and additional users over time. e. The solution should be based on opensource and be able to run on-premise using bare metal, on VM, container or on public cloud f. The solution should be able to support federated queries and have built-in machine learning libraries. g. The product should be fully compliant with SQL-96 Standards, SQL2008 Standards and support SQL2003 OLAP extensions. ii. Reporting and Dashboard <ul style="list-style-type: none"> 1. All-in-one Reporting, Dash Boarding and Analysis. The solution should support multiple use cases of visualization software including reporting, interactive analysis and business intelligence. 2. Authentication. The solution should support different ways of authentication - native, database, windows, LDAP etc. 3. Role-Based Reporting. The solution should support the concept of role-based reporting, dash boarding and analysis. For example, when a user logged on, he sees only the information (projects, graphs, tables, gauges, data) he is authorized for 4. Sharing and collaboration. The solution should contain drill-down ways that users can share analysis and collaborate on the same visual interface. 	
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	<p>iii. RDBMS Database</p> <ol style="list-style-type: none"> 1. The database product must be 100% opensource with Enterprise Support from database provider 2. The product must be cloud native and should run on public cloud such as AWS, GCP and Azure as well as on-premise. It should support baremetal, VMs or container deployment. 3. The product must be able to synchronize the data across multiple sites, and support multiple advanced replication architectures 4. The product must support distributed ACID with both serializable & snapshot isolation 5. The product must horizontally scale to support adhoc peak workloads 6. The product must offer a single user interface across various clouds with simplified database management and monitoring like DB upgrades, backups, security & on-demand scaling of nodes to simplify operation and management 7. The product must enable client applications to auto-discover cluster nodes and cluster topology. 8. The product must provide ability to increase computing capacity in a linear fashion by adding new nodes to the existing database system with no downtime 9. The RDBMS Database will be used and must be compatible with the following University systems: <ol style="list-style-type: none"> a. University Information System b. University Accounting System c. University Human Resource Management System 	
<p>6</p>	<p>Component 6: Campus Portal System</p> <ol style="list-style-type: none"> a. Quantity: One (1) Lot b. Installation Site: RSU DataCenter and RSU Cloud c. License Type: <ol style="list-style-type: none"> i. Portal: Perpetual License ii. LDAP Based User Management System: One(1) Year Subscription d. Components: <ol style="list-style-type: none"> i. LDAP Based User Management System ii. RSU Faculty and Student Portal e. Included Installation and Configuration Services <ol style="list-style-type: none"> i. Application Design Services ii. LDAP Implementation Services iii. System Installation Services iv. System Design and Consultation v. Project Management Services vi. Training and Knowledge Transfer f. Technical Requirements <ol style="list-style-type: none"> i. Portal Services <ol style="list-style-type: none"> 1. Must support at most, 10000, user identities 2. Must provide for user logins 3. Must provide a 'Forgot Password' facility 4. Must provide a 'Change Password' facility 5. Must have administration functionalities like: <ol style="list-style-type: none"> a. User management b. Role Management c. Announcements <ol style="list-style-type: none"> 1. Create Announcements 2. Read Announcements 3. Update Announcements 4. Delete Announcements 5. List Announcements d. Frequently Asked Questions(FAQ) <ol style="list-style-type: none"> 1. Create FAQ 	

	<ol style="list-style-type: none"> 2. Read FAQ 3. Update FAQ 4. Delete FAQ 5. List FAQ e. Route Configuration <ol style="list-style-type: none"> 1. Create Route <ol style="list-style-type: none"> i. Redirection Link ii. Redirection Logo iii. User Role Assignment iv. Active / Inactive Route 2. Update Route 3. Delete Route 4. List Route 6. Must provide User Dashboards <ol style="list-style-type: none"> a. The dashboard provides route display(four[4] applications, at the most) and redirection b. From the user dashboard, a link must be provided to route the user to a particular application. The requirement is just a routing link and so no application development or application side configuration is part of the portal requirement. 	
7	<p>Component 7: Campus Data Center Upgrade</p> <ol style="list-style-type: none"> a. Quantity: One (1) Lot b. Installation Site: MSC Data Center c. Components <ol style="list-style-type: none"> i. Data Racks – Four (4) Racks ii. Precision Airconditioning Units (PACU) for Data Center – One (1) Set iii. Uninterruptable Power Supply – Two (2) Units iv. Electrical Components <ol style="list-style-type: none"> 1. Power Management System – One (1) Lot 2. Power Distribution Units – One (1) Lot 3. 175 kW Generator System – One (1) Unit v. Environmental Monitoring System – One (1) Unit vi. Fire Suppression System – One (1) Unit d. Warranty <ol style="list-style-type: none"> i. Data Racks ii. Precision Airconditioning Units (PACU) for Data Center iii. Uninterruptable Power Supply iv. Electrical Components <ol style="list-style-type: none"> 1. Power Management System 2. Power Distribution Units 3. 175 kW Generator System v. Environmental Monitoring System vi. Fire Suppression System e. Included Installation and Configuration Services <ol style="list-style-type: none"> i. Civil Works Services <ol style="list-style-type: none"> 1. Installation of 2 Fire rated Metal Door 400mm(w) x 900mm(w) x 2100mm(h)(1-unit) 2. Installation of 2hr fire rated Concrete wall Partition 4” Thick (40 sqm.) Area 3. Installation of Anti-static vinyl tiles (26.87 sqm.) 4. Installation of acoustic type ceiling (26.87 sqm.) 5. Installation of LED Lightings with complete wirings 6. Painting inside Data Center 7. Water Proofing (Covering Part of Data Center) 8. Installation of Emergency lights ii. Electrical Services iii. Mechanical Services 	

- iv. Project Design and Consultation
- v. Project Management
- vi. Training and Knowledge Transfer

f. Technical Requirements

i. Data Racks

1. The rack shall accommodate the 19'' rack mount hardware equipment which comply with the industry standard (EIA-310-E), This system shall comprise with a minimum of 126 rack unit (RU) available and allocated for IT equipment.
2. The rack criteria shall comply with specification below:
3. The Rack Colour must be RAL7021
4. The Rack Dimension must be 600mm(W) × 1400mm(D) × 2000mm(H)
5. The entire system dimension must not exceed 3600mm(W) × 1400mm(D) × 2000mm(H)
6. Rack door with tempered glass design
7. 600mm width rack with single leaf door (front and rear)
8. Front and rear door shall equip intelligent door lock. Support local door access via proximity card and key and remote door authorization via IP-based web interface.
9. Rack shall have in-built environmental sensor that supports up to 6 sensor point per rack.
10. Rack shall have in-built tri-color intelligent lighting. Enable health indication of infrastructure.
11. The system shall have dedicated infrastructure rack. With pre-integrated & pre-installed monitoring appliance & sensor, 9-inch LCD touchscreen panel, switchboard, bypass panel and UPS.

ii. Precision air-conditioning Units (PACU)

1. The integrated Direct Expansion Air-Cooled Air conditioning (AC) must accommodate total IT cooling load of 20 kilowatt for each In-Row System.
2. The AC unit must include a high-efficiency DC Brushless compressor, Copper Tube Blue Fin Coating Aluminum Fins for evaporator coil type, electronic expansion valve, sight glass.
3. A ceramic heater with positive temperature coefficient must be selected.
4. The electrical characteristics options for the indoor precision cooling and outdoor condenser will be as follows:
 - a. Indoor: 380V/3P+N/60HZ
 - b. Outdoor: 380V/3Ph/60Hz supplied by the indoor unit

iii. Uninterruptable Power Supply (UPS)

1. The UPS must be fully digital, highly reliable, double conversion UPS solution that provides clean and consistent power. This highly efficient solution is ideal for various deployments, including IT racks, network closets, automation control systems, and precision instruments to small sized control rooms among other edge applications.
2. The UPS will be a In-rack long back up model with capacity of 20kVA/20kW supporting for 20kW IT load.
3. Standard Power Systems specifications are:
 - a. UPS IGBT rectifier
 - b. UPS On-line double conversion
 - c. UPS Input Power Factor at full load >0.99 Output
 - d. UPS Input frequency range 40Hz to 70Hz

- e. UPS Input voltage range 3-phase, 305VAC to 498VAC at full load
- f. UPS Output Rated Voltage 3-phase in / out
- g. UPS Rate Voltage 400VAC 3-phase, 4-wire system
- h. UPS conforms to the ff. applicable standards:
 - 1. General Safety Requirements: EN62040-1/IEC62040-1
 - 2. EMC Requirements: EN62040-2/IEC62040-2 (Class C2)
 - 3. Method of Specifying Performance and Test Requirements: EN62040-3/IEC2040-3 (VFI SS 111)
 - 4. Safety of Information Technology Equipment, including electrical business equipment: EN60950
 - 5. EMC: IEC 61000-3-4 ; IEC61000-4-2,4,5,6,8,11
 - 6. Moisture and Dust Test & Altitude Test: GB/T 2423.21-2008 Environmental Testing for electrical and electronic products Part2 Test Methods – Test M: low air pressure
 - 7. Energy Star Certified: 2011/65/EU UPS Version 1 Program Requirements/Energy Star UPS version 1 test method guidance
 - 8. Vehicle Carrying Test: GB/T21563-2008 Railway Applications-Rolling Stock Equipment-shock and vibration test ; GB/T 4798.5-2007 Environmental Conditions existing in the application of electric and electronic product – section 5: ground vehicle installations
- i. UPS dimensions 130 (3U) x 430(W) x 570(D) and weight 23 kg
- j. Battery system in-rack: sealed, non-spillage, maintenance-free lead-acid battery
- k. Battery External cabinet dimensions 85 (2U) x 430(W) x 739(D),
- l. The battery runtime per UPS must be 30 minutes at full load.

iv. Power Management Units

- 1. A single point of supply 380V-50hz-3ph+N / 380V-60hz-3ph+N supporting UPS power, air-conditioning, emergency exhaust fan system, low-voltage control - complete with the following:
 - a. Main power input 3P 125A MCB + N
 - b. Surge protection device MCB 4P 32A
 - c. UPS Bypass Input 3P, 63A
 - d. UPS Main Input 3P, 63A
 - e. UPS Output 4P, 63A
 - f. Air conditioning MCB 3P 40A
 - g. Condenser Input MCB 3P 10A
 - h. 8 x PDU Input MCB 1P 32A
 - i. 1 x DC Power Box MCB 1P 10A
 - j. 1 x Fan Controller MCB 1P 16A
 - k. 2 x Spare Port MCB 1P 32A

v. Power Distribution Unit

- 1. The Integrated Racks Contained Solution will have each rack cabinet with one intelligent power distribution units (PDU) each supporting a standard 32 ampere rating and available with the following configurations:
 - a. Metered type: 32A hardwired input, 18way C13 + 6way C19, Digital meter display, Black
- 2. PDU shall have secure remote administration interface via the in-the-rack monitoring module. Easy and accessible integral web-based managing tool.
- 3. Must allow logging of all authentication, configuration changes.
- 4. Must display Real-time electrical parameters such as information display of voltage, amps, kW, power factor and kW-hr.

	<p>5. Must have a Power switch control of individual receptacles (only for switched PDU).</p> <p>6. Must have Sequential start-up setting for individual receptacles (only for switched PDU)</p> <p>vi. Environmental Monitoring System</p> <ol style="list-style-type: none"> 1. The monitoring system shall support intelligent sensor, provides alarm notification for the various equipment and the environment status. 2. The monitoring system shall support central access via a local cabinet-mounted touchscreen display or using a web-browser interface for remote access. 3. The monitoring system shall include monitoring module, sensors and control functions. It should support and manage power protection, thermal management, power distribution unit, environmental, safety (door status) and alarm notification (Email or SMS). 4. The Sensors package for each monitoring shall include intelligent temperature sensor, humidity sensors, door sensors, lighting sensor and water leak detector. 5. The Monitoring module shall support IT server management for PC server via IPMI protocol management (IPMI2.0). Enable to query PC server alarm info, server event & sensor status (e.g. fan speed & temperature) and control PC server power status & server reboot. 6. The monitoring system shall be ready to integrate with a centralized platform of the same vendor to support: <ol style="list-style-type: none"> a. Multi-site data center management b. Video surveillance c. Authorized door access control <p>vii. Rack-Mountable Fire Suppression System</p> <ol style="list-style-type: none"> 1. The Fire Suppression System shall be in 19" rack mounted chassis with 2U in height 2. The choice of extinguishing agent shall be NOVEC1230 <p>viii. 175kW Generator System</p> <ol style="list-style-type: none"> 1. The proposed system must be able to support the following requirements <ol style="list-style-type: none"> a. Standby Rating <ol style="list-style-type: none"> 1. At least 175kW at 60Hz b. Prime Rating <ol style="list-style-type: none"> 1. At least 158 kW at 60Hz c. Engine <ol style="list-style-type: none"> 1. Diesel Fed 2. At least 4 Cylinder 3. With mounted radiator cooling system d. Mounting Options <ol style="list-style-type: none"> 1. Floor Mounted 	
<p>8</p>	<p>Component 8: Data Center Compute System</p> <ol style="list-style-type: none"> a. Quantity: One (1) Lot b. Installation Site: RSU Data Center c. Components: <ol style="list-style-type: none"> i. Windows based Server Cluster – two (2) units ii. Linux based Server Cluster – eight (8) units iii. Enterprise Server Virtualization Software – ten (10) licenses d. Warranty: <ol style="list-style-type: none"> i. Windows based Server Cluster – three (3) years ii. Linux based Server Cluster – three (3) years 	

	<ul style="list-style-type: none"> iii. Enterprise Server Virtualization Software – Three (3) years support and services <p>e. Included Installation and Configuration Services</p> <ul style="list-style-type: none"> i. Electrical and Racking Design Services ii. Project Design and Consultation iii. Project Management iv. OS Installation v. Server Virtualization Services vi. Network Configuration Services vii. Server Storage Configuration Services viii. Training or Knowledge Transfer <p>f. Technical Requirements</p> <ul style="list-style-type: none"> i. Windows Based Server Cluster <ul style="list-style-type: none"> 1. Form Factor: 1U rack server 2. Processor: Dual AMD EPYC 32Cores @ 2.6Ghz 3. Memory: 1TB RAM 4. Storage: 2x 600GB 10K (RAID1) configured. 5. Disk Controller: RAID 0, 1, 10, 5 or 50 6. Network ports: 2x Dual Ports 25GbE with optics 7. Fiber Channel (FC Card): 2x DP FC32 8. PCIe slots: Gen4 9. Must have OS Recovery feature that will boot from SD Card 10. Must have N+1 Fan redundancy 11. Must have Dual Redundant Power supply 1400w 12. Operating System: Windows 2019 DC (Licensed copy) 13. Must support a security feature such as: <ul style="list-style-type: none"> a. Securely erase user data b. Checks the cryptographic signatures of UEFI drivers and other code loaded prior to the OS running. 14. Embedded Management and Automation, <ul style="list-style-type: none"> a. Out of band port with Lifecycle Controller b. Server Management Software c. Can use Android and IOS mobile ii. Linux Based Server Cluster <ul style="list-style-type: none"> 1. Form Factor: 1U rack server 2. Processor: Dual AMD EPYC 32Cores @ 2.6Ghz 3. Memory: 1TB RAM 4. Storage: 2x 600GB 10K (RAID1) configured. 5. Disk Controller: RAID 0, 1, 10, 5 or 50 6. Network ports: 2x Dual Ports 25GbE with optics 7. Fiber Channel (FC Card): 2x DP FC32 8. PCIe slots: Gen4 9. Must have OS Recovery feature that will boot from SD Card 10. Must have N+1 Fan redundancy 11. Must have Dual Redundant Power supply 1400w 12. Operating System: RHEL Ent. (Licensed copy) 13. Must support a security feature such as: <ul style="list-style-type: none"> a. Securely erase user data b. Checks the cryptographic signatures of UEFI drivers and other code loaded prior to the OS running. 14. Embedded Management and Automation, <ul style="list-style-type: none"> a. Out of band port with Lifecycle Controller b. Server Management Software c. Can use Android and IOS mobile iii. Enterprise Server Virtualization Software <ul style="list-style-type: none"> 1. Must support VM-aware storage 	
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	<ol style="list-style-type: none"> 2. Must support API and Policy Driven Storage Capabilities 3. Must support for 4K Native Storage 4. Must support Persistent Memory 5. Must support Single Reboot 6. Must support Quick boot 7. Must support Live Migration of Workloads 8. Must Protect VM and Data 9. Must support Virtual TPM 2.0 10. Must support FIPS 140-2 Compliance 11. Support for MSFT VBS 12. Must support Ensure System Uptime 13. Must support Share Data Center Resources 14. Must support Endpoint Security 15. Must support Fault Tolerance up to 8vcpu 16. Must support Per-VM Enhanced VM migration Compatibility 17. Must support Instant Clone 18. Must support Proactive High Availability 19. Must support VM-level Encryption 20. Must support Hypervisor Integrated Containers 21. Must support Centralized Network Management 22. Must support Load Balancing 23. Must support Prioritize Resources to Virtual Machines 24. Must be OEM license 	
<p>9</p>	<p>Component 9: Data Center Block and File Storage System</p> <ol style="list-style-type: none"> a. Quantity: One (1) Lot b. Installation Site: RSU Data Center c. Components: <ol style="list-style-type: none"> i. Block Storage System ii. File Storage System iii. SAN Switch d. Warranty: <ol style="list-style-type: none"> i. Block Storage System – three (3) years parts, support and services ii. File Storage System - three (3) years parts, support and services iii. SAN Switch - three (3) years parts, support and services e. Included Installation and Configuration Services <ol style="list-style-type: none"> i. Electrical and Racking Design Services ii. Project Design and Consultation iii. Project Management iv. Storage System Installation v. Storage Network Configuration Services vi. Storage Configuration Services vii. Training or Knowledge Transfer f. Technical Requirements <ol style="list-style-type: none"> i. Block Storage System <ol style="list-style-type: none"> 1. Must have 200TB usable capacity. 2. Must support block, file and vVols. 3. Connectivity is FC32 4. Designed for six nines of availability 5. Must support Active-Active, end-to-end NVMe controllers 6. Must support Next-gen media (SSD and SCM) 7. Must have data reduction rate of 4:1 8. Must be future-proof provides data-in-place upgrades within the same generation or next-generation of appliances, or scale-out of their existing environment with a second system equal to their current model. 	

	<p>9. Must have pro-active cloud-analytics reporting and monitoring tool for storage, servers and SAN switch.</p> <p>10. Must include built-in intelligence to eliminate dozens of time-consuming tasks and decision points. Labor-intensive processes like initial volume placement, migrations, load balancing</p> <p>ii. File Storage System</p> <ol style="list-style-type: none"> 1. Must have 119TB raw capacity with min. 7K rpm HDD 2. The architecture must support non-disruptive automated re-balance of data across storage pools for optimum performance and capacity efficiency in the event of subsequent expansion of the system. 3. The storage must support a Single File System scalable up to 50+ Petabytes usable capacity. 4. The storage can scale dynamically under a single namespace for the entire provided capacity with no virtualization layer or global namespace technologies, with no need additional software on clients 5. Must NOT rely on RAID technology for disk protection, and should protect data and NOT disk drives. 6. Must support to use object storage as external tier for long term retention and scalability. 7. The storage must support inline data reduction. 8. The storage must support Directory and User quotas. 9. The storage must support Automated File Tiering. 10. The storage must support File Archive to cloud. 11. The storage must support the use of snapshots for replication. 12. The storage must support capacity expansion without the need for a maintenance window. <p>iii. SAN Switch</p> <ol style="list-style-type: none"> 1. The Fabric must support the following services: <ol style="list-style-type: none"> a. Monitoring and Alerting Policy Suite (MAPS), b. Flow Vision, adaptive Networking (Ingress Rate Limiting, Traffic Isolation, QoS), Fabric Performance Impact (FPI) monitoring c. Slow Drain Device Quarantine, (SDDQ) d. Advanced Zoning ((default zoning, port/WWW zoning, broadcast zoning, target-driven zoning) e. Dynamic Fabric Provisioning (DFP), Dynamic Path Selection (DPS), Extended Fabrics, Enhanced BB Credit Recovery, FDMI, Frame Redirection, Frame-based Trunking; FSPF, No Integrated Routing; IPoFC, ISL Trunking; Management Server; NPIV, Time Server; Registered State Change Notification (RSCN); Reliable Commit Service (RCS); Simple Name Server (SNS); Read Diagnostics Parameter (RDP) 2. Must have 24x FC32 active ports 	
<p>10</p>	<p>Component 10: Data Center Network Switches</p> <ol style="list-style-type: none"> a. Quantity: One (1) Lot b. Components <ol style="list-style-type: none"> i. Core Switch – two (2) units ii. Top of Rack (TOR) – four (4) units iii. Border Leaf Switch – two (2) units iv. Management Switch – two (2) units c. Installation Site: RSU Data Center d. Warranty <ol style="list-style-type: none"> i. Core Switch – three (3) years parts, support and services ii. Top of Rack (TOR) – three (3) years parts, support and services iii. Border Leaf Switch – three (3) years parts, support and services iv. Management Switch – three (3) years parts, support and services 	

e. Included Installation and Configuration Services

- i. Electrical and Racking Design Services
- ii. Network Design and Consultation
- iii. Project Management
- iv. Switch Installation
- v. Network Configuration Services
- vi. Training and Knowledge Transfer

f. Technical Requirements

i. Core Switch

1. The core switches are connecting to the TOR and Border leaf switches
2. To ensure high-availability of systems, two (2) spines switches must be configured for trunking (VLT)
3. The spine switches must have the following specifications:
 1. 2x SFP+ ports
 2. 32x QSFP28 ports
4. Multi-rate 100GbE ports support 10/25/40/50/100GbE
5. Supports the open source Open Network Install Environment (ONIE) for zero touch installation of alternate network operating systems
6. Scalable L2 and L3 Ethernet switching with QoS and a full complement of standards-based IPv4 and IPv6 features, including OSPF and BGP routing support
7. Line-rate performance via non-blocking switch fabrics: 3.2Tbps (6.4Tbps full-duplex)
8. VXLAN gateway functionality support for bridging and routing the non-virtualized and the virtualized overlay networks with line rate performance (hardware only)
9. Converged network support for DCB, with priority flow control (802.1Qbb), ETS (802.1Qaz), DCBx and iSCSI TLV support
10. Routable RoCE to enable convergence of compute and storage on Leaf/Spine Fabric
11. Supports the open source Open Network Install Environment (ONIE) for zero touch installation of alternate network operating systems
12. L2 VXLAN (Static VXLAN with VLT, BGP EVPN)
13. Power-efficient operation and Fresh Air 2.0 compliant up to 45°C helps reduce cooling costs in temperature constrained deployments.

ii. TOR/Border Leaf Switch

1. The ToR/Border leaf switches must be used for connecting the 100GbE to the core switches and connecting the 10/25GbE to the devices
2. To ensure high-availability of systems the pair switches must be configured for trunking (VLT)
3. The ToR switches must have the following specifications:
 - a. 4 x QSFP28 ports
 - b. 48 x SFP28 ports
4. The Border Leaf switches must have the following specifications:
 - a. 3 x QSFP28 ports
 - b. 12 x SFP28 ports
5. Multi-rate 100GbE ports support 10/25/40/50/100GbE
6. Supports the open source Open Network Install Environment (ONIE) for zero touch installation of alternate network operating systems
7. Scalable L2 and L3 Ethernet switching with QoS and a full complement of standards-based IPv4 and IPv6 features, including OSPF and BGP routing support
8. VXLAN gateway functionality support for bridging and routing the non-virtualized and the virtualized overlay networks with line rate performance (hardware only)

	<p>9. Converged network support for DCB, with priority flow control (802.1Qbb), ETS (802.1Qaz), DCBx and iSCSI TLV support</p> <p>10. Routable RoCE to enable convergence of compute and storage on Leaf/Spine Fabric</p> <p>11. Supports the open source Open Network Install Environment (ONIE) for zero touch installation of alternate network operating systems</p> <p>12. L2 VXLAN (Static VXLAN with VLT, BGP EVPN)</p> <p>13. Power-efficient operation and Fresh Air 2.0 compliant up to 45°C helps reduce cooling costs in temperature constrained deployments.</p> <p>14. Redundant, hot-swappable power supplies and fans.</p> <p>iii. Management Switch</p> <ol style="list-style-type: none"> 1. The switches must be used connecting the 1GBASE-T downlinks to all devices (management port). 2. The access switches must have the following specifications: <ol style="list-style-type: none"> a. 4 x SFP28 ports b. 24 x 1GBASE-T ports 3. Fresh Air compliance for operation in environments up to 113°F helps reduce cooling costs in temperature constrained deployments 4. Private VLAN extensions and Private VLAN Edge support. 5. AAA authorization, TACACS+ accounting and RADIUS support for comprehensive secure access support. 6. Authentication tiering allows network administrators to tier port authentication methods such as 802.1x, MAC Authentication 7. Bypass and Captive Portal in priority order so that a single port can provide flexible access and security. 8. Layer 3 Lite IPv4 and IPv6 functionality including static routing and Routing Information Protocol support. 9. Remote Switch Port Analyzer (RSPAN) monitors ports across a Layer 2 domain without costly dedicated network taps. 10. OpenFlow 1.3 provides the ability to separate the control plane from the forwarding plane for more sophisticated traffic management 	
<p>11</p>	<p>Component 11: Cyber Security Equipment</p> <ol style="list-style-type: none"> a. Quantity: One (1) Lot b. Components <ol style="list-style-type: none"> i. SDWAN with Firewall – Four (4) units ii. Cyber Security Threat Intelligence Appliance – one (1) unit iii. Enterprise Network Management System - one (1) unit c. Installation Site: RSU Data Center d. Warranty: <ol style="list-style-type: none"> i. SDWAN with Firewall – three (3) years for parts, support and services ii. Cyber Security Threat Intelligence Appliance – three (3) years for parts, one (1) year for support and services iii. Enterprise Network Management System - three (3) years for parts, support and services e. Installation and Configuration Services <ol style="list-style-type: none"> i. Electrical and Racking Design Services ii. Network Design and Consultation iii. Project Management iv. Appliance Installation v. Network Configuration Services vi. Training and Knowledge Transfer f. Technical Requirements 	

i. SDWAN with Firewall

1. Must support secure, zero touch provisioning, Template-based policies with parameterization, Centralized route and policy enforcement
2. Must support L7 Application SLA enforcement, SLAs with QoS
3. Must support Intelligent path selection – default and user-defined, Dynamic bandwidth measurement of SD-WAN paths
4. Must support Active/Active and load balancing of Transport, Overlay encapsulation: MPLS over VXLAN, IPsec over VXLAN, Redundant SD-WAN controller
5. Can Integrate and support for 3rd party legacy appliances
6. Must be flexible topology support – Full-Mesh, Partial- Mesh, Hub-Spoke, Controller behind branch, branch-behind-branch, Spoke-hub-hub-spoke, Custom
7. Must support Packet Striping for best throughout across bundle of low speed interfaces
8. Hardware Specs (Main Campus):
 1. CPU: 16cores
 2. RAM: 64Gb
 3. Ports: 2x 10G SFP+ and 4x 1G
 4. Supports KVM and ESXi hypervisors and native Linux
9. Hardware Specs (Remote Campus)
 1. CPU: 4 cores
 2. RAM: 8Gb
 3. Ports: 2x 10G SFP+ and 4x 1G
 4. Supports KVM and ESXi hypervisors and native Linux

ii. Cyber Security Threat Intelligence Appliance

1. Requirements
 - a. System detects anomalies on network traffic- deviations from behavior of users, devices and of the network.
 - b. System detects zero day, advanced, bespoke and sophisticated external threats.
 - c. System can detect unusual, unauthorized behavior within the network. This includes but is not restricted to unusual RDP, Port Scanning, unauthorized BYOD (new devices plugged in), unauthorized use of access credentials to internal resources.
 - d. System is capable of analyzing unusual web traffic to unusual, unique IP addresses.
 - e. System detects data exfiltration and unusual internal data transfers.
 - f. System can detect failures in user compliance such as but not limited to Private VPN installation, Cloud Storage Apps, File Sharing Apps etc.
 - g. System is capable of processing of all common communications protocols on both IPv4 and IPv6, ICS (Modbus). Including but not limited to the following: Client-server, server-server, peer-peer behavior modelling.
 - h. System is capable of analyzing network events: e.g DHCP, ARP, ICMP.
 - i. System is capable of analyzing sser associated events: HTTP, LDAP, SSH, NetBios, DNS, FTP, Telnet, Kerberos, SMB to detect anomalies.
 - j. System can produce detailed visibility to identify devices/servers/subnet information within a network automatically
 - k. System monitors traffic passively with the ability to send alerts in real time.
 - l. System has the capability to historically track the location, dates first/last seen, and summary of malicious activity.
 - m. System uses mathematics to assess model breaches with a rating based on level of anomaly to the specific network which allows alerts to be raised on a percentile basis.

	<ul style="list-style-type: none"> n. System uses Advanced & Unsupervised Machine Learning ability to detect credentials (AD, Kerberos) to correlate devices and users aiding the network visibility and base-lining activity. o. System should be unsupervised and uses proprietary machine learning. p. System learns normal pattern of life of the network and the limitation created by the segregation forms a significant part of this. q. System should investigate the real activity in the network for comparison with the design within the visualizer. r. System should flag a suspicious connection to foreign IP address. s. System should slow a known device downloading large amounts of data it does not normally access. t. System should prevent a device 'calling home' to an unknown location. u. System should stop the transfer of secure files to an unauthorized user. <p>2. Storage and Network Capture</p> <ul style="list-style-type: none"> a. System can capture packets and save pcap files. For example: one month old pcaps and twelve months of metadata. b. System has backup and restore capability is available Ability to scale. c. System can provide visibility to to cover entire network campus, irrespective of geographic locations. d. System can tap into and monitor anomalies within virtualized environment to work with a range of Hypervisors. e. Report and Services f. The service provides Threat Intelligence Reports that are anonymized and delivered in a password protected format. g. The service provides tools to aid reports generation relevant to anomalies. h. The service includes training which enables the users to investigate anomalous breaches and create reports without reliance on the vendor's support. i. The service allows for events details can be export by using API. The output should be in standard formats such as JSON format. j. The service ensures availability of a technical contact (Cyber Technology Specialist) to work with the customer to size a network deployment, install and implement the product, train the customer on UI usage, and generally aide in maximizing product usage. <p>3. Alerts and Integration</p> <ul style="list-style-type: none"> a. The system is capable of white listing and blacklisting devices, domain where relevant. b. "The system is capable to send alerts to the relevant security officer on breaches of interest. Alert criteria need to be configurable such as: c. severity threshold, anomalous threshold, etc." d. The system can export anomalous event details to other systems such as SIEM. Such as, but not limited to: Qradar, ArcSight, Splunk. <p>4. GUI and Investigation Platform</p> <ul style="list-style-type: none"> a. The GUI caters for availability of a 3D visualization of Network topology. Summary of subnets at each global location. b. The GUI provides information such as includes Hostname, IP Address, MAC Address, Vendor, Operating System, Device type, and Allocated Subnet. c. The GUI contains a search option which ensures a device, subnet, IP or host is searchable via a search box in the UI. 	
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- d. The GUI shows the clustering of devices which provides the ability to investigate the detailed behaviors of any one device or user is the ability to see the comparative behavior of entities that the platform has observed are peers or “near neighbors” in terms of their behavior.
- e. The GUI includes a "play back" feature that allows the user to jump backward or forward to a specific date and time, or to alter the time zone in which data is being viewed.
- f. The GUI allows for 350 dimensions of network packet analysis
- g. The GUI includes model breach logs for further incident analysis.
- h. The GUI allows access to raw packets relating to device communications by creating a PCAP.
- i. The GUI contains features which allows customization by devices, users or types of breach. It can also be customized to show particular time ranges and include or exclude previously acknowledged breaches.

iii. Enterprise Network Management System

1. The proposed solution must have a Resource Discovery Wizard that simplifies discovery of IPv4 and IPv6 elements and other devices
2. The proposed solution must have an Active Performance Monitors that allow for proactive customization of performance monitoring
3. The proposed solution must have a Proactive scanning policies for configuration compliance and auditing to track down and correct configuration issues
4. The proposed solution must have a Flexible dashboards for visualizing data
5. The proposed solution must have a Robust performance monitoring and reporting helps identify network bottlenecks
6. The proposed solution must have a Event Management correlation forwards filtered events and traps
7. The proposed solution must have a Automate responses to system or network events, send notifications, and invoke customizable actions
8. The proposed solution must have a Manage and monitor Server Baseboard Management Controllers, iDRAC, ILO, XCC, IMC. IDRAC Server Configuration Profile: backup, restore, and compliance, firmware deployment
9. The proposed solution must have a Flexible integration points with Open API's, automatic REST
10. The proposed solution must have a API support from actions scripts
11. The proposed solution must have a Service Now Integration - Generate tickets from alarms, get status, update
12. The proposed solution must have Support for overlapping private IP's
13. The proposed solution must have a Warranty reporting and alerts help keep critical infrastructure protected
14. The proposed solution must have a Traffic flow (sFlow) analysis and reporting
15. The proposed solution must have a Advanced scheduling for key tasks such as backup, restore and deploy configuration changes
16. The proposed solution must have a RADIUS, LDAP/AP and CAS authentication integration
17. The proposed solution must have a Multivendor agnostic support for network devices , compute and storage ,
18. The proposed solution must have a Single pane of glass visibility of all assets.

	<p>19. Proposed NMS is capable of integrating with Network Devices deployed in PH1 up to PH4.</p> <p>20. Proposed NMS is capable of managing Dell as well as 3rd party networking devices.</p>	
<p>12</p>	<p>Component 12: Data Center Backup and Recovery System</p> <p>a. Quantity: One (1) Lot</p> <p>b. Components</p> <ul style="list-style-type: none"> i. Enterprise On-Premise Data Backup System ii. Cloud Based Elastic Disaster Recovery System <p>c. Installation Site</p> <ul style="list-style-type: none"> i. Enterprise On-Premise Data Backup System – RSU Data Center ii. Cloud Based Elastic Disaster Recovery System – RSU Cloud <p>d. Warranty and Subscription</p> <ul style="list-style-type: none"> i. Enterprise On-Premise Data Backup System - three (3) years for parts, support and services ii. Cloud Based Elastic Disaster Recovery System – one (1) year subscription <p>e. Installed Installation and Configuration Services</p> <ul style="list-style-type: none"> i. Electrical and Racking Design Services ii. Network Design and Consultation iii. Disaster Recovery Site provisioning and testing iv. Project Management v. Appliance Installation vi. Network Configuration Services vii. Training and Knowledge Transfer <p>f. Technical Requirements</p> <ul style="list-style-type: none"> i. Enterprise On-Premise Data Backup System <ul style="list-style-type: none"> 1. Solution must deliver protection storage, protection software, search, advanced monitoring and analytics in a single, easy-to-deploy appliance." 2. Solution must be an integrated appliance with the ff. specs. <ul style="list-style-type: none"> 1. 36TB Capacity 2. 2x Intel CPU 3. At least 4x 10GbE 3. Solution must include tools for effective management 4. Solution must be able to protect both physical and virtual environments 5. Solution must support native tiering to public and/or private clouds for long-term retention 6. Solution must support an average 55:1 data deduplication rate. 7. Solution must support reporting capabilities for physical capacity utilization for chargeback and capacity planning ii. Cloud Based Elastic Disaster Recovery System <ul style="list-style-type: none"> 1. Must provide fast, reliable recovery of on-premises and cloud-based applications using affordable storage, minimal compute, and point-in-time recovery. 2. Must allow application recovery within minutes, at various points in time from their most up-to-date state or from previous points in time. 3. Must provide ability to add or remove replicating servers as needed. 4. Must utilize a unified process, not requiring specialized skillsets, to test, recover, and fail back a wide range of applications. 5. The billing of DR site resources must only be in effect when the resources are actually used. 6. Must provide for monitoring and periodic conduct of DR drills 	

	<ul style="list-style-type: none"> 7. Must have capability to instantiate test instances for non-disruptive testing 8. Must be able to set up and initiate continuous data replication. 9. Must provide replication for 10 servers 10. Must provide 10 staging disks for the source disks on the 10 servers to be replicated 11. Must provide 10 replicating servers to facilitate the replication 12. Must provide 12 number of drills lasting 4 hours, within the project period 13. Must be able to accommodate 100 GB data transfers 	
13	<p>Component 13: RSU Cloud Infrastructure</p> <ul style="list-style-type: none"> a. Quantity: One (1) year subscription b. Components <ul style="list-style-type: none"> i. Virtual Machines <ul style="list-style-type: none"> 1. Main Application Servers, two (2) instances each for four (4) Applications <ul style="list-style-type: none"> a. Quantity – eight (8) Instances b. VCPU — 8 vcpu/per instance c. Memory — 32 Gb/per instance d. Instance Storage — None e. I/O — up to 10Gps f. Block Storage — 1 x 300gb g. Service Location – Singapore 2. AutoScaling Servers <ul style="list-style-type: none"> a. Quantity – twenty-four (24) Instances b. VCPU — 4 vcpu/per instance c. Memory — 16 Gb/per instance d. Instance Storage — None e. I/O — up to 10Gps f. Block Storage — 1 x 300gb g. Service Location – Singapore 3. 1.2.1.3. Portal Server <ul style="list-style-type: none"> a. Quantity – one (1) Instance b. VCPU — 4 vcpu/per instance c. Memory — 16 Gb/per instance d. Instance Storage — None e. I/O — up to 10Gps f. Block Storage — 1 x 300gb g. Service Location – Singapore 4. 1.2.1.4. Data Transfer <ul style="list-style-type: none"> a. Inter-Region Data Transfer Out: 10 terabytes b. Data Transfer Out: 62 terabytes per month c. Data Transfer In: 62 terabytes per month ii. Object Storage – Seventy (70) Terabytes <ul style="list-style-type: none"> 1. PUT/COPY/POST/LIST Requests: 15000 request per month 2. GET/SELECT and Other Requests: 150000 request per month 3. Service Location – Singapore iii. DNS Hosting Services – one (1) site iv. VPN Routing Services – one (1) site c. Installation Site: RSU Cloud d. Included Services <ul style="list-style-type: none"> i. Cloud Infrastructure Design and Consultation Services ii. VPN Network Design and Consultation iii. Cloud Resources provisioning and testing iv. Project Management v. Network Configuration Services vi. Training and Knowledge Transfer 	

	<p>e. Technical Requirements</p> <ul style="list-style-type: none"> i. AutoScaling Service <ul style="list-style-type: none"> 1. When a set of rules or conditions are reached (such as utilization of 80% or number of concurrent students/users (increments of 250 concurrent student access)) a cloud monitoring tool must automatically provision scaling servers to accommodate the load. Up to 3 sets of or levels of scaling must be provided thru activation scripts and the cloud monitoring tool. 2. With multiple, scaled servers, load balancers must be configured to properly distribute the load amongst the original production servers and the scaling set of servers or VM instances. Load balancing algorithms will be adjusted by provider implementation/management team as befits the application requirements. ii. Site-to-site VPN service <ul style="list-style-type: none"> 1. Provider must provide a service that connects ROMBLON STATE UNIVERSITY on-premise facility(aka site) to a cloud based network containing the ROMBLON STATE UNIVERSITY’s cloud based servers and applications. 2. Each VPN connection must be implemented as two VPN tunnels across 2 availability zones for high availability. 3. The service must provide the following salient features: <ul style="list-style-type: none"> a. 1.25 Gbps for a tunnel b. Support for NAT-T c. IKE v1 or v2 initiated by remote site 4. In the case of ROMBLON STATE UNIVERSITY, there will be nine (9) sites connected via VPN to the ROMBLON STATE UNIVERSITY cloud housed or based applications. Provider implementation team must configure the cloud side routing in coordination with the on premise router administrators of ROMBLON STATE UNIVERSITY 5. Cloud Service Features <ul style="list-style-type: none"> a. The cloud service provider has to be ISO 27001 certified b. The cloud service provider has to be ISO 27017 certified c. The cloud service provider has to be ISO 27018 certified d. The cloud service provider has to be ISO 9001 certified e. The account ownership of cloud instances and related services shall belong to ROMBLON STATE UNIVERSITY. Necessary access rights may be given to third-party vendor (s) to perform any services but must retain the ability to revoke said rights at any given time from the root account. f. The cloud service provider shall provide 24/7 technical support to the opted cloud services (shall include over the phone, chat, email, live screen sharing with response of within one (1) hour). g. The cloud service provider shall provide and interactive graphical user interface (GUI) with capability for 2-factor Authentication that allows user to manage all hosting services instantly h. The cloud service provider must support ability to create and provide temporary security credentials to trusted users configured to last from anywhere from a few minutes to several hours i. The cloud service provider must have a mechanism to test the effects of access control 	
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	<p>policies before committing such policies into production</p> <ul style="list-style-type: none"> j. The cloud service provider must offer the ability to identify when an access key was last used, rotate old keys, and remove inactive users. k. ROMBLON STATE UNIVERSITY subject to conditions prescribed by the law of the Republic of the Philippines in regard to data residency and sovereignty laws, retains control and ownership of its data stored or processed during the subscription period to the cloud service provider's data centers. l. All Data stored in the Cloud is the property of ROMBLON STATE UNIVERSITY. This data can be retrieved anytime upon request of ROMBLON STATE UNIVERSITY. ROMBLON STATE UNIVERSITY also has the sole right to copy, move, delete, or transfer it to other locations. m. The Cloud Service Provider must ensure that the data stored in a particular region will remain stored in that region and will not be transferred without the knowledge of ROMBLON STATE UNIVERSITY. n. The Cloud Service provider must have the capability to deploy ROMBLON STATE UNIVERSITY's applications as a Highly Available solution across multiple datacenters in the same country. The solution must also include Disaster Recovery within the same country due to applicable laws and regulations. This capability will be to prevent any single points of failure due to geographical or natural disaster. Furthermore, ROMBLON STATE UNIVERSITY prefers its data to be stored in countries near the Philippines. o. This capability to deploy across multiple sites shall be made available through a selfservice portal with a Graphical User Interface (GUI). p. The cloud provider service must redundantly store the file system objects (i.e. directory, file, and link) across multiple data storage to achieve higher levels of availability and durability. <p>6. Self-Service Portal and Monitoring Tools</p> <ul style="list-style-type: none"> a. The self-service portal is a graphical user interface accessible over the web that allows cloud administrators and users to conveniently access, provision, modify, and automate cloudbased resources (compute, storage and networking resources). b. For cloud administrator/s, the dashboard shall provide an overall view of the size and status of the Cloud Environment. c. The performance monitoring component shall provide tools and means to actively capture performance-related information of cloud environment services or resources. Furthermore, the performance monitoring tool must have the ability to send email notifications to administrations based on threshold alarms which can be customized by the administrator. d. For cloud environment services, e.g. network, the performance monitoring component shall capture the initial performance information of the systems and provide a performance baseline, which can be 	
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	<p>used to analyze the performance variation in the services.</p> <ul style="list-style-type: none"> e. The performance metrics collected shall be made available to the ROMBLON STATE UNIVERSITY via the self-service portal. It shall be presented in a unified manner with appropriate visualizations. f. The cloud provider’s monitoring service must have capability to provide various levels of monitoring granularity, down to the 1-minute level. g. The cloud provider must offer the ability to schedule events for the user’s Instances/VMS, such as a reboot, stop/start, or retirement. h. The cloud provider must offer an IOS or Android based smartphone application to allow users to connect to the cloud service and manage their resources. <p>7. Isolated Private Network and Private Cloud</p> <ul style="list-style-type: none"> a. All cloud instances and services must be hosted within an isolated private network or virtual private cloud that can support up to 2000 GB per month data transfer out from the cloud. b. Furthermore, should the ROMBLON STATE UNIVERSITY decide the need for a dedicated virtual machine, the Service Provider must have the ability/option to provide dedicated virtual machines and hosts. c. The cloud provider must support multiple (primary and additional) network interfaces cards (NICs) to be allocated for a given Instance/VM. d. The cloud provider service must support moving Network Interface Cards (NICs) as well as IP addresses between Instances/VMs. e. The cloud provider service must have the ability to create and associate mutable, dynamic tags at the object level f. The cloud provider must offer the capability of capturing network traffic flow logs g. The cloud provider must have capability to provide a network address translation (NAT) gateway managed service to enable Instances/VMs in a private network to connect to the Internet or other cloud services but prevent the Internet from initiating a connection to those Instances/VMs. <p>8. Audit Logging of Infrastructure Usage</p> <ul style="list-style-type: none"> a. The Cloud Service Provider must provide built-in audit logging features that capture all API requests/changes to the infrastructure for audit purposes. The PGC will have the ability to determine the retention length for these audit logs. b. The cloud provider service must be able to send notifications when certain events happen at the object level (i.e. addition/deletion operations). <p>9. Infrastructure Templating Feature</p> <ul style="list-style-type: none"> a. The Cloud Service Provider must provide a template-based service that makes deployments simpler, more orderly, and predictable instead of deploying each element of an application. This service must allow The ROMBLON STATE UNIVERSITY and/or its contractor to input as well as save the infrastructure setup, either 	
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	<p>piecemeal or as a whole, so as to redeploy the full service in the event of error.</p> <ul style="list-style-type: none"> b. The cloud provider must offer an easy-to-use graphical tool with drag-and-drop functionality that speeds up the process of creating such resource templates. <p>10. To support this deployment, the Service Provider will further provide the following items/inclusions as part of the business level support services to ROMBLON STATE UNIVERSITY:</p> <ul style="list-style-type: none"> a. Less than an hour callback for urgent support issues. b. 24x7 access to Cloud Support Engineers via email, chat, & phone. c. Architecture Support d. Tolerance, and Security Optimization Tools. <p>11. Cloud Service Virtual Machine Options</p> <ul style="list-style-type: none"> a. The cloud provider must offer the ability to launch an Instance/VM and specify that this Instance/VM always restarts on the same physical host. b. The cloud provider must offer the capability to logically group Instances/VMs together within the same data center. <p>12. Longevity of Cloud Service Provider and Third-Party Vetting</p> <ul style="list-style-type: none"> a. Due to the nature of the Technology industry, ROMBLON STATE UNIVERSITY will only accept Cloud Service Providers which are vetted by Gartner in their IaaS Magic Quadrant for at least the past nine (9) years. This is due to worries that technology providers may go out of-business and thus cease support for the cloud service provided. Thus, only those vetted by Gartner as in their “Leaders” quadrant for at least nine (9) years prior are acceptable to ROMBLON STATE UNIVERSITY. <p>13. Cloud Configuration and Implementation Service</p> <ul style="list-style-type: none"> a. Provider implementation team must complete the setup and operational standing of the aforementioned cloud components within sixty (60) working days from release of Notice to Proceed (NTP). <p>14. Managed Cloud Services</p> <ul style="list-style-type: none"> a. Provider managed services team must be able to confidently and competently monitor and manage the system operations using the cloud setup. The provider managed services team must also monitor system health, check security logs, manage backup, check access logs, and adjust system parameters as needed by the core school requirement. b. Managed cloud services will be for twelve (12) months. Management activities are projected at approximately two (2) man-days per week. <p>15. Knowledge Transfer Training</p> <ul style="list-style-type: none"> a. Provider will conduct knowledge transfer training on cloud concepts and operations for ten (10) ROMBLON STATE UNIVERSITY personnel. b. There will be one (1) conduct or instance of this training c. This training must be via remote and online training 	
14	Component 14: Campus Network System	

<p>a. Quantity</p> <ul style="list-style-type: none"> i. Network Distribution Switches <ul style="list-style-type: none"> 1. Switch for Main Campus – Two (2) Units ii. Access POE Switches <ul style="list-style-type: none"> 1. 24 Ports Switch – Eleven (11) Units 2. 48 Ports Switch – Six (6) Units iii. WIFI Access Points <ul style="list-style-type: none"> 1. 256 Client Capable WIFI Access Point – Forty Nine (49) Units 2. 1,024 Client Capable WIFI Access Point – One (1) Unit 3. Access Point Controller for 64 Aps – Four (4) Units 4. Access Point Controller for 32 Aps – Two (2) Units 5. Main AP Controller – Two (2) Units <p>b. Components</p> <ul style="list-style-type: none"> i. Network Distribution Switches <ul style="list-style-type: none"> 1. Switch for Main Campus ii. Access POE Switches <ul style="list-style-type: none"> 1. 24 Ports Switch 2. 48 Ports Switch iii. WIFI Access Points <ul style="list-style-type: none"> 1. 256 Client Capable WIFI Access Point 2. 1,024 Client Capable WIFI Access Point 3. Access Point Controller for 64 APs 4. Access Point Controller for 32 Aps 5. Main AP Controller <p>c. Installation Site:</p> <ul style="list-style-type: none"> 1. RSU Main Site 2. San Andres Campus 3. San Agustin Campus <p>d. Warranty: three (3) years for parts, support and services</p> <p>e. Included Installation and Configuration Services</p> <ul style="list-style-type: none"> i. Electrical and Racking Design Services ii. Network Design and Consultation iii. Project Management iv. Switch Installation v. Network Configuration Services vi. Training and Knowledge Transfer <p>f. Technical Requirements</p> <ul style="list-style-type: none"> i. Network Distribution Switches <ul style="list-style-type: none"> 1. Switch for Main Campus <ul style="list-style-type: none"> a. The 25GBASE-SR/LR downlinks to the access/edge switch b. To ensure high-availability of systems, two (2) distribution switches must be configured for trunking (VLT). c. The distribution switches must have the following specifications: <ul style="list-style-type: none"> i. 48x SFP28 ports ii. 4x QSFP28 ports d. Multi-functional 1/10/25/40/50/100 GbE switching in High Performance Computing Clusters. e. Supports the open source Open Network Install Environment (ONIE) for zero touch installation of alternate network operating systems 	
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- f. VXLAN gateway functionality support for bridging and routing the non-virtualized and the virtualized overlay networks with line rate performance
- g. Converged Network support with DCB
- h. Redundant, hot-swappable power supplies and fans
- i. Consistent DevOps framework across compute, storage and networking elements
- j. Standard networking features, interfaces and scripting functions for legacy network operations integration
- k. Standards-based switching hardware abstraction via Switch Abstraction Interface (SAI)
- l. Pervasive, unrestricted developer environment via Control Plane Services (CPS)

2. Switch for Remote Sites

- a. The 25GBASE-SR/LR downlinks to the access/edge switch
- b. To ensure high-availability of systems, two (2) distribution switches must be configured for trunking (VLT).
- c. The distribution switches must have the following specifications:
 - i. 24x SFP28 ports
 - ii. 4x QSFP28 ports
- d. Multi-functional 1/10/25/40/50/100 GbE switching in High Performance Computing Clusters.
- e. Supports the open source Open Network Install Environment (ONIE) for zero touch installation of alternate network operating systems
- f. VXLAN gateway functionality support for bridging and routing the non-virtualized and the virtualized overlay networks with line rate performance
- g. Converged Network support with DCB
- h. Redundant, hot-swappable power supplies and fans
- i. Consistent DevOps framework across compute, storage and networking elements
- j. Standard networking features, interfaces and scripting functions for legacy network operations integration
- k. Standards-based switching hardware abstraction via Switch Abstraction Interface (SAI)
- l. Pervasive, unrestricted developer environment via Control Plane Services (CPS)

ii. Access POE Switches

1. 24 Ports Switch

- a. The access switches must have the following specifications:
 - i. 4 x SFP28 ports
 - ii. 24x 1GBASE-T PoE+ ports
- b. Fresh Air compliance for operation in environments up to 113°F helps reduce cooling costs in temperature constrained deployments
- c. Private VLAN extensions and Private VLAN Edge support.
- d. AAA authorization, TACACS+ accounting and RADIUS support for comprehensive secure access support.
- e. Authentication tiering allows network administrators to tier port authentication methods such as 802.1x, MAC Authentication
- f. Achieve high availability and full bandwidth utilization with VLT and support firmware upgrades without taking the network offline.
- g. Interfaces with PVST+ protocol for greater flexibility and interoperability in Cisco networks.
- h. OpenFlow 1.3 provides the ability to separate the control plane from the forwarding plane for deployment in SDN environments.

2. 48 Ports Switch

- a. The access switches must have the following specifications:
 - i. 4 x SFP28 ports

	<ul style="list-style-type: none"> ii. 48x 1GBASE-T PoE+ ports b. Fresh Air compliance for operation in environments up to 113°F helps reduce cooling costs in temperature constrained deployments c. Private VLAN extensions and Private VLAN Edge support. d. AAA authorization, TACACS+ accounting and RADIUS support for comprehensive secure access support. e. Authentication tiering allows network administrators to tier port authentication methods such as 802.1x, MAC Authentication f. Achieve high availability and full bandwidth utilization with VLT and support firmware upgrades without taking the network offline. g. Interfaces with PVST+ protocol for greater flexibility and interoperability in Cisco networks. h. OpenFlow 1.3 provides the ability to separate the control plane from the forwarding plane for deployment in SDN environments. <p>iii. WIFI Access Points</p> <p>1. 256 Client Capable WIFI Access Point</p> <ul style="list-style-type: none"> a. AP type - Indoor, dual radio, 5GHz and 2.4GHz 802.11ax 2x2 MIMO b. 5GHz radio - Two spatial stream Single User (SU) MIMO for up to 1.2Gbps wireless data rate with 2SS HE80 802.11ax client devices c. 2.4GHz radio - Two spatial stream Single User (SU) MIMO for up to 574Mbps (287 Mbps) wireless data rate with 2SS HE40 (HE20) 802.11ax client devices d. Wi-Fi Antennas - Two integrated dual-band downtilt omnidirectional antennas for 2x2 MIMO with peak antenna gain of 4.9dBi in 2.4GHz and 5.7dBi in 5GHz. Built-in antennas are optimized for horizontal ceiling mounted e. Maximum number of associated client devices Up to 256 associated client devices per radio f. Maximum number of BSSIDs- 16 BSSIDs per radio g. Supported radio technologies <ul style="list-style-type: none"> 1. 802.11b: Direct-sequence spread-spectrum (DSSS) 2. 802.11a/g/n/ac: Orthogonal frequency-division multiplexing (OFDM) 3. 802.11ax: Orthogonal frequency-division multiple access (OFDMA) with up to 8 resource units h. 802.11n high-throughput (HT) support - HT20/40 i. 802.11ac very high throughput (VHT) support - VHT20/40/80 j. 802.11ax high efficiency (HE) support - HE20/40/80 k. Transmit power - Configurable in increments of 0.5 dBm l. E0: Ethernet wired network port (RJ-45) - Auto-sensing link speed (10/100/1000BASE-T) and MDI/MDX <ul style="list-style-type: none"> 1. POE-PD: 48Vdc (nominal) 802.3af/at POE (class 3 or 4) 2. 802.3az Energy Efficient Ethernet (EEE) m. USB 2.0 host interface (Type A connector) - Capable of sourcing up to 1A / 5W to an attached device n. Bluetooth Low Energy (BLE5.0) radio up to 7dBm transmit power (class 1) and -93dBm receive sensitivity (1Mbps) o. Zigbee (802.15.4) radio - up to 6dBm transmit power and -96dBm receive sensitivity p. Visual indicators (two multi-color LEDs) - For System and Radio status q. Reset button - Factory reset, LED mode control (normal/off) r. Serial console interface - Proprietary, micro-B USB physical jack s. Security slot - Kensington security slot t. Mean Time Between Failure (MTBF) - 1.3Mhrs (148yrs) at +25C operating temperature. u. Supported power sources - The AP supports direct DC power and Power over Ethernet 	
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- v. Maximum (worst-case) power consumption (without / with a USB device attached):
 1. DC powered: 8.9W / 14.2W
 2. POE powered (802.3at): 11.0W / 16.5W
 3. POE powered (802.3af): 11.0W / 13.5W
 4. This assumes that up to 5W is supplied to the attached USB device.

2. 1,024 Client Capable WIFI Access Point

- a. AP type - Indoor, dual/tri-radio, 5GHz and 2.4GHz 802.11ax 4x4 MIMO
- b. 5GHz radio (dual-radio operation) - 5GHz radio (dual-radio operation): Eight spatial stream Single User (SU) MIMO for up to 4.8Gbps wireless data rate with individual 8SS HE80 (or 4SS HE160) 802.11ax client devices, or with eight 1SS or four 2SS HE80 802.11ax MU-MIMO capable client devices simultaneously
- c. 5GHz radio (tri-radio operation) - 5GHz radio (tri-radio operation): Four spatial stream Single User (SU) MIMO for up to 2.4Gbps wireless data rate with individual 4SS HE80 (or 2SS HE160) 802.11ax client devices, or with four 1SS or two 2SS HE80 802.11ax MU-MIMO capable client devices simultaneously
- d. 2.4GHz radio - Four spatial stream Single User (SU) MIMO for up to 1,147Mbps (574Mbps) wireless data rate with individual 4SS HE40 (HE20) 802.11ax client devices or with two 2SS HE40 (HE20) 802.11ax MU-MIMO capable client devices simultaneously
- e. Wi-Fi Antennas - Integrated downtilt omni-directional antennas for 4x4 MIMO in 2.4GHz with peak antenna gain of 4.3dBi, and 8x8 MIMO in 5GHz with peak antenna gain of 5.8dBi in 5GHz. In tri-radio mode, the peak gain of the antennas for each of the 4x4 5GHz radios is 5.5dBi (radio 0L, lower half of 5GHz) and 5.6dBi (radio 0U, upper half of 5GHz).
- f. Maximum number of associated client devices - up to 1,024 associated client devices per radio
- g. Maximum number of BSSIDs - 16 BSSIDs per radio
- h. Supported radio technologies - 802.11b: Direct-sequence spread-spectrum (DSSS)
 1. 802.11a/g/n/ac: Orthogonal frequency-division multiplexing (OFDM)
 2. 802.11ax: Orthogonal frequency-division multiple access (OFDMA) with up to 37 resource units (for an 80MHz channel)*
- i. 802.11n high-throughput (HT) support - HT20/40
- j. 802.11ac very high throughput (VHT) support - VHT20/40/80/160
- k. 802.11ax high efficiency (HE) support - HE20/40/80/160
- l. Transmit power - Configurable in increments of 0.5 dBm
- m. E0, E1: SmartRate port (RJ-45, maximum negotiated speed 5Gbps)
 1. Auto-sensing link speed (100/1000/2500/5000BASE-T) and MDI/MDX
 2. 2.5Gbps and 5Gbps speeds comply with NBase-T and 802.3bz specifications
 3. POE-PD: 48Vdc (nominal) 802.3af/at POE (class 3 or 4)
 4. 802.3az Energy Efficient Ethernet (EEE)
- n. USB 2.0 host interface (Type A connector) - Capable of sourcing up to 1A / 5W to an attached device
- o. Bluetooth Low Energy (BLE5.0) radio - up to 8dBm transmit power (class 1) and -99dBm receive sensitivity (125kbps)
- p. Zigbee (802.15.4) radio - up to 8dBm transmit power and -97dBm receive sensitivity
- q. Visual indicators (two multi-color LEDs) - For System and Radio status

- r. Reset button - Factory reset, LED mode control (normal/off)
- s. Serial console interface - Proprietary, micro-B USB physical jack
- t. Security slot - Kensington security slot
- u. Mean Time Between Failure (MTBF) - 855,000hrs (98yrs) at +25C operating temperature.
- v. Supported power sources - The AP supports direct DC power and Power over Ethernet
- w. Maximum (worst-case) power consumption (dual-radio operation)
 - 1. DC powered: 32.6W
 - 2. POE powered (802.3bt or dual 802.3at): 38.2W
 - 3. POE powered (802.3at, IPM disabled): 25.1W
 - 4. All numbers above are without an external USB device connected. When sourcing the full 5W power budget to such a device, the incremental (worst-case) power consumption for the AP is up to 6.0W (POE powered) or 5.4W (DC powered).

3. Access Point Controller for 64 APs

- a. Key Features
 - 1. Support for new Wi-Fi 6 (802.11ax), WPA3 and Enhanced Open – and existing standards
 - 2. Patented ClientMatch technology can now group together Wi-Fi 6 capable devices
 - 3. Dynamic Segmentation enforces wired and wireless access policies to simplify and secure the network
 - 4. Application awareness for 3,000+ applications without additional hardware
 - 5. Built in AI-powered wireless/RF optimization
- b. Quality of Service (QoS)
 - 1. Application visibility with Deep Packet Inspection (DPI) technology evaluates and optimizes performance and Quality of Service policies for over 3,000 applications - even for encrypted or hidden traffic.
 - 2. Web content filtering classifies websites by content category and rates them by reputation. It can also block, apply QoS, bandwidth-limit, mirror, and log web content.
 - 3. Visualize and troubleshoot networks based on call quality metrics such as MOS, latency, jitter and packet loss. Supported applications include: Teams, Skype for Business, Wi-Fi Calling, Facetime, SIP, Jabber, Spark and more.
- c. Resiliency and High Availability
 - 1. For enhanced resiliency and availability, this WLAN controller can be clustered together in a network by a centralized controller.
- d. Performance
 - 1. Maximum campus or remote AP licenses: 64
 - 2. Maximum concurrent users/devices: 4,096
 - 3. Maximum VLANs: 4,096
 - 4. Active firewall sessions: 64K
 - 5. Concurrent GRE tunnels: 1,024
 - 6. Concurrent IPsec sessions: 4,096
 - 7. Concurrent SSL sessions: 4,096
 - 8. Firewall throughput (Gbps): 8
 - 9. Wired Bridged Throughput (Gbps): 8
 - 10. Encrypted throughput 3DES (Gbps): 2.4
 - 11. Encrypted throughput AES-CBC-256 (Gbps): 2.6
 - 12. Encrypted throughput AES-CCM (Gbps): 4.0
 - 13. Encrypted throughput AES-GCM-256 (Gbps): 3.4
- e. Connectivity
 - 1. Form factor/footprint: 1xRU
 - 2. 10/100/1000BASE-T and 1000BASE-X: 8 combo ports
 - 3. USB 2.0 interface: 1

	<ul style="list-style-type: none"> 4. Supports management/status LEDs 5. Supports LINK/ACT and status LEDs 6. Supports LCD panel and navigation buttons 7. Console port: Mini USB, RJ-45 <p>f. Security</p> <ul style="list-style-type: none"> 1. Support for WPA3 brings stronger encryption and authentication methods, while Enhanced Open brings automatic security to open networks. New WPA2-MPSK feature enables simpler passkey management for WPA2 devices – should the Wi-Fi password on one device need to be changed, no additional key changes are needed for other devices on the network. 2. Dynamic Segmentation: To simplify and better secure wired and wireless network access, can enforce per-user and device roles across wired and wireless networks by integrating with a Policy Manager. This ensures consistent policy regardless of user role and device type, and eliminates the need to configure unnecessary SSIDs, ACLs, VLANs and subnets at every node in the network 3. Wired and wireless user and application traffic can be tunneled to a stateful firewall through GRE tunnels for inspection – policies are then enforced based on user role, device type, application and location. 4. For advanced malware or antivirus protection, the device can assume the role of an on-premises agent of centrally-hosted firewalls such as those provided by Palo Alto Networks and Check Point Software. 5. With support for IPSec/SSL VPNs, Remote APs (RAPs) and VIA VPN users can establish encrypted sessions without any additional hardware required. <p>g. Environmental Range</p> <ul style="list-style-type: none"> 1. Operates at 0° C to 40° C temperature. 2. Maximum power consumption of 55W. 3. Hardware appliance includes internal power supply. <p>4. Access Point Controller for 32 APs</p> <p>a. Key Features</p> <ul style="list-style-type: none"> 1. Support for new Wi-Fi 6 (802.11ax), WPA3 and Enhanced Open – and existing standards 2. Patented ClientMatch technology can now group together Wi-Fi 6 capable devices 3. Dynamic Segmentation enforces wired and wireless access policies to simplify and secure the network 4. Application awareness for 3,000+ applications without additional hardware 5. Built in AI-powered wireless/RF optimization <p>b. Quality of Service (QoS)</p> <ul style="list-style-type: none"> 1. Application visibility with Deep Packet Inspection (DPI) technology evaluates and optimizes performance and Quality of Service policies for over 3,000 applications - even for encrypted or hidden traffic. 2. Web content filtering classifies websites by content category and rates them by reputation. It can also block, apply QoS, bandwidth-limit, mirror, and log web content. 3. Visualize and troubleshoot networks based on call quality metrics such as MOS, latency, jitter and packet loss. Supported applications include: Teams, Skype for Business, Wi-Fi Calling, Facetime, SIP, Jabber, Spark and more. <p>c. Resiliency and High Availability</p> <ul style="list-style-type: none"> 1. For enhanced resiliency and availability, this WLAN controller can be clustered together in a network by a centralized controller. <p>d. Performance</p> <ul style="list-style-type: none"> 1. Maximum campus or remote AP licenses: 32 	
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	<ol style="list-style-type: none"> 2. Maximum concurrent users/devices: 2,048 3. Maximum VLANs: 4,096 4. Active firewall sessions: 64K 5. Concurrent GRE tunnels: 512 6. Concurrent IPsec sessions: 2,048 7. Concurrent SSL sessions: 2,048 8. Firewall throughput (Gbps): 8 9. Wired Bridged Throughput (Gbps): 8 10. Encrypted throughput 3DES (Gbps): 2.4 11. Encrypted throughput AES-CBC-256 (Gbps): 2.6 12. Encrypted throughput AES-CCM (Gbps): 3.4 13. Encrypted throughput AES-GCM-256 (Gbps): 3.3 <p>e. Connectivity</p> <ol style="list-style-type: none"> 1. Form factor/footprint: 1xRU 2. 10/100/1000BASE-T: 16 3. 1000BASE-X: 2xSFP 4. USB 2.0 interface: 2 5. Supports management/status LEDs 6. Supports LINK/ACT and status LEDs 7. Supports LCD panel and navigation buttons 8. Console port: Mini USB, RJ-45 9. Supports out-of-band management port <p>f. Security</p> <ol style="list-style-type: none"> 1. Support for WPA3 brings stronger encryption and authentication methods, while Enhanced Open brings automatic security to open networks. New WPA2-MPSK feature enables simpler passkey management for WPA2 devices – should the Wi-Fi password on one device need to be changed, no additional key changes are needed for other devices on the network. 2. Dynamic Segmentation: To simplify and better secure wired and wireless network access, can enforce per-user and device roles across wired and wireless networks by integrating with a Policy Manager. This ensures consistent policy regardless of user role and device type, and eliminates the need to configure unnecessary SSIDs, ACLs, VLANs and subnets at every node in the network 3. Wired and wireless user and application traffic can be tunneled to a stateful firewall through GRE tunnels for inspection – policies are then enforced based on user role, device type, application and location. 4. For advanced malware or antivirus protection, the device can assume the role of an on-premises agent of centrally-hosted firewalls such as those provided by Palo Alto Networks and Check Point Software. 5. With support for IPSec/SSL VPNs, Remote APs (RAPs) and VIA VPN users can establish encrypted sessions without any additional hardware required. <p>g. Environmental Range</p> <ol style="list-style-type: none"> 1. Operates at 0° C to 40° C temperature. 2. Maximum power consumption of 190W (with PoE). 3. Hardware appliance includes internal power supply. <p>5. Main AP Controller</p> <ol style="list-style-type: none"> a. Support for new 802.11ax (Wi-Fi 6), WPA3 and Enhanced Open – and existing standards b. Dynamic Segmentation enforces wired and wireless access policies to simplify and secure the network c. Application awareness for 3,000+ applications without additional hardware d. Built-in AI-powered wireless/RF optimization e. Automate deployment with Zero Touch Provisioning and hierarchical configuration f. Supports Controller Clustering that improves reliability using enhanced high availability (HA), adopts configurations 	
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	<p>seamlessly based on hierarchy, and reduces or eliminates maintenance windows by enabling Live Upgrades.</p> <ul style="list-style-type: none"> g. Supports RFPProtect that provides advanced spectrum analysis and wireless intrusion protection (WIPS/WIDS) to help identify and mitigate Wi-Fi and non-Wi-Fi sources of interference to contain potential security risks. h. As an enhancement of Adaptive Radio Management, AirMatch automates network-wide RF channels, channel width, and transmits power to optimize the highest density environments i. Supports hierarchical configuration and improved visibility as it uses a centralized, multi-tiered architecture that consolidates all deployment models (e.g. all-conductor, single-conductor/multiple-local, and multiple-conductor/local) with a single approach. j. Enables licensing pools to dynamically manage licenses based on site requirements. k. "Supports live upgrade that eliminates the need for planned maintenance windows or downtime. Each Controller Cluster or individual service modules (AppRF, AirGroup, ARM, etc.) can also be selectively upgraded without impacting the rest of the network." l. Supports hitless failover as user sessions and AP traffic within a Controller Cluster are load balanced to optimize network utilization during peak periods and maximize availability during unplanned outages. m. Users can roam between floors, buildings or across the entire network without any re-authentication, change to their IP address, or loss of firewall state. n. Support for WPA3 brings stronger encryption and authentication methods, while Enhanced Open brings automatic encryption security to open networks. New WPA2-MPSK feature enables simpler passkey management for WPA2 devices – should the Wi-Fi password on one device need to be changed; no additional key changes are needed for other devices on the network. o. Supports MultiZone feature in which the same AP infrastructure can terminate two different SSIDs on two different controllers while maintaining complete separation and security for all networks, policies, management and visibility. This is ideal for multi-tenancy requirements where multiple companies or groups reside at a single site or for an enterprise that requires multiple secure networks. p. Hardware appliance is a x86-based hardware that supports up to 1,000 devices, 10,000 clients and 100 controllers. q. Form factor/footprint: 1xRU r. Gigabit Ethernet ports (SFP or 10G SFP+): 2 s. USB 3.0 interface: 1 t. Supports management/status LEDs u. Supports LINK/ACT and status LEDs v. Console port: RJ-45 w. Supports out-of-band management port x. Mean Time Between Failure (MTBF) is 238,020 at +45C operating temperature. y. Operates at 0° C to 40° C temperature. z. Maximum power consumption of 120W. 	
15	<p>Component 15: Fiber Optics Works</p> <ul style="list-style-type: none"> a. Quantity: Three (3) Sites b. Installation Site: <ul style="list-style-type: none"> i. Main Campus <ul style="list-style-type: none"> 1. CBA Building - GF 2. CBA Building - 3F 3. Engineering Building - GF 	

	<ul style="list-style-type: none"> 4. Engineering Building - 2F 5. ICTSC Building 6. LRC Building 7. Entrance/Exit Gate ii. San Andres Campus <ul style="list-style-type: none"> 1. Admin Building 2. Fishery 3. Building A iii. San Agustin Campus <ul style="list-style-type: none"> 1. Admin Building 2. Building-A 3. Building -B 4. Building -C c. Number of Nodes: <ul style="list-style-type: none"> i. Wifi Nodes: 42 Nodes ii. CCTV Nodes: 50 Nodes iii. E-Classroom and Laboratory Nodes: 424 Nodes iv. Other Nodes: 10 Nodes d. Technical Requirements <ul style="list-style-type: none"> i. Main Campus <ul style="list-style-type: none"> 1. Supply, install and terminate fiber optic cables that will link seven (7) areas consisting of three (3) RSU Buildings and three (3) other areas to the core network installed at the ICTS Building 2. 6 existing areas to be linked are CBA Building – GF, CBA Building - 3F, Engineering Building – GF, Engineering Building - 2F, ICTSC Building, LRC Building, Entrance/Exit Gate 3. FOC installation shall be underground through microtrenching 4. The bidder shall be responsible in the installation and configuration of various network switches in each of the 6 existing buildings. All materials and/or consumables in relation to these installations shall be provided by the bidder ii. San Andres Campus <ul style="list-style-type: none"> 1. Supply, install and terminate fiber optic cables that will link two (2) areas consisting of two (2) RSU Buildings to the core network installed at the Admin Building 2. 4 existing areas to be linked are Admin Building, Fishery, Building A 3. FOC installation shall be underground through microtrenching 4. The bidder shall be responsible in the installation and configuration of various network switches in each of the 6 existing buildings. All materials and/or consumables in relation to these installations shall be provided by the bidder iii. San Agustin Campus <ul style="list-style-type: none"> 1. Supply, install and terminate fiber optic cables that will link three (3) areas consisting of three (3) RSU Buildings to the core network installed at the Admin Building 2. 4 existing areas to be linked are Admin Building, Fishery, Building A, Building B, and Building C. 3. FOC installation shall be underground through microtrenching 4. The bidder shall be responsible in the installation and configuration of various network switches in each of the 6 existing buildings. All materials and/or consumables in relation to these installations shall be provided by the bidder 	
16	<p>Component 16: Internet Connectivity</p> <ul style="list-style-type: none"> a. Quantity: One (1) Lot b. Components 	

	<ul style="list-style-type: none"> i. 1Gpbs Internet Line <ul style="list-style-type: none"> 1. RSU Main Campus ii. 200 Mpbs Internet Line <ul style="list-style-type: none"> 1. RSU San Andres Campus 2. RSU San Agustin Campus c. Installation Site <ul style="list-style-type: none"> i. RSU Main Campus ii. RSU San Andres Campus iii. RSU San Agustin Campus d. Subscription Period: twelve (12) months subscription a. Technical Requirements <ul style="list-style-type: none"> i. Must provide the indicated internet line bandwidth connectivity for each sites for the period of twelve (12) months. ii. Must provide circuit availability of 85 % of uptime per month iii. The winning vendor must initiate service application (Service Subscription) and activation from an Internet Service Provider (ISP) that is capable to deliver internet service through Fiber Optic Cable (FOC) Backbone. Romblon State University shall be the Subscription Account owner. iv. Service Subscription must be valid for twelve (12) months from the date of onsite activation. Onsite activation means actual flow of bandwidth and access to internet service. Access to internet for purposes of testing shall not be construed as activation. v. The ISP shall be responsible in providing support, rectification and maintenance services of the Outside Plant (OSP) throughout the duration of the service subscription. Service interruptions due to fiber break, downed poles, and other service interruption occurrences must be rectified and restored accordingly. 	
17	<p>Component 17: Campus Security System</p> <ul style="list-style-type: none"> a. Quantity: One (1) lot b. Components <ul style="list-style-type: none"> i. CCTV System <ul style="list-style-type: none"> 1. CCTV Cameras: Quantity – Sixty (60) units <ul style="list-style-type: none"> a. Dome Cameras b. Bullet Cameras: ii. Security Center Equipment <ul style="list-style-type: none"> 1. Network Video Recorder: Quantity – One (1) units 2. Desktop PC for CCTV: Quantity – Four (4) units 3. LED Displays for CCTV: Quantity – Four (4) units 4. Security Center Command and Control Modules: Quantity – One (1) lot 5. Furnitures: Quantity – One (1) lot iii. University Mobile Application for Student and Faculties: Quantity – One (1) lot c. Delivery Site: RSU Main Campus d. Warranty: three (3) years for parts, support and services a. Installation and Configuration Services <ul style="list-style-type: none"> i. Electrical and Racking Design Services ii. Network Design and Consultation iii. CCTV Camera Installation iv. Outfitting of Security Command Center v. Project Management vi. LED Monitor Installation 	

- vii. Mobile Application Customization Services
- viii. Network Configuration Services
- ix. Training and Knowledge Transfer

e. Technical Requirements

i. CCTV System

1. CCTV Cameras

a. Dome Cameras

1. Must have a 5MP, 1/2.7" CMOS image sensor, low illuminance
2. Must have a Outputs of max. 5MP (2592 × 1944) @20 fps, and supports 4MP (2688 × 1520) @25/30 fps, high image definition
3. Must have Built-in IR LED, max. IR distance: 30 m
4. Must have support H.265 codec, high compression rate, ultra-low bit rate
5. Must have support ROI, SMART H.264+/H.265+, flexible coding, applicable to various bandwidth and storage environments
6. Must have a Rotation mode, WDR, 3D DNR, HLC, BLC, digital watermarking, applicable to various monitoring scenes
7. Must have Intelligent detection: Intrusion, tripwire (support the classification and accurate detection of vehicle and human)
8. Must have Abnormality detection: Motion detection, video tampering, scene changing, audio detection, no SD card, SD card full, SD card error, network disconnection, IP conflict, illegal access, voltage detection
9. Must have Supports max. 256 G Micro SD card, built-in Mic
10. Must have a 12V DC/PoE power supply
11. Must have IP67 protection

b. Bullet Cameras

1. Must have a 5MP, 1/2.7" CMOS image sensor, low illuminance, high image definition
2. Must have an Outputs max. 5MP (2592 × 1944) @20 fps, and supports 4MP (2688 × 1520) @25/30 fps
3. Must have support H.265 codec, high compression rate, low bit rate
4. Must have a Built-in IR LED, max. IR distance: 60 m
5. Must have support ROI, SMART H.264+/H.265+, flexible coding, applicable to various bandwidth and storage environments
6. Must have Rotation mode, WDR, 3D DNR, HLC, BLC, digital watermarking, applicable to various monitoring scenes
7. Must have Intelligent detection: Intrusion, tripwire (support the classification and accurate detection of vehicle and human)
8. Must have Abnormality detection: Motion detection, video tempering, scene changing, no SD card, SD card full, SD card error, network disconnection, IP conflict, illegal access, voltage detection
9. Must supports max. 256 G Micro SD card
10. Must have 12V DC/POE power supply
11. Must have IP67 protection

ii. Security Center Equipment

1. Network Video Recorder

- a. Must have at least 64-Channel NVR
- b. Must have support Video Compression: Smart H.265+/H.265/Smart H.264+/H.264/MPEG4/ MJPEG
- c. Must have industrial embedded micro-processor
- d. Must have web/local GUI for operation interface
- e. Must be able to support RAID 0/1/5/6/10
- f. Must support Multi channel playback 1/4/9/16
- g. Must be ONVIF Compliant
- h. Must include Surveillance grade HDD good for atleast 30 days recording

2. Desktop PC for CCTV

- a. Processor: at least 11th Gen Core i7 Processor
- b. Memory: 16 GB (2x 8GB) DDR4
- c. Form Factor: Tower
- d. Storage: at least 512GB SSD M.2 NVMe
- e. Display: at least 23" HD LED Display with the same brand as the unit, must be the same brand as the desktop, and must have a free software display tool to aid effortless multitasking in creating/arranging multiple and custom views of different applications.
- f. Graphics: atleast 4GB professional grade graphics card for CAD/3D Modelling/Engineering Software capable
- g. Network Interface: Atleast Wireless 802.11ac with built in Bluetooth 5.0, RJ-45
- h. Standard I/O Ports: (minimum requirements)
 - i. 1x USB 2.0 Type A
 - ii. 1x USB 3.2 Type A Gen1 (5Gbps),
 - iii. 1x USB 3.2 Type CTM Gen2 (10Gbps),
- i. Rear Ports:
 - i. 2x DisplayPort™ 1.4
 - ii. 2x USB 2.0 Type A
 - iii. 1x RJ45 Network Connector
 - iv. 1x USB 3.2 Type A Gen2 (10Gbps)
 - v. 2x USB 3.2 Type A Gen1 (5Gbps)
 - vi. 1x Audio Line out
- j. Expansion slots: Bays: at least 4x SATA slots for (4) 2.5 in. / (2) 3.5 in. HDD
- k. Slots: at least 3x M.2 NVMe SSD / 4x 2.5" SATA or 2x 3.5" SATA
- l. PCIe (minimum) : 1x PCIe x16 Gen4 (full height), 1x PCIe x4 Gen3
- m. Keyboard: Standard full-sized USB Keyboard with Numeric Keypad (with same brand as the unit)
- n. Pre-loaded Operating System: Windows 10, 64-bit Professional (includes Windows 11 Pro License)
- o. The proposed Desktop PC must have at least 27" Curve HD LED Display with the same brand as the unit, must be the same brand as the desktop
- p. Must have a free software display tool to aid effortless multitasking in creating/arranging multiple and custom views of different applications.
- q. Warranty and After Sales Support: 3 years warranty on parts and labor
- r. Manufacturer must provide a central toll-free HOTLINE Number and email address
- s. On-site support shall be provided by the manufacturer the Next Business Day after final remote diagnosis for delivered items within Metro Manila. At most 2 Business Days for outside Metro Manila. Onsite support engineers should have a valid manufacturer's ID (same as the Brand of being delivered)
- t. With built-in artificial intelligence that learns how the user works continuously, allowing the user to pre-define applications for faster performance over time. This tool should allow the

device to adjust to different environments by adjusting loudness, noise level, equalization and echo elimination to improve sound quality during conference calls.

3. LED Displays

- a. Resolution: at least HD Resolution
- b. Panel: at least 50" LED Panel Size
- c. Mounting: Wall Mounted on a 2 x 2 configuration

4. Security Center Command and Control Modules

- a. Must have the following Modules
 - 1. Computer Aided Dispatch System (CAD)
 - 2. Visualization App
 - 3. Asset App
- b. The Proposed Solution must support the following features:
 - 1. **Computer Aided Dispatch System (CAD)**
 - i. Receive complaints and reports thru the University Mobile Application
 - ii. Ability to validate these reports and complaints
 - iii. See the GPS Location of the reporter
 - iv. Identify and Plot thru GIS available field assets
 - v. Dispatch nearby assets according to type of reports
 - vi. Receive Situational Reports from field assets
 - vii. Send Situational Reports to Student/Faculty Reporter
 - viii. Generate Management Reports and Usage Reports
 - ix. Store data to University Main Data Storage for Images and Videos sent by Citizen Reporters
 - x. Send and Receive messages to and from field assets
 - xi. Send and Receive messages to and from Student/Faculty Reporters
 - xii. Record all messages
 - xiii. Ability to blast to all registered user, important informations
 - xiv. Ability to create User Logins, User Profile and User Policies
 - xv. Must be installed on-premise
 - 2. **Visualization App**
 - i. Must have a user dashboard for operators, management and Security command center floor
 - ii. Visualized over GPS, verified location reports coming from Faculty and Students
 - iii. Must have ability to display list of reports and its current status
 - 3. **Asset App**
 - i. Ability to receive dispatch orders coming from University Security Center including case information, reporter location and details, images, gps data
 - ii. Ability to verify dispatch orders
 - iii. Ability to send and receive situational reports
 - iv. Ability to send Images from Mobile phones and GPS Data
 - v. Send and Receive messages to and from University Security Center

5. Furnitures

- a. Table Type – can be any of the following depending on the preference of the University
 - 1. Supervisor Table with Chair
 - 2. Operator table with Chair
- b. Quantity

1. must be able to accommodate at least 1 computer per table. Tables can be split into several tables depending on the space and design preferred by the university
2. Supervisor Table with Chair – One (1) set
3. Operator table with Chair - Four (4) sets
- c. Materials to be used – Can be any of the following depending on the preference of the University
 1. 1.5 mm Stainless Steel Sheet and tubular stand with adjustable footing screw.
 2. Wood Material
 3. Powder Coated Rust Resistant Steel
 4. Combination of the Wood and Powder Coated Steel

iii. University Mobile Application for Student and Faculties

1. License Type: Perpetual License with One (1) year support services
2. The proposed mobile app must have the following modules
 - a. Login and Registration Module
 - b. University Announcement Module
 - c. University Events Calendar Module
 - d. Application Administration Module
 - e. About Us Module
 - f. Staff Directory Module
 - g. University Emergency Notifier Module
 - h. Building and Student Services Locator
3. The proposed mobile app must have the following features:
 - a. Login and Registration Module
 1. Allows the automated registration of faculties and students to the mobile app
 2. Allows the login of faculties and students to the mobile app
 3. Allows the automated retrieval of lost passwords
 4. Allows the creation and updating of user profiles for registered users
 5. Allows uploading of user achievements and awards to its user profile
 - b. University Announcement Module
 1. Allows the posting of university announcements and activities
 2. Allows editing of posted announcements and activities
 3. Allows push notification of important announcements
 4. Allows the deletion of previously posted announcements
 - c. University Events Calendar Module
 1. Allows posting of University Calendar Events and Activities. Events and activities must have the following data fields
 - i. Date and Time of Events and Activities
 - ii. Location of Events and Activities
 - iii. Information about the Events and Activities
 - iv. Contact information of Event Organizers
 2. Allows editing of posted University Calendar Events and Activities
 3. Allows deletion either thru automated and manual of previously posted University Calendar Events and Activities
 4. Allows user notification thru alerts for this upcoming events
 5. Allows online registration to Events and Activities
 - d. Application Administration Module

	<ol style="list-style-type: none"> 1. Allows creation and deletion of users 2. Allows posting and administration of University of the following modules: <ol style="list-style-type: none"> i. Login and Registration Module ii. University Announcement Module iii. University Events Calendar Module iv. Application Administration Module v. About Us Module vi. Staff Directory Module vii. University Emergency Notifier Module viii. Building and Student Services Locator e. About Us Module <ol style="list-style-type: none"> 1. Allows the posting of About Us information about the University 2. Allows posting of the following information: <ol style="list-style-type: none"> i. About the University ii. Programs and Services iii. University Officers Profile iv. University Colleges and Departments v. University Contact Information f. University Emergency Notifier Module <ol style="list-style-type: none"> 1. Allows the student to notify the University Security Center for any emergency services 2. This emergency notification must be completed with least a two click process 3. Notification Information sent to the University Security Center must include the following: <ol style="list-style-type: none"> i. Student Information <ol style="list-style-type: none"> a. Name of Student b. Address of Student c. Contact Information d. Emergency Contact Information e. Name of Parents or Guardian ii. GIS Information of the Student iii. (Optional) Nature of Emergency 4. Allows faculty/student to report complaints either to faculties, non-teaching staff, or co faculty/students 5. Allows the faculty/student to monitor status of reported complaints and issues g. Building and Student Services Locator <ol style="list-style-type: none"> 1. Allows virtual Campus Tours to University Building and Services using Pictures, videos, and Maps 2. Allows the specific University Building to be located by the students using directions provided by GIS maps 	
18	<p>Component 18: Teacher's Laptop</p> <ol style="list-style-type: none"> a. Quantity: One (1) Lot b. Components <ol style="list-style-type: none"> i. i5 Based Laptop – One Hundred (100) Units ii. i3 Based Laptop – Three Hundred (300) Units c. Delivery Site: RSU Main Campus d. Warranty: three (3) years onsite support for parts, support and services e. Included Services <ol style="list-style-type: none"> i. Training Services f. Technical Requirements <ol style="list-style-type: none"> i. i5 Based Laptop 	

1. Processor: 4 Core, 12MB cache, base 2.4GHz, up to 4.2GHz or equivalent
2. Operating system: Windows 10, 64-bit Professional (includes Windows 11 Pro License)
3. Display: at least 14" HD (1366 x 768) Anti-Glare Non-Touch
4. Memory: 8GB, DDR4
5. Storage: 256 GB Solid State Drive
6. USB Slots:
7. 1x USB Type C™ 3.2 Gen 2
8. 2x USB 3.2 Gen 1
9. 1x USB 2.0
10. Other Ports
 - a. 1x Micro SD Card Reader 3.0
 - b. 1x Universal Audio Jack
 - c. Video Port: 1x HDMI 1.4
11. Security - Wedge-shaped Lock Slot
12. 4.5mm adapter port
13. Networking: at least 802.11ac Dual Band (2x2) Wireless Adapter+ Bluetooth 5.0
14. Power: 65W adapter
15. Weight: not more than 1.6 kg
16. Warranty: 3 years warranty on parts and labor, Manufacturer must provide a central toll-free HOTLINE Number and email address. On-site support shall be provided by the manufacturer the Next Business Day after final remote diagnosis for delivered items within Metro Manila. At most 2 Business Days for outside Metro Manila. Onsite support engineers should have a valid manufacturer's ID (same as the Brand of being delivered)
17. Certifications: System must be capable of Energy Star 8.0 or better, EPEAT
18. MIL STD – 810H tested
19. With built-in artificial intelligence that learns how the user works continuously, allowing the user to pre-define applications for faster performance over time, allows the machine to automatically improve battery run time once it hits a low level of power. This tool should allow the device to adjust to different environments by adjusting loudness, noise level, equalization and echo elimination to improve sound quality during conference calls.

g. i3 Based Laptop

1. Processor: 2 Core, 6MB cache, base 3.0GHz, up to 4.10GHz or equivalent
2. Operating system: Windows 10, 64-bit Professional (includes Windows 11 Pro License)
3. Display: at least 14" HD (1366 x 768) Anti-Glare Non-Touch
4. Memory: 8GB, DDR4
5. Storage: 256 GB Solid State Drive
6. USB Slots:
7. 1x USB Type C™ 3.2 Gen 2
8. 2x USB 3.2 Gen 1
9. 1x USB 2.0
10. Other Ports
11. 1x Micro SD Card Reader 3.0
12. 1x Universal Audio Jack
13. Video Port: 1x HDMI 1.4
14. Security - Wedge-shaped Lock Slot
15. 4.5mm adapter port
 1. Networking: at least 802.11ac Dual Band (2x2) Wireless Adapter+ Bluetooth 5.0
 2. Power: 65W adapter
 3. Weight: not more than 1.6 kg
 4. Warranty: 3 years warranty on parts and labor, Manufacturer must provide a central toll-free HOTLINE Number and email address. On-site support shall be provided by the manufacturer the Next Business Day after final remote

	<p>diagnosis for delivered items within Metro Manila. At most 2 Business Days for outside Metro Manila. Onsite support engineers should have a valid manufacturer's ID (same as the Brand of being delivered)</p> <p>5. Certifications: System must be capable of Energy Star 8.0 or better, EPEAT</p> <p>6. Others : MIL STD – 810H tested</p> <p>16. With built-in artificial intelligence that learns how the user works continuously, allowing the user to pre-define applications for faster performance over time, allows the machine to automatically improve battery run time once it hits a low level of power. This tool should allow the device to adjust to different environments by adjusting loudness, noise level, equalization and echo elimination to improve sound quality during conference calls.</p>	
<p>19</p>	<p>Component 19: Student's Laptop</p> <p>a. Quantity: One Thousand (1000) Units</p> <p>b. Components</p> <p>i. i3 Based Laptop</p> <p>c. Delivery Site: RSU Main Campus</p> <p>d. Warranty: three (3) years onsite support for parts, support and services</p> <p>e. Included Services</p> <p>i. Training Services</p> <p>f. Technical Requirements</p> <p>i. i5 Based Laptop</p> <ol style="list-style-type: none"> 1. Processor: 4 Core, 12MB cache, base 2.4GHz, up to 4.2GHz or equivalent 2. Operating system: Windows 10, 64-bit Professional (includes Windows 11 Pro License) 3. Display: at least 14" HD (1366 x 768) Anti-Glare Non-Touch 4. Memory: 8GB, DDR4 5. Storage: 256 GB Solid State Drive 6. USB Slots: 7. 1x USB Type C™ 3.2 Gen 2 8. 2x USB 3.2 Gen 1 9. 1x USB 2.0 10. Other Ports <ol style="list-style-type: none"> a. 1x Micro SD Card Reader 3.0 b. 1x Universal Audio Jack c. Video Port: 1x HDMI 1.4 11. Security - Wedge-shaped Lock Slot 12. 4.5mm adapter port 13. Networking: at least 802.11ac Dual Band (2x2) Wireless Adapter+ Bluetooth 5.0 14. Power: 65W adapter 15. Weight: not more than 1.6 kg 16. Warranty: 3 years warranty on parts and labor, Manufacturer must provide a central toll-free HOTLINE Number and email address. On-site support shall be provided by the manufacturer the Next Business Day after final remote diagnosis for delivered items within Metro Manila. At most 2 Business Days for outside Metro Manila. Onsite support engineers should have a valid manufacturer's ID (same as the Brand of being delivered) 17. Certifications: System must be capable of Energy Star 8.0 or better, EPEAT 18. MIL STD – 810H tested 19. With built-in artificial intelligence that learns how the user works continuously, allowing the user to pre-define applications for faster 	

	<p>performance over time, allows the machine to automatically improve battery run time once it hits a low level of power. This tool should allow the device to adjust to different environments by adjusting loudness, noise level, equalization and echo elimination to improve sound quality during conference calls.</p> <p>g. i3 Based Laptop</p> <ol style="list-style-type: none"> 1. Processor: 2 Core, 6MB cache, base 3.0GHz, up to 4.10GHz or equivalent 2. Operating system: Windows 10, 64-bit Professional (includes Windows 11 Pro License) 3. Display: at least 14" HD (1366 x 768) Anti-Glare Non-Touch 4. Memory: 8GB, DDR4 5. Storage: 256 GB Solid State Drive 6. USB Slots: 7. 1x USB Type C™ 3.2 Gen 2 8. 2x USB 3.2 Gen 1 9. 1x USB 2.0 10. Other Ports 11. 1x Micro SD Card Reader 3.0 12. 1x Universal Audio Jack 13. Video Port: 1x HDMI 1.4 14. Security - Wedge-shaped Lock Slot 15. 4.5mm adapter port <ol style="list-style-type: none"> 1. Networking: at least 802.11ac Dual Band (2x2) Wireless Adapter+ Bluetooth 5.0 2. Power: 65W adapter 3. Weight: not more than 1.6 kg 4. Warranty: 3 years warranty on parts and labor, Manufacturer must provide a central toll-free HOTLINE Number and email address. On-site support shall be provided by the manufacturer the Next Business Day after final remote diagnosis for delivered items within Metro Manila. At most 2 Business Days for outside Metro Manila. Onsite support engineers should have a valid manufacturer's ID (same as the Brand of being delivered) 5. Certifications: System must be capable of Energy Star 8.0 or better, EPEAT 6. Others : MIL STD – 810H tested 16. With built-in artificial intelligence that learns how the user works continuously, allowing the user to pre-define applications for faster performance over time, allows the machine to automatically improve battery run time once it hits a low level of power. This tool should allow the device to adjust to different environments by adjusting loudness, noise level, equalization and echo elimination to improve sound quality during conference calls. 	
<p>20</p>	<p>Component 20: E-Classroom</p> <ol style="list-style-type: none"> a. Quantity <ol style="list-style-type: none"> i. Total Required E-Classroom: four (4) classroom ii. Interactive Board <ol style="list-style-type: none"> 1. Total Quantity Required: Four (4) Units 2. Quantity per Classroom: one (1) unit per classroom b. Components per e-classroom <ol style="list-style-type: none"> i. Interactive Board c. Installation Site: RSU Main Campus d. Warranty: three (3) years support for parts, support and services e. Technical Requirements <ol style="list-style-type: none"> i. Interactive Board <ol style="list-style-type: none"> 1. Must have at least Diagonal Size - 65" 	

	<ol style="list-style-type: none"> 2. Must have a gross weight not exceeding - 45 kg 3. Must have a LED-backlit LCD monitor 4. Must have a Display Ratio of 16:9 5. Must have a Display Colors of at least 8 bit + FRC (1.07 billion) 6. Must have a IPS Panel Type 7. Must have a Native Resolution of at least 4k 8. Must have a Pixel Pitch of at least 0.429mm x 0.429mm 9. Must have a Brightness - > 370 nit 10. Must have a Contrast Ratio of 4000: 1 11. Must have a Response Time of at least 8 ms 12. Must have a Lifetime (Working hours/day) of at least 50,000 hours 13. Touch Surface Technology - Anti-Glare glass tempered glass 14. Touch Surface Hardness - >7H 15. Touch Sensor - Infrared Touch 16. Touch Points - Up to 20 Points 17. Touch Screen Writing Tools - Stylus, Finger, and Palm 18. Communication Interface - USB-A 19. Input Connectors <ol style="list-style-type: none"> a. Front Interface Inputs - HDMI 1.4(4K@30Hz) x 1, USB(Touch) x 1, USB(Public) x 2, MIC x 1 b. Rear AV Inputs - HDMI 2.0(4K@60Hz*2) x 2, DP1.2(4K@60Hz) x 1, VGA(1920x1080@60Hz) x 1, PC Audio x 1, USB(Touch) x 4 c. AV Outputs - HDMI out (Support 4k@60Hz, 1920x1080@60Hz) x 1, Line Out x 1, SPDIF out x 1 d. Others - USB2.0(public) x 1, USB3.0(public) x 1, USB 2.0 Embedded x 1, RS232 x 1, RJ45 x 2 e. OPS Slot (4K@60Hz) x 1, DC 5V-2A out x 1 f. Installation and Configuration Services <ol style="list-style-type: none"> i. Electrical Design Services ii. Network Design and Consultation iii. Interactive Board Mounting and Installation iv. Project Management v. Network Configuration Services vi. Training and Knowledge Transfer 	
<p>21</p>	<p>Component 21: E-Library</p> <ol style="list-style-type: none"> a. Quantity <ol style="list-style-type: none"> i. Total Required E-Library: one (1) e-library ii. Desktop Computers <ol style="list-style-type: none"> 1. Total Quantity Required: sixty (60) units 2. Quantity per Classroom: sixty (60) units per classroom iii. Cabling Works <ol style="list-style-type: none"> 1. Total Quantity: 2. Quantity per Classroom: one (1) lot per classroom b. Components per e-library <ol style="list-style-type: none"> i. Desktop Computers ii. Cabling Works iii. Furnitures c. Installation Site: RSU Main Campus d. Warranty: three (3) years support for parts, support and services e. Installation and Configuration Services <ol style="list-style-type: none"> i. Electrical and Network Node Design Services ii. Minor Civil Works (if needed) iii. Network Design and Consultation iv. Structured Cabling Works v. Project Management vi. Network Configuration Services vii. Training and Knowledge Transfer 	

	<p>f. Technical Requirements</p> <p>i. Desktop Computers</p> <ol style="list-style-type: none"> 1. Processor: At least 11th Generation Core i5 Processor 2. Memory: 8GB DDR4 3. Form Factor: Ultra Form Factor (Height: 19.70 mm (0.78 in.) Width: 96.10 mm (3.78 in.), Depth: 256.20 mm (9.27 in.) Weight: 0.65 kg (1.43 lb) 4. Storage: 1TB HDD 5. Display: atleast 21.5” HD LED display with the same brand as the unit, must be the same brand as the desktop, and must have a free software display tool to aid effortless multitasking in creating/arranging multiple and custom views of different applications. 6. Stand: Fixed Stand for 19” to 27” monitors 7. Graphics: Integrated HD Graphics 8. Network Interface: Atleast Wireless 802.11ac with built in Bluetooth 5.0, RJ-45 9. Standard I/O Ports: Atleast 1x USB 3.2 Gen 2 Type-C port with Display Port support/Power delivery, 4x USB 3.2 Gen 2 port , Display Port 1.4, 1 Universal Audio Jack 10. Pointing Device: USB Optical Mouse (with same brand as the unit) 11. Keyboard: Standard full-sized USB Keyboard with Numeric Keypad (with same brand as the unit) 12. Pre-loaded Operating System: Windows 10, 64-bit Professional (includes Windows 11 Pro License) 13. Warranty and After Sales Support: 3 years warranty on parts and labor 14. Manufacturer must provide a central toll-free HOTLINE Number and email address 15. On-site support shall be provided by the manufacturer the Next Business Day after final remote diagnosis for delivered items within Metro Manila. At most 2 Business Days for outside Metro Manila. Onsite support engineers should have a valid manufacturer’s ID (same as the Brand of being delivered) <p>ii. Cabling Works</p> <ol style="list-style-type: none"> 1. Number of Nodes per E-Library: minimum of 60 data nodes 2. Cabling Type: UTP Cat 6 3. Connection Point: to nearest data cabinet <p>iii. Furnitures</p> <ol style="list-style-type: none"> 1. Table Type – can be any of the following depending on the preference of the University <ol style="list-style-type: none"> a. Wall Type Table with Chair (w/ sidings) b. Center Type Table with Chair (w/o sidings) c. Instructor table L TYPE 2. Quantity – must be able to accommodate at least 60 computers. Tables can be split into several tables depending on the space and design preferred by the university 3. Materials to be used – Can be any of the following depending on the preference of the University <ol style="list-style-type: none"> a. 1.5 mm Stainless Steel Sheet and tubular stand with adjustable footing screw. b. Wood Material c. Powder Coated Rust Resistant Steel d. Combination of the Wood and Powder Coated Steel 	
22	<p>Component 22: Engineering (CAD) E-Laboratories</p> <p>a. Quantity</p>	

	<ul style="list-style-type: none"> i. Overall Total Required Engineering Laboratories: one (1) E-Laboratory ii. Desktop Computers <ul style="list-style-type: none"> 1. Total Quantity Required: forty (40) units 2. Quantity per Laboratory: forty (40) units per Laboratory iii. Interactive Board <ul style="list-style-type: none"> 1. Total Quantity Required: two (2) units 2. Quantity per Laboratory: two (2) units per Laboratory iv. Furnitures <ul style="list-style-type: none"> 1. Total Quantity Required: one (1) lot 2. Quantity per Classroom: one (1) lot per Laboratory v. CAD Software <ul style="list-style-type: none"> 1. Total Quantity Required: One (1) Classroom License 2. Licenses per Classroom: One (1) Classroom License per Laboratory vi. Large Format Printer <ul style="list-style-type: none"> 1. Total Quantity Required: one (1) unit 2. Quantity per Classroom: one (1) unit per Laboratory vii. Cabling Works <ul style="list-style-type: none"> 1. Total Quantity Required: One(1) Site 2. Quantity per Classroom: one (1) lot per Laboratory 	
	<ul style="list-style-type: none"> b. Components per laboratory <ul style="list-style-type: none"> i. Desktop Computers ii. Interactive Board iii. Furnitures iv. CAD Software v. Large Format Printer vi. Cabling Works 	
	<ul style="list-style-type: none"> c. Installation Site: RSU Main Campus 	
	<ul style="list-style-type: none"> d. Warranty: three (3) years support for parts, support and services 	
	<ul style="list-style-type: none"> a. Installation and Configuration Services <ul style="list-style-type: none"> i. Electrical and Network Node Design Services <ul style="list-style-type: none"> 1. Electrical Connection for Delivered ICT Components 2. Network Connection for Delivered ICT Components 3. Needed Electrical Fixtures and Wires ii. Minor Civil Works (if needed) <ul style="list-style-type: none"> 1. Installation of Delivered ICT Components 2. Minor Refinishing and Repainting of Damaged Areas during installation iii. Network Design and Consultation iv. Structured Cabling Works v. Project Management vi. Network Configuration Services vii. Training and Knowledge Transfer 	
	<ul style="list-style-type: none"> e. Technical Requirements <ul style="list-style-type: none"> i. Desktop Computers <ul style="list-style-type: none"> 1. Processor: at least 11th Gen Core i7 Processor 2. Memory: 16 GB (2x 8GB) DDR4 3. Form Factor: Tower 4. Storage: at least 512GB SSD M.2 NVMe 5. Display: at least 23” HD LED Display with the same brand as the unit, must be the same brand as the desktop, and must have a free software display tool to aid effortless multitasking in 	

- creating/arranging multiple and custom views of different applications.
6. Graphics: atleast 4GB professional grade graphics card for CAD/3D Modelling/Engineering Software capable
 7. Network Interface: Atleast Wireless 802.11ac with built in Bluetooth 5.0, RJ-45
 8. Standard I/O Ports: (minimum requirements)
 - a. 1x USB 2.0 Type A
 - b. 1x USB 3.2 Type A Gen1 (5Gbps),
 - c. 1x USB 3.2 Type CTM Gen2 (10Gbps),
 9. Rear Ports:
 10. 2x DisplayPort™ 1.4
 11. 2x USB 2.0 Type A
 12. 1x RJ45 Network Connector
 13. 1x USB 3.2 Type A Gen2 (10Gbps)
 14. 2x USB 3.2 Type A Gen1 (5Gbps)
 15. 1x Audio Line out
 16. Expansion slots: Bays: at least 4x SATA slots for (4) 2.5 in. / (2) 3.5 in. HDD
 17. Slots: at least 3x M.2 NVMe SSD / 4x 2.5" SATA or 2x 3.5" SATA
 18. PCIe (minimum) : 1x PCIe x16 Gen4 (full height), 1x PCIe x4 Gen3
 19. Keyboard: Standard full-sized USB Keyboard with Numeric Keypad (with same brand as the unit)
 20. Pre-loaded Operating System: Windows 10, 64-bit Professional (includes Windows 11 Pro License)
 21. Warranty and After Sales Support: 3 years warranty on parts and labor
 22. Manufacturer must provide a central toll-free HOTLINE Number and email address
 23. On-site support shall be provided by the manufacturer the Next Business Day after final remote diagnosis for delivered items within Metro Manila. At most 2 Business Days for outside Metro Manila. Onsite support engineers should have a valid manufacturer's ID (same as the Brand of being delivered)
 24. With built-in artificial intelligence that learns how the user works continuously, allowing the user to pre-define applications for faster performance over time. This tool should allow the device to adjust to different environments by adjusting loudness, noise level, equalization and echo elimination to improve sound quality during conference calls.

ii. Interactive Board

1. Diagonal Size - 65"
2. Weight - 45 kg
3. Device Type - LED-backlit LCD monitor
4. Display Ratio - 16:9
5. Display Colors - 8 bit + FRC (1.07 billion)
6. Panel Type - IPS
7. Native Resolution - 4k
8. Pixel Pitch - 0.429mm x 0.429mm
9. Brightness - > 370 nit
10. Contrast Ratio - 4000: 1
11. Response Time - 8 ms
12. Lifetime (Working hours/day) - 50,000 hours
13. Touch Surface Technology - Anti-Glare glass tempered glass
14. Touch Surface Hardness - >7H
15. Touch Sensor - Infrared Touch
16. Touch Points - Up to 20 Points
17. Touch Screen Writing Tools - Stylus, Finger, and Palm
18. Communication Interface - USB-A
19. Input Connectors
 - a. Front Interface Inputs - HDMI 1.4(4K@30Hz) x 1, USB(Touch) x 1, USB(Public) x 2, MIC x 1

- b. Rear AV Inputs - HDMI 2.0(4K@60Hz*2) x 2, DP1.2(4K@60Hz) x 1, VGA(1920x1080@60Hz) x 1, PC Audio x 1, USB(Touch) x 4
- c. AV Outputs - HDMI out (Support 4k@60Hz, 1920x1080@60Hz) x 1, Line Out x 1, SPDIF out x 1
- d. Others - USB2.0(public) x 1, USB3.0(public) x 1, USB 2.0 Embedded x 1, RS232 x 1, RJ45 x 2
- e. OPS Slot (4K@60Hz) x 1, DC 5V-2A out x 1

iii. Furnitures

- a. Table Type – can be any of the following depending on the preference of the University
 - 1. Wall Type Table with Chair (w/ sidings)
 - 2. Center Type Table with Chair (w/o sidings)
 - 3. Instructor table L TYPE
- b. Quantity – must be able to accommodate at least 40 computers. Tables can be split into several tables depending on the space and design preferred by the university
- c. Materials to be used – Can be any of the following depending on the preference of the University
 - 1. 1.5 mm Stainless Steel Sheet and tubular stand with adjustable footing screw.
 - 2. Wood Material
 - 3. Powder Coated Rust Resistant Steel
 - 4. Combination of the Wood and Powder Coated Steel

iv. CAD Software

- 1. Web and Mobile Apps
 - a. Must include web app to view, edit, and create CAD drawings in a simplified web interface that runs in web browser.
 - b. Must include mobile app to view, edit, and create drawings in the field and on-the-go from any mobile device.
 -
- 2. Continuous Connectivity
 - a. Must have capability to open DWG files stored in the cloud directly with the solution on virtually any device with leading cloud storage providers like Microsoft OneDrive, Box, Dropbox, and Google Drive.
 -
- 3. Specialized Toolsets
 - a. Must provide access to industry-specific features and functionality that help to work faster and more efficiently than ever before.
 - 1. Access libraries of over 750,000 symbols, parts, and detail components
 - 2. Automate the creation of annotations, layers, and properties.
 - 3. Easily create details and views from 3D models, and quickly generate schedules, lists, and tables.
 -
- 4. Solution must have industry specific toolsets to:
 - a. Speed up architectural drawing and documentation with over 8,000 intelligent architectural objects. Automate floorplans, sections, elevations, and more.
 - b. Boost productivity while designing and documenting electrical controls systems with over 65,000 intelligent electrical symbols. Design panel layouts and schematic diagrams.

	<ul style="list-style-type: none"> c. Accelerate product design with mechanical design features and over 700,000 intelligent manufacturing parts and symbols. Automate tasks, such as generating machine components and creating bills of materials. d. Efficiently draft, design, and document building systems with over 10,500 intelligent mechanical, electrical, and plumbing objects. Easily design ductwork, electrical conduit, and circuiting for building systems. e. Produce P&IDs efficiently and integrate them into 3D plant design models using specialized plant design and engineering features. Quickly create plant layouts, schematic diagrams, and more. f. Improve planning and design by incorporating GIS and CAD data. Manage spatial data with standard data schema, automated business workflows, and report templates. g. Convert raster images into DWG™ objects with raster-to-vector tools. Easily edit and clean up raster images while transforming them into vector drawings within a familiar AutoCAD environment. <ul style="list-style-type: none"> ▪ <ul style="list-style-type: none"> 5. Design Integrity Protection <ul style="list-style-type: none"> a. Must be able to help retain the integrity of design data throughout the review process with TrustedDWG™ technology <ul style="list-style-type: none"> ▪ <ul style="list-style-type: none"> 6. Administrative Tools <ul style="list-style-type: none"> a. Must provide administrative tools to easily manage software licenses, seats, and usage. <ul style="list-style-type: none"> v. 36” Large Format Printer <ul style="list-style-type: none"> 1. Print Print speed <ul style="list-style-type: none"> a. 36-in: 25 sec/page on A1, 82 A1 prints per hour 2. Print resolution Up to 2400 x 1200 optimized dpi 3. Technology Thermal Inkjet 4. Margins <ul style="list-style-type: none"> a. Roll: 5 x 5 x 5 x 5 mm b. Sheet: 5 x 5 x 5 x 5 mm 5. Ink types Dye-based (C, M, Y); pigment-based (K) 6. Printheads 1 (cyan, magenta, yellow, black) 7. Media <ul style="list-style-type: none"> a. Handling Sheet feed, roll feed, automatic sheet feeder, media bin, automatic horizontal cutter 8. Roll size <ul style="list-style-type: none"> a. 36-in: 279 to 914 mm 9. Sheet size <ul style="list-style-type: none"> a. Auto sheet feeder: 210 x 279 to 330 x 482 mm b. 36-in manual feed: 210 x 279 to 914 x 1897 mm 10. Standard sheets <ul style="list-style-type: none"> a. Auto sheet feeder: A4, A3 b. 36-in manual feed: A4, A3, A2, A1, A0 11. Memory 1 GB 12. Connectivity Interfaces Gigabit Ethernet (1000Base-T), Hi-Speed USB 2.0, Wi-Fi 802.11a/b/g/n, Wi-Fi Direct <ul style="list-style-type: none"> vi. Cabling Works <ul style="list-style-type: none"> 1. Number of Nodes per E-Laboratory: minimum of 40 data nodes 2. Cabling Type: UTP Cat 6 3. Connection Point: to nearest data cabinet 	
23	<p>Component 23: 3D Modelling E-Laboratories</p> <ul style="list-style-type: none"> a. Quantity <ul style="list-style-type: none"> i. Overall Total Required Engineering Laboratories: one (1) E-Laboratory 	

	<ul style="list-style-type: none"> ii. Desktop Computers <ul style="list-style-type: none"> 1. Total Quantity Required: forty (40) units 2. Quantity per Laboratory: forty (40) units per Laboratory iii. Interactive Board <ul style="list-style-type: none"> 1. Total Quantity Required: two (2) units 2. Quantity per Laboratory: two (2) units per Laboratory iv. Furnitures <ul style="list-style-type: none"> 1. Total Quantity Required: one (1) lot 2. Quantity per Classroom: one (1) lot per Laboratory v. 3D Software <ul style="list-style-type: none"> 1. Total Quantity Required: One (1) Classroom License 2. Licenses per Classroom: One (1) Classroom License per Laboratory vi. 3D Printer <ul style="list-style-type: none"> 1. Total Quantity Required: two (2) units 2. Quantity per Classroom: two (2) units per Laboratory vii. Cabling Works <ul style="list-style-type: none"> 1. Total Quantity Required: One(1) Site 2. Quantity per Classroom: one (1) lot per Laboratory <p>b. Components per Laboratory</p> <ul style="list-style-type: none"> i. Desktop Computers ii. Interactive Board iii. Furnitures iv. 3D Studio Max v. 3D Printer vi. Cabling Works <p>c. Installation Site: RSU Main Campus</p> <p>d. Warranty: three (3) years support for parts, support and services</p> <p>e. Installation and Configuration Services</p> <p>f. Installation and Configuration Services</p> <ul style="list-style-type: none"> i. Electrical and Network Node Design Services <ul style="list-style-type: none"> 1. Electrical Connection for Delivered ICT Components 2. Network Connection for Delivered ICT Components 3. Needed Electrical Fixtures and Wires ii. Minor Civil Works (if needed) <ul style="list-style-type: none"> 1. Installation of Delivered ICT Components 2. Minor Refinishing and Repainting of Damaged Areas during installation iii. Network Design and Consultation iv. Structured Cabling Works v. Project Management vi. Network Configuration Services vii. Training and Knowledge Transfer <p>g. Technical Requirements</p> <ul style="list-style-type: none"> i. Desktop Computers <ul style="list-style-type: none"> 1. Processor: at least 11th Gen Core i7 Processor 2. Memory: 16 GB (2x 8GB) DDR4 3. Form Factor: Tower 4. Storage: at least 512GB SSD M.2 NVMe 5. Display: at least 23” HD LED Display with the same brand as the unit, must be the same brand as the desktop, and must have a free software display tool to aid effortless multitasking in creating/arranging multiple and custom views of different applications. 	
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6. Graphics: at least 4GB professional grade graphics card for CAD/3D Modelling/Engineering Software capable
7. Network Interface: At least Wireless 802.11ac with built in Bluetooth 5.0, RJ-45
8. Standard I/O Ports: (minimum requirements)
 1. 1x USB 2.0 Type A
 2. 1x USB 3.2 Type A Gen1 (5Gbps),
 3. 1x USB 3.2 Type CTM Gen2 (10Gbps),
9. Rear Ports:
 1. 2x DisplayPort™ 1.4
 2. 2x USB 2.0 Type A
 3. 1x RJ45 Network Connector
 4. 1x USB 3.2 Type A Gen2 (10Gbps)
 5. 2x USB 3.2 Type A Gen1 (5Gbps)
 6. 1x Audio Line out
10. Expansion slots: Bays: at least 4x SATA slots for (4) 2.5 in. / (2) 3.5 in. HDD
11. Slots: at least 3x M.2 NVMe SSD / 4x 2.5" SATA or 2x 3.5" SATA
12. PCIe (minimum) : 1x PCIe x16 Gen4 (full height), 1x PCIe x4 Gen3
13. Keyboard: Standard full-sized USB Keyboard with Numeric Keypad (with same brand as the unit)
14. Pre-loaded Operating System: Windows 10, 64-bit Professional (includes Windows 11 Pro License)
15. Warranty and After Sales Support: 3 years warranty on parts and labor
16. Manufacturer must provide a central toll-free HOTLINE Number and email address
17. On-site support shall be provided by the manufacturer the Next Business Day after final remote diagnosis for delivered items within Metro Manila. At most 2 Business Days for outside Metro Manila. Onsite support engineers should have a valid manufacturer's ID (same as the Brand of being delivered)
18. With built-in artificial intelligence that learns how the user works continuously, allowing the user to pre-define applications for faster performance over time. This tool should allow the device to adjust to different environments by adjusting loudness, noise level, equalization and echo elimination to improve sound quality during conference calls.

ii. Interactive Board

1. Diagonal Size - 65"
2. Weight - 45 kg
3. Device Type - LED-backlit LCD monitor
4. Display Ratio - 16:9
5. Display Colors - 8 bit + FRC (1.07 billion)
6. Panel Type - IPS
7. Native Resolution - 4k
8. Pixel Pitch - 0.429mm x 0.429mm
9. Brightness - > 370 nit
10. Contrast Ratio - 4000: 1
11. Response Time - 8 ms
12. Lifetime (Working hours/day) - 50,000 hours
13. Touch Surface Technology - Anti-Glare glass tempered glass
14. Touch Surface Hardness - >7H
15. Touch Sensor - Infrared Touch
16. Touch Points - Up to 20 Points
17. Touch Screen Writing Tools - Stylus, Finger, and Palm
18. Communication Interface - USB-A
19. Input Connectors
 - a. Front Interface Inputs - HDMI 1.4(4K@30Hz) x 1, USB(Touch) x 1, USB(Public) x 2, MIC x 1
 - b. Rear AV Inputs - HDMI 2.0(4K@60Hz*2) x 2, DP1.2(4K@60Hz) x 1, VGA(1920x1080@60Hz) x 1, PC Audio x 1, USB(Touch) x 4
 - c. AV Outputs - HDMI out (Support 4k@60Hz, 1920x1080@60Hz) x 1, Line Out x 1, SPDIF out x 1

- d. Others - USB2.0(public) x 1, USB3.0(public) x 1, USB 2.0 Embedded x 1, RS232 x 1, RJ45 x 2
- e. OPS Slot (4K@60Hz) x 1, DC 5V-2A out x 1

iii. Furnitures

1. Table Type – can be any of the following depending on the preference of the University
 - a. Wall Type Table with Chair (w/ sidings)
 - b. Center Type Table with Chair (w/o sidings)
 - c. Instructor table L TYPE
2. Quantity – must be able to accommodate at least 40 computers. Tables can be split into several tables depending on the space and design preferred by the university
3. Materials to be used – Can be any of the following depending on the preference of the University
 - a. 1.5 mm Stainless Steel Sheet and tubular stand with adjustable footing screw.
 - b. Wood Material
 - c. Powder Coated Rust Resistant Steel
 - d. Combination of the Wood and Powder Coated Steel

iv. 3D Software

1. Animation
 - a. Must have powerful animation features with over 60 new animation features and updates to Cached Playback, the Graph Editor, and the Time Slider.
2. Rendering
 - a. Must include Arnold 6 that can be used for production rendering on both the CPU and GPU.
3. Serious Effects
 - a. Must have Bifrost that adds even more power to the new visual programming environment, including significant performance and stability improvements, support for Cached Playback, improved Arnold support, new simulation features and more pre-built graphs.
4. Modeling Features
 - a. Must allow modelers to specify exactly where they need extra detail on their model by redefining the topology of any area on a mesh.
 - b. Must allow artists to spend less time cleaning up their models and more time modeling.
 - c. Must have performance boost to editing UVs in the UV Editor, particularly when working with dense meshes.
5. Rigging Improvements
 - a. Must provide help to drastically reduce node and connection clutter in their scenes, bringing them significant performance gains.
 - b. Must be able to precisely track positions on deforming geometry.
 - c. Must have significant performance boost to artist workflows, making it easier to achieve smooth results.

v. 3D Printer

1. Printer Properties
 - a. Molding Technology: FDM
 - b. Print Size: 220x220x300mm
 - c. Print Method: Online or TF card offline
 - d. File Format: STL/OBJ/AMF
 - e. Filament Diameter : 1.75mm
 - f. Machine Size: 552x485x510mm

	<ul style="list-style-type: none"> g. N.W. of Machine: 11.8kg h. Number of Nozzle : 1 i. Slice thickness: 0.1mm-0.4mm j. Printing Precision: ±0.1mm k. Nozzle Diameter: Standard 0.4mm, Optional 0.2/0.3mm <p>vi. Cabling Works</p> <ul style="list-style-type: none"> 1. Number of Nodes per E-Laboratory: minimum of 40 data nodes 2. Cabling Type: UTP Cat 6 3. Connection Point: to nearest data cabinet 	
<p>24</p>	<p>Component 24: General Purpose E-Laboratories</p> <ul style="list-style-type: none"> a. Quantity <ul style="list-style-type: none"> i. Overall Total Required Engineering Laboratories: one (1) E-Laboratory ii. Desktop Computers <ul style="list-style-type: none"> 1. Total Quantity Required: forty (40) units 2. Quantity per Laboratory: forty (40) units per Laboratory iii. Interactive Board <ul style="list-style-type: none"> 1. Total Quantity Required: two (2) units 2. Quantity per Laboratory: two (2) units per Laboratory iv. Furnitures <ul style="list-style-type: none"> 1. Total Quantity Required: one (1) lot 2. Quantity per Classroom: one (1) lot per Laboratory v. Cabling Works <ul style="list-style-type: none"> 1. Total Quantity Required: One (1) Site 2. Quantity per Classroom: one (1) lot per Laboratory b. Components <ul style="list-style-type: none"> i. Desktop Computers ii. Interactive Board iii. Furnitures iv. Cabling Works c. Installation Site: RSU Main Campus d. Warranty: three (3) years support for parts, support and services e. Installation and Configuration Services <ul style="list-style-type: none"> i. Electrical and Network Node Design Services <ul style="list-style-type: none"> 1. Electrical Connection for Delivered ICT Components 2. Network Connection for Delivered ICT Components 3. Needed Electrical Fixtures and Wires ii. Minor Civil Works (if needed) <ul style="list-style-type: none"> 1. Installation of Delivered ICT Components 2. Minor Refinishing and Repainting of Damaged Areas during installation iii. Network Design and Consultation iv. Structured Cabling Works v. Project Management vi. Network Configuration Services vii. Training and Knowledge Transfer f. Technical Requirements <ul style="list-style-type: none"> i. Desktop Computers <ul style="list-style-type: none"> 1. Processor: at least 11th Gen Core i7 Processor 2. Memory: 16 GB (2x 8GB) DDR4 3. Form Factor: Tower 4. Storage: at least 512GB SSD M.2 NVMe 5. Display: at least 23" HD LED Display with the same brand as the unit, must be the same brand as the desktop, and must have a free 	

software display tool to aid effortless multitasking in creating/arranging multiple and custom views of different applications.

6. Graphics: atleast 4GB professional grade graphics card for CAD/3D Modelling/Engineering Software capable
7. Network Interface: Atleast Wireless 802.11ac with built in Bluetooth 5.0, RJ-45
8. Standard I/O Ports: (minimum requirements)
 1. 1x USB 2.0 Type A
 2. 1x USB 3.2 Type A Gen1 (5Gbps),
 3. 1x USB 3.2 Type CTM Gen2 (10Gbps),
9. Rear Ports:
 1. 2x DisplayPort™ 1.4
 2. 2x USB 2.0 Type A
 3. 1x RJ45 Network Connector
 4. 1x USB 3.2 Type A Gen2 (10Gbps)
 5. 2x USB 3.2 Type A Gen1 (5Gbps)
 6. 1x Audio Line out
10. Expansion slots: Bays: at least 4x SATA slots for (4) 2.5 in. / (2) 3.5 in. HDD
11. Slots: at least 3x M.2 NVMe SSD / 4x 2.5" SATA or 2x 3.5" SATA
12. PCIe (minimum) : 1x PCIe x16 Gen4 (full height), 1x PCIe x4 Gen3
13. Keyboard: Standard full-sized USB Keyboard with Numeric Keypad (with same brand as the unit)
14. Pre-loaded Operating System: Windows 10, 64-bit Professional (includes Windows 11 Pro License)
15. Warranty and After Sales Support: 3 years warranty on parts and labor
16. Manufacturer must provide a central toll-free HOTLINE Number and email address
17. On-site support shall be provided by the manufacturer the Next Business Day after final remote diagnosis for delivered items within Metro Manila. At most 2 Business Days for outside Metro Manila. Onsite support engineers should have a valid manufacturer's ID (same as the Brand of being delivered)
18. With built-in artificial intelligence that learns how the user works continuously, allowing the user to pre-define applications for faster performance over time. This tool should allow the device to adjust to different environments by adjusting loudness, noise level, equalization and echo elimination to improve sound quality during conference calls.

ii. Interactive Board

1. Diagonal Size - 65"
2. Weight - 45 kg
3. Device Type - LED-backlit LCD monitor
4. Display Ratio - 16:9
5. Display Colors - 8 bit + FRC (1.07 billion)
6. Panel Type - IPS
7. Native Resolution - 4k
8. Pixel Pitch - 0.429mm x 0.429mm
9. Brightness - > 370 nit
10. Contrast Ratio - 4000: 1
11. Response Time - 8 ms
12. Lifetime (Working hours/day) - 50,000 hours
13. Touch Surface Technology - Anti-Glare glass tempered glass
14. Touch Surface Hardness - >7H
15. Touch Sensor - Infrared Touch
16. Touch Points - Up to 20 Points
17. Touch Screen Writing Tools - Stylus, Finger, and Palm
18. Communication Interface - USB-A
19. Input Connectors

	<ul style="list-style-type: none"> a. Front Interface Inputs - HDMI 1.4(4K@30Hz) x 1, USB(Touch) x 1, USB(Public) x 2, MIC x 1 b. Rear AV Inputs - HDMI 2.0(4K@60Hz*2) x 2, DP1.2(4K@60Hz) x 1, VGA(1920x1080@60Hz) x 1, PC Audio x 1, USB(Touch) x 4 c. AV Outputs - HDMI out (Support 4k@60Hz, 1920x1080@60Hz) x 1, Line Out x 1, SPDIF out x 1 d. Others - USB2.0(public) x 1, USB3.0(public) x 1, USB 2.0 Embedded x 1, RS232 x 1, RJ45 x 2 e. OPS Slot (4K@60Hz) x 1, DC 5V-2A out x 1 <p>iii. Furnitures</p> <ul style="list-style-type: none"> 1. Table Type – can be any of the following depending on the preference of the University <ul style="list-style-type: none"> a. Wall Type Table with Chair (w/ sidings) b. Center Type Table with Chair (w/o sidings) c. Instructor table L TYPE 2. Quantity – must be able to accommodate at least 60 computers. Tables can be split into several tables depending on the space and design preferred by the university 3. Materials to be used – Can be any of the following depending on the preference of the University <ul style="list-style-type: none"> a. 1.5 mm Stainless Steel Sheet and tubular stand with adjustable footing screw. b. Wood Material c. Powder Coated Rust Resistant Steel d. Combination of the Wood and Powder Coated Steel <p>iv. Cabling Works</p> <ul style="list-style-type: none"> 1. Number of Nodes per E-Laboratory: minimum of 40 data nodes 2. Cabling Type: UTP Cat 6 3. Connection Point: to nearest data cabinet 	
25	<p>Component 25: Software and Network Laboratories</p> <ul style="list-style-type: none"> a. Quantity <ul style="list-style-type: none"> i. Overall Total Required Engineering Laboratories: one (1) E-Laboratory ii. Desktop Computers <ul style="list-style-type: none"> 1. Total Quantity Required: forty (40) units 2. Quantity per Laboratory: forty (40) units per Laboratory iii. Interactive Board <ul style="list-style-type: none"> 1. Total Quantity Required: two (2) units 2. Quantity per Laboratory: two (2) units per Laboratory iv. Tower Server with Virtualization Software <ul style="list-style-type: none"> 1. Total Quantity Required: one (1) unit 2. Quantity per Laboratory: one (1) unit per Laboratory v. Network Labs <ul style="list-style-type: none"> 1. Network Switch (Layer 2) <ul style="list-style-type: none"> a. Quantity per Laboratory: two (2) units per Laboratory 2. Network Switch (Layer 3) <ul style="list-style-type: none"> a. Quantity per Laboratory: three (3) units per Laboratory 3. Access Point <ul style="list-style-type: none"> a. Quantity per Laboratory: two (2) unit per Laboratory vi. Furnitures <ul style="list-style-type: none"> 1. Total Quantity Required: one (1) lot 2. Quantity per Classroom: one (1) lot per Laboratory 	

- vii. Cabling Works
 - 1. Total Quantity Required: One (1) Site
 - 2. Quantity per Classroom: one (1) lot per Laboratory

b. Components

- i. Desktop Computers
- ii. Interactive Board
- iii. Tower Server with Virtualization Software
- iv. Network Labs
 - 1. Router
 - 2. Network Switch (Layer 2)
 - 3. Network Switch (Layer 3)
 - 4. Access Point
- v. Furnitures
- vi. Cabling Works

c. Installation Site: RSU Main Site

d. Warranty: three (3) years support for parts, support and services

e. Installation and Configuration Services

- i. Electrical and Network Node Design Services
 - 1. Electrical Connection for Delivered ICT Components
 - 2. Network Connection for Delivered ICT Components
 - 3. Needed Electrical Fixtures and Wires
- ii. Minor Civil Works (if needed)
 - 1. Installation of Delivered ICT Components
 - 2. Minor Refinishing and Repainting of Damaged Areas during installation
- iii. Network Design and Consultation
- iv. Structured Cabling Works
- v. Project Management
- vi. Network Configuration Services
- vii. Training and Knowledge Transfer

f. Technical Requirements

i. Desktop Computers

- 1. Processor: at least 11th Gen Core i7 Processor
- 2. Memory: 16 GB (2x 8GB) DDR4
- 3. Form Factor: Tower
- 4. Storage: at least 512GB SSD M.2 NVMe
- 5. Display: at least 23" HD LED Display with the same brand as the unit, must be the same brand as the desktop, and must have a free software display tool to aid effortless multitasking in creating/arranging multiple and custom views of different applications.
- 6. Graphics: atleast 4GB professional grade graphics card for CAD/3D Modelling/Engineering Software capable
- 7. Network Interface: Atleast Wireless 802.11ac with built in Bluetooth 5.0, RJ-45
- 8. Standard I/O Ports: (minimum requirements)
 - 1. 1x USB 2.0 Type A
 - 2. 1x USB 3.2 Type A Gen1 (5Gbps),
 - 3. 1x USB 3.2 Type CTM Gen2 (10Gbps),
- 9. Rear Ports:
 - 1. 2x DisplayPort™ 1.4
 - 2. 2x USB 2.0 Type A
 - 3. 1x RJ45 Network Connector
 - 4. 1x USB 3.2 Type A Gen2 (10Gbps)
 - 5. 2x USB 3.2 Type A Gen1 (5Gbps)
 - 6. 1x Audio Line out
- 10. Expansion slots: Bays: at least 4x SATA slots for (4) 2.5 in. / (2) 3.5 in. HDD

11. Slots: at least 3x M.2 NVMe SSD / 4x 2.5" SATA or 2x 3.5" SATA
12. PCIe (minimum) : 1x PCIe x16 Gen4 (full height), 1x PCIe x4 Gen3
13. Keyboard: Standard full-sized USB Keyboard with Numeric Keypad (with same brand as the unit)
14. Pre-loaded Operating System: Windows 10, 64-bit Professional (includes Windows 11 Pro License)

15. Warranty and After Sales Support: 3 years warranty on parts and labor
16. Manufacturer must provide a central toll-free HOTLINE Number and email address
17. On-site support shall be provided by the manufacturer the Next Business Day after final remote diagnosis for delivered items within Metro Manila. At most 2 Business Days for outside Metro Manila. Onsite support engineers should have a valid manufacturer's ID (same as the Brand of being delivered)
18. With built-in artificial intelligence that learns how the user works continuously, allowing the user to pre-define applications for faster performance over time. This tool should allow the device to adjust to different environments by adjusting loudness, noise level, equalization and echo elimination to improve sound quality during conference calls.

ii. Interactive Board

1. Diagonal Size - 65"
2. Weight - 45 kg
3. Device Type - LED-backlit LCD monitor
4. Display Ratio - 16:9
5. Display Colors - 8 bit + FRC (1.07 billion)
6. Panel Type - IPS
7. Native Resolution - 4k
8. Pixel Pitch - 0.429mm x 0.429mm
9. Brightness - > 370 nit
10. Contrast Ratio - 4000: 1
11. Response Time - 8 ms
12. Lifetime (Working hours/day) - 50,000 hours
13. Touch Surface Technology - Anti-Glare glass tempered glass
14. Touch Surface Hardness - >7H
15. Touch Sensor - Infrared Touch
16. Touch Points - Up to 20 Points
17. Touch Screen Writing Tools - Stylus, Finger, and Palm
18. Communication Interface - USB-A
19. Input Connectors
 - a. Front Interface Inputs - HDMI 1.4(4K@30Hz) x 1, USB(Touch) x 1, USB(Public) x 2, MIC x 1
 - b. Rear AV Inputs - HDMI 2.0(4K@60Hz*2) x 2, DP1.2(4K@60Hz) x 1, VGA(1920x1080@60Hz) x 1, PC Audio x 1, USB(Touch) x 4
 - c. AV Outputs - HDMI out (Support 4k@60Hz, 1920x1080@60Hz) x 1, Line Out x 1, SPDIF out x 1
 - d. Others - USB2.0(public) x 1, USB3.0(public) x 1, USB 2.0 Embedded x 1, RS232 x 1, RJ45 x 2
 - e. OPS Slot (4K@60Hz) x 1, DC 5V-2A out x 1

iii. Tower Server with Virtualization Software

- a. Chassis: Tower Server
- b. Processor: Intel Xeon 4C @2.8Ghz
- c. Memory: 32GB DDR4
- d. Storage: 2x 1.2TB 10K (Raid 1)
- e. Network Options
 1. 2 x 1 GbE LOM
- f. Front Ports
 1. 1 x Dedicated Direct micro-USB

	<ul style="list-style-type: none"> 2. 1 x USB 3.0 g. Rear Ports <ul style="list-style-type: none"> 1. 5 x USB 2.0 2. 1 x USB 3.0 3. 1 x VGA 4. 1 x Serial Port 5. 1 x Console Port h. PCIe <ul style="list-style-type: none"> 1. 2 x PCIe Gen4 slots <p>iv. Network Labs</p> <ul style="list-style-type: none"> 1. Network Switch (Layer 2) <ul style="list-style-type: none"> a. Fully Managed Layer 2 Switch b. At least 24 ports 2. Network Switch (Layer 3) <ul style="list-style-type: none"> a. Fully Managed Layer 3 Switch b. At least 24 ports 3. Access Point <ul style="list-style-type: none"> a. AP type: Indoor, dual radio, 5GHz and 2.4GHz 802.11ax 2x2 MIMO <p>v. Furnitures</p> <ul style="list-style-type: none"> 1. Table Type – can be any of the following depending on the preference of the University <ul style="list-style-type: none"> a. Wall Type Table with Chair (w/ sidings) b. Center Type Table with Chair (w/o sidings) c. Instructor table L TYPE 2. Quantity – must be able to accommodate at least 40 computers. Tables can be split into several tables depending on the space and design preferred by the university 3. Materials to be used – Can be any of the following depending on the preference of the University <ul style="list-style-type: none"> a. 1.5 mm Stainless Steel Sheet and tubular stand with adjustable footing screw. b. Wood Material c. Powder Coated Rust Resistant Steel d. Combination of the Wood and Powder Coated Steel <p>vi. Cabling Works</p> <ul style="list-style-type: none"> 1. Number of Nodes per E-Library: minimum of 40 data nodes 2. Cabling Type: UTP Cat 6 3. Connection Point: to nearest data cabinet 	
<p>F</p>	<p>Project Exclusion</p> <p>The following items and components are excluded and beyond the scope of the project and will be provided by the University if needed.</p> <ul style="list-style-type: none"> 1. Application of Main Electrical Connection Line from the Electricity Provider’s Electric Post to the Data Center including items and equipment necessary for the project such as: <ul style="list-style-type: none"> a. Necessary Permits b. Additional Secondary Electrical Post c. Automatic Transfer. Switch d. Transformers e. Power Cable from Main Post to Project Site f. Other Electrical and Civil Works not within the scope of the project 2. Consumable Items during installation <ul style="list-style-type: none"> a. Generator Diesel Fuel b. Electricity consumed by installed components and delivered items 	

G	<p>Implementation Schedule</p> <ol style="list-style-type: none"> 1. Proponent should be able to start the project not later than two (2) weeks upon receipt of Notice to Proceed. 2. Completion and full implementation should be within two hundred seventy (270) days upon receipt of Notice to Proceed. 3. A detailed chart of implementation shall be submitted with the proposal. 	
H	<p>Site Deployment Plan</p> <p>The project will be implemented to the following sites:</p> <ol style="list-style-type: none"> 1. RSU Main Campus 2. RSU San Andres Campus 3. RSU San Agustin Campus 	
I	<p>Testing and Commissioning</p> <ol style="list-style-type: none"> 1. Equipment Stand-Alone Testing <p>This refers to the power up and testing to be conducted in all ICT Equipment, M&E equipment and support devices as supplied and installed. The winning bidder is required to present the testing procedures specified by the respective manufacturer. At a minimum:</p> <ol style="list-style-type: none"> a. Collate/compile and present all testing forms provided by the respective manufacturer. The manufacturer or its authorized representative must certify the authenticity of the presented testing forms. b. Testing forms must be provided in duplicates during actual testing. University's personnel, designated to witness the testing, will also record the testing results accordingly. c. Testing to be done must comply with the manufacturer's prescribed testing methods and its results must be within the expected outcome. Deviations from the standard testing procedures are not acceptable, unless necessary and approved by the University. d. Should the test results be not within the expected outcome as per manufacturer's specifications, the winning bidder is required to perform troubleshooting exercises on the spot and testing to be done not more than 2 hours from the time of the first testing done. Should the issue persist, the winning bidder is given 48 hours to submit a Test Failure Report and perform corrective measures accordingly. Upon completion, retesting must be done in the presence of the University's personnel, twice with at least 36 hours interval to assure non-repetitive of the issue. 2. Campus Network Testing <ol style="list-style-type: none"> a. The winning bidder shall conduct testing of the completed campus network installation. Functional test of the campus network is required. Functional test in this context means that the test must yield results aligned with the design intent of the network, as defined in this Terms of Reference. The winning bidder shall submit the testing Methods of Procedures (MoPs) along with pre-defined results, which shall be assessed and approved by the University. The pre-defined results shall be the basis of success should the actual testing results matches these pre-defined test results. 3. LMS and CMS Testing <ol style="list-style-type: none"> a. The LMS testing involves the simulation of actual use of the system, based on the defined functional requirements stated in this Terms of Reference. The winning bidder shall perform demonstration of the LMS through simulation of how the users are likely to access and use the 	

	<p>system. Similarly, The University will require the submission of MoPs prior to actual testing.</p> <p>4. Smart Campus Solutions Testing</p> <p>a. The winning vendor shall perform functional tests on all modules and/or sub-systems installed to be followed by an integrated testing to ascertain the interoperability of the Smart Campus System. All testing to be performed must be witnessed by University’s nominated personnel.</p>	
<p>J</p>	<p>Project Documentation</p> <p>1. Conceptual Design Development</p> <p>a. Participating bidders are required to submit in its bid submission copies of preliminary Conceptual Designs of the following:</p> <ol style="list-style-type: none"> 1. Data Center Floor Layout, Mechanical & Electrical Designs 2. Command Center Floor layout, Mechanical & Electrical Designs 3. Network Block Diagrams 4. Smart Campus Block Diagram 5. LMS Workflow and Process Flow Diagrams <p>2. Detailed Design Development</p> <p>a. The winning bidder must submit for review and approval Detailed Engineering Designs (DED) specifically for the new Data Center and all its support facilities prior to any construction works. This follows the Philippine Building Code and are also required for permitting purposes. The DEDs must be signed and sealed by Professional Engineers (PEs) of the respective engineering discipline. The DEDs should cover the following at the minimum:</p> <ol style="list-style-type: none"> 1. Civil and Architectural Designs 2. Electrical Designs 3. Mechanical Designs 4. Fire Safety and Protection Designs 5. Plumbing Designs 6. Auxiliary System Designs <p>b. The winning bidder must submit 5 sets printed in A3 paper size along with compiled soft copies. Soft copies refer to scanned original signed copies of the DED Plans.</p> <p>3. As-Built Plans</p> <p>a. Develop and submit As-Built Plans for all trades covered in the data center fit out works. The As-Built Plans must accurately reflect the actual fit out works, M&E installations and other relevant works completed and duly signed-off by the signing authority designated by RSU, as well as the respective trade engineers from the winning bidder’s side. Mechanical and Electrical Load Schedules must form part of the As-Built plans. Submittal should be in the following form:</p> <ol style="list-style-type: none"> i. 3 Sets of Print Outs in A1 Sheet, (properly compiled and labelled accordingly) ii. 3 Sets of Print Outs in A3 Sheets (properly compiled and labelled accordingly) <p>b. Soft Copies in pdf format, compiled and stored in a USB Drive</p> <p>4. Operations & Maintenance Manuals</p> <p>a. The winning bidder, upon completion of the project, must compile and submit all users, operation and maintenance manuals of all supplied equipment and devices, such as but not limited to:</p> <ol style="list-style-type: none"> i. IT appliances, equipment and devices ii. Desktops iii. Generator Set iv. UPS v. PACUs 	

	<ul style="list-style-type: none"> vi. CCTV System vii. Door Access System viii. Fire Protection System <p>b. The winning bidder may submit the consolidated and compiled manuals in soft copy.</p>	
K	<p>Training</p> <ol style="list-style-type: none"> 1. The Winning Bidder must provide a maximum of five (5) days Training including comprehensive training on installation, configuration administration and troubleshooting for at most twenty five (25) Users. 2. Option to do online training in lieu to physical training will be considered in coordination and approval of the project representatives 3. All Costs relative to the conduct of training must be at the expense of the Winning Bidder, including transportation, venue, food and training materials of the participants within Metro Manila. 	
L	<p>Service Support Requirements</p> <ol style="list-style-type: none"> 1. Upon Delivery, the winning bidder must provide the support for the duration of 12 months. The Technical support which shall commence from the issuance of the Certificate of Final Acceptance and Completion 2. The supplier shall provide 100% technical support Service Level Agreement (SLA). The bidder's technical support structure and escalation procedure during the maintenance period must include the following. <ol style="list-style-type: none"> a. Level 1 and Level 2 Technical support with 8x5 SLA; 4-hour response time within metro manila and next business day for provisional areas. 3. Warranty and after sales support for Desktop and Monitors <ol style="list-style-type: none"> a. 3 years on site support warranty on parts and labor. Obligation for the warranty shall be covered by either retention money in the amount equivalent to at least one percent (1%) of every progress payment, or a special bank guarantee equivalent to at least one percent (1%) of the total contract price. The bidder's manufacturer must provide a central toll free HOTLINE Number and email address. b. Remote Support shall be provided immediately by the manufacturer through the HOTLINE upon receipt of service call via the toll free HOTLINE number. For email service request, the response time is 24 hours c. On-site support service should be provided by the bidder the next business day after final remote diagnosis for delivered items within Metro Manila, at most, 2 business days for outside Metro Manila. 4. The on-site support engineers must comply with the following: <ol style="list-style-type: none"> a. possess all mandatory certifications for technical support required by the manufacturer of the brand or a certified computer hardware servicing NC-II or Licensed Electronics Technician or Manufacturer's Certified Technician. 5. The winning bidder must provide replacement of defective items delivered should be made within fifteen (15) calendar days from notice of defects from procuring agency 6. The winning bidder shall guarantee that service units shall be provided while waiting for the replacement of defective units that are still within the 	

	warranty period. The service unit should be made available prior to the pullout of the defective equipment.	
M	<p>Bidder's Qualification</p> <ol style="list-style-type: none"> 1. For the bid submission to be sufficient in details and to show compliance with the Specification stated in the project, the following must be submitted: <ol style="list-style-type: none"> a. Statement of compliance, or otherwise, against the Specification for the System offered. b. A scaled drawing showing the proposed layout of all the equipment in the proposed System. c. A detailed technical description of the proposed System, including all the equipment and software offered. d. A work timeline including the periods of design and manufacture, delivery, installation, training, site acceptance testing and commissioning. e. Colored brochures of all equipment, devices and/or solutions supplied. 2. The bidder must be ISO 9001-2015 certified, in case of a joint venture, both partners must be ISO certified. A. current and valid ISO 9001-2015 Certificate must be submitted during bid opening. 3. The bidder shall submit the following certifications during bid opening. <ol style="list-style-type: none"> a. Manufacturer's Certificate or Manufacturer's Authorization that the bidder is an authorized dealer/reseller to join the bid, for the following components: <ol style="list-style-type: none"> i. University Information System ii. Learning Management System iii. University Accounting System iv. University Human Resource Management System v. RDBMS Database vi. Campus Portal System vii. Data Racks viii. Servers and Virtualization Software ix. Storage Systems x. Network Switches xi. Cyber Security Equipment xii. Data Backup and Recovery System xiii. Cloud Infrastructure xiv. WIFI Access Points xv. University Mobile Application xvi. Laptops xvii. Desktop xviii. Interactive Boards b. Certification from the Manufacturer that the equipment proposed are not obsolete or end of life; for the components enumerated below only: <ol style="list-style-type: none"> i. University Information System ii. Learning Management System iii. University Accounting System iv. University Human Resource Management System v. RDBMS Database vi. Campus Portal System vii. Data Racks viii. Servers and Virtualization Software ix. Storage Systems x. Network Switches xi. Cyber Security Equipment 	

	<ul style="list-style-type: none"> xii. Data Backup and Recovery System xiii. WIFI Access Points xiv. University Mobile Application xv. Laptops xvi. Desktop <p>c. The Manufacturer of the Servers, Networking Equipment, Desktop, Laptop, and Monitors should issue a local certification that expressly states that it has validated the full solution of the project. The certification must also state that the manufacturer of the server, through its local office is capable of providing support for the proposed solution which will be implemented in this particular project.</p> <p>d. Manufacturer’s Certification for the Server, Storage, Network Switches, Desktop and Laptop must specify the following:</p> <ul style="list-style-type: none"> a. Must have the capacity to provide nationwide on-site support and will provide a central support hotline and email b. Must have local spare parts warehouse in Metro Manila c. Must be an international enterprise and should have more than 10 years business experience in Philippines d. The manufacturer of servers must have certified engineers in the Philippines. e. That they have at least two (2) depots within the country 	
<p>N</p>	<p>Project Management Team</p> <p>The Winning bidder should have a project management team that is composed of at least one (1) Senior Project Manager, one (1) Senior Technology Consultant, and one(1) Cloud Solution Architect during project implementation to oversee the project.</p> <p>1.1. Senior Project Manager Qualifications</p> <ul style="list-style-type: none"> 1.1.1. The Senior Project Manager must have at least two years employed experience with an ICT Government Agency. 1.1.2. The Senior Project Manager must have at least two (2) years experience as a project manager for Government Flagship IT Projects 1.1.3. The Senior Project Manager must have been previously contracted as project manager by the bidder for at least one (1) Flagship IT Government project. 1.1.4. The appointed project manager shall be required, but not be limited to attend all site meetings, project meetings and project status report meetings 1.1.5. Copy of the CVs of the personnel assigned should be included in the bid submission <p>1.2. Senior Technology Consultant Qualifications</p> <ul style="list-style-type: none"> 1.2.1. The Senior Consultant must have at least 3 years consecutive technology consultancy engagement with a Philippine Government Agency 1.2.2. Experience in Design Development of Cloud Computing, Data Center Facility, Network, Big Data and Security for Government Agencies 	

	<p>1.2.3. Experience in Design Development of Government initiated Smart Cities</p> <p>1.2.4. Experience in Project Financials Modeling such as TCO (Total Cost of Ownership) Analysis, Cost Benefit Analysis and Financial Feasibility Studies</p> <p>1.3. Cloud Solution Architect</p> <p>1.3.1. The Cloud Solution Architect must be a certified solution architect for the offered cloud solution. A copy of his/her certification must be attached to the bid submission</p> <p>1.3.2. The Cloud Solution Architect must be currently employed by the bidder for at least two (2) consecutive years</p> <p>1.3.3. Copy of the CVs of the personnel assigned should be included in the bid submission</p>	
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Section VIII. Checklist of Technical and Financial Documents

Notes on the Checklist of Technical and Financial Documents

The prescribed documents in the checklist are mandatory to be submitted in the Bid, but shall be subject to the following:

- a. GPPB Resolution No. 09-2020 on the efficient procurement measures during a State of Calamity or other similar issuances that shall allow the use of alternate documents in lieu of the mandated requirements; or
- b. Any subsequent GPPB issuances adjusting the documentary requirements after the effectivity of the adoption of the PBDs.

The BAC shall be checking the submitted documents of each Bidder against this checklist to ascertain if they are all present, using a non-discretionary “pass/fail” criterion pursuant to Section 30 of the 2016 revised IRR of RA No. 9184.

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,

- (c) **and** 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;
- (d) **and** 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).

SECTION VIII. BIDDING FORMS



BID FORM

Date: _____
Invitation to Bid N°: _____

To: (Procuring Entity)

Gentlemen and/or Ladies:

Having examined the Bidding Documents including Bid Bulletin Numbers [insert numbers], the receipt of which is hereby duly acknowledged, we, the undersigned, offer to [supply/deliver/perform] [description of the Goods] in conformity with the said Bidding Documents for the sum of [total Bid amount in words and figures] or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this Bid.

We undertake, if our Bid is accepted, to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements.

If our Bid is accepted, we undertake to provide a performance security in the form, amounts, and within the times specified in the Bidding Documents.

We agree to abide by this Bid for the Bid Validity Period specified in **BDS** provision for **ITB** Clause 18.2 and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Commissions or gratuities, if any, paid or to be paid by us to agents relating to this Bid, and to contract execution if we are awarded the contract, are listed below:

Name and address of agent	Amount and Currency	Purpose of Commission or gratuity	
_____	_____	_____	
(if _____	_____	_____	none, state "None")
_____	_____	_____	

Until a formal Contract is prepared and executed, this Bid, together with your written acceptance thereof and your Notice of Award, shall be binding upon us.

We understand that you are not bound to accept the Lowest Calculated Bid or any Bid you may receive.

We certify/confirm that we comply with the eligibility requirements as per **ITB** 5 of the Bidding Documents.

We likewise certify/confirm that the undersigned, *[for sole proprietorships, insert: as the owner and sole proprietor or authorized representative of Name of Bidder, has the full power and authority to participate, submit the bid, and to sign and execute the ensuing contract, on the latter's behalf for the Name of Project of the Name of the Procuring Entity] [for partnerships, corporations, cooperatives, or joint ventures, insert: is granted full power and authority by the Name of Bidder, to participate, submit the bid, and to sign and execute the ensuing contract on the latter's behalf for Name of Project of the Name of the Procuring Entity].*

We acknowledge that failure to sign each and every page of this Bid Form, including the attached Schedule of Prices, shall be a ground for the rejection of our bid.

Dated this _____ day of _____ 20_____.

[signature]

[in the capacity of]

Duly authorized to sign Bid for and on behalf of _____

List of all Ongoing Government & Private Contracts including contracts awarded but not yet started

Business Name : _____
 Business Address : _____

Name of Contract/ Project Cost	a. Owner's Name b. Address c. Telephone Nos.	Nature of Work	Bidder's Role		a. Date Awarded b. Date Started c. Date of Completion	% of Accomplishment		Value of Outstanding Works / Undelivered Portion
			Description	%		Planned	Actual	
<u>Government</u>								
<u>Private</u>								
							Total Cost	

Submitted by : _____
 (Printed Name & Signature)
 Designation : _____
 Date : _____

One of the technical documents required to be in the Eligibility Envelope of a prospective bidder is a list of all its on-going, completed, and awarded but not yet started contracts.

Statement of Single Largest Government or Private Contracts completed which are similar in nature

Business Name : _____
 Business Address : _____

Name of Contract	a. Owner's Name b. Address c. Telephone Nos.	Nature of Work	Bidder's Role		a. Amount at Award b. Amount at Completion c. Duration	a. Date Awarded b. Contract Effectivity c. Date Completed
			Description	%		
<u>Government</u>						
<u>Private</u>						

Note: This statement shall be supported with:
 1 Contract or Purchase Order (P.O)
 2 Certificate of Acceptance or Certificate of Completion

Submitted by : _____
 (Printed Name & Signature)
 Designation : _____
 Date : _____

)

NET FINANCIAL CONTRACTING CAPACITY

- A. Summary of the Applicant Supplier's/Distributor's/Manufacturer's assets and liabilities on the basis of the attached income tax return and audited financial statement, stamped "RECEIVED" by the Bureau of Internal Revenue or BIR authorized collecting agent, for the immediately preceding year and a certified copy of Schedule of Fixed Assets particularly the list of construction equipment.

		Year 2022
1.	Total Assets	
2.	Current Assets	
3.	Total Liabilities	
4.	Current Liabilities	
5.	Net Worth (1-3)	
6.	Net Working Capital (2-4)	

- B. The Net Financial Contracting Capacity (NFCC) based on the above data is computed as follows:

NFCC = [(Current assets minus current liabilities) (15)] minus the value of all outstanding or uncompleted portions of the projects under ongoing contracts, including awarded contracts yet to be started, coinciding with the contract to be bid.

NFCC = P _____

The value of bidder's current assets and current liabilities shall be based on the latest Audited Financial Statements submitted to the BIR.

Herewith attached are certified true copies of the audited financial statement: stamped "RECEIVED" by the BIR or BIR authorized collecting agent for the immediately preceding year.

Submitted by:

Name of Supplier / Distributor / Manufacturer

Signature of Authorized Representative

Date: _____

NOTE:

1. If Partnership or Joint Venture, each Partner or Member Firm of Joint Venture shall submit the above requirements.

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BID SECURITY (BANK GUARANTEE)

WHEREAS, (Name of Bidder) (hereinafter called “the Bidder”) has submitted his bid dated (Date) for the (Name of Contract) (hereinafter called “the Bid”).

KNOW ALL MEN by these presents that We (Name of Bank) of (Name of Country) having our registered office at _____ (hereinafter called “the Bank”) are bound unto (Name of Employer) (hereinafter called “the Employer”) in the sum of _____¹ for which payment well and truly to be made to the said Employer the Bank binds himself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this _____ day of _____ 20__.

THE CONDITIONS of this obligation are:

- 1) If the Bidder withdraws his Bid during the period of bid validity specified in the Form of Bid; or
- 2) If the Bidder does not accept the correction of arithmetical errors of his bid price in accordance with the Instructions to Bidder; or
- 3) If the Bidder having been notified of the acceptance of his bid by the Employer during the period of bid validity:
 - a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders, if required; or
 - b) fails or refuses to furnish the Performance Security in accordance with the Instructions to Bidders;

we undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him owing to the occurrence of one or both of the two (2) conditions, specifying the occurred condition or conditions.

The Guarantee will remain in force up to and including the date _____² days after the deadline for submission of Bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

DATE _____ SIGNATURE OF THE BANK _____

WITNESS _____ SEAL _____

(Signature, Name and Address)

¹ The bidder should insert the amount of the guarantee in words and figures, denominated in the currency of the Employer’s country or an equivalent amount in a freely convertible currency. This figure should be the same as shown of the Instructions to Bidders.

² Usually 28 days after the end of the validity period of the Bid. Date should be inserted by the Employer before the bidding documents are issued.

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BID SECURITY SURETY BOND

BOND NO.: _____

DATE BOND EXECUTED:

By this bond, We (Name of Bidder) (hereinafter called “the Principal”) as Principal and (Name of Surety) of the country of (Name of Country of Surety), authorized to transact business in the country of (Name of Country of Employer) (hereinafter called “the Surety”) are held and firmly bound unto (Name of Employer) (hereinafter called “the Employer”) as Obligee, in the sum of _____¹ for the payment of which sum, well and truly to be made, we, the said Principal and Surety bind ourselves, our successors and assigns, jointly and severally, firmly by these presents.

SEALED with our seals and dated this _____ day of _____ 20 _____

WHEREAS, the Principal has submitted a written Bid to the Employer dated the _____ day of _____ 20 _____, for the _____ (hereinafter called “the Bid”).

NOW, THEREFORE, the conditions of this obligation are:

- 1) If the Principal withdraws his Bid during the period of bid validity specified in the Form of Bid; or
- 2) If the Principal does not accept the correction of arithmetical errors of his bid price in accordance with the Instruction’s to Bidders: or
- 3) If the Principal having been notified of the acceptance of his Bid by the Employer during the period of bid validity:
 - a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders, if required; or
 - b) fails or refuses to furnish the Performance Security in accordance with the Instructions to Bidders;

then this obligation shall remain in full force and effect, otherwise it shall be null and void.

PROVIDED HOWEVER, that the Surety shall not be:

- a) liable for a greater sum than the specified penalty of this bond, nor

¹ The bidder should insert the amount of bond in words and figures, denominated in the currency of the Employer’s country of an equivalent amount in a freely convertible currency and callable on demand. This figure should be the same as shown in the Instructions to Bidders.

)

- b) liable for a greater sum than the difference between the amount of the said Principal's Bid and the amount of the Bid that is accepted by the Employer.

This Surety executing this instrument hereby agrees that its obligation shall be valid for 120 calendar days after the deadline for submission of Bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Surety is hereby waived.

PRINCIPAL _____

SURETY _____

SIGNATURE(S) _____

SIGNATURES(S) _____

NAME(S) AND TITLE(S) _____ NAME(S) _____

SEAL _____

SEAL _____

REPUBLIC OF THE PHILIPPINES)
CITY OF _____) S.S.

X-----X

BID SECURING DECLARATION
Invitation to Bid: [Insert Reference number]

To: *[Insert name and address of the Procuring Entity]*

I/We¹, the undersigned, declare that:

1. I/We understand that, according to your conditions, bids must be supported by a Bid Security, which may be in the form of a Bid-Securing Declaration.
2. I/We accept that: (a) I/we will be automatically disqualified from bidding for any contract with any procuring entity for a period of two (2) years upon receipt of your Blacklisting order; and, (b) I/we will pay the applicable fine provided under Section 6 of the Guidelines on the Use of Bid Securing Declaration, within fifteen (15) days from receipt of the written demand by the procuring entity for the commission of acts resulting to the enforcement of the bid securing declaration under Sections 23.1(b), 34.2, 40.1 and 69.1, except 69.1(f), of the IRR of RA 9184; without prejudice to other legal action the government may undertake.
3. I/We understand that this Bid Securing Declaration shall cease to be valid on the following circumstances:
 - (a) Upon expiration of the bid validity period, or any extension thereof pursuant to your request;
 - (b) I am/we are declared ineligible or post-disqualified upon receipt of your notice to such effect, and (i) I/we failed to timely file a request for reconsideration or (ii) I/we filed a waiver to avail of said right;
 - (c) I am/we are declared the bidder with the Lowest Calculated Responsive Bid, and I/we have furnished the performance security and signed the Contract.

IN WITNESS WHEREOF, I/We have hereunto set my/our hand/s this ____ day of *[month]* *[year]* at *[place of execution]*.

[Insert NAME OF BIDDER'S AUTHORIZED REPRESENTATIVE]
[Insert Signatory's Legal Capacity]
Affiant

¹Select one and delete the other. Adopt the same instruction for similar terms throughout the document.

SUBSCRIBED AND SWORN to before me this ___ day of [month] [year] at [place of execution], Philippines. Affiant/s is/are personally known to me and was/were identified by me through competent evidence of identity as defined in the 2004 Rules on Notarial Practice (A.M. No. 02-8-13-SC). Affiant/s exhibited to me his/her [insert type of government identification card used], with his/her photograph and signature appearing thereon, with no. _____ and his/her Community Tax Certificate No. _____ issued on ___ at _____.

Witness my hand and seal this ___ day of [month] [year].

NAME OF NOTARY PUBLIC

Serial No. of Commission _____

Notary Public for _____ until _____

Roll of Attorneys No. _____

PTR No. _____ [date issued], [place issued]

IBP No. _____ [date issued], [place issued]

Doc. No. _____

Page No. _____

Book No. _____

Series of _____

Omnibus Sworn Statement

REPUBLIC OF THE PHILIPPINES) CITY/MUNICIPALITY OF
_____) S.S.

AFFIDAVIT

I, [Name of Affiant], of legal age, [Civil Status], [Nationality], and residing at [Address of Affiant], after having been duly sworn in accordance with law, do hereby depose and state that:

1. **Select one, delete the other:**

If a sole proprietorship: I am the sole proprietor or authorized representative of *[Name of Bidder]* with office address at *[address of Bidder]*;

If a partnership, corporation, cooperative, or joint venture: I am the duly authorized and designated representative of *[Name of Bidder]* with office address at *[address of Bidder]*;

2. *Select one, delete the other:*

If a sole proprietorship: As the owner and sole proprietor, or authorized representative of *[Name of Bidder]*, I have full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for *[Name of the Project]* of the *[Name of the Procuring Entity]*, as shown in the attached duly notarized *Special Power of Attorney*;

If a partnership, corporation, cooperative, or joint venture: I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for *[Name of the Project]* of the *[Name of the Procuring Entity]*, as shown in the attached *[state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable;)]*;

3. *[Name of Bidder]* is not “blacklisted” or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board;
4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;
5. *[Name of Bidder]* is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;
6. ***Select one, delete the rest:***

If a sole proprietorship: The owner or sole proprietor is not related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

If a partnership or cooperative: None of the officers and members of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

If a corporation or joint venture: None of the officers, directors, and controlling stockholders of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. *[Name of Bidder]* complies with existing labor laws and standards; and
8. *[Name of Bidder]* is aware of and has undertaken the following responsibilities as a Bidder:
 - a) Carefully examine all of the Bidding Documents;
 - b) Acknowledge all conditions, local or otherwise, affecting the implementation of the Contract;
 - c) Made an estimate of the facilities available and needed for the contract to be bid, if any; and
 - d) Inquire or secure Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.
9. *[Name of Bidder]* did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.

IN WITNESS WHEREOF, I have hereunto set my hand this ___ day of ___, 20__ at _____, Philippines.

Bidder's Representative/Authorized Signatory

SUBSCRIBED AND SWORN to before me this ___ day of *[month]* *[year]* at *[place of execution]*, Philippines. Affiant/s is/are personally known to me and was/were identified by me through competent evidence of identity as defined in the 2004 Rules on Notarial Practice (A.M. No. 02-8-13-SC). Affiant/s exhibited to me his/her *[insert type of government identification card used]*, with his/her photograph and signature appearing thereon, with no. _____ and his/her Community Tax Certificate No. _____ issued on ___ at _____.

Witness my hand and seal this ___ day of *[month]* *[year]*.

NAME OF NOTARY PUBLIC

Serial No. of Commission _____

Notary Public for _____ until _____

Roll of Attorneys No. _____
PTR No. _____ *[date issued], [place issued]*
IBP No. _____ *[date issued], [place issued]*

Doc. No. _____
Page No. _____
Book No. _____
Series of _____

For Goods Offered From Within the Philippines

Name of Bidder: _____

Invitation To Bid⁺ Number: _____

Page 1 of 1

1	2	3	4	5	6	7	8	9	10
Item	Description	Country of origin	Quantity	Unit price EXW per item	Transportation and Insurance and all other costs incidental to delivery, per item	Sales and other taxes payable if Contract is awarded, per item	Cost of Incidental Services, if applicable, per item	Total price per item (col 5+6+7+8)	Total Price delivered Final Destination (col 9) x (col 4)

[signature]

[in the capacity of]

Duly authorized to sign Bid for and on behalf of _____

For Goods Offered From Abroad

Name of Bidder _____				ITB ¹ Number _____		.Page _____ of _____		
1	2	3	4	5	6	7	8	9
Item	Description	Country of origin	Quantity	Unit price CIF port of entry (specify port) or CIP named place(specify border point or place of destination)	Total CIF or CIP price per item (col. 4 x 5)	Unit Price Delivered Duty Unpaid (DDU)	Unit price Delivered Duty Paid (DDP)	Total Price delivered DDP (col 4 x 8)

[signature]

[in the capacity of]

Duly authorized to sign Bid for and on behalf of _____
