A N D H R A U N I V E R S I T Y
V I S A K H A P A T N A M

ENGINEER'S OFFICE



BID DOCUMENT

Name of the work: Procurement of DJI matrice 4E (base model) for Skill Development under RUSA 2.0 at College of Engineering, Andhra University, Visakhapatnam

TENDERER UNIVERSITY ENGINEER

ANDHRA UNIVERSITY: VISAKHAPATNAM
OFFICE OF THE UNIVERSITY ENGINEER

No.UE/E-PTN(1)/AU/VSP/2026-27.

NOTICE OF TENDER AND GENERAL CONDITIONS

Name of the work: Procurement of DJI matrice 4E (base model) for Skill Development under RUSA 2.0 at College of Engineering, Andhra University, Visakhapatnam

The University reserves to itself the right of rejecting all or any of the tenders without assigning any reasons.

1. The tenderer should pay earnest money deposit using Net banking/RTGS/NEFT from their registered bank accounts in E procurement platform in favor of The Registrar, Andhra University for an amount of *Rs. 5000/-* for the tender. This amount is returnable to the tenderer, if his tender is not accepted through e -procurement platform. If the tender is accepted, it will be held as part of the security deposit for the execution of the work and for the due fulfillment of the contract.

a) The whole work should be completed in every respect and handed over to University Engineer, Andhra University within *01 month* from the date of taking over the site by the successful contractor and from date of receipt or orders by the Contractor

in case of furniture contractors and the rates quoted shall be current till the work is completed.

2. The successful tenderer should to pay the Balance EMD to the "AU EMD A/c. through online mode. The contractor shall immediately execute an agreement in the prescribed form at his cost for the due fulfillment of contract. A sample agreement form will be supplied to the successful tenderer in due course along with the orders accepting his tender.

3. Failure to comply with the above conditions will entail for feature of the earnest Money.

4. The contract must not be sublet.

5. The plans would also be returned duly signed along with the tender.

6. A penalty of Rs. 1000/- (Rupees one thousand only) per day of delay after the due date will be levied on the contractor, incase, he fails to complete the work within the specified time.

7. The University will not be liable to pay any interest on either the original earnest money or security deposit amount or any amount due to the contractor under this contract.

8. In case of Civil, electrical and sanitary works the deposit and retention amounts or such portion of the same as may be available will be repaid after the expiry of 24 months from the date of completion of the work on a certificate from University Engineer that no defects have been noticed in the work since its completion.

9. If any contractor is asked to pay any additional security deposit due to any reasons he should be pay the same.

I/We ( ) do hereby tender to execute works of the under mentioned description of work and in accordance with the conditions noted below the consideration of

TENDERER UNIVERSITY ENGINEER

payment being made, for the quantity of work executed at the respective rates specified in the following schedules.

I/We hereby distinctly and expressly declare and acknowledge that before the submission of my/our tender I/we have carefully followed the instructions in the tender notice and have read the Andhra Pradesh Detailed Standard Specifications of the Andhra Pradesh Detailed Standard Specifications and that I/We have made such examinations of the contract documents and of the specifications, etc., and of the locations where the said work is to be done and such investigation of the work required to be done, and in regard to the materials required to be furnished as to enable me/us thoroughly to understand the intension of same and the requirements, covenants, agreements, stipulations and restrictions contained in the contract and in the said specifications, and distinctly agree that I/We will not hereafter make any claim or demand upon the University based upon or arising out of any alleged misunderstanding or misconception of mistake or/out part of the said requirements, stipulations, restrictions and conditions.

2. PROCEDURE FOR SUBMISSION OF TENDERS

The bidder shall submit his response through Bid Submission to the tender on E-Procurement platform at www.eprocurement.gov.in by following the procedure given below. The bidder would be required to register on the e-procurement market place www.eprocurement.gov.in or https://tender.eprocurement.gov.in and submit their bids online. Offline bids shall not be entertained by the Tender inviting Authority for the tender published in e-procurement plat form.

The bidders shall submit their eligibility and qualification details, Technical bid, Financial bid etc., in the online standard formats displayed in e-procurement web site. The bidders shall upload the scanned copies of all the relevant certificates, documents etc., in support of their eligibility

criteria/technical bids and other certificate/documents in the e-procurement web site. The bidder shall sign on the statements, documents, certificates, uploaded by him, owning responsibility for their correctness/ authenticity. The bidder shall attach all the required documents for the specific tender after uploading the same during the bid submission as per the tender notice and bid document.

1. Registration with e-procurement platform:

For registration and online bid submission bidders may contact HELP DESK.

www.eprocurement.gov.in or https://tender.eprocurement.gov.in

2. Digital Certificate authentication:

The bidder shall authenticate the bid with his Digital Certificate for submitting the bid electronically on e-procurement platform and the bids not authenticated by digital certificate of the bidder will not be accepted on the e-procurement platform.

For obtaining Digital Signature Certificate, you may please contact:

BRKR Bhavan, B-Block
Tankbund Road, Hyderabad- 500022
Phone: +91-40-23220305
Fax: +91-40-23228057

Or

You may please Contact Registration Authorities of any Certifying Authorities in India. The list of CAs are available by clicking the like https://tender.eprocurement.gov.in/Digitalcertificate/Signature.html ".

3. **Hard copies:**

i). Submission of original hard copies of the uploaded scanned copies towards EMD by participating bidders to the tender inviting authority before the opening of the price bid is necessary.

ii). All the bidders shall invariably upload the scanned copies of online payment receipt in e-procurement system and this will be the primary requirement to consider the bid responsive.

iii). The department shall carry out the technical evaluation solely based on the uploaded certificates/ documents, online payment receipt in the e-procurement system and open the price bids of the responsive bidders.

iv). The department will notify the successful bidder for submission of original hardcopies of all the uploaded documents at the time of entering into agreement.

v). The Successful bidder shall invariably furnish the original Certificates/Documents of the uploaded scan copies to the tender inviting Authority before entering into Agreement, either personally or through courier or post and the receipt of the same within the stipulated date shall be the responsibility of the successful bidder. The department will not take any responsibility for any delay in receipt/non-receipt of towards EMD, Certificates/Documents from the successful bidder before the stipulated time. On receipt of documents, the department shall ensure the genuinity of all other certificate/documents uploaded by the bidder in e-procurement system, in support of the qualification criteria before concluding the agreement.

4. If any successful bidder fails to submit the original are copies of uploaded certificates/documents, online payment receipt towards EMD within stipulated time or if any variation is noticed between the uploaded documents and the hardcopies submitted by the bidder, as the successful bidder will be suspended from participating in the tenders on e-procurement platform for a period of 3 years. The e-procurement system would deactivate the user ID of such defaulting bidder based on the trigger/recommendation by the tender inviting authority in the system. Besides this, the department shall invoke all processes of law including criminal resection of such defaulting bidder as an act of extreme deterrence to avoid delays in the tender process for execution of the development schemes taken up by the government. Other conditions as per tender document are applicable. The bidder is requested to get a confirmed acknowledgement from the tender inviting Authority a proof of Hardcopies submission to avoid any discrepancy.

5. Payment of transaction fee:

It is mandatory for all the participant bidders from 1st January 2006 to electronically pay a Non-refundable transaction fee to M/s. APTS, the service provider through "Payment Gateway service on E-Procurement

platform". The electronic Payment Gateway accepts all Master and Credit cards issued by and bank and direct Debit facility/ Net Banking of ICICI Bank, HDFC, Axis Bank to facilitate the transaction. This is in compliance as per G.O.Ms. 13 dated 07-05-2006. A service tax of 12.36% + Bank charges on the transaction amount payable to APTS shall be applicable.

6. Corpus Fund:

Now collection of e Procurement fund through DDs is being dispensed. The successful bidder/L1 Bidder has to pay the eprocurement fund (Corpus fund i.e 0.04%) through online like payment of Transaction fee.

7. Tender Document:

The bidder is requested to download the tender document and read all the terms and conditions mentioned in the tender Document and seek clarification if any from the tender inviting Authority. Any offline bid submission clause in the tender document could be neglected.
The bidder has to keep track of any charges by viewing the addendum/ Corrigenda issued by the tender inviting Authority on time-to-time basis in the E-Procurement plat from. The department calling for tender shall not be responsible for any claims/ problems arising out of this.

8. Bid Submission Acknowledgement:

The bidder shall complete all the processes and steps required for bid submission. The system will generate an acknowledgement with a unique bid submission number after completing all the prescribed steps and process by the bidder user may also note that the bids for which an acknowledgement is not generated by the e procurement system are treated as invalid or not saved in the system. Such invalid bids are not made available to the tender inviting authority for processing the bids. The Government of AP is not responsible for incomplete bid submission by users. If anyone fails to upload the following documents, they will be disqualified from the tender process

1. OEM/Manufacturer authorizations certification
2. Evidence of (a) Income Tax returns (b) GST Registration (c) Pan Card
3. Technical personnel list available for the project/certificates..
4. Online declaration stating that the soft copies uploaded by them are genuine.

5. Information regarding litigation history.
6. Any other relevant information duly signed.

2.2. PAYMENT OF EARNEST MONEY DEPOSIT

2.2.1 a) The Bidder shall furnish, Earnest Money Deposit for an amount of *Rs. 5000/-* at the time of bid submission.

EMD shall be Paid as per the instructions of www.tender.apeprocurement.gov.in and as per G.O Ms. No 08, ITE&C, dated: 08.05.2016 .EMD shall be paid in favour of Registrar, Andhra University. In order to facilitate online EMD payment/refund facility to the participating suppliers/ contractors, the Government after careful examination hereby issues the following orders.

i.) In the new version of eProcurement, the bidders shall pay the EMDs using Net banking/RTGS/NEFT from their registered bank accounts only. The unsuccessful bidder's EMDs will be refunded to their registered bank accounts only.

ii.) In the new version of eProcurement, the bidders can pay the EMDs using Credit Card / Debit Card, as per the VISA/Master Card Guidelines. However the return of EMD will be only to the Originating Card from which payment was made, as per the standard practice. The EMD must be paid in full without concession. The bids without stipulated EMD or with any shortfall in amount or period of validity will be summarily rejected.

In case of Uploaded gateway Payment Slip towards EMD, the bidder has to scan the upload Payment Transaction Slip the same during bid submission along with other Certificates / Documents and the details of same has to be entered in the online submission process.

The Bidder shall be allowed to pay the EMD till the last date and time for bid submission.

The EMD of the successful bidder shall also be returned on obtaining a fresh Performance Bank guarantee (PBG) at the time of concluding the Agreement.

b) The processing fee may be paid to the Andhra University for an amount of *Rs. 1,000/-* which shall be paid ***"online."***

2.2.2. The successful bidder shall invariably furnish the original certificates/documents of the uploaded scanned copies to the Tender inviting Authority before entering into agreement either personally or through courier or post and the receipt of the same within the stipulated date shall be the responsibility of the successful bidder. The department will not take any responsibility for any delay in receipt/non-receipt of original **online payment receipt** EMD, certificates / documents from the successful bidder before the stipulated time.

2.2.3 The E.M.D. will be retained as per the G.O Ms. No 08,ITE&C, dated: 09.05.2016 in the case of un successful tenderer and will not carry any interest and will be dealt with as provided in the tender.

2.2.4 The successful tenderer should however pay the balance E.M.D. calculated @ 1.5% of Contract Value at the time of signing the agreement either in the shape of Demand draft on any Government owned public sector bank or any scheduled commercial bank in favour of The Registrar, Andhra University or in the shape of Unconditional irrevocable Bank Guarantee in prescribed format from any Government owned public sector bank or any scheduled commercial bank in favour of Registrar, Andhra University and shall be valid for a period including 24 months defects liability period.

2.2.5 The retention amount from the bills will be deducted at the rate of 5% (Five Percent only) as usual.

2.2.6 On completion of the evaluation process and after concluding the agreement, the EMD of the unsuccessful bidders shall be refunded by the tender inviting authority with proper authentication.

2.2.7 If the successful bidder fails to submit balance E.M.D as specified in the Clause 2.2.4 of conditions of Tender Notice and fails/refuses to sign the Contract Agreement within specified time then the E.M.D shall be forfeited.

2.2.8. E.M.D shall be forfeited if a bidder withdraws his bid during the period of bid validity.

2.2.9 Any bid not accompanied by the E.M.D. in accordance with above provisions will be rejected by the University.

2.2.10 Interest or any other charges, whatsoever, will not be payable to the bidder on the above E.M.D

2.3 BID VALIDITY

The bids shall be kept valid for acceptance for a **period of 3 months** from the date of opening of the bids. Before the expiry of validity, the authority competent to call for tenders shall seek for further extension of validity from the bidders and in case the validity is not extended his / her tender will not be considered and the EMD shall be returned. During the period of validity if any tenderer withdraws his tender, his/her EMD shall be forfeited. The EMD shall also be extended by the same period as the extension in the validity of the bid. If the bidder accepts the request for extension of validity, he will not be permitted to modify his bid.

2.4 EXCESS TENDER - Ceiling of tender premium

2.4.1 The maximum permissible tender excess is 5% over the E.C.V. for all works. Tenders with an excess of more than 5% over the E.C.V. shall be summarily rejected. The rest of the tenders will be scrutinized carefully to arrive at the reasonableness of the bids quoted.

2.4.2 If the Tenders received are found to have abnormally high percentage or within the permissible ceiling limits prescribed, but under collusion or due to unethical practices adopted at the time of tendering process, such tenders shall be rejected.

2.4.3 Negotiations are not permitted to be conducted at any level.

2.5 DISCOUNT TENDER

2.5.1 Tenders up to 25% less than the E.C.V. may be accepted but for tenders which are less by more than 25% of E.C.V. a bank guarantee for the difference between the tendered amount and 75% of E.C.V. should be produced by the tenderer at the time of concluding the agreement. If the tenderer leaves the works midway and the department is forced to call for tenders for the work again, the Bank Guarantee or Demand draft shall be used to finance the re-tendered work.

2.5.2 When a tender is to be accepted the tenderer whose tender is under consideration shall attend the office of the University Engineer on the date fixed by written intimation to him. He shall forth with upon intimation being given by the University Engineer of acceptance of his tender make payment of balance E.M.D. and sign an agreement in the proper departmental form for the due fulfillment of this contract. This E.M.D. and the amounts withheld according to condition 2-2-5 of tender notice shall retain as security for the due fulfillment of the contract Failure to attend the University Engineer office on the date fixed in the written intimation from such office or to enter into the required agreement shall entail forfeiture of the Earnest Money deposit. The written Agreement to be entered into between the contractor and the Government shall be foundation of the rights and obligations of both the parties and the contract shall not be deemed to be completed until the agreement has first been signed by the contractor and then by the officer authorized to enter into contract on behalf of the Government.

2.5.3 The successful tenderer has to sign an agreement within a period of 7 (Seven) days from the date of receipt of communication of acceptance of his tender. On failure to do so his tender will be cancelled duly forfeiting the E.M.D. paid by him without issuing any further notice.

CHARGES PAYABLE TO **M/s APTS**:

Transaction fee: The Transaction fee has to be paid electronically to M/s. APTS, through "Payment Gateway Service on E-Procurement platform". The Electronic Payment Gateway accepts all Master and Visa Credit Cards issued by any bank and Direct Debit facility/Net Banking of ICICI Bank, HDFC, Axis Bank to facilitate the transaction. This is in compliance as per existing G.Os. Service tax + Bank charges on the transaction amount shall be payable to APTS as applicable.

The original proof/receipt issued by APTS, in token of having paid the transaction fees through the electronic payment gate way is to be submitted to the Registrar, Andhra University. **Failure to furnish the same will entail rejection of Bids**

(b) **e-procurement corpus fund**: Now collection of eProcurement fund through DDs is being dispensed. The successful bidder/L1 Bidder has to pay the eprocurement fund(Corpus fund i.e 0.04%) through online like payment of Transaction fee.

2.5.4 The tenderer shall examine closely the A.P.S.S. and also the standard preliminary specifications contained therein and Engineer's office copy of the A.P.S.S. and its addenda volume in token of such study before submitting his tender which shall be for finished work IN-SITU. He shall also carefully study the drawing and additional specifications and all the documents which form part of the agreement to be entered into by the successful tenderer. The A.P.S.S. and other documents connected with such as specifications plans and any other information can be had at any time between 10-00 A.M. to 5-00 P.M. on all working days in the office of the University Engineer, Andhra University.

2.5.5 The tenderer's attention is directed to requirements of materials under the clause materials and "Work man ship" in the preliminary specifications. Material conforming to the Indian standards specifications shall be used on the work and the tenders shall quote his bid accordingly.

2.5.6 The tenderer has to do his own testing of materials and satisfy himself that they conform to the specifications of respective I.S.I. codes before tendering.

2.5.7 The contractor shall himself procure the required construction materials of approved quality including the earth for formation of embankment and water from source of his choice all materials required for the work shall be got approved by the Engineer-in-charge in writing well before their use on the work.

2.5.8 The contractor shall himself procure that sheet pile, Cement, steel bitumen, sand, blasting materials, metal, soils etc., and such other materials required for the work well in advance. The contractor has to bear the cost of materials, conveyance and storage charges etc., the department will not take any responsibility for fluctuations in market in cost of materials, transportation and loss of materials.

2.6. TIME FOR COMPLETION:

2.6.1(a) The total period of completion is 01 month from the date of entering into agreement including rainy season.

(b) The attention of the tenderer is directed to the contract requirement at the time of beginning of the work, the rate of progress and the days for the whole work and its several parts as per mile stones. The rate of progress and proportionate value of work done from time to time as will be indicated by the Executive Engineer's Certificate of the value of work done and completion of mile stones will be required. The date of concluding of the agreement shall be the date of handing over of site and date of commencement of work.

(c) After signing the agreement, the contractor shall forthwith begin the work, shall regularly and continuously proceed with them.

2.6.2 RATE OF PROGRESS

The total period of completion of work is 01 monthfrom the date of entering into agreement including rainy season. The work shall be programmed such as to achieve the mile stones. 2.6..3 The contractor shall commence the works on site within the period and shall proceed with the same with due expedition and without delay, except as may be expressly sanctioned or ordered by the University Engineer, or be wholly beyond the contractor's control.

2.6..4 The contractor shall bear all costs and charges for special or temporary way leases required by him in connection with access to the site. The contractor shall also provide at his own cost any additional accommodation outside the site required by him for the purposes of the work.

2.6.5 Subject to any requirement in the contract as to completion of any section of the works before completion of the whole of the works shall be completed in accordance with provisions of within the time stated in the contract calculated from the last day of the period named in the statement to the tender as that within which the works, are to be commenced or such extended time as may be allowed.

2.7 DELAYS AND EXTENSION OF TIME:

No claim for compensation on account of delays or hindrances to the work from any cause whatever shall be, except as hereinafter defined. Reasonable extension of time will be allowed by the Executive Engineer or by the officer competent to sanction the extension, for unavoidable delays, such as may result from causes, which in the opinion of the Executive Engineer, are undoubtedly beyond the control of the contractor. The Executive Engineer shall assess the period of delay or hindrance caused by any written instructions issued by him, at twenty five percent in excess of the actual working period so lost. In the event of the Executive Engineer failing to issue necessary instructions and thereby causing delay and hindrance to the contractor, the latter shall have the right to claim an assessment of such delay by the Registrar, Andhra University, whose decision will be final and binding. The contractor shall lodge in writing with the Executive Engineer a statement of claim for any delay or hindrance referred to above, within fourteen days from its commencement, otherwise no extension of time will be allowed. Whenever authorized alterations or additions made during the progress of the work are of such a nature in the opinion of the Executive Engineer as to justify an extension of time in consequence thereof, such extension will be granted in writing by the Executive Engineer or other competent authority when ordering such alterations or additions.

2.7.1 LIQUIDATED DAMAGES

If for any reason, which does not entitle the contractor to an extension of time, the rate of progress of works, or any section is at any time, in the opinion of the Executive Engineer too slow to ensure completion by the prescribed time or extended time for completion, Executive Engineer shall so notify the contractor in writing and the contractor shall there upon take such steps as are necessary and the Vice-Chancellor may approve to expedite progress so as to complete the works or such section by the prescribed time or extended time. The contractor shall not be entitled to any additional payment for taking such steps. If, as a result of any notice given by the University Engineer under this clause the contractor shall seek the University Engineer's permission to do any work at night or on Sundays, if locally

recognized as days of rest, or their locally recognized equivalent, such permission shall not be unreasonably refused.

2.7.2 If the contractor fails to complete whole of the works or any part there of or section of the works within the stipulated periods of individual mile stones (including any bonafide extensions allowed by the competent authority without levying liquidated damages), the University Engineer may without prejudice to any other method of recovery will deduct one twentieth of one percent of respective mile stone financial programme value per calendar day or part of the day for the period of delays subject to a maximum of 5% of the contract value as damages due from the Contractor from any monies in his hands due or which may become due to the contractor. The payment or deduction of such damages shall not relieve the contractor from his obligation to complete the works, or from any other of his obligations and liabilities under the contract.

The maximum amount of liquidated damages for the whole of the works is five percent of final contract price.

2.8 SUBLETTING OF CONTRACT

No part of the contract shall be sublet.

2.8.1 If further necessary information is required, the University Engineer will furnish such information but it must be clearly understood that tenders must be received in order and according to instructions.

2.8.2 The University or the sanctioning authority reserves the right to reject any or all the tenders without assigning any reasons there for.

2.8.3 Preference in the selection from among the tenderers will be given, other things being equal to those who are themselves professionally qualified or who undertake to employ qualified men at their cost to look after the work and to those who in the opinion of the tender accepting authority posses the required tools, plants and machinery required for the completion of the work in time to his end. The tenderer must furnish carefully and accordingly the list of equipment specially Excavators, Dozers, Dumpers, Tippers,

Trucks, Tractors, Tanker and Compressors etc., available with them for executing the work in the schedule. The tenderer should therefore state in clear terms whether they are professionally qualified or whether they under take to employ technical staff and if so give the professional qualifications of the staff to be employed. In case the selected tenderer is one who has under taken to employ technical staff under him, he should see that one of the staff is always at site of work during working hours personally checking all items of work and paying extra attention to such work as may demand special attention e.g. Reinforced concrete work etc.,

2.8.4 The contractor shall keep identification cards issued by the registering authority at all times, while at the site of work and at offices and produce the identity cards as and when asked for.

2.8.5 A retired officer of Andhra University is disqualified from tendering for any work for which Government funds are used for a period of two years from the date of retirement without the prior permission of the Government. The contract is liable to be cancelled if either the contractor or any of his employees is found at any time to be such a person who had not obtained the permission of the Government as aforesaid before submission of the tender or engagement in the contractor's service.

2.8.6 Contractor shall not be eligible to tender for works in the A.U where any of his near relatives are employed in the rank of Assistant Engineer or Assistant Executive Engineers and above on the engineering side and Accounts Officer and above on the administrative side. The contractor shall intimate the names of persons who are working with him in any capacity or are subsequently employed. He shall also furnish a list of Department employees related to him. Failure to furnish such information the tenderer is liable to be removed from the list of approved contractors and his contract liable for cancellation.

Note : Near relatives includes

1. Sons, step sons, daughters, and step daughter.
2. Son-in-law, and Daughter-in-law.
3. Brother-in-law and Sister-in-law.
4. Brothers and Sisters.

5. Father and Mother.
6. Wife/Husband.
7. Father-in-law and Mother-in-law.
8. Nephews, Nieces, Uncle and Aunties.
9. Cousins and
10. Any person residing with the contractor.

2.8.7 The contract will be cancelled if either the contractor himself or any of his employees is found to be Gazetted officer who retired from service and had not obtained permission from the Government for accepting the contractor's employment within a period of 2 years from the date his retirement.

2.9 TECHNICAL AGENTS

1. The Contractor should appoint a qualified person to supervise the work on behalf of the contractor for the work costs Rs. 50,000/- or above

Value of work (Rs in lakhs)	**Qualification required for the Tech. Supervisor**	**Rate of recovery per month in Rs.**
From 0.50 to 1.00	One I.T.I. Candidate (Civil Trade)	Failure to employ the required technical personnel as per agreement by the contractor, amount will be recovered from the contractors bills towards technical personnel as per **SSR 2024-25.** based on certification by the Engineer-In-Charge with proof that the contractor has employed neither diploma candidates nor graduates at site during constructions period.
From 1.00 To 15.00	One Diploma Holder (Civil)	
From 15.00 to 50.00	One Graduate Engineer (Civil) or Two Diploma Holders (Civil)	
From 50.00 to 100.00	One Graduate Engineer (Civil) and One Diploma Holder (Civil)	
For 100.00 above	Two Graduate Engineer (Civil)	

While entering into the agreement, the contractor should furnish the names and qualifications of the Technical Supervisors engaged by him on the work, failing which the department will engage a Technical Supervisor and the recoveries will be affected from the Contractor's bills as detailed above.

2. The Technical staff should be on full time basis and available at site whenever required by engineer in charge to take instructions.

3. In case the contractor is already having more than one work on hand and if he is himself qualified Engineer and has undertaking more than one work at the same time, he should employ separate technical person on each work.

2.10 SETTLEMENT OF DISPUTES

2.10.1 If any dispute or difference of any kind what so ever shall arise between the department and the Contractor in connection with, or arising out of the Contract, of the execution of the works, whether during the progress of the works or after their completion and whether before or after the termination, abandonment or breach of the Contract, it shall in the first place be referred to and settled by the Executive Engineer who shall within a period of thirty days after being requested by the Contractor to do so, give written notice of his decision to the Contractor. Upon receipt of the written notice of the decision of the Executive Engineer the Contractors shall promptly, proceed without delay to comply with such notice or decision.

2.10.2 If the Executive Engineer fails to give notice of his decision in writing within a period of thirty days after being requested or if the Contractor is dissatisfied with the notice of the decision of the Executive Engineer, the Contractor may within thirty days after receiving the notice of decision appeal to the Registrar who shall afford an opportunity to the Contractor to be heard and to offer evidence in support of his appeal. The university Engineer shall give notice of his decision within a period of thirty days after the Contractor has given the said evidence in support of his appeal, subject to arbitration, as here in after provided. Such decision of the Registrar in respect of every matter so referred shall be final and binding upon the Contractor and shall forthwith be given effect to by the Contractor, who shall proceed with the execution of the works with all due diligence whether he requires arbitration as here in after provided, or not. If the University Engineer has given written notice of his decision to the contractor and no claim to arbitration, has been communicated to him by the Contractor within a period of thirty days from receipt of such notice, the said decision shall remain final and binding upon the Contractor. If the university Engineer shall fail to give notice of this decision, as aforesaid, within a period of thirty days after being

requested as aforesaid, or if the Contractor be dissatisfied with any such decision then and in any such case the Contractor within thirty days after the expiration of the first named period of thirty days as the case may be, require that the matter or matters in dispute be referred to arbitration as hereinafter provided.

2.10.3 Except as otherwise providing in the contract, any disputes and differences arising out of or relating to the contract shall be referred to adjudication as follows:

A i) The arbitration proceedings will be conducted in accordance with the provisions of the Arbitration Act 1940 and as amended from time to time. The arbitrator shall invariably give reasons in the award.

2.10.4. In case the work is ordered to be taken up before the acceptance of L.S. agreement, K-2 agreement will be provisionally entered into and the same will stand superseded when L.S. contract is subsequently signed and accepted. All the work done under such K-2 contract will then be treated as part of the L.S. contract and acted on accordingly. If the contractor fails to conclude the L.S. agreement within 15 days from the date of receipt of the notice from the department it will entail forfeiture of the earnest money and the cost of the work done. Further the contractor is liable to reimburse the extra cost incurred if any by department in completing the balance work.

TENDERERS / CONTRACTOR'S CERTIFICATE

1) I/We hereby declare that I/We have perused in detail and examined closely the Andhra Pradesh specifications, all clauses of the preliminary specifications with all amendments and have either examined all the standard specifications or will examine all the standard specifications for items for which I/We tender, before I/We submit such tender and agree to be bound and comply with all such specifications for this agreement which I/We execute in the Andhra University.

2) I/We certify that I/We have inspected the site of the work before quoting my/our bid I/We have satisfied about the quality, availability and transport facilities for stone, sand and other materials.

3) I/We am/are prepared to furnish detailed data in support of all my quoted bid if and when called upon to do so without any reservations.

4) I/We hereby declare that I/We will pay an additional security deposit in Terms and condition of tender notice.

5) I/We hereby declare that I am/We are accepting to reject my tender in terms and conditions of tender notice.

6) I/We hereby declare that I/We will not claim any price escalation.

7) I/We hereby declare that I am/We are accepting for defect liability period as 24 months.

8) (a) I/We declare that I/We will procure the required construction materials including earth and use for the work after approval of the Engineer-in-charge. The responsibility for arranging and obtaining the land for borrowing or exploitation in any other way shall rest with me/us for the materials for construction. I/We shall ensure smooth and un-interrupted supply of materials.

(b) I/We declare that the responsibility for arranging and obtaining the land for disposal of spoil/soil not useful for construction purposes shall rest with me/us.

(c) I/We declare that I/We shall not claim any compensation or any payment for the land so arranged for disposal of soil and land for borrow area. My/our quoted rates are inclusive of the land so arranged and I/We will hand over the land so arranged for disposal of soil to the department after completion of work.

(d) I/We declare that I/We will not claim any extra amount towards any materials used for the work other than the quoted works for respective schedule A items.

9) I/We declare that I/We will execute the work as per the mile stone programme to be submitted by us within 07 days from the date of Agreement, and if I/We fail to complete the work as per the mile stone programme. I /we abide by the condition to recover liquidated damages as per the tender conditions.

10) I/We declare that I/We will abide for settlement of disputes as per the tender conditions.

DECLARATION OF THE TENDERER

(1) I/We have not been black listed in any department in A.P. due to any reasons.

TENDERER UNIVERSITY ENGINEER

(2) I/We have not been demoted to the next lower category for not filing the tender after buying the tender schedule in a whole year and my/our registration has not been cancelled for a similar default in two consecutive years.

(3) I/We agree to disqualify me/us for any wrong declaration in respect of the above and to summarily reject my/our tender.

(4) I/We accept for cancellation of the agreement and for forfeiture of the amount due to me/us for the work executed in case the certificate furnished above are wrong in any manner. I/We also accept for black listing.

ADDRESS OF THE TENDERER

PHONE:_____ FAX:_____

RATE OF PROGRESS

The rate of progress provided in the conditions of tender notice shall apply and proportionate value of work done from time to time as will be indicated by the Executive Engineer's certificates of the value of the work done will be required. Date of commencement of programme will be the date on which the agreement is concluded.

ANDHRA UNIVERSITY: VISAKHAPATNAM

Name of the work: Procurement of DJI matrice 4E (base model) for Skill Development under RUSA 2.0 at College of Engineering, Andhra University, Visakhapatnam

S C H E D U L E ' A '

TENDERER UNIVERSITY ENGINEER

(A) The quantities here given are those upon which the lump sum tender cost of the work is based but they are subject to alterations, omissions, deductions or additions as provided for in the conditions of this contract and do not necessarily show the actual quantities of work to be done. The unit rates noted below are those governing payment of extras or deductions or omissions according to the conditions of the contract as set-forth in the preliminary specifications of the A.P. Standards specifications and other conditions or specifications of this contract.

(B) It is to be expressly understood that the measured work is to be taken net (not withstanding any custom or practice to the contrary) according to the actual quantities when in place and finished according to the drawings or as may be ordered from time to time by the Executive Engineer and the cost calculated by measurement or weight, at their respective rates without any additional charge for any necessary or contingent works connected there with. The Bid quoted is for works in - situ and complete in every respect.

(C) Additions and alteration in the schedule of quantities rates amounts and total amount of the estimate given hereunder will disqualify the tender.

(D) In case of discrepancy between the written description of the item in the schedule A and the detailed description in the specification of the same item, the latter shall be adopted.

(E) When the contractor is asked to do any new item of work he will be paid at the most recent rates quoted by him for similar items of work, if any, in the other works he be doing in this campus or at rates deducted by either adding or deducting the rates quoted by the contractor for the various items of this work, whichever is advantages to the University if such work is being done he will be paid as per Para 63 of preliminary specifications of the A.P. Detailed Standard Specifications.

SCHEDULE - A

PREAMBLE

1) The rates and amounts of estimate furnished in Schedule A are inclusive of cost of construction of temporary store shed and cost of engaging technical personnel etc., for the work. Hence the Contractor should quote his bid keeping in view of the above aspects.

2) The quoted bid shall include all construction materials. No escalation in rates will be paid. The tenderer has to quote his bid considering all the aspects of the tender to complete the finished item of work as per the A.P.S.S. & I.S. specifications, the special specifications appended Drawing etc.,

3) If there is any contradiction between A.P.S.S. and I.S. Specification, listed and detailed technical specifications, the latter shall prevail.

4) In case of a job for which specifications are not available with schedule or in APSS or in I.S. code and are required to be prescribed, such work shall be carried out in accordance with the written instructions of the Engineer-in-Charge recorded in the "Order Book".

5) The contractor should use the excavated useful soils and stone for construction purpose. Soils used for construction either for homogeneous section or in hearting or in casing zone based on the suitability will be at free of cost and the cost of stone used for construction purpose will be recovered from the Contractors bills at SS rates +/- Tender Premium and Seignorage Charges per cum.

   The Contractor should quote his bid keeping in view of the above aspects.

6) The actual mix proportion by weight to be adopted during execution will be got designed in the laboratories to suit the grade of concrete and mortar to be used. It will be the responsibility of the Contractor to manufacture concrete and mortar of required strength. The Excess or less usage of cement due to change in mix proportion and the design proportion if any that will be evolved in the laboratory will be paid or recovered from the Contractor. No cost due to variation of other materials of mix due to change in mix design (i.e., other than cement) will be paid or recovered.

NOTE : No bulkage in concrete will be allowed.

7) The quoted bid shall also include the work of any kind necessary for the due and satisfactory construction, completion and maintenance of the works to be intent and meaning of the drawings and these specifications and further drawings and orders that may be issued by the Engineer from time to time. The quoted bid shall include compliance by the contractor with all the general conditions of contract, whether specifically mentioned or not in the various clauses of these specifications, all materials apparatus, plant, equipment, tools, fuel, water, strutting, timbering, transport, offices, stores, workshop, staff, labour and the provision of proper and sufficient protective works, temporary fencing and lighting.

It shall also include safety of workers, first-aid equipment, suitable accommodation for the staff and workmen, with adequate sanitary arrangements, the effecting and maintenance of all insurance, the payment of all wages, salaries, fees, royalties, duties or other charges arising out of the erection of works and the regular clearance of rubbish, reinstatement and clearing-up of the site as may be required on completion of works safety of the public and protection of the works and adjoining land.

7) The contractor shall ensure that, the quoted bid shall cover all stages of work such as setting out, selection of materials, selection of construction methods, selection of equipment and plant, deployment of personnel and supervisory staff, quality control testing etc., The work of building in quality assurance shall be deemed to be covered in the quoted bid.

ADDENDUM TO SCHEDULE 'A'

I. 1. For all items of work in excess of the quantities indicated the rates payable for such excess quantities will be either the rates arrived at as per bid or SS rates for the item plus or minus over all tender percentage accepted by the competent authority whichever is less. The SS rates mean the rates for the year with which the estimate is prepared / sanctioned for comparing the tender.

II. 1. The contractor is bound to execute all supplemental items that are found essential incidental and inevitable during execution of main work.

2. The payment of rates of such supplemental items of work will be regulated as under.

(I) For the Supplemental items directly deducible from similar items in the original agreement, the rate shall be either (a) derived by adding to or subtracting from the agreement rate of such similar item, the cost of difference in quantity of material or labour between the new item and the similar item in the agreement worked out with reference to the schedule of rates adopted in the sanctioned estimate with which the tenders were compared plus or minus over all tender percentage. or (b) the estimate rate plus or minus over all tender percentage.

(II) For Similar items, the rates of which cannot be directly deduced from the original agreement and for purely new items which do not correspond to any item in the agreement, the rate shall be estimate rate plus or minus overall tender percentage.

Note : It may be noted that the term estimate rate used above means the rate in the sanctioned estimate with which the tender's were compared or if no such rate is available in the estimate the rate derived with reference to the schedule of rates adopted in the sanctioned estimate with which tenders are compared.

III. Entrustment of additional items

1) Wherever additional items not contingent on the main work and outside the scope of original agreement are to be entrusted to the original contractor dispensing with tenders and if the value of such items exceeds the limits upto which the officer is empowered to entrust work initially to a contractor without calling for tenders approval of the next higher authority shall be obtained. Entrustment of all such items on nomination shall be at rates not exceeding the estimate rates.

2) Entrustment of supplemental items contingent on the main work will be authorized by the officers up to the monetary limits up to which they themselves are competent to accept in an original agreement so long as the total amount of supplemental agreement does not exceed the amounts up to which they are competent to accept in an original agreement rates for such

items shall be worked in accordance with the procedure prescribed in G.O.Ms.No.1493 PWD dated 25-10-1971 as amended in Govt. memo no 544 cond. 72-22 dated 6-7-1973 and G.OMS or 900 PWD Dt 6-8-1975.

3) Entrustment of either the additional or supplemental items shall be further subject to the provisions under Para 176(E) of APWD Code Viz. the items shall not be ordered by an officer on his own responsibility if the revised estimate of deviation statement providing for the same requires the sanction of a higher authority.

ANDHRA UNIVERSITY: VISAKHAPATNAM

S C H E D U L E 'B' - I

1) Cement used on the works should be OPC 43/53 grade ISI Certified brands like RAASI, RAMCO, VISHNU, KCP, JAYPEE, and LAFARGE.

2) Steel used on the works should be conforming to IS-1786 procured from VISAKHAPATNAM STEEL PLANT/ SAIL.

3) The Test Reports of the materials (cement and steel) shall be produced from time to time as directed by the Department.

4) The Paints such as Wood primer, Red Oxide, Enamel should be of First Quality approved brands and shade of Manufacturing Companies like Asian, Berger etc.

5) Required materials including steel and cement for the construction must be procured by the contractor at his cost.

Name of the work Procurement of DJI matrice 4E (base model) for Skill Development under RUSA 2.0 at College of Engineering, Andhra University, Visakhapatnam

Abstract

SSR 2024-25

S. No	Quantity	Description of work	Rate	Per	Amount Rs.
01.	**1**	Supply of DJI Matrice 4E (Base Model) Drone as directed by the Engineer-in-Charge	5,00,000	**1 no**	5,00,000
		ECV:			**5,00,000/-**

The Contractor has to quote percentage (+) or (-) both in figure and words against the corresponding estimate amount in the block below.

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In figure In words

SCHEDULE C

Special Conditions and Specifications (Minor works)

1) The work should be carried out strictly as per APDSS and its addenda volume corrected up to date to the satisfaction of the University Engineer.

TENDERER UNIVERSITY ENGINEER

2) All materials should be passed by the University Engineer or any persons deputed by him for the purpose before they are used on the works.

3) Neatly plastered and finished holes of required sizes should be provided wherever directed, for water sanitary and electric connections etc., and for draining of water from roofs, with necessary G.I. pipes etc., fixed as directed. The rate for masonry include all such work and no extra will be paid except the connection of the pipes.

4) a) Reinforced Cement Concrete works: In all these schedules unless otherwise stated or directed, reinforced cement concrete means cement concrete (1:1½:3) reinforced with main tensile reinforcement of not less than 0.8% of the sectional area of the beam, or slab, or lintel etc., with necessary transverse shear and adhesive reinforcement laid and completely finished in an approved manner and as per APDSS.

b) Metal for reinforced cement concrete work should be 12 mm to 20 mm size for slabs, lintels, templates and beams and 10 mm to 3 mm size for delicate works such as handrails etc., and should be obtained by breaking approved granite stones.

5) Doors, Windows and Ventilators : For all doors, windows and ventilators the sizes of which are not given in the APDSS the nearest size in the APDSS should be taken into account for the sizes of scantlings and fittings.

6) All doors and windows, ventilators etc., shall be well seasoned Teak wood, country wood as the case may be of uniform in substance, straight fiber, free from knots, holes, cracks or sap wood or blemishes of any kind and shall be in accordance with the standard description of the sizes noted in the drawings and fixed in position as per APDSS No.82 and other relevant APDSS the joints shall be perfect and workmanship, neat without using putty, plugs wax or any such material to hide bad joints or holes.

7) The hold fasts to doors,. Windows, etc. should be given suitable twist as directed by the University engineer/executive Engineer where frames are fixed flush with the wall in order to given them anchorage in the wall. The hold fasts should be fixed into the frames as per A.P.D.S.S. University Engineer/Executive Engineer.

8) Rate for flooring and plastering should include provision for rounding off all junctions of walls, and wall and floors uniform radius of not less than 1" thick (25 mm thick).

9) Seigniorage, if any on the materials has to be borne by the contractor. All materials used throughout shall be best available from any approved quarry or source of the quality mentioned in the A.P.D.S.S. and its addenda volume.

10) Rates for all items are inclusive of supply of all materials required for the work unless otherwise stated.

11) The whole work should be completed in all respects and handed over to the University Engineer/Executive Engineer within *01 month* from the date of taking over the site from the University engineer/executive Engineer and the rates shall holds good till the completion of the work.

12) The tender conditions are explicit and should be strictly adhere to. The successful tenderer should not open any correspondence regarding deviations of the tender conditions and should present the agreement in the stamped form within seven days of the receipt of approved tender schedules from the Registrar, failing which the tender will be rejected and the earnest money will be forfeited.

13) A penalty of Rs. 1,000/- (one thousand only) per day delay after the due date will be levied on the contractor in case he cannot complete the work within the specified time.

14) For the water used by the contractor for the work, cost will be recovered as per the rate provided in the data book of the relevant SSR.

SCHEDULE - D :

MATERIALS AND WORKMANSHIP

1.1 General

1.1.1. a) No material shall be used for construction in any work until notice has been given by the Executive Engineer that the test results are satisfactory. No oral instruction should be followed.

b) Recommendation of stacking and storage of construction materials at site shall be in accordance with IS : 4082-1977.

c)To be the best Quality: - All materials, articles, and workmanship shall be the best of their respective kinds for the class of work described in the contract specifications and schedule. The word 'best' as used in the specifications shall mean, that in the opinion of the Executive Engineer there is no superior quality of material or finish of articles on the market and that there is no better class of workmanship available for the nature of the particular item described in the contract schedule. The contractor shall upon the request of the Executive Engineer, furnish him with the vouchers to prove that the materials are such as are specified.

1.1.2. The tenderer has to do his own testing of materials and satisfy himself that they conform to the specifications of respective I.S.I. codes, before tendering.

1.1.3. The contractor shall himself procure the required construction materials of approved quality including the earth for formation of embankment and water from quarries/sources of his choice. All such quarries / sources of materials required for the work shall be got approved by the Engineer-in-charge in writing well before their use on the work. The materials as per standards of relevant I.S.I. codes only will be accepted.

1.2 SAMPLES

1.2.1 The representative samples of all materials should be procured by the contractor and arrange to send them to the Engineer-in-charge for conducting pre-construction tests and approval duly informing the source of materials from where he has collected the samples.

1.2.2 The raw and processed samples should be supplied at the contractor's expense to the Engineer-in-charge within 14 days after signing of the agreement.

1.2.3 If the contractor desire to change the source of materials, he shall supply the raw and processed representative samples at his own expense to the Engineer-in-charge at least 60 days before its use for pre-construction tests and approval.

1.2.4 In addition to pre-construction tests and approval of quarries, the Engineer may test the aggregate for their suitability during their processing. The contractor shall provide such facilities as may be necessary for procuring at no extra cost representative samples at the aggregate processing plant and at the batching plant. Final acceptance of the materials will be based on the acceptable test results of samples taken from the construction site only.

1.2.5. The contractor has to bear the cost of raw and processed representative samples, laboratory tests and field tests. The contractor has to arrange the required men and material for collecting the samples and bear the cost thereon required for transporting them to the laboratory also. The contractor should quote his rates for finished item or work for the items or works of Schedule 'A' Keeping I view the cost of pre and processed samples to be submitted to the Engineer and also the rate of progress and the time required for conducting laboratory tests. No extension of time will be granted for any delay occurred in collecting the samples and conducting pre-construction tests in the laboratory and getting approval.

1.3 PROCUREMENT

1.3.1 The rates quoted for all items shall include cost and conveyance of all materials with all leads.

1.3.2 It will be the tenderers responsibility to satisfy himself that sufficient quantities of construction materials required for the works shall exist in the borrow areas or quarry sites. The Dep. does not accept any

responsibility either in handing over the quarries or procuring the materials or any other facilities. The tenderer will not be entitled for any extra rate or claim for the misjudgement on his part for quantity and quality of materials available in the quarries.

1.3.3 Failure by the Tenderer to have done all the things, which in accordance with this condition, he is deemed to have done, shall not relieve the successful tenderer of the responsibility for satisfactory completing the works as required at the rates quoted by him.

1.3.4 The contractor shall make his own enquiries regarding the availability of other materials and make his own arrangements for procuring them.

1.3.5 The materials for embankment construction shall be obtained and got approved by the Engineer-in-charge. The responsibility for arranging and obtaining the land for borrowing or exploitation in any other who shall rest with the contractor, who shall ensure smooth and uninterrupted supply of materials for the quantity required in construction during the construction period. No separate cost will be paid.

1.3.6 Similarly, the supply of aggregates for construction shall be of approved quality approved by the Executive Engineer. Responsibility for arranging uninterrupted supply of materials from the source shall be that of the contractor. No separate cost will be paid.

1.3.7 The contractor has to open and develop the quarry for the stone and aggregate required. All incidentals such as removal of over burden, stripping etc. in the quarry should be done by the contractor. The contractor shall make his arrangements for maintaining the approach roads to quarry for conveying the materials to site of work.

1.3.8 The contractors have to make their own arrangements for storage and conveyance of water and storage at work site for construction purpose, no extra payment will be made to the contractor over and above their tender rates for water lead for storage arrangements.

1.3.9 The tenderer should inspect the site and check-up the possible water source for carrying out the entire work throughout the year in monsoon and non-monsoon seasons irrespective of the quantum of rainfall and quote their rates accordingly. No subsequent claims for extra water lead will be entertained under any circumstances.

1.3.10 The materials and labour utilized in the execution of work by the contractor shall not be less than that given in the A.P.P.W.D. standard data for the relevant item.

1.3.11 Lay-out of material stacks : The Contractor shall deposit materials for the purpose of the work on such parts only of the ground as may be approved by the Engineer in charge. He shall submit, for the approval of the Executive Engineer, before starting work, a detailed site survey clearly indicating positions and areas where materials shall be stacked and sheds built.

1.4 DEFECTIVE MATERIAL :

1.4.1 All materials which the Executive Engineer/his representative has determined as not conforming to the requirements of the contract will be rejected whether in place or not. They shall be removed immediately from the site as directed. Materials, which have been found defective, and which have been subsequently corrected, shall not be used in the work unless approval accorded in writing by the Engineer in charge. Upon failure of the contractor to comply with any order of the Engineer in charge, given under this clause, the Engineer in charge shall have authority to cause the removal of rejected material and to deduct the removal cost hereof from any money due to the contractor.

1.4.2 The rejected rubble and spoils should be dumped far away from work spot as directed by the Engineer in charge. The muck, boulders etc. fallen on the approach roads, ramps, etc. below the place should be removed by the contractor immediately after blasting at the contractor's cost. In case the above materials are not cleared within 24 hours of issue of departmental instructions, the same will be removed by the Dept. and the cost thereof will be recovered from the contractor's bills.

1.4.3 The Dept. will not be liable for any compensation due to breakdown in machinery, water supply or electricity or delay in supply of materials and for damage due to rains and floods.

1.4.4 The Executive Engineer shall have power to reject at any stage, any work which he considers to be defective in quality of material or workmanship and he shall not be debarred from rejecting wrought materials by reason of his having previously passed them in an unworked condition. Any portion of the work or materials rejected or pronounced to be inferior or not in accordance with the drawings and specifications shall be taken down and removed from the work-site at the contractor's expense, within 24 hours after written instructions to that effect have been given by the Executive Engineer. Replacement shall at once be made in accordance with the specifications and drawings, at the contractor's expense.

1.4.5 In case of default on the part of the contractor to carry out such orders the Executive Engineer shall have power to employ and pay other persons to carry out the orders at the contractor's risk and all expense consequent thereon and incidental thereto shall be borne by the contractor.

1.4.6 Executive Engineer's decisions to prevent dispute and litigation, it shall be accepted as an inseparable part of the contract in the matters regarding materials, workmanship, removal of improper work, interpretation of the contract drawings and contract specifications, mode of procedure and the carrying out of the work, the decision of the Executive Engineer shall be final and binding on the contractor and in any technical question which may arise touching the contract, the Executive Engineer's decision shall be final and conclusive. In the case of any difference between Executive Engineer and contractor on matters regarding materials, workmanship, removal of improper work, interpretation of contract drawings and contract specifications, mode of procedure and the carrying out of the work the contractor shall have a right of appeal to the next higher authority viz., the Superintending Engineer of the circle, and the decision of the latter shall be final and conclusive.

1.5 MEASUREMENT AND PAYMENT :

Measurement :

a) All original works shall be measured by levels.

b) Where payments are to be made with reference to the levels the level field Books, the cross-section sheets and the calculation sheets shall be treated as adjuncts to the measurement books.

c) All linear measurements shall be in metre correct to 0.01 metre and volume worked out in cubic metres correct to 0.01 cubic meter.

d) Unless otherwise specified in these specifications excavation for cut off trenches, canal, drains etc. shall be measured in excavation to the lines, slopes, grades and as shown on the drawings or as provided in these specifications or as prescribed by the Engineer in charge.

e) It shall be clearly understood that no excavation beyond pay line shall be measure for payment.

f) On the initial cross-sectional plans which form the basis for all payments, lines, grades, side slopes, and level of excavation according to classification and construction embankments shall be marked duly taking levels. On completion of excavation, final cross-sections and the Quantities between the initial cross sections and final cross-sections within the pay lines shall be worked out for payment.

g) The unit for payment of earth work excavation in soils is 10 cubic metre and rock shall be one cubic metre.

1.5.1 INTERMEDIATE PAYMENTS

a) For intermediate payments lowest level may be taken for bund/embankment and highest level in canal cutting in a bay of 25 m.

b) Payment for earth work embankment compacted to proctor's density will be for the net Quantity of earth work after deducting the Quantity towards shrinkage from the rolled Quantity computed based on the compacted bund which should include allowance for shrinkage.

c) Intermediate payment also will be made based on levels.

1.6 PREPARATION OF FOUNDATION :

a) The contractor shall prepare firm foundation for the structure as shown in the drawings. The bottom and side slopes of foundation

upon or against which the structure is to be placed shall be finished to the prescribed levels and dimensions shown on plans.

b) The bottom of the foundation shall be leveled both longitudinally and transversely or stepped as directed by Engineer-in-charge. Before foundation concrete is laid, the surface shall be slightly watered and rammed. In the event of excavation having been made deeper than that shown on the drawings the extra depth shall be made up with concrete or masonry of the foundation grade at the cost of the contractor as directed by the Engineer - in-charge. Ordinarily earth filling shall not be used for the purpose to bring the foundation level. If hard strata is not met at foundation level shown in the drawings extra depth as directed by Engineer - in-charge shall be excavated to remove unsuitable material. The extra excavation or extra depth made up with masonry or concrete will be paid for as approved by the Engineer-in-charge.

c) When rock or other hard strata is encountered, it shall be free from all soft and loose material, cleaned and cut to a firm surface either level, stepped or serrated as directed by the Engineer-in-charge. All seams shall be cleaned out and filled with cement mortar or grout to the satisfaction of the Engineer-in-charge.

d) If it is considered necessary by the Engineer in charge, to consolidate the foundation strata by grouting cement slurry, the drilling and grouting or any other foundation treatment as directed by the Engineering-in-charge shall be done by the contractor and payment will be made at the rates quoted in Schedule 'A'.

e) Separate payment will not be made to the contractor for moistering and compacting the foundation of structures. The contractor shall include the cost thereof in the rate per cubic metre of the item of Schedule-'A' for preparation of foundation.

f) The quantities for payment will be to the dimensions shown on the drawings.

1.6.1 MEASUREMENT FOR PAYMENT :

a) Excavation for structures shall be measured in cubic meters for each class of materials encountered, limited to the dimensions shown on the drawings or as directed by the Engineer incharge. Excavation for structures will be measured for box cutting with vertical sides of foundation dimensions. Excavation of increased width, cutting of

slopes, shoring, shuttering and planking shall be deemed as convenience for the contractor in executing the work and shall not be measured and paid for separately.

b) Foundation sealing, dewatering including pumping shall be deemed to be incidental to the work and no separate payment will be made.

c) The quantity for excavation in soils and rock will be arrived at form the pre-levels and finished levels of respective strata taken at 3 Meter or less intervals both ways as decided by the Engineer in charge. The levels will be plotted on graph sheet and average levels arrived at for purpose of determining the quantity of excavation.

d) The contractor or his authorized agent's signature in token of his acceptance shall be recorded in level field books and graph sheet on which levels have been plotted. Final payment will be made on levels only. The contractor shall expose the surface of the strata for inspection of Engineer in charge and for taking levels wherever the classification and strata gets changed.

1.6.2 DISPOSAL OF EXCAVATED MATERIAL :

a) No rehandling of excavated material due to injudicious selection of the place for dumping will be paid for.

b) All surplus excavated material which is not useful for any embankment, or filling shall be disposed and as directed by the Engineer in Charge.

1.7 CONCRETE MIX PROPORTIONING :

The mix proportions shall be selected to ensure that the workability of fresh concrete is suitable for the conditions of handling and placing, so that it surrounds all reinforcements (in case of R.C.C) and completely fills the formwork. When concrete is hardened, it shall have the required strength, durability and surface finish.

The Mix proportion shall be as follows.

1.7.1 DESIGN MIX CONCRETE :

The mix shall be designed in a laboratory to produce the grade of concrete having the required workability and a characteristic strength not less than values given in the following table. The procedure to design and produce the concrete, the sandards given in IS :

10262-1982-Recommended guide lines for concrete mix design and SP : 23 - Hand book on concrete mixes published by B.I..S Shall be adopted.

GRADE OF CONCRETE	**SPECIFIED CHARACTERISTIC COMPRESSIVE STRENGTH AT 28 DAYS. (N/SQ.MM)**
M 10	10
M 15	15
M 20	20
M 25	25
M 30	30
M 40	40
M 45	45
M 50	50

1.7.2. NOMINAL MIX CONCRETE :

The following proportions shall be adopted for the nominal mix concrete.

GRADE OF CONCRETE	**TOTAL QUANTITY OF DRY AGGREGATE PER 50 KG OF CEMENT (COARSE AGGREGATE + SAND)**	**MAXIMUM QUANTITY OF WATER PER 50 KG'S OF CEMENT**
M 5	800 KG	60 Litres
M 7.5	625 KG	45 Litres
M 10	840 KG	34 Litres
M 15	350 kg	32 Litres

M 20	250 kg	30 Litres

NOTE :

a) Graded coarse aggregate shall be used.

b) For an average grading of fine aggregate to coarse aggregate the proportions shall be

1:1.5 - for 10 mm M.S.A

1:2.0 - for 20 mm M.S.A and

1:2.5 - for 40 mm M.S.A

c) In all cases, fine aggregates should confirm to the grading of ZONE - II or ZONE - III of IS : 383-1970.

d) To overcome the difficulties of placement and compaction if the quantity of water in a mix is increased, the cement content of the mix specified in the above table shall be proportionately increased, so that water cement ratio as specified is not exceeded.

e) In case of vibrated concrete, the water content shall be suitably reduced to avoid segregation.

f) When, nominal maximum size of aggregate is 20 mm, a rough guide for the nominal mix proportions by volume will be 1:3:6, 1:2:4 and 1:1.5:3 for M 10, M 15 and M 20 concretes respectively. For other sizes of aggregated adjustments in the ratios of the weight of coarse and fine aggregates shall be done.

1.7.3 TRANSPORTATION OF CONCRETE :

Concrete shall be transported from the mixer to the form work as rapidly as possible by methods grooved by the Engineer-in-charge, which will prevent the separation or loss of any of the ingredients and maintaining the required workability.

The concrete shall be transported, laid and compacted in its final position with in 30 minutes of its discharge from the mixer unless carried by in properly designed agitators.

Where the time of haul exceeds 20 minutes, mixed concrete shall be transported in a suitable agitator or transit mixer as directed and approved by the Engineer-in-charge.

1.7.4 PLACING OF CONCRETE:

All surfaces upon or against which concrete is to be laid shall be prepared in accordance with the drawings.

No concrete shall be placed until all form works, installation of parts to be embedded and preparation of surface involved in the placing have been approved by the Engineer-in-charge. No concrete shall be placed in water except when specifically so permitted. All surfaces of forms and embedded materials have become incrusted with dried mortar from previously placed shall be cleaned before surrounding of adjacent concrete is placed.

If concreting is not started within 24 hours of the approval being given, it shall have to be obtained again. The contractor shall notify the Engineer at least 24 hours before batching begins for placement of concrete.

All absorptive surfaces against which concrete is to be laid shall be moistened thoroughly so that moisture will not be method of placing should be such as to preclude segregation withdrawn from the freshly placed concrete. The concrete shall be deposited as nearly as possible in its final position and compacted before setting commences and should not be subsequently disturbed.

Care should be taken to avoid displacement of reinforcement or movement of form work.

Placing is allowed with a limitation of free fall of 1.5 meter.

All concrete shall be placed in continuous and approximate horizontally layers, the thickness of which shall not more than 450mm for mass concrete and 150mm for RCC and plain cement concrete works)

Concrete shall not be placed laster than the placing crew can compact it properly.

1.8 SAMPLING AND STRENGTH OF CONCRETE:

1.8.1 GENERAL:

The sampling shall be done as per the specifications laid down in IS: 1199 - 1959 - specification for sampling and analysis specification for testing strength of concrete.

For relatively small and unimportant buildings and structure in which quantity of concrete is less than 15 cum. the strength tests may be waived by the Engineer-in-charge.

The sampling scheme given in clause: 14 and the acceptance criteria given in clause: 15 of IS:456-1978 are applicable to both design mix and nominal mix concrete. In the case of the later, the preliminary tests for establishing the mix proportions are not necessary.

Concrete of each grade shall be assessed separately.

The Concrete under acceptance shall be notionally divided into lots for the purpose of sampling, before commencement of work. The delimitation of lots shall be determined by the following :

i. No individual lot shall be more than 30 Cum in volume.

ii. At least one cube forming an item of the sample representing the lot shall be taken from concrete of the same grade and mix proportions cast any day.

iii. Different grades of mixes of concrete shall be divided into separate lots.

iv. Concrete of a lot shall be used in the same identifiable component of the structure.

1.8.2 SAMPLING AND TESTING :

a) Concrete for making 3 test cubes shall be taken from a batch of concrete at point of delivery into construction according to procedure laid down in IS:1199.

b) A random sampling procedure to ensure that each of the concrete batches forming the lot under acceptance inspection has equal chance of being chosen for taking cubes shall be adopted.

c) 150 mm cubes shall be made, cured and tested at the age of 28 days for compressive strength in accordance with IS:516. The

28-day test strength result for each cube shall form an item of the sample.

d) These test specimens shall be made from each sample for testing at 28 days. Additional cubes may be required for various purposes such as to determine the strength of concrete at 7 days or for any other purpose.

e) The test strength of the sample shall be the average of the strength of 3 cubes. The individual variation should not be more than ± 15% of average.

f) Frequency: The minimum frequency of sampling of concrete of each shall be :

QUANTITY OF CONCRETE IN WORK, CUM	**NO. OF SAMPLES**
1-5	1
6-15	2
16-30	3
31-50	4 + one additional
51 and above additional 50 cum	sample for each part there of.

At least one sample shall be taken from each shift of work.

1.8.3 : Test procedure

In order to get a relatively quicker idea of quality of concrete, optional tests on beams for modulus of rupture or at 72+2 hours at 7 days, on compressive strength tests at 7 days may be carried out in addition to at 28 days compressive strength Tests for this purpose the value given in table may be taken for general guidance in the case of concrete made with ordinary Portland cement. In all cases, the 28 days compressive strength specified in Table shall be alone be the criterion for acceptance or rejection of the concrete. If, however, from tests carried out in a particular job over a reasonably long period, it has been established to the satisfaction of the engineer that a suitable ratio between 28 days compressive strength and the modules of rupture at 72+2 hours or 7 days or compressive strength at 7 days may be accepted, the engineer may

suitably relaxte frequency of 28 days compressive strength provided the expected strength values at the specified early age are consistently met.

OPTIONAL TESTS REQUIREMENTS OF CONCRETE

Grade of Concrete	Compressive Strength on 15 cm Cubes, Min, at 7 days	Modules of Rupture By Beam Test, Min at 72+2hat 7 days	
(1)	(2)	(3)	(4)
	N/mm2	N/mm2	N/mm2
M-10	7.0	1.2	1.7
M-15	10.0	1.5	2.1
M-20	13.5	1.7	2.4

1.8.3.1 STANDARD DEVIATION:

(I) STANDARD DEVIATION BASED ON TEST RESULTS:

(a) Number of test results: The total number of test results required to constitute as acceptable record for calculation of standard deviation shall be not less than 30. Attempts should be made to obtain in the 30 test results, as early as possible, when a mix is used for the first time check additional condition of about 5 samples.

(b) Standard deviation to be brought upto date: The calculation of the standard deviation shall be brought upto date after every change of mix design and atleast once a month.

(c) When significant changes are made in the production of concrete batches (for example changes in the materials used, mix design, equipment or technical control) the standard deviation value shall be separately calculated for such batches of concrete.

1.8.3.2 ASSUMED STANDARD DEVIATION:

Where sufficient test results for a particular grade of concrete are not available, the value of standard deviation given in the following table may be assumed.

ASSUMED STANDARD DEVIATION

Grade of concrete	Standard Deviation For Different degree of Control in N/mm2		
	Very good	**Good**	**Fair**
M 10	2.0	2.3	3.3
M 15	2.5	3.5	4.5
M 20	3.6	4.6	5.6

However, when adequate past records for a similar grade exist and justify to the designed value of standard deviation different from that shown in the above table, it shall be permissible to use that value.

1.8.3.3 ACCEPTANCE CRITERIA :

The concrete shall be deemed to comply with the strength requirements if :

(a) every sample has a test strength not less than the characteristic value : or

(b) The strength of one or more samples through less than the characteristic value; is in each case not less than the greater of :

1) the characteristic strength minus 1.35 times the standard deviation; and

2) 0.80 times the characteristic strength;

and the average strength of all the samples is not less than the characteristic strength plus.

(1.65 / - 1.65 sqmt. (number of samples) times the standard deviation.

The concrete shall be deemed not to comply with the strength requirements if:

(a) The strength of any sample is less than the greate of :

(1) the characteristic strength minimum 1.35 times the standard deviation; and

(2) 0.80 times the characteristic strength; or

(b) the average strength of all the samples is less than the characteristic strength plus.

(1.65-3/sqmt. (number of samples) times the standard deviation.

$$1.65 - \frac{3.00}{\text{No of samples}} \times \text{standard deviation}$$

Concrete which does not meet the strength requirements as specified but has a strength greater than that required may, at the discretion of the designer, be accepted as being structurally adequate without further testing.

If the concrete is deemed not a comply the structural adequacy, of the parts affected shall be investigated and any consequential action as needed shall be taken.

Concrete of each grade shall be assessed separately.

Concrete shall be assessed daily for compliance.

Concrete is liable to be rejected if it is porous or honey-combed; its placing has been

interrupted without providing a proper construction just (or) tolerances have not been met. However, the hardened concrete may be accepted after carrying out suitable measures to the satisfaction of the Engineer.

1.8.3.4 : CORE AND LOAD TESTS :

Inspection : Immediately after stripping the formwork, all concrete shall be carefully inspected and any defective work or small defects either removed or make good before concrete has throughly hardened.

In case of doubt regarding the grade of concrete used, either due to poor workmanship on based or results of cube strength tests, compressive strength tests of concrete and/or load test may be carried out.

A) CORE TEST :

The points from which cores are to be taken and the number of cores required shall be at the discretion of the Engineer and shall be representative of the whole of concrete concerned. In no case, however, shall fewer than three cores be tested.

Cores shall be prepared and tested as described in IS: 516-1959.

Concrete in the member represented by a core test shall be considered acceptable if the average equivalent cube strength of the cores is equal at least 85 percent of the cubes strength of the grade of concrete specified for the corresponding age and no individual core has a strength less than 75 percent.

In case the core test results do not satisfy the requirements of or where such tests have not been done, load test may be resorted to.

B) LOAD TESTS ON PARTS OF STRUCTURES :

Loading tests should be carried out as soon as possible after expire of 28 days from the time of placing of concrete.

The structure should be subjected to a load equal to full dead load of the structure plus 1.25 times the imposed load for a period of 24 hours and then the imposed load shall be removed.

NOTE : Dead load includes self weight of the structure members plus weight of finishes and walls of partitions, if any, as considered in the design.

The deflection due to imposed load only shall be recorded. If within 24 hours of removal of the imposed load, the structure does not recover at least 75 percent of the deflection under superimposed load, the test may

be repeated after a lapse of 72 hours. If the recovery is less than 80 percent, the structure shall be deemed to be unacceptance.

1.8.4 ACCEPTANCE CRITERIA :

Two sets of criteria for demonstrating that the concrete as produced and casted either complies or does not comply with the IS:456-1978 requirements for concrete quality.

a) requirements of strength, and

b) requirements of workmanship.

Compression strength : When both the following conditions are met, the concrete complies with the specified compressive strength:

a) The mean strength determined from any group of four cnsecutive samples should exceed the specified characteristic compressive strength.

b) Strength of any sample is not less than the specified characteristic compressive strength minus 3 MPa.

1.8.5 REJECTION CRITERIA : Concrete is liable to be rejected if it is

a) Porous or honey-combed, (due to incurrent mix proportion or improper compaction techniques

b) Its placing has been interrupted without providing proper construction joint.

c) The reinforcement has been displaced beyond the tolerance have not been.

d) If the core tests / load test does not yield the results.

e) If the strength of the concrete produced and tested does not yield the strength requirements of the code.

f) If the test results of the test cubes obtained as per IS: 1199 and tested as per IS:516 does not yield the strength requirements of the code accordance criteria, the Engineer-in-charge with the consultion of the Designer will consider the technical consequences such as durability, strength, serviceability, economic consequences, cost replacement, cost of strengthening the weak point etc.,

However, the hardened concrete shall be accepted only after carrying out suitable remedial measures to the satisfaction of the Engineer-in-charge.

1.8.6 UNACCEPTABLE WORK :

All defective concreting work including but out limited to defects arising out of honey combing, undersizing, under strength etc., are liable to be demolished and rebuilt by the contractor at his cost. In the event of such work being accepted by carrying out repairs etc., as specified by the Engineer the cost of repairs shall be borne by the contractor. Acceptance of such works will be in accordance with the provisions of IS:456-1978.

Visible defects noticed in the workmanship and quality which could be rectified through remedial measures, shall be rectified to the satisfaction of the Engineer.

Deficiency in workmanship which is considered to be attributable to some inadequacy in concrete production or concrete haulage, or concrete placement method, or compaction, should be got remedied from the contractor by the Engineer through additional inputs and upgradation of methodology and work taken up subsequently only when the needed augmentation has been done. If the subsequent work is within acceptable level, steps should be taken to remedy the defects noted in the earlier work through appropriate measures. After the defects have been remedied to the satisfaction of Engineer and provided that the inputs (cement, aggregates, water etc.,) are within the specified quality standards, the concerned work shall be accepted.

In case the Engineer observes basic and serious deficiencies in the quality of inputs and outputs as well as in the workmanship, revealed through perusal of test records and visual inspection as well including say, examination of cores (taken from in situ concrete lining), as also serious inadequacies in construction equipment and job facilities in enforcing the technical specifications, such portions of works shall be rejected and not accepted for any payment. In the absence of any positive measures to strengthen these structures/works, the Engineer may arrange for their demolition and reconstruction.

There could be portions of work/works, where some sort of slight transpression of specification quality levels has taken place and which is not feasible of rectification in full. In case it is determined that the integrity of such portions of work is not significantly impaired and that the functional capability can be assured, consideration may be given by the Engineer (subject to full satisfaction of the Engineer) to accept these at reduced payment to the contractor instead of demolishing the concerned portion of work and reconstructing it.

QUALITY CONTROL

Identifying Defects:

The Engineer-in-charge shall check the contractor's work and notify the contractor of any defects that are found. Such checking shall not affect the Contractor's responsibilities. The Engineer-in-charge may instruct the

contractor to rectify the defect and to uncover and test any work that the Engineer considers may be a Defect.

Tests: The Contractor shall conduct at his own cost necessary tests on materials procured by him i.e., Sand, 40 mm, 20 mm, 12 mm HBG metal, Bricks , steel & Cement at regular intervals as directed by the Engineer-in-Charge to satisfy the department that the materials conform to IS standards.

If the Engineer-in-charge instructs the contractor to carry out a test not specified in the Specification to check whether any work has a defect and the contractor shall pay for the test and any samples

Correction of Defects:

The Engineer-in-charge shall give notice to the Contractor of any defects before the end of the Defects Liability Period, which begins on completion. The defects liability period shall be extended for as long as defects remain to be corrected by the contractor.

Every time notice of a Defect is given, the Contractor shall correct the notified defect within the length of time specified by the Engineer-in-charge's notice.

Uncorrected Defects:

If the contractor has not corrected the defect within the time specify in the Engineer-in-charge's notice, the Engineer-in-charge will assess the cost of having the defect corrected and the contractor will pay this amount.

The Engineer-in-charge shall introduce O.K. cards and the prescribed formats of O.K. cards shall relate to all major components of the work. The contractor / his authorized representative shall be required to initiate and fill in the O.K Card to the construction staff who would the respective items and send to the quality control staff for final check and clearance/o.k. Any defects pointed out by the construction supervision staff or by the quality control staff shall promptly be attended by the contractors and the fact of doing so be duly recorded on the back of O.K card.

The Engineer-in-charge may also introduce check lists which shall be kept in Bound registers by the construction supervision staff. The contractor may be

required to fill up these lists in the first instance and shall be subsequently checked by the construction/Quality Control engineers.

ADDITIONAL CONDITIONS

1. For all reinforced cement concrete works the grills must be produced for measurements and check measurements before actually laying concrete.
2. All road materials and rough stone and gravel for revetment must be collected and stacked for taking pre-measurement before use.
3. In case the University is unable to supply water due to acute drought conditions the contractor should arrange to convey water at their cost to keep up the progress of work till water supply improves.
4. The contractor should inform the University Engineer/Executive Engineer at the time of taking over site the name of the technical staff (with qualification) employed on this work as per the clause 22 of the Schedule 'C". The Technical staff employed by the contractors must be kept at the work spot constantly to receive instructions given by the University Engineer/Executive Engineer or his representatives to such staff shall be held to have been given to the Contractor.
5. The Contractor's rates for all items of works must be inclusive of cost of all materials except for items wherever otherwise specified.

TENDERER UNIVERSITY ENGINEER