BULACAN AGRICULTURAL STATE COLLEGE
San Ildefonso, Bulacan 3010

PROCUREMENT OF GOODS

2025-01G: Supply, Delivery, and Installation of Digital Harvest: Transforming Bulacan Agricultural State College into a Digital Innovation Hub

FY 2025

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.

Table of Contents

3

Glossary of Acronyms, Terms, and Abbreviations

ABC – Approved Budget for the Contract.

BAC – Bids and Awards Committee.

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

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

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

BIR – Bureau of Internal Revenue.

BSP – Bangko Sentral ng Pilipinas.

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

CDA - Cooperative Development Authority.

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

CIF – Cost Insurance and Freight.

CIP – Carriage and Insurance Paid.

CPI – Consumer Price Index.

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

DTI – Department of Trade and Industry.

EXW – Ex works.

FCA – "Free Carrier" shipping point.

FOB – "Free on Board" shipping point.

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

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

GFI – Government Financial Institution.

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

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

GOP – Government of the Philippines.

GPPB – Government Procurement Policy Board.

INCOTERMS – International Commercial Terms.

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

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

LGUs – Local Government Units.

NFCC – Net Financial Contracting Capacity.

NGA – National Government Agency.

PhilGEPS - Philippine Government Electronic Procurement System.

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

PSA – Philippine Statistics Authority.

SEC – Securities and Exchange Commission.

SLCC – Single Largest Completed Contract.

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

UN – United Nations.

Section I. Invitation to Bid

Notes on the Invitation to Bid

The Invitation to Bid (IB) provides information that enables potential Bidders to decide whether to participate in the procurement at hand. The IB shall be posted in accordance with Section 21.2 of the 2016 revised IRR of RA No. 9184.

Apart from the essential items listed in the Bidding Documents, the IB should also indicate the following:

a. The date of availability of the Bidding Documents, which shall be from the time the IB is first advertised/posted until the deadline for the submission and receipt of bids;

b. The place where the Bidding Documents may be acquired or the website where it may be downloaded;

c. The deadline for the submission and receipt of bids; and

d. Any important bid evaluation criteria (*e.g.*, the application of a margin of preference in bid evaluation).

The IB should be incorporated in the Bidding Documents. The information contained in the IB must conform to the Bidding Documents and in particular to the relevant information in the Bid Data Sheet.

BULACAN AGRICULTURAL STATE COLLEGE
San Ildefonso, Bulacan 3010

INVITATION TO BID FOR
2025-01G: SUPPLY, DELIVERY, AND INSTALLATION OF DIGITAL HARVEST: TRANSFORMING BULACAN AGRICULTURAL STATE COLLEGE INTO A DIGITAL INNOVATION HUB

1. The *Bulacan Agricultural State College*, through the *GAA Capital Outlay FY 2025* intends to apply the sum of One Billion Pesos Pesos (Php1,000,000,000.00) being the ABC to payments under the contract for **SUPPLY, DELIVERY, AND INSTALLATION OF DIGITAL HARVEST: TRANSFORMING BULACAN AGRICULTURAL STATE COLLEGE INTO A DIGITAL INNOVATION HUB.** Bids received in excess of the ABC shall be automatically rejected at bid opening.

2. The *Bulacan Agricultural State College* now invites bids for the above Procurement Project. Delivery of the Goods is required with contract duration of **280** calendar days. Bidders should have completed, within the last 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, and to citizens or organizations of a country the laws or regulations of which grant similar rights or privileges to Filipino citizens, pursuant to RA No. 5183.

4. Prospective Bidders may obtain further information from *BULACAN AGRICULTUAL STATE COLLEGE* and inspect the Bidding Documents at the address given below during *office hours from 8AM to 4:30PM*.

5. A complete set of Bidding Documents may be acquired by interested Bidders on *January 16, 2025 to February 7, 2025* from the given address and website(s) below *and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of Php75,000.00*. The Procuring Entity shall allow the bidder to present its proof of payment for the fees *by presenting the receipt upon submission of their bid documents*.

6. The *Bulacan Agricultural State College* will hold a Pre-Bid Conference[1] on ***January 24, 2025, 09:00 AM via Zoom Platform*** (Meeting ID: 853 1254 4715, Passcode: 578270**)** which shall be open to prospective bidders.

7. Bids must be duly received by the BAC Secretariat through manual submission at the office address indicated below on or before ***08:30 AM of February 7, 2025***. Late bids shall not be accepted.

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

9. Bid opening shall be on ***February 7, 2025, 09:00 AM*** at the ***Conference Room, Administration Building, BASC, San Ildefonso, Bulacan.*** Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.

10. *Observers will be invited to attend and witness the bid proceedings.*

11. The *Bulacan Agricultural State College* reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised IRR of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.

12. For further information, please refer to:

    RONA ANGELA O. CLARIN
    BAC Secretariat Head
    BULACAN AGRICULTURAL STATE COLLEGE
    Brgy. Pinaod, San Ildefonso, Bulacan
    (044) 697-1240 and 0923-108-1526
    ronaangela_clarin@basc.edu.ph
    www.basc.edu.ph

13. You may visit the following websites:

    For downloading of Bidding Documents: *http://www.basc.edu.ph*

January 16, 2025

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(SGD) RONALD REAGAN T. ALONZO,Ph.D.
BAC Chairperson

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[1] May be deleted in case the ABC is less than One Million Pesos (PhP1,000,000) where the Procuring Entity may not hold a Pre-Bid Conference.

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, *Bulacan Agricultural State College* wishes to receive Bids for the ***Supply, Delivery, and Installation of Digital Harvest: Transforming Bulacan Agricultural State College into a Digital Innovation Hub*** with identification number *2025-01G*.

The Procurement Project (referred to herein as "Project") is composed of *twenty-eight (28) components* 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 *GAA FY 2025* in the amount of Php1,000,000,000.00

2.2.   The source of funding is:
a. NGA, the General Appropriations Act of 2025.

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. Not Applicable.

5.3. Pursuant to Section 23.4.1.3 of the 2016 revised IRR of RA No.9184, the Bidder shall have an SLCC that is at least one (1) contract similar to the Project the value of which, adjusted to current prices using the PSA's CPI, must be at least equivalent to at least fifty percent (50%) of the ABC or have completed at least two (2) similar contracts, the aggregate amount of which should be equivalent to at least *fifty percent (50%) in the case of non-expendable supplies and services or twenty-five percent (25%) in the case of expendable supplies*] of the ABC for this Project;

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 Procuring Entity has prescribed that:
   a. Subcontracting is not allowed.

8. Pre-Bid Conference

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time at its physical address 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 *the last 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.

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

12.   Bid Prices

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

a.   For Goods offered from within the Procuring Entity's country:

i.   The price of the Goods quoted EXW (ex-works, ex-factory, ex-warehouse, ex-showroom, or off-the-shelf, as applicable);

ii.   The cost of all customs duties and sales and other taxes already paid or payable;

iii.   The cost of transportation, insurance, and other costs incidental to delivery of the Goods to their final destination; and

iv.   The price of other (incidental) services, if any, listed in e.

b.   For Goods offered from abroad:

i.   Unless otherwise stated in the **BDS**, the price of the Goods shall be quoted delivered duty paid (DDP) with the place of destination in the Philippines as specified in the **BDS**. In quoting the price, the Bidder shall be free to use transportation through carriers

registered in any eligible country. Similarly, the Bidder may obtain insurance services from any eligible source country.

    ii.   The price of other (incidental) services, if any, as listed in **Section VII (Technical Specifications).**

13. Bid and Payment Currencies

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

13.2. Payment of the contract price shall be made in Philippine Pesos.

14. Bid Security

14.1. The Bidder shall submit a Bid Securing Declaration[2] or any form of Bid Security in the amount indicated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the schedule in the **BDS**.

14.2. The Bid and bid security shall be valid until *120 days from the opening of bids.* Any Bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

15. Sealing and Marking of Bids

Each bidder shall submit one copy of the original of the first and second components of its Bid and plus two (2) copies of each kind, labeled as copy 1 and copy 2 duly signed by the authorized representative of the bidder.

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

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

16. Deadline for Submission of Bids

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

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[2] 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.

17. Opening and Preliminary Examination of Bids

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

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

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

18. Domestic Preference

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

19. Detailed Evaluation and Comparison of Bids

19.1. The Procuring BAC shall immediately conduct a detailed evaluation of all Bids rated "*passed*," using non-discretionary pass/fail criteria. The BAC shall consider the conditions in the evaluation of Bids under Section 32.2 of the 2016 revised IRR of RA No. 9184.

19.2. If the Project allows partial bids, bidders may submit a proposal on any of the lots or items, and evaluation will be undertaken on a per lot or item basis, as the case maybe. In this case, the Bid Security as required by **ITB** Clause 15 shall be submitted for each lot or item separately.

19.3. The descriptions of the lots or items shall be indicated in **Section VII (Technical Specifications)**, although the ABCs of these lots or items are indicated in the **BDS** for purposes of the NFCC computation pursuant to Section 23.4.2.6 of the 2016 revised IRR of RA No. 9184. The NFCC must be sufficient for the total of the ABCs for all the lots or items participated in by the prospective Bidder.

19.4. The Project shall be awarded as One Project having several items that shall be awarded as one contract.

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

20. Post-Qualification

20.1. *Not Applicable*

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

21. Signing of the Contract

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

Section III. Bid Data Sheet

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	For this purpose, contracts similar to the Project shall be:
	
	a. *Supply, Delivery, Installation, Commissioning and Set-Up of ICT Materials and Laboratory Equipment with any of the two (2) components as follows:*
	
	    1. *Productivity Software and/or Licenses*
	
	    2. *Hardware such as Servers, Desktops and/or Laptops*
	
	    3. *Closed-Circuit Television (CCTV)*
	
	    4. *Smart Solar Lighting Systems*
	
	    5. *Network Infrastructure*
	
	b. completed within three (3) years prior to the deadline for the submission and receipt of bids that is equivalent to 50% of ABC or completed at least two (2) similar contracts, the aggregate amount of which should be equivalent to at least *fifty percent (50%) in the case of non-expendable supplies and services or twenty-five percent (25%) in the case of expendable supplies]* of the ABC for this Project;

7.1	*Subcontracting is not allowed.*
12	The bid prices of Goods and services supplied from outside of the Philippines shall be quoted in Philippine Pesos.
14.1	The bid security shall be in the form of a Bid Securing Declaration, or any of the following forms and amounts: a. The amount of not less than Php20,000,000.00 [**(2%) of the ABC]** 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 Php50,000,000.00**[(5%) of the ABC]**, if bid security is in Surety Bond.
19.3	*The project will be awarded as a single project.*
20.2	1. Income Tax Return (form 1701/1702) with Audited Financial Statement., 2. Business Tax Return (forms 2550M and 2550Q) prior to opening of Bids filed thru Electronic Filing and Payment System (EFPS). Only tax returns filed and taxes paid through the BIR Electronic Filing and Payment System (EFPS) shall be accepted.
21.2	*Not Applicable*

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 In addition to tests in the **SCC**, **Section IV (Technical Specifications)** shall specify what inspections and/or tests the Procuring Entity requires, and where they are to be conducted. The Procuring Entity shall notify the Supplier in writing, in a timely manner, of the identity of any representatives retained for these purposes.

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

5.   Warranty

6.1.   In order to assure that manufacturing defects shall be corrected by the Supplier, a warranty shall be required from the Supplier as provided under Section 62.1 of the 2016 revised IRR of RA No. 9184.

6.2.   The Procuring Entity shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall, repair or replace the defective Goods or parts thereof without cost to the Procuring Entity, pursuant to the Generic Procurement Manual.

6.   Liability of the Supplier

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

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

Section V. Special Conditions of Contract

Special Conditions of Contract

GCC Clause	

1	**Delivery and Documents –**
	
	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:
	
	"The delivery terms applicable to this Contract are delivered *at BASC, San Ildefonso, Bulacan.* Risk and title will pass from the Supplier to the Procuring Entity upon receipt and final acceptance of the Goods at their final destination."
	
	Delivery of the Goods shall be made by the Supplier in accordance with the terms specified in Section VI (Schedule of Requirements).
	
	For purposes of this Clause the Procuring Entity's Representative at the Project Site is **Dr. Ma. Melanie A. Cruz and Mr. Florentino S. Casuco, Jr.**
	
	Incidental Services –
	
	The Supplier is required to provide all of the following services, including additional services, if any, specified in Section VI. Schedule of Requirements:
	    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
	    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.
	
	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.

	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.
	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 on at least four (4) sides as follows: Name of the Procuring Entity Name of the Supplier Contract Description Final Destination Gross weight Any special lifting instructions Any special handling instructions Any relevant HAZCHEM classifications 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.

	Transportation –
	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.
	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.
	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.
	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.
	Intellectual Property Rights –
	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

2.2	The terms of payment shall be as follows:			
	15%	:	Upon Submission of Signed Contract	
	25%	:	Submission and Acceptance of Detailed Work Plan and Systems Design 1. University Information System 2. Learning Management System 3. Cashiering System 4. Human Resource Management System & Time Keeping System 5. Payroll Management System 6. Assets & Fleet Management System 7. Document Management System 8. Trouble Ticketing System 9. Queuing / Appointment System 10. Executive Information System 11. Campus Portal System 12. University Library System 13. eConference Room w/ Video Conferencing 14. Internet Connectivity 15. Campus Network System 16. Fiber Optics Works 17. Structured Cabling Works 18. IT Security Operations Center & Network Operations Center 19. Campus Data Center Upgrade 20. Data Center Network Switches 21. Data Center Compute System & Data Center Block and File Storage System 22. Data Center Backup and Recovery System 23. Cloud Infrastructure 24. IP-PABX System 25. Software & Networking Laboratories 26. E-Classroom, E-Room Infrastructure and SMART LED Solar Powered Light 27. E-Library Infrastructure 28. SMART Function Hall	
	26.43%		1st Batch Hardware Completion of Equipment Deliverables for the Following Components at BASC Facility 1. IT Security Operations Center & Network Operations Center 2. Campus Data Center Upgrade 3. Data Center Network Switches	

			4. Data Center Compute System & Data Center Block and File Storage System 5. Data Center Backup and Recovery System 6. IP-PABX System 7. Software & Networking Laboratories 8. E-Classroom, E-Room Infrastructure and SMART LED Solar Powered Light 9. E-Library Infrastructure 10. SMART Function Hall 11. Campus Network System 12. Fiber Optics Works 13. Structured Cabling Works 14. Human Resource Management System & Time Keeping System 15. Document Management System 16. Queuing / Appointment System	
			1st Batch User Acceptance Testing (UAT) Completion for the Following System Components at BASC Facility 1. Human Resource Management System & Time Keeping System 2. Payroll Management System 3. Assets & Fleet Management System 4. Document Management System 5. Trouble Ticketing System 6. Queuing / Appointment System 7. Campus Portal System	
	23.57%		2nd Batch Hardware Completion of Equipment Deliverables for the Following Components at BASC Facility 1. Internet Connectivity 2. University Library System 3. eConference Room w/ Video Conferencing	
			2nd Batch User Acceptance Testing (UAT) Completion for the Following System Components at BASC Facility 1. Cloud Infrastructure 2. University Information System 3. Learning Management System 4. Executive Information System 5. University Library System	
			Hardware Installation, Configuration and Integration	

				1. Campus Network System 2. Structured Cabling Works 3. IT Security Operations Center & Network Operations Center 4. Data Center Network Switches 5. Data Center Backup and Recovery System 6. IP-PABX System 7. E-Library Infrastructure	
				Acceptance of Volume Testing 1. University Information System 2. Learning Management System 3. Cashiering System 4. Human Resource Management System & Time Keeping System 5. Payroll Management System 6. Assets & Fleet Management System 7. Document Management System 8. Trouble Ticketing System 9. Queuing / Appointment System 10. Executive Information System 11. Campus Portal System 12. University Library System 13. eConference Room w/ Video Conferencing	
			:	Completion of Training 1. University Information System 2. Learning Management System 3. Cashiering System 4. Human Resource Management System & Time Keeping System 5. Payroll Management System 6. Assets & Fleet Management System 7. Document Management System 8. Trouble Ticketing System 9. Queuing / Appointment System 10. Executive Information System 11. Campus Portal System 12. University Library System 13. eConference Room w/ Video Conferencing 14. Campus Network System 15. IT Security Operations Center & Network Operations Center 16. Campus Data Center Upgrade 17. Data Center Backup and Recovery System 18. SMART Function Hall	

	10%	:	Project Acceptance and Turnover
			1. University Information System
			2. Learning Management System
			3. Cashiering System
			4. Human Resource Management System & Time Keeping System
			5. Payroll Management System
			6. Assets & Fleet Management System
			7. Document Management System
			8. Trouble Ticketing System
			9. Queuing / Appointment System
			10. Executive Information System
			11. Campus Portal System
			12. University Library System
			13. eConference Room w/ Video Conferencing
			14. Internet Connectivity
			15. Campus Network System
			16. Fiber Optics Works
			17. Structured Cabling Works
			18. IT Security Operations Center & Network Operations Center
			19. Campus Data Center Upgrade
			20. Data Center Network Switches
			21. Data Center Compute System & Data Center Block and File Storage System
			22. Data Center Backup and Recovery System
			23. Cloud Infrastructure
			24. IP-PABX System
			25. Software & Networking Laboratories
			26. E-Classroom and E-Room Infrastructure and SMART LED Solar Powered Light
			27. E-Library Infrastructure
			28. SMART Function Hall
4	The inspections and tests that will be conducted are: *On site testing of all items to be procured.*		

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.

Item Number	Description	Quantity	Delivered, Weeks/Months
1	University Information System	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
2	Learning Management System	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
3	Innovative Cashiering System	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
4	Human Resource Management System & Time Keeping System	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
5	Payroll Management System	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
6	Assets & Fleet management System	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
7	Document Management System	1 LOT	280 Calendar Days from Receipt of Notice to Proceed

8	Trouble Ticketing System	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
9	Queuing System / Appointment System	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
10	Executive Information System	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
11	Campus Portal System	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
12	University Library System	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
13	eConference Room w/ Video Conferencing	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
14	Internet Connectivity	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
15	Campus Network System	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
16	Fiber Optics Works	1 LOT	280 Calendar Days from Receipt of

			Notice to Proceed
17	Structured Cabling Works	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
18	IT Security Operations Center & Network Operations Center	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
19	Campus Data Center Upgrade	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
20	Data Center Network Switches (Network Infrastructure)	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
21	Data Center Compute System & Data Center Block & File Storage System	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
22	Data Center Backup and Recovery System	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
23	BASC Cloud Infrastructure	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
24	IP-PABX System	1 LOT	280 Calendar Days from Receipt of Notice to Proceed

25	Software and Networking Laboratories	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
26	E-Classroom and E-Room Infrastructure and SMART LED Solar Powered Light	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
27	E-Library Infrastructure	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
28	SMART Function Hall	1 LOT	280 Calendar Days from Receipt of Notice to Proceed
For Details See Terms of Reference			

_____   _____

[signature]   *[in the capacity of]*

Duly authorized to sign Bid for and on behalf of _____

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.

Technical Specifications

Item	Specification	Statement of Compliance
[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 Bidder's 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 applicable laws and issuances.]		
1	University Information System	
2	Learning Management System	
3	Innovative Cashiering System	
4	Human Resource Management System & Time Keeping System	
5	Payroll Management System	
6	Assets & Fleet management System	
7	Document Management System	
8	Trouble Ticketing System	
9	Queuing System / Appointment System	
10	Executive Information System	
11	Campus Portal System	
12	University Library System	
13	eConference Room w/ Video Conferencing	
14	Internet Connectivity	
15	Campus Network System	

16	Fiber Optics Works	
17	Structured Cabling Works	
18	IT Security Operations Center & Network Operations Center	
19	Campus Data Center Upgrade	
20	Data Center Network Switches (Network Infrastructure)	
21	Data Center Compute System & Data Center Block & File Storage System	
22	Data Center Backup and Recovery System	
23	BASC Cloud Infrastructure	
24	IP-PABX System	
25	Software and Networking Laboratories	
26	E-Classroom and E-Room Infrastructure and SMART LED Solar Powered Light	
27	E-Library Infrastructure	
28	SMART Function Hall	

For Details See Terms of Reference

_____   _____

[signature]   *[in the capacity of]*

Duly authorized to sign Bid for and on behalf of _____

TERMS OF REFERENCE

Digital Harvest: Transforming Bulacan Agricultural State College into a Digital Innovation Hub

DEFINITION OF TERMS

Key		Description
	Internet-Based Application	A client/server application that uses standard Internet protocols for connecting the client to the server.
	ACL	Access Control List
	AP Transmit Power	Access Point Transmit Power
	AEC	Acoustic Echo Cancellation
	AD Database	Active Directory Database
	ARP	Address Resolution Protocol
	AWG	American Wire Gauge
	API	Application Programming Interface
	ABC	Approved Budget Cost
	AI RF	Artificial Intelligence Radio Frequency
	AFMS	Assets & Fleet Management System
	AES/EBU	Audio Engineering Society / European Broadcasting Union
	AH	Authentication Header
	AJB	Auto Jitter Buffer
	AGC	Automatic Gain Control
	Agronomy	The application of science and technology from the fields of biology, chemistry, economics, ecology, soil science, water science, pest management, and genetics to the improvement and management of the world's major food crops.
	Animal Husbandry	The branch of agriculture is concerned with animals that are raised for meat, fiber, milk, or other products. It includes day-to-day care, management, production, nutrition, selective breeding, and livestock raising.
	ANPR Camera	Automatic Number Plate Recognition Camera
	BASC	Bulacan Agricultural State College
	BuNAS	Bulacan National Agricultural School
	BI Dashboard	Business Intelligence dashboard
	CMMI5	Capability Maturity Model Integration 5
	CPU	Central Processing Unit
	CA Certificate Authentication	Certificate Authority Certificate Authentication
	COR	Certificate of Registration
	CEH Certification	Certified Ethical Hacker Certification
	CGEIT	Certified in the Governance of Enterprise IT
	ISC	Certified Information Systems Security Professional

CPMP		Certified Project Management Practitioner
COS		Class of Service
CCTV		Closed-Circuit Television
CNG		Comfort Noise Generation
DTR		Daily Time Record
DPA		Data Privacy Act [R.A. No. 10173]
dB		Decibel
DBM		Department of Budget and Management
DSCP		Differentiated Services Code Point
DSP		Digital Signal Processing
DVI		Digital Visual Interface
DSS		Direct Station Selection
DR Drills		Disaster Recovery Drills
DMS		Document Management System
DNS		Domain Name System
DDR4		Double Data Rate 4
DFP		Dynamic Fabric Provisioning
DHCP		Dynamic Host Configuration Protocol
DPS		Dynamic Path Selection
ECC		Employee Compensation Contribution
ESP		Encapsulating Security Payload
EIS		Executive Information System
XLR		External Line Return
FPI		Fabric Performance Impact
FSPF		Fabric Shortest Path First
FOC		Fiber Optic Cable
FTP		File Transfer Protocol
FDMI		Flat Display Mounting Interface
FHD IR		Full High Definition Infrared Camera
FQDN		Fully Qualified Domain Name
FDM		Fused Deposition Modeling
GbE		Gigabit Ethernet
GB		Gigabyte
Gbps		Gigabyte per second
GUI		Graphical User Interface
GDDR5		Graphics Double Data Rate 5
HDD		Hard Disk Drive
Hi-Fi		High Fidelity
HDMI		High-Definition Multimedia Interface

HF Amplifier		High-Frequency Amplifier
HRIS		Human Resource Information System
HTTP		Hypertext Transfer Protocol
ICT		Information and Communications Technology
ICT		Information Communication Technology
ITIL Certification		Information Technology Infrastructure Library Certification
IR		Infrared radiation
IR/RGB		Infra-Red/Red, Green And Blue
IEEE		Institute of Electrical and Electronics Engineers
IPMI		Intelligent Platform Management Interface
IEC standard		International Electrotechnical Commission Standard
ISO		International Organization for Standardization
IGMP		Internet Group Management Protocol
IKE		Internet Key Exchange
IP		Internet Protocol
IPoFC		Internet Protocol over Fibre Channel
IP-PABX		Internet Protocol Private Branch Exchange
IPSec		Internet Protocol Security
IPv4		Internet Protocol version 4
IPv6		Internet Protocol version 6
ISP		Internet Service Provider
ISL Trunking		Inter-Switch Link Trunking
Management Tunnel Encryption		It is a secure channel or connection established between a management station and a network device to remotely manage and configure the device.
Intelligent Load Balancing		It is the technique used in computer networking and server management to distribute incoming network traffic or workload across multiple servers or resources in a way that optimizes resource utilization, improves performance, and ensures high availability.
KPI		Key Performance Indicator
KVM		Keyboard, Video, Mouse
LMS		Learning Management System
LDAP		Lightweight Directory Access Protocol
LACP		Link Aggregation Control Protocol
LAN		Local Area Network
LF Amplifier		Low-Frequency Amplifier
MAC		Media Access Control
mp		Megapixels

	ms		Milliseconds
	MCB		Miniature Circuit Breaker
	MAPS		Monitoring and Alerting Policy Suite
	M-LAG		Multichassis Link Aggregation Group
	MIMO		Multiple-Input And Multiple-Output
	NHMFC		National Home Mortgage Finance Corporation
	NAT		Network Address Translation
	NAT-T		Network Address Translation-Traversal
	NDI		Network Device Interface
	NIC's		Network Interface Cards
	NVMe		Network Address Translation
	OPS		Open Pluggable Specification
	OSPF		Open Shortest Path First
	OEM		Original Equipment Manufacturer
	OEM Certification		Original Equipment Manufacturer Certification
	PPPoE		Point-to-Point Protocol over Ethernet
	PPTP		Point-to-Point Tunneling Protocol
	PVC		Polyvinyl Chloride
	PDU		Power Distribution Unit
	PoE		Power over Ethernet
	PACU		Precision Air-Conditioning Units
	PC		Project Category
	PSC		Project Sub– Category
	RFID		Radio Frequency Identification
	RAM		Random Access Memory
	RDP		Read Diagnostics Parameter
	RSTP		Real-Time Streaming Protocol
	RJ		Registered jack
	RDBMS		Relational Database Management System
	RH		Relative Humidity
	RCS		Reliable Commit Service
	ROG		Report of Grades
	ROTC		Reserve Officers' Training Corps
	RPM		Revolutions per Minute
	RIP		Routing Information Protocol
	SRTP		Secure Real-time Transport Protocol
	SSL		Secure Sockets Layer
	SSL VPN		Secure Sockets Layer Virtual Private Network
	SATA		Serial Advanced Technology Attachment

	SP		Service Provider
	SSID		Service Set Identifier
	SIP		Session Initiation Protocol
	STP		Shielded Twisted Pair
	SMS		Short Message Service
	SNS		Simple Name Server
	SSO		Single Sign-On
	SDDQ		Slow Drain Device Quarantine
	SDDQ		Slow Drain Device Quarantine
	SFP		Small Form-Factor Pluggable
	Cadre		A small group of people specially trained for a particular purpose or profession.
	SSD		Solid State Drive
	SPL		Sound Pressure Level
	SOA		Statement of Account
	SAN		Storage Area Network
	SQLNET		Structured Query Language Network
	Tb		Terabyte
	Encrypted Communication		The process of encoding information in such a way that only authorized parties can access and understand it.
	TAT		Time & Attendance Terminal
	TOR		Transcript of Records
	TCP/IP		Transmission Control Protocol/Internet Protocol
	TLS		Transport Layer Security
	TFTP		Trivial File Transfer Protocol
	UHD		Ultra High Definition
	UPS		Uninterruptible Power Supply
	USB		Universal Serial Bus
	UIS		University Information System
	UTP		Unshielded Twisted Pair
	UDP		User Datagram Protocol
	UI		User Interface
	VGA		Video Graphics Array
	VRAM		Video Random-Access Memory
	VLAN		Virtual Local Area Network
	VMS		Virtual Machines
	VPN		Virtual Private Network
	VAD		Voice Activity Detection
	VoIP		Voice over Internet Protocol
	WPA		Wi-Fi Protected Access

WEP	Wired Equivalent Privacy
WAN	Wireless Area Network
Wi-Fi	Wireless Fidelity
WIPS	Wireless Intrusion Prevention System

I. *INTRODUCTION*

A. **Executive Summary**

The Bulacan Agricultural State College (BASC) was established in 1952. It started as the Community Agricultural School in Bintog, Plaridel, Bulacan with about 100 students. The succeeding years saw an increase in the number of students. Unlike before, students came not only from the local community but also from elsewhere in the province. With this, the School was aptly named the Bulacan Provincial High School.

In 1955, with a growing population and a need to accommodate the same, Presidential Proclamation No. 163 was issued allocating 200 hectares of land for the school in Pinaod, San Ildefonso, Bulacan. Not long after, Republic Act (R.A.) No. 948 was issued changing the School's name to Bulacan National Agricultural School (BuNAS).

In 1960, tertiary education was offered in BuNAS with a two-year Associate in Agriculture Program, which eventually led to the offering of the Bachelor of Science in Agriculture Degree with majors in Agronomy and Animal Husbandry.

Cognizant of the broad-based agricultural education and training needs of the Bulakeños, Hon. Ricardo C. Silverio, and then Representative of District II of the Province of Bulacan authored House Bill No. 2389 which moved for an expanded educational program for BuNAS. With the bilateral approval of both Houses, President Fidel V. Ramos signed R.A. No. 8548, officially converting the BuNAS into a chartered state college known as the Bulacan National Agricultural State College on February 24, 1998. Its name was changed to Bulacan Agricultural State College by virtue of R.A. No. 9249 signed by Her Excellency Gloria Macapagal Arroyo on February 19, 2004.

As mandated by its charter, BASC shall provide higher professional, technical, and special instructions for special purposes and promote research and extension services and advanced studies in agriculture, arts and science programs, and other allied courses. It shall also offer short-term technical and vocational non-degree courses within its area of specialization to meet the needs of its constituents.

BASC Main Campus is situated in Pinaod, San Ildefonso, Bulacan. It has three extension campuses – Doña Remedios Trinidad Campus; Balagtas Technical Vocational School Campus; and Fortunato Halili National Agricultural School.

The BASC Board of Trustees is the policy-making body of the College composed of the following:

Chairperson: Chairperson, Commission on Higher Education Vice-
Chairperson: President, Bulacan Agricultural State College
Members: Chairperson, Senate Committee on Higher and
                         Technical   Education
                         Chairperson, House Committee on Higher and
                         Technical   Education
                         Director,   NEDA   Region   III
                         Director,   DA   Region   III
                         President,   BASC   Alumni   Association
                         Faculty   Trustee
                         Student   Trustee
                         Prominent Citizen
Resource Person: Director, DOST Region III

The College is headed by its President, Dr. Jameson H. Tan, and assisted by Dr. Cecilia S. Santiago, Vice President for Academic Affairs; Dr. Ronald Reagan T. Alonzo, Vice President for Administration, Finance and Business Affairs; and Dr. Honeylet J. Nicolas, Vice President for Research, Extension, Production and Development.

The Bulacan Agricultural State College shall strive for excellence in Agriculture and other allied disciplines. It shall provide for and address ever-changing educational needs and services for those seeking to expand their intellectual horizons. BASC shall address national and international issues and be established as a major presence and contributor to the progress of the global community.

To ensure the training of productive and competitive graduates in agriculture and other related disciplines, BASC is keen on delivering the following goals/objectives.
1. Produce quality graduates equipped with knowledge and expertise enough to meet the demands and challenges of the fast-changing society.
2. Develop a cadre of highly competent manpower to implement the various academic, research, extension, training, and production programs of the college.
3. Undertake relevant research, extension, and training programs to accelerate productivity and for additional income of people in rural and urban areas.
4. Promote the general welfare of the faculty and staff as well as the students.
5. Maintain a wholesome academic community conducive to learning by providing a state-of-the-art laboratory, information and communication equipment, and a modern library, sports, and other facilities.

6. Establish networks, linkages, or collaboration with other stakeholders to take advantage of the synergy for fund sourcing.
7. Develop and implement resource generation projects to modernize and sustain the operation of the college.
8. Implement an improved administrative efficiency and financial management system.

Delivering these goals/objectives would require adding and improving systems as well as Information Communication Technology (ICT) equipment for BASC to provide better management, process, technology, and system, thus, achieving an improvement for the goals outlined above.

The Agency aligns its support commitments to its core programs focused on the desired impact of improved ICT Equipment and systems using the latest technology and developing a Digital Harvest: Transforming Bulacan Agricultural State College into a Digital Innovation Hub.

To address these services, systems are needed to properly put in place all the information. These systems will target all the services mentioned in such that each service will be dealt with one by one as follows:

1. **University Information System** – A platform that can oversee and streamline all aspects of university operations, from student admission, enrollment, student and alumni services, faculty and staff management, curriculum management, grades, and academic progress.
2. **Learning Management System** – It should integrate course development, distribution, evaluation, and control into a unified, device-compatible interface. It facilitates personalized learning trajectories that enhance student engagement and achievement by centralizing communication, content, analytics, and work process automation.
3. **Cashiering System** – This is a cutting-edge and highly efficient solution to transform cashiering operations within the BASC setting.
4. **Human Resource Management System & Timekeeping System** – integrates all human resource (HR) functions into a unified system designed to streamline HR process workflow and improve data management, data security, integrity, onboarding, benefits administration, compliance, performance tracking, development, and retention.
5. **Payroll Management System** – This represents a cutting-edge solution to revolutionize and simplify payroll management.
6. **Assets & Fleet Management System** – A comprehensive platform designed to assist the university in efficiently monitoring and administering the university's valuable assets and fleet of vehicles.

7. **Document Management System** – A digital platform designed to consolidate and enhance the document management processes within BASC.
8. **Trouble Ticketing System** – Provides centralized incident/problem reporting, coordinated troubleshooting, assignment, tracking, knowledge base documentation, and customer communication streams to rapidly restore technology performance and availability while optimizing resource efficiency and minimizing disruptions across users and business operations.
9. **Queueing / Appointment System** – A solution designed to streamline and enhance the way universities handle queues and appointments for a wide range of services.
10. **Executive Information System** – Selectively aggregate, analyze, and visualize KPIs on vital organizational statistics from integrated BI dashboards tuned to strategic objectives to reveal insights driving informed decisions and management by exception for optimized, data-driven governance and outcomes.
11. **Campus Portal System** - This should encompass intranet platforms facilitating single sign-on access for faculty, staff, and administrators. These portals practically incorporate critical academic resources, college services, and administrative systems for their respective roles.
12. **University Library System** – Consolidates the management of physical and digital resources on campus. These include discovery layers, circulation, patron records, book/media cataloging, and user usage analytics.
13. **eConference room with Video Conferencing** – A solution designed to streamline and enhance the institution by facilitating seamless real-time communication between individuals or groups in different locations. Reporting and any associated sub-modules thereof may be necessary.

II. *PROJECT OBJECTIVES*

A. **General Objectives**

The main objective of Bulacan Agriculture State College (BASC) is to enhance the educational experience, improve campus operations, and address the needs of students, faculty, and staff in an efficient, sustainable, and forward-thinking way. The system shall be securely accessible by all stakeholders anytime and anywhere.

B. **Specific Objectives**

The project aims to provide a system with the following features:
- The system must promote the virtue of transparency.
- The system runs on an internet-based application.
- The system is available on both Android and IOS mobile devices.
- The system should record and track potential students from their first inquiry to enrollment.
- The system should record and calculate grades, as well as facilitate the transmission of grades to the Dean's and Registrar's Office.

- The system that manages academic records, courses, and academic-related information for students.
- The system should record each student's class attendance and allow the teachers to view it.
- The system should have a dashboard for quickly identifying the total quantity of tasks, assignments, tests, quizzes, finished projects, and subjects for each user.
- The system that handles the student's enrollment charges, accounts receivable, payment, and adjustment of student's fees.
- The system should have an online registration that automatically assesses fees.
- The system that can manage the payments of the students includes printing official receipts and cashier settings.
- The system can manage Registrar Department transactions from the submission of records, enrollment up to graduation, and the issuance of Transcript of Records of students.
- The system that can manage and monitor students' health and well-being.
- The system can display Upcoming Events, Announcements, and News.
- The system handles the alumni master file and enables the user to create, edit, and update the Alumni Profile.
- The system can enable parents to monitor the activities and progress of their children.
- The system is accessible anywhere, anytime.
- The system that is user-friendly.

The proposal to be submitted shall include the following:

- Executive Summary.
  o Cost of the System
  o Advantages of the Proposal
- Company Information
- Solution Overview
  o Solution Architecture
  o High-Level Component Description
- Process Flows
- Detailed Description of Sub-System
- Technical Specification
- Dimensioning
- Web-based system
- Mobile web access (Android and IOS)
- Project Workshop
- Performance Management
- Hardware and Site information
- Installation and Trainin

III.   *SCOPE OF WORK*

The project comprises several phases of development and implementation. It includes not only the provision of the software development/customization services, hardware, and network with accessories but also support services, necessary to achieve the project's objective.

A. **Systems Analysis**

This phase covers the data collection process in order to improve the efficiency of related systems in BASC. The process includes but is not limited to the following:

1. Data gathering, consultation, and evaluation of existing systems-related information management systems in BASC.

2. Documentation, assessment, and testing of the existing BASC processes.

3. Preparation, assessment, and evaluation of the current database of the existing systems.

4. Identification of issues, system requirements, and development opportunities of the existing versus the proposed system.

5. Data migration plan, execution plan, reversion plan, backup plan, and verification process from existing database to new database.

6. Actual migration and verification of data.

7. Executions of backup plan.

8. Post-migration verifications.

9. Capacity planning.

10. Knowledge Transfer

B. **Systems Design and Development**

Supply, install, and implement a system upgrade for availability to a WEB, DESKTOP, and MOBILE version, inclusive of (2) two years of Software and Maintenance Support. The Solution shall include the following modules and sub-modules of the System Software:

The development/customization of the System consists of but is not limited to the five functionalities: (a) information management; (b) provision of statistical chart on dashboard; (c) service status monitoring; (d) security management; (e) reporting and any associated sub-modules thereof as may be necessary.

b.1   Pre-requisite Setup Module

- **University Information Settings**
    - Secured Access Management
    - Module to set organizational units with the following hierarchy

- ○ University > Campus > College > Department
- ○ Approval level hierarchy
- The Admission Setups should have the following: Document Types, Application Types, Admission Limits, Entrance Exams, Entrance Exam Schedules, Interview Schedules, Medical Schedules.
- Furthermore, Clinic Records Management Setups that play a vital role in university operations.
- Clearance Management Setups
- **Learning Management Settings**
  - Secured Access Management
  - It should have a configuration Grading Parameters, Rubrics matrix of the Activities, Major Course Output (MCO), syllabus, and lesson plans.
- **Cashiering Settings**
  - Secured Access Management
  - Cashiering Setup: Must allow setting up Customer Master Data, Accounts Group, Sub Groups, Discounts, collection of terms Settings, and Interests, fines, & Penalties Settings.
- **Human Resource Management Settings**
  - Secured Access Management
  - Holiday: Holiday Types and Holidays
  - People Attributes: Talents, Hobbies, and People Relationships
  - HR Settings: Employment Types, Positions, and Leave Types
  - Schedule Settings: Schedule templates and Schedule parts
  - Government Settings: Withholding Tax, SSS, Philhealth, Pag-Ibig, GSIS.
  - Salary Grades: Salary Grades and Salary Level
  - Default Leave Types: Manage Default Leave Types, which are used for easy assignment of leaves to employees (e.g., Regular, JO, Casual, Oyster, and Part-Time Employees)
  - Training and Seminar: Manage Training and Seminar; Use for easy training, seminar, certification, and workshop creation.
  - Manage Suspension Types
  - Manage Termination Types
- **Payroll Settings**
  - Secured Access Management
  - Mandatory Deductions:
    - ○ Withholding Tax
    - ○ PhilHealth Contribution
    - ○ Pag-IBIG Contributions/Home Development Mutual Fund (HDMF)
    - ○ GSIS Contribution
  - Loans
    - ○ GSIS MPL (Multi-Purpose Loan)
    - ○ GSIS GFAL (GovernmentFinancial Assistance Loans)
    - ○ GSIS Housing Loan
    - ○ GSIS Policy Loan

- ○ GSIS Computer Loan
  - ○ GSIS Salary Loan
  - ○ GSIS Consolidated Loan
  - ○ GSIS Emergency Loan
  - ○ GSIS Educational Loan
  - ○ GSIS Old Loan
  - ○ Pag-Ibig Housing Loan
  - ○ Pag-Ibig Multi Purpose Loan
  - ○ Pag-Ibig Calamity Loan
  - ○ Grocery Loan
  - ○ Koop
  - ○ Hospital Bills Loan
  - ○ PSMB Fund
  - ○ National Home Mortgage Finance Corporation(NHMFC)
  - ○ Provident Fund
  - ○ Land Bank of the Philippines(LBP) Salary Loan
  - ○ Unlimited Optional Life Insurance (UOLI)
  - ○ Development Bank of the Philippines (DBP) Loan
- ● Other Deductions
  - ○ Absences/Lates
  - ○ SSS Contribution
  - ○ GSIS Optional Insurance
  - ○ Pag-Ibig MPII
  - ○ Child Support
  - ○ Philhealth Up
  - ○ Additional Tax
  - ○ BASC Personnel Credit Cooperative (PCC)
  - ○ BASC Faculty and Employee Association (FEA)
- ● Other Income
  - ○ Overtime (e.g., Normal O.T., Rest day O.T., Holiday O.T., Non-working Holiday O.T., and Special Non-working Holiday O.T.)
  - ○ Night Differential
  - ○ Salary Adjustment
  - ○ PERA (Personnel Economic Relief Allowance)
  - ○ Meal Allowance
  - ○ Fitness Allowance
  - ○ Transportation Allowance
  - ○ Rice Allowance
  - ○ Uniform Allowance
  - ○ Laundry Allowance
  - ○ Communication
  - ○ Internet Allowance
  - ○ 13th Month
  - ○ BONUS pay

- ○ Retirement Pay
- **Assets and Fleets Management Settings**
  - Secured Access Management
  - Asset Groups
  - Asset Categories
  - Asset Types
  - Asset Articles
  - Annual Procurement Plan (APP) / Project Procurement Management Plan (PPMP)
- **Document Management Settings**
  - Secured Access Management
  - Delivery Type
  - Document Category
  - Document Security Level
  - Document Type
  - Process Flow
- **Trouble Ticketing Settings**
  - Secured Access Management
  - The solution must have a maintenance module for Category settings.
  - The solution must have a maintenance module for System settings.
  - The solution must have a maintenance module for Types settings.
  - The solution must have a maintenance module for State settings.
  - The solution must have a maintenance module for Impact settings.
  - The solution must have a maintenance module for Urgency settings.
  - The solution must have a maintenance module for Team settings.
- **Executive Information Settings**
  - Secured Access Management
  - Dashboard Configuration and Control
- **Campus Portal Settings**
  - Secured Access Management
  - BASC Active Directory w/ Configuration
  - Themes Configurations
- **University Library Settings**
  - Secured Access Management
  - Access Control
  - Library Locations
  - Shelves Mapping
  - Call Number/Book Mapping
- **Queueing/Appointment Settings**
  - Secured Access Management
  - The solution must have an office/department setups to manage the list of office/departments.
  - The solution must have a service set up to handle the list of services.
  - The solution must have window settings to manage the window list.

- The solution must have window-type setups to control the Queueing System window types.
- The solution must have marquee setups to configure the footer data or information.
- The solution must have printer setups to manage the list of printers.
- The solution must have advertisement setups to manage the list of advertisements.

b.2   University Information System

- **Academics**
  - The solution must enable the setup of courses, sections, course programs, and curriculum.
  - The solution must include a course master list to manage and view course information, course program inclusion, and section details.
  - The solution must include a master list of course programs to streamline the management and viewing of course program information, curriculum details, and curriculum structure.
  - The solution must include a curriculum list to easily manage and view academic progression or flowchart.
- **Enrollment Module**
  - The system must have an online registration with automatic assessment of fees, interconnected with the other modules to facilitate the automatic course advising.
  - The system must have a monitoring of section fill rates.
  - The system must have a Post-Enrollment (Adding/Changing/Dropping) module.
  - The system must support automatically generating a "List of Allowed Subjects and Schedules to be taken".
  - The system must support the ability to prevent choosing subjects with prerequisites not yet taken.
  - The system must support the ability to show the maximum number of allowed units a particular student can enroll in based on previous semester grades with the capability to add and decrease units by the registrar department.
  - The system must support enlistment to ROTC and PE subjects.
  - The system must support the Automatic generation of assessment slips and registration slips.
  - The system must have a curriculum auditing.
  - The system must support students' online queries of available subjects.
  - The system must support the generation of reports such as a summary of enrolled students.

- **Section Management Module**
    - The solution must be able to assist in creating multiple sections for courses to accommodate varying class sizes, instructor availability, and scheduling preferences.
    - The system must aid in managing instructor workloads to ensure equitable distribution of teaching assignments and compliance with contractual obligations.
    - The solution must provide real-time updates and notifications to students, faculty, and staff regarding changes to class schedules, room assignments, or instructor assignments.
    - The system must be able to generate reports on room utilization, resource usage, and scheduling patterns to inform decision-making and resource allocation.
    - The solution must be able to enroll students in courses and sections using normal scheduling techniques while supporting non-standard term arrangements.
    - The system must be able to generate schedules for both students and professors.
- **Admission Module**
    - The solution must allow the creation of applications for potential students.
    - The solution must contain a list of applicants to easily manage/view the applicant's complete information, attachments, and progress status.
    - The solution must allow the setting of admission limits to know the number of allowed applicants quickly.
    - The solution must allow applicant pooling that is printable.
    - Must have a list of applicants scheduled for the entrance exam, interviews, and medical.
    - The solution must be able to customize the requirements of students for admission.
    - Must support the fast generation of reports for the List of Applicants.
- **Grade Management Module**
    - The system maintains complete records of the academic grades of the students.
    - The system must facilitate academic grade crediting for transfer students.
    - The system must have a module to handle effortless reviews of grades submitted by faculty members.
    - The students must be able to view their historical grades anytime thereby replacing class cards.
- **Registrar Module**
    - Must have tools to monitor and manage various operations of the registrar like monitoring screen for records, certification, and documents requested by students and alumni.
    - Must contain Complete Student information, academic data file, and scanned submitted documents of students.
    - Must support the fast generation of TOR, COR, ROG, and Form 9

- Must be capable of generating a List of Candidates for Graduation, scholarships, and honors.
- The solution must allow the Generation of the following reports: Academic Evaluation, Official List of Enrollment, Diploma, Registration, Shiftee, Student Directory, Subject Masterlist, and Summary of Enrollment reports.
- Must be able to apply Tags to documents being submitted by new enrollees and remind the user of documents that students need to submit.
- Must have the list of Student Subsidy and adding of students for the scholarship.
- The system must be capable of correcting student grades.
    - Students with an 'Incomplete' (INC) grade will have one year to fulfill requirements to update their grades; otherwise, the grade will be changed to a failing grade.
- **Student Services**
  - Must allow teachers to submit requests for grade corrections in case of errors or discrepancies in their recorded grades.
  - The solution must facilitate tracking the progress of such requests and include checks to ensure the necessary supporting documentation is provided.
  - The grade correction request must be reviewed and approved by relevant faculty members and the registrar.
  - The solution must allow students to request essential documents such as Copies of report cards and academic certifications for various purposes (e.g., employment, further education, or personal records.)
  - The solution must allow students to specify the details of their requests (e.g., number of copies, type of document, purpose) and provide estimated processing times.
  - The solution must notify the students about the status of their requests, from submission to approval and document issuance.
  - The solution must have a feature that supports students to request for change of their course or program of study.
  - The solution must have a process that involves submitting a detailed request, including the reason for the change and relevant supporting information.
- **Alumni Module**
  - The solution must have an alumni module that can populate the alumni master file.
  - The system must have a record that can be utilized to contact the alumni.
  - The solution must be able to Update Alumni information.
  - The solution must be able to Search the directory of Alumni.
  - The solution must be able to Update the Alumni Profile.
- **Scholarship Management**
  - The system must serve as a central repository for all scholarships.
  - The solution must handle recurring scholarships, including reminders to renew.
  - The solution must provide tools to automatically monitor compliance with scholarship conditions (e.g., GWA maintenance).

- The system must be Integrated with academic records and financial systems for validation.
- The system must be able to provide real-time application status tracking for students.
- **Awards and Distinction Management**
  - The system must provide a streamlined management of awards through automation.
  - The system must be able to support multiple types of awards (e.g., academic excellence, leadership, research, sports, and cultural activities)
  - The system must be able to select recipients by committees.
  - The system must be able to ensure adherence to university policies and regulations regarding awards.
  - The system must provide fields to define award qualifications (e.g., GWA thresholds, competition results, or nomination-based recognitions)
- **Academe Module**
  - The system must provide an overview of the academic organizational chart of the university's faculties.
- **Curriculum Module**
  - The system must provide tools for designing and structuring academic programs, including defining course sequences, corequisites, and prerequisites
  - The system must allow the user to maintain a comprehensive catalog of available academic programs, including undergraduate majors, minors, graduate programs, and certificates.
  - Acts as a map between program learning goals and course learning objectives to guarantee coherence and alignment across the curriculum.
- **Block Sections Management Module**
  - The system must be able to efficiently manage student groupings (block sections) for better academic and administrative coordination.
  - This module manages predetermined groupings of students who attend classes together for the entirety of a course or academic program.
  - This module must be able to automatically assign students to sections based on predefined rules, such as enrollment data, course requirements, and class size limits.
- **Short Courses Management Module**
  - This module offers enrollment information, fees, and course content for TESDA courses and other modules.
  - The system should include a student list, class schedules, faculty assignments, assessment results, and the issue of training certificates, as well as other data on short-term courses.
- **Clinic Records Management Module**
  - The system must have a component designed to facilitate the management of the clinical records of the students and the dispensing of clinic items.

b.3   Learning Management System

- **Administration Module**
  - The system must show interactive analytics
  - The system must allow the customization of the grading transmutation.
  - The system must allow the customization of the general passing percentage.
- **Professor Module**
  - The system must show interactive analytics
  - The system must automatically retrieve the classes assigned to teachers.
  - The system must automatically retrieve the list of students enrolled in each class.
  - The system must allow teachers to manage the student attendance records.
  - The system must support the creation of lessons and the attachment of related files, including modules, PowerPoint presentations, Excel spreadsheets, PDFs, Word documents, text files, videos, and images.
  - The system must permit the addition of user activities, such as assignments, projects, quizzes, and exams.
  - The system must be capable of creating and generating a rubric to provide clear expectations for each evaluation criterion.
  - The system must be capable of generating the Student Portfolio for a range of 3 to 5 years.
  - The system must be able to archive the students' assignments, projects, quizzes, and exams.
  - The system must be able to have a grade consultation
  - The system must allow teachers to set time limits for activity questions.
  - The system must be capable of preventive measures for cheating. (e.g. Disabling screenshots)
  - The system must enable the configuration of date ranges for users to complete assigned activities.
  - The system must be able to set schedules and deadlines for posting the activities, and quizzes.
  - The system must allow the shuffling of quizzes and exam item numbers and answers.
  - The system must provide immediate visibility of scores on activities upon completion.
  - The system must allow the list of created questions to be viewable and editable by the activity creator.
  - The system must support the creation of lessons and quizzes one at a time, all with the same subject description.
  - The system must allow the teachers to view the grades of his/her students.
  - The system must allow the teachers to generate reports for each class.
- **Student Module**
  - The system must show interactive analytics

- The system must have a dashboard to easily identify the total number of completed activities, assignments, quizzes, exams, projects, and subjects per user.
- The system must allow students to change their passwords and usernames during their initial login.
- The system must provide a newsfeed feature to display upcoming events and the school's mission and vision.
- The system must enable students to upload profile pictures.
- The system must support live chat and messaging functionality between students of the class.
- The system must automatically post classes in which a student is enrolled to their user account.
- The system must support user/class attendance tracking within the Learning Management System (LMS).
- The system must enable file attachments to lessons that are downloadable to the users' devices.
- The system must allow students to view the results of their activities.
- The system must ensure that detailed activity results are posted.
- The system must include an activity stream to summarize the recent, upcoming, later, and missed activities providing an overview of a student's activity status.
- The system must include notifications when there's new activity uploaded, modifications, and grade posting.
- The system must provide visibility into student ranking.
- **Parents Module**
  - The system must enable parents to monitor the activities and progress of their children within the system.
  - The system must support the addition of children with no limitations, with an auto-identification feature.
  - The system must comply with the Data Privacy Act.
- **Student Transcript Module**
  - The system must have an academic record or course management
  - The system must play a crucial role in managing and organizing academic-related information for students.
  - The system must have a module that focuses on tracking and displaying details related to individual courses, classes, and academic progress.

b.4 Cashiering System

- **Cashier Module**
  - The system must be capable of setting up the assessment fees.
  - The system must be able to keep a record of a student's SOA and its current status whether it's an active SOA or inactive.
  - The system must be able to preview or print student's SOA based on the selected academic year and semester.

- The system must be able to have an audit trail for any actions or activity made per account.
- The system should support walk-in payments at physical locations whether by cash or by check. It should enable the manual entry of payment details and generate receipts.
- The system must be capable of identifying eligible students based on predefined criteria and offer a range of financial incentives, including scholarships, fee reductions, and grants. It must also establish an efficient application and selection process while promoting transparency and fairness in awarding scholarships.

b.5 Human Resource Management System and Timekeeping System

- **Employee Management Module**
    - The system must be able to provide a single repository where all employee records are stored, updated, and maintained.
    - The system must be able to reflect any updates or changes made to the master database across all modules.
    - The system must be able to allow linkage of personnel files to the University Information System.
    - The system must be able to prepare and generate an Employee Masterlist.
    - The system must be able to set up organizational units with a hierarchy.
    - The system must be able to provide a viewable organizational chart of the university, which is linked to the employee Plantilla records.
    - The system must be able to manage employees based on their Plantilla numbers.
    - The system must be able to organize the employee hierarchy by rearranging the Plantilla numbers of specific employees through a drag-and-drop interface.
    - The system must be able to provide Employee Self Service for the following:
        - Request to update profile.
        - Receive notifications, news, and announcements.
        - View attendance.
        - View schedule.
        - View leave balances, benefit balance, and ledgers.
        - View monthly net pay summary/payslip.
        - Request DTR correction.
        - Submit requests for leave, overtime, business trip, and six days of work.
    - The system must be able to record and generate Audit Trail Reports.
- **Time-Keeping Monitoring Modules**
    - The system must be able to link with the Biometrics Attendance System.
    - The system must be able to link with the Payroll Management System.
    - The system must be able to do auto-tracking of sick leave and vacation leave balances.

- The system must be able to monitor regular and special holidays with automated computation of pay rates.
- The system must be able to prepare a summary of attendance and absences.
- The system must be able to prepare a summary of overtime for validation and approval.
- The system must be able to provide a calendar of approved and pending leave requests.
- The system must be able to set up holidays such as but not limited to Recurring Regular-Holidays and Special Non-Working Holidays.
- The system must be able to set up template schedules to be assigned to a bulk/group/ per employee.
- The system must be able to record and generate Audit Trail Reports.

b.6   Payroll Management System

- **Automated Payroll System**
  - The system must be able to provide the analytics of payroll reports with real-time and accurate data.
  - The system must be able to display, create, and manage payroll period/s for generating payroll reports.
  - The system must be able to create and manage payroll groups and assign employees to their payroll groups accordingly.
  - The system must be able to set bank details and salary pertaining to the corresponding employee's job type, salary grade, and step.
  - The system must have a feature that customizes and manages employees' allowances, deductions, loans, and other compensation components.
  - The system must be able to export files for all tables/lists within the payroll system (e.g., employee lists, payroll reports for a certain period, and others).
  - The system must have a user access control wherein the administrator can manage who can view, edit, and delete the employee and payroll information.
  - The system must be able to track audit logs including who accessed the system and made changes.
  - The system must have a feature for providing alerts and notifications regarding updates about generating payroll reports and releasing payslips.
  - The system must be able to archive data with complete accessibility for future reference.
  - The system must have a feature that allows the user to have backup and recovery to maintain historical payroll records for auditing and compliance purposes.
- **Mandatory Deductions and Contribution Module**
  - The system must be able to accurately calculate and deduct mandatory contributions such as GSIS Contribution, PhilHealth, Pag-IBIG, and Withholding tax.

- The system must be able to integrate with the latest BIR tax tables to ensure compliance with tax regulations.
- The system must be able to automatically generate reports for government agencies.
- **Other Deductions Module**
  - The system must allow flexible customization of other deductions.
  - The system must have a user-friendly interface for easy input and management of deduction rules.
- **Other Income Module**
  - The system must be able to accommodate various types of other income.
  - The system must be able to calculate the appropriate tax.
- **Loans Module**
  - The system must be able to allow the creation and tracking of different loan types with varying interest rates and repayment terms.
  - The system must be able to automatically compute loan amortization and deduct payments from employee salaries.
  - The system must be able to automatically update loan balances and remaining dues.
- **Attendance Module**
  - The system should be able to record employee attendance and generate accurate time and attendance reports.
  - The system must be able to calculate overtime, night differential, and other time-based compensations.
- **Bank Transmittal**
  - The system must be able to generate accurate bank files for payroll disbursement.
  - The system must be compatible with various bank formats to ensure seamless integration with banking systems.
- **Integration to Time Keeping Monitoring Module**
  - The system must be able to connect and communicate with the Biometrics Attendance System.
  - The system must be able to provide automated tracking of sick leave and vacation leave balances of employees.
  - The system must be able to monitor regular and special holidays with the inclusion of an automated computation of pay rates.
- **Integration to HRIS System**
  - The system must be able to integrate data with the Human Resources Information System (HRIS) for the employees' relevant data including basic information, job position, salary grade, and bank details.
  - The system must be able to integrate data with HRIS to track employee work hours, including regular hours, overtime, absences, and leave requests.

b.7 Assets & Fleet Management System

- **Asset Management System**
  - The system must be able to show and manage the general information, vendor details, warranty information, financial info, and depreciation info.
  - The system must be able to show the operational cost and progress of the asset requests.
  - The system must be able to show operational costs and progress of the asset update.
  - The system must be able to show the operational cost and progress of the asset auction.
  - The system must be able to show operational costs and the progress of the repair and maintenance.
  - The system must be able to show the operational cost and progress of the decommissioning.
  - The system must be able to show operational cost and progress of the disposal.
  - The system must be able to show the operational cost and progress of the asset issuance.
  - The system must be able to show the operational cost and progress of the user transfer.
  - The system must be able to create, update, and delete assets with their respective information.
  - The system must be able to create a comprehensive inventory of all assets, including physical equipment, software, licenses, and other resources. Each asset is typically associated with relevant information such as:
    - Article (Laptops, furniture, or journals)
    - Property Number
    - Assigned Number
    - Purchase Date
    - Vendor Name
    - Service Provider (optional if different as to Vendor Name)
    - Financial Information
    - Required Documents (e.g., purchase request)
  - The system must be able to track the movement and changes in the status of assets. This includes:
    - Recording of asset transfers
    - Disposal
- **Fleet Management System**
  - The system must be able to show and manage general information, vehicle registration details, vendor details, warranty information, financial info, and depreciation info.

- The system must be able to show operational costs and the progress of the fleet requests.
- The system must be able to show operational costs and progress of the fleet update.
- The system must be able to show the operational cost and progress of the fleet auction.
- The system must be able to show operational costs and progress of the repair and maintenance.
- The system must be able to show the operational cost and progress of the decommissioning.
- The system must be able to show operational cost, and progress of the disposal.
- The system must be able to show operational cost, and progress of the fleet issuance.
- The system must be able to show operational cost, and progress of the user transfer.
- The system must be able to show a statistical overview of fleets according to its categories and types (e.g., motorcycles, service vehicles, heavy equipment).
- The system must be able to have an elaborative list of records of all fleets and their corresponding information.
- The system must be able to have integration with the Asset Management System to be able to handle instances of assets being carried on a vehicle, allowing easier management, monitoring, and inventory.
- The system must be able to create a comprehensive inventory of all fleets. Each fleet is typically associated with relevant information such as:
  - Article (Service Vehicle, Car, Heavy Equipment)
  - Body No./ Plate No./ Conduction Sticker No.
  - Assigned Department
  - Registration Information
  - Vendor Information
  - Insurance Information
  - Financial Information
  - Depreciation Information
  - Attachments
    - Requisition and Issuance Slip
    - PAR
    - Purchase Request
- The system must be able to have a feature that schedules and tracks vehicle maintenance, including oil changes, tire rotation,s and physical inspections.
- **Inventory Management Module**
  - The system must be accountable for tracking, managing, and maintaining various assets and fleets owned or used by the academic institution.
  - The system must be able to maintain a centralized database of university-owned resources, including computers, equipment, furniture, and other tangible assets.

b.8   Document Management System

- **Document Management System (DMS)**
  - The system must be able to track both physical and electronic documents.
  - The system must be able to store electronic documents, such as PDFs, word processing files, and digital images of paper-based content.
  - The system must be able to be a centralized repository where documents can be easily searched, accessed, and updated by authorized business users.
  - The system must be able to define the recipient's routes with information such as time & date sent, time & date received, and remarks.
  - The system must be able to save/download uploaded attachments.
  - The system must be able to generate tracking with a unique batch number as a tracking reference.
  - The system must be able to provide easier identification of status for users by using color codes.
  - The system must be able to send system notifications on printing barcodes, tracking status changes, receiving recipients, and other system actionable functionalities.
- **Process Flow Management**
  - The system must allow for the customization of workflows to accommodate various document types and other business processes.
  - The system must offer a visual interface, such as a dashboard, to display and monitor process flows efficiently.
- **Routing Management**
  - The system must be able to automate the routing of documents to appropriate individuals or departments based on predefined rules and flow.
  - The system must be able to allow for dynamic routing, where documents can be rerouted as needed.
  - The system must be able to provide real-time notifications to users upon receipt of a document.
  - The system must be able to include a history log to track the routing path for auditing purposes.
- **Integration to HRIS**
  - The system must be able to seamlessly integrate with the organization's HRIS to access employee information, such as names, email addresses, and department affiliations.
- **Barcode Printing Module**
  - The system must be able to print barcode labels in batches with a unique tag/number.
  - The system must be able to provide accurate status of the document based on the printed/attached barcode.
- **Security Module**

- The system must be able to record the audit trail for all the user actions inside the system.
- The system must provide document security and access control depending on the security level.
- The system must be able to create/update accounts and give them access rights depending on the business user's role.

b.9   Trouble Ticketing System

- **Incident Ticket Management**
    - The system must be able to create a new Incident Ticket.
    - The system must be able to identify related Incident Tickets based on Category, Type, System, and Description during creation.
    - The system must be able to assign the Incident Ticket to the appropriate team based on the System defined in the Assignment Rules.
    - The system must be able to filter Incident Ticket lists based on State (e.g., Open, In progress, Hold, Resolved, Closed, and All).
    - The system must be able to show an overview of Incident Ticket statistics, i.e.;
        - Open
        - InProgress
        - Overdue
        - Overview of Incident Ticket by Severity and State
    - The system must be able to capture the Notes, Attachments, and Resolution information.
    - The system must be able to notify the Team member to whom the ticket is assigned.
    - The system must be able to notify the Team manager to whom the ticket is assigned whenever a Critical ticket is created.
- **Problem Ticket Management**
    - The system must be able to create a new Problem Ticket.
    - The system must be able to create a new Problem Ticket from an existing Incident Ticket.
    - The system must be able to identify related Tickets or Problem Tickets based on Category, Type, System, and Description during creation.
    - The system must be able to assign the Problem Ticket to the appropriate team based on the System defined in Assignment Rules.
    - The system must be able to filter Problem Ticket lists based on Status (e.g., Open, In progress, Hold, Resolved, Close,d and All).
    - The system must be able to show an overview of Problem Ticket statistics, i.e.;
        - Open
        - InProgress
        - Overdue
        - Overview of Incident Ticket by Severity and State

- The system must be able to capture the Notes, Attachments, Analysis, and Resolution information.
- The system must be able to notify the Team member to whom the ticket is assigned.
- The system must be able to notify the Team manager to whom the ticket is assigned whenever a Critical ticket is created.
- **Security Module**
  - The system must ensure that only authorized personnel can access and modify tickets.
  - The system must maintain a detailed audit trail of all actions taken on a ticket to ensure accountability and traceability.

b.10 Queueing / Appointment System

- **Queueing Admin Module**
  - The system must be able to allow administrators to manage and monitor the entire queueing process and appointments.
  - The system must be able to apply the concept of calling population to determine and measure the arrival process of customers.
  - The system must be able to have its service counters, its own common queue, and the probability distribution of customers' service time.
  - The system must be able to have the First-In-First-Out (FIFO) approach to have a systematic and consistent flow to maximize the throughput of the customer service center.
  - The system must be able to measure the logical ordering of customers in a queue and determine which customer will be chosen for service when the service counter becomes free.
  - The system must be able to measure performance based on steady-state average delay and steady-state average waiting time in the system.
  - The system must be able to measure the conversation steady state time average number in the queue and the steady state time average number in the system.
  - The system must be able to administer parallel management through multiple counters by navigating the queue and finding the appropriate counter for their needed service.
  - The system must be able to allow the customers to request services without being physically present throughout the waiting time of the lineup of customers.
  - The system must be able to give freedom to the customers to wait outside the premises of the branch upon enabling virtual sign-up.
- **Admin Appointment Module**
  - The system must be able to manage and oversee the scheduling, modification, and cancellation of appointments.
- **Local Kiosk Module**

- The system must be able to provide a self-service station that allows users (clients, customers, or employees) to interact with the system for tasks like check-ins, appointment booking, ticket printing, and managing their queue status.
- **Mobile Kiosk Module**
  - The system must be able to provide a mobile-based self-service solution that enables users to interact with the system directly from their smartphones or tablets.
- **Security Module**
  - The system must be able to offer protection for the system and its users by managing access, ensuring data privacy, and preventing unauthorized actions.
- **Appointment System**
  - The system must be able to provide users to schedule an appointment according to their needs.
  - The system must gather needed information for the services that the customer wants to avail or request.
  - The system must have the feature of canceling or rescheduling a registered appointment within a specific period.
  - The system must have the feature of sending out a notification or reminder to the customer regarding his/her appointment.
- **As an admin/ Team member**
  - The system must be able to have a dashboard to provide an overview of queues and appointments from the web and Mobile web access such as:
    - Currently Serving
    - Next Queue Number
    - Next Appointment Number / Priority Lane (PWD, Senior Citizens, Pregnant)
    - Summary
  - The system must be able to provide a queuing list including the queue's:
    - Status (Unserved, Served, Canceled)
    - Queue Date and Time
    - Last Call Date and Time
    - Called by (Counter, Name and Position)
    - Actions (View, Recall/Call, Start/End, Cancel, Hold)
  - The system must be able to identify customer appointment referrals including:
    - ID Number
    - First Name
    - Last Name
  - The system must be able to receive notification/s when a certain appointment needs to be accommodated within a specific period.
  - The system must be able to receive notification/s when an appointment has been canceled or rescheduled.
  - The system must be able to provide reports and data exports in Excel and PDF formats.

- The system must have customization capabilities and a control console.
  - Marquee
  - Advertisements on the TV Screen
- The system must be able to track the history of registered appointments and passed queues.

b.11 Executive Information System

- **Executive Dashboard Module**
  - The system must be able to allow configurable layouts, enabling users to choose, arrange, and resize charts to suit their preferences or specific needs.
  - The system must be able to reflect almost real-time information, ensuring that executives are always working with the latest data.
- **Security Module**
  - The system should be able to include a Security Module to ensure robust access control, data protection, and compliance, safeguarding sensitive information and system integrity against unauthorized access.
- **Dashboard Configuration**
  - This module should allow the administrators to create and configure the layout and content of dashboards to reflect key business metrics and performance indicators, ensuring that the right data and accurate data are properly presented.
- **Access Control**
  - This module should allow the administrators to assign users or groups of users who will have access to the different dashboards.

b.12 Campus Portal System

- **SSO-Based User Management System**
  - The system must have SSO (Single Sign-On) to enable users to authenticate once and automatically gain access to multiple campus services, eliminating the need to log in to each service separately. This seamless authentication process must enhance user convenience, improve security by reducing the number of passwords needed, and streamline access to various tools and resources, saving time, and effort for both students and staff.
- **BASC Active Directory w/ Configuration**
  - The system must allow centralized user management through Active Directory (AD), which stores and organizes information about users, groups, computers, and other network resources.
- **Web Traffic Statistic**
  - The system must allow the administrators to monitor standard web traffic data, such as Page Views, No. of Visitors, Geographic Locations, Duration of Visits, and Referrals, integrated with Google Analytics (GA4).
- **Content Management**

- The system must allow the administrators to manage and update the contents of the school's campus portal page. Such as announcements, blogs, calendars, articles, and activities.

b.13 University Library System

- **Cataloging and Inventory Management Module**
    - The system must allow the cataloging and inventory management of the library's collection of books, journals, dissertations, and other materials.
- **Circulation Module**
    - The system must allow the librarian to monitor the borrowing, returning, and renewing of library materials, ensuring efficient and accurate tracking of resources as they move between the library and the borrowers.
- **Acquisition Module**
    - The system must allow the processing of acquiring new library resources, including books, journals, e-books, multimedia materials, and other educational or research content.
    - The system must allow the management of book requisitions from students and/or teachers.
- **Student Module**
    - The system must allow students to access new library resources, including books, journals, e-books, multimedia materials, and other educational or research content.
    - The system must be able to provide the following information and services:
        - Book Details (Non-Dissertation)
        - Book Details (Dissertation)
        - My Library Card
        - Request for Purchase/Acquisition
        - Reservation
        - Notices of due dates
        - Notices of overdue penalties
- **Librarian Module**
    - The system must have a dashboard that shows the librarian's crucial KPIs for the library such as:
        - Search word statistics
        - Tags and metadata of the book statistics
        - Circulation statistics
    - Student Request List (Book Reservation, Purchase Request, Clearance Request, Dissertation Access Request)
        - This module must allow the students to submit various types of requests related to their academic and campus activities.
    - Book Reservation
        - This module must allow the students and faculty to reserve library books or materials.

- Purchase Request
  - This module must enable the students, faculty, or staff to submit requests for purchasing books, equipment, or other materials needed for academic or administrative purposes.
- Clearance Request
  - This module must enable the students, faculty, or staff to submit requests for clearance.
- Dissertation Access Request
  - This module must enable the students, faculty, or researchers to request access to dissertations or theses stored in the library's collection from the authors.
- **Kiosk (Self Check-in and Check-out Student)**
  - The system allows the Kiosk to provide students with a self-service station for managing their borrowing and return activities. Using touch-screen kiosks or other interactive devices, students can quickly and efficiently check out library materials, return items, and access various library services without requiring staff intervention.
- **Integration with SSO Services**
  - The system allows integrating Single Sign-On (SSO) services with an application or system, providing a unified authentication process that allows users to log in once and gain access to multiple connected systems or applications without needing to log in again for each service.

b.14 eConference Room with Video Conferencing

- **Video Conferencing System**
  - The system must be able to provide a seamless and user-friendly video conferencing experience.
  - The system must enhance remote collaboration and communication.
  - The system must have integrated audio, video, and collaboration tools for effective virtual meetings.
  - The system must ensure the scalability and flexibility to accommodate future needs.

b.15 Mobile Version Module

- **Mobile Version**
  - The system must have a mobile version of the Digital Harvest: Transforming Bulacan Agricultural State College into a Digital Innovation Hub Subsystems website designed for smartphones and tablets. It gives students, professors, staff, and stakeholders easy access to university information and services.
  - The system should promote accessibility, convenience, and a great user experience by allowing users to communicate with the university community anytime.

- The system should accommodate each module's specialized functionalities while staying mobile-friendly and focusing on users.
- The system must be able to receive notifications.

C. **Report Requirements**

These are the suggested reports that ought to be produced by the system to analyze the information systems trends in Bulacan's colleges. It is recommended that the data be automatically submitted through an API in Digital Harvest: Transforming Bulacan Agricultural State College into a Digital Innovation Hub to give BASC staff the information they need to enhance the school community.

c.1 University Information System

- **Admission Module**
  - List of Applicants - The overall list of potential students with their personal or application information.
- **Registrar Module**
  - Academic Evaluation - assessment of a student's academic performance, conducted by the institution's instructors.
  - Official List of Enrollment - document provided by the institution that confirms the students that are registered or enrolled for a specific academic year.
  - Diploma - gives thorough details regarding a student's academic accomplishments and the diploma's presentation as evidence of completion of an academic program.
  - Registration - a document that gives information about a student's course enrollment at the institution for a certain term or semester.
  - Shiftee - document of proof for students who are changing or shifting their academic programs or courses.
  - Student Directory - comprehensive and manageable list of students enrolled at the institution.
  - Subject Master list - a thorough list or catalog of each field or course that the educational institution offers
  - Summary of Enrollment - overview of the current enrollment status of the students at the institution for a specific semester or academic year.
- **Enrollment Module**
  - Summary of enrolled students - a summary of the current student population, including enrollment data and demographics.
  - Summary of unpaid school fees - gives a summary of the unpaid fees that students owe for the current semester or academic term.
  - Summary of Tuition Fees collected - gives a summary of the fees collected/received from the students for the current semester or academic term.
- **Clinic Record Management Module**

- Health Management Report - a document that typically focuses on the health and wellness of its students and covers various aspects related to healthcare services offered by the university.

c.2   Learning Management System

- **Professor Module**
  - Class Report - a summary of the progress, performance, and involvement of the students in a particular course or class.

- **Student Transcript Module:**
  - Subject Modules Report - provides comprehensive insights and summaries related to the modules listed in a specific subject.
  - Lesson Plan Report - generates a summary lesson plan that is defined by the institution or organization.

c.3   Human Resource Management System and Timekeeping System

- **Audit Trail Report:**
  - Gives a thorough account of all the actions and modifications conducted within the HR system. Monitoring user behavior, protecting data integrity, and upholding adherence to HR rules and regulations all depend on this report.

c.4   Payroll Management System

- **Payroll Management System**
  - Daily Time Record (DTR) - an in-depth record of employees' daily attendance that includes the total number of hours worked, the number of leaves taken, and other essential time-related data.
  - Payslip/s - a detailed breakdown of an employee's earnings and deductions for a specific pay period.
  - Payroll Report for a specific period - a complete summary of payroll costs and associated information for a specific pay period.

c.5   Assets & Fleet Management System

- **This applies to both Systems**
  - Assets and Fleets Reporting - a document containing management insights for different vehicles and assets used for administrative and academic purposes.

- Depreciation Tracking - a detailed overview and monitoring of the decrease in value of such assets over time over a specified period.

c.6   Document Management System

- **Document Management System (DMS)**
  - List of On-Hand documents - displays a list of all of the documents that are available or accessible at the moment within the system.
  - List of Incoming documents - provides an inventory of documents that have been recently received or uploaded into the system.
  - List of Received documents - provides a list of all the documents the institution has received in a given time frame.
  - List of Finalized or kept documents - provides an inventory of all the documents that have been approved, completed, and archived in the system.
  - List of Archived documents - provides comprehensive details about the documents that have been stored in the system's archive.
  - Details of document batch tracked - provides full details on the batches of documents that the system is tracking. Documents pertaining to research projects, financial transactions, student records, admissions, and other aspects of university operations may be included in these sections.
  - Audit Logs of documents - detailed log of every activity and modification performed to any document in the system.

c.7 Trouble Ticketing System

- **Reporting and Analytics**
  - The solution must be able to provide reports in different formats i.e., Pie Graph, Line Graph, or Bar Graph.
  - The solution must be able to extract the following data groupings: Open Tickets, Open with Critical Severity, in progress, Overdue, Not Updated for 7 days and Older than 30 days, and Tickets by State.

c.8 Queueing / Appointment System

- **The solution must be able to generate reports which show the following:**
  - Queue List - presents a summary of the system's appointments and queue status at the given moment.
  - Visitors List - provides a summary of the visitors' list and the appointments they have made using the appointment/queuing system.
  - Advertisements - provides an overview of advertisements and the details that are displayed in the system.

- Queue Service - presents an overview of the queue service availability and performance within the queueing/appointment system.
- Audit trail - list of users' activities on who approves, disapproves, cancels, and reschedules appointments.

c.9 Executive Information System

- **Reporting and Dashboard**
  - 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.

c.10   Campus Portal System

- **Web Traffic Report**
  - The Web Traffic Report provides insights into the usage patterns and trends within the campus portal, offering valuable information about how users interact with the platform. This report encompasses various metrics and analytics that help administrators and stakeholders understand the effectiveness of the portal and identify areas for improvement. Key components of the Web Traffic Report include:
    - Page Views: This metric quantifies the total number of times each page within the portal has been viewed by users over a specified period. It helps gauge the popularity and relevance of different sections or features of the portal.
      - Unique Visitors: Unique Visitors represent the number of distinct individuals who have accessed the portal within a given timeframe. Tracking unique visitors provides a measure of the portal's reach and user engagement.
      - Traffic Sources: Understanding where the traffic originates from can provide insights into the effectiveness of marketing efforts or the impact of external events. Traffic sources may include direct visits, referrals from other websites, search engines, or social media platforms.
      - Bounce Rate: The bounce rate indicates the percentage of visitors who navigate away from the portal after viewing only one page. A high bounce rate may suggest issues with content relevance, user experience, or site performance.
      - User Demographics: Analyzing demographic data such as geographic location, device type, and browser preferences can help tailor the portal's content and optimize its compatibility across different platforms.

- Session Duration: This metric measures the average amount of time users spend on the portal during each visit. Longer session durations generally indicate higher user engagement and interest in the provided content.
- Popular Pages: Identifying the most visited pages or sections of the portal can inform content prioritization and resource allocation efforts. It also highlights areas of interest or importance to the user community.

- **Audit Logs Report**
  - The Audit Logs Report offers a comprehensive overview of all activities and interactions within the campus portal, serving as a vital tool for monitoring compliance, security, and accountability. By maintaining detailed records of user actions, system events, and administrative changes, the Audit Logs Report enables administrators to track user behavior, detect anomalies, and investigate incidents effectively. Key features of the Audit Logs Report include:
    - User Activity Tracking: Every action performed by users within the portal, such as login attempts, file uploads, document downloads, and profile modifications, is logged and timestamped for auditing purposes.
    - Access Control Monitoring: The report monitors changes to user permissions, role assignments, and access privileges, ensuring that only authorized individuals can view or modify sensitive information.
    - System Events Recording: Critical system events, including software updates, database modifications, error messages, and security alerts, are recorded to facilitate troubleshooting and maintain system integrity.
    - Compliance Verification: By documenting compliance-related activities, such as data access requests, consent agreements, and policy acknowledgments, the Audit Logs Report helps organizations demonstrate adherence to regulatory requirements and internal policies.

c.11   University Library System

- **Reporting and Analytics Module**
  - The system must enable the library to gather, analyze, and present data related to its operations and performance.
  - The solution must be able to generate reports that show the List of Patrons.

D. **System Requirements**
- SSO should be able to manage People's Information and Authentication of security.
- HRIS should be able to manage the Employee Information
- The system should be developed using the CoreUI framework.

- The system shall support connectivity and access to data stored in relational MS– -SQL databases.
- The system must support interfaces to common packaged applications via the standard application interface provided.
- The system shall support paperless reporting.
- The system shall support mobile (android & IOS) devices.
- The system shall support web desktop and mobile web access.
- A system with superior Wide Area Network (WAN) performance, highly secured features/functionalities, and uses web–enabled workflow systems available to the offices.

E. **Supply, Delivery, and Implementation**

e.1   University Information System Infrastructure

1. **One (1) Service - Vulnerability and Pen-Testing**
2. **One (1) Service - Database Modelling Design Services**
3. **One (1) Service - Server Installation and Configuration Services**
4. **One (1) Service - Application Installation**
5. **One (1) Service - User Workflow Integration (QA)**
6. **One (1) Service - SSL and DNS Configuration**
7. **One (1) Service - Integration to BASC RDBMS Database**
8. **One (1) Service - Data Migration**
9. **One (1) Service - Project Management Services**
10. **One (1) Service - User Acceptance Testing (UAT)**
11. **One (1) Service - User Training Services**
12. **One (1) Service - Scaling and Optimization**
13. **One (1) Service - Manpower Cost**
14. **One (1) Service - Mobilization Cost**
15. **Two (2) Years - Support**

e.2   Learning Management System Infrastructure

1. **One (1) Service - Vulnerability and Pen-Testing**
2. **One (1) Service - Database Modelling Design Services**
3. **One (1) Service - Installation and Configuration Services**
4. **One (1) Service - Application Installation**
5. **One (1) Service - User Workflow Integration**
6. **One (1) Service - SSL and DNS Configuration**
7. **One (1) Service - Integration to BASC RDBMS Database**
8. **One (1) Service - Data Migration**
9. **One (1) Service - Project Management Services**

10. **One (1) Service - User Acceptance Testing (UAT)**
11. **One (1) Service - User Training Services**
12. **One (1) Service - Scaling and Optimization**
13. **One (1) Service - Manpower Cost**
14. **One (1) Service - Mobilization Cost**
15. **Two (2) Years - Support**

e.3   Cashiering System Infrastructure

1. **One (1) Service - Vulnerability and Pen-Testing**
2. **One (1) Service - Database Modelling Design Services**
3. **One (1) Service - Installation and Configuration Services**
4. **One (1) Service - Application Installation**
5. **One (1) Service - User Workflow Integration**
6. **One (1) Service - SSL and DNS Configuration**
7. **One (1) Service - Integration to BASC RDBMS Database**
8. **One (1) Service - Data Migration**
9. **One (1) Service - Project Management Services**
10. **One (1) Service - User Acceptance Testing (UAT)**
11. **One (1) Service - User Training Services**
12. **One (1) Service - Scaling and Optimization**
13. **One (1) Service - Manpower Cost**
14. **One (1) Service - Mobilization Cost**
15. **Two (2) Years - Support**

e.4   Human Resource Information System Infrastructure

1. **Twenty (20) Units - Biometric - Time & Attendance**
    a. Must support up to 1,500 Fingerprints, up to 100,000 Records, and up to 2,000 Cards (Optional).
    b. Must support Multi-languages.
    c. Must have Communication: TCP/IP, USB-Host, Wi-Fi (Optional).
    d. Must have High verification speed.
    e. Must have professional firmware and platform.
2. **One (1) Unit - Desktop Computer**
    a. Processor: Intel i5 or AMD Ryzen5 Processor (or higher)
    b. Microsoft Office: Microsoft Office Home and Student 2021 or Microsoft Office 365 (1-year)
    c. Operating System (OS): Windows 11 or higher
    d. Memory: 16 GB (or higher)
    e. Storage: 500 GB SSD (or higher)
    f. Display: 14" display

g. Graphic Card: Integrated Graphics

h. Camera: 1080P FHD IR/RGB Hybrid

i. Wireless: Wi-Fi 6E AX211 2x2, Bluetooth 5.1 or above

j. Ethernet Port or USB

k. Power Cord: at least 45W

l. Warranty: 1 Year Courier or Carry-in

m. Must have 1*650VA UPS

3. **One (1) Service - Vulnerability and Pen-Testing**
4. **One (1) Service - Database Modelling Design Services**
5. **One (1) Service - Installation and Configuration Services**
6. **One (1) Service - Application Installation**
7. **One (1) Service - User Workflow Integration**
8. **One (1) Service - SSL and DNS Configuration**
9. **One (1) Service - Integration to BASC RDBMS Database**
10. **One (1) Service - Data Migration**
11. **One (1) Service - Project Management Services**
12. **One (1) Service - User Acceptance Testing (UAT)**
13. **One (1) Service - User Training Services**
14. **One (1) Service - Scaling and Optimization**
15. **One (1) Service - Manpower Cost**
16. **One (1) Service - Mobilization Cost**
17. **Two (2) Years - Support**
18. **One (1) Year - Warranty**

e.5   Payroll Management System Infrastructure

1. **One (1) Service - Vulnerability And Pen-Testing**
2. **One (1) Service - Database Modelling Design Services**
3. **One (1) Service - Installation and Configuration Services**
4. **One (1) Service - Application Installation**
5. **One (1) Service - User Workflow Integration**
6. **One (1) Service - SSL and DNS Configuration**
7. **One (1) Service - Integration to BASC RDBMS Database**
8. **One (1) Service - Data Migration**
9. **One (1) Service - Project Management Services**
10. **One (1) Service - User Acceptance Testing (UAT)**
11. **One (1) Service - User Training Services**
12. **One (1) Service - Scaling and Optimization of Payroll Management System**
13. **One (1) Service - Manpower Cost**
14. **One (1) Service - Mobilization Cost**
15. **Two (2) Years - Support**

e.6 Assets & Fleet Management System Infrastructure

1. **One (1) Service - Vulnerability And Pen-Testing**
2. **One (1) Service - Database Modelling Design Services**
3. **One (1) Service - Installation and Configuration Services**
4. **One (1) Service - Application Installation**
5. **One (1) Service - User Workflow Integration**
6. **One (1) Service - SSL and DNS Configuration**
7. **One (1) Service - Integration to BASC RDBMS Database**
8. **One (1) Service - Data Migration**
9. **One (1) Service - Project Management Services**
10. **One (1) Service - User Acceptance Testing (UAT)**
11. **One (1) Service - User Training Services**
12. **One (1) Service - Scaling and Optimization**
13. **One (1) Service - Manpower Cost**
14. **One (1) Service - Mobilization Cost**
15. **Two (2) Years - Support**

e.7 Document Management System Infrastructure

1. **Ten (10) Units - Barcode Printer**
   a. Should be capable of printing high-quality, durable barcodes on various label materials.
   b. Should offer customizable printing options, including label size, orientation, and font.
   c. Must be easy to integrate with the document management system for automated barcode generation and printing.
2. **One-Hundred (100) Rolls - 2 x 1 Risen Label Sticker (2688 stickers per roll)**
   a. Should be durable and resistant to wear and tear.
   b. Must be compatible with the chosen barcode printer.
3. **One-Hundred (100) Rolls - 2 x 1 Ribbon for Risen Label Sticker (4 rolls sticker: 1 ribbon)**
   a. Should produce clear and legible barcode prints.
   b. Must be compatible with the chosen barcode printer and label stickers.
   c. Should provide a long print life and minimize ribbon wastage.
4. **Twenty (20) Units - Industrial Doc Imaging Machine**
   a. Should be capable of high-volume, high-speed scanning of various document types (e.g., paper, plastic cards).
   b. Must offer advanced image processing features, such as automatic document feeding, image enhancement, and OCR.
   c. Should be durable and reliable, suitable for heavy-duty use in industrial environments.

d. Must be easy to integrate with the document management system for automated image capture and indexing.
5. **Three (3) Units -Departamental Doc Imaging Machine**
   a. Should be suitable for lower-volume scanning needs in departmental settings.
   b. Must offer basic image processing features, such as automatic document feeding and image enhancement.
   c. Should be compact and easy to use.
   d. Must be compatible with the document tracking system for automated image capture and indexing.
6. **Twelve (12) Units -Departamental Doc Imaging Machine Peripherals**
   a. Should include necessary accessories for efficient document scanning, such as paper trays, feeder units, and cleaning kits.
   b. Must be compatible with the chosen departmental doc imaging machine.
   c. Should be easy to install and maintain.
7. **Forty (40) Units -Barcode Scanner**
   a. Should be capable of accurately scanning various barcode types.
   b. Must offer high-speed scanning and reliable performance.
   c. Should be durable and ergonomic, suitable for frequent use.
   d. Must be easy to integrate with the document management system for automated data entry and workflow triggering.
8. **One (1) Service - Vulnerability And Pen-Testing**
9. **One (1) Service - Database Modelling Design Services**
10. **One (1) Service - Installation and Configuration Services**
11. **One (1) Service - Application Installation**
12. **One (1) Service - User Workflow Integration**
13. **One (1) Service - SSL and DNS Configuration**
14. **One (1) Service - Integration to BASC RDBMS Database**
15. **One (1) Service - Data Migration**
16. **One (1) Service - Project Management Services**
17. **One (1) Service - User Acceptance Testing (UAT)**
18. **One (1) Service - User Training   Services**
19. **One (1) Service - Scaling and Optimization**
20. **One (1) Service - Manpower Cost**
21. **One (1) Service - Mobilization Cost**
22. **Two (2) Years - Support**
23. **One (1) Year - Warranty**

e.8   Trouble Ticketing System Infrastructure

1. **One (1) Service - Vulnerability And Pen-Testing**
2. **One (1) Service - Database Modelling Design Services**
3. **One (1) Service - Installation and Configuration Services**

4. **One (1) Service - Application Installation**
5. **One (1) Service - User Workflow Integration**
6. **One (1) Service - SSL and DNS Configuration**
7. **One (1) Service - Integration to BASC RDBMS Database**
8. **One (1) Service - Data Migration**
9. **One (1) Service - Project Management Services**
10. **One (1) Service - User Acceptance Testing (UAT)**
11. **One (1) Service - User Training Services**
12. **One (1) Service - Scaling and Optimization**
13. **One (1) Service - Manpower Cost**
14. **One (1) Service - Mobilization Cost**
15. **Two (2) Years - Support**

e.9 Queueing / Appointment System Infrastructure

1. **Six (6) Units - Kiosk Stand with Touch Screen Monitor and Printer**
2. **Six (6) Units - Kiosk Audio Panel**
3. **Twelve (12) Units - Kiosk Interactive 65" SMART TV**
4. **One Million (1M) Credits - SMS**
5. **One (1) Service - Vulnerability And Pen-Testing**
6. **One (1) Service - Database Modelling Design Services**
7. **One (1) Service - Installation and Configuration Services**
8. **One (1) Service - Application Installation**
9. **One (1) Service - User Workflow Integration**
10. **One (1) Service - SSL and DNS Configuration**
11. **One (1) Service - Integration to BASC RDBMS Database**
12. **One (1) Service - Data Migration**
13. **One (1) Service - Project Management Services**
14. **One (1) Service -User Acceptance Testing (UAT)**
15. **One (1) Service - User Training Services**
16. **One (1) Service - Scaling and Optimization**
17. **One (1) Service - Manpower Cost**
18. **One (1) Service - Mobilization Cost**
19. **Two (2) Years - Support**
20. **One (1) Year - Warranty**

e.10 Executive Information System Infrastructure

1. **One (1) Service - Vulnerability And Pen-Testing**
2. **One (1) Service - Database Modelling Design Services**
3. **One (1) Service - Installation and Configuration Services**
4. **One (1) Service - Application Installation**

5. **One (1) Service - User Workflow Integration**
6. **One (1) Service - SSL and DNS Configuration**
7. **One (1) Service - Integration to BASC RDBMS Database**
8. **One (1) Service - Data Migration**
9. **One (1) Service - Project Management Services**
10. **One (1) Service - User Acceptance Testing (UAT)**
11. **One (1) Service - User Training Services**
12. **One (1) Service - Scaling and Optimization**
13. **One (1) Service - Manpower Cost**
14. **One (1) Service - Mobilization Cost**
15. **Two (2) Years - Support**

e.11   Campus Portal System Infrastructure

1. **One (1) Service - Vulnerability And Pen-Testing**
2. **One (1) Service - Database Modelling Design Services**
3. **One (1) Service -Installation and Configuration Services**
4. **One (1) Service - Application Installation**
5. **One (1) Service - User Workflow Integration**
6. **One (1) Service - SSL and DNS Configuration**
7. **One (1) Service - Integration to BASC RDBMS Database**
8. **One (1) Service - Data Migration**
9. **One (1) Service -Project Management Services**
10. **One (1) Service - User Acceptance Testing (UAT)**
11. **One (1) Service - User Training Services**
12. **One (1) Service - Scaling and Optimization**
13. **One (1) Service - Manpower Cost**
14. **One (1) Service - Mobilization Cost**
15. **Two (2) Years - Support**

e.12   University Library System Infrastructure

1. **One (1) Unit - Kiosk (Self Check-in & Self Check-out) with Monitor and Barcode Reader.**
2. **Fifty Thousand (50,000) PCS - RFID Tags for Books**
3. **Two (2) Units - RFID Reader**
4. **One (1) Unit - Barcode Printer**
5. **Twenty Five (25) Rolls - Barcode Sticker**
6. **One (1) Unit - Barcode 3D Scanner**
7. **One (1) Service - Vulnerability And Pen-Testing**
8. **One (1) Service - Database Modelling Design Services**
9. **One (1) Service - Installation and Configuration Services**
10. **One (1) Service - Application Installation**

11. **One (1) Service - User Workflow Integration**
12. **One (1) Service - SSL and DNS Configuration**
13. **One (1) Service - Integration to BASC RDBMS Database**
14. **One (1) Service - Data Migration**
15. **One (1) Service - Project Management Services**
16. **One (1) Service - User Acceptance Testing (UAT)**
17. **One (1) Service - User Training Services**
18. **One (1) Service - Scaling and Optimization**
19. **One (1) Service - Manpower Cost**
20. **One (1) Service - Mobilization Cost**
21. **Two (2) Years - Support**
22. **One (1) Year - Warranty**

e.13   Internet Connectivity

1. **Eighteen (18) Months - Speed requirement: 5 Gbps bandwidth**
    a. Connection should be of cable type, preferably fiber-optic; wireless solutions may be considered.
    b. No limitations on traffic/ports; bandwidth capacity should be ensured through a direct IP connection.
    c. A subnet of at least 14 static publicly routable IP addresses is required.
    d. Service reliability must be ensured. Overall uptime should not be less than 99%.
    e. All necessary hardware, cabling, and software (if required for Internet service) should be provided and set up by the provider.
    f. Support managed VPN services.
    g. ISP must be able to manage the Customer Premises Equipment (CPE) to be installed in the Bulacan Agricultural State College.
    h. Traffic management, network monitoring, and access to raw log files.
    i. Fiber optic connectivity from the ISP to the Internet backbone.
2. **One (1) Unit - Multiple WAN Router**
3. **One (1) Unit - Core Routing Switch**
4. **Four (4) Units - Distribution Switch**
5. **Ten (10) Units - QSFP+ Module XQ+CM0000-XS+**
6. **One (1) Service - Project Management Services Network Configuration Services**
7. **One (1) Service - Training and Knowledge Transfer**
8. **One (1) Service - Scaling and Optimization (Testing and Analysis by Fluke Systems)**
9. **One (1) Service - Manpower Cost**
10. **One (1) Service - Mobilization Cost**
11. **Two (2) Years - Support**
12. **One (1) Year - Defect Liability**

e.14 Campus Network System

1. **Ninety-four (94) Units - Indoor Wireless Access Points**
   a. The proposed equipment shall support 802.11a/b/g/n/ac/ac wave2/ax protocol
   b. Triple-band design, support 2*2 MIMO, 2.4G ≥570Mbps, 5G ≥3200 Mbps, the maximum speed ≥3.8Gbps.
   c. Support built-in omnidirectional antenna
   d. 1 Gigabit Ethernet port
   e. 1*micro-USB port
   f. Support 802.3at standard PoE power supply and power adaptor
   g. AP full load working power consumption ≤ 17.5W
   h. AP transmit power ≤20dBm (smaller than 100mw), and power can be adjusted (adjustment granularity is 1dBm, adjustment range is 3dBm~27dBm)
   i. Protection degree≥41
   j. Operating temperature: -10~50℃, Humidity:5%~95% non-condensing
   k. Maximum Concurrent Client ≤ 256
   l. Support for SSID-based access user limit
   m. Support virtual AP technology, the number of SSID per RF ≥16, per AP ≥32;
   n. Support hiding of SSID
   o. Support multiple VLANs per SSID
   p. Support standalone mode and controller-based mode, the controller must be on-premise.
   q. AP supports tunnel mode and bridge mode. Each SSID can choose its own working mode.
   r. Support AP zero configuration, support Layer 2 and Layer 3 discovery, DHCP Option43, DNS domain name, and other Network Access Controller automatic discovery mechanisms
   s. Supports AP deployment across Layer 3 network, WAN, and NAT, and supports management tunnel encryption with Network Access Controller.
   t. Support the service sense via AI RF, including connection and delay for network access, DHCP, Gateway, DNS, internet and other server address
   u. Support the environment sense via AI RF, including channel utilization, co-channel AP, interference SSID
   v. Supports 802.1x, Portal, MAC address authentication, CA certificate authentication, QR code approval authentication, SMS authentication, APP authentication, guest account, Facebook, 802.1X WEP, WPA, WPA2, and other authentication methods;

w. Support 802.11i, AES, TKIP, and other encryption methods
x. Support WIPS/Anti-phishing WIFI via independent RF (non-user connected radio frequency) to conduct real-time detection, alarm, and countermeasures for illegal access points.
y. Support east-west traffic security, by detecting abnormal behavior to block viruses within the intranet
z. Support AP VPN, An encrypted communication tunnel can be established across the Internet and remote wireless controllers for encrypted remote access, the AP VPN should also support bidirectional access from site to site.
aa. Support intelligent load balancing based on the number of users, signal strength, and channel utilization, and automatically balance the access pressure between APs
bb. Support RF guiding function to guide wireless terminals to preferentially access 5G frequency bands with low interference
cc. Supports fit AP switching to gateway mode (non-fat AP mode), supports PPPOE dial-up, static IP, and DHCP.
dd. Support DHCP Server and DNS proxy
ee. Support the wireless controller escape function, when the wireless controller is down, The AP still can guarantee the normal online access of online users, and ensure that new users can also connect to the wireless network through authentication;

2. **One (1) Lot - Network Access Controller**
   a. The proposed controller shall support at least 5 service ports, 1 RJ45 Console port, 1 RJ45 Manage port, 2 USB Ports, and 2 Expansion Slots.
   b. The proposed controller shall support up to 1200 Access Points.
   c. The proposed controller shall support at least 8 built-in captive portal templates.
   d. The proposed controller shall support access controller and QoS-based Applications and URLs. The application fingerprints in the controller database should be larger than 6400 at least one year application and a URL update license should be included
   e. The proposed controller shall support a questionnaire survey and the survey result can be shown in the controller
   f. Web UI to show survey results in the controller
   g. The proposed controller can configure the time/data quota policy for Wi-Fi users.
   h. The proposed controller shall support the topology of the Switch.
   i. The proposed controller shall support the big data analysis for the guests, and Staff. The content should include the favorite Application, online duration, time starts, and checkout.
   j. The proposed controller shall be capable of identifying terminal types and assigning the different policy-based terminal types.

k. The proposed controller shall support the Graphical DHCP address pool from the controller and Switch and can view the following information in each address pool:
   i. Conflict IP address
   ii. Terminal devices fail to obtain an IP address
   iii. Address pool utilization
   iv. IP allocation times distribution
l. The proposed controller can be used as the gateway, support PPoE, NAT, Policy-based routing, DHCP server, DHCP replay, provide authentication and access controller for both wired and wireless users,
m. The proposed software controller shall support the following:
   i. 802.1x authentication
   ii. Portal authentication
   iii. MAC address-based authentication
n. Also need to support the integration with radius, LDAP, AD, and other Databases
o. The proposed controller shall support viewing of the following status of AP.
   i. Power supply load
   ii. System resources (memory, CPU)
   iii. Chip resources (MAC table, ARP table, ACL table, route table utilization)
   iv. Packet drop ratio
   v. Jumbo/Normal frame
   vi. Traffic load
   vii. Packet analysis (broadcast, multicast, and unicast packets)
   viii. Network protocol packet receiving rate analysis (DHCP, ICMP, ARP, and TCP packet rate)
p. The proposed controller shall support a security log to view switch attack events, including event types, attacker MAC address, and attack device types.
q. The proposed controller shall support the binding of terminals to IP based on switch port groups, and the binding of terminals and ports based on switch port groups.
r. The proposed controller manufacturer shall have a CMMI5 certificate to ensure the maturity of the product software.
s. The proposed Brand must be ISO 9001 Certified

3. **Forty-seven (47) Units - Access PoE Switch**
   a. The proposed equipment shall have at least
      i. 24 Gigabit Ethernet PoE Ports
      ii. 4* SFP+ ports

b. The proposed equipment shall support IEEE 802.3af/at power supply standard, single port maximum output PoE power 30W, the whole machine maximum output PoE power 370W

c. The proposed equipment shall have a console port

d. The proposed equipment shall support standalone Web GUI management and controller-based management.

e. The proposed equipment shall have a switching capacity of at least 336Gbps

f. The proposed equipment shall have packet forwarding of at least 108Mpps

g. The proposed equipment shall support ACL policies based on single-port and aggregation of interfaces.

h. The proposed equipment shall support ACL policies based on source IP address and MAC address.

i. The proposed equipment shall support ACL policies based on protocols (OSPF, UDP, ARP)

j. The proposed equipment shall support time-based ACL policies

k. The proposed equipment shall support 802.1p, IP and service level, DSCP priority settings

l. The proposed equipment shall support traffic shaping; and packet forwarding rate setting based on the outbound and inbound directions of switch ports.

m. The proposed equipment shall support COS and DSCP priority mapping based on switch groups

n. The proposed equipment shall support congestion management that supports multiple scheduling modes to implement traffic based on packet or port priority.

o. The proposed equipment shall support port mirroring and redirection.

p. The proposed equipment shall support DHCP snooping, DHCP server

q. The proposed equipment shall support the Spanning Tree protocol (STP, RSTP, MSTP)

r. The proposed equipment shall support IGMP v1/v2/v3 Snooping

s. The proposed equipment shall support 4,000 VLAN

t. The proposed equipment shall support 16,000 MAC address

u. The proposed equipment shall support MAC address dynamic learning

v. The proposed equipment shall support MAC address filtering

w. The proposed equipment shall support MAC address learning limit

x. The proposed equipment shall support link aggregation

y. The proposed equipment shall support M-LAG technology, cross-device link aggregation

z. The proposed equipment shall have layer 3 routing protocols such as static routing, RIP, OSPF, VRRP

       aa. The proposed equipment shall support east-west traffic security with policies based on area or user role, and prevent the virus spread within the intranet

       bb. The proposed equipment shall support topology in the controller, configuration and status checking can be done by clicking the topology.

       cc. The proposed equipment shall support the replacement by one click on the controller platform to replace the defective device

       dd. The proposed equipment manufacturer shall have a CMMI5 certificate to ensure the maturity of the product software

       ee. The proposed Brand must be ISO 9001 Certified

4. **One (1) Lot - Installation Consumables**
5. **One (1) Service - Network Design, Consultation (signed by PECE) and Permits**
6. **One (1) Service - Project Management Services**
7. **One (1) Service - Switch & Access Point Installation**
8. **One (1) Service -Network Configuration Services**
9. **One (1) Service - User's Training and Knowledge Transfer**
10. **One (1) Service - Scaling and Optimization (Testing and Analysis by Fluke Systems)**
11. **One (1) Service - Manpower Cost**
12. **One (1) Service - Mobilization Cost**
13. **One (1) Service - Forwarding Cost**
14. **One (1) Year - Campus Network System Defect Liability (Base Bundle Warranty-Support)**
    a. 1-Year warranty for all active devices
    b. 1-Year subscription to licenses
    c. 1-Year workmanship warranty and after-sales support

e.15 Fiber Optics Works

1. **Fiber Optics Passive Components**
   a. **Thirteen Thousand (13,000) Meters - Fiber Optic Cable Single Mode**
      i. 8-core Single-Mode 8
      ii. Fiber type=G.652.D and G.657.A1, TeraSpeed, OS2
      iii. Armored-type corrugated steel
      iv. Stranded loose-tube cable-type
      v. Gel-Free sub-unit type
   b. **Forty-seven (47) Units - FMS Panel**
      i. 1U standard size 19"
      ii. Includes 6 x LC SM Adaptors (12F)
      iii. Includes 12 x SM LC Pigtails
      iv. Includes 12 x Splice protectors

     v.   With splice tray and cable glands (12 port loaded)

  c. **One (1) Unit - EPX 4U Sliding Panel Splicing Cassette**
     i.   Symmetrical Body style
     ii.   Sliding Shelf
     iii.   Splicing Type = Heat Shrink, single fiber fusion
     iv.   Dimension: 44.45H x 482.6W x 320D mm
     v.   Powder coated finish

  d. **Sixteen (16) Units - G2 splice cassette 24LC/UPC with internal shutters OS2 with Pigtails**
     i.   LC/UPC Interface
     ii.   Method A Polarity
     iii.   Shuttered
     iv.   Maximum Insertion loss = 0.25db
     v.   Minimum Return Loss = 50db

  e. **One Hundred Eighty-Eight (188) Pcs - Fiber Patch cords**
     i.   LC-LC patch cord
     ii.   1.6mm Duplex
     iii.   Riser Single Mode OS2, 0.9M

  f. **Forty-Seven (47) Units - Data Cabinet 15U**
     i.   Wall-mounted type
     ii.   600 x 600mm x 15U Dimension
     iii.   Glass Door with lock with 8-Gang PDU

  g. **One (1) Lot - Handhole Fabrication and Heat Shrinkable Seal fiber optic splice dome closure**
     i.   With 24-core pigtail splicing plate termination

  h. **One (1) Lot - Earth Ground Material and Accessories**

2. **Fiber Optics Active Components**
  a. **Two (2) Units - Network Core Switches**
     i.   24-ports 10GE Layer 3 Managed Core and Aggregation Switch
     ii.   With 4 x 25G Ports Backward compatible with 10G
     iii.   With 40G Uplink capability
     iv.   With 150w AC Power Module
     v.   19" Rack-mountable
     vi.   Steel Case

  b. **Forty-seven (47) Units - Network Managed Switch**
     i.   24-Ports Layer 2 Managed Switch
     ii.   with 4 x 10G uplink ports
     iii.   19" Rack-mountable
     iv.   Steel Case

  c. **Four (4) Units - 40G Transceiver Modules**
     i.   40G LR Single-Mode Fiber Module
     ii.   QSPF+ Transceiver
     iii.   LC (1310nm)

    d. **Ninety-four (94) Units - 10G Transceiver modules**
        i.   10G LR Single-Mode Fiber Module
        ii. QSPF+ Transceiver
        iii. LC (1310nm)

3. **One (1) Service - Roughing Ins cost (piping of FOC per building, PVC/HDPE Pipes, Pullbox 10" x 10" x 6", Metal clamps, Tox & Screws, GI Wire)**

4. **One (1) Service - Labor Cost: Horizontal Direct Drilling (HDD) Wire Pulling, Roughing Ins for expose FOC going to IDF and/MDF**

5. **One (1) Service - Termination/Splicing of Pigtail connectors/OTDR Testing**

6. **One (1) Service - Electronic Permit Layout and design (As-Built Plan)**

7. **One (1) Service - Network Design and Consultation (signed by PECE)**

8. **One (1) Service - Project Management Services**

9. **One (1) Service - Switch Installation**

10. **One (1) Service - Network Configuration Services**

11. **One (1) Service - Training and Knowledge Transfer**

12. **One (1) Service - Cable Testing and Analysis by Fluke Systems**

13. **One (1) Service - Scaling and Optimization of Network Security**

14. **One (1) Service - Manpower Cost**

15. **One (1) Service - Mobilization Cost**

16. **One (1) Service - Forwarding Cost**

17. **One (1) Year - Defect Liability**

18. **One (1) Year - Fiber Optic Passive Components Support Warranty**
    a. 1-Year warranty for all active devices
    b. 1-Year subscription to licenses
    c. 1-Year workmanship warranty and after-sales support

e.16 Structured Cabling Works

1. **Structured Cabling Passive Components**
    a. **Sixty-seven (67) Units – 24-ports 1U Keystone-Type Patch Panel with IO assembly**
        i.   24-Ports 1U Keystone Blank Panel
        ii. 24-pcs Cat6+ Modular Jack, RJ45 Keyconnect Style
    b. **One Thousand Four Hundred Thirty-Three (1,433) Pcs – Cat6+ Modular Jack**
        i.   Cat6+ Modular Jack, RJ45 Keyconnect Style
        ii. T568 A/B wiring scheme
    c. **One Thousand Four Hundred Thirty-Three (1,433) Pcs – 1-meter Cat6 Stranded patch cord**

    i.   1-meter Cat6 Stranded patch cord

    ii.   T568B- Standard machine-made termination

  d. **One Thousand Four Hundred Thirty-Three (1,433) Pcs – 2 meters Cat6 Stranded patch cord**

    i.   2-meter Branded Cat6 Stranded patch cord

    ii.   T568B- Standard machine-made termination

  e. **Sixty-seven (67) Units – Cable Organizer 1U**

    i.   24 slots Plastic with cover

  f. **Three Hundred Seventy-Five (375) Rolls– UTP Cat6 Pure Copper**

    i.   Solid Bare-copper 24AWG 4-pairs

    ii.   PE-Polyethylene Insulation Material

    iii.   0.97 mm insulation diameter

    iv.   Outer jacket = PVC Polyvinyl Chloride

    v.   Operating Temperature = -20°C to +75°C

    vi.   Bending Radius = 23.2 mm (0.913 in)

  g. **Sixty-Seven (67) Units – 15U Data Cabinet 600 x 600mm**

    i.   Wall-mounted type

    ii.   600 x 600mm

    iii.   Glass Door with lock

    iv.   with 8-Gang PDU

  h. **Sixty-Seven (67) Sets – Fabricated Data Cabinet Bracket**

  i. **Five Hundred Fifteen (515) Pcs – Simplex Faceplate**

    i.   Keyconnect faceplates, 1-port

    ii.   Plastic-Made

  j. **One Hundred Thirty-Three (130) Pcs – Duplex Faceplate**

    i.   Keyconnect faceplates, 2-ports

    ii.   Plastic-Made

  k. **Six Hundred Forty-Five (645) Pcs – Faceplate Box**

    i.   Standard, rectangular

2. **Structured Cabling Active Components Technical Specification**

  a. **Seventy-Two (72) Units – 24-Ports L2+ Gigabit Switch + 4-SFP Ports Rack-mountable**

    ii.   24 x Gigabit Rj45

    iii.   4 x 10G SFP+ Ports

    iv.   19" Standard Size rack-mountable

  b. **Eighty-One (81) Units – 24-Ports L2+ High-PoE Switch Gigabit, with 4-SFP Module Rack-mountable**

    i.   24 x Gigabit POE Ports

    ii.   4 x SFP+ Slots

    iii.   19" Standards Size Rack-mountable

    iv.   PoE Budget: at least 370W

  c. **Six (6) Units – 16-Ports Aggregation Switch with 16-Ports 10GE Ports**

        i.   16 x 10G SFP+ Slots

        ii.   1U Rack Mountable 19"

        iii.   802.3at/af

   d. **Three Hundred Six (306) Units – SFP+ Module, Single Mode LC connector**

        i.   1310nm Single Mode

        ii.   LC Duplex Connector

        iii.   Up to 10Km distance

   e. **Three Hundred Six (306) Pcs – LC Fiber Patch Cord**

        i.   LC-LC Patch Cord

        ii.   1.6mm Duplex

        iii.   Riser Single mode OS2 0.9m

   f. **Sixty-Seven (67) Units – 1KVA UPS, Tower Type**

        i.   1000va/600w ratings

        ii.   1 x 12V/9AH Battery

        iii.   4 x Universal Socket

        iv.   Not more than 5.3kg

   g. **One (1) Unit – 5KVA UPS 4U, Online**

        i.   5000VA/5000W

        ii.   Dimension: Not bigger than 420 x 630 x 217mm

        iii.   Operating Voltage = 176 to 288 VAC

        iv.   Maximum Allowable Voltage = 288 VAC

        v.   Input Frequency without Battery Operation = 40 to 70Hz

        vi.   Factory Default voltage = 230 VAC

        vii. Waveform = Pure Sinewave

        viii. Backup time at Full Load = 7

        ix.   Backup time at Half Load = 18.5

        x.   Audible Noise <55dBA

   h. **Sixty-Seven (67) Units– PDU with reset and Switch, metal case**

        i.   8-Gang Metal with reset button

        ii.   Standard 19'' Rack Mountable

3. **Structured Cabling Roughing-ins**

   a. **One (1) Lot – Conduiting/Piping Materials**

   b. **One (1) Lot – Cable Tray, Cable Ladder and Support Assembly (NOC)**

   c. **One (1) Lot – Cable Tray Support & Hangers (Distribution per building)**

   d. **One (1) Lot – Restoration Materials**

   e. **One (1) Lot – Cable Distribution Materials**

   f. **One (1) Lot – Grounding materials, Installation and consumables**

   g. **One (1) Lot – External Cabling materials**

4. **One (1) Service - Network Design and Consultation (signed by PECE)**

5. **One (1) Service - Project Management Services**

6. **One (1) Service- Switch Installation**
7. **One (1) Service - Network Configuration Services**
8. **One (1) Service - Training and Knowledge Transfer**
9. **One (1) Service - External Cabling**
10. **One (1) Service - Scaling and Optimization (Cable Testing and Analysis by Fluke Systems)**
11. **One (1) Service - Manpower Cost**
12. **One (1) Service - Mobilization Cost**
13. **One (1) Service - Forwarding Cost**
14. **One (1) Year - Service -Structured Cabling Works Defect Liability**
15. **One (1) Year - Structured Cabling Passive Components Support Warranty**
    a. 1-Year warranty for all active devices
    b. 1-Year workmanship warranty and after-sales support

e.17 IT Security Operations Center & Network Operations Center

1. **One (1) Lot – Indoor Video Wall**
   a. **One (1) Lot – LED Panel**
      i. Must have 4.2x2.025m P0.9375 INDOOR LED SCREEN
      ii. LED Lamp Parameter: Color Configuration: RGB 3in1, Color: RED, GREEN, BLUE, Luminance: 990-1210 mcd, 1980-2420 mcd, 495-605 mcd, Viewing Angle: 160º/160º, Wavelength: 625-630 nm, 520-525 nm, 465-470 nm
      iii. Must have LED Module Parameter: Pixel pitch(mm) 0.9375,
      iv. Pixel configuration COB, Module size(mm) W 300 H 168.75, Module resolution(dots) W 320 H 180, Drive IC ICN1069
      v. Must have LED Cabinet Parameter: Cabinet size (mm) W 600 H 337.5, Cabinet resolution (dots) W 640 H 360, Cabinet pixels (dots) 230400, Cabinet material Die Casting Aluminum, Cabinet weight (kg) 4.8
      vi. Must have LED Screen Parameter: Screen size(m)W 4.2 W 2.025 H, Screen resolution(dots)W 4480 W 2160 H, Cabinet quantity(pc)W 7 W 6 H, Pixel density(pixel/m2) 1137778, Brightness(cd/m2) 600, Brightness adjusted 256 grade by software or by Auto-optic induced, Driving method 1/46 scan Display Color 439, 804, 651, 110, Viewing distance (m) ≥0.9375m, View angle Horizontal 160°; Vertical 160° Color contrast ratio 5000:1, Gray Grade 16bit, Refresh frequency (Hz) 3840, Protective Grade IP43, Working temperature(ºC) -30～+70, Stored temperature (ºC) -40～+80, Operation humidity(RH) 0-95%, Lifetime 100,000 hrs Maintenance Front side Working Voltage AC110 / AC220V±10% 47～63HZ, Power consumption Max: 800W/㎡ ; Ave:310W/㎡"

b. **One (1) Unit – Controller**
    i.   Must have Three kinds of LED 4K sending cards: (1) − H_20xRJ45 sending card loads up to 13,000,000 pixels, (2) − H_16xRJ45+2xfiber sending card loads up to 10,400,000 pixels and provides two OPT ports that copy the outputs on Ethernet ports, (3) − H_4xfiber sending card loads up to 20,800,000 pixels and supports three working modes, including independent, copy and backup. The three cards mentioned above cannot be used together to load the same screen.

    ii.   Must have Multi-capacity configuration on a single card slot: − 4x 2K×1K@60Hz, − 2x 4K×1K@60Hz, − 1x 4K×2K@60Hz

    iii.   Must have a simple screen configuration using a single card and connector

    iv.   Must have online status monitoring of all input and output cards

    v.   Must have hot-swappable input and output cards

    vi.   Must have an H_2xRJ45 IP input card that supports up to 512 IP camera inputs and input mosaic.

    vii.   Must have Auto decryption of HDCP-encrypted sources

    viii.   Must have Decimal frame rates supported

    ix.   Must have HDR10 and HLG processing

    x.   Each screen can have its output resolution.

    xi.   Must-have output mosaic: Adopts the frame synchronization technology, which ensures all the output connectors output the image synchronously, and the image is complete and played smoothly, without any stuck, frame loss, tearing, or piercing.

    xii.   Must support Irregular screen configuration: Supports irregular rectangle mosaic without any limitations.

    xiii.   Must have Input source grouping management

    xiv.   Must have eye-saver mode: Display the image in a warmer but less bright way to relieve eye strain.

    xv.   LCD bezel compensation

    xvi.   Must have multi-layer display: A single card supports 16x 2K layers, 8x DL, layers or 4x 4K layers. All layers support cross-connector output and the layer quantity is not reduced for cross-connector output.

    xvii.   Must have high-definition scrolling text, Customize the scrolling text content, such as slogans or notification messages, and set the text style, scrolling direction, and speed.

    xviii.   Must support up to 2,000 presets: Fade effect and seamless switching supported, less than 60ms preset switching duration

    xix.   Must have scheduled playback of preset playlist, Set whether to add the presets to playlist, which is ideal for monitoring, exhibitions, presentations, and other applications.

xx. Must have OSD settings on a single screen and adjustable, OSD transparency

xxi. Must have BKG settings, BKG images do not occupy the layer resources. The max width and height of a BKG image is up to 15K and 8K respectively.

xxii. Must have channel logo management: Set a text or image logo for identifying the input source.

xxiii. Must have input source cropping and renaming after cropping, Crop any input source image and form a new input source after cropping.

xxiv. Must have HDR and 10-bit video processing, allowing for a more exquisite and clear image.

xxv. Must have color adjustment: Output connector color and screen color adjustable, including brightness, contrast, saturation, hue, and Gamma.

xxvi. Must have XR scenario control

xxvii. Must have low latency: Reduce the latency from the input source to the receiving card to as low as 1 frame.

xxviii. Must have Web control: Real-time response and 1000M/100M self-adaptive network control, allowing for multi-user collaboration.

xxix. Must have monitoring of inputs and outputs on a Web page

xxx. Must support firmware updates on Web page

xxxi. Must have Ark Visualized Management and Control Platform app control on pad device.

xxxii. Must have self-test for fault detection

xxxiii. Must have auto-monitoring and alarms: Supports hardware monitoring, such as fan rotation speed, module temperature and voltage, and running status, and sends fault alarms if necessary.

xxxiv. Must support an optional power supply for higher system reliability.

xxxv. Must have backup design − Backup between devices − Backup between LED 4K sending cards.

c. **Accessories**
  i. **One (1) Unit -** Vacuum suction
  ii. **One (1) Unit -** Structure/Bracket 4.2x2.025m
  iii. **Nine (9) Units -** HDMI Cable (4K) 10 Meters

d. **Six (6) Units - 1500VA/900W Line Interactive UPS**

e. **Three (3) Units – Desktop Computers**
  i. Processor: Intel i5 or AMD Ryzen5 Processor (or higher)
  ii. Microsoft Office: Microsoft Office Home and Student 2021 or Microsoft Office 365 (1-year)
  iii. Operating System (OS): Windows 11 or higher
  iv. Memory: 16 GB (or higher)
  v. Storage: 500 GB SSD (or higher)

      vi.   Display: 14" display

      vii.   Graphic Card: Integrated Graphics

     viii.   Camera: 1080P FHD IR/RGB Hybrid

      ix.   Wireless: Wi-Fi 6E AX211 2x2, Bluetooth 5.1 or above

       x.   Ethernet Port or USB

      xi.   Power Cord: at least 45W

      xii.   Warranty: 1 Year Courier or Carry-in

2. **Desktop Computers w/ Extended Monitor**

   a. **Six (6) Units – Desktop Computer**

       i.   Processor: Intel i7 or AMD Ryzen7 Processor (or higher)

      ii.   Memory: 16 GB DDR4 or higher

     iii.   Form Factor: Tower

      iv.   Storage: at least 500 GB SSD (or higher)

       v.   Graphics Processing Unit (GPU): 4GB VRAM, GDDR5 (or higher)

      vi.   Display: at least 23.8" HD LED Display (or higher)

      vii.   Motherboard: B760-G WIFI D5 Micro-ATX Motherboard

     viii.   Power supply: Modular Power Supply 850W 80+ Gold ARGB Modular PSU

      ix.   Peripherals: Power Cords, Keyboard & Optical Mouse

       x.   Chassis: USB Ports, Audio Port, Mic Port, Power Switch, Reset Switch

      xi.   Microsoft Office: Microsoft Office Home and Student 2021 or Microsoft Office 365 (1-year)

      xii.   Operating System (OS): Windows 11 Pro or higher

     xiii.   Warranty: 1 Year Courier or Carry-in

   b. **Six (6) Pcs for 6 Units of Desktop – Extended Monitor**

       i.   Display: at least 23.8" HD LED Display (or higher)

   c. **Six (6) Units – UPS for Command Center**

       i.   Must have capacity 650VA

3. **Communication Equipment**

   a. **Six (6) Units – Desktop Computer Headphone**

       i.   Audio Specifications Must have, Frequency Response: 20 Hz to 20,000 Hz (standard range for human hearing), Impedance: 32 ohms (standard for most headsets; higher impedance may be better for high-end audio), Sensitivity: 90-120 dB (decibels) at 1 mW for sound level, Driver Size: 30-50 mm (larger drivers often provide a better bass response), Sound Output: Stereo or 7.1 Surround Sound (for gaming and multimedia), Total Harmonic Distortion (THD): Less than 1% (minimizes audio distortion), Noise-Canceling: Active (ANC) or Passive,

      ii.   Microphone Specifications Must have, Type: Omnidirectional or Unidirectional, Frequency Response: 100 Hz to 10,000 Hz, Sensitivity: -38 dB ± 3 dB, Noise Cancellation: Active or Passive

noise-canceling microphone, Mute Function: Usually included for easy on/off control,

    iii.   Connectivity Wired: 3.5 mm audio jack, USB (Type-A or Type-C)

    iv.   Controls Volume Control: On-ear cup or inline volume adjustment, Playback Control: Some models allow pause/play/skip for media.

b. **Six (6) Units – IP Phone Handset** Note: Covered in IP-PA System and IP-PBX System

    i.   Must have the following physical specifications: 2.3-inch 128x48 pixel dot-matrix display, graphical LCD with backlight, Keypad: 33 keys, including: 4Soft-keys, 9 Function keys (Hold / Transfer / Voice message / Conference / Phonebook, MWI / Headset / Redial / Hands-free) 4 Navigation keys, 12 Standard Phone Digits keys, 3 Volume Control keys (Up/Down/Mute (Microphone), Desktop Stand x1 Status Indicator Light x1 (Red), RJ9/RJ11 Port x2: Handset x1, Headset x1, RJ45 Port x2: Network x1, PCx1 (Bridged to Network), Security Slot x1, DC Power Input: 5V/0.6A, Power Consumption (Adapter): 0.8~1.29W, Power Consumption (PoE): 1.25~1.86W, Device Dimensions: Desktop Stand (45°): 169x201.1x177.4 mm, Desktop Stand (50°): 169x191.9x185.8 mm, Wall mountable: 169x120.1x213.7 mm

    ii.   Must have 6-Way Audio Conference

    iii.   Must have at least 600 Call Logs

    iv.   Must have at least 1000 Local Phonebook

    v.   Must have at least 1000 Remote Phonebook

    vi.   Must have G.722, Opus Wideband Codec

    vii.   Must have G.711a/u,G.726,G.723.1, G.729A/B, iLBC Narrowband Codec

    viii.   Must have 2 X 10/100/1000 Mbps Network Rate

    ix.   Must have Power Supply PoE

    x.   Must support EHS Wireless Headset

    xi.   Must have Desktop Stand

    xii.   Must Support Plantronics wireless headset (Through Plantronics APD-80 EHSCable)

    xiii.   Must Support Recording (Through Server)

    xiv.   Must-Have Physical: 10/100/1000 Mbps Ethernet, dual bridged port for PC bypass

    xv.   Must Support IP Configuration: Static IP / DHCP / PPPoE

    xvi.   Must Support the Following Protocols: SIP 2.0 over UDP/TCP/TLS, RTP/RTCP/SRTP, STUN, DHCP, IPV6, LLDP, PPPoE, 802.1x, L2TP, OpenVPN, SNTP, FTP/TFTP, HTTP/HTTPS, TR-069, AES 128 & AES 256

    xvii.   Must-Have Generic IP Phone Features: 2SIPLines, HDVoice, PoEEnabled, Dot-matrix display screen, Handset/Hands-free

/Headset mode, DesktopStand/ Wall mountable (optional), Optional External Power Supply

xviii. Must Have the following Call Functions: Callout/ Answer/ Reject, Mute/Unmute(Microphone), CallHold / Resume, CallWaiting, Intercom, Caller ID Display, SpeedDial, AnonymousCall(Hide Caller ID), CallForward(Always/Busy/No Answer), CallTransfer (Attended/Unattended), CallParking/Pick-up (Depending on server), Redial, Do-Not-Disturb, Auto-Answering, VoiceMessage(with server), 6-wayConference, HotLine, Hot Desking.

4. **Two (2) Units – Laptop**
   a. Processor: Intel i7 or AMD Ryzen7 Processor (or higher)
   b. Microsoft Office: Microsoft Office Home and Student 2021 or Microsoft Office 365 (1-year)
   c. Operating System (OS): Windows 11 Pro or higher
   d. Memory: 16 GB (or higher)
   e. Storage: 500 GB SSD (or higher)
   f. Display: 14" display
   g. Graphic Card: Integrated Graphics
   h. Camera: 1080P FHD IR/RGB Hybrid
   i. Wireless: Wi-Fi 6E AX211 2x2, Bluetooth 5.1 or above
   j. Ethernet Port or USB
   k. Power Cord: at least 45W
   l. Warranty: 1 Year Courier or Carry-in

5. **One (1) Lot - Outdoor Video Wall w/ SMART LED Solar Powered Light**
   a. LED Panel
      i. Pixel Pitch 3.91mm
      ii. Pixel Configuration 1R1G1B
      iii. LED Type SMD1921
      iv. Brightness (Max) 5000 nit
      v. Color Temperature 3500K-10000K（adjustable）
      vi. Viewing Angle H140° / V120°
      vii. Pixel Density 65,536 dots/m²
      viii. Module Size 500mm×250mm
      ix. Module Resolution 128x64 dots
      x. Cabinet Size W500mm×H1000mm×D77mm
      xi. Cabinet Resolution (W×H) 128×256 dots
      xii. Cabinet Weight 17.0 kg ± 0.5
      xiii. Cabinet Material Aluminum
      xiv. Operating Temperature/
      xv. Humidity -40°C~+60°C/10~80%RH
      xvi. Storage Temperature/
      xvii. Humidity -40°C~+60°C/10~80%RH

        xviii.   IP Rating Front IP68/Rear IP66

        xix.   Mounting: Ground Structured Support for OUTDOOR VIDEO WALL DISPLAY UNIT (181"W X 138"H)

b. Four (4) Unit – SMART LED Solar Powered Light
      i.   Independent distributed power supply system
      ii.   Solar Powered w/ Smart Sensors
      iii.   High Quality Lithium Battery
      iv.   Input Voltage AC 110~220V (+/-10%)
      v.   Pole-Mounted installation
      vi.   Mounting: Ground Structured Support for OUTDOOR SMART LED Solar Powered Light

c. One (1) Lot - Controller Required: Quantity
      i.   Must have Sending box, Receiving card, and Light sensor

d. Accessories
      i.   **One (1) Unit -** Vacuum suction
      ii.   **One (1) Unit -** Structure/Bracket 4.2x2.025m
      iii.   **Nine (9) Units -** HDMI Cable (4K) 10 Meters
      iv.   **Two (2) Units -** 1500VA/900W Line Interactive UPS

e. One (1) Unit – Desktop Computer
      i.   Processor: Intel i5 or AMD Ryzen5 Processor (or higher)
      ii.   Microsoft Office: Microsoft Office Home and Student 2021 or Microsoft Office 365 (1-year)
      iii.   Operating System (OS): Windows 11 Pro or higher
      iv.   Memory: 16 GB (or higher)
      v.   Storage: 500 GB SSD (or higher)
      vi.   Display: 14" display
      vii.   Graphic Card: Integrated Graphics
      viii.   Camera: 1080P FHD IR/RGB Hybrid
      ix.   Wireless: Wi-Fi 6E AX211 2x2, Bluetooth 5.1 or above
      x.   Ethernet Port or USB
      xi.   Power Cord: at least 45W
      xii.   Warranty: 1 Year Courier or Carry-in

6. **One (1) Lot – Security Software Licenses**
   a. Access Rights Manager
   b. Patch Manager
   c. Serv-U File Transfer Protocol Server
   d. Serv-U Managed File Transfer Server
   e. Server Configuration Monitor
   f. Engineer's Toolset
   g. IP Address Manager
   h. Log Analyzer
   i. Network Performance Monitor
   j. Security Event Manager

      k.   Network Topology Mapper

7. **One (1) Service - Electronic Permit Layout and design (As-Built Plan)**
8. **One (1) Service - Electronic Permit Layout and design signed by PECE**
9. **One (1) Lot - Security Software Licenses w/ Dashboard**
10. **One (1) Lot - Structured Cabling (including external cabling)**
11. **One (1) Lot - Roughing-In Materials**
12. **One (1) Service - Network Design and Consultation**
13. **One (1) Service - Project Management Services**
14. **One (1) Service - Temporary Facility (Temfacil) for 30 days**
15. **One (1) Service - Installation & Configuration**
16. **One (1) Service - Network Configuration Services**
17. **One (1) Service - User's Training and Knowledge Transfer**
18. **One (1) Service - Scaling and Optimization**
19. **One (1) Service - Manpower Cost**
20. **One (1) Service - Mobilization Cost**
21. **One (1) Service - Forwarding Cost**
22. **One (1) Year - Support Warranty**

e.18   Campus Data Center Upgrade

1. **Non-Electrical Components**
   a. **Seven (7) Units - Data Racks**
      i.   1200mm Deep Static Rack Cabinet.
      ii.   Rack Capacity must be 42U
      iii.   Must be equipped with Casters and Leveling Feet
      iv.   Front and back doors must be perforated
      v.   Must have a load-carrying capacity of 950 kg or higher
      vi.   OPTIONAL: Front and Side Stabilizers
   b. **Three (3) Units - GPU Server**
      i.   Must have warranty Support (4Hr Resp)
      ii.   GPU Server Add ons
      iii.   Management Controller with 3-Year Subscription for Server Endpoint
      iv.   Console Manager with 3-year software subscription
   c. **One (1) Unit - Telephone Terminal Cabinet (TTC)**
      i.   The TTC must be made with stainless steel (304 or 316) gauge 16.
      ii.   At least (800mm x 500mm x 200mm), with canopy and locking mechanism.
      iii.   Water-resistant
2. **Electrical Components**
   a. **One (1) Lot - Power Management System**
      i.   Design and install based on the requirements of section 5.b (Electrical Works Services)

b. **Fourteen (14) Lot - Power Distribution Unit**
    i.   2 units shall be installed per data rack.
    ii. Input voltage (V): 200-230
    iii. Input Plug Type: IEC 60309 32 A 2P + E
    iv. Input current limit: 32 A
    v.   Load capacity: 7400 VA
    vi. Network frequency: 47...63 Hz
    vii. Outlet type and quantity: (20) IEC 60320 C13, (4) IEC 60320 C19

c. **One (1) Unit - Uninterruptible Power Supply 20kva (UPS) and One (1) Unit - Uninterruptible Power Supply 5kva (UPS)**
    i.   At least 20kVA/20kW rackmount and 5kVA/5kW rackmount
        1. INPUT:
            a) AC Input Nominal Voltage (single-phase): 220/230/240 Vac, 3 wire (L + N + G), connected via hardwire.
            b) AC Input Nominal Voltage (three-phase): 380/400/415 Vac, 5 wire (L1 + L2 + L3 + N + G), connected via hardwire.
            c) AC Input Voltage Range: 160 – 285 Vac (L-N) at full load, while providing nominal charging to the battery system; or 100 – 160 Vac (L-N) at 50% load, while providing nominal charging to the battery system.
            d) Input Frequency Range: 40-70 Hz, auto-selecting.
            e) Online Input Power Factor: 0.99 for 75% and 100% at 230 Vac.
            f) Green Mode Input Power Factor: $\geq$ 0.95 (for Resistive load $\geq$ 25%) at 230 Vac.) at 230 Vac
            g) Input Current Distortion: <4% for 50% Resistive load, <3% for 100% Resistive load.
            h) Surge Protection: 600 Joules
        2. OUTPUT:
            a) AC Nominal Output Voltage: Single-Phase
            b) Single-Phase: 220/ 230/ 240 Vac. models are factory set at 230 Vac.
            c) 3-Phase: 380/400/415 Vac. models are factory set at 400 Vac. (for 20kVA)
            d) Output Frequency: 50/60 +/- 4 Hz (auto-sense).
        3. BATTERY:
            a) Battery Type: Maintenance-free sealed lead-acid battery with suspended electrolyte, leakproof.
        4. INSTALLATION:
            a) All materials to be used in the installation should be included. From the tapping point to UPS.

d. **One (1) Unit - Generator with Automatic Transfer Switch (ATS)**
    i.   50kVA Generator with Built-in ATS or ATS Ready

  ii. Automatic start, Electric start

  iii. Phase: 3-Phase/1-Phase

  iv. Operating Mode: Silent/Soundproof

  v. Frequency Rating (Hz): 50-70

  vi. Voltage Rating (V): 220-240

  vii. Engine type: Turbo Diesel

  viii. Large capacity fuel tank

  ix. Cooling System: Water cooled

  x. Protection System: Low oil alarm, Temperature sensor

  xi. Should Include installation and configuration services

e. **One (1) Set - Precision Air Conditioning Unit (PACU)**

  i. Cooling Capacity: 7 TR (20KW or 75,400 BTU/HR)

  ii. Power Supply: 230 Volts/60 Hz./3 Phase/PE

  iii. System Type: Air-cooled Non-Inverter Compressor

  iv. Air circuit:

   1. Air direction - Downflow Vertical Discharge

   2. Air inlet into the A/C on a large surface from the top of the unit

  v. Refrigerant Circuit:

   1. Equipped with an open refrigerant circuit the basic version consists of the following components:

    a. Fully Hermetic, Variable-speed DC Scroll Compressor

    b. Oil separator

    c. High-performance evaporator with a large surface area

    d. Liquid receiver with rota lock on-off valve and safety valve

    e. Dehydrating filter

    f. Liquid Sight Glass

    g. Thermostatic Electronic Expansion Valve

    h. High-pressure switches with manual resetting

    i. Needle valves for the refrigerant change for pressure control

    j. External Welded Connections

  vi. Standard Functions: Cooling Mode, Humidification & Dehumidification Mode

  vii. User Terminal:

   1. 64 x 120 pixel backlit LCD display and 6 backlit keys to move between and change parameters.

   2. Set the operating parameters, monitor the trend of the main working parameters, and read any alarm messages.

   3. Capable of enabling the following functions:

    a. Temperature and Humidity Control

    b. Setting double temperature and humidity set point

    c. Complete alarm detection system

    d. Alarm event history storage

     e. Automatic restart when power returns after a cutout
     f. Remote switching on/off of the unit
     g. Graphical display with icons displaying the state of the unit components
     h. Time bands for differential weekly switching on/off of the unit
     i. Management of the local network with setting the rotation of one or two units in standby
     j. Alarm sequence history with up to 100 alarm events
   viii. Fan Section (indoor):
     1. Radial fan with Electronically Commutated (EC) Motor
     2. High-efficiency EC motor with wear-resistant and maintenance-free ball bearing
     3. Variable speed motor modulating fan speed according to load density
     4. Eurovent Certification
     5. CE Certification
   ix. Air Filter:
     1. Made from self-extinguishing, synthetic fiber cellular material.
     2. Large filter surface, small pressure loss, long service life, and easy replaceability
   x. Condenser:
     1. Connections to the remote condenser
     2. Witha kit of legs for vertical discharge
     3. With rota lock shutoff valves
     4. Regulate the fan speed to ensure trouble-free operations

  f. **One (1) Unit - Dehumidifier**
   i. At Least 80 liters capacity
   ii. Adjustable Humidistat
   iii. Auto Restart
   iv. Automatic Bucket Full Shut-Off
   v. Automatic Humidistat Control
   vi. Bucket Full Indicator Light
   vii. External Drain Connect
   viii. Removable Water Tank
   ix. Washable Air Filter

3. **Safety Components**
  a. **Eight (8) Units - Fire Suppression System**
   i. HFC236fa (FE36) / /HCFC-123
   ii. At least 20 Lbs
   iii. Non-residual
   iv. Non-corrosive
   v. Lifetime chemical efficacy
   vi. Built-in sensor for automatic discharge

      vii.   Should include mounting plates and installation service

   b. **Two (2) Units - Metal Door with panic lock mechanism** Note: Included in E-classroom, E-conference room and SMART LED Solar Powered Light

      i.   The door jamb must be able to hold the weight of the metal door.

      ii.   The door hinge must be able to contain the stress of the sudden swing of the metal door induced by the panic lock mechanism.

     iii. Panic lock mechanism has priority over electronic security locks for exit.

   c. **Four (4) Units - Environmental Monitoring System**

      i.   Temperature Sensor and Humidity Data Logger.

      ii.   Logging Capacity: 60000 readings or higher.

     iii. Alarm status indicator.

     iv. Wired or Wireless connection mode.

      v.   Inclusion of Cloud access and/or mobile application for data access.

     vi. Optional: SMS and/or email capability.

4. **Warranty-Three (3) Years warranty**

   a. **Non-Electrical Components**

      i.   Data Racks

      ii.   Telephone Terminal Cabinet (TTC)

   b. **Electrical Components**

      i.   Electrical Management System

      ii.   Uninterruptible Power Supply 20kva

     iii. Uninterruptible Power Supply 5kva

     iv. Power Distribution Units

      v.   100 kW Generator with Automatic Transfer Switch (ATS)

     vi. Air Conditioning Units

     vii. Dehumidifier

   c. **Safety Components**

      i.   Fire suppression system

      ii.   Metal Door with panic lock mechanism

     iii. Environmental monitoring system

5. **Included Supply, Installation, and Configuration Services**

   a. **Civil Works Services**

      i.   Supply and installation of telephone terminal cabinet (TTC) (800mm x 500mm x 200mm) with canopy and locking mechanism.

      ii.   Supply and Installation of 2 Fire rated Metal Door with panic locking mechanisms 400mm(w) x 900mm(w) x 2100mm(h)(1-unit)

     iii. Supply and Installation of 2hr fire-rated wall partition 4" Thick (40 sqm.)

     iv. Supply and Installation of Anti-static raised flooring (75 sqm.)

      v.   Supply and Installation of the acoustic-type ceiling (75 sqm.)

     vi. Supply and Installation of LED Lighting with complete wiring

     vii. Painting inside the Data Center

    viii. Water Proofing (Covering Part of Data Center)

   ix. Supply and Installation of Emergency lights
   x. Installation of generator system housing
  b. **Electrical Works Services**
   i. Creation and installation of an electrical design supporting UPS power, air-conditioning, emergency light and exhaust fan system, with the capability to switch to a generator system with ATS and auto-start function.
   ii. Independent circuits for UPS and regular power distributed on a per rack basis.
   iii. Independent circuits for Air Conditioning Systems (AHU) on a per unit basis.
   iv. Provision of UPS circuits for security and environment monitoring devices.
   v. Provision of circuits for future use.
   vi. Installation of grounding systems.
   vii. Electrical panel boxes should be equipped with surge suppressors, low voltage detectors and power monitoring.
  c. **Mechanical Works Services**
   i. Plumbing works for AHU drain system.
   ii. Plumbing works for the Dehumidifier drain system.
   iii. Supply and installation of electrical wire ways from main electrical panel to generator location.
   iv. Supply and installation of data wire ways for inter-rack connections.

6. **One (1) Service - System Design Services**
7. **One (1) Service - Cabling Works**
8. **One (1) Service - Structured Cabling (including external cabling)**
9. **One (1) Service - Forwarding Cost**
10. **One (1) Service - Project Management Services**
11. **One (1) Service - User Acceptance Testing (UAT)**
12. **One (1) Service - User's Training and Knowledge Transfer**
13. **One (1) Service - Scaling and Optimization**
14. **One (1) Service - Manpower Cost**
15. **One (1) Service - Mobilization Cost**

e.19 Data Center Network Switches

1. **Two (2) Units - Core Switch**
 a. Hot swap power supply
 b. Open ports configuration with at least 16 100G QSFP28 ports
 c. Open ports configuration with at least 4 25G QSFP28 ports
 d. All open ports enabled
 e. Zero license fee for modules inserted

        i.   Four (4) 100 Gbit fiber module
       ii.   Four (4) 40 Gbit fiber module
      iii.   Six (6) 10 Gbit copper module
      iv.   Six (6)10 Gbit fiber module
       v.   100 Gbit DAC cable

2. **Two (2) Units - Core Fiber Switch**
3. **One (1) Unit - Router**
   a. Redundant Power supply
   b. Load balancing/failover capability for unequal bandwidth
   c. At least 12 1Gbit ports
   d. All open ports enabled
   e. Zero license fee for modules inserted
   f. One (1) Lot - x 10G SFP+ ports
   g. One (1) Lot - 10Gbit fiber module (SFP / SFP+ / SFP28)
   h. One (1) Lot - 10Gbit copper module
4. **One (1) Unit- Top of Rack (TOR) Switch PoE**
   a. Redundant Power supply
   b. At least 48 Gbit ports
   c. All open ports enabled
   d. Zero license fee for modules inserted
   e. Four (4) x 10G SFP+
   f. Two (2) 40G QSFP+
   g. 48 PoE Ports
   h. PoE out Standard: 802.3af/at
   i. Max power output per port (input 18-30 V): 1000 mA
   j. Max power output per port (input 30-57 V): 570 mA
   k. Total Power: 700w
   l. Six (6) 40Gbit fiber module
5. **One (1) Unit - Top of Rack (TOR) Switch NON-PoE**
   a. Redundant Power supply
   b. At least 48 Gbit ports
   c. All open ports enabled
   d. Zero license fee for modules inserted
   e. Four (4) x 10G SFP+
   f. Two (2) 40G QSFP+
   g. 48 PoE Ports
   h. Six (6) 40Gbit fiber module
6. **One (1) Unit - Management Switch**
   a. Redundant Power supply
   b. At least 24 Gbit ports
   c. 10Gbit fiber module
   d. SFP+ to SFP+ connector
7. **Two (2) Units - Access Point CAP-AC**

8. **One (1) Service - Electrical and Racking Design Services**
9. **One (1) Service - Network Design and Consultation**
10. **One (1) Service - Project Management Services**
11. **One (1) Service - Switch Installation**
12. **One (1) Service - Network Configuration Services Supplier**
13. **One (1) Service - Training and Knowledge Transfer**
14. **One (1) Service - Scaling and Optimization of Data Center Network Switches**
15. **One (1) Service - Manpower Cost**
16. **One (1) Service - Mobilization Cost**
17. **One (1) Service - Forwarding Cost**
18. **One (1) Year - Support Warranty**

e.20   Data Center Compute System & Data Center Block and File Storage

1. **Eight (8) Lots - HCI Cluster:**
    a. Form Factor: 2U rack server
    b. A total of eight (8) HCI Nodes
    c. Must have 2x 6426Y 16C 185W 2.5GHz Processor per node
    d. Must have a total of 256GB 2Rx8 4800MHz memory per node. Can support up to 8TB of memory
    e. Network Interfaces Must have a 2x 2-ports 10Gb Base-T
    f. Storage Drives Must have 2.5" cache drives and 3.5" for the capacity drives
    g. Must have 2x M.2 NVMe 960GB Read Intensive PCIe Gen 4 SSD for the boot drive
    h. Must have a total effective capacity of at least 500 TB and 700 TB RAW capacity on RF2 with 0% savings
    i. Must have redundant 1100W Platinum PSU
    j. 2U Rack mounted
    k. **Software Inclusion:**
        i.   Must include RHEL for Virtual Datacenters Premium 3 Years.
        ii. Must include Microsoft center licenses, CALs, and SQL Server with Software Assurance for the Education Sector.
    l. **Hypervisor Support:**
        i.   Supports industry-standard hypervisors like VMware ESXi, and native (bundled)
    m. **HCI Features:**
        ii. HCI licenses should be OEM
        iii. Can support heterogeneous clusters and storage nodes only
        iv. Must have VM-centric Snapshots & Clones

     v.   Must have Data Tiering
    vi.   Must have Online Cluster Grow/Shrink
    vii.   Must have Data Path Redundancy
   viii.   Up to 2 Tunable Redundancy Factor
    ix.   Basic Compression (LZ4) - Inline and post-process
     x.   Deep Compression (LZ4HC) - Greater efficiency for cold data
    xi.   Cache Deduplication
    xii.   Capacity Deduplication
   xiii.   Volume Groups - for in-cluster VMs
   xiv.   Async Replication (RPO = 1 hr or greater)
    xv.   Application Consistent Snapshots
   xvi.   Client Authentication
   xvii.   Centralized management can support multi-cluster management
  xviii.   Infrastructure management, monitoring, and health
   xix.   Enterprise authentication and RBAC
   xx.   REST APIs
   xxi.   Comprehensive search
   xxii.   Management can support the report
  xxiii.   Management has a customizable dashboard
  xxiv.   Management can plan and forecast the capacity
   xxv.   Resource Inefficiency Detection and Right-sizing
  xxvi.   Low-code/No-code Operations Automation
 xxvii.   Must have 50TiB licenses for Unified Storage

n. **Hardware Management Features:**
     i.   Configure an HCI Node
    ii.   Update an HCI Node
    iii.   Integrate into external apps through Integrators or REST APIs
    iv.   Manage servers, network, and storage
     v.   Auto-discover systems
    vi.   Monitor and track multiple systems, and handle faults including call home or equivalent
    vii.   Manage server, network, and storage updates with policies
   viii.   Configure multiple servers with software patterns
    ix.   Install operating systems and hypervisors
     x.   View the status summary of all hardware components
    xi.   Encapsulation, which enables us to configure the management software to change the firewall rules for the devices so that incoming requests are accepted only from the management software
    xii.   Compliant with NIST SP 800-131A or FIPS 140-2. Hardware management should support self-signed SSL certificates (issued by an internal certificate authority) or external SSL certificates (private or commercial CA).

xiii. Must include an audit log that provides a historical record of user actions, such as logging on, creating users, or changing user passwords.

o. **Hardware management platform should have a mobile app with the following features:**

i. View the status summary of all hardware

ii. Monitor the detailed status of each device

iii. Monitor inventory of each device

iv. Monitor audit events, hardware and management events, alerts, and jobs.

v. Performs power actions on the device.

vi. Act on common system-level tasks to minimize the risk of disruptions and downtime.

vii. Forward emails to share inventory, alerts, and event information.

viii. Perform initial configuration of servers, retrieve diagnostic information (virtual LCD) and perform actions, Initiate Hardware management from a mobile device.

ix. Monitor hardware inventory for unexpected component changes, and simply log the event or prevent booting

x. Enforces CNSA 1.0 level security

xi. Enables administrators to manage and synchronize configurations and firmware levels across multiple servers

xii. Should be available on both IOS and Android.

xiii. The HCI should provide a single unified management console for the management of the entire environment including virtualized environment as well as software defined storage environment, underlying Hardware, and associated components.

xiv. The HCI should provide enterprise data services such as deduplication and compression with erasure coding completely in software without dependency on any proprietary hardware.

xv. System Management must be able to provide proactive alerts for processors, voltage regulators, memory, internal storage, fans, power supplies, RAID controllers, and server ambient and sub-component temperatures.

xvi. Must be 100% software-defined without dependency on proprietary hardware or networking components.

xvii. Supports differing CPU & memory configurations of nodes within the same cluster

xviii. The hyper-converged platform must have FIPS 140-2 certification

xix. The hyper-converged platform must have Common Criteria security certification.

2. **One (1) Lot - KVM Switch with LCD Console**

a. 16-ports KVM switch and One (1) LCD Console. Must be the same brand as the HCI Nodes.

b. Must be able to handle 2 concurrent users.

c. Local user connection for KVM: VGA + USB

d. Maximum number of target systems: 16

e. Maximum video resolution: 1600x1200 (4:3),1680x1050 (wide)

3. **Thirty-Two (32) Roll - Green CAT6 Cable**
4. **One (1) Service - Storage System Installation**
5. **One (1) Service - Storage Network Configuration Services**
6. **One (1) Service - System Design Services**
7. **One (1) Service - Application Installation**
8. **One (1) Service - Project Management Services**
9. **One (1) Service - User Acceptance Testing (UAT)**
10. **One (1) Service - User's Training and Knowledge Transfer**
11. **One (1) Service - Scaling and Optimization of Data Center Compute System**
12. **One (1) Service - Manpower Cost**
13. **One (1) Service - Mobilization Cost**
14. **One (1) Service - Forwarding Cost**
15. **Three (3) Years - Software Warranty**
16. **Three (3) Years - Support Warranty**

e.21 Data Center Backup and Recovery System

1. **One (1) Lot - Enterprise On-Premises Data Backup System - Hardware**
   a. Must have at least 4410T 10C 150W 2.7GHz Processor.
   b. Must have at least 32GB 4800MHz memory with expansion of up to 8TB.
   c. Must have 4-ports 10Gb Base-T.
   d. Must have at least 22TB storage capacity.
   e. Must have 2x M.2 480GB Read Intensive SATA SSD.
   f. RAID Controller should support RAID 0,1,10,5,50,6 configurations with 4GB Cache.
   g. Must include Microsoft Windows Server Standard and Client Access Licenses (CALs) for the Education Sector.

2. **One (1) Lot - Enterprise On-Premises Data Backup System – Software**
   a. The backup and recovery solution should work with virtualized infrastructure based on version 6.x, 7.0, 8.0, Microsoft Hyper V 2022 or higher and later versions, Nutanix AHV version 6.5 and later, and Red Hat Virtualization version 4.4 SP1 (Red Hat Virtualization Manager version 4.5.0 or later) in a single product
   b. The solution should provide a centralized console to coordinate backup, replication, recovery verification and restore tasks. It is also used to set

up and manage backup infrastructure components.

c. The solution must provide immutability to prohibit modification or deletion of backup data as a result of malware activity or ransomware attacks.

d. Must provide agentless protection without the need to install agents inside each VM running on VMware, Hyper-V, Nutanix AHV, and RHV platforms

e. Must support Direct attached storage, Network attached storage, deduplicating storage appliances, and Object storage as backup repositories

f. Ability to utilize forever forward incremental, forward incremental & reverse incremental backup methodology.

g. Ability to perform agentless transaction log backup and replay and database restore to original or new SQL Server

h. Ability to select and choose multiple MSSQL databases when performing a mass database export, restore, or Instant Recovery.

i. The solution must provide automated tests and verification of each backup or replica to assure recoverability in case of production failure. The verification must include VM files, OS, and Applications including custom testing using scripts

j. The solution must provide 105 options to perform recovery.

k. The solution must have the ability to provide recovery delegation for individual or group VMs

l. Included built-in AES 256-bit encryption, compression, and deduplication in a single product without an additional option to purchase

m. The solution should support direct backup to object storage such as Amazon S3, Google Cloud Storage, IBM Cloud Object Storage, Microsoft Azure Blob Storage, and any S3-compatible object storage on-premise and in the cloud.

n. Ability to combine one or more backup repositories or object storage (AWS S3, Azure blob, GCP & any S3 object compatible) repositories and tier backup data from performance to capacity and archive tier.

o. Provide agent-based data protection for physical server on Windows or Linux with support for bare metal recovery, export as virtual disk & able to perform Instant Recovery to VMware Platform, Microsoft Hyper-V, and Nutanix AHV

p. Able to provide secure access to the backup console with optional two-factor authentication (2FA) that is based on Time-Based One-Time Passwords (TOTP)

3. **Twenty-Four (24) Months - Cloud-Based Disaster Recovery System**

a. The solution must have the ability to provide recovery delegation for individual or group VMs

b. The solution should support direct backup to object storage such as Amazon S3, Google Cloud Storage, IBM Cloud Object Storage, Microsoft Azure Blob Storage, and any S3-compatible object storage on-premise and in the cloud.

c. Provide agent-based data protection for physical server on Windows or Linux with support for bare metal recovery, export as virtual disk & able to perform Instant Recovery to VMware Platform, Microsoft Hyper-V, and Nutanix AHV

d. The billing of DR site resources must only be in effect when the resources are used.

e. Must provide for monitoring and periodic conduct of DR drills

f. Must have the capability to instantiate test instances for non-disruptive testing

g. Must be able to set up and initiate continuous data replication.

h. Must provide replication for at least 10 servers

4. **One (1) Service - Electrical and Racking Design Services**
5. **One (1) Service - Network Design and Consultation**
6. **One (1) Service - Disaster Recovery Site Provisioning and Testing**
7. **One (1) Service - Application Installation**
8. **One (1) Service - Project Management Services**
9. **One (1) Service - Network Configuration Services**
10. **One (1) Service - User's Training and Knowledge Transfer**
11. **One (1) Service - Scaling and Optimization of Data Center Backup and Recovery System**
12. **One (1) Service - Forwarding Cost**
13. **One (1) Service - Manpower Cost**
14. **One (1) Service - Mobilization Cost**
15. **Three (3) Years - Support Warranty**

e.22   Cloud Infrastructure-as-a-Service

1. **Cloud Infrastructure Subscription**
   a. Payment Terms
      i. BASC shall pay the vendor a fixed monthly fee for all cloud-related services.
      ii. The accumulated payables within the validity of the Subscription Period must not exceed the budget set for this procurement.
      iii. All activated additional resources must be billed not less than 30 calendar days from the date of activation, or 60 calendar days should it be activated beyond the agreed "cut-off" period.
      iv. All chargeable costs must be inclusive of VAT.
      v. BASC shall reserve the right to take over the root account and pay the billings directly. To avail of this prerogative, BASC must

inform the vendor in writing at least 3 months prior to contract expiration.

    b. One (1) lot – Cloud Management Services

        i. The vendor shall have Cloud provider preference, provided that the cloud provider adheres to the standards stated in section 2.b.

        ii. The vendor shall migrate agreed-upon resources from the current cloud computing service platform or its current site to the new cloud computing platform in coordination/collaboration with BASC's IT team.

        iii. The vendor shall provide counterpart technical support in the setup, configuration and monitoring of cloud infrastructure.

2. Cloud Infrastructure Standards

    a. Cloud infrastructure providers should have global presence.

    b. Certified for Information security management systems (ISO 27001)

    c. Certified for Code of practice for information security controls based on ISO/IEC 27002 for cloud services (ISO/IEC 27017)

    d. Certified for Code of practice for protection of personally identifiable information (PII) in public clouds acting as PII processors (ISO/IEC 27018)

3. Data Center Standards

    a. Must have the capability to deploy a Highly Available and Multi-Zone Disaster Recovery solution across multiple data centers within the ASEAN Region

    b. Must have the ability to provide a managed relational database service that can be integrated with any chosen software solutions.

    c. Must have the capability to deploy standard virtual machines and cloud-native services.

4. Account Management

    a. The account ownership and its related services shall belong to the vendor. Access rights should be given to BASC, as deemed necessary, to perform monitoring services related to the project

5. Warranty

    a. Cloud Management Services - One (1) Year

6. One (1) Lot - Secure Access Path

    a. Split Tunneling: Routes only specific traffic through the VPN.

    b. Always-On VPN: Maintains a constant secure connection.

    c. Kill Switch: Disconnects if the VPN tunnel fails.

    d. Dynamic Multipoint VPN (DMVPN): For dynamic and scalable VPN networks.

7. One (1) Service - Cloud Infrastructure Design and Consultation Services

8. One (1) Service -VPN Network Design and Consultation

9. One (1) Service - Cloud Resources provisioning and testing

10. One (1) Service- Project Management Services

11. One (1) Service - User's Training and Knowledge Transfer
12. One (1) Service - Manpower Cost
13. One (1) Service - Mobilization Cost
14. Three (3) Years - Support Warranty

e.23   **IP-PA System and IP-PABX System**

1. **IP-PABX System Components**
   a. **One (1) Unit - IP Phone System**
      i.   Base Users / Max Users up to 300 / 500
      ii.   Max Concurrent Calls 60 / 120
      iii. Base / Max Call Center Agents 300 / 500
      iv.   Max FXS Ports 16
      v.   Max FXO/BRI Ports 16
      vi.   Max GSM/3G/4G Ports 6
      vii. Max E1/T1/J1 Ports 2
      viii. Expandable D30 2
      ix.   NFC Read/Write
      x.   Ethernet Interfaces 2 x (10/100/1000 Mbps)
      xi.   Hard Disk 1 SATA (Up to 2TB)
      xii. USB 1 (USB Portable SSD, Up to 2TB) (USB Flash Drive, Up to 256)
      xiii. Power Supply AC 100-240V 50/60HZ
      xiv. Form Factor 1U Rackmount
      xv.   Environment Operation Range: 0°C to 40°C, 32°F to 104°F Storage Range: -20°C to 65°C, -4°F to 149°F Humidity: 10-90% non-condensing
   b. **One (1) Unit - D30 Expansion Module**
      i.   DSP module, used to expand the capacity of PBX.
      ii.   Extensions increase by 100 and concurrent calls increase by 30 additionally.
   c. **One (1) Unit - EX 08 Module**
      i.   Must support up to 4 modules (8 RJ11 ports).
   d. **Two (2) Units - O2 Module**
      i.   Ports 2 RJ11 FXO Ports
      ii.   Supported Model S20, S50, S100, S300
      iii. Ring Frequency Detection 15~50 Hz
      iv.   Ring Voltage Detection 30+ VRMS (depending on the FXO mode)
      v.   Termination PSTN Lines
      vi.   Echo Cancellation Signaling Modes Foreign Exchange Office: 2-way connection to PRX or key system trunk. Foreign Exchange Station Defined Network: provides access to major

carrier services. Private Line Automatic Ringdown (PLAR)-point-to-point unswitched connections.

e. **One (1) Unit - VoIP Gateway**
    i. RJ11 FXO Ports
    ii. LAN 1 10/100Mbps
    iii. Protocol SIP (RFC3261), IAX2
    iv. Transport UDP, TCP, TLS, SRTP
    v. Codec G.711 (alaw/ulaw), G.722, G.723, G.726, G.729A, GSM, ADPCM
    vi. Voice Capability ITU-T G.168 LEC Echo Cancellation, Dynamic Jitter Buffer, VAD, CNG, PLC
    vii. DTMF Mode RFC2833, SIP Info, In-band
    viii. Fax T.30
    ix. QoS DiffServ, ToS, 802.1 P/Q VLAN tagging
    x. Network DHCP, DDNS, OpenVPN, PPPoE, Static Route, VLAN
    xi. Network Protocol FTP, TFTP, HTTP, HTTPS, SSH
    xii. Management Protocol RADIUS
    xiii. Signaling FXS Loop Start, FXS KewlStart
    xiv. Caller ID: BELL202, ETSI (V23), NTT (V23-Japan), and DTMF-based CID
    xv. Disconnect Methods: Busy Tone, Polarity Reversal
    xvi. FXO Connectivity: Programmable AC Impedance, Hangup Detection, Answer Detection, Caller ID Detection
    xvii. Power 12V, 1A
    xviii. Mounting Desktop, Wall-mount
    xix. Compatibility: Interoperable with Asterisk, Lync Server, FreePBX and certified with Elastix

f. **Forty-Six (46) Units - IP Phone Handset**
    i. Must have a Linux Operating System
    ii. Must have 132x64 2.3" dot-matrix display
    iii. Must have 6-Way Audio Conference
    iv. Must have at least 600 Call Logs
    v. Must have at least 1000 Local Phonebook
    vi. Must have at least 1000 Remote Phonebook
    vii. Must have G.722, Opus Wideband Codec
    viii. Must have G.711a/u,G.726,G.723.1, G.729A/B, iLBC Narrowband Codec
    ix. Must have 2X10/100/1000Mbps Network Rate
    x. Must have Power Supply PoE
    xi. Must have an EHS Headset
    xii. Must have Desktop Stand

g. **Two (2) Units - Enterprise IP Phone**

    i.   Must have a 3.5-inch main color screen and 2.4-inch extended screen for DSS keys

    ii.   HD audio on speakerphone and handset

    iii.   Support 6-way audio conference

    iv.   Line keys on the main display

    v.   6 DSS keys on the extended screen, up to 30 DSS keys via 5 pages

    vi.   Built-in Bluetooth 4.2, support Bluetooth headset; support Wi-Fi Dongle

    vii. Support EHS wireless headset

    viii. Dual Gigabit ports, integrated PoE

    ix.   Stand with 2 adjustable angles of 45 and 50 degrees

2. IP-PA System Components

a. One (1) Unit - Digital IP Network Broadcasting Client Management Software

    i.   Support each audio terminal's operation, audio streaming transmission management, broadcasting from each audio terminal, and full duplex exchange of audio. It adopts B /S architecture and supports terminal management, user management, program broadcasting management, audio files management, record storage, and internal communication scheduling through web login.

    ii.   Support program database sources management, timing broadcast, and real-time media service VOD for all audio terminals, program broadcasting for each terminal, and data interface service for each audio workstation

    iii.   Support full-duplex voice data exchange, paging and call from each intercom terminal, various calling modes (like one button to call, one button to the intercom, one button to ask for help, one button to alarm, and so on), automatic answer, manual answer, and custom answer tone.

    iv.   Support multiple calling strategies, including call waiting, call forwarding, no answer reminder, and custom setting for time strategy and forwarding strategy. It supports setting up the call strategy of the intercom terminal. It can customize the call time from 0 to 180S or no limit. It can choose whether to answer automatically or not. It also supports customizing the choice of calling ringtones and waiting ringtones.

    v.   Support terminal short circuit linkage trigger. Users can arbitrarily set the trigger scheme and trigger terminal quantity. The trigger scheme includes short circuit output, music playback, and patrol alarm.

    vi.   Support to program timing tasks, multiple timing programs, support selecting any terminal, and setting any time. Support timed task

execution test, setting repetition period and a variety of audio source selections for timing tasks (music playback, sound card acquisition, terminal acquisition).

vii. Support multiple schemes of timed ringing to be enabled at the same time.

viii. Support multiple tasks to be carried out at the same time

ix. Support all schemes to be enabled/ disabled by one button.

x. Support bell scheme cloning, task execution, and stop control, disable and enable the function of a timing task.

xi. Support timing patrol, support execution time and repetition period of the custom patrol task, 0-30s customized interval of the indicator flashing, and external lock-free button short-circuit switch (with 3.3V LED indicator light).

xii. Support today's task list view, which makes it easy to manage all scheduled task information and execution status performed today.

xiii. Support terminal tamper alarm. Trigger terminal alarm when a terminal is demolished or trigger alarm for other terminal linkages. Support alarm task to automatically cancel the alarm function.

xiv. Support external power management of audio terminals, timing switch o,n and delay off.

xv. Support light control and the light mode configuration.

xvi. Support all zones, part of the zones fire linkage, N±N fire mode, manual alarm and digital alarm mixing, alarm configuration to trigger terminal collection tasks

xvii. Support terminals' login password central management, multiple priority management, easy automatic authorization, task priority, terminal priority, and user priority customization.

xviii. Support sub-control management of multi-users and arbitrary degrees to achieve remote program broadcasting management.

xix. Support multi-user, multi-level, specified permissions, specified functions, and specified terminals to classify and manage the background.

xx. The terminals support three-wire and four-wire volume control functions; the four-wire volume control needs an external power supply.

xxi. Support to set the zones and control the power to the 8-channel terminal through web background or sub-control client side.

xxii. Support to set the time display in the terminals can set 0 - 6 level brightness value, it can realize no time display mode when the terminal is offline.

xxiii. Support broadcast, intercom, real-time acquisition, terminal monitoring ,and recording.

xxiv. Support remote on-demand operation by remote controller.

xxv. Support terminal audio acquisition and broadcast function.

xxvi. Support local audio collection function, the local file can be played to any designated terminal.

xxvii. Support scheduled offline ringing function, which enables the terminal to perform scheduled ringing tasks when the network is disconnected

xxviii. Support offline downloading of ringing tasks;

xxix. Support to clear the offline tasks on the terminals.

xxx. Support the telephone broadcasting function, realize the function that the telephone initiates all zone broadcasting or part of the zones or single zone broadcasting.

xxxi. Support remote firmware upgrade to the terminal, no need to upgrade locally, which can reduce the maintenance work.

xxxii. Support background skin change function, you can switch skin themes freely according to your preference.

xxxiii. Support terminal details exporting function, support to export the configuration details of the current system terminal by table.

xxxiv. Support batch modification of the time of scheduled tasks and execution terminal.

xxxv. Support SDK kits, standard MFC dynamic link libraries, and HTTP protocols to achieve integration with third-party platforms.

xxxvi. Support the terminal to self-define the area division, realizing the management of the terminal's real-time status according to different zones.

xxxvii. The log records the system operation status and records the system operation and terminal working status in real-time. Each paging, call, and broadcast operation is recorded.

xxxviii. The system is compatible with any network structure such as router, switch, bridge gateway, Modem, Internet, 2G, 3G, and 4G.

xxxix. Windows service mode, support win7, server2008, and higher systems.

xl. It uses the background system service to run, which is an enterprise-level standard server working mode. The system can run automatically when the system is turned on. It has higher stability and reliability than the software running in the foreground of the interface.

b. **One (1) Unit - Desktop Computer**

i. Processor: Intel i7 or AMD Ryzen7 Processor (or higher)

ii. Memory: 16 GB DDR4 or higher

iii. Form Factor: Tower

iv. Storage: at least 500 GB SSD (or higher)

v. Graphics Processing Unit (GPU): 4GB VRAM, GDDR5 (or higher)

vi. Display: at least 23.8" HD LED Display (or higher)

vii.   Peripherals: Power Cords, Keyboard & Optical Mouse

viii.   Chassis: USB Ports, Audio Port, Mic Port, Power Switch, Reset Switch

ix.   Microsoft Office: Microsoft Office Home and Student 2021 or Microsoft Office 365 (1-year)

x.   Operating System (OS): Windows 11 Pro or higher

xi.   Warranty: 1 Year Courier or Carry-in

c. **One (1) Unit - 2KVA UPS**

i.   Must have capacity 2000VA

ii.   Must support input rated voltage 220Vac~240Vac 110Vac~120Vac

iii.   Must support voltage range 140Vac~290Vac 81Vac~145Vac

iv.   Must have a rated frequency range of 50Hz or 60Hz

v.   Must have output voltage 220/230/240 VAC 110/120 VAC

vi.   Must have AC Voltage Regulation (Batt. Mode) ±10%

vii.   Must have frequency range (Batt. Mode) 50Hz or60Hz±1Hz

viii.   Must transfer time 2-6ms

ix.   Must support battery type & number 12 V/9 Ah x 2

x.   Must charging voltage 27.4V±1%

xi.   Must have indicators: Battery mode Green lighting, AC mode Green lighting

xii.   Must have alarm: Battery mode Sounding every 10 seconds

xiii.   Must have a Low battery Sounding every second

xiv.   Must have Overload Sounding every 0.5 second

xv.   Must have Fault Continuously sounding

xvi.   Must have protection: Full protection Overload, discharge, and overcharge protection

xvii.   Must Operating temperature 0°C ~ +40°C (+32°F ~ +104°F)

xviii.   Must Operating humidity 0~90% RH(non-condensing)

d. **Two (2) Units - Desktop Intercom Paging Microphone**

i.   With desktop design, it's built-in 7-inch resistance touch screen by 800 × 480 dot matrix K600 + kernel 65K color, to fulfill clear display and sensitive touch.

ii.   With numeric and function keys interface.

iii.   Support paging to single or multiple zones, all zones. Support direct paging or intercom with terminal, support environmental monitoring to any terminal, with distance up to 5 meters.

iv.   With embedded computer technology and DSP audio processing technology, high-speed industrial-grade chips.

v.   Built-in 1 channel network hardware audio decoding module that supports TCP / IP, UDP, IGMP (multicast) protocol to achieve 16-bit stereo CD quality network audio signal transmission.

vi.   It is compatible with routers, switches, bridges, gateways, Modem, Internet, 2G, 3G, 4G, multicast, unicast, and other arbitrary network

structures.

vii. Support full-duplex two-way intercom function, built-in network echo cancellation module.

viii. Support two-way intercom between the terminals, with a network delay of less than 100ms, and suppress the network echo howling completely.

ix. Support hints of asking for help signal ringing and flashing lights, one key to accept the call, intercom, hands-free calls and receive broadcast, to achieve quick links.

x. Support multiple paging modes, including paging waiting, paging forwarding, and answer reminding.

xi. Support for answering automatically, manual answering, and support for custom answer tone.

xii. Support the user-defined setting of time for call forwarding, no answer, and call waiting.

xiii. Built-in 2W full-frequency hi-fi speaker, to fulfill two-way conversation and network monitoring.

xiv. One φ3.5 headphone jack and one φ3.5 MIC input socket, matching 95% headphones and a portable microphone in the market.

xv. With one line output for external amplifier expansion, and one line input for more audio source transmission.

xvi. One-way alarm output for short circuit trigger can be cascaded with an external alarm device or access control; one-way short circuit input can be used to trigger preset voice prompts (or alarm) and also can be used to control the access control to linkage with input short-circuit signal.

xvii. The digital products are more convenient for extension, with no limit by the geographical position, no need to increase management equipment in the control center, sharing network to save cabling and simple installation.

xviii. It supports remote updating to the hardware terminal, with no need to upgrade locally, to reduce maintenance work and make simpler operation.

xix. With 10 buttons, supports customized one-button paging and one-button broadcasting.

e. **Twenty (20) Units - Wall Mount Speakers 30W**

i. The equipment is designed with embedded computer technology and DSP audio processing technology.

ii. Built-in 1-channel network hardware audio decoding module, supports TCP/IP, UDP protocol, realizes the network transmission of 16-bit CD audio signal.

iii. Supporting POE (IEEE 802.3af) power supply mode, only one network cable is needed to connect to the POE switch, so the

> operation is simple and convenient.

> iv.   Equipped with a DC 24V standby power interface, it is suitable for power supply when power demand is greater than 10W or for non-POE networks.

> v.   Digital power amplifiers with intelligent gain adjustment, adaptive power supply, and automatic power adjustment are always in the state of performance optimization and efficiency maximization.

> vi.   Full-band, high-sensitivity amplifier unit with abundant power and high fidelity.

> vii.   Compatible with any network architecture such as router, switch, bridge gateway, Modem, Internet, 2G, 3G, and 4G.

> viii.   Supporting the broadcasting system to upgrade the terminal firmware remotely, without upgrading to the terminal locally, so as to reduce the work intensity of maintenance.

    f.   **Forty-six (46) Units - Outdoor Column Speaker 20W**

> i.   Outdoor waterproof column speaker, streamlined design.

> ii.   The shell is made of one-piece thickened aluminum alloy, which can effectively reduce the resonance of the cabinet when the sound pressure is high, and the surface adopts outdoor powder spraying to prolong the service life.

> iii.   The mesh cover is made of aluminum alloy, one-piece stamping, and covered with a high acoustic sponge, further improving the waterproof performance and increasing the service life.

> iv.   Using six 2.5-inch full-range speaker units, bearing high power, low distortion, and excellent vocal performance.

> v.   Built-in high-performance 100V audio transformer, which can reduce the loss in the circuit due to impedance.

> vi.   Using high-quality wires, it can be used at full load for a long time, with good anti-scald and conductivity capabilities.

> vii.   L-shaped bracket design, convenient and flexible adjustment scheduling, user-friendly operation, and installation debugging.

3. **One (1) Lot - Roughing-In Materials**
4. **One (1) Lot - Scope of Works**

> i.   Device Installation and Termination
> ii.   Cable Testing and Tracing
> iii.   Technical Configuration, Testing, Commissioning, System Configuration, Training, System Design, and System Management.

5. **One (1) Service - Network Design, Consultation (signed by PECE) and Permits**
6. **One (1) Service - Project Management Services**
7. **One (1) Service - Switch & Access Point Installation**
8. **One (1) Service - Network Configuration Services**
9. **One (1) Service - Training and Knowledge Transfer**

10. **One (1) Service - Scaling and Optimization (Testing and Analysis by Fluke Systems)**
11. **One (1) Service - Temporary Facility (Temfacil), Field Office**
12. **One (1) Service - Mobilization Cost**
13. **One (1) Service - Forwarding Cost**
14. **Two (2) Years - Warranty**

e.24 E-Library Infrastructure

1. **Twenty (20) Units – Desktop Computers**
   a. Processor: Intel i5 or AMD Ryzen 5 Processor (or higher)
   b. Memory: 8 GB DDR4 or higher
   c. Form Factor: Tower
   d. Storage: at least 500 GB SSD (or higher)
   e. Graphics Processing Unit (GPU): 4G GDDR5 (or higher)
   f. Display: at least 23.8" HD LED Display (or higher)
   g. Peripherals: Power Cords, Keyboard & Optical Mouse
   h. Chassis: USB Ports, Audio Port, Mic Port, Power Switch, Reset Switch
   i. Microsoft Office: Microsoft Office Home and Student 2021 or Microsoft Office 365 (1-year)
   j. Operating System (OS): Windows 11 or higher
   k. Warranty: 1 Year Courier or Carry-in
   l. Must have 650VA UPS
2. **Twenty (20) Units – Desktop Computers Headphones**
   a. Audio Specifications Must have, Frequency Response: 20 Hz to 20,000 Hz (standard range for human hearing), Impedance: 32 ohms (standard for most headsets; higher impedance may be better for high-end audio), Sensitivity: 90-120 dB (decibels) at 1 mW for sound level, Driver Size: 30-50 mm (larger drivers often provide a better bass response), Sound Output: Stereo or 7.1 Surround Sound (for gaming and multimedia), Total Harmonic Distortion (THD): Less than 1% (minimizes audio distortion), Noise-Canceling: Active (ANC) or Passive,
   b. Microphone Specifications Must have, Type: Omnidirectional or Unidirectional, Frequency Response: 100 Hz to 10,000 Hz, Sensitivity: -38 dB ± 3 dB, Noise Cancellation: Active or Passive noise-canceling microphone, Mute Function: Usually included for easy on/off control,
   c. Connectivity Wired: 3.5 mm audio jack, USB (Type-A or Type-C)
   d. Controls Volume Control: On-ear cup or inline volume adjustment, Playback Control: Some models allow pause/play/skip for media.
3. **One (1) Lot - Roughing-ins Materials**
4. **One (1) Service - Project Management Services**
5. **One (1) Service - User's Training & Knowledge Transfer**
6. **One (1) Service - User Training**

7. **One (1) Service - Manpower Cost**
8. **One (1) Service - Mobilization Cost**
9. **One (1) Service- Forwarding Cost**
10. **One (1) - Temporary Facility (Temfacil)**
11. **One (1) Service - Desktop Installation/Software Setup and Configuration**
12. **One (1) Year - Support Warranty**

e.25 E-Classroom, E-Room Infrastructure and SMART LED Solar Powered Light

1. **Twenty (20) Units - Smart TV**
   a. Screen size: 65"
   b. Resolutions: 3840x2160, Picture Quality: 4, Brightness Detection
   c. Ultimate Dimming, Contrast Enhancer, Adaptive Sound
   d. Multi-device experience, HDMI at least two (2) port, Bluetooth
   e. USB at least one (1) port, Wireless LAN Built-in,
   f. Power-supply: AC100-240V~ 50/60Hz
2. **Eight (8) Unit – SMART LED Solar Powered Light**
   i. Independent distributed power supply system
   ii. Solar Powered w/ Smart Sensors
   iii. High Quality Lithium Battery
   iv. Input Voltage AC 110~220V (+/-10%)
   v. Pole-Mounted installation
   vi. Mounting: Ground Structured Support for OUTDOOR SMART LED Solar Powered Light
3. **Eleven (11) Units - Interactive Smart Board**
   a. Screen size: 75" or higher
       i. Must have Built-in System
           1. CPU Frequency 2.2 GHz + 2.0 GHz
           2. GPU ARM Mali-G52 MP8 (8EE)
           3. Operating System Android 11.0
           4. CPU Quad-core A73 + Quad-core A53
           5. RAM 12 GB (System: 8 GB, Camera: 4 GB)
           6. ROM 64 GB
       ii. Must support the following function
           1. Operating System of External Module Windows 7/8/10;Android
           2. WiFi Dual-band 2.4 G/5 G; supports 802.11 a/b/g/n/ac wireless frequency range
           3. Wi-Fi Hotspot Dual-band 2.4 G/5 G; supports enabling Hotspot and Wi-Fi at the same time
       iii. LCD Panel Must have the following features
           1. Response Time 8ms

2. Panel Dimensions 75-inch to 98-inch
3. Backlight DLED
4. Aspect Ratio 16:9
5. Lifespan at least 50,000 h
6. Refresh Rate 60 Hz
7. Static Contrast VA: 4000 (typ.); IPS: 1200 (typ.)

iv. Must have the camera features
1. Pixel at least 48 MP
2. Auto Control, Auto flip; Auto white balance
3. Max. Resolution $3840 \times 2160@30$ fps
4. Storage 8 GB eMMC
5. Face Detection: Yes

v. Must have Device Ports
1. Light Sensor 1
2. Front Button $1 \times$ power button (right side)
3. Front Ports $1 \times$ USB 3.0 (left side)
4. Network Port $1 \times$ RJ-45
5. Wi-Fi $1 \times$ Wi-Fi; $1 \times$ Hotspot

vi. Must support the following power features
1. Power Requirements: 100V-240V, 50-60 Hz
2. Power Consumption (Normal): ≤430W
3. Power Consumption (Standby): ≤0.5W
4. USB $3 \times$ USB 3.0; $1 \times$ Micro USB
5. RS-232 $1 \times$ RS-232
6. Video Input $1 \times$ HDMI IN
7. Video Output $1 \times$ HDMI OUT
8. Audio Output 1×3.5 mm (Line OUT) port
9. IrDA 1
10. Microphone 8 Array
11. Type-C Port $1 \times$ Type-C

vii. Must have the following touchscreen features
1. Touch Technology Type Infrared touch technology
2. Response Time < 10 ms
3. Touch Points Supports 20 touch points and drawing up to 20 lines
4. Valid Touch 2 mm
5. Touch accuracy ± 1 mm
6. Writing Mode Finger + Pen (attaches magnetically)
7. Touch Resolution 32767×32767
8. Number of Multi-user Writing Points 10

viii. Must have the following speaker features
1. Frequency 150 Hz–20 kHz
2. Power 15 W $\times$ 3 (Max.)
3. Built-in Speaker 3

  ix. Must have Fingerprint Features
   1. Fingerprint Capacity 100
   2. Fingerprint Resolution 160×160
   3. FAR 0.001%
  x. Microphone Must have the following features
   1. Pick-up Distance Far-field sound pickup: 6 m–8 m (19.69 ft–26.25 ft)
   2. Number of Microphones 8
   3. AGC: Yes
   4. Echo Cancellation: Yes
   5. Polar Pattern: Omnidirectional
   6. Intelligent Noise Filtering: Yes
  xi. Must have the Following Features
   1. Power Supply 100–240 VAC, 50/60 Hz
   2. Product Material Metal casing
   3. Protective Glass Anti-dazzle tempered glass with a hardness of 7 on the Mohs scale
   4. Installation - Wall mount; mobile bracket
   5. Standby Power Consumption ≤ 0.5 W
   6. ENERGY STAR (except 98-inch model); CB; CE

4. **Eleven (11) units - UPS**
 a. Must have capacity 1500VA/900W
 b. Must support input rated voltage 220Vac~240Vac 110Vac~120Vac
 c. Must support voltage range 140Vac~290Vac 81Vac~145Vac
 d. Must have a rated frequency range of 50Hz or 60Hz
 e. Must have output voltage 220/230/240 VAC 110/120 VAC
 f. Must have AC Voltage Regulation (Batt. Mode) ±10%
 g. Must have frequency range (Batt. Mode) 50Hz or60Hz±1Hz
 h. Must transfer time 2-6ms
 i. Must support battery type & number 12 V/9 Ah x 2
 j. Must charging voltage 27.4V±1%
 k. Must have alarm: Battery mode Sounding, Low battery Sounding, Overload Sounding, and Fault Continuously sounding
 l. Must have protection: Full protection Overload, discharge, and overcharge protection
 m. Must Operating temperature 0°C ~ +40°C (+32°F ~ +104°F)

5. **Biometric and Door Access with connectivity (Restricted Rooms and Offices Only)**
 a. **Eighty-Six (86) Units - Fingerprint and Card Reader**
  i. Must have RS-485 Protocol1
  ii. Must support MIFARE 13.56 MHz Card or Fingerprint
  iii. Must Store Up to 3,000 Fingerprints
  iv. Must have Watchdog Function for Tamper Detection

v.   Must have Audible and Visual Indicators

vi.   Must support surface-mount installation

vii.   Must support unlock mode IC card, fingerprint, combination

viii.   Must have Card Reader Format 13.56 MHz MIFARE

ix.   Must have response Time 0.1s

b. **Eighty-Six (86) Units - Access Controller**

i.   Must have TCP/IP communication.

ii.   Must support communication protocols RS-485 and Wiegand.

iii.   Must support storing 100,000 user and 500,000 card-swiping records.

iv.   Must support multi-door interlock, multi-user unlock, aand nti-passback.

v.   Must support remote unlock.

vi.   Must support reader tamper alarm, intrusion alarm, unlocking timeout

vii.   Must have an alarm, duress alarm, invalid card exceeding threshold alarm, and incorrect password alarm.

viii.   Must support built-in RTC, manual time fixing, and automatic time fixing.

ix.   Must support online upgrades.

x.   Must support a watchdog mechanism to ensure the operation stability.

c. **Eighty-Six (86) Units - UPS**

i.   Must have capacity 1500VA/900W

ii.   Must support input rated voltage 220Vac~240Vac 110Vac~120Vac

iii.   Must support voltage range 140Vac~290Vac 81Vac~145Vac

iv.   Must have a rated frequency range of 50Hz or 60Hz

v.   Must have output voltage 220/230/240 VAC 110/120 VAC

vi.   Must have AC Voltage Regulation (Batt. Mode) ±10%

vii.   Must have frequency range (Batt. Mode) 50Hz or60Hz±1Hz

viii.   Must transfer time 2-6ms

ix.   Must support battery type & number 12 V/9 Ah x 2

x.   Must charging voltage 27.4V±1%

xi.   Must have alarm: Battery mode Sounding, Low battery Sounding, Overload Sounding, and Fault Continuously sounding

xii.   Must have protection: Full protection Overload, discharge and overcharge protection

xiii.   Must Operating temperature 0°C ~ +40°C (+32°F ~ +104°F)

d. **Ninety-Eight (98) Units - Electromagnetic Lock**

i.   The casing must made of Aluminum alloy

ii.   Must have the following functions: signal Output COM/NO/NC, Door Status Detection 1, relay

iii.   Must have Tension up to 280 kg (617.29 lb), tensile force

iv.   Must have anti-corrosion level basic protection

e. **Ninety-Eight (98) Units - Bracket for Door**
   i. Must support up to 280kg Magnetic Lock
   ii. Must the Material: High Strength Aluminum Alloy
   iii. Must support Door Type: Wooden, Metal, Fire door
   iv. Must support Open Way: 90°/180°

f. **Eight (8) Units - Card Enrollment Reader**
   i. Must be equipped with the 32-bit high-speed processor
   ii. Must have a built-in audible beeper
   iii. Must support Read Format 13.56MHz 125KHz
   iv. Must have Read Range 3cm-5cm (max.)
   v. Must have Communication Interface USB to PC
   vi. Must have Power Supply 5V DC/100mA
   vii. Must have CE and FCC Certificates

g. **Five Hundred (500) Pcs - Laminated Integrated Circuit (IC) Card**
   i. Must have Read/Write function
   ii. Must be made of PVC Material
   iii. Must support Standard: MIFARE S50, 13.56 MHz
   iv. Must have Range: Approximately 10 cm (3.94 in.)

h. **Accessories**
   i. Eighty-Six (86) Units - Infrared Exit Button
      1. Must have plastic or stainless steel case
      2. Must support Working temperature is -30°C~+60°C
   ii. Eighty-Six (86) Units - Emergency Break Glass Button
      1. Must have NC/NO/COM ports
      2. Must support Working temperature is -20°C~+55°C

i. **One (1) Lot - Software** Note: Stand-alone
      1. Must have video surveillance, access control, and various attendance functions.
      2. Must Built to be versatile, provide direct access to the web client, and feature P2P linking, real-time monitoring, video playback, event center, access control and attendance,
      3. Must have a monitoring screen that can be viewed in real-time on the platform. can also view snapshots taken of the monitoring screen, and play video recordings.
      4. Built to work with access control devices, it can be used to remotely open and close doors, access videos from cameras, and remotely configure alarm settings.
      5. Works together with attendance devices to allow you to manage shifts, handle errors, configure settings for business trips and leave of absence, and generate statistics on attendance.
      6. Access Control: Device Type Face Recognition Access Terminal (ASI), Access Controller, (ASC), Time & Attendance Terminal (ASA), Number of People 1000, Time

Template 128, Time Period Up to 4, Holiday Plan Up to 16, Anti-passback Group Max. 2, First Card Unlock Record Max. 64, Multi Card Unlock Record Max. 64, Inter-door Lock Record Max. 64, Real-time Event Display Max. 100

j. One (1) Unit - Desktop Computer
1. Processor: Intel i5 or AMD Ryzen5 Processor (or higher)
2. Memory: 16 GB DDR4 or higher
3. Form Factor: Tower
4. Storage: at least 500 GB SSD (or higher)
5. Graphics Processing Unit (GPU): 4G GDDR5 (or higher)
6. Display: at least 23.8" HD LED Display (or higher)
7. Peripherals: Power Cords, Keyboard & Optical Mouse
8. Chassis: USB Ports, Audio Port, Mic Port, Power Switch, Reset Switch
9. Microsoft Office: Microsoft Office Home and Student 2021 or Microsoft Office 365 (1-year)
10. Operating System (OS): Windows 11 Pro or higher
11. Warranty: 1 Year Courier or Carry-in
12. Must have 1*1500VA UPS

6. Thirty (30) Units - Biometric for employees with connectivity for time-in and timeout

a. Thirty (30) Units - Biometric - Time & Attendance
i. Must support up to 1.500 Fingerprints, up to 100.000 Record,s and up to 2.000 Cards (Optional).
ii. Must support Multi-languages.
iii. Must have Communication: TCP/IP, USB-Host, Wi-Fi (Optional).
iv. Must have High verification speed.
v. Must have professional firmware and platform.

b. One (1) Lot - Management Software Note: Included in HRIS and Payroll Management System

c. One (1) Unit - Desktop Computer
i. Processor: Intel i5 or AMD Ryzen5 Processor (or higher)
ii. Memory: 16 GB DDR4 or higher
iii. Form Factor: Tower
iv. Storage: at least 500 GB SSD (or higher)
v. Graphics Processing Unit (GPU): 4G GDDR5 (or higher)
vi. Display: at least 23.8" HD LED Display (or higher)
vii. Peripherals: Power Cords, Keyboard & Optical Mouse
viii. Chassis: USB Ports, Audio Port, Mic Port, Power Switch, Reset Switch
ix. Microsoft Office: Microsoft Office Home and Student 2021 or Microsoft Office 365 (1-year)
x. Operating System (OS): Windows 11 or higher
xi. Warranty: 1 Year Courier or Carry-in

xii.   Must have 1*650VA UPS

7. **One (1) Site - Electrical Works Temporary Facility (Temfacil)**
8. **One (1) Site - Structured Cabling (including External Cabling) / Roughing - In**
9. **One (1) Service - Smart TV Installation**
10. **One (1) Service - SmartBoard Installation, Setup, and Configuration**
11. **One (1) Site - Installation Components (Biometric Installation, Setup, and Configuration)**
12. **One (1) Service - Project Management Services**
13. **One (1) Service - User's Training & Knowledge Transfer**
14. **One (1) Service - Manpower Cost**
15. **One (1) Service Mobilization Cost**
16. **One (1) Service - Forwarding Cost**
17. **One (1) Year - Extended Support Warranty**

e.26   Software and Network Laboratories

1. **Twenty (20) Units - Desktop Computers**
    a. Processor: Intel i5 or AMD Ryzen5 Processor (or higher)
    b. Microsoft Office: Microsoft Office Home and Student 2021 or Microsoft Office 365 (1-year)
    c. Operating System (OS): Windows 11 or higher
    d. Memory: 16 GB (or higher)
    e. Storage: 500 GB SSD (or higher)
    f. Display: 14" display
    g. Graphic Card: Integrated Graphics
    h. Camera: 1080P FHD IR/RGB Hybrid
    i. Wireless: Wi-Fi 6E AX211 2x2, Bluetooth 5.1 or above
    j. Ethernet Port or USB
    k. Power Cord: at least 45W
    l. Warranty: 1 Year Courier or Carry-in
2. **Four (4) Units - Interactive SMART TV (65")**
    a. Screen size: 65"
    b. Resolutions: 3840x2160
    c. Picture Quality: 4
    d. Brightness Detection
    e. Ultimate Dimming
    f. Contrast Enhancer
    g. Adaptive Sound
    h. Multi-device experience
    i. HDMI at least two (2) port
    j. USB at least one (1) port
    k. Wireless LAN Built-in

 l. Bluetooth

 m. Power-supply: AC100-240V~ 50/60Hz

3. One (1) Unit - Interactive SMART Board

 a. Screen size: 75" or higher

  i. Must have Built-in System

   1. CPU Frequency 2.2 GHz + 2.0 GHz

   2. GPU ARM Mali-G52 MP8 (8EE)

   3. Operating System Android 11.0

   4. CPU Quad-core A73 + Quad-core A53

   5. RAM 12 GB (System: 8 GB, Camera: 4 GB)

   6. ROM 64 GB

  ii. Must support the following function

   1. Operating System of External Module Windows 7/8/10;Android

   2. WiFi Dual-band 2.4 G/5 G; supports 802.11 a/b/g/n/ac wireless frequency range

   3. Wi-Fi Hotspot Dual-band 2.4 G/5 G; supports enabling Hotspot and Wi-Fi at the same time

  iii. LCD panels must have the following features

   1. Response Time 8ms

   2. Panel Dimensions 75-inch to 98-inch

   3. Backlight DLED

   4. Aspect Ratio 16:9

   5. Lifespan at least 50,000 h

   6. Refresh Rate 60 Hz

   7. Static Contrast VA: 4000 (Typ.); IPS: 1200 (Typ.)

  iv. Must have the camera features

   1. Pixel at least 48 MP

   2. Auto Control, Auto flip; Auto white balance

   3. Max. Resolution $3840 \times 2160@30$ fps

   4. Storage 8 GB eMMC

   5. Face Detection: Yes

  v. Must have Device Ports

   1. Light Sensor 1

   2. Front Button $1 \times$ power button (right side)

   3. Front Ports $1 \times$ USB 3.0 (left side)

   4. Network Port $1 \times$ RJ-45

   5. Wi-Fi $1 \times$ Wi-Fi; $1 \times$ Hotspot

  vi. Must support the following power features

   1. Power Requirements: 100V-240V, 50-60 Hz

   2. Power Consumption (Normal): ≤430W

   3. Power Consumption (Standby): ≤0.5W

   4. USB $3 \times$ USB 3.0; $1 \times$ Micro USB

   5. RS-232 $1 \times$ RS-232

6. Video Input 1 × HDMI IN
7. Video Output 1 × HDMI OUT
8. Audio Output 1 × 3.5 mm (Line OUT) port
9. IrDA 1
10. Microphone 8 Array
11. Type-C Port 1 × Type-C

vii. Must have the following touchscreen features
1. Touch Technology Type Infrared touch technology
2. Response Time < 10 ms
3. Touch Points Supports 20 touch points and drawing up to 20 lines
4. Valid Touch 2 mm
5. Touch accuracy ± 1 mm
6. Writing Mode Finger + Pen (attaches magnetically)
7. Touch Resolution 32767 × 32767
8. Number of Multi-user Writing Points 10

viii. Must have the following speaker features
1. Frequency 150 Hz–20 kHz
2. Power 15 W × 3 (Max.)
3. Built-in Speaker 3

ix. Must have Fingerprint Features
1. Fingerprint Capacity 100
2. Fingerprint Resolution 160 × 160
3. FAR 0.001%

x. Microphone Must have the following features
1. Pick-up Distance Far-field sound pickup: 6 m–8 m (19.69 ft–26.25 ft)
2. Number of Microphones 8
3. AGC: Yes
4. Echo Cancellation: Yes
5. Polar Pattern: Omnidirectional
6. Intelligent Noise Filtering: Yes

xi. Must have the Following Features
1. Power Supply 100–240 VAC, 50/60 Hz
2. Product Material Metal casing
3. Protective Glass Anti-dazzle tempered glass with a hardness of 7 on the Mohs scale
4. Installation - Wall mount; mobile bracket
5. Standby Power Consumption ≤ 0.5 W
6. ENERGY STAR (except 98-inch model); CB; CE

b. OPS i5 8+256 Win 10
c. Screen SharingDongle

4. One (1) Unit - 1500VA/900W Line-interactive UPS
5. One (1) Lot - Roughing-ins Materials

6. One (1) Service - **Project Management**
7. One (1) Service - **Temporary Facility (Temfacil) for 30 days**
8. One (1) Service - **Smart Board Installation, Set up, and Configuration**
9. One (1) Service - **Training and Knowledge Transfer**
10. One (1) Service - **Smart TV Installation**
11. One (1) Service - **Desktop Installation/Software Setup and Configuration**
12. One (1) Service - **Manpower Cost**
13. One (1) Service - **Mobilization Cost, Demobilization**
14. One (1) Service - **Forwarding Cost**
15. One (1) Service - **Cabling works**
16. One (1) Lot - **Structured Cabling (including external cabling)**
17. One (1) Year - **Support Warranty**

e.27   SMART Function Hall

1. **SMART Function Hall (Audio System)**
   a. **Six (6) Units - Active Speakers**
      i. Power: 1300W Peak, 650W RMS
      ii. LF Driver: 12" Ferrite Woofer
      iii. HF Driver: 1" Neodymium Tweeter
      iv. Frequency Range: 50Hz - 20kHz
      v. Maximum SPL: 127dB
      vi. Mounting Options: Suspension points, pole socket, universal yoke mount
   b. **One (1) Unit - Digital Mixer with iPad Controller**
      i. Channels: 32 input, 40 mix channels
      ii. Inputs: 8 x XLR, 8 x XLR-1/4" combo, 1 x Dual RCA Stereo
      iii. Outputs: 2 x XLR, 1 x XLR (mono sum), 6 x XLR (mix out)
      iv. Effects: FLEX FX Multi-effects processor, 4 effects slots
      v. Control: Touch-sensitive motorized faders, DAW Control
   c. **One (1) Set - Control Room Monitor Speakers**
      i. Driver: 6.5" Composite Cone LF, 1.25" Silk Tweeter HF
      ii. Power: 130W RMS
      iii. Frequency Response: 42Hz - 20kHz
      iv. Maximum SPL: 104dB
   d. **Two (2) Units - Wireless Microphones with Stands**
      i. Frequency Response: 50Hz - 20kHz
      ii. Operating Range: 300 ft line-of-sight
      iii. Battery Life: Up to 14 hours
   e. **Four (4) Units - Wired Microphones with Stands**
      i. Frequency Response: 50Hz - 15kHz
      ii. Max SPL: 94dB SPL
   f. **One (1) Unit - Rack Mount Server**

i.   CPU: Intel i7 12th Gen
  ii. RAM: 32GB
  iii. Storage: 1TB SATA, 500GB SSD
  iv. Graphics Cards: 4

g. **One (1) Unit - PTZ Camera AI AUTO TRACKING**
  i.   Resolution: UHD 4K, 1080p signal format
  ii. Zoom: 30x optical, 16x digital
  iii. Connectivity: Ethernet, HDMI, 3G-SDI

h. **One (1) Unit - PTZ Camera Controller with LCD Screen**
  i.   Control: NDI, IP, and Serial Control
  ii. Protocols: VISCA, PELCO-P & D
  iii. Compatibility: Sony, NewTek
  iv. Display: LCD screen for real-time status

i. **One (1) Lot - Cabling and Installation SMART Function Hall**

2. **SMART Function Hall (Indoor Video Wall)**

a. **One (1) Lot - LED Panel**
  i.   Must have 4.2x2.025m P0.9375 INDOOR LED SCREEN
  ii. LED Lamp Parameter: Color Configuration: RGB 3in1, Color: RED, GREEN, BLUE, Luminance: 990-1210 mcd, 1980-2420 mcd, 495-605 mcd, Viewing Angle: 160º/160º, Wavelength: 625-630 nm, 520-525 nm, 465-470 nm
  iii. Must have LED Module Parameter: Pixel pitch(mm) 0.9375,
  iv. Pixel configuration COB, Module size(mm) W 300 H 168.75, Module resolution(dots) W 320 H 180, Drive IC ICN1069
  v.   Must have LED Cabinet Parameter: Cabinet size (mm) W 600 H 337.5, Cabinet resolution (dots) W 640 H 360, Cabinet pixels (dots) 230400, Cabinet material Die Casting Aluminum, Cabinet weight (kg) 4.8
  vi. Must have LED Screen Parameter: Screen size(m)W 4.2 W 2.025 H, Screen resolution(dots)W 4480 W 2160 H, Cabinet quantity(pc)W 7 W 6 H, Pixel density(pixel/m2) 1137778, Brightness(cd/m2) 600, Brightness adjusted 256 grade by software or by Auto-optic induced, Driving method 1/46 scan Display Color 439, 804, 651, 110, Viewing distance (m) ≥0.9375m, View angle Horizontal 160°; Vertical 160° Color contrast ratio 5000:1, Gray Grade 16bit, Refresh frequency (Hz) 3840, Protective Grade IP43, Working temperature(ºC) -30～+70, Stored temperature (ºC) -40～+80, Operation humidity(RH) 0-95%, Lifetime 100,000 hrs Maintenance Front side Working Voltage AC110 / AC220V±10% 47～63HZ, Power consumption Max: 800W/m^2 ; Ave:310W/m^2"

b. **One (1) Lot - Controller**
  i.   Must have Three kinds of LED 4K sending cards: (1)－H_20xRJ45 sending card loads up to 13,000,000 pixels, (2)－

H_16xRJ45+2xfiber sending card loads up to 10,400,000 pixels and provides two OPT ports that copy the outputs on Ethernet ports, (3) − H_4xfiber sending card loads up to 20,800,000 pixels and supports three working modes, including independent, copy and backup. The three cards mentioned above cannot be used together to load the same screen.

ii. Must have Multi-capacity configuration on a single card slot: − 4x 2K×1K@60Hz, − 2x 4K×1K@60Hz, − 1x 4K×2K@60Hz

iii. Must have a simple screen configuration using a single card and connector

iv. Must have online status monitoring of all input and output cards

v. Must have hot-swappable input and output cards

vi. Must have an H_2xRJ45 IP input card that supports up to 512 IP camera inputs and input mosaic.

vii. Must have Auto decryption of HDCP-encrypted sources

viii. Must have Decimal frame rates supported

ix. Must have HDR10 and HLG processing

x. Each screen can have its own output resolution.

xi. Must-have output mosaic: Adopts the frame synchronization technology, which ensures all the output connectors output the image synchronously, and the image is complete and played smoothly, without any stuck, frame loss, tearing, or piercing.

xii. Must support Irregular screen configuration: Supports irregular rectangle mosaic without any limitations.

xiii. Must have Input source grouping management

xiv. Must have eye-saver mode: Display the image in a warmer but less bright way to relieve eye strain.

xv. LCD bezel compensation

xvi. Must have multi-layer display: A single card supports 16x 2K layers, 8x DL, layers, or 4x 4K layers. All layers support cross-connector output and the layer quantity is not reduced for cross-connector output.

xvii. Must have high-definition scrolling text, Customize the scrolling text content, such as slogans or notification messages, and set the text style, scrolling direction, and speed.

xviii. Must support up to 2,000 presets: Fade effect and seamless switching supported, less than 60ms preset switching duration

xix. Must have scheduled playback of preset playlist, Set whether to add the presets to playlist, which is ideal for monitoring, exhibitions, presentations, and other applications.

xx. Must have OSD settings on a single screen and adjustable, OSD transparency

xxi. Must have BKG settings, BKG images do not occupy the layer resources. The max width and height of a BKG image are up to 15K

and 8K respectively.

xxii. Must have channel logo management: Set a text or image logo for identifying the input source.

xxiii. Must have input source cropping and renaming after cropping, Crop any input source image and form a new input source after cropping.

xxiv. Must have HDR and 10-bit video processing, allowing for a more exquisite and clear image.

xxv. Must have color adjustment: Output connector color and screen color adjustable, including brightness, contrast, saturation, hue, and Gamma.

xxvi. Must have XR scenario control

xxvii. Must have low latency: Reduce the latency from the input source to the receiving card to as low as 1 frame.

xxviii. Must have Web control: Real-time response and 1000M/100M self-adaptive network control, allowing for multi-user collaboration.

xxix. Must have monitoring of inputs and outputs on a Web page

xxx. Must support firmware updates on a Web page

xxxi. Must have Ark Visualized Management and Control Platform app control on pad device.

xxxii. Must have self-test for fault detection

xxxiii. Must have auto-monitoring and alarms: Supports hardware monitoring, such as fan rotation speed, module temperature and voltage, and running status, and sends fault alarms if necessary.

xxxiv. Must support an optional power supply for higher system reliability.

xxxv. Must have backup design − Backup between devices − Backup between LED 4K sending cards.

c. **Accessories**
  i. One (1) Unit - Vacuum suction
  ii. One (1) Unit - Structure/Bracket 4.2x2.025m
  iii. Nine (9) Units - HDMI Cable 8K 10 Meters
  iv. Six (6) Units - 1500VA/900W Line Interactive UPS

d. **Three (3) Units - DESKTOP COMPUTER**
  i. Processor: Intel i5 or AMD Ryzen5 Processor (or higher)
  ii. Microsoft Office: Microsoft Office Home and Student 2021 or Microsoft Office 365 (1-year)
  iii. Operating System (OS): Windows 11 Pro or higher
  iv. Memory: 16 GB (or higher)
  v. Storage: 500 GB SSD (or higher)
  vi. Display: 14" display
  vii. Graphic Card: Integrated Graphics
  viii. Camera: 1080P FHD IR/RGB Hybrid
  ix. Wireless: Wi-Fi 6E AX211 2x2, Bluetooth 5.1 or above
  x. Ethernet Port or USB

        xi.   Power Cord: at least 45W

        xii.   Warranty: 1 Year Courier or Carry-in

3. **One (1) Service - Project Management Services**
4. **One (1) Service - User Acceptance Testing (UAT)**
5. **One (1) Service - User Training and Knowledge Transfer**
6. **One (1) Service - Manpower Cost**
7. **One (1) Service - Mobilization Cost**
8. **One (1) Service - Forwarding Cost**
9. **One (1) Year- Support Warranty**

e.28   eConference Room with Video Conferencing

1. **Six (6) Units - Interactive Smart Board**
   a. Screen size: 75" or higher
      i. Must have Built-in System
         1. CPU Frequency 2.2 GHz + 2.0 GHz
         2. GPU ARM Mali-G52 MP8 (8EE)
         3. Operating System Android 11.0
         4. CPU Quad-core A73 + Quad-core A53
         5. RAM 12 GB (System: 8 GB, Camera: 4 GB)
         6. ROM 64 GB
      ii. Must support the following function
         1. Operating System of External Module Windows 7/8/10; Android
         2. WiFi Dual-band 2.4 G/5 G; supports 802.11 a/b/g/n/ac wireless frequency range
         3. Wi-Fi Hotspot Dual-band 2.4 G/5 G; supports enabling Hotspot and Wi-Fi at the same time
      iii. LCD panels must have the following features
         1. Response Time 8ms
         2. Panel Dimensions 75-inch to 98-inch
         3. Backlight DLED
         4. Aspect Ratio 16:9
         5. Lifespan at least 50,000 h
         6. Refresh Rate 60 Hz
         7. Static Contrast VA: 4000 (Typ.); IPS: 1200 (Typ.)
      iv. Must have the camera features
         1. Pixel at least 48 MP
         2. Auto Control, Auto flip; Auto white balance
         3. Max. Resolution $3840 \times 2160@30$ fps
         4. Storage 8 GB eMMC
         5. Face Detection: Yes
      v. Must have Device Ports

1. Light Sensor 1
2. Front Button 1 × power button (right side)
3. Front Ports 1 × USB 3.0 (left side)
4. Network Port 1 × RJ-45
5. Wi-Fi 1 × Wi-Fi; 1 × Hotspot

vi. Must support the following power features
1. Power Requirements: 100V-240V, 50-60 Hz
2. Power Consumption (Normal): ≤430W
3. Power Consumption (Standby): ≤0.5W
4. USB 3 × USB 3.0; 1 × Micro USB
5. RS-232 1 × RS-232
6. Video Input 1 × HDMI IN
7. Video Output 1 × HDMI OUT
8. Audio Output 1 × 3.5 mm (Line OUT) port
9. IrDA 1
10. Microphone 8 Array
11. Type-C Port 1 × Type-C

vii. Must have the following touchscreen features
1. Touch Technology Type Infrared touch technology
2. Response Time < 10 ms
3. Touch Points Supports 20 touch points and drawing up to 20 lines
4. Valid Touch 2 mm
5. Touch accuracy ± 1 mm
6. Writing Mode Finger + Pen (attaches magnetically)
7. Touch Resolution 32767 × 32767
8. Number of Multi-user Writing Points 10

viii. Must have the following speaker features
1. Frequency 150 Hz–20 kHz
2. Power 15 W × 3 (Max.)
3. Built-in Speaker 3

ix. Must have Fingerprint Features
1. Fingerprint Capacity 100
2. Fingerprint Resolution 160 × 160
3. FAR 0.001%

x. Microphone Must have the following features
1. Pick-up Distance Far-field sound pickup: 6 m–8 m (19.69 ft–26.25 ft)
2. Number of Microphones 8
3. AGC: Yes
4. Echo Cancellation: Yes
5. Polar Pattern: Omnidirectional
6. Intelligent Noise Filtering: Yes

xi. Must have the Following Features

        1. Power Supply 100–240 VAC, 50/60 Hz
        2. Product Material Metal casing
        3. Protective Glass Anti-dazzle tempered glass with a hardness of 7 on the Mohs scale
        4. Installation - Wall mount; mobile bracket
        5. Standby Power Consumption ≤ 0.5 W
        6. ENERGY STAR (except 98-inch model); CB; CE
    b. OPS i5 8+256 Win 10
    c. Screen SharingDongle'
    d. Must have 6*1500VA/900W Line-Interactive UPS

2. Four (4) Lots - Microphones, Speakers and Accessories

    a. **Four (4) Units - Full Digital Conference System Controller**
        i. Microphone capacity: Wired microphone≤4096: wireless microphone≤300
        ii. Simultaneous interpretation channel: 63+1 channels
        iii. Frequency response: 80~16KHz
        iv. Main power: 100-120VAC / 200-240VAC by switch
        v. Audio Input: LINEIN1: 775mVrms balanced; 2 output phoenix terminals: 775mVrms balanced; LINEIN2: 775mVrms unbalanced
        vi. Audio Output: LINEOUT1: 1Vrms balanced; 16 multi-function output phoenix terminals: 1Vrms balanced; LINEOUT2: 1Vrms unbalanced
        vii. Output load >1KΩ
        viii. EXTENSION port 1 for connecting conference system extension equipment
        ix. PC network port: 1 for connect to the computer
        x. DELEGATES output interface: 4 for connecting conference speaking units
        xi. RS-232 interface: 2 channels, 1 channel for camera tracking, 1 channel for docking external equipment
        xii. RS-485 interface: 1 for camera tracking
        xiii. Wired microphone connection method Special cable (6 pins)
        xiv. Rack Mountable

    b. **Four (4) Units - Audio Processor, AFC feedback suppression function**
        i. The panel is designed with AFC touch keys and working indicators.
        ii. Equipped with 2 network ports for connecting wireless AP and communicating with the conference server; connect to the digital conference server through network protocol to realize audio data transmission.
        iii. With automated functions, including gain sharing type auto-mixing and gate type auto-mixing.
        iv. Support AFC feedback suppression function, adopt dual notch + frequency shift method, automatically grab the howling point, and

set the notch frequency, the notch filter supports 12 fixed points + 12 dynamic points to effectively eliminate the howling function.

    v.   With automatic gain function, it can effectively keep the microphone volume within a certain dynamic range.

    vi.   With the microphone voice activation function, set the tracking threshold, and the camera tracking function can be realized when the microphone speech reaches the threshold.

    vii.   Working with the digital conference server, with the auto-mixing function, it can support up to 16 wired microphones and 8 wireless microphones at the same time.

    viii.   With 1 XLR balanced output and 1 RCA unbalanced output.

    ix.   With 1 EXTENSION interface, used to connect the extension port of the digital conference server.

    x.   With 1RS-232 communication interface (camera tracking), connected to the central controller or the camera tracking controller to realize the speech camera tracking function.

    xi.   With 1 RS-485 communication interface, used to connect cameras to achieve camera tracking.

    xii.   With 1 RS-232 communication interface (speech transcription), used to connect a speech transcription server to realize the function of speech transcription.

    xiii.   Simultaneous turned-on microphone: 16 wired mics + 8 wireless mics

    xiv.   Main power supply: 100-240AC/50-60Hz

    xv.   Audio output: LINE OUT 1: 1V XLR balanced output ; LINE OUT 2: 1V RCA unbalanced output

    xvi.   Output load: >1KΩ

    xvii.   Connection method: RJ45 network port

    xviii.   Rack Mountable

c. **Four (4) Units - 5G WIFI Full Digital Conference - Chairman Unit**

    i.   Adopt a 48KHz sampling rate, clear and bright sound.

    ii.   Using advanced processing chip architecture and a unique processing algorithm, the microphone power-on connection time only takes 5 seconds.

    iii.   Support intelligent detection of faults, prompting users of AP faults, host communication faults, and low signal strength.

    iv.   Support charging through Type-C port, support 18W fast charging, with smart indicator status.

    v.   Support setting SSID function through UI.

    vi.   Support multi-language switching, and uniformly set through PC software.

    vii.   The chairman unit has a speech timing function. When the timing speech function is turned on, the chairman unit is not restricted.

viii. With a voice control function, the microphone can be turned on intelligently. Support adjusting the sensitivity of the voice control and setting the closing time through the software.

ix. Support sign-in function, set and initiate through PC software.

x. Support conference voting function, five-key voting, three-key voting function, flexible and convenient.

xi. Adopt 128-bit AES encryption technology, support WPA/WPA2 wireless security technology, prevent eavesdropping and unauthorized access, and provide higher confidentiality of the conference system.

xii. Using wireless transmission technology, it only takes very little time for the venue layout to carry out activities.

xiii. The chairman has a priority function to turn off all speaking delegate microphones.

xiv. Equipped with a 3.5mm headphone jack for connecting an external microphone.

xv. Built-in lithium battery, the battery capacity supports 14 hours of continuous speech.

d. **Sixty-Eight (68) Units - 5G WIFI Full Digital Conference - Delegate Unit**

i. Adopt a 48KHz sampling rate, clear and bright sound.

ii. Using advanced processing chip architecture and a unique processing algorithm, the microphone power-on connection time only takes 5 seconds.

iii. Support intelligent detection of faults, prompting users of AP faults, host communication faults, and low signal strength.

iv. Support charging through Type-C port, support 18W fast charging, with smart indicator status.

v. Support setting SSID function through UI.

vi. Support multi-language switching, and uniformly set through PC software.

vii. Support speech timing and timing speech functions, and the delegate unit has the function of applying for speech.

viii. With a voice control function, the microphone can be turned on intelligently.

ix. Support adjusting the sensitivity of the voice control and setting the closing time through the software.

x. Support sign-in function, set and initiate through PC software.

xi. Support conference voting function, five-key voting, three-key voting function, flexible and convenient.

xii. Adopt 128-bit AES encryption technology, support WPA/WPA2 wireless security technology, prevent eavesdropping and unauthorized access, and provide higher confidentiality of the conference system.

xiii. Using wireless transmission technology, it only takes very little time for the venue layout to carry out activities.

xiv. The delegate unit can apply to speak with the approval of the chairman.

xv. Equipped with a 3.5mm headphone jack for connecting an external microphone.

xvi. Built-in lithium battery, the battery capacity supports 14 hours of continuous speech.

e. **Seven (7) Units - Power charger, with 10 USB charger interfaces Support 18W Charge**

i. All USB ports of the charger can be used simultaneously for batch charging of devices.

ii. Use a USB cable, connect one end to the charger and the other end to the conference unit; support 18W fast charging.

iii. With Auto circuit protection, all USB ports support short-circuit protection and self-recovery functions

f. **Four (4) Units - AP Transmitter**

i. Comply with the Wi-Fi 6 protocol standard (IEEE 802.11ax), backward compatibility with 802.11a/b/g/n/ac/Wave2, support MU-MIMO, and allow the AP to receive data from multiple terminals at the same time. The maximum transmission rate of the whole machine can reach 1.601Gbps, effectively providing higher-performance wireless access services in terms of coverage, access density, and traffic throughput.

ii. Support OFDMA spatial multiplexing technology and 1024 QAM modulation and demodulation algorithm, which can provide faster wireless Internet access and larger wireless coverage.

iii. Through the virtual wireless access point (Virtual AP) technology, up to 32 ESSIDs can be provided.

iv. Layer 2 isolation can be performed on the subnets using the same SSID or under the same VLAN to ensure user data security.

v. Support WPA3 security protocol.

vi. Support 80/160MHz high bandwidth frequency band.

vii. Support local power supply and PoE remote power supply.

viii. It is suitable for ceiling mounting, wall mounting, and desktop installation.

g. **Eight (8) Units - Speaker**

i. Adopt 1 mid-woofer and 2 cone tweeters.

ii. 12mm plywood housing, lightweight, wear-resistant spray paint treatment, and dust-proof net cotton outside.

iii. The frequency divider in precise design optimizes the vocal MF performance

h. **Four (4) Units - Amplifier**

i. 1U cabinet design, small in size and light in weight.

ii. Adopt the latest class D digital amplifier design, with low distortion and high efficiency.

iii. Adopt switched power supply technology, with high efficiency.

iv. Adopt a smart peak clipper to control the power module and speaker system to work in a safe range.

v. Designed with standard XLR input interface and LINK output interface.

vi. Support soft start to prevent absorbing large currents from the power grid during startup and interfering with other electrical equipment.

vii. Smart control forced heat dissipation design, low fan noise, and high heat dissipation efficiency.

viii. Support overvoltage protection, undervoltage protection, overcurrent protection, DC protection, output short circuit protection, temperature control, fan, and so on.

i. **Eight (8) Units - Professional Loudspeaker Wall - Mounted Bracket**
   i. Fixed panel size: 34×34mm (length×width)
   ii. Cabinet fixed panel size: 110mm
   iii. Weight: 0.31Kg

3. **One (1) Lot - Roughing-ins Materials**
4. **Six (6) Lots - Cabling Works**
5. **Six (6) Lots - Structured Cabling (including external Cabling)**
6. **Three (3) Licenses - Video Conferencing System**
7. **One (1) Service - Project Management Services**
8. **One (1) Service - User Acceptance Testing (UAT)**
9. **One (1) Service - User's Training & Knowledge Transfer**
10. **One (1) Service - Manpower Cost**
11. **One (1) Service - Mobilization Cost**
12. **One (1) Service - Forwarding Cost**
13. **One (1) Year - Warranty**

IV. *MANDATORY* *TECHNICAL REQUIREMENTS/QUALIFICATIONS*

A. Statement of accumulated similar completed government and private contracts within the last five (5) years with a total contract amount of at least Php 500,000,000.00 or 50% of the ABC.

   a. Contract Definition must be supported by the following documents:
      i. Copy of Contract or PO;
      ii. Certificate of Completion and Acceptance

B. The Software Provider (SP) should be in the business of software development for at least five (5) years with at least five (5) completed and accepted combined network and software projects.

C. The SP shall have at least one (1) software accredited by the Bureau of Internal Revenue (BIR) either an Inventory System or POS System or Accounting System.
D. The SP should have delivered at least (2) Government projects within the past 3 years.
E. The SP's Technical Director(s) such as Senior Project Manager, Senior System Project Manager, Senior Network Project Manager, Senior Infrastructure Project Manager must have a project management experience of at least five (5) years. Attach curriculum vitae, diploma, any government ID with signature, relevant certification/s and relevant training/s, seminar.
F. The SP shall be a partner/distributor of the OEM of the devices which has been in the market for at least 3 years.
G. The SP's Program Director must have a project management experience of at least five (5) years, with **ITIL Service Management Certification** or training and fifteen (15) years of experience in software architecture - development, service delivery management, state-of-the-art network infrastructure, and delivered project(s) in at least one of the 500 Fortune companies or at least one of the telecommunication companies in the Philippines. Attach curriculum vitae, diploma, any government ID with signature, relevant certification/s and relevant training/s, seminar.
H. The SP's Software Architect must have a **DevOps Foundation Certification** of at least five (5) years of experience. Attach curriculum vitae, diploma, any government ID with signature, relevant certification/s and relevant training/s, seminar.
I. The SP's Security Lead must be a **Certified Information Systems Security Professional (ISC)[2]** for at least ten (10) years of experience **and Certified Ethical Hacker (CEH)** for at least ten (10) years of experience. Attach curriculum vitae, diploma, any government ID with signature, relevant certification/s and relevant training/s, seminar.
J. The delivery period of the project is two hundred eighty (280) days.

V. *PROGRESS BILLING*

The Project Milestones are identified and aimed at improving the hard, soft, and infrastructure of the BASC organization leading to the following output and outcome:

15%	:	Upon Submission of Signed Contract
25%	:	Submission and Acceptance of Detailed Work Plan and Systems Design 29. University Information System 30. Learning Management System 31. Cashiering System 32. Human Resource Management System & Time Keeping System 33. Payroll Management System 34. Assets & Fleet Management System 35. Document Management System 36. Trouble Ticketing System 37. Queuing / Appointment System 38. Executive Information System 39. Campus Portal System 40. University Library System 41. eConference Room w/ Video Conferencing 42. Internet Connectivity 43. Campus Network System 44. Fiber Optics Works 45. Structured Cabling Works 46. IT Security Operations Center & Network Operations Center 47. Campus Data Center Upgrade 48. Data Center Network Switches 49. Data Center Compute System & Data Center Block and File Storage System 50. Data Center Backup and Recovery System 51. Cloud Infrastructure 52. IP-PABX System 53. Software & Networking Laboratories 54. E-Classroom, E-Room Infrastructure and SMART LED Solar Powered Light 55. E-Library Infrastructure 56. SMART Function Hall
26.43%		1st Batch Hardware Completion of Equipment Deliverables for the Following Components at BASC Facility 17. IT Security Operations Center & Network Operations Center 18. Campus Data Center Upgrade 19. Data Center Network Switches 20. Data Center Compute System & Data Center Block and File Storage System 21. Data Center Backup and Recovery System 22. IP-PABX System 23. Software & Networking Laboratories 24. E-Classroom, E-Room Infrastructure and SMART LED Solar Powered Light

		25. E-Library Infrastructure 26. SMART Function Hall 27. Campus Network System 28. Fiber Optics Works 29. Structured Cabling Works 30. Human Resource Management System & Time Keeping System 31. Document Management System 32. Queuing / Appointment System
		1st Batch User Acceptance Testing (UAT) Completion for the Following System Components at BASC Facility 8. Human Resource Management System & Time Keeping System 9. Payroll Management System 10. Assets & Fleet Management System 11. Document Management System 12. Trouble Ticketing System 13. Queuing / Appointment System 14. Campus Portal System
23.57%		2nd Batch Hardware Completion of Equipment Deliverables for the Following Components at BASC Facility 4. Internet Connectivity 5. University Library System 6. eConference Room w/ Video Conferencing
		2nd Batch User Acceptance Testing (UAT) Completion for the Following System Components at BASC Facility 6. Cloud Infrastructure 7. University Information System 8. Learning Management System 9. Executive Information System 10. University Library System
		Hardware Installation, Configuration and Integration 8. Campus Network System 9. Structured Cabling Works 10. IT Security Operations Center & Network Operations Center 11. Data Center Network Switches 12. Data Center Backup and Recovery System 13. IP-PABX System 14. E-Library Infrastructure
		Acceptance of Volume Testing 14. University Information System 15. Learning Management System

		16. Cashiering System
		17. Human Resource Management System & Time Keeping System
		18. Payroll Management System
		19. Assets & Fleet Management System
		20. Document Management System
		21. Trouble Ticketing System
		22. Queuing / Appointment System
		23. Executive Information System
		24. Campus Portal System
		25. University Library System
		26. eConference Room w/ Video Conferencing
	:	Completion of Training
		19. University Information System
		20. Learning Management System
		21. Cashiering System
		22. Human Resource Management System & Time Keeping System
		23. Payroll Management System
		24. Assets & Fleet Management System
		25. Document Management System
		26. Trouble Ticketing System
		27. Queuing / Appointment System
		28. Executive Information System
		29. Campus Portal System
		30. University Library System
		31. eConference Room w/ Video Conferencing
		32. Campus Network System
		33. IT Security Operations Center & Network Operations Center
		34. Campus Data Center Upgrade
		35. Data Center Backup and Recovery System
		36. SMART Function Hall
10%	:	Project Acceptance and Turnover
		29. University Information System
		30. Learning Management System
		31. Cashiering System
		32. Human Resource Management System & Time Keeping System
		33. Payroll Management System
		34. Assets & Fleet Management System
		35. Document Management System
		36. Trouble Ticketing System
		37. Queuing / Appointment System
		38. Executive Information System
		39. Campus Portal System

		40. University Library System
		41. eConference Room w/ Video Conferencing
		42. Internet Connectivity
		43. Campus Network System
		44. Fiber Optics Works
		45. Structured Cabling Works
		46. IT Security Operations Center & Network Operations Center
		47. Campus Data Center Upgrade
		48. Data Center Network Switches
		49. Data Center Compute System & Data Center Block and File Storage System
		50. Data Center Backup and Recovery System
		51. Cloud Infrastructure
		52. IP-PABX System
		53. Software & Networking Laboratories
		54. E-Classroom and E-Room Infrastructure and SMART LED Solar Powered Light
		55. E-Library Infrastructure
		56. SMART Function Hall

VI. *WARRANTIES AND GUARANTEES*

A. Software – at least 1-year license coverage, starts upon the first day of acceptance.

B. Network and Hardware Support – at least 1-year warranty in parts and labor upon acceptance, onsite 24x7x365.

C. DB Services – at least 1-year license coverage, starts upon delivery and installation.

D. Implementation Services – at least 1 year of license coverage with 1,000 users.

E. Technical Support – local 24x7x365 online/onsite support for at least 1 year.

F. Onsite Support – within 8 hours from receipt of the notice, spare parts ready if necessary.

G. Supply of spare parts – availability of parts shall be within 72 hours.

H. Provision of service units if the repair will exceed 3 days.

I. SP shall provide a testing facility for functionality demonstration.

VII. *TRAINING*

The project supports the capacity building for top-level managers, trainers, developers, network/systems/database/security administrators, hardware maintenance and troubleshooting. Training for a minimum of 10 persons per component/system for the following categories:

A. 3 -Top-Level Management – designed for the BASC Executives

B. 10 - Trainers – specifically for the trainers of the BASC to ensure continuous training to end-users.

C. 10 - Network/Systems/Database/Security Administrators - training designed for administrators to ensure 24x7x365 monitoring of the services as well as prompt response as needed.

D. 10 - End-user training is designed for the users of the system and/or encoders.

VIII.   *MANPOWER*

The proposed project team shall be composed of experts and specialists as indicated in the table below. The roster shall include a minimum of 19 distinct physical persons. There shall be no overlapping of functions. In this respect, the persons' names and functions shall be explicitly specified. However, the SP has the option to add more personnel depending on his work strategy. The curriculum vitae shall be signed by the person.

They will closely collaborate and coordinate with the project management team of the BASC.

PERSONNEL	ROLE / QUALIFICATION	MIN. NO.
Program Director	Point person for issues and concerns about the contract and deliverables. With project management experience of at least ten (10) years, **CS/IT/Engineering degree** or equivalent.	**1**
Senior Project Manager	With project management experience spanning seven (7) years and a leadership role, also have experience managing teams of project managers and business analysts. With **servicenow Certification for Certified System Administrator.**	**1**
Senior System Project Manager	With project management experience spanning five (5) years and a leadership role, also have experience managing teams of project managers and developers.	**1**

	With a **ITIL Service Management Certification, CS/IT/Engineering degree** or equivalent.	
Senior Network Project Manager	With at least seven (7) years of experience in planning, implementing, and maintaining IT networks. With a **Network Cable Installer** Certification and a **JABLOTRON 100+ Alarm System** training course certification. With a **CS/IT/Engineering degree** or equivalent.	1
Senior Infrastructure Project Manager	With at least seven (7) years of experience in taking charge of the planning, implementation, and maintenance of infrastructure and service delivery management. With a **Microsoft Certified Professional Certification** With a **CS/IT/Engineering degree** or equivalent.	1
Senior Project Manager for Peripherals	With at least seven (7) years of experience in project management with a focus on IT networks, infrastructure, and peripherals (biometrics, CCTV, and alarm systems). With a **Fiber Optic Preparation & Splicing** and **JABLOTRON 100+ Alarm System** training course certification With a **CS/IT/Engineering degree** or equivalent.	1
Business Analyst	Person in charge of the business and system specifications with experience in systems analysis and design. With a **CS/IT/Engineering degree** or equivalent.	4
Enterprise/ Software Architect	Person in charge of system architecture and structural design with at least ten (10) years of experience in software architecture and development. **Microsoft Office SharePoint Server 2007, Application Development** certification of at least three (3) years **or OpenSpan Certified Developer** certification of at least ten (10) years.	2

	With a **CS/IT/Engineering degree** or equivalent.	
Systems Analyst/ Developers	Person in charge of the system specifications with at least three (3) years of experience in systems analysis and design. **Basic React Programming Certification or** With a **CS/IT/Engineering degree** or equivalent.	**9**
Senior Database Administrator	Person in charge of installing, administering, maintaining, and performance tuning databases with at least seven (7) years of experience in RDBMS. With a **CS/IT/Engineering degree** or equivalent.	**2**
Senior Security Analyst	Person in charge of securing and administering Smart Campus Security System with at least seven (7) years of experience in IT security. With a **CS/IT/Engineering degree** or equivalent. **Certified Information Systems Security Professional (ISC) and Certified Ethical Hacker (CEH).**	**1**
Quality Assurance Manager	With quality assurance experience spanning three (3) years and a leadership role, also have experience managing teams of project managers and developers. With a **CS/IT/Engineering degree** or equivalent.	**4**
Operations Support Lead	With operations support experience spanning three (3) years of the same role in a customer service, help desk, technical support, and/or call center. With a **bachelor's degree** or equivalent.	**1**
Help Desk and Technical Support	With operations support experience spanning two (2) years of the same role in a help desk, technical support, and/or call center. With a **bachelor's degree** or equivalent.	**5**
Senior Trainers	With trainer or teaching experience spanning five (5) years of the same role in education institutions. With a **bachelor's degree** or equivalent.	**2**
	TOTAL (minimum physical count)	**36**

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,
  And
- ☐ (c) Mayor's or Business permit issued by the city or municipality where the principal place of business of the prospective bidder is located, or the equivalent document for Exclusive Economic Zones or Areas;
  And
- ☐ (d) Tax clearance per E.O. No. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR).

Technical Documents

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

Financial Documents

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

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

Class "B" Documents

☐ (m) If applicable, a duly signed joint venture agreement (JVA) in case the joint venture is already in existence;
or
duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.

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

☐ (n) *[For foreign bidders claiming by reason of their country's extension of reciprocal rights to Filipinos]* Certification from the relevant government office of their country stating that Filipinos are allowed to participate in government procurement activities for the same item or product.

☐ (o) Certification from the DTI if the Bidder claims preference as a Domestic Bidder or Domestic Entity.

25 FINANCIAL COMPONENT ENVELOPE

☐ (a) Original of duly signed and accomplished Financial Bid Form; **and**

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

Bid Form

To: ***BULACAN AGRICULTURAL STATE COLLEGE***
    Brgy. Pinaod, San Ildefonso, Bulacan 3010

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, Delivery, and Installation of Digital Harvest: Transforming Bulacan Agricultural State College into a Digital Innovation Hub***in conformity with the said Bidding Documents for the sum of _____(PhP_____)
[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 the bidding documents provisions 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:[3]

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 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 _____ 2022.

_____   _____
[Signature]   *[in the capacity of]*

Duly authorized to sign Bid for and on behalf of _____

Price Schedule

Name of Bidder _____.   Invitation to Bid Number <u>2025-01G</u> Page _____ of_____.

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 unit (col 5+6+7+8)	Total Price delivered Final Destination (col 9) x (col 4)
1									
	GRAND TOTAL	(IN WORDS)							(IN FIGURES)

_____   _____

[signature]   *[in the capacity of]*

Duly authorized to sign Bid for and on behalf of _____

[*Bidder's Letterhead*]

Name of the Procuring Entity : BULACAN AGRICULTURAL STATE COLLEGE

Project: 2025-01G: Supply, Delivery, and Installation of Digital Harvest: Transforming Bulacan Agricultural State College into a Digital Innovation Hub

Location of the Project : San Ildefonso, Bulacan

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 OutstandingWorks / UndeliveredPortion
			Description	%		Planned	Actual	
Government								
Private								
Note: This statement shall be supported with:						Total Cost		

1 **Notice of Award (for government projects)**
2 **Notice to Proceed (for government projects)**
3 **Contract**

Submitted by   :_____
                                (Printed Name & Signature)

Designation   :_____

Date   :_____

[*Bidder's Letterhead*]

Name of the Procuring Entity : BULACAN AGRICULTURAL STATE COLLEGE

Project: 2025-01G: Supply, Delivery, and Installation of Digital Harvest: Transforming Bulacan Agricultural State College into a Digital Innovation Hub

Statement of Single Largest Completed Contracts (SLCC) in the last five (5) years

Business Name   :_____   Business Address   : _____

Name of Contract	a. Owner 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	%		
Government						
Private						

Attached herewith are the following documents: Contract Agreement, Notice of Award, Notice to Proceed, Official Receipt/Invoice, Certificate of Final Inspection, Certificate of Good Performance and Certificate of Acceptance, as evidences in support of the foregoing information.

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

Contract Agreement Form

THIS AGREEMENT made the _____ day of _____ 20_____ between *[name of PROCURING ENTITY]* of the Philippines (hereinafter called "the Entity") of the one part and *[name of Supplier]* of *[city and country of Supplier]* (hereinafter called "the Supplier") of the other part:

WHEREAS the Entity invited Bids for certain goods and ancillary services, viz., *[brief description of goods and services]* and has accepted a Bid by the Supplier for the supply of those goods and services in the sum of *[contract price in words and figures]* (hereinafter called "the Contract Price").

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1.   In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.

2.   The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:

      (a)   the Supplier's Bid, including the Technical and Financial Proposals, and all other documents/statements submitted (*e.g.* bidder's response to clarifications on the bid), including corrections to the bid resulting from the Procuring Entity's bid evaluation;
      (b)   the Schedule of Requirements;
      (c)   the Technical Specifications;
      (d)   the General Conditions of Contract;
      (e)   the Special Conditions of Contract;
      (f)   the Performance Security; and
      (g)   the Entity's Notice of Award.

3.   In consideration of the payments to be made by the Entity to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Entity to provide the goods and services and to remedy defects therein in conformity in all respects with the provisions of the Contract

4.   The Entity hereby covenants to pay the Supplier in consideration of the provision of the goods and services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the contract at the time and in the manner prescribed by the contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of the Republic of the Philippines on the day and year first above written.

Signed, sealed, delivered by _____ the _____ (for the Entity)

Signed, sealed, delivered by _____ the _____ (for the Supplier)

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

A F F I D A V I T

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 _____

* This form will not apply for WB funded project

BID SECURING DECLARATION FORM

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/We[4], 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

FINANCIAL DOCUMENTS FOR ELIGIBILITY CHECK

		Year 20___
1	Total Assets	
2	Current Assets	
3	Total Liabilities	
4	Current Liabilities	
5	Net Worth (1-3)	
6	Net Working Capital (2-4)	

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

NFCC = [(Current assets – current liabilities) (15)] minus 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.

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

NFCC = PhP _____

Submitted by:

_____

Name of Bidder

_____

Signature of Authorized Representative over Printed Name

Date: _____