

**DEMOCRATIC SOCIALIST REPUBLIC OF
SRI LANKA**



UNIVERSITY OF JAFFNA, SRI LANKA

**SUPPLY OF CIVIL, COMPUTER ENGINEERING, IT EQUIPMENT
AND LABORATORY FURNITURE
UNIVERSITY OF JAFFNA**

UJ/F/PO/T/02/2016

BIDDING DOCUMENT

Bid Opening on	25.05.2016
Bid Validity up to	25.08.2016


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Section I.

Instructions to Bidders (ITB)

ITB shall be read in conjunction with the Section II, Bidding Data Sheet (BDS), which shall take precedence over ITB.

General	
1. Scope of Bid	<p>1.1 The Purchaser indicated in the Bidding Data Sheet (BDS), issues these Bidding Documents for the supply of Goods and Related Services incidental thereto as specified in Section V, Schedule of Requirements. The name and identification number of this procurement are specified in the BDS. The name, identification, and number of lots (individual contracts), if any, are provided in the BDS.</p> <p>1.2 Throughout these Bidding Documents:</p> <p>(a) the term “in writing” means communicated in written form by mail (other than electronic mail) or hand delivered with proof of receipt;</p> <p>(b) if the context so requires, “singular” means “plural” and vice versa; and</p> <p>(c) “Day” means calendar day.</p>
2. Source of Funds	<p>2.1 Payments under this contract will be financed by the source specified in the BDS.</p>
3. Ethics, Fraud and Corruption	<p>3.1 The attention of the bidders is drawn to the following guidelines of the Procurement Guidelines published by National Procurement Agency:</p> <ul style="list-style-type: none"> ▪ Parties associated with Procurement Actions, namely, suppliers/contractors and officials shall ensure that they maintain strict confidentiality throughout the process; ▪ Officials shall refrain from receiving any personal gain from any Procurement Action. No gifts or inducement shall be accepted. Suppliers/contractors are liable to be disqualified from the bidding process if found offering any gift or inducement which may have an effect of influencing a decision or impairing the objectivity of an official. <p>3.2 The Purchaser requires the bidders, suppliers, contractors, and consultants to observe the highest standard of ethics during the procurement and execution of such contracts. In pursuit of this policy:</p> <p>(a) “corrupt practice” means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;</p> <p>(b) “fraudulent practice” means a misrepresentation or omission of facts in order</p>

	<p>to influence a procurement process or the execution of a contract;</p> <p>(c) “collusive practice” means a scheme or arrangement between two or more bidders, with or without the knowledge of the Purchaser to establish bid prices at artificial, noncompetitive levels; and</p> <p>(d) “Coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract.</p> <p>3.3 If the Purchaser found any unethical practices as stipulated under ITB Clause 3.2, the Purchaser will reject a bid, if it is found that a Bidder directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for the Contract in question.</p>
4. Eligible Bidders	<p>4.1 All bidders shall possess legal rights to supply the Goods under this contract.</p> <p>4.2 A Bidder shall not have a conflict of interest. All bidders found to have conflict of interest shall be disqualified. Bidders may be considered to have a conflict of interest with one or more parties in this bidding process, if they:</p> <p>(a) are or have been associated in the past, with a firm or any of its affiliates which have been engaged by the purchaser to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the goods to be purchased under these Bidding Documents ; or</p> <p>(b) Submit more than one bid in this bidding process. However, this does not limit the participation of subcontractors in more than one bid.</p> <p>4.3 A Bidder that is under a declaration of ineligibility by the National Procurement Agency (NPA), at the date of submission of bids or at the date of contract award, shall be disqualified. The list of debarred firms is available at the website of NPA, www.npa.gov.lk .</p> <p>4.4 Foreign Bidder may submit a bid only if so stated in the BDS.</p>
5. Eligible Goods and Related Services	<p>5.1 All goods supplied under this contract shall be complied with applicable standards stipulated by the Sri Lanka Standards Institute (SLSI). In the absence of such standards, the Goods supplied shall be complied tother internationally accepted standards.</p>
Contents of Bidding Documents	
6. Sections of Bidding Documents	<p>6.1 The Bidding Documents consist of 2 Volumes, which include all the sections indicated below, and should be read in conjunction with any addendum issued in accordance with ITB Clause 8.</p> <p>Volume 1</p> <ul style="list-style-type: none"> • Section I. Instructions to Bidders (ITB) • Section VI. Conditions of Contract (CC) • Section VIII. Contract Forms

	<p>Volume 2</p> <ul style="list-style-type: none"> • Section II. Bidding Data Sheet (BDS) • Section III. Evaluation and Qualification Criteria • Section IV. Bidding Forms • Section V. Schedule of Requirements • Section VII. Contract Data • Invitation For Bid <p>6.2 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Documents. Failure to furnish all information or documentation required by the Bidding Documents may result in the rejection of the bid.</p>
7. Clarification of Bidding Documents	<p>7.1 A prospective Bidder requiring any clarification of the Bidding Documents including the restrictiveness of specifications shall contact the Purchaser in writing at the Purchaser's address specified in the BDS. The Purchaser will respond in writing to any request for clarification, provided that such request is received no later than ten (10) days prior to the deadline for submission of bids. The purchaser shall forward copies of its response to all those who have purchased the Bidding Documents, including a description of the inquiry but without identifying its source. Should the Purchaser deem it necessary to amend the Bidding Documents as a result of a clarification, it shall do so following the procedure under ITB Clause 8.</p>
8. Amendment of Bidding Documents	<p>8.1 At any time prior to the deadline for submission of bids, the Purchaser may amend the Bidding Documents by issuing addendum.</p> <p>8.2 Any addendum issued shall be part of the Bidding Documents and shall be communicated in writing to all who have purchased the Bidding Documents.</p> <p>8.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, the purchaser may, at its discretion, extend the deadline for the submission of bids, pursuant to ITB Sub-Clause 23.2</p>
Preparation of Bids	
9. Cost of Bidding	<p>9.1 The Bidder shall bear all costs associated with the preparation and submission of its bid, and the Purchaser shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.</p>
10. Language of Bid	<p>10.1 The Bid, as well as all correspondence and documents relating to the Bid (including supporting documents and printed literature) exchanged by the Bidder and the Purchaser, shall be written in English language.</p>
11. Documents Comprising the Bid	<p>11.1 The Bid shall comprise the following:</p> <p>(a) Bid Submission Form and the applicable Price Schedules, in accordance with ITB Clauses 12, 14, and 15;</p> <p>(b) Bid Security or Bid-Securing Declaration, in accordance with ITB Clause 20;</p>

	<p>(c) documentary evidence in accordance with ITB Clauses 18 and 29, that the Goods and Related Services conform to the Bidding Documents;</p> <p>(d) documentary evidence in accordance with ITB Clause 18 establishing the Bidder's qualifications to perform the contract if its bid is accepted; and</p> <p>(e) Any other document required in the BDS.</p>
12. Bid Submission Form and Price Schedules	12.1 The Bidder shall submit the Bid Submission Form using the form furnished in Section IV, Bidding Forms. This form must be completed without any alterations to its format, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested.
13. Alternative Bids	13.1 Alternative bids shall not be considered.
14. Bid Prices and Discounts	<p>14.1 The Bidder shall indicate on the Price Schedule the unit prices and total bid prices of the goods it proposes to supply under the Contract.</p> <p>14.2 Any discount offered against any single item in the price schedule shall be included in the unit price of the item. However, a Bidder wishes to offer discount as a lot the bidder may do so by indicating such amounts appropriately.</p> <p>14.3 If so indicated in ITB Sub-Clause 1.1, bids are being invited for individual contracts (lots) or for any combination of contracts. Unless otherwise indicated in the BDS, prices quoted shall correspond to 100 % of the items specified for each lot and to 100% of the quantities specified for each item of a lot. Bidders wishing to offer any price reduction (discount) for the award of more than one Contract shall specify the applicable price reduction separately.</p> <p>14.4 (i) Prices indicated on the Price Schedule shall include all duties and sales and other taxes already paid or payable by the Supplier:</p> <p>(a) on components and raw material used in the manufacture or assembly of goods quoted; or</p> <p>(b) on the previously imported goods of foreign origin</p> <p>(ii) However, VAT shall not be included in the price but shall be indicated separately;</p> <p>(iii) the price for inland transportation, insurance and other related services to deliver the goods to their final destination;</p> <p>(iv) the price of other incidental services</p> <p>14.5 The Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract and not subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as non-responsive and rejected, pursuant to ITB Clause 31.</p> <p>14.6 All lots, if any and items must be listed and priced separately in the Price Schedules. If a Price Schedule shows items listed but not priced, their prices shall be assumed to be included in the prices of other items.</p>

15. Currencies of Bid	15.1 Unless otherwise stated in Bidding Data Sheet, the Bidder shall quote in Sri Lankan Rupees and payment shall be payable only in Sri Lanka Rupees.
16. Documents Establishing the Eligibility of the Bidder	16.1 To establish their eligibility in accordance with ITB Clause 4, Bidders shall complete the Bid Submission Form, included in Section IV, Bidding Forms.
17. Documents Establishing the Conformity of the Goods and Related Services	<p>17.1 To establish the conformity of the Goods and Related Services to the Bidding Documents, the Bidder shall furnish as part of its Bid the documentary evidence that the Goods conform to the technical specifications and standards specified in Section V, Schedule of Requirements.</p> <p>17.2 The documentary evidence may be in the form of literature, drawings or data, and shall consist of a detailed item by item description (given in Section V, Technical Specifications) of the essential technical and performance characteristics of the Goods and Related Services, demonstrating substantial responsiveness of the Goods and Related Services to the technical specification, and if applicable, a statement of deviations and exceptions to the provisions of the Schedule of Requirements.</p> <p>17.3 The Bidder shall also furnish a list giving full particulars, including quantities, available sources and current prices of spare parts, special tools, etc., necessary for the proper and continuing functioning of the Goods during the period if specified in the BDS following commencement of the use of the goods by the Purchaser.</p>
18. Documents Establishing the Qualifications of the Bidder	<p>18.1 The documentary evidence of the Bidder's qualifications to perform the contract if its bid is accepted shall establish to the Purchaser's satisfaction:</p> <p>(a) A Bidder that does not manufacture or produce the Goods it offers to supply shall submit the Manufacturer's Authorization using the form included in Section IV, Bidding Forms to demonstrate that it has been duly authorized by the manufacturer or producer of the Goods to supply these Goods;</p> <p>(b) that, if required in the BDS, in case of a Bidder not doing business within Sri Lanka, the Bidder is or will be (if awarded the contract) represented by an Agent in Sri Lanka equipped and able to carry out the Supplier's maintenance, repair and spare parts stocking obligations prescribed in the Conditions of Contract and/or Technical Specifications; and</p> <p>(c) That the Bidder meets each of the qualification criteria specified in Section III, Evaluation and Qualification Criteria.</p>
19. Period of Validity of Bids	<p>19.1 Bids shall remain valid until the date specified in the BDS. A bid valid for a shorter date shall be rejected by the Purchaser as non-responsive.</p> <p>19.2 In exceptional circumstances, prior to the expiration of the bid validity date, the Purchaser may request bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. If a Bid Security is requested in accordance with ITB Clause 20, it shall also be extended for a corresponding period. A Bidder may refuse the request without forfeiting its Bid Security. A Bidder granting the request shall not be required or permitted to modify its bid.</p>

<p>20. Bid Security</p>	<p>20.1 The Bidder shall furnish as part of its bid, a Bid Security as specified in the BDS.</p> <p>20.2 The Bid Security shall be in the amount specified in the BDS and denominated in Sri Lanka Rupees, and shall:</p> <ul style="list-style-type: none"> (a) at the bidder’s option, be in the form of either a bank draft, a letter of credit, or a bank guarantee from a banking institution; (b) be issued by a institution acceptable to Purchaser. The acceptable institutes are published in the NPA website, www.npa.gov.lk. (c) be substantially in accordance with the form included in Section IV, Bidding Forms; (d) be payable promptly upon written demand by the Purchaser in case the conditions listed in ITB Clause 20.5 are invoked; (e) be submitted in its original form; copies will not be accepted; (f) Remain valid for the period specified in the BDS. <p>20.3 Any bid not accompanied by a substantially responsive Bid Security in accordance with ITB Sub-Clause 20.1 and 20.2, may be rejected by the Purchaser as non-responsive.</p> <p>20.4 The Bid Security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder’s furnishing of the Performance Security pursuant to ITB Clause 43.</p> <p>20.5 The Bid Security may be forfeited:</p> <ul style="list-style-type: none"> (a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Bid Submission Form, except as provided in ITB Sub- Clause 19.2; or (b) if a Bidder does not agreeing to correction of arithmetical errors in pursuant to ITB Sub-Clause 30.3 (c) if the successful Bidder fails to: <ul style="list-style-type: none"> (i) sign the Contract in accordance with ITB Clause 42; (ii) Furnish a Performance Security in accordance with ITB Clause 43.
<p>21. Format and Signing of Bid</p>	<p>21.1 The Bidder shall prepare one original of the documents comprising the bid as described in ITB Clause 11 and clearly mark it as “ORIGINAL.” In addition, the Bidder shall submit a copy of the bid and clearly mark it as“COPY.” In the event of any discrepancy between the original and the copy, the original shall prevail.</p>

	<p>21.2 The original and the Copy of the bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder.</p> <p>21.3 Any interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Bid.</p>
<p>Submission and Opening of Bids</p>	
<p>22. Submission, Sealing and Marking of Bids</p>	<p>22.1 Bidders may always submit their bids by mail or by hand.</p> <p>(a) Bidders submitting bids by mail or by hand, shall enclose the original and the copy of the Bid in separate sealed envelopes, duly marking the envelopes as “ORIGINAL” and “COPY.” These envelopes containing the original and the copy shall then be enclosed in one single envelope.</p> <p>22.2 The inner and outer envelopes shall:</p> <p>(a) Bear the name and address of the Bidder;</p> <p>(b) be addressed to the Purchaser in accordance with ITB Sub-Clause 23.1;</p> <p>(c) bear the specific identification of this bidding process as indicated in the BDS; and</p> <p>(d) Bear a warning not to open before the time and date for bid opening, in accordance with ITB Sub-Clause 261. If all envelopes are not sealed and marked as required, the Purchaser will assume no responsibility for the misplacement or premature opening of the bid.</p>
<p>23. Deadline for Submission of Bids</p>	<p>23.1 Bids must be received by the Purchaser at the address and no later than the date and time specified in the BDS.</p> <p>23.2 The Purchaser may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Documents in accordance with ITB Clause 8, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.</p>
<p>24. Late Bids</p>	<p>24.1 The Purchaser shall not consider any bid that arrives after the deadline for submission of bids, in accordance with ITB Clause 23. Any bid received by the Purchaser after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder.</p>
<p>25. Withdrawal, and Modification of Bids</p>	<p>25.1 A Bidder may withdraw, or modify its Bid after it has been submitted by sending a written notice in accordance with ITB Clause 22, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB Sub-Clause 21.2, (except that no copies of the withdrawal notice are required). The correspondingsubstitution or modification of the bid must accompany the respective written notice. All notices must be:</p> <p>(a) submitted in accordance with ITB Clauses 21 and 22 (except that withdrawal notices do not require copies), and in addition, the respective envelopes shall be clearly marked “WITHDRAWAL,” or “MODIFICATION;” and</p>

	<p>(b) Received by the Purchaser prior to the deadline prescribed for submission of bids, in accordance with ITB Clause 23.</p> <p>25.2 Bids requested to be withdrawn in accordance with ITB Sub-Clause 25.1 shall be returned to the Bidders only upon notification of contract award to the successful bidder in accordance with sub clause 41.1.</p> <p>25.3 No bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Bid Submission Form or any extension thereof.</p>
<p>26. Bid Opening</p>	<p>26.1 The Purchaser shall conduct the bid opening in public at the address, date and time specified in the BDS.</p> <p>26.2 First, envelopes marked “WITHDRAWAL” shall be opened and read out and the envelope with the corresponding bid may be opened at the discretion of the Purchaser. No bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening. Envelopes marked “MODIFICATION” shall be opened and read out with the corresponding Bid. No Bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at Bid opening. Only envelopes that are opened and read out at Bid opening shall be considered further.</p> <p>26.3 All other envelopes shall be opened one at a time, reading out: the name of the Bidder and whether there is a modification; the Bid Prices, including any discounts and alternative offers; the presence of a Bid Security or Bid- Securing Declaration, if required; and any other details as the Purchaser may consider appropriate. Only discounts and alternative offers read out at Bid opening shall be considered for evaluation. No Bid shall be rejected at Bid opening except for late bids, in accordance with ITB Sub Clause 24.1.</p> <p>26.4 The Purchaser shall prepare a record of the Bid opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, or modification; the Bid Price, per lot if applicable, including any discounts, and the presence or absence of a Bid Security. The bids that were opened shall be resealed in separate envelopes, promptly after the bid opening. The Bidders’ representatives who are present shall be requested to sign the attendance sheet. A copy of the record shall be distributed to all Bidders who submitted bids in time.</p>
<p>Evaluation and Comparison of Bids</p>	
<p>27. Confidentiality</p>	<p>27.1 Information relating to the examination, evaluation, comparison, and post-qualification (if applicable) of bids, and recommendation of contract award, shall not be disclosed to bidders or any other persons not officially concerned with such process until publication of the Contract Award.</p> <p>27.2 Any effort by a Bidder to influence the Purchaser in the examination, evaluation, comparison, and post-qualification of the bids or contract award decisions may result in the rejection of its Bid.</p>

	<p>27.3 Notwithstanding ITB Sub-Clause 27.2, if any Bidder wishes to contact the Purchaser on any matter related to the bidding process, from the time of bid opening to the time of Contract Award, it should do so in writing.</p>
<p>28. Clarification of Bids</p>	<p>28.1 To assist in the examination, evaluation, comparison and post-qualification of the bids, the Purchaser may, at its discretion, request any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder in respect to its Bid and that is not in response to a request by the Purchaser shall not be considered for purpose of evaluation. The Purchaser's request for clarification and the response shall be in writing. No change in the prices or substance of the Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Purchaser in the Evaluation of the bids, in accordance with ITB Clause 30.</p>
<p>29. Responsiveness of Bids</p>	<p>29.1 The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself.</p> <p>29.2 A substantially responsive Bid is one that conforms to all the terms, conditions, and specifications of the Bidding Documents without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that:</p> <p>(a) affects in any substantial way the scope, quality, or performance of the Goods and Related Services specified in the Contract; or</p> <p>(b) limits in any substantial way, inconsistent with the Bidding Documents, the Purchaser's rights or the Bidder's obligations under the Contract; or</p> <p>(c) If rectified would unfairly affect the competitive position of other bidders presenting substantially responsive bids.</p> <p>29.3 If a bid is not substantially responsive to the Bidding Documents, it shall be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the material deviation, reservation, or omission.</p>
<p>30. Nonconformities, Errors and Omissions</p>	<p>30.1 Provided that a Bid is substantially responsive, the Purchaser may waive any non-conformities or omissions in the Bid that do not constitute a material deviation.</p> <p>30.2 Provided that a bid is substantially responsive, the Purchaser may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the bid related to documentation requirements. Such omission shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.</p> <p>30.3 Provided that the Bid is substantially responsive, the Purchaser shall correct arithmetical errors on the following basis:</p> <p>(a) if there is a discrepancy between the unit price and the line item total that is obtained by multiplying the unit price by the quantity, the unit price shall prevail and the line item total shall be corrected, unless in the opinion of the Purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the line item total as quoted shall govern and the unit price shall be corrected;</p>

	<p>(b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and</p> <p>(c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.</p> <p>30.4 If the Bidder that submitted the lowest evaluated Bid does not accept the correction of errors, its Bid shall be disqualified and its Bid Security shall be forfeited or its Bid- Securing Declaration shall be executed.</p>
31. Preliminary Examination of Bids	<p>31.1 The Purchaser shall examine the bids to confirm that all documents and technical documentation requested in ITB Clause 11 have been provided, and to determine the completeness of each document submitted.</p> <p>31.2 The Purchaser shall confirm that the following documents and information have been provided in the Bid. If any of these documents or information is missing, the Bid shall be rejected.</p> <p>(a) Bid Submission Form, in accordance with ITB Sub- Clause 12.1;</p> <p>(b) Price Schedules, in accordance with ITB Sub-Clause 12;</p> <p>(c) Bid Security, in accordance with ITB Clause 20.</p>
32. Examination of Terms and Conditions; Technical Evaluation	<p>32.1 The Purchaser shall examine the Bid to confirm that all terms and conditions specified in the CC and the Contract Data have been accepted by the Bidder without any material deviation or reservation.</p> <p>32.2 The Purchaser shall evaluate the technical aspects of the Bid submitted in accordance with ITB Clause 17, to confirm that all requirements specified in Section V, Schedule of Requirements of the Bidding Documents have been met without any material deviation or reservation.</p> <p>32.3 If, after the examination of the terms and conditions and the technical evaluation, the Purchaser determines that the Bid is not substantially responsive in accordance with ITB Clause 29, the Purchaser shall reject the Bid.</p>
33. Conversion to Single Currency	<p>34.1 If the bidders are allowed to quote in foreign currencies in accordance with sub clause 15.1, for evaluation and comparison purposes, the Purchaser shall convert all bid prices expressed in foreign currencies in to Sri Lankan Rupees using the selling rates prevailed 28 days prior to closing of bids as published by the Central Bank of Sri Lanka. If this date falls on a public holiday the earliest working day prior to the date shall be applicable.</p>
34. Domestic Preference	<p>34.1 Domestic preference shall be a factor in bid evaluation only if stated in the BDS. If domestic preference shall be a bid evaluation factor, the methodology for calculating the margin of preference and the criteria for its application shall be as specified in Section III, Evaluation and Qualification Criteria.</p>
35. Evaluation of Bids	<p>35.1 The Purchaser shall evaluate each bid that has been determined, up to this stage of the evaluation, to be substantially responsive.</p> <p>35.2 To evaluate a Bid, the Purchaser shall only use all the factors, methodologies and criteria defined in this ITB Clause 35.</p>

	<p>35.3 To evaluate a Bid, the Purchaser shall consider the following:</p> <p>(a) the Bid Price as quoted in accordance with clause 14;</p> <p>(b) price adjustment for correction of arithmetic errors in accordance with ITB Sub-Clause 30.3;</p> <p>(c) price adjustment due to discounts offered in accordance with ITB Sub-Clause 14.2; and 14.3</p> <p>(d) adjustments due to the application of the evaluation criteria specified in the BDS from amongst those set out in Section III, Evaluation and Qualification Criteria;</p> <p>(e) Adjustments due to the application of a domestic preference, in accordance with ITB Clause 34 if applicable.</p> <p>35.4 The Purchaser’s evaluation of a bid may require the consideration of other factors, in addition to the factors stated in ITB Sub-Clause 35.3, if specified in BDS. These factors may be related to the characteristics, performance, and terms and conditions of purchase of the Goods and Related Services. The effect of the factors selected, if any, shall be expressed in monetary terms to facilitate comparison of bids</p> <p>35.5 If so specified in the BDS, these Bidding Documents shall allow Bidders to quote for one or more lots, and shall allow the Purchaser to award one or multiple lots to more than one Bidder. The methodology of evaluation to determine the lowest-evaluated lot combinations is specified in Section III, Evaluation and Qualification Criteria.</p>
<p>36. Comparison of Bids</p>	<p>36.1 The Purchaser shall compare all substantially responsive bids to determine the lowest-evaluated bid, in accordance with ITB Clause 35.</p>
<p>37. Post qualification of the Bidder.</p>	<p>37.1 The Purchaser shall determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated and substantially responsive bid is qualified to perform the Contract satisfactorily.</p> <p>37.2 The determination shall be based upon an examination of the documentary evidence of the Bidder’s qualifications submitted by the Bidder, pursuant to ITB Clause 18.</p> <p>37.3 An affirmative determination shall be a prerequisite for award of the Contract to the Bidder. A negative determination shall result in disqualification of the bid, in which event the Purchaser shall proceed to the next lowest evaluated bid to make a similar determination of that Bidder’s capabilities to perform satisfactorily.</p>
<p>38. Purchaser’s Right to Accept Any Bid, and to Reject Any or All Bids</p>	<p>38.1 The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to contract award, without thereby incurring any liability to Bidders.</p>

Award of Contract	
39. Award Criteria	39.1 The Purchaser shall award the Contract to the Bidder whose offer has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Documents, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.
40. Purchaser's Right to Vary Quantities at Time of Award	40.1 At the time the Contract is awarded, the Purchaser reserves the right to increase or decrease the quantity of Goods and Related Services originally specified in Section V, Schedule of Requirements, provided this does not exceed twenty five percent (25%) or one unit whichever is higher and without any change in the unit prices or other terms and conditions of the bid and the Bidding Documents.
41. Notification of Award	<p>41.1 Prior to the expiration of the period of bid validity, the Purchaser shall notify the successful Bidder, in writing, that its Bid has been accepted.</p> <p>41.2 Until a formal Contract is prepared and executed, the notification of award shall constitute a binding Contract.</p> <p>41.3 Upon the successful Bidder's furnishing of the signed Contract Form and performance security pursuant to ITB Clause 43, the Purchaser will promptly notify each unsuccessful Bidder and will discharge its bid security, pursuant to ITB Clause 20.4.</p>
42. Signing of Contract	<p>42.1 Within Seven (7) days after notification, the Purchaser shall complete the Agreement, and inform the successful Bidder to sign it.</p> <p>42.2 Within Seven (7) days of receipt of such information, the successful Bidder shall sign the Agreement.</p>
43. Performance Security	<p>43.1 Within fourteen (14) days of the receipt of notification of award from the Purchaser, the successful Bidder, if required, shall furnish the Performance Security in accordance with the CC, using for that purpose the Performance Security Form included in Section VIII Contract forms. The Employer shall promptly notify the name of the winning Bidder to each unsuccessful Bidder and discharge the Bid Securities of the unsuccessful bidders pursuant to ITB Sub-Clause 20.4.</p> <p>43.2 Failure of the successful Bidder to submit the abovementioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security or execution of the Bid- Securing Declaration. In that event the Purchaser may award the Contract to the next lowest evaluated Bidder, whose offer is substantially responsive and is determined by the Purchaser to be qualified to perform the Contract satisfactorily.</p>

Section VI. Conditions of Contract

1. Definitions	<p>1.1 The following words and expressions shall have the meanings hereby assigned to them:</p> <p>(a) “Contract” means the Contract Agreement entered into between the Purchaser and the Supplier, together with the Contract Documents referred to therein, including all attachments, appendices, and all documents incorporated by reference therein.</p> <p>(b) “Contract Documents” means the documents listed in the Contract Agreement, including any amendments thereto.</p> <p>(c) “Contract Price” means the price payable to the Supplier as specified in the Contract Agreement, subject to such additions and adjustments thereto or deductions therefrom, as may be made pursuant to the Contract.</p> <p>(d) “Day” means calendar day.</p> <p>(e) “Completion” means the fulfillment of the supply of Goods to the destination specified and completion of the Related Services by the Supplier in accordance with the terms and conditions set forth in the Contract.</p> <p>(f) “CC” means the Conditions of Contract.</p> <p>(g) “Goods” means all of the commodities, raw material, machinery and equipment, and/or other materials that the Supplier is required to supply to the Purchaser under the Contract.</p> <p>(h) “Purchaser” means the entity purchasing the Goods and Related Services, as specified in the Contract Data.</p> <p>(i) “Related Services” means the services incidental to the supply of the goods, such as insurance, installation, training and initial maintenance and other such obligations of the Supplier under the Contract.</p> <p>(j) “Subcontractor” means any natural person, private or government entity, or a combination of the above, to whom any part of the Goods to be supplied or execution of any part of the Related Services is subcontracted by the Supplier. Section VI General Conditions of Contract 51</p> <p>(k) “Supplier” means the natural person, private or government entity, or a combination of the above, whose bid to perform the Contract has been accepted by the Purchaser and is named as such in the Contract Agreement.</p>
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	<p>(l) “The Project Site,” where applicable, means the place named in the Contract Data.</p>
2. Contract Documents	<p>2.1 Subject to the order of precedence set forth in the Contract Agreement, all documents forming the Contract (and all parts thereof) are intended to be correlative, complementary, and mutually explanatory. The Contract Agreement shall be read as a whole.</p>
3. Fraud and Corruption	<p>3.1 The Government of Sri Lanka requires the Purchaser as well as bidders, suppliers, contractors, and consultants to observe the highest standard of ethics during the procurement and execution of such contracts. In pursuit of this policy:</p> <p>(i) “corrupt practice” means offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;</p> <p>(ii) “fraudulent practice” means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;</p> <p>(iii) “collusive practice” means a scheme or arrangement between two or more bidders, with or without the knowledge of the Purchaser to establish bid prices at artificial, noncompetitive levels; and</p> <p>(iv) “Coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract.</p>
4. Interpretation	<p>4.1 If the context so requires it, singular means plural and vice versa.</p> <p>4.2 Entire Agreement</p> <p>The Contract constitutes the entire agreement between the Purchaser and the Supplier and supersedes all communications, negotiations and agreements (whether 52 Section VII. General Conditions of Contract written or oral) of the parties with respect thereto made prior to the date of Contract.</p> <p>4.3 Amendment</p> <p>No amendment or other variation of the Contract shall be valid unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each party thereto.</p> <p>4.4 Severability</p> <p>If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.</p>
5. Language	<p>5.1 The Contract as well as all correspondence and documents relating to the Contract exchanged by the Supplier and the Purchaser,</p>

	<p>shall be written in English language. Supporting documents and printed literature that are part of the Contract may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language specified, in which case, for purposes of interpretation of the Contract, this translation shall govern.</p> <p>5.2 The Supplier shall bear all costs of translation to the governing language and all risks of the accuracy of such translation, for documents provided by the Supplier.</p>
6. Joint Venture, Consortium or Association	<p>6.1 If the Supplier is a joint venture, consortium, or association, all of the parties shall be jointly and severally liable to the Purchaser for the fulfillment of the provisions of the Contract and shall designate one party to act as a leader with authority to bind the joint venture, consortium, or association. The composition or the constitution of the joint venture, consortium, or association shall not be altered without the prior consent of the Purchaser.</p>
7. Eligibility	<p>7.1 All goods supplied under this contract shall be complied with applicable standards stipulated by the Sri Lanka Standards Institute. In the absence of such standards, the Goods supplied shall be complied to other internationally accepted standards, such as British Standards.</p>
8. Notices	<p>8.1 Any notice given by one party to the other pursuant to the Contract shall be in writing to the address specified in the Contract Data. The term “in writing” means communicated in written form with proof of receipt. Section VI General Conditions of Contract 53</p> <p>8.2 A notice shall be effective when delivered or on the notice’s effective date, whichever is later.</p>
9. Governing Law	<p>9.1 The Contract shall be governed by and interpreted in accordance with the laws of the Democratic Socialist Republic of Sri Lanka.</p>
10. Settlement of Disputes	<p>10.1 The Purchaser and the Supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.</p> <p>10.2 If, after twenty-eight (28) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Purchaser or the Supplier may give notice to the other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given. Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration. Arbitration may be commenced prior to or after delivery of the Goods under the Contract. Arbitration proceedings shall be conducted in accordance with the Arbitration Act No: 11 of 1995.</p> <p>10.3 Notwithstanding any reference to arbitration herein,</p>

	<p>(a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and</p> <p>(b) the Purchaser shall pay the Supplier any monies due the Supplier.</p>
11. Scope of Supply	11.1 The Goods and Related Services to be supplied shall be as specified in the Schedule of Requirements.
12. Delivery and Documents	12.1 Subject to CC Sub-Clause 32.1, the Delivery of the Goods and Completion of the Related Services shall be in accordance with the Delivery and Completion Schedule specified in the Schedule of Requirements. Where applicable the details of shipping and other documents to be furnished by the Supplier are specified in the Contract Data.
13. Supplier's Responsibilities	13.1 The Supplier shall supply all the Goods and Related Services included in the Scope of Supply in accordance with CC Clause 11, and the Delivery and Completion Schedule, as per CC Clause 12.
14. Contract Price	14.1 Prices charged by the Supplier for the Goods supplied and the Related Services performed under the Contract shall not vary from the prices quoted by the Supplier in its bid.
15. Terms of Payment	<p>15.1 The Contract Price shall be paid as specified in the Contract Data.</p> <p>15.2 The Supplier's request for payment shall be made to the Purchaser in writing, accompanied by invoices describing, as appropriate, the Goods delivered and Related Services performed, and by the documents submitted pursuant to CC Clause 12 and upon fulfillment of all other obligations stipulated in the Contract.</p> <p>15.3 Payments shall be made promptly by the Purchaser, but in no case later than twenty eight (28) days after submission of an invoice or request for payment by the Supplier, and after the Purchaser has accepted it.</p>
16. Taxes and Duties	16.1 The Supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted Goods to the Purchaser.
17. Performance Security	<p>17.1 If required as specified in the Contract Data, the Supplier shall, within fourteen (14) days of the notification of contract award, provide a performance security of Ten percent (10%) of the Contract Price for the performance of the Contract.</p> <p>17.2 The proceeds of the Performance Security shall be payable to the Purchaser as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.</p> <p>17.3 As specified in the Contract Data, the Performance Security, if required, shall be in Sri Lanka Rupees and shall be in the format stipulated by the Purchaser in the Contract Data, or in another format acceptable to the Purchaser.</p> <p>17.4 The Performance Security shall be discharged by the Purchaser</p>

	and returned to the Supplier not later than twenty-eight (28) days following the date of Completion of the Supplier's performance obligations under the Contract, including any warranty obligations.
18. Copyright	18.1 The copyright in all drawings, documents, and other materials containing data and information furnished to the Purchaser by the Supplier herein shall remain vested in the Supplier, or, if they are furnished to the Purchaser directly or through the Supplier by any third party, including suppliers of materials, the copyright in such materials shall remain vested in such third party.
19. Confidential Information	<p>19.1 The Purchaser and the Supplier shall keep confidential and shall not, without the written consent of the other party hereto, divulge to any third party any documents, data, or other information furnished directly or indirectly by the other party hereto in connection with the Contract, whether such information has been furnished prior to, during or following completion or termination of the Contract. Notwithstanding the above, the Supplier may furnish to its Subcontractor such documents, data, and other information it receives from the Purchaser to the extent required for the Subcontractor to perform its work under the Contract, in which event the Supplier shall obtain from such Subcontractor an undertaking of confidentiality similar to that imposed on the Supplier under CC Clause 19.</p> <p>19.2 The Purchaser shall not use such documents, data, and other information received from the Supplier for any purposes unrelated to the contract. Similarly, the Supplier shall not use such documents, data, and other information received from the Purchaser for any purpose other than the performance of the Contract.</p> <p>19.3 The above provisions of CC Clause 19 shall not in any way modify any undertaking of confidentiality given by either of the parties hereto prior to the date of the Contract in respect of the Supply or any part thereof.</p> <p>19.4 The provisions of CC Clause 19 shall survive completion or termination, for whatever reason, of the Contract.</p>
20. Subcontracting	<p>20.1 The Supplier shall notify the Purchaser in writing of all subcontracts awarded under the Contract if not already specified in the bid. Such notification, in the original bid or later shall not relieve the Supplier from any of its obligations, duties, responsibilities, or liability under the Contract.</p> <p>20.2 Subcontracts shall comply with the provisions of CC Clauses 3 and 7.</p>
21. Specifications and Standards	<p>21.1 Technical Specifications and Drawings</p> <p>(a) The Goods and Related Services supplied under this Contract shall conform to the technical specifications and standards mentioned in Section V, Schedule of Requirements and, when no applicable standard is mentioned, the standard shall be equivalent or superior to the official standards whose application is appropriate to the Goods' country of origin.</p>

	<p>(b) The Supplier shall be entitled to disclaim responsibility for any design, data, drawing, specification or other document, or any modification thereof provided or designed by or on behalf of the Purchaser, by giving a notice of such disclaimer to the Purchaser.</p> <p>(c) Wherever references are made in the Contract to codes and standards in accordance with which it shall be executed, the edition or the revised version of such codes and standards shall be those specified in the Schedule of Requirements. During Contract execution, any changes in any such codes and standards shall be applied only after approval by the Purchaser and shall be treated in accordance with CC Clause 32.</p>
22. Packing and Documents	22.1 The Supplier shall pack the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract.
23. Insurance	23.1 Unless otherwise specified in the Contract Data, the Goods supplied under the Contract shall be fully insured against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery.
24. Transportation	24.1 Unless otherwise specified in the Contract Data, responsibility for arranging transportation of the Goods shall be a responsibility of the supplier.
25. Inspections and Tests	<p>25.1 The Supplier shall at its own expense and at no cost to the Purchaser carry out all such tests and/or inspections of the Goods and Related Services as are specified in the Contract Data.</p> <p>25.2 The inspections and tests may be conducted on the premises of the Supplier or its Subcontractor, at point of delivery, and/or at the Goods' final destination, or in another place as specified in the Contract Data. Subject to CC Sub-Clause 25.3, if conducted on the premises of the Supplier or its Subcontractor, all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the inspectors at no charge to the Purchaser.</p> <p>25.3 The Purchaser or its designated representative shall be entitled to attend the tests and/or inspections referred to in CC Sub-Clause 25.2, provided that the Purchaser bear all of its own costs and expenses incurred in connection with such attendance including, but not limited to, all traveling and board and lodging expenses.</p> <p>25.4 Whenever the Supplier is ready to carry out any such test and inspection, it shall give a reasonable advance notice, including the place and time, to the Purchaser. The Supplier shall obtain from any relevant third party or manufacturer any necessary permission or consent to enable the Purchaser or its designated representative to attend the test and/or inspection.</p> <p>25.5 The Purchaser may require the Supplier to carry out any test and/or inspection not required by the Contract but deemed necessary to verify that the characteristics and performance of the Goods</p>

	<p>comply with the technical specifications codes and standards under the Contract, provided that the Supplier's reasonable costs and expenses incurred in the carrying out of such test and/or inspection shall be added to the Contract Price. Further, if such test and/or inspection impede the progress of manufacturing and/or the Supplier's performance of its other obligations under the Contract, due allowance will be made in respect of the Delivery Dates and Completion Dates and the other obligations so affected.</p> <p>25.6 The Supplier shall provide the Purchaser with a report of the results of any such test and/or inspection.</p> <p>25.7 The Purchaser may reject any Goods or any part thereof that fail to pass any test and/or inspection or do not conform to the specifications. The Supplier shall either rectify or replace such rejected Goods or parts thereof or make alterations necessary to meet the specifications at no cost to the Purchaser, and shall repeat the test and/or inspection, at no cost to the Purchaser, upon giving a notice pursuant to CC Sub-Clause 25.4.</p> <p>25.8 The Supplier agrees that neither the execution of a test and/or inspection of the Goods or any part thereof, nor the attendance by the Purchaser or its representative, nor the issue of any report pursuant to CC Sub-Clause 25.6, shall release the Supplier from any warranties or other obligations under the Contract.</p>
26. Liquidated Damages	<p>26.1 Except as provided under CC Clause 31, if the Supplier fails to deliver any or all of the Goods by the Date(s) of delivery or perform the Related Services within the period specified in the Contract, the Purchaser may without prejudice to all its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in the Contract Data of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a 58 Section VII. General Conditions of Contract maximum deduction of the percentage specified in those Contract Data. Once the maximum is reached, the Purchaser may terminate the Contract pursuant to CC Clause 34.</p>
27. Warranty	<p>27.1 The Supplier warrants that all the Goods are new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.</p> <p>27.2 Subject to CC Sub-Clause 21.1(b), the Supplier further warrants that the Goods shall be free from defects arising from any act or omission of the Supplier or arising from design, materials, and workmanship, under normal use in the conditions prevailing in the country of final destination.</p> <p>27.3 Unless otherwise specified in the Contract Data, the warranty shall remain valid for twelve (12) months after the Goods, or any portion thereof as the case may be, have been delivered to and</p>

	<p>accepted at the final destination indicated in the Contract Data.</p> <p>27.4 The Purchaser shall give notice to the Supplier stating the nature of any such defects together with all available evidence thereof, promptly following the discovery thereof. The Purchaser shall afford all reasonable opportunity for the Supplier to inspect such defects.</p> <p>27.5 Upon receipt of such notice, the Supplier shall, within the period specified in the Contract Data, expeditiously repair or replace the defective Goods or parts thereof, at no cost to the Purchaser.</p> <p>27.6 If having been notified, the Supplier fails to remedy the defect within the period specified in the Contract Data, the Purchaser may proceed to take within a reasonable period such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.</p>
<p>28. Patent Indemnity</p>	<p>28.1 The Supplier shall, subject to the Purchaser's compliance with CC Sub-Clause 28.2, indemnify and hold harmless the Purchaser and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the Purchaser may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright, or other intellectual property right registered or otherwise existing at the date of the contract by reason of:</p> <p>(a) the installation of the Goods by the Supplier or the use of the Goods in the country where the Site is located; and</p> <p>(b) The sale in any country of the products produced by the Goods. Such indemnity shall not cover any use of the Goods or any part thereof other than for the purpose indicated by or to be reasonably inferred from the Contract, neither any infringement resulting from the use of the Goods or any part thereof, or any products produced thereby in association or combination with any other equipment, plant, or materials not supplied by the Supplier, pursuant to the Contract.</p> <p>28.2 If any proceedings are brought or any claim is made against the Purchaser arising out of the matters referred to in CC Sub-Clause 28.1, the Purchaser shall promptly give the Supplier a notice thereof, and the Supplier may at its own expense and in the Purchaser's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.</p> <p>28.3 If the Supplier fails to notify the Purchaser within twenty eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Purchaser shall be free to conduct</p>

	<p>the same on its own behalf.</p> <p>28.4 The Purchaser shall, at the Supplier’s request, afford all available assistance to the Supplier in conducting such proceedings or claim, and shall be reimbursed by the Supplier for all reasonable expenses incurred in so doing.</p> <p>28.5 The Purchaser shall indemnify and hold harmless the Supplier and its employees, officers, and Subcontractors from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney’s fees and expenses, which the Supplier may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright, or other intellectual property right registered or otherwise existing at the date of the Contract arising out of or in connection with any design, data, drawing, specification, or other documents or materials provided or designed by or on behalf of the Purchaser.</p>
<p>29. Limitation of Liability</p>	<p>29.1 Except in cases of criminal negligence or willful misconduct,</p> <p>(a) the Supplier shall not be liable to the Purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Supplier to pay liquidated damages to the Purchaser and</p> <p>(b) the aggregate liability of the Supplier to the Purchaser, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment, or to any obligation of the supplier to indemnify the purchaser with respect to patent infringement</p>
<p>30. Change in Laws and Regulations</p>	<p>30.1 Unless otherwise specified in the Contract, if after the date of 28 days prior to date of Bid submission, any law, regulation, ordinance, order or bylaw having the force of law is enacted, promulgated, abrogated, or changed in Sri Lanka that subsequently affects the Delivery Date and/or the Contract Price, then such Delivery Date and/or Contract Price shall be correspondingly increased or decreased, to the extent that the Supplier has thereby been affected in the performance of any of its obligations under the Contract. Notwithstanding the foregoing, such additional or reduced cost shall not be separately paid or credited if the same has already been accounted for in the price adjustment provisions where applicable, in accordance with CC Clause 14.</p>

<p>31. Force Majeure</p>	<p>31.1 The Supplier shall not be liable for forfeiture of its Performance Security, liquidated damages, or termination or default if and to the extent that it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.</p> <p>31.2 For purposes of this Clause, "Force Majeure" means an event or situation beyond the control of the Supplier that is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of the Supplier. Such events may include, but not be limited to, acts of the Purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.</p> <p>31.3 If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.</p>
<p>32. Change Orders and Contract Amendments</p>	<p>32.1 The Purchaser may at any time order the Supplier through notice in accordance CC Clause 8, to make changes within the general scope of the Contract in any one or more of the following:</p> <p>(a) drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;</p> <p>(b) the method of shipment or packing;</p> <p>(c) the place of delivery; and</p> <p>(d) The Related Services to be provided by the Supplier. 32.2 If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or in the Delivery/Completion Schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this Clause must be asserted within twenty-eight (28) days from the date of the Supplier's receipt of the Purchaser's change order.</p> <p>32.3 Prices to be charged by the Supplier for any Related Services that might be needed but which were not included in the Contract shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services.</p> <p>32.4 Subject to the above, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.</p>

<p>33. Extensions of Time</p>	<p>33.1 If at any time during performance of the Contract, the Supplier or its subcontractors should encounter conditions impeding timely delivery of the Goods or completion of Related Services pursuant to CC Clause 12, the Supplier shall promptly notify the Purchaser in writing of the delay, its likely duration, and its cause. As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may at its discretion extend the Supplier's time for performance, in which case the extension shall be ratified by the parties by amendment of the Contract.</p> <p>33.2 Except in case of Force Majeure, as provided under CC Clause 31, a delay by the Supplier in the performance of its Delivery and Completion obligations shall render the Supplier liable to the imposition of liquidated damages pursuant to CC Clause 26, unless an extension of time is agreed upon, pursuant to CC Sub-Clause 33.1.</p>
<p>34. Termination</p>	<p>34.1 Termination for Default</p> <p>(a) The Purchaser, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Supplier, may terminate the Contract in whole or in part:</p> <p>(i) if the Supplier fails to deliver any or all of the Goods within the period specified in the Contract, or within any extension thereof granted by the Purchaser pursuant to CC Clause 33;</p> <p>(ii) if the Supplier fails to perform any other obligation under the Contract; or</p> <p>(iii) If the Supplier, in the judgment of the Purchaser has engaged in fraud and corruption, as defined in CC Clause 3, in competing for or in executing the Contract.</p> <p>(b) In the event the Purchaser terminates the Contract in whole or in part, pursuant to CC Clause 34.1(a), the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods or Related Services similar to those undelivered or not performed, and the Supplier shall be liable to the Purchaser for any additional costs for such similar Goods or Related Services. However, the Supplier shall continue performance of the Contract to the extent not terminated.</p> <p>34.2 Termination for Insolvency.</p> <p>(a) The Purchaser may at any time terminate the Contract by giving notice to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In such event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to the Purchaser</p>

	<p>34.3 Termination for Convenience.</p> <p>(a) The Purchaser, by notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.</p> <p>(b) The Goods that are complete and ready for shipment within twenty-eight (28) days after the Supplier's receipt of notice of termination shall be accepted by the Purchaser at the Contract terms and prices. For the remaining Goods, the Purchaser may elect:</p> <p>(i) to have any portion completed and delivered at the Contract terms and prices; and/or</p> <p>(ii) to cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and Related Services and for materials and parts previously procured by the Supplier.</p>
35. Assignment	<p>35.1 Neither the Purchaser nor the Supplier shall assign, in whole or in part, their obligations under this Contract, except with prior written consent of the other party.</p>

Section VIII.

Contract Forms

1. Contract Agreement

THIS CONTRACT AGREEMENT is made

the [insert: number] day of [insert: month], [insert: year].

BETWEEN

(1) [insert complete name of Purchaser], a [insert description of type of legal entity, for example, an agency of the Ministry of or corporation and having its principal place of business at [insert address of Purchaser] (hereinafter called “the Purchaser”), and

(2) [insert name of Supplier], a corporation incorporated under the laws of [insert: country of Supplier] and having its principal place of business at [insert: address of Supplier] (hereinafter called “the Supplier”).

WHEREAS the Purchaser invited bids for certain Goods and ancillary services, viz., [insert 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 [insert Contract Price in words and figures, expressed in the Contract currency (ies)] (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 constitute the Contract between the Purchaser and the Supplier, and each shall be read and construed as an integral part of the Contract:

(a) This Contract Agreement

(b) Contract Data

(c) Conditions of Contract

(d) Technical Requirements (including Schedule of Requirements and Technical Specifications)

(e) The Supplier’s Bid and original Price Schedules

(f) The Purchaser’s Notification of Award

(g) [Add here any other document(s)]

3. This Contract shall prevail over all other Contract documents. In the event of any discrepancy or inconsistency within the Contract documents, then the documents shall prevail in the order listed above.

4. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the Goods and Services and to remedy defects therein in conformity in all respects with the provisions of the Contract.

5. The Purchaser 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 times 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 Democratic Socialist Republic of Sri Lanka on the day, month and year indicated above.

For and on behalf of the Purchaser

Signed: [insert signature]

in the capacity of [insert title or other appropriate designation]

in the presence of [insert identification of official witness]

For and on behalf of the Supplier

Signed: [insert signature of authorized representative(s) of the Supplier]

in the capacity of [insert title or other appropriate designation]

in the presence of [insert identification of official witness]

2. Performance Security

[The issuing agency, as requested by the successful Bidder, shall fill in this form in accordance with the instructions indicated] ----- [Issuing Agency's Name, and Address of Issuing Branch or Office] ----- * Beneficiary: -----
- [Name and Address of Employer] -----

Date: -----

PERFORMANCE GUARANTEE No.: -----

We have been informed that ----- [name of Supplier] (hereinafter called "the Supplier") has entered into Contract No. ----- [Reference number of the contract] dated ----- with you, for the ----- Supply of ----- [name of contract and brief description] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required. At the request of the Supplier, we ----- [name of Agency] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of -----

[amount in figures] (-----) [amount in words], such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein. This guarantee shall expire, no later than the day of, 20.. [insert date, 28 days beyond the scheduled completion date including the warranty period] and any demand for payment under it must be received by us at this office on or before that date.

[Signature(s)]

3. Guarantee for Advance Payment

[The issuing agency, as requested by the successful Bidder, shall fill in this form in accordance with the instructions indicated.]

Date: [insert date (as day, month, and year) of Bid Submission] ICB No. and title: [insert number and title of bidding process] [issuing agency's letterhead] Beneficiary: [insert legal name and address of Purchaser]

ADVANCE PAYMENT GUARANTEE No.: [insert Advance Payment Guarantee no.]

We, [insert legal name and address of issuing agency], have been informed that [insert complete name and address of Supplier] (hereinafter called "the Supplier") has entered into Contract No. [Insert number] dated [insert date of Agreement] with you, for the supply of [insert types of Goods to be delivered] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance is to be made against an advance payment guarantee.

At the request of the Supplier, we hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of [insert amount(s) in figures and words] upon receipt by us of your first demand in writing declaring that the Supplier is in breach of its obligation under the Contract because the Supplier used the advance payment for purposes other than toward delivery of the Goods.

It is a condition for any claim and payment under this Guarantee to be made that the advance payment referred to above must have been received by the Supplier on its account [insert number and domicile of the account]

This Guarantee shall remain valid and in full effect from the date of the advance payment received by the Supplier under the Contract until [insert date].

[Signature of authorized representative(s) of the issuing agency]

Section II.

Bidding Data Sheet (BDS)

The following specific data for the goods to be procured shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITB). Whenever there is a conflict, the provisions herein shall prevail over those in ITB.

[Instructions for completing the Bid Data Sheet are provided, as needed, in the relevant ITB Clauses.]

ITB Clause Reference	A. General
ITB 1.1	The Purchaser is: University of Jaffna
ITB 1.1	The name and identification number of the Contract are: “Supply of Civil, Computer Engineering, IT Equipment & Laboratory Furniture, University of Jaffna. –UJ/F/PO/T/02/2016”
ITB 1.2	The bidder should have at least three years experience in the relevant industry in Sri Lanka and should submit documents to prove experience in the industry.
ITB 2.1	The source of funding is: GOSL
ITB 4.4	Foreign bidders are allowed to participate in bidding: Not allowed
	B. Contents of Bidding Documents
ITB 7.1	For Clarification of bid purposes only, the Purchaser’s address is: Attention: SeniorAssistant Bursar/Supplies Address: 57, University of Jaffna, Thirunelvely, Jaffna Telephone: 021-2220962 Electronic mail address:bursaruj@gmail.com
	C. Preparation of Bids
ITB 11.1 (e)	The Bidder shall submit the following additional documents: A complete company profile of the bidders including, but not limited to, the following: <ul style="list-style-type: none"> • Data commencing business in Sri Lanka • Names of current Directors • Annual turnover, assets and liabilities • List of client who use the products • Number of staff supporting to proceed the operation in Sri Lanka and their competence • Past 3 years relevant experience in the relevant industry in Sri Lanka

ITB 15.1	The bidder shall quote the local expenditure in Sri Lankan Rupees.
ITB 18.1 (b)	After sales service is: required
ITB 19.1	The bid shall be validity until: 25.08.2016
ITB 20.1	(a) Bid shall include a Bid Security (issued by bank or surety) included in Section IV Bidding Forms;
ITB 20.2	The amount of the Bid Security shall be: As per the advertisement Beneficiary: Vice Chancellor, University of Jaffna. The validity period of the bid security shall be until: 26.09.2016
	D. Submission and Opening of Bids
ITB 22.2 (c)	The inner and outer envelopes shall bear the following identification marks: “Supply of Civil, Computer Engineering, IT Equipment & Laboratory Furniture, University of Jaffna –UJ/F/PO/T/02/2016”
ITB 23.1	For bid submission purposes, the Purchaser’s address is: Attention: Bursar Address: University of Jaffna, P.O.Box 57, Thirunelvely, Jaffna. The deadline for the submission of bids is: Date: 25.05.2016 Time: 2.00pm
ITB 26.1	The bid opening shall take place at: Address: Board Room, University of Jaffna, P.O.Box 57, Thirunelvely, Jaffna. Date: 25.05.2016 Time: 2.00 pm
	E. Evaluation and Comparison of Bids
ITB 34.1	Domestic preference shall not be a bid evaluation factor.
ITB 35.3(d)	The adjustments shall be determined using the following criteria, from amongst those set out in Section III, Evaluation and Qualification Criteria: (a) Deviation in Delivery schedule:

	<p>Option 2 is selected and the adjustment is 0.5% per week or part thereof</p> <p>(b) Deviation in payment schedule: Not applicable</p> <p>(c) the cost of major replacement components, mandatory spare parts, and service: Not applicable</p>
ITB 35.4	The following factors and methodology will be used for evaluation: Not applicable
ITB 35.5	Bidders shall be allowed to quote for one or more lots. [refer to Section III Evaluation and Qualification Criteria] Purchaser will evaluate the bid item by item basis.


M. G. L. Maveekumbura
 Senior Assistant Bursar (Supplies)
 University of Jaffna
 Jaffna

Section III.

Evaluation and Qualification Criteria

1. Evaluation Criteria (ITB 35.3 (d))

The Purchaser's evaluation of a bid may take into account, in addition to the Bid Price quoted in accordance with ITB Clause 14, one or more of the following factors as specified in ITB Sub-Clause 35.3(d) and in BDS referring to ITB 35.3(d), using the following criteria and methodologies.

(a) Delivery schedule

Option 2

The goods covered under this invitation are required to be delivered within an acceptable range of weeks specified in the Schedule of Requirement. No credit will be given to earlier deliveries, and bids offering delivery beyond this range will be treated as nonresponsive. Within this acceptable range, an adjustment per week, as specified in the Bid Data Sheet, will be added for evaluation purposes only, to the bid price of bids offering deliveries later than the earliest delivery period specified in the Section V, Schedule of Requirements

(a) Deviation in payment schedule. **Not applicable**

(c) Cost of major replacement components, mandatory spare parts, and service: **Not applicable**

(d) Specific additional criteria: **None**

2. Evaluation Criteria (ITB 35.4)

3. Multiple Contracts (ITB 35.5)

The Purchaser shall award multiple contracts to the Bidder that offers the lowest evaluated combination of bids (one contract per bid) and meets the post-qualification criteria (this Section III, Sub-Section ITB 37.2 Post-Qualification Requirements)

The Purchaser shall:

(a) Evaluate only lots or contracts that include items per lot and quantity per item

(b) Take into account: The lowest-evaluated bid for each lot

3. Post qualification Requirements (ITB 37.2)

After determining the lowest-evaluated bid in accordance with ITB Sub-Clause 36.1, the Purchaser shall carry out the post qualification of the Bidder in accordance with ITB Clause 37, using only the requirements specified. Requirements not included in the text below shall not be used in the evaluation of the Bidder's qualifications.

Qualification Criteria:

- (a) Bid may be submitted by any reputed supplier of **Civil, Computer Engineering, IT Equipment & Laboratory Furniture** registered business in Sri Lanka or any accredited local agent who takes fullest responsibility for the whole bid. The local agent shall submit evidence of status, obligations, power of attorney and any other documentary evidence that he is duly authorized and eligible to bid on behalf of the manufacturer.
- (b) The bidders should also have previous experience of at least three years in relevant industry in the supply and also technical and financial capability necessary to perform the contract.
- (c) Bids will be rejected as non- responsive if documentary evidence in proof of above has not been provided.
- (d) If an Agent submits bids on behalf of more than one supplier, unless each such bid is accompanied by a separate Bid Form for each bid, and a bid security when required for each bid, and authorization from the respective Manufacturer, and valid vendor certificate, all such bids will be rejected as non- responsive.
- (e) Bidders should possess the Certificate of Business Registration issued by a Governmental Authority/ Registrar of Companies/ Provincial Registrar of Business in the relevant category.
- (f) Bidders offering goods under their own brand names should provide along with their bids a current certification/s of quality; Bid not complying with this requirement may be treated as non - responsive.
- (g) Having a service center in Jaffna will be considered as an added qualification.

4. Domestic Preference (ITB 34.1) – **Not applicable**

Section IV

Bidding Forms

Bid Submission Form.

[The Bidder shall fill in this Form in accordance with the instructions indicated no alterations to its format shall be permitted and no substitutions shall be accepted.]

Date:

No:

To: **University of Jaffna**

We, the undersigned, declare that:

- a) We have examined and have no reservations to the Bidding Documents, including Addenda No.:
- b) We offer to supply in conformity with the Bidding Documents and in accordance with the Delivery Schedules specified in the Schedule of Requirements the following Goods and Related Service Supply of **Civil, Computer Engineering, IT Equipment & Laboratory Furniture** to the University of Jaffna.
- c) The total price of our Bid without VAT, including any discounts offered is:
- d) The total price of our Bid including VAT, and any discounts offered is:
- e) Our bid shall be valid for the period of time specified in ITB sub-Clause 19.1, from the date fixed for the bid submission deadline in accordance with ITB Sub-Clause 23.1, and it shall remain bidding upon us and may be accepted at any time before the expiration of that period;
- f) If our bid is accepted, we commit to obtain a performance security in accordance with ITB Clause 43 and CC Clause 17 for the due performance of the Contract;
- g) We have no conflict of interest in accordance with ITB Sub-Clause 4.3;
- h) Our firm, its affiliates or subsidiaries- including any subcontractors or suppliers for any part of the contract-has not been declared blacklisted by the National Procurement Agency;
- i) We understand that bid, together with your written acceptance thereof include in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed.

j) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

Signed:

In the capacity of

Name:

Duly authorized to sign the bid for and on behalf of:

Dated on ----- day of -----



M. G. L. Maveekumbura
Senior Assistant Bursar (Supplies)
University of Jaffna
Jaffna

Price Schedule *

No	Description of the Item and ITEM CODE	(1)	(2)	(3)	(4)	(5)
		Qty	Unit Rate	VAT	Price with VAT (2+3)	Total (1x4)
Package 01 – Surveying Equipment						
1.1	Measuring Wheel	05				
1.2	Land Chain Arrow	20				
1.3	Change plate	10				
1.4	Surveyor's umbrella for theodolite	10				
1.5	Mallet	10				
1.6	Crowbar	10				
1.7	Survey boots	10				
Package 02 – Water Resource Equipment						
2.1	Hydrogen Bubble Flow Visualisation System	02				
2.2	Soil/Water Model Tank	01				
2.3	Centrifugal Pump Demonstration Unit + interface unit	01				
2.4	Demonstration Lysimeter	01				
2.5	Series and Parallel Pump + interface unit	01				
2.6	Series Liquid Manometers	02				
2.7	River Flow Simulator	01				
2.8	Pitot Tubes + Adjustable tripod stand	02				
2.9	Drainage and Seepage Tank	01				
Package 03 – Environmental Engineering Equipment						
3.1	Particle Size Analyser	01				
3.2	Total Organic Carbon analyser	01				
3.3	Analytical Balances: 4 digit precision (grammes)	02				
3.4	Analytical Balances: 4 digit precision (grammes)	01				
3.5	Calibration mass: 1mg – 200g	01				
3.6	Calibration mass: 50g – 50kg	01				
3.7	Electronic Floor Balances	03				
3.8	Water Bath: Stable Temperature	01				
3.9	Shaking Water Bath: Stable Temperature	01				
3.10	Immersion circulator with clamp:	02				
3.11	Chest type Freezer	01				
3.12	Stable temperature Refrigerators	01				
3.13	Ice-cube Maker	01				
3.14	Dry-Ice Chest	01				

3.15	Volumetric Automatic Titrator (Electronic)	03				
3.16	Direct Reading Flow meter for air	03				
3.17	Bottletop Dispenser (Burette)	03				
3.18	Burettes	10				
3.19	Peristaltic Pumps	02				
3.20	Peristaltic Pumps	6				
3.21	Pipette (adjustable Volume)	12				
3.22	Laboratory Autoclave	01				
3.23	Sterilizer	02				
3.24	Manometers	04				
3.25	Pressure transmitters	05				
3.26	Tweezer Set	02				
3.27	Heating Blocks and heater	02				
3.28	Bunsen Burners	04				
3.29	Furnace	02				
3.30	Beakers	72				
3.31	Conical Flasks	24				
3.32	Measuring Cylinders	30				
3.33	Crucibles (to be used in furnace as well)	120				
3.34	Water filtration units	04				
3.35	Bottle top Water filtration (single) units	08				
3.36	Syringe and Syringe filters	3500 5000				
3.37	Petri dishes	2000				
3.38	Tongs	10				
3.39	Graduated Sample containers	WN1850 SN 1850				
3.40	Laboratory Organizers	1				
3.41	Acid Bath	3				
3.42	Deionized water unit	1				
3.43	Magnetic Stirrer bars	50				
3.44	Magnetic Stirrers	10				
3.45	Dissolved Oxygen meter and kit	3				
3.46	pH meter	3				
3.47	Laboratory bench-top Turbidity meter	2				
3.48	Hand held turbidity meters	5				
3.49	Pocket pH testers	3				
Package 04 – Supply of Gantry Crane						
4.1	Gantry Crane With Double Girders	1				

Package 05 – Computer Engineering & IT Equipment						
5.1	Arduino Starter Kit / Genuino Starter Kit (Original)	10				
5.2	Arduino MEGA 2560 / Genuino MEGA 2560 (Original)	10				
5.3	Arduino Due	05				
5.4	Raspberry Pi 2 Model B	05				
5.5	Microelektronika Easy PIC V7	06				
5.6	Microchip MPLABICD 3 In-Circuit Debugger	06				
5.7	Multifunction DAQ	15				
5.8	Interactive Ultra Short Throw Multimedia Projector with Wall Mounting Accessory	02				
5.9	24” Wide LED Monitor	05				
5.10	Tower Model Computer	52				
5.11	UPS	54				
5.12	Laptop	8				
5.13	EV3 Core and Expansion Set + Software Classroom 30 Student Pack	1				
5.14	Microsoft Office Academic 2013	8				
5.15	Duplo Machine	1				
5.16	Wide Angle Camera (Webcam)	1				
5.17	Photo Copier	1				
5.18	Multimedia Projector with Screen	2				
5.19	Printer	6				
5.20	External Hard disk	2				
Package 06 – Laboratory Furniture						
6.1	Demonstration Table	15				
6.2	Work Bench	15				
6.3	Wooden Reading Table	15				
6.4	Laboratory Stool	100				
6.5	Table – Electrical Lab	16				
6.6	Stool – Electrical Lab	64				
6.7	Computer Table	60				
6.8	Computer Chair	60				
Package 07 – Office and Library Furniture						
7.1	Filing Cabinet-Steel	15				
7.2	Cupboard-Steel	15				
7.3	Cupboard-Steel-Glass fronted	15				
7.4	Wooden Table	10				
7.5	Cushion Chair	10				
7.6	Conference Table with Chairs	1				
7.7	Sofa Settee	2				

7.8	Book Shelf (Library)	20				
7.9	Wood Almirah (Library)	7				
7.10	Book ends (Library)	200				
7.11	Reading Chair (Library)	20				

*Use separate price schedule for options

.....
Signature and seal of the Bidder

.....
Date

Total Price without Taxes (in SLR):

Total Price without Taxes (in Words):.....

Vat Registration No:.....

Total Price with VAT:.....

Total Price with VAT (in Words):.....

Maintenance charges as a percentage after the warranty period:.....

Name of the Authorized persons:.....

Signature of the Authorized persons:.....

Date:


M. G. L. Maveekumbura
 Senior Assistant Bursar (Supplies)
 University of Jaffna
 Jaffna

Bid Guarantee

[This Bank Guarantee form shall be filled in accordance with the instructions indicated in brackets]

----- [insert issuing agency's name, and address of issuing branch or office] -----
Beneficiary: ----- [name and address of Purchaser] Date: ----- [insert (by issuing agency) date] BID GUARANTEE No.: ----- [insert (by issuing agency) number] We have been informed that ----- [insert (by issuing agency) name of the Bidder; if a joint venture, list complete legal names of partners] (hereinafter called "the Bidder") has submitted to you its bid dated ----- [insert (by issuing agency) date](hereinafter called "the Bid") for the supply of [insert name of Supplier] under Invitation for Bids No. ----- [insert IFB number] ("the IFB").

Furthermore, we understand that, according to your conditions, Bids must be supported by a Bid Guarantee.

At the request of the Bidder, we ----- [insert name of issuing agency] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ----- [insert amount in figures] ----- [insert amount in words]) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

- (a) Has withdrawn its Bid during the period of bid validity specified; or
- (b) Does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB"); or
- (c) having been notified of the acceptance of its Bid by the Purchaser during the period of bid validity, (i) fails or refuses to execute the Contract Form, if required, or (ii) fails or refuses to furnish the Performance Security, in accordance with the ITB.

This Guarantee shall expire: (a) if the Bidder is the successful bidder, upon our receipt of copies of the Contract signed by the Bidder and of the Performance Security issued to you by the Bidder; or (b) if the Bidder is not the successful bidder, upon the earlier of (i) our receipt of a copy of your notification to the Bidder that the Bidder was unsuccessful, otherwise it will remain in force up to ----- (insert date) Consequently, any demand for payment under this Guarantee must be received by us at the office on or before that date. _____signature(s) of authorized representative(s)]

Manufacturer's Authorization

[The Bidder shall require the Manufacturer to fill in this Form in accordance with the instructions indicated. This letter of authorization should be on the letterhead of the Manufacturer and should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer. The Bidder shall include it in its bid, if so indicated in the BDS.]

Date: [insert date (as day, month and year) of Bid Submission]

No.: [insert number of bidding process]

To: [insert complete name of Purchaser]

WHEREAS

We [insert complete name of Manufacturer], who are official manufacturers of [insert type of goods manufactured], having factories at [insert full address of Manufacturer's factories], do hereby authorize [insert complete name of Bidder] to submit a bid the purpose of which is to provide the following Goods, manufactured by us [insert name and or brief description of the Goods], and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with Clause 27 of the Conditions of Contract, with respect to the Goods offered by the above firm.

Signed: [insert signature(s) of authorized representative(s) of the Manufacturer]

Name: [insert complete name(s) of authorized representative(s) of the Manufacturer]

Title: [insert title]

Duly authorized to sign this Authorization on behalf of: [insert complete name of Bidder]

Dated on _____ day of _____, _____ [insert date of signing]

Section V

Schedule of Requirements

1. List of Goods and Delivery Schedule

[The Purchaser shall fill in this table, with the exception of the column “Bidder’s offered Delivery date” to be filled by the Bidder]

Item No	Description of Goods	QTY	Delivery Date			
			Final Destination as specified in BDS	Earliest Delivery Date	Latest Delivery Date	Bidder’s offered Delivery date
Package 01 – Surveying Equipment						
1.1	Measuring Wheel	05	University of Jaffna	2 Weeks	4 Weeks	
1.2	Land Chain Arrow	20				
1.3	Change plate	10				
1.4	Surveyor's umbrella for theodolite	10				
1.5	Mallet	10				
1.6	Crowbar	10				
1.7	Survey boots	10				
Package 02 – Water Resource Equipment						
2.1	Hydrogen Bubble Flow Visualisation System	02	University of Jaffna	2 Weeks	4 Weeks	
2.2	Soil/Water Model Tank	01				
2.3	Centrifugal Pump Demonstration Unit + interface unit	01				
2.4	Demonstration Lysimeter	01				
2.5	Series and Parallel Pump + interface unit	01				
2.6	Series Liquid Manometers	02				
2.7	River Flow Simulator	01				
2.8	Pitot Tubes + Adjustable tripod stand	02				
2.9	Drainage and Seepage Tank	01				
Package 03 – Environmental Engineering Equipment						
3.1	Particle Size Analyser	01	University of Jaffna	2 Weeks	4 Weeks	
3.2	Total Organic Carbon analyser	01				
3.3	Analytical Balances: 4 digit precision (grammes)	02				

3.4	Analytical Balances: 4 digit precision (grammes)	01				
3.5	Calibration mass: 1mg – 200g	01				
3.6	Calibration mass: 50g – 50kg	01				
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3.9	Shaking Water Bath: Stable Temperature	01				
3.10	Immersion circulator with clamp:	02				
3.11	Chest type Freezer	01				
3.12	Stable temperature Refrigerators	01				
3.13	Ice-cube Maker	01				
3.14	Dry-Ice Chest	01				
3.15	Volumetric Automatic Titrator (Electronic)	03				
3.16	Direct Reading Flow meter for air	03				
3.17	Bottle top Dispenser (Burette)	03				
3.18	Burettes	10				
3.19	Peristaltic Pumps	02				
3.20	Peristaltic Pumps	6				
3.21	Pipette (adjustable Volume)	12				
3.22	Laboratory Autoclave	01				
3.23	Sterilizer	02				
3.24	Manometers	04				
3.25	Pressure transmitters	05				
3.26	Tweezer Set	02				
3.27	Heating Blocks and heater	02				
3.28	Bunsen Burners	04				
3.29	Furnace	02				
3.30	Beakers	72				
3.31	Conical Flasks	24				
3.32	Measuring Cylinders	30				
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3.34	Water filtration units	04				
3.35	Bottle top Water filtration (single) units	08				
3.36	Syringe and Syreinge filters	3500 5000				
3.37	Petri dishes	2000				

3.38	Tongs	10				
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3.40	Laboratory Organizers	1				
3.41	Acid Bath	3				
3.42	Dioinized water unit	1				
3.43	Magnetic Stirrer bars	50				
3.44	Magnetic Stirrers	10				
3.45	Dissolved Oxygen meter and kit	3				
3.46	pH meter	3				
3.47	Laboratory bench-top Turbidity meter	2				
3.48	Hand held turbidity meters	5				
3.49	Pocket pH testers	3				
Package 04 – Supply of Gantry Crane						
4.1	Gantry Crane With Double Girders	1				
Package 05 – Computer Engineering & IT Equipment						
5.1	Arduino Starter Kit / Genuino Starter Kit (Original)	10	University of Jaffna	2 Weeks	4 Weeks	
5.2	Arduino MEGA 2560 / Genuino MEGA 2560 (Original)	10				
5.3	Arduino Due	05				
5.4	Raspberry Pi 2 Model B	05				
5.5	Microelektronika Easy PIC V7	06				
5.6	Microchip MPLABICD 3 In-Circuit Debugger	06				
5.7	Multifunction DAQ	15				
5.8	Interactive Ultra Short Throw Multimedia Projector with Wall Mounting Accessory	02				
5.9	24” Wide LED Monitor	05				
5.10	Tower Model Computer	52				
5.11	UPS	54				
5.12	Laptop	8				
5.13	EV3 Core and Expansion Set + Software Classroom 30 Student Pack	1				
5.14	Microsoft Office Academic 2013	8				
5.15	Duplo Machine	1				
5.16	Wide Angle Camera (Webcam)	1				

5.17	Photo Copier	1				
5.18	Multimedia Projector with Screen	2				
5.19	Printer	6				
5.20	External Hard disk	2				
Package 06 – Laboratory Furniture						
6.1	Demonstration Table	15	University of Jaffna	2 Weeks	4 Weeks	
6.2	Work Bench	15				
6.3	Wooden Reading Table	15				
6.4	Laboratory Stool	100				
6.5	Table – Electrical Lab	16				
6.6	Stool – Electrical Lab	64				
6.7	Computer Table	60				
6.8	Computer Chair	60				
Package 07 – Office and Library Furniture						
7.1	Filing Cabinet-Steel	15	University of Jaffna	2 Weeks	4 Weeks	
7.2	Cupboard-Steel	15				
7.3	Cupboard-Steel-Glass fronted	15				
7.4	Wooden Table	10				
7.5	Cushion Chair	10				
7.6	Conference Table with Chairs	1				
7.7	Sofa Settee	2				
7.8	Book Shelf (Library)	20				
7.9	Wood Almirah (Library)	7				
7.10	Book ends (Library)	200				
7.11	Reading Chair (Library)	20				

* Destination of delivery: - Faculty of Engineering,
University of Jaffna,
Ariviyal Nagar,
Kilinochchi.


M. G. L. Maveekumbura
Senior Assistant Bursar (Supplies)
University of Jaffna
Jaffna

2. Technical Specifications

The bidder shall follow the following technical requirement and other requirement.

Item No	Name and Minimum Specifications		Qty	Remarks
1.1	Measuring Wheel		05	
	Measuring range	0 - 9999.99 m		
	Wheel Diameter	300 mm – 350 mm		
	Height	1.0 – 1.1m		
	Weight	2 - 4 kgs,		
	Guiding rod	Can be folded		
	Transport case	Should be provided, Pistol grip handle with integral brake lever		
	Warranty	Minimum five years		
	Sufficient Track record from the Supplier			
	After Sales Service	Should be available		
1.2	Land Chain Arrow		20	
	Galvanized steel, 400mm long, 4.5mm diameter, Painted in red and white,			
1.3	Change plate		10	
	Galvanized steel, yellow in color, Durable			
1.4	Surveyor's umbrella for theodolite		10	
	Yellow, heavy-duty, water-resistant, vinyl, 63 inch spread, 8 foot 3section pole with baked enamel finish, tapered end for erecting on land			
1.5	Mallet		10	
	Wooden			
1.6	Crowbar		10	
	Steel			
1.7	Survey boots		10	
	Water-resistant, rubber			
2.1	Hydrogen Bubble Flow Visualisation System		02	
	Pulse generator			
	on and off periods			
	Light source	12 high intensity LEDs		
	Cathodes	35, 50 and 75mm lengths		
	Flow table capacity	20 litres (nominal)		
	Current generator range	0 to 100mA		
	Working section	length: 425mm		
	Width	285mm		
	Depth	36mm		
	Documentation	All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has		

		supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product		
	After Sales service	Should be available		
2.2	Soil/Water Model Tank		01	
	Soil/Water Model Tank comprising: bench mounted narrow sand tank 1000mm x 25mm x 450mm (L x W x D), with one large side formed from a sheet of transparent material; metal frame supporting sump tank from which water is pumped via a flow meter to the soil surface; flood and drip surface outlets (two can be used together by fitting a Y-connector); overflow system to remove surface water to sump; complete with user instructions manual.			
2.3	Centrifugal Pump Demonstration Unit + interface unit		01	
	<ul style="list-style-type: none"> • A small-scale centrifugal pump demonstration unit, comprising of a water reservoir, the pump, control valves and interconnecting pipe work all mounted on a stainless steel base. • Equipped with electronic measurement sensors for pump head pressure, suction, flow-rate and water temperature. • Transparent pump volute for visibility • Capable of being linked to a PC (not supplied) via the IFD7 interface console (available as an essential accessory). • Supplied with software providing full instructions for setting up, operating, calibrating and performing the teaching exercises. Facilities are provided for logging, processing and displaying data graphically. Full theoretical back-up is included together with a student questions and answers session. 			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
	After Sales service: Should be available			
2.4	Demonstration Lysimeter		01	
	Lysimeter Apparatus comprising: □ base and inner disc to support soil filled container and plant, resting on a hydraulic sensing device located in the base that is connected to a graduated water column mounted above the lysimeter; complete with spare plant containers, calibration weights, user instructions and manual.			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
	After Sales service: Should be available			
2.5	Series and Parallel Pump + interface unit		01	
	<ul style="list-style-type: none"> • Demonstration Unit A small-scale series/parallel pump demonstration unit, comprising of a water reservoir, two pumps, control valves and interconnecting pipe work, all mounted on a stainless steel base. 			

	<ul style="list-style-type: none"> Equipped with electronic measurement sensors for pump head pressure (2 off), suction, flow- rate and water temperature. Transparent pump volutes for visibility. Inlet valve throttling demonstrates air release. Supplied with different easily interchangeable impellers. Capable of being linked to a PC (not supplied) via a dedicated interface console. Supplied with software providing full instructions for setting up, operating, calibrating and performing the teaching exercises. Facilities for logging, processing and displaying data graphically. Full theoretical back-up together with a student questions and answers session. 		
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>		
	After Sales service: Should be available		
2.6	Series Liquid Manometers	02	
	<ul style="list-style-type: none"> A range of manometers measuring differential water pressures up to approximately 12.5m H₂O. Scales are graduated in 1mm divisions. H12-1: 1 metre scale differential open water manometer H12-2: 1 metre scale differential pressurised water manometer (the air space above the tubes can be pressurised with the pump supplied) H12-3: 1 metre scale differential water over Mercury manometer H12-4: 500mm scale differential water over Mercury manometer H12-5: 500mm scale differential kerosene over water manometer 		
2.7	River Flow Simulator	01	
	<ul style="list-style-type: none"> A transparent, inclinable flow channel through which water can be re-circulated by a pump over a mobile bed to demonstrate the whole range of bedforms from incipient particle movement to bed wash-out. Three different discharge rates can be selected (and measured) within the range 0.2 to 0.6 litres/sec. The channel slope can be adjusted within the range 0-10%. The working section of the channel is 1.55m long, 78mm wide and 110mm deep. The equipment is self-contained and may be bench-mounted in either the classroom or laboratory by virtue of its portability.□ A model undershot weir and bridge pier are included for local erosion demonstrations.□ A water level gauge is supplied to calibrate the overshot weir. 		
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>		

	After Sales service: Should be available		
2.8	Pitot Tubes + Adjustable tripod stand	02	
	Tubes are in stainless steel and mounted on a supporting body with scale. They are supplied with a watertight gland for installation below water level. In order to measure velocity, the Pitot tubes must be connected to a manometer.		
2.9	Drainage and Seepage Tank	01	
	<ul style="list-style-type: none"> • A self-contained facility for study of flow through permeable media. The tank has a toughened glass front and aluminium back to permit the insertion of pressure tappings as required. Six tapping points are provided. The design of the side supports allows free access to the interior with minimum sight obstruction. Supply includes sump tank, pump, starter and control valve. Also a dye injection system and a selection of models. • Comprehensive instruction manual with data sheets and student experiments. 		
3.1	Particle Size Analyser	01	
	<ul style="list-style-type: none"> • Should be able to draw the Particle Size Distribution (PSD-Volumetric) for particles ranging from a size of 25 nm to 2 mm. • PSD should be possible to be analysed from a sample containing 0.5 ppm of solids (wet) • Possibility to test high concentration samples preventing dispersion or agglomeration (more than 1000 ppm) • Should be able to analyse samples of volumes as low as 25 mL • Facility should come with data acquisition and logging, software for analysis and management of data and a computer facility. • Samples could be within a pH range of 5.0 to 9.0 • Should be able to analyse dry samples as well (with a volume as low as 0.5 mL to 10 mL) • Should come with auto-sampler 		
	Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product		
	After Sales service: Should be available		
3.2	Total Organic Carbon analyser	01	
	<ul style="list-style-type: none"> • Fast measurements time (5 - 20 minutes) • Multipoint calibration from a single high standard (10 point calibration) • Should be able to measure NPOC (TOC measurements by IC removal using acid sparging), TC (Total Carbon), IC (Inorganic Carbon), TN (Total Nitrogen -may be an additional unit). • Should use the EPA approved method using 680 centi. high temperature catalytic oxidation method (SM 5310B). • Should come with auto-sampler 		
	Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the		

	product from the institutions where the supplier has supplied the product		
	After Sales service: Should be available		
3.3	Analytical Balances: 4 digit precision (grammes)	02	
	<ul style="list-style-type: none"> Should be able to read mass between 0.0001 - 200 g with a readability of 0.0001 g, linearity of +/- 0.0002 g and repeatability of +/- 0.0002 g. Easy to clean with removable glass draft shield Built-in overload protection Quick Stabilisation time (2s) External calibration Density measurement Kit for analytical balance (1 kit) 		
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>		
	After Sales service: Should be available		
3.4	Analytical Balances: 4 digit precision (grammes)	01	
	<ul style="list-style-type: none"> Should be able to read mass between 0.0001 - 200 g with a readability of 0.0001 g, linearity of +/- 0.0002 g and repeatability of +/- 0.0002 g. Easy to clean with removable glass draft shield Built-in overload protection Quick Stabilisation time (2s) Fully automatic and motorized calibration and adjustment Functions: general weighing, density, percentage, check weighing, peak hold, counting and average 		
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>		
	After Sales service: Should be available		
3.5	Calibration mass: 1mg - 200g	01	
	<ul style="list-style-type: none"> Should comprise of 200g, 100g, 50g, 20g, 10g, 5g, 2g, 1g, 500mg, 200mg, 100mg, 50mg, 20mg, 10mg, 5mg, 2mg, 1mg (in a set) Must be either ultra class, or class 1 Tweezer for mg weights 		
3.6	Calibration mass: 50g - 50kg	01	
	<ul style="list-style-type: none"> Should comprise of 50g, 100g, 200g, 500g, 1000g, 2kg, 5kg, 10kg, 20kg, 50kg (in a set or individual mass) Must be either ultra class, or class 1 		
3.7	Electronic Floor Balances	03	
	<ul style="list-style-type: none"> Should be able to measure upto 80 kg Minimum readability 50 g 		
3.8	Water Bath: Stable Temperature	01	
	<ul style="list-style-type: none"> Volume capacity must be more than 20 L. Maximum temperature maintained in the bath must be 100 centi. 		

	<ul style="list-style-type: none"> Digital timer must be included to monitor the process Temperature must be adjustable 		
3.9	Shaking Water Bath: Stable Temperature	01	
	<ul style="list-style-type: none"> Volume capacity must be more than 10 L. Temperature must be adjustable and should be maintained throughout a process as well. Should be able to reach a maximum temperature of 100 centi. 		
3.10	Immersion circulator with clamp:	02	
	<ul style="list-style-type: none"> Temperature should be able to be varied between -40 and 100 centi. 		
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>		
	After Sales service: Should be available		
3.11	Chest type Freezer	01	
	<ul style="list-style-type: none"> Should have a volume capacity of at least 650 L. 		
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>		
	After Sales service: Should be available		
3.12	Stable temperature Refrigerators	01	
	<ul style="list-style-type: none"> Should have a volume capacity of at least 1000 L. 		
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>		
	After Sales service: Should be available		
3.13	Ice-cube Maker	01	
	Specify		
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>		
	After Sales service: Should be available		
3.14	Dry-Ice Chest	01	
	<ul style="list-style-type: none"> Volume must be between 2 - 3 Cubic Feet Must be portable 		
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the</p>		

	product		
	After Sales service: Should be available		
3.15	Volumetric Automatic Titrator (Electronic)	03	
	<ul style="list-style-type: none"> Dispensing accuracy must be less than 0.2 % of the total volume Capacity should cater for 20 mL 		
	Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product		
	After Sales service: Should be available		
3.16	Direct Reading Flow meter for air	03	
	<ul style="list-style-type: none"> Need three meters to measure three different ranges of flows(one each) 0.05 - 1 LPM, 1 - 10 LPM, 10 - 100 LPM Must be portable and directly readable Should be able to be operated at a maximum pressure of 8 bar 		
3.17	Bottletop Dispenser (Burette)	03	
	<ul style="list-style-type: none"> With a maximum volume of 50 mL Titration readability must be 0.01 micro-litre Should be able to be used for concentrated Acids (Sulphuric, Nitric acids etc) 		
	Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product		
	After Sales service: Should be available		
3.18	Burettes	10	
	<ul style="list-style-type: none"> All must be able to be used with acids and bases (Class A). 3Burettes of 100mL capacity (with subdivisions about 0.2mL) 3 Burettes with a capacity of 50 mL (with subdivisions about 0.1 mL) 2 Burettes with a Capacity of 25 mL (with subdivisions about 0.1 mL) 2 Burettes with a capacity of 10 mL (with Subdivisions about 0.05 mL) 2 Burettes with a capacity of 500 mL (with subdivisions about 0.5 mL) 		
3.19	Peristaltic Pumps	02	
	<ul style="list-style-type: none"> Must be variable speed pump (including a range of 0.01 - 3000mL/min Must have a digital display to vary the flow rates Must have the drive, pump Head and tubing (4 sets of tubing of 4 m in leangth, each) Must be portable and that doesn't need permanent fixing) Optional: with the facility to have multiple pump heads 		
	Documentation All relevant technical brochures forwarded with Tender Documents.		

	Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product		
	After Sales service: Should be available		
3.20	Peristaltic Pumps	6	
	<ul style="list-style-type: none"> Should cater for variable flow rates ranges (0.1 - 500 mL/min, 200 - 4000 mL/min), 3 in each range. Option to add multiple pump heads Must come with pump head and tubing (10 sets of tubing of 4 m in length, each) Should be portable and must be a desk-top model (that doesn't need permanent fixing) 		
	<p>Documentation</p> <p>All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>		
	After Sales service: Should be available		
3.21	Pipette (adjustable Volume)	12	
	<ul style="list-style-type: none"> Pipettors must be adjustable volume gradings for different ranges (3 of [1 - 10 micro-litre], 3 of [2 - 200 micro-litre], 2 of [100 - 1000 micro-litre], 2 of [0.5 - 5 mL] and 2 of [1 - 10 mL]) Each should be accompanied by a set of tips of relevant sizes (for each range pipetter) Should be able to be used to handle acids and bases 		
3.22	Laboratory Autoclave	01	
	<ul style="list-style-type: none"> The capacity must be 50 L. Must be able to handle a maximum temperature of at least 130 centigrades. Should have timer, and automatic functions, including cooling function after completing the cycle. Vertical loading is preferred 		
	<p>Documentation</p> <p>All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>		
	After Sales service: Should be available		
3.23	Sterilizer	02	
	<ul style="list-style-type: none"> Must have a capacity of about 10 L Must have automatic functions and timer 		
3.24	Manometers	04	
	<ul style="list-style-type: none"> Should be able to use for liquids and gases 2 manometers with a range of 0 - 30 psi and 2 meters with a range of 0 - 100 Psi Resolution of the first range should be around 0.01 psi while the resolution of the second range must be at least 0.1 psi 		

	<ul style="list-style-type: none"> Manometers should be accompanied by the relevant tubing (2 sets for each manometer) 		
3.25	Pressure transmitters	05	
	<ul style="list-style-type: none"> Should be compatible with gases and liquids usage (should be able to be inserted in soil columns as well) The range should be at least 0 - 200 psi The cables should be at least 2 m long 		
3.26	Tweezer Set	02	
	<ul style="list-style-type: none"> Must contain curved tweezers, straight tweezers, blunt tweezers and sharp tweezers (2 sets required) 		
3.27	Heating Blocks and heater	02	
	<ul style="list-style-type: none"> The dry block heater should have space for at least 4 blocks The maximum temperature required is at least 150 centigrades The blocks of different hole sizes should also be accompanied (two in each sizes -mention the available sizes) 2 sets of vials for each block should also be included in the quotation (mention the vial sizes) 		
3.28	Bunsen Burners	04	
	<ul style="list-style-type: none"> Two burners for each range of BTU output (1. 1000 - 1200, 2. 2000 - 3000) with adjustable orifice Each burner must be accompanied with one burner tripod, 2 wire gauze and two test tube clamps Two electric spark lighters 		
3.29	Furnace	02	
	<ul style="list-style-type: none"> The volume capacity of the furnace must be at least 1000 Cubic Inches Should cover a temperature range of 100 - 1000 centigrades Trays and heat resistant gloves should be included in the package (two sets for each furnace) Process tubes of 1 inch and 2 inch diameter sizes (12 in each size) 		
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>		
	After Sales service: Should be available		
3.30	Beakers	72	
	<ul style="list-style-type: none"> Need 12 in each of these volume capacities (25, 50, 100, 250, 500 & 1000mL) All must be of pyrex 		
3.31	Conical Flasks	24	
	<ul style="list-style-type: none"> Need 6 in each of these volume capacities (100, 250, 500 and 1000mL) 		
3.32	Measuring Cylinders	30	
	<ul style="list-style-type: none"> Need 6 in each of these volume capacities (100, 250, 500, 1000 and 1500 mL) 		
3.33	Crucibles (to be used in furnace as well)	120	
	<ul style="list-style-type: none"> Need 24 of each of these volume capacities (20, 30, 50, 100 and 200mL) 		

3.34	Water filtration units	04	
	<ul style="list-style-type: none"> 4 Sets of Vacuum filtrations unit with manifold and 3 or 4 filtrations units. Each set should be accompanied by a vacuum pump 		
	<p>Documentation</p> <p>All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>		
	After Sales service: Should be available		
3.35	Bottle top Water filtration (single) units	08	
	<ul style="list-style-type: none"> A unit must contain a glass bottom (preferably conical shape) Connectability to a vacuum pump A graduated glass funnel with a capacity of 300-500 and 1000 mL capacity (require 4 units of each capacity) Should be compatible with 47mm or 90 mm filter sizes At least two vacuum pumps should accompany these filtration units 		
	<p>Documentation</p> <p>All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>		
	After Sales service: Should be available		
3.36	Syringe and Syreinge filters	3500 & 5000	
	<ul style="list-style-type: none"> Need syringes with thread of these capacities and numbers 5 mL - 1000 10 mL - 1000 30 mL - 1000 50 mL – 500 Syringe filters with the following filter sizes 0.2 microns – 2000 0.45 microns - 3000 		
3.37	Petri dishes	2000	
	<ul style="list-style-type: none"> Sterile petri dishes needed in the following sizes 150 mm diameter - 500 100 m diameter - 1000 50 mm diameter - 500 		
3.38	Tongs	10	
	<ul style="list-style-type: none"> Require 10steel plated beaker tongs with vinyl coating and preferably zinc plated. Require 10 Crucible tongs (stainless steel) 		
3.39	Graduated Sample containers	WN- 1850 SN- 1850	
	<ul style="list-style-type: none"> Require graduated bottles in the following volume capacities (with PP cap) the bottles must be of HDPE. 		

	<p>a. Wide neck bottles 50 mL – 100 100 mL – 250 250 mL – 250 500 mL -1200 1000 mL – 50</p> <p>b. Slim neck bottles 50 mL - 100 100 mL - 250 250 mL - 250 500 mL -1200 1000 mL - 50</p>		
3.40	Laboratory Organizers	1	
	<ul style="list-style-type: none"> • Angled Pippette holder • Pippetter holder • Test tube holders of different sizes (10 in each size) - plastic preferred. • Towel and towel dispenser (laboratyr grade paper towels) • Waste bins and laboratory in liners 		
3.41	Acid Bath	3	
	<ul style="list-style-type: none"> • 3 numbers of acid baths each of a capacity of at least 10 L. 		
3.42	Diionized water unit	1	
	<ul style="list-style-type: none"> • A unit to supply de-ionized water for laboratory experiment purposes 		
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>		
3.43	Magnetic Stirrer bars	50	
	<ul style="list-style-type: none"> • Stir bars of the sizes below, <ul style="list-style-type: none"> a. around 1 inch length and 0.25 inch diameter - 10 numbers b. around 0.5 inch length and 0.25 inch diameter - 10 number c. around 3 inches length and 0.75 inch diameter - 10 numbers d. around 3 inches length and 0.5 inch diameter - 10 numbers e. starburst stirring head with 1 inch by 1 inch - 10 numbers 		
3.44	Magnetic Stirrers	10	
	<p>The following types of stirrers are required in specified numbers</p> <ul style="list-style-type: none"> • Multi-point stirrers (at least 6 points) - 2 numbers should be able to stir a maximum capacity of 3 L, with a range of RPM of 100 - 2000. • Single point stirrers that can stir upto a volume of 10 L with a surface dimension that can accommodate a 25cm diameter vessel - 4 numbers • Single point stirrers that can stir upto a volume of 25 L with a surface dimension that can accommodate a 40 cm diameter vessel - 4 numbers. 		
	<p>Documentation All relevant technical brochures forwarded with Tender Documents.</p>		

	Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product		
	After Sales service: Should be available		
3.45	Dissolved Oxygen meter and kit	3	
	<ul style="list-style-type: none"> Should be able to read values from 0 to at least 50 mg/L of dissolved oxygen with a resolution of at least 0.01 mg/L. Should be able to be used in solutions of 0 - 500 mS conductivity, 0 - 50 ppt salinity and a working temperature of 0 - 50 degrees centigrade The meter should be accompanied by relevant probes (each) 		
3.46	pH meter	3	
	<ul style="list-style-type: none"> Need 3 bench top pH meters with a range of 0.00 to 14.00 and a resolution of at least 0.05. The meters should be accompanied by relevant standards and calibration solutions and cleaning and maintaining solutions. 		
3.47	Laboratory bench-top Turbidity meter	2	
	<ul style="list-style-type: none"> Should be able to read a range of turbidity from 0 to at least 4000 NTU with a resolution of at least 0.01 NTU in the lower ranges and at least 1-10 NTU in the higher ranges 		
	Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product		
	After Sales service: Should be available		
3.48	Hand held turbidity meters	5	
	<ul style="list-style-type: none"> Should be able to read turbidity in the range of 0 to at least 1000NTU with a resolution of 0.01 NTU in the lower ranges. 		
	Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product		
	After Sales service: Should be available		
3.49	Pocket pH testers	3	
	<ul style="list-style-type: none"> With the range of 0 - 14.00 pH scale and a resolution of at least 0.1 pH. 		
	Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product		
	After Sales service: Should be available		
4.1	Gantry Crane With Double Girders	01	
	APPLICATION	<ul style="list-style-type: none"> The subject crane is meant for the purpose of handling small 	

		<p>to large (within the lifting capacity of the crane) components, bundles of steel sections and sheets & plates [13 Mtr. long] in a Heavy Structural Laboratory.</p> <ul style="list-style-type: none"> • The crane will be put to use for continuous duty with CT, LT and Hoist movements, which may occur simultaneously (within the operating parameters specified under Clause Nos. – 3.1.0, 3.4.0 and 3.5.0). • The storage yard environment will be open out door area and ambient temperature going upto 40 ° C. 		
	SCOPE OF SUPPLY	<ol style="list-style-type: none"> Design as per Tender Specifications Assembly and Testing before Despatch Supply in Modules / Sub-Assemblies Commissioning and Performance Prove-Out at Faculty of Engineering, University of Jaffna. Performance Guarantee for 12 months, from the date of commissioning. 		
TECHNICAL SPECIFICATIONS				
	CAPACITY	Lifting Capacity		
	Hoist	10 ~ 15 Metric Tonnes		
	SPAN	Wheel Centre to Wheel Centre Dimensions		
	Long Travel (LT)	24,000 mm		
	Cross Travel (CT)	9,000 mm		
	Height of Lift	7,000 mm [Effective Height of Lift]		
	DUTY CYCLE	Related to Drive Motor & Mechanisms		
	Hoist	40 % E D		
	Long Travel	40 % E D		
	Cross Travel	40 % E D		
	SPEED	Operating / Working Speed [Maximum]		
	Hoist	7.5 mtrs./minute.		
	Cross Travel (CT)	30.0 mtrs./minute.		
	Long Travel (LT)	70.0 mtrs./minute.		
	MOTOR RATINGS	Electric Drive Motor Ratings & Frame Sizes		

	Hoist	33.6 kW ; Frame Size – 225 M / 6 Pole		
	Cross Travel (CT)	5.5 kW ; Frame Size – 132 M / 6 Pole		
	Long Travel (LT)	2 x 23.7 kW ; Frame Size – 225 M / 6 Pole		
	GEAR BOX	Gear Box Size		
	Hoist	HR 650		
	Cross Travel (CT)	VR 400		
	Long Travel (LT)	VR 650		
	ACCELERATION			
	Cross Travel (CT)	300 mm / sec.sq.		
	Long Travel (LT)	300 mm / sec. sq.		
	HOIST ROPE DETAILS	Size and Number of Falls of Rope		
	Hoist	Dia. 18 mm ; Falls - 8		
	CONTROL	Cabin Operation and Remote Control		
	Type of Control	Master Control and Radio Remote Control		
	Control Voltage	110 V AC		
	Input Power Supply	415 ± 10% Volts , 50 ± 3% Hz, 3 Phase- AC		
	Duty Class	Class – 3 [Outdoor Service]		
	Mechanism Group Classification	M 6		
	DESIGN STANDARD	BS/EN		
	Runway Rail Size			
	Cross Travel	(CT) ISR 60 Lbs./Yard		
	Long Travel	(LT) ISR 105 Lbs/Yard		
	Wheel Size			
	Cross Travel (CT)	Dia. 320 mm		
	Long Travel (LT)	Dia. 630 mm		
	Brake Drum Size	Hoist Brake Drum Sizes		
	Hoist	Dia. 300 mm		
	Cross Travel (CT)	Dia. 200 mm		
	Long Travel (LT)	Dia. 300 mm		
	Parking brake	Dia. 300 mm		
	MAIN FEATURES	Crane Operational Features		
	Control System	Conventional master control for all motions		
	Remote Control	Radio Remote Control for all motions		
	Crane Operation	Through Cabin Control and Radio Remote Control with option for control selection		
	Operator Cabin	Totally enclosed out door type cabin located on one end of the crane		
	STRUCTURAL FABRICATION	Crane Structure Constructional Details		
	Bridge / Leg	Box type Construction		

Raw Material	Only steel plates, tested and certified for quality by reputed inspection authorities, shall be used. Test Certificates to be produced for Faculty of Engineering/UoJ verification and form part of the documentation.		
Welded Joints	To be followed for Bridge/leg Fabrication		
Number of Joints allowed	For Span upto 23 mtrs. - Two joints For Span 23 mtrs. to 32 mtrs. - Three joints		
Welding Electrodes	a. For all Horizontal Welding E 7018 Electrode only should be used. b. For all Vertical Welding E 7048 Electrode only should be used.		
Welded Joint Testing	All Butt Welded Joints (both compression / tension and flanges / web joints) shall be subjected to 100% X-Ray Testing and X-Ray Films to be produced for BHEL evaluation and Form part of the documentation.		
Splice Joints	NO SPLICE JOINT IS ALLOWED IN GIRDER FABRICATION [Girder has to be of SINGLE PIECE only].		
Leg connection	Leg to bridge connection shall be designed for Double shear.		
Platform on Girders	The Platforms provided on both the Girders shall be fixed through BOLTED JOINTS using fit bolt only.		
Wheel Assembly	The Wheel Assembly coming for Cross Travel (CT) & Long Travel (LT) shall be of LIVE AXLE SYSTEM with L-Type Bearings.		
Heat Treatment & NDT Examination	The Trolleys shall be Stress Relieved by thermal heat-treatment process after welding and NDT examinations. All		

		weldings shall be tested by NDT means [MPI, LPI&RT] after Stress Relieving operation.		
	Machining Operation	All mechanical mating surfaces and wheel seating areas are to be machined to the required finish and protected		
	Surface Cleaning	Both the Girders and the Trolleys are to be shot blasted or chemically treated for surface Cleaning, after completion of all operations but prior to painting.		
	Painting	The crane parts are to be painted as follows : a. One coat of Primer with 25 microns of DFT (Dry Film Thickness) and 48 hours of compulsory curing after painting. b. Two coats of Enamel Paint (Colour –Tractor Orange) each with a DFT of 25 microns and intermittent curing of minimum 16 hours.		
	MECHANICAL ELEMENTS			
	Gears	Gears in all the Stages shall be helical in design and to be of machined & ground and hardened.		
	Gear Box Casing	Shall be of fabricated type and stress relived by thermal heat-treatment process, prior to machining.		
	Rope Drum	Shall be of fabricated type and stress relieved. The circumferential weld joints shall be tested by 100 % X-Ray for quality assurance.		
	Type of Coupling	Only GEARED COUPLING to be used a. between Electric Motor and Gear Box b. between Gear Box and Rope Drum c. between Gear Box and Trolley Wheels		
	Wheels	The Wheels shall be of Die-Forged and Wheel Tread hardened to 300/350 BHN.		

		Wheels shall be fitted with L-Type Bearings		
	Mechanical Joints	Fit Bolts as per BS/EN for all joints coming in main members and platform with reamed holes		
	Pulley Dimension	Rope Pulley diameter shall be 23 times that of Rope diameter		
	Hook	Hook latch shall be provided for both hooks		
	Wind Clamp	Wind clamp shall be provided in all four corners		
	Roof Covering	Single Roof cover shall be provided for trolley and long travel mechanisms		
	ELECTRICAL ELEMENTS			
	Operational Controls	The Crane shall be provided with the following controls : a. Cabin Control [Master Control] b. Radio Remote Control [Push Button Type]		
	Control Voltage	110 V AC		
	Type of Brakes	a. Hoist - DC Brake b. Cross Travel – Thruster Brake c. Long Travel – Thruster Brake d. Parking brake - DC brake		
	Protection	All Panels, Limit-Switches and Motors shall have IP 54 protection. (OUTDOOR SERVICE)		
	Electric Motors	All Electric Motors shall be as per BS/EN and also suitable for 500 starts per hour and 40 % CDF.		
	Electric Contactors	All Panels shall have only SIEMENS Contactors and shall be suitable for AC3 Duty Class.		
	Contactors Rating	The rating of all Contactors shall be at least 50% higher than the respective electric motor full load current, at the specified duty cycle.		
	Resistance	Stainless steel punched grid resistance continuous rating		
	Long Travel Motion	A dual Drive Mechanism shall be provided for Long Travel Motion.		

	Illumination	<ul style="list-style-type: none"> a. Four numbers of 500 Watts Halogen Lamps shall be provided under the Bridge b. All Electric Panels shall be provided with suitable illumination for visibility and trouble shooting. 		
	Controller Steps	<p>A 5-Step Controller has to be provided for</p> <ul style="list-style-type: none"> a. Main Hoist b. Long Travel c. Cross Travel 		
	Load Cell for Main Hoist	<ul style="list-style-type: none"> a. Load Weighing System with LOAD CELL to be fixed / provided at the equalizer pulley. b. The display shall be of 100 mm size (JUMBO) 		
	Crab Wiring	The CRAB shall be fully wired with junction box.		
	Hoist Limit	Each hoist shall be provided with both rotary and counter weight limits		
	Cabin	Electric Light, Fan, Exhaust-Fan, Warning Bell and Emergency Stop Push Button shall be provided in the Operator Cabin		
	DOCUMENTS/DETAILS for APPROVAL	The following documents and details are to be submitted for Faculty of Engineering/UoJ Approval, prior to taking up the manufacture of the crane.		
	Drawings and Documents	<ul style="list-style-type: none"> a. GA Drawing of the Crane. b. GA Drawing of Crab with Trolley c. GA Drawing of Individual Mechanisms. d. Drawings of Bridge, End-Carriage and their connection. e. Sub-Assembly Drawing for Wheels, Hook Blocks, Gear Boxes & Hoist Drums. f. Calculations for Selection of Electric Motors, Gear Reducers, Brakes, Couplings, etc. g. Calculations for Bridge Girder, Crab, End - Carriage and their connections. h. Wiring Diagram with Logic Circuits. i. Cable Selection based on 		

		Current Rating.		
	Technical Details	<ul style="list-style-type: none"> a. Total Weight of the Crane including all Electrical Equipment b. Total Weight of Trolley including all Electrical Equipment c. Weight of each Bridge assembled and ready for erection with and without Mechanical and Electrical Equipment. d. Weight of each End - Carriage assembled and ready for erection e. Total Weight of Structural, Mechanical and Electrical Equipment and indicated separately also. f. Weight of Operator's Cabin together with all Equipment mounted in it. 		
	INSPECTION	The following Schedule of Stage Inspections is to be strictly adhered to, prior to dispatch from the Supplier's Works		
	STAGE – I	<ul style="list-style-type: none"> a. Verification of Test Certificate for Raw Materials used for Girders, End-Carriages, Trolleys, Gear Box Casings, etc. b. Verification of X-Ray Report of Butt-Joints coming in the Girders and Random Testing on the Welds, by physical examination. c. Box Girder setting before closing of the Bottom Flanges – for inspecting the quality of welding and presence of waviness d. Trolley Frame Fabrication before setting the Mechanisms e. End – Carriage Fabrication 		
	STAGE – II	<ul style="list-style-type: none"> a. Inspection of Bridges and End – Carriages with Wheel Assembly and Alignment checking. b. Verification of Span & Diagonal Dimensions, Checking of Wheel Alignment, Mechanical Assemblies and 		

		Total Alignment. c. Free running of the all the Mechanisms.		
	STAGE – III [Final Inspection]	a. Measurement of CAMBER in the Bridges. b. Full / Rated Load Test and Deflection Test. c. Deflection and Permanent Set Measurement. d. 25% OVER-LOAD Lifting Ability Check.		
	CRANE ERECTION & COMMISSIONING			
	Mechanical Erection	Erection of the Crane will be done by Faculty of Engineering/UoJ, as per the guidelines furnished in the Erection Manual given		
	Crane Commissioning	Commissioning of the Crane and Performance Prove –Out for the Crane’s Capacity and Smooth Functioning of the Crane (at Faculty of Engineering/UoJ) shall be the RESPONSIBILITY of the supplier.		
	O & M MANUALS	Each Crane shall be provided with THREE Copies of Erection, Operation & Maintenance Manual hard copy as well as soft copy in CD, containing the following technical details		
	Drawings & Details	a. Crane GA Drawing b. Crab Assembly Drawing c. Total Crane Wiring Schematics d. Detailed Wiring Diagrams for Sub-Systems / Panels e. VVVF Drive’s Logic Circuits f. Wheel Assembly Drawings g. Bottom Block Assembly Drawing h. Gear Box Assembly Drawings i. Coupling Drawing and Details j. Specifications/Ratings of All Bought-Out-Items k. Warranty / Guarantee Card for all Bought-Out-Items Trouble Shooting Chart for Main and all Sub-Systems		
	PERFORMANCE GUARANTEE	The Performance of the Total Crane and/or the Components / Sub-Assemblies / Bought-Out-Items shall be guaranteed for a		

		minimum period of twelve months from the date of performance acceptance at Faculty of Engineering/UoJ.		
5.1	Arduino Starter Kit / Genuino Starter Kit (Original)		10	
	Country of Origin	Specify		
	Kit should include	Arduino Projects Book (170 pages) (1 No)		
		Arduino / GenuinoUnoboard rev.3 (1 No)		
		USB cable (1 No)		
		Breadboard 400 points (1 No)		
		Easy-to-assemble wooden base (1 No)		
		9v battery snap (1 No)		
		Solid core jumper wires (70 Nos)		
		Stranded jumper wires (2 Nos)		
		Photoresistor [VT90N2 LDR] (6 Nos)		
		Potentiometer 10kilohm (3 Nos)		
		Pushbuttons (10 Nos)		
		Temperature sensor [TMP36] (1 No)		
		Tilt sensor (1 No)		
		alphanumeric LCD (16x2 characters) (1 No)		
		LED (bright white) (1 No)		
		LED (RGB) (1 No)		
		LEDs (red) (8 Nos)		
		LEDs (green) (8 Nos)		
		LEDs (yellow) (8 Nos)		
		LEDs (blue) (3 Nos)		
		Small DC motor 6/9V (1 No)		
		Small servo motor (1 No)		
		Piezo capsule [PKM17EPP-4001-B0] (1 No)		
		H-bridge motor driver [L293D] (1 No)		
		Optocouplers [4N35] (2 Nos)		
		Transistor [BC547] (5 Nos)		
		Mosfet transistors [IRF520] (2 Nos)		
		Capacitors 100nF (5 Nos)		
		Capacitors 100uF (3 Nos)		
		Capacitor 100pF (5 Nos)		
		Diodes [1N4007] (5 Nos)		
		Transparent gels (red, green, blue) 3 Nos)		
	Male pins strip (40x1) (1 No)			
	Resistors 220 ohm (20 Nos)			
	Resistors 560 ohm (5 Nos)			

		Resistors 1 kilohm (5 Nos)		
		Resistors 4.7 kilohm (5 Nos)		
		Resistors 10 kilohm (20 Nos)		
		Resistors 1 megohm (5 Nos)		
		Resistors 10 megohm (5 Nos)		
	Qualification of bidders	The organization who bid for the tender should be an authorized service provider of quoted product line and an authorized letters from principals to certify these should be attached.		
5.2	Arduino MEGA 2560 / Genuino MEGA 2560 (Original)		10	
	Country of Origin	Specify		
	Microcontroller	ATmega2560		
	Operating Voltage	5V		
	Input Voltage (recommended)	7-12V		
	Input Voltage (limit)	6-20V		
	Digital I/O Pins	54 (of which 15 provide PWM output)		
	Analog Input Pins	16		
	DC Current per I/O Pin	20 mA		
	DC Current for 3.3V Pin	50 mA		
	Flash Memory	256 KB of which 8 KB used by bootloader		
	SRAM	8 KB		
	EEPROM	4 KB		
	Clock Speed	16 MHz		
	Length	101.52 mm		
	Width	53.3 mm		
	Weight	37 g		
	Qualification of bidders	The organization who bid for the tender should be an authorized service provider of quoted product line and an authorized letters from principals to certify these should be attached.		
5.3	Arduino Due		05	
	Country of Origin	Specify		
	Microcontroller	AT91SAM3X8E		
	Operating Voltage	3.3V		
	Input Voltage	7-12V		
	Input Voltage (limits)	6-16V		
	Digital I/O Pins	54 (of which 12 provide PWM output)		
	Analog Input Pins	12		
	Analog Output Pins	2 (DAC)		
	Total DC Output Current on all I/O lines	130 mA		
	DC Current for 3.3V Pin	800 mA		
	DC Current for 5V Pin	800 mA		
	Flash Memory	512 KB all available for the user		

		applications		
	SRAM	96 KB (two banks: 64KB and 32KB)		
	Clock Speed	84 MHz		
	Length	101.52 mm		
	Width	53.3 mm		
	Weight	36 g		
	Qualification of bidders	The organization who bid for the tender should be an authorized service provider of quoted product line and an authorized letters from principals to certify these should be attached.		
5.4	Raspberry Pi 2 Model B		5	
	Country of Origin	Specify		
	Processor Chipset	Broadcom BCM2836 ARMv7 Quad Core Processor powered Single Board Computer running at 900 MHz		
	Processor Speed	QUAD Core @900 MHz		
	RAM	1GB SDRAM @ 400 MHz		
	Storage	MicroSD		
	USB 2.0	4x USB Ports		
	Power	5V micro USB input. 800mA rating		
	GPIO	40 pin		
	Ethernet Port	Yes		
	Qualification of bidders	The organization who bid for the tender should be an authorized service provider of quoted product line and an authorized letters from principals to certify these should be attached.		
5.5	Microelektronika Easy PIC V7		6	
	Country of Origin	Specify		
	Supported MCUs	8bit DIP packing PICs with 8, 14, 18, 20, 28 and 40-pin footprints		
	USB 2.0 programmer/debugger	mikroProg™ hardware In-Circuit Debugger		
	Programming with ICD2/ICD3	RJ-12 connector compatible with Microchip® ICD2® and ICD3® external programmers		
	Additional Accessories:	Character LCD 2x16 with blue backlight		
		Graphic LCD 128x64 with TouchPad		
	Qualification of bidders	The organization who bid for the tender should be an authorized service provider of quoted product line and an authorized letters from principals to certify these should be attached.		

5.6	Microchip MPLABICD 3 In-Circuit Debugger		6
	Country of Origin	Specify	
	Accessories	MPLAB ICD3 In-Circuit Debugger Diagnostic Test Interface Module USB 2.0 to PC interface cable RJ-11 Cable from MPLAB ICD3 to target	
5.7	Multifunction DAQ		15
	Country of Origin	Specify	
	Brand	Specify	
	Model	Specify	
	General		
	Measurement Type	Voltage	
	Form Factor	USB	
	Operating System / Target	Linux Mac OS Pocket PC Windows	
	RoHS Compliant	Yes	
	Analog Input		
	Single-Ended Channels	8	
	Differential Channels	4	
	Analog Input Resolution	14 bits	
	Maximum Voltage Range		
	Range	-10 V - 10 V	
	Accuracy	7.73 mV	
	Minimum Voltage Range		
	Range	-1 V - 1 V	
	Accuracy	1.53 mV	
	On-Board Memory	512 Bytes or more	
	Analog Output		
	Number of Channels	2	
	Resolution	12 bits	
	Maximum Voltage Range		
	Range	0 V - 5 V	
	Accuracy	7 mV	
	Minimum Voltage Range		
	Range	0 V - 5 V	
	Accuracy	7 mV	
	Update Rate	150 S / s	
	Current Drive Single	5 mA	
	Current Drive All	10 mA	
	Digital I / O		
	Bidirectional Channels	12	
	Timing	Software	
	Logic Levels	TTL	
	Digital Input		
	Input Type	Sinking Sourcing	
	Maximum Voltage Range	0 V - 5 V	

	Digital Output			
	Output Type	Sinking Sourcing		
	Current Drive Single	8.5 mA		
	Current Drive All	102 mA		
	Maximum Voltage Range	0 V - 5 V		
	Counters / Timers			
	Counters	1		
	Max Source Frequency	5 MHz		
	Size	32 bits		
	Timebase Stability	50 ppm		
	Logic Levels	TTL		
	Timing / Triggering / Synchronization			
	Triggering	Digital		
	Physical Specifications			
	Length	Specify		
	Width			
	Height			
	I / O Connector	Screw terminals		
	USB Power	Bus-Powered		
5.8	Interactive Ultra Short Throw Multimedia Projector with Wall Mounting Accessory		2	
	Make	Should be a Branded Product (with ISO 9000 certification for manufacturing)		
	Model Name	(Specify)		
	Dimensions (WxDxH)	(Specify)		
	Weight	(Specify)		
	System Type	Ultra short Throw Projector		
	Brightness	3300 lumens or more		
	Aspect Ratio:	4:3 and 16:9		
	Native Resolution:	1280 x 800 (WXGA) or high		
	Lamp Type	(Specify)		
	Lamp Life:	4000 hours or more		
	Throw Ratio Range	0.3:1		
	Provided Mount	Compatible Wall Mount / Ceiling mount		
	Keystone Correction:	Automatic		
	Contrast Ratio	10,000:1 or more		
	Color Reproduction:	Up to 1.07 billion colors		
	Image Optimizer	Yes		
	Projection Lens Type:	Powered		
	PC-Less Interactive	Yes		
	PC-Less Presentation	Yes		
	Network LAN Wireless IEEE802.11b/g/n Support	Yes		
	Speakers Output	Stereo x 8W or more		
	Interfaces:	Computer Input: mini D-sub 15 pin x 1 or more		
		Computer Output: mini D-sub 15 pin x 1		
		Video input: HDMI x 2 or more		
		Composite video: RCA x 1		

		Audio input: 3.5mm Stereo mini jack x 1		
		Audio Output: 3.5mm Stereo mini jack x 1		
		Network LAN: RJ-45		
		USB connector: Type A x 1 (PC-free and other)		
		USB connector: Type B x 1 (USB Plug 'n Play)		
		RS232C Control: 9-pin D-sub		
	Compatibility:	VGA, SVGA, XGA, WXGA, WXGA+, SXGA, SXGA+, UXGA, MAC 16" NTSC, NTSC4.43, PAL, PAL-M, -N, SECAM, 480i, 480p, 576i, 720p, 1080i, 1080p		
	Operating Temperature	(10° to 35° C)		
	Power Supply Voltage:	240 V ±10%, 50/60 Hz		
	Power Consumption:	(Specify)		
	Fan Noise:	Less than 40dB		
	Security:	Kensington®-style lock		
	Remote Control Features	Source search selection, power, volume, A/V mute, freeze, menu, page up and down, auto, mouse functions		
	Remote Control operating distance	5m or more		
	Wall Mounting accessory	Should be provided		
	Warranty	3 Years Comprehensive		
	Bidders qualifications	The organization who bid for the tender should be an authorized service provider of quoted product line for at least five years and an authorized letters from principals to certify these should be attached.		
		The manufacturer should have minimum of ten years' experience in manufacturing the same brand		
		Having a service centre in Jaffna or close proximity area is preferred		
		Broachers/Technical documents for the bided items must be provided		
	Documentation	All relevant technical brochures forwarded with Tender Documents.		
		Comprehensive user guide		
		Complete track record on where the supplier has supplied the product		
		Recommendation letter about the product from the institutions where the supplier has supplied the product		
5.9	24" Wide LED Monitor		5	
	Make	Should be a Branded Product (with ISO 9000 certification for manufacturing)		
	Model	Specify		

	Country of Origin	Specify		
	Screen Size	24" Wide		
	Resolution	1920x1080		
	Signal Inputs(With connectors)	HDMI		
		DVI		
		Analog RGB		
	Backlight Technology	WLED		
	OS Compatibility	Mac & Windows		
	Stand	(Simple, Tilt) & Wall mount		
	Warranty	3Years		
	Qualification of bidders	The organization who bid for the tender should be an authorized service provider of quoted product line for at least five years and an authorized letters from principals to certify these should be attached.		
		The manufacturer should have minimum of ten years' experience in manufacturing the same brand		
		Having a service center in Jaffna or close proximity area is preferred		
		Broachers/Technical documents for the bided items must be provided		
		All relevant technical brochures forwarded with tender documents <ul style="list-style-type: none"> • Comprehensive user guide • Complete track record on where the supplier has supplied the product Recommendation letter about the product from the institution where the supplier has supplied the product.		
5.10	Tower Model Computer		52	
	Make	Should be a Branded Product (with ISO 9000 certification for manufacturing)		
	Model	Specify		
	Country of Origin	Specify		
	Chassis	Mini tower		
	Processor Family	4th Generation Intel® Core™ i5		
	External rated clock speed	3.40 GHz		
	Data width	64 bit		
	Number of cores	4		
	Level 1 cache size	2 x 64 KB instruction cache, 2 x 64 KB data caches or similar		
	Level 2 cache size	2 x 512 KB		
	Level 3 cache	6 MB shared		
	Main Memory	8 GB, DDR3 SDRAM (1600 MHz)		
	Chipset	Intel® H81 Express or equivalent		
	IO Ports	1 full height PCIe x16		

		3 full height PCIe x1		
		2 External USB 3.0 ports and		
		6 External USB 2.0 ports (2 in the front, 6 in the back)		
Network Interfaces		Integrated Ethernet LAN 10/100/1000 Mbps full duplex Ethernet Port with RJ45 connector		
Graphic Adapter & Interface		Integrated Intel® HD Graphics 4600,		
		Video ports : VGA/DVI and HDMI with dual display capability		
Hard Disk Drive		Minimum of 1 TB SATA (7200 rpm or better) disk drives		
Optical Storage		16X Max DVD RW with Dual Layer Write Capabilities		
Audio Interface		Integrated Realtek, High Definition Audio Codec or equivalent		
Monitor		23" WHD Monitor with WLED with direct AC power input (should be the same brand)		
Power supply Rated Capacity		265W rated for continuous operation with forced circulation cooling system		
Operating Voltage		180V to 250V		
Input frequency		47Hz-63Hz		
Security Features		Manual Lockable side openings		
Weight (lbs/kg)		Specify		
Keyboard		USB Keyboard		
Mouse		USB optical mouse		
Operating System		Preloaded and activated Windows 7 Professional (with Genuine activation Keys)		
		(Recovery Media should be provided)		
Warranty		3 years comprehensive warranty inclusive of Parts and Labour for ALL system components and peripheral devices supplied		
Qualification of bidders		The organization who bid for the tender should be an authorized service provider of quoted product line for at least five years and an authorized letters from principals to certify these should be attached.		
		The manufacturer should have minimum of ten years' experience in manufacturing the same brand		
		Having a service centre in Jaffna or close proximity area is preferred		
		Broachers/Technical documents for the bided items must be provided		
		All relevant technical brochures forwarded with tender documents		
		Comprehensive user guide		
		Complete track record on where the		

		supplier has supplied the product		
		Recommendation letter about the product from the institution where the supplier has supplied the product.		
5.11	UPS		54	
	Model	Specify		
	Country of Origin	Specify		
	Output power rating	1.2 KVA		
	Output voltage	220V/240V +/- 5		
	Input voltage range	180V-260V AC,50Hz		
	Mode of operation	line interactive with voltage conditioning		
	output	50Hz sine wave		
	Output socket	4 IEC outlets		
	Battery backup time	8-10 min at full load and 12-16 min at half load		
	Battery type	Maintenance-free sealed- Lead-Acid battery with suspended electrolyte; Leak proof		
	Other technical features	Surge and Noise protection		
		Should have audible fault detection / alarm		
		LED status display with On Line, On Battery, Charge level, Replace Battery and Overload indicators		
		Should have automatic measure to prevent complete run down of battery		
		Should have management interface		
	Other features	The organization who bid for the tender should be an authorized service provider of quoted product line for at least five years and an authorized letters from principals to certify these should be attached.		
		The manufacturer should have minimum of ten years experience in manufacturing the same brand		
		Having a service centre in Jaffna or close proximity area is preferred		
		Broachers/Technical documents supporting offered features must be provided		
		All relevant technical brochures forwarded with tender documents		
		<ul style="list-style-type: none"> Comprehensive user guide 		
		<ul style="list-style-type: none"> Complete track record on where the supplier has supplied the product 		
		<ul style="list-style-type: none"> Recommendation letter about the product from the institution where the supplier has supplied the product. 		

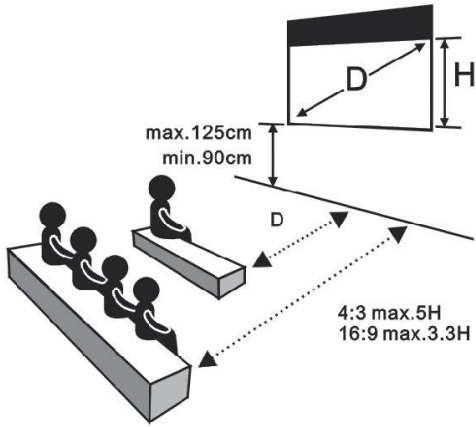
	Warranty	Two year comprehensive – Warranty should cover the whole unit including battery.		
5.12	Laptop		8	
	Make	Should be a Branded Product (with ISO 9000 certification for manufacturing)		
	Model Name			
	Dimensions (WxDxH)			
	Weight			
	System Type	Notebook		
	Processor	Intel Core i5 (5 th Generation)		
	Processor Speed	(up to 2.70 GHz, 3 MB L3 cache, 2 cores/4 threads)		
	Video Card	Intel® HD Graphics or equivalent		
	RAM	8GB Dual Channel DDR3L 1600MHz (4GBx2)		
	Hard Drive	1TB – 5400 rpm SATA		
	Optical Storage	DVD±RW		
	Display	15.6-inch HD resolution (1366 x 768) LED-Backlit Display Wide Viewing Angle (IPS)		
	Audio Output	Integrated sound		
	Speakers	Stereo – built in		
	Network adapter	Ethernet, Fast Ethernet, Gigabit Ethernet		
	Wireless LAN support	Built in + built in antenna		
	Supported wireless protocols	IEEE 802.11ac, IEEE 802.11b, IEEE 802.11g, IEEE 802.11n (draft)		
	Bluetooth	Bluetooth 4.0 + built in antenna		
	Connectivity Interfaces – USB	Three or more USB ports with Two or more Super-Speed USB 3.0		
	Connectivity Interfaces – Audio/Video	VGA x 1, HDMI™ 1.4a x 1, Stereo microphone in x 1, Stereo headphone x1		
	Camera	Integrated HD Webcam		
	Connectivity Interfaces Networking	1 x network – Ethernet 10 Base-TX/1000Base-T – RJ-45		
	Power	AC 160 – 230 V (50/60HZ)		
	Battery	Lithium Ion 4-Cell		
	Battery Capacity	Specify		
	Operating System	Preloaded and activated Windows 10 Home 64-bit English (with Genuine activation Keys)		
	Warranty	3 Years Comprehensive		
	Bidders qualifications	The organization who bid for the tender should be an authorized service provider of quoted product line for at least five years and an authorized letters from principals to certify these should be attached.		

		The manufacturer should have minimum of ten years experience in manufacturing the same brand		
		Having a service centre in Jaffna or close proximity area is preferred		
		Broachers/Technical documents for the bided items must be provided		
	Documentation	All relevant technical brochures forwarded with Tender Documents.		
		Comprehensive user guide		
		Complete track record on where the supplier has supplied the product		
		Recommendation letter about the product from the institutions where the supplier has supplied the product		
5.13	EV3 Core and Expansion Set + Software Classroom 30 Student Pack		01	
	<ul style="list-style-type: none"> • 15 LEGO® MINIDSTORMS® Education EV3 Core Sets • 15 LEGO MINIDSTROMS Education EV3 Expansion Sets • 1 EV3 Software and Site License 			
5.14	Microsoft Office Academic 2013		8	
	Standard Microsoft Office Academic 2013			
5.15	Duplo Machine		1	
	Master-making/Printing methods	High-speed digital master-making / Fully automatic one pass two color stencil printing		
	Original type	Book, Sheet		
	Scanning area (max.)	297mm x 432mm		
	Paper supply capacity	Minimum 1000 sheets (64g/m2)		
	Print paper weight	Standard: 46g/m2 – 210g/m2, When using the Card Feed Kit (option): 100g/m2–400g/m2		
	Image processing mode	Line, Photo (Standard/Portrait/Group), Duo (Line/Photo/Shadow off), Pencil (Darker/Lighter)		
	Resolution	Scanning resolution: 600dpi x 600dpi Printing image resolution: 600dpi x 600dpi		
	Master-making time (for A4/Portrait/100% reproduction ratio)	Dual color print: Approx. 57 seconds Single color print with drum 1: Approx. 24 seconds Single color print with drum 2: Approx. 34 seconds		
	Printing area (max.)	291mm x 413mm		
	Print speed	60ppm – 150ppm, Five steps variable from the control panel (60, 80, 100, 110, 120ppm) 150ppm: Selectable from the touch panel		
	Ink supply	Fully automatic (1000ml per cartridge)		

	Master supply/Disposal	Fully automatic (approx. 220 sheets per roll)		
	Master disposal box capacity	Approx. 80 sheets per box		
	User interface	LCD Touch Panel with Progress Arrow indicators		
	Input port	USB2.0*3, Ethernet (100BASE-TX, 10BASE-T) *4		
	Sound level (100ppm at operating position)	Less than 65dB		
	Power source	220V – 240V AC, 50Hz – 60Hz		
5.16	Wide Angle Camera		01	
	<ul style="list-style-type: none"> • Up 1080p video calling at 30 frames-per-second (up to 1920 x 1080 pixels) • H.264/SVC video compression • 90/120degree field of view • Zoom to 4X in 1080p • Autofocus • External privacy shutter • Built-in dual stereo mics with automatic noise reduction • Automatic low-light correction • Hi-Speed USB 2.0 certified (USB 3.0 ready) Tripod-ready universal clip fits laptops, LCD or CRT monitors			
5.17	Photocopier		01	
	Copying Process	Indirect Electrostatic Photographic Method		
	Copying Type	Laser Electronic		
	Original Reading Method	CCD Line Sensor		
	Copy/Print Resolution	2400x600dpi		
	Copy/Print Speed	35 ppm or above		
	Duty Cycle	Minimum 120,000 Copies		
	Multiple Copying	Up to 999 copies		
	Acceptable Paper Size	Minimum 12"x18"		
	Memory	Main : 256MB/Page: 32MB/40GB HDD		
	Reduction/Enlargement	25% to 400%		
	Bypass	100-Sheet		
	Control Panel	Half VGA Tiltable LCD Touch Panel, Key Top		
	Paper Supply	Up to 3700 Sheet Input Capacity Standard 2x550 sheet Cassettes		
	Toner Control	Automatic Toner Density Monitoring		
	Print Support	PCL6 & PostScript 3		
	Operating Systems	Windows 7 or above		
	Connectivity	10BaseT/100BaseTX Ethernet, Wireless LAN, USB.		
	Scan Resolution	600 dpi or above		
	Scan Speed	50 OPM		
	File Format	TIFF-MMR, TIFF-S, PDF, JPEG		
	Scan Agent	Scan to file (USB), Scan to e-mail, Scan to e-file.		

	Operation Method	Touch Screen Control Panel or Client PC		
	Reversing Auto Document Feeder (RADF)	Simplex Originals, Duplex Originals		
	Printing & Scanning Module	Should be include		
5.18	Multimedia Projector with Screen		2	
	<p>Display system -3 LCD system</p> <p>Display device : Size of effective display area- 0.63” (16.0 mm)</p> <p>Display device : Number of pixels –XGA (1024 x 768)</p> <p>Display device : Aspect ratio – 4:3</p> <p>Projection lens : Focus –Manual</p> <p>Projection lens : Zoom > Powered / Manual –Manual</p> <p>Projection lens : Zoom > Ratio –Approx. 1.2 x</p> <p>Projection lens : Lens shift > Powered / Manual</p> <p>Projection lens : Lens shift > Range > Vertical</p> <p>Projection lens : Lens shift > Range > Horizontal</p> <p>Projection lens : Throw ratio – 1.47:1 to 1.77:1</p> <p>Light source : Type –Lamp</p> <p>Light source : Wattage -210 W type</p> <p>Light source : System</p> <p>Recommended lamp replacement time (The figures are the expected maintenance time and not guaranteed. They will depend on the environment or how the projector is used) : Lamp mode: High -3000 H</p> <p>Recommended lamp replacement time (The figures are the expected maintenance time and not guaranteed. They will depend on the environment or how the projector is used) : Lamp mode: Standard – 5000 H</p> <p>Recommended lamp replacement time (The figures are the expected maintenance time and not guaranteed. They will depend on the environment or how the projector is used) : Lamp mode: Low -7000 H</p> <p>Recommended lamp replacement time (With two lamp sequential use) : Filter cleaning / replacement cycle(The figures are the expected maintenance time and not guaranteed. They will depend on the environment or how the projector is used) (Max.) – 1000 H (cleaning)</p> <p>Screen size – 30” to 300”</p> <p>Screen size – (0.76 m to 7.62 m)</p> <p>Light output : Lamp mode: High – 2300 lm</p> <p>Light output : Lamp mode: Standard- 1800 lm(The values are 80estimate)</p> <p>Light output : Lamp mode: Low -1500 lm(The values are 80estimate)</p> <p>Color light output : Lamp mode: High – 2300 lm</p> <p>Color light output : Lamp mode: Standard – 1800 lm(The values are 80estimate)</p> <p>Color light output : Lamp mode: Low – 1500 lm(The values are 80estimate)</p> <p>Contrast ratio (full white / full black)(This value is average) – 2500:1</p> <p>Input : Composite video > BNC</p> <p>Input : Composite video > Pin Jack – 1</p>			

<p> Input : S video > Mini DIN 4-pin Input : Computer > 5BNC Input : Computer > Mini D-sub 15-pin -1 Input : Component Input : DVI-D (HDCP) Input : HDMI (HDCP) – 1 Input : Audio > Pin Jack (L/R) Input : Audio > Stereo mini jack – 1 Output : Monitor > Mini D-sub 15-pin Output : Audio(Works as an audio switcher function. Output from a selected channel; not available in standby) > Stereo mini jack I/O, Control, Others : RS-232C > D-sub 9-pin I/O, Control, Others : LAN > RJ-45, 10BASE-T/100BASE-TX I/O, Control, Others : IR (Control S) input > Stereo mini jack, Plug in power DC 5 V I/O, Control, Others : IR (Control S) output > Stereo mini jack I/O, Control, Others : USB > Type A I/O, Control, Others : USB > Type B I/O, Control, Others : Microphone input > Mini jack I/O, Control, Others : Wireless Speaker 1 W x 1 (monaural) Keystone correction (Max.)(Depends on resolution) : Vertical+/- 30° Keystone correction (Max.)(Depends on resolution) : Horizontal Power requirements – AC 100 V to 240 V Power requirements – 2.9 A to 1.2 A, 50/60 Hz Power consumption : AC 100 V to 120 V > Lamp mode: High – 275 W Power consumption : AC 100 V to 120 V > Lamp mode: Standard – 228 W(The values are 81stimate) Power consumption : AC 100 V to 120 V > Lamp mode: Low -195 W(The values are 81stimate) Power consumption : AC 220 V to 240 V > Lamp mode: High – 263 W Power consumption : AC 220 V to 240 V > Lamp mode: Standard – 221 W(The values are 81stimate) Power consumption : AC 220 V to 240 V > Lamp mode: Low 189 W(The values are 81stimate) Standby mode power consumption : AC 100 V to 120 V > Standard Standby mode power consumption : AC 100 V to 120 V > Low Standby mode power consumption : AC 220 V to 240 V > Standard Standby mode power consumption : AC 220 V to 240 V > Low Heat dissipation : AC 100 V to 120 V – 939 BTU Heat dissipation : AC 220 V to 240 V – 898 BTU Dimensions (W x H x D) (without protrusions) -315 x 75 x 230.5 mm Dimensions (W x H x D) (without protrusions) -12 13/32 x 2 15/16 x 9 1/16 in Mass – 2.5 kg / 5 lb 7 oz Supplied accessories : Remote commander –RM-PJ8 Supplied accessories : Wireless LAN Module Optional accessories : Replacement lamp – LMP-D213 </p>		
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	<p>Screen</p> 		
5.19	Printer	6	
	<p>Functions Print, copy, scan Multitasking supported Yes Print speed black: Normal: Up to 18 ppm (Exact speed varies depending on the system configuration, software program, and document complexity.) First page out (ready) Black: As fast as 8.5 sec (Exact speed varies depending on the system configuration, software program, and document complexity.) Duty cycle (monthly, A4) Up to 8000 pages (Duty cycle is defined as the maximum number of pages per month of imaged output.) Recommended monthly page volume 250 to 2000 (HP recommends that the number of pages per month of imaged output be within the stated range for optimum device performance, based on factors including supplies replacement intervals and device life over an extended warranty period.) Print technology - Laser Print quality black (best) Up to 600 x 600 dpi (1200 dpi effective) Print languages Host-based Display Dual digit numeric LED Processor speed 400 MHz Automatic paper sensor No Replacement cartridges HP LaserJet Black Print Cartridge CC388A Minimum system requirements</p> <ul style="list-style-type: none"> • Microsoft® Windows® 7, Windows Vista®, Windows® XP, Windows® Server 2003: 1 GHz processor, 1 GB RAM, 700 MB free hard disk space, SVGA 800 x 600 with 16-bit colour display, Internet Explorer 5.5 or higher, USB or Ethernet port • Mac OS X v 10.4, v 10.5, v 10.6 • PowerPC G3, G4, G5, or Intel processors • 1 GB RAM • 200 MB available hard disk space 		

	<ul style="list-style-type: none"> • CD-ROM drive • USB or network port <p>Compatible operating systems Windows 8, Windows 7, Windows Vista, Windows XP, Windows Server 2003, Windows Server 2008 Mac OS X v10.4, v10.5, v10.6 Linux (see hplip.net) (For Windows® Server 2003 and Windows® Server 2008, add print and scan drivers only)</p>		
5.20	External Hard disk	2	
	<p>Hard Disk-1tb USB 3.0(2y) Weight:320.00GM Size: 130.8mm×80.8mm×21.7mm (1TB); Op. Voltage: USB DC 5V Op. Temperature: 5°C (41°F) to 55°C (131°F) Storage Media: 2.5 Weight: 256g Certificates: CE, FCC, BSMI RPM: 5400 Buffer: 8MB Interface: USB 2.0/3.0 Power Saving Mode: 10 mins Features: SuperSpeed USB 3.0 compliant and backwards compatible with USB 2.0 Durable anti-shock silicone outer shell Connection bandwidth up to 5Gbits per second One Touch Auto-backup button Easy Plug and Play operation – no drivers required Extra-large storage capacity USB powered – no external adapter necessary LED power / data transfer activity indicator D power / data transfer activity indicator</p>		
6.1	Demonstration Table	15	
	<p>Timber works shall be season teak. Dimensions of furniture are given in the drawing. Timber to be applied two coats of wood preservative. Locks to be approved quality with duplicate keys. Butt hinges and handle to be oxidized brass. Timber to be furnished with one coat of sanding sealer and two coats of polyurethane varnish. See Drawing -6.1</p>		
6.2	Work Bench	15	
	<p>Timber works shall be season teak. Dimensions of furniture are given in the drawing. Timber to be applied two coats of wood preservative. Locks to be approved quality with duplicate keys. Butt hinges and handle to be oxidized brass. Timber to be furnished with one coat of sanding sealer and two coats of polyurethane varnish. See Drawing -6.2</p>		

6.3	Wooden Reading Table	15	
	<p>Timber works shall be season teak. Dimensions of furniture are given in the drawing. Timber to be applied two coats of wood preservative. Locks to be approved quality with duplicate keys. Butt hinges and handle to be oxidized brass. Timber to be furnished with one coat of sanding sealer and two coats of polyurethane varnish. See Drawing -6.3</p>		
6.4	Laboratory Stool	100	
	<p>Timber works shall be season teak. Dimensions of furniture are given in the drawing. Timber to be applied two coats of wood preservative. Locks to be approved quality with duplicate keys. Butt hinges and handle to be oxidized brass. Timber to be furnished with one coat of sanding sealer and two coats of polyurethane varnish. See Drawing -6.4</p>		
6.5	Table – Electrical Lab	16	
	<p>Timber works shall be season teak. Dimensions of furniture are given in the drawing. Timber to be applied two coats of wood preservative. Locks to be approved quality with duplicate keys. Butt hinges and handle to be oxidized brass. Timber to be furnished with one coat of sanding sealer and two coats of polyurethane varnish. Provide two G clamp for joint two table back to back. The sockets should be 13A. All 12 sockets should be powered from two 16A wires. See Drawing -6.5</p>		
6.6	Stool – Electrical Lab	64	
	<p>Timber works shall be season teak. Dimensions of furniture are given in the drawing. Timber to be applied two coats of wood preservative. Locks to be approved quality with duplicate keys. Butt hinges and handle to be oxidized brass. Timber to be furnished with one coat of sanding sealer and two coats of polyurethane varnish. See Drawing -6.6</p>		
6.7	Computer Table	60	
	See Drawing -6.7		
6.8	Computer Chair	60	
	<ul style="list-style-type: none"> • Material:Plastic • Size:W65*D28*H56.5CM • Base:250 mm chrome base • Gas lift: 100 mm chrome • Armrest: With armrest • Feeling: comfortable and relax • Color: Black or blue • Warranty: 3 year 		

7.1	Filing Cabinet-Steel	15	
	<ul style="list-style-type: none"> • Drawer – 4 • Gauge – 24 • Size – approximately (135cmx63cmx48cm) • Lock – 3 Point Lock • Warranty :10 years 		
7.2	Cupboard-Steel	15	
	<ul style="list-style-type: none"> • Material : High quality Cold Roll Steel Plate Q235 • Thickness :0.5-1.0mm • Surface Treatment: Acidwashed,PhosphorizedandElectrostaticpowder • Size : H1800*W850*D390mm • Lock : Cam lock ,Code lock ,Pad lock ,Coin lock ,Electronic lock • Loading Capacity : 202pcs/20GP 489pcs/40HQ • G.W. : 40~60KGS • Color :gray color • Warranty :10 years 		
7.3	Cupboard-Steel-Glass fronted	15	
	<ul style="list-style-type: none"> • 5 shelves with 2 partitioned glass door • Size – approximately W900*D400*H1800 • Material – High quality cold-rolled steel plate • Surface Treatment – Electrostatic powder coating, epoxy resin finish • Environment Protection Non – Phosphorus, water filtering system • Lock – 3 Point Lock • Warranty :10 years 		
7.4	Wooden Table	10	
	<ul style="list-style-type: none"> • Desk Top: High quality MDF with Laminated • Frame: Cold rolling steel sheet,Metal with powder coated, Strong • With Two Drawers • Desk Size: 1200L*700W*750Hmm • Warranty :10 years 		
7.5	Cushion Chair	10	
	<ul style="list-style-type: none"> • Sit comfortably in this Office Star Visitors Chair • Visitors chair features a thick, padded seat and back • Steel frame and legs make this chair sturdy • Overall Dimensions: 32 H x 23 W x 25 D • Seat Size: 19-inch W x 19.5-inch D x 3.5-inch T • Back Size: 19-inch W x 14.5-inch H x 3.5-inch T • Arms Max Inside: 19-inch • Arms to Floor Min: 25.25-inch • Seat Height Min: 18.5-inch 		
7.6	Conference Table with Chairs	1	
	<p>Conference table Material: MDF faced with wood veneer, finished by painting Hardware accessories with high quality; Scratch resistant; Size(mm):7000*3000*760 mm Color:walnut/ reddish Conferencechairs (30)</p>		

	<p>Size: High back Material: Seating upholstered by Quality top leather/ PU High Quality Modeled Sponge Molded Plywood Shell Stainless steel arm frame with leather o PU upholstered Gas Lift Instant Height Adjustment Multi functional Mechanism, Tilt Tension Control 5 Star Aluminum Base With Durable PP Castors Features: 5 Star Mirror stainless steel frame 360 Degree Swivel Rotation Dual PP Wheel Casters for Easy Movement Meets or exceed ANSI/BIFMA standards Color: walnut/ reddish Style: Executive chair Warranty – 10 years</p>		
7.7	Sofa Settee	2	
	<p>Sofa Legs Stylish stainless steel base, sturdier and more elegant.</p> <p>Fine Stitches Enhanced quality upholstery and fine stitching workmanship.</p> <p>Pocket Spring High density polyurethane foam come with pocket spring, to ensure a long lasting shape of the sofa, and provide resilience for greater support and best seating comfort even for long seating hours.</p> <p>Sponge High density polyurethane sponge, provides soft and cushiony seating feeling.</p> 		
7.8	Book Shelf (Library)	20	
	See Drawing 7.8		
7.9	Wood Almirah (Library)	7	
	See Drawing 7.9		
7.10	Book ends	200	
	See Drawing 7.10		
7.11	Reading Chair (Library)	20	
	See Drawing 7.11		

3. Bidders Response

Item No	Name and Minimum Specifications		Bidder 's Response		If "NO" indicate the specification offered
			Yes	No	
1.1	Measuring Wheel				
	Measuring range	0 - 9999.99 m			
	Wheel Diameter	300 mm – 350 mm			
	Height	1.0 – 1.1m			
	Weight	2 - 4 kgs,			
	Guiding rod	Can be folded			
	Transport case	Should be provided, Pistol grip handle with integral brake lever			
	Warranty	Minimum five years			
	Sufficient Track record from the Supplier				
	After Sales Service	Should be available			
1.2	Land Chain Arrow				
	Galvanized steel, 400mm long, 4.5mm diameter, Painted in red and white,				
1.3	Change plate				
	Galvanized steel, yellow in color, Durable				
1.4	Surveyor's umbrella for theodolite				
	Yellow, heavy-duty, water-resistant, vinyl, 63 inch spread, 8 foot 3section pole with baked enamel finish, tapered end for erecting on land				
1.5	Mallet				
	Wooden				
1.6	Crowbar				
	Steel				
1.7	Survey boots				
	Water-resistant, rubber				
2.1	Hydrogen Bubble Flow Visualisation System				
	Pulse generator				
	on and off periods				
	Light source	12 high intensity LEDs			
	Cathodes	35, 50 and 75mm lengths			
	Flow table capacity	20 litres (nominal)			
	Current generator range	0 to 100mA			
	Working section	length: 425mm			
	Width	285mm			
	Depth	36mm			
	Documentation	All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the			

		product, Recommendation letter about the product from the institutions where the supplier has supplied the product			
	After Sales service	Should be available			
2.2	Soil/Water Model Tank				
	Soil/Water Model Tank comprising: bench mounted narrow sand tank 1000mm x 25mm x 450mm (L x W x D), with one large side formed from a sheet of transparent material; metal frame supporting sump tank from which water is pumped via a flow meter to the soil surface; flood and drip surface outlets (two can be used together by fitting a Y-connector); overflow system to remove surface water to sump; complete with user instructions manual.				
2.3	Centrifugal Pump Demonstration Unit + interface unit				
	<ul style="list-style-type: none"> • A small-scale centrifugal pump demonstration unit, comprising of a water reservoir, the pump, control valves and interconnecting pipe work all mounted on a stainless steel base. • Equipped with electronic measurement sensors for pump head pressure, suction, flow-rate and water temperature. • Transparent pump volute for visibility • Capable of being linked to a PC (not supplied) via the IFD7 interface console (available as an essential accessory). • Supplied with software providing full instructions for setting up, operating, calibrating and performing the teaching exercises. Facilities are provided for logging, processing and displaying data graphically. Full theoretical back-up is included together with a student questions and answers session. 				
	Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product				
	After Sales service: Should be available				
2.4	Demonstration Lysimeter				
	Lysimeter Apparatus comprising:□ base and inner disc to support soil filled container and plant, resting on a hydraulic sensing device located in the base that is connected to a graduated water column mounted above the lysimeter; complete with spare plant containers, calibration weights, user instructions and manual.				
	Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product				
	After Sales service: Should be available				
2.5	Series and Parallel Pump + interface unit				
	• Demonstration Unit A small-scale series/parallel pump				

	<p>demonstration unit, comprising of a water reservoir, two pumps, control valves and interconnecting pipe work, all mounted on a stainless steel base.</p> <ul style="list-style-type: none"> • Equipped with electronic measurement sensors for pump head pressure (2 off), suction, flow- rate and water temperature. • Transparent pump volutes for visibility. • Inlet valve throttling demonstrates air release. • Supplied with different easily interchangeable impellers. • Capable of being linked to a PC (not supplied) via a dedicated interface console. • Supplied with software providing full instructions for setting up, operating, calibrating and performing the teaching exercises. Facilities for logging, processing and displaying data graphically. • Full theoretical back-up together with a student questions and answers session. 			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
	<p>After Sales service: Should be available</p>			
2.6	Series Liquid Manometers			
	<ul style="list-style-type: none"> • A range of manometers measuring differential water pressures up to approximately 12.5m H₂O. Scales are graduated in 1mm divisions. • H12-1: 1 metre scale differential open water manometer • H12-2: 1 metre scale differential pressurised water manometer (the air space above the tubes can be pressurised with the pump supplied) • H12-3: 1 metre scale differential water over Mercury manometer • H12-4: 500mm scale differential water over Mercury manometer • H12-5: 500mm scale differential kerosene over water manometer 			
2.7	River Flow Simulator			
	<ul style="list-style-type: none"> • A transparent, inclinable flow channel through which water can be re-circulated by a pump over a mobile bed to demonstrate the whole range of bedforms from incipient particle movement to bed wash-out. • Three different discharge rates can be selected (and measured) within the range 0.2 to 0.6 litres/sec. • The channel slope can be adjusted within the range 0-10%. • The working section of the channel is 1.55m long, 78mm wide and 110mm deep. • The equipment is self-contained and may be bench-mounted in either the classroom or laboratory by virtue of its portability.□ 			

	<ul style="list-style-type: none"> • A model undershot weir and bridge pier are included for local erosion demonstrations.□ • A water level gauge is supplied to calibrate the overshot weir. 			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
	After Sales service: Should be available			
2.8	Pitot Tubes + Adjustable tripod stand			
	Tubes are in stainless steel and mounted on a supporting body with scale. They are supplied with a watertight gland for installation below water level. In order to measure velocity, the Pitot tubes must be connected to a manometer.			
2.9	Drainage and Seepage Tank			
	<ul style="list-style-type: none"> • A self-contained facility for study of flow through permeable media. The tank has a toughened glass front and aluminium back to permit the insertion of pressure tappings as required. Six tapping points are provided. The design of the side supports allows free access to the interior with minimum sight obstruction. Supply includes sump tank, pump, starter and control valve. Also a dye injection system and a selection of models. • Comprehensive instruction manual with data sheets and student experiments. 			
3.1	Particle Size Analyser			
	<ul style="list-style-type: none"> • Should be able to draw the Particle Size Distribution (PSD-Volumetric) for particles ranging from a size of 25 nm to 2 mm. • PSD should be possible to be analysed from a sample containing 0.5 ppm of solids (wet) • Possibility to test high concentration samples preventing dispersion or agglomeration (more than 1000 ppm) • Should be able to analyse samples of volumes as low as 25 mL • Facility should come with data acquisition and logging, software for analysis and management of data and a computer facility. • Samples could be within a pH range of 5.0 to 9.0 • Should be able to analyse dry samples as well (with a volume as low as 0.5 mL to 10 mL) • Should come with auto-sampler 			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
	After Sales service: Should be available			

3.2	Total Organic Carbon analyser			
	<ul style="list-style-type: none"> • Fast measurements time (5 - 20 minutes) • Multipoint calibration from a single high standard (10 point calibration) • Should be able to measure NPOC (TOC measurements by IC removal using acid sparging), TC (Total Carbon), IC (Inorganic Carbon), TN (Total Nitrogen -may be an additional unit). • Should use the EPA approved method using 680 centi. high temperature catalytic oxidation method (SM 5310B). • Should come with auto-sampler 			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
	After Sales service: Should be available			
3.3	Analytical Balances: 4 digit precision (grammes)			
	<ul style="list-style-type: none"> • Should be able to read mass between 0.0001 - 200 g with a readability of 0.0001 g, linearity of +/- 0.0002 g and repeatability of +/- 0.0002 g. • Easy to clean with removable glass draft shield • Built-in overload protection • Quick Stabilisation time (2s) • External calibration • Density measurement Kit for analytical balance (1 kit) 			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
	After Sales service: Should be available			
3.4	Analytical Balances: 4 digit precision (grammes)			
	<ul style="list-style-type: none"> • Should be able to read mass between 0.0001 - 200 g with a readability of 0.0001 g, linearity of +/- 0.0002 g and repeatability of +/- 0.0002 g. • Easy to clean with removable glass draft shield • Built-in overload protection • Quick Stabilisation time (2s) • Fully automatic and motorized calibration and adjustment • Functions: general weighing, density, percentage, check weighing, peak hold, counting and average 			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has</p>			

	supplied the product			
	After Sales service: Should be available			
3.5	Calibration mass: 1mg - 200g			
	<ul style="list-style-type: none"> Should comprise of 200g, 100g, 50g, 20g, 10g, 5g, 2g, 1g, 500mg, 200mg, 100mg, 50mg, 20mg, 10mg, 5mg, 2mg, 1mg (in a set) Must be either ultra class, or class 1 Tweezer for mg weights 			
3.6	Calibration mass: 50g - 50kg			
	<ul style="list-style-type: none"> Should comprise of 50g, 100g, 200g, 500g, 1000g, 2kg, 5kg, 10kg, 20kg, 50kg (in a set or individual mass) Must be either ultra class, or class 1 			
3.7	Electronic Floor Balances			
	<ul style="list-style-type: none"> Should be able to measure upto 80 kg Minimum readability 50 g 			
3.8	Water Bath: Stable Temperature			
	<ul style="list-style-type: none"> Volume capacity must be more than 20 L. Maximum temperature maintained in the bath must be 100 centi. Digital timer must be included to monitor the process Temperature must be adjustable 			
3.9	Shaking Water Bath: Stable Temperature			
	<ul style="list-style-type: none"> Volume capacity must be more than 10 L. Temperature must be adjustable and should be maintained throughout a process as well. Should be able to reach a maximum temperature of 100 centi. 			
3.10	Immersion circulator with clamp:			
	<ul style="list-style-type: none"> Temperature should be able to be varied between -40 and 100 centi. 			
	Documentation			
	All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product			
	After Sales service: Should be available			
3.11	Chest type Freezer			
	<ul style="list-style-type: none"> Should have a volume capacity of at least 650 L. 			
	Documentation			
	All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product			
	After Sales service: Should be available			
3.12	Stable temperature Refrigerators			
	<ul style="list-style-type: none"> Should have a volume capacity of at least 1000 L. 			
	Documentation			

	All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product			
	After Sales service: Should be available			
3.13	Ice-cube Maker			
	Specify			
	Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product			
	After Sales service: Should be available			
3.14	Dry-Ice Chest			
	<ul style="list-style-type: none"> • Volume must be between 2 - 3 Cubic Feet • Must be portable 			
	Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product			
	After Sales service: Should be available			
3.15	Volumetric Automatic Titrator (Electronic)			
	<ul style="list-style-type: none"> • Dispensing accuracy must be less than 0.2 % of the total volume • Capacity should cater for 20 mL 			
	Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product			
	After Sales service: Should be available			
3.16	Direct Reading Flow meter for air			
	<ul style="list-style-type: none"> • Need three meters to measure three different ranges of flows(one each) 0.05 - 1 LPM, 1 - 10 LPM, 10 - 100 LPM • Must be portable and directly readable • Should be able to be operated at a maximum pressure of 8 bar 			
3.17	Bottletop Dispenser (Burette)			
	<ul style="list-style-type: none"> • With a maximum volume of 50 mL • Titration readability must be 0.01 micro-litre • Should be able to be used for concentrated Acids (Sulphuric, Nitric acids etc) 			

	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
	<p>After Sales service: Should be available</p>			
3.18	Burettes			
	<ul style="list-style-type: none"> • All must be able to be used with acids and bases (Class A). • 3 Burettes of 100mL capacity (with subdivisions about 0.2mL) • 3 Burettes with a capacity of 50 mL (with subdivisions about 0.1 mL) • 2 Burettes with a Capacity of 25 mL (with subdivisions about 0.1 mL) • 2 Burettes with a capacity of 10 mL (with Subdivisions about 0.05 mL) • 2 Burettes with a capacity of 500 mL (with subdivisions about 0.5 mL) 			
3.19	Peristaltic Pumps			
	<ul style="list-style-type: none"> • Must be variable speed pump (including a range of 0.01 - 3000mL/min) • Must have a digital display to vary the flow rates • Must have the drive, pump Head and tubing (4 sets of tubing of 4 m in leangth, each) • Must be portable and that doesn't need permanent fixing) • Optional: with the facility to have multiple pump heads 			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
	<p>After Sales service: Should be available</p>			
3.20	Peristaltic Pumps			
	<ul style="list-style-type: none"> • Should cater for variable flow rates ranges (0.1 - 500 mL/min, 200 - 4000 mL/min), 3 in each range. • Option to add multiple pump heads • Must come with pump head and tubing (10 sets of tubing of 4 m in leangth, each) • Should be portable and must be a desk-top model (that doesn't need permanent fixing) 			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
	<p>After Sales service: Should be available</p>			

3.21	Pipette (adjustable Volume)			
	<ul style="list-style-type: none"> Pipettors must be adjustable volume gradings for different ranges (3 of [1 - 10 micro-litre], 3 of [2 - 200 micro-litre], 2 of [100 - 1000 micro-litre], 2 of [0.5 - 5 mL] and 2 of [1 - 10 mL]) Each should be accompanied by a set of tips of relevant sizes (for each range pipettor) Should be able to be used to handle acids and bases 			
3.22	Laboratory Autoclave			
	<ul style="list-style-type: none"> The capacity must be 50 L. Must be able to handle a maximum temperature of at least 130 centigrades. Should have timer, and automatic functions, including cooling function after completing the cycle. Vertical loading is preferred 			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
	After Sales service: Should be available			
3.23	Sterilizer			
	<ul style="list-style-type: none"> Must have a capacity of about 10 L Must have automatic functions and timer 			
3.24	Manometers			
	<ul style="list-style-type: none"> Should be able to use for liquids and gases 2 manometers with a range of 0 - 30 psi and 2 meters with a range of 0 - 100 Psi Resolution of the first range should be around 0.01 psi while the resolution of the second range must be at least 0.1 psi Manometers should be accompanied by the relevant tubing (2 sets for each manometer) 			
3.25	Pressure transmitters			
	<ul style="list-style-type: none"> Should be compatible with gases and liquids usage (should be able to be inserted in soil columns as well) The range should be at least 0 - 200 psi The cables should be at least 2 m long 			
3.26	Tweezer Set			
	<ul style="list-style-type: none"> Must contain curved tweezers, straight tweezers, blunt tweezers and sharp tweezers (2 sets required) 			
3.27	Heating Blocks and heater			
	<ul style="list-style-type: none"> The dry block heater should have space for at least 4 blocks The maximum temperature required is at least 150 centigrades The blocks of different hole sizes should also be accompanied (two in each sizes -mention the available sizes) 2 sets of vials for each block should also be included in the 			

	quotation (mention the vial sizes)			
3.28	Bunsen Burners			
	<ul style="list-style-type: none"> Two burners for each range of BTU output (1. 1000 - 1200, 2. 2000 - 3000) with adjustable orifice Each burner must be accompanied with one burner tripod, 2 wire gauze and two test tube clamps Two electric spark lighters 			
3.29	Furnace			
	<ul style="list-style-type: none"> The volume capacity of the furnace must be at least 1000 Cubic Inches Should cover a temperature range of 100 - 1000 centigrades Trays and heat resistant gloves should be included in the package (two sets for each furnace) Process tubes of 1 inch and 2 inch diameter sizes (12 in each size) 			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
	After Sales service: Should be available			
3.30	Beakers			
	<ul style="list-style-type: none"> Need 12 in each of these volume capacities (25, 50, 100, 250, 500 & 1000mL) All must be of pyrex 			
3.31	Conical Flasks			
	<ul style="list-style-type: none"> Need 6 in each of these volume capacities (100, 250, 500 and 1000mL) 			
3.32	Measuring Cylinders			
	<ul style="list-style-type: none"> Need 6 in each of these volume capacities (100, 250, 500, 1000 and 1500 mL) 			
3.33	Crucibles (to be used in furnace as well)			
	<ul style="list-style-type: none"> Need 24 of each of these volume capacities (20, 30, 50, 100 and 200mL) 			
3.34	Water filtration units			
	<ul style="list-style-type: none"> 4 Sets of Vacuum filtrations unit with manifold and 3 or 4 filtrations units. Each set should be accompanied by a vacuum pump 			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
	After Sales service: Should be available			
3.35	Bottle top Water filtration (single) units			

	<ul style="list-style-type: none"> • A unit must contain a glass bottom (preferably conical shape) • Connectability to a vacuum pump • A graduated glass funnel with a capacity of 300-500 and 1000 mL capacity (require 4 units of each capacity) • Should be compatible with 47mm or 90 mm filter sizes • At least two vacuum pumps should accompany these filtration units 			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
	After Sales service: Should be available			
3.36	Syringe and Syreinge filters			
	<ul style="list-style-type: none"> • Need syringes with thread of these capacities and numbers 5 mL - 1000 10 mL - 1000 30 mL - 1000 50 mL – 500 • Syringe filters with the following filter sizes 0.2 microns – 2000 0.45 microns - 3000 			
3.37	Petri dishes			
	<ul style="list-style-type: none"> • Sterile petri dishes needed in the following sizes 150 mm diameter - 500 100 m diameter - 1000 50 mm diameter - 500 			
3.38	Tongs			
	<ul style="list-style-type: none"> • Require 10steel plated beaker tongs with vinyl coating and preferably zinc plated. • Require 10 Crucible tongs (stainless steel) 			
3.39	Graduated Sample containers			
	<ul style="list-style-type: none"> • Require graduated bottles in the following volume capacities (with PP cap) the bottles must be of HDPE. <ul style="list-style-type: none"> a. Wide neck bottles 50 mL – 100 100 mL – 250 250 mL – 250 500 mL -1200 1000 mL – 50 b. Slim neck bottles 50 mL - 100 100 mL - 250 250 mL - 250 500 mL -1200 1000 mL - 50 			
3.40	Laboratory Organizers			
	<ul style="list-style-type: none"> • Angled Pippette holder 			

	<ul style="list-style-type: none"> • Pipetter holder • Test tube holders of different sizes (10 in each size) - plastic preferred. • Towel and towel dispenser (laboratyr grade paper towels) • Waste bins and laboratory in liners 			
3.41	Acid Bath			
	<ul style="list-style-type: none"> • 3 numbers of acid baths each of a capacity of at least 10 L. 			
3.42	Diionized water unit			
	<ul style="list-style-type: none"> • A unit to supply de-ionized water for laboratory experiment purposes 			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
3.43	Magnetic Stirrer bars			
	<ul style="list-style-type: none"> • Stir bars of the sizes below, <ul style="list-style-type: none"> a. around 1 inch length and 0.25 inch diameter - 10 numbers b. around 0.5 inch length and 0.25 inch diameter - 10 number c. around 3 inches length and 0.75 inch diameter - 10 numbers d. around 3 inches length and 0.5 inch diameter - 10 numbers e. starburst stirring head with 1 inch by 1 inch - 10 numbers 			
3.44	Magnetic Stirrers			
	<p>The following types of stirrers are required in specified numbers</p> <ul style="list-style-type: none"> • Multi-point stirrers (at least 6 points) - 2 numbers should be able to stir a maximum capacity of 3 L, with a range of RPM of 100 - 2000. • Single point stirrers that can stir upto a volume of 10 L with a surface dimension that can accommodate a 25cm diameter vessel - 4 numbers • Single point stirrers that can stir upto a volume of 25 L with a surface dimension that can accommodate a 40 cm diameter vessel - 4 numbers. 			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
	<p>After Sales service: Should be available</p>			
3.45	Dissolved Oxygen meter and kit			
	<ul style="list-style-type: none"> • Should be able to read values from 0 to at least 50 mg/L of dissolved oxygen with a resolution of at least 0.01 mg/L. • Should be able to be used in solutions of 0 - 500 mS 			

	<p>conductivity, 0 - 50 ppt salinity and a working temperature of 0 - 50 degrees centigrade</p> <ul style="list-style-type: none"> The meter should be accompanied by relevant probes (each) 			
3.46	pH meter			
	<ul style="list-style-type: none"> Need 3 bench top pH meters with a range of 0.00 to 14.00 and a resolution of at least 0.05. The meters should be accompanied by relevant standards and calibration solutions and cleaning and maintaining solutions. 			
3.47	Laboratory bench-top Turbidity meter			
	<ul style="list-style-type: none"> Should be able to read a range of turbidity from 0 to at least 4000 NTU with a resolution of at least 0.01 NTU in the lower ranges and at least 1-10 NTU in the higher ranges 			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
	After Sales service: Should be available			
3.48	Hand held turbidity meters			
	<ul style="list-style-type: none"> Should be able to read turbidity in the range of 0 to at least 1000NTU with a resolution of 0.01 NTU in the lower ranges. 			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
	After Sales service: Should be available			
3.49	Pocket pH testers			
	<ul style="list-style-type: none"> With the range of 0 - 14.00 pH scale and a resolution of at least 0.1 pH. 			
	<p>Documentation All relevant technical brochures forwarded with Tender Documents. Comprehensive user guide, Complete track record on where the supplier has supplied the product, Recommendation letter about the product from the institutions where the supplier has supplied the product</p>			
	After Sales service: Should be available			
4.1	Gantry Crane With Double Girders			
	APPLICATION	<ul style="list-style-type: none"> The subject crane is meant for the purpose of handling small to large (within the lifting capacity of the crane) components, bundles of steel sections and sheets & plates [13 Mtr. long] in a Heavy 		

		<p>Structural Laboratory.</p> <ul style="list-style-type: none"> • The crane will be put to use for continuous duty with CT, LT and Hoist movements, which may occur simultaneously (within the operating parameters specified under Clause Nos. – 3.1.0, 3.4.0 and 3.5.0). • The storage yard environment will be open out door area and ambient temperature going upto 40 ° C. 			
	SCOPE OF SUPPLY	<p>f. Design as per Tender Specifications</p> <p>g. Assembly and Testing before Despatch</p> <p>h. Supply in Modules / Sub-Assemblies</p> <p>i. Commissioning and Performance Prove-Out at Faculty of Engineering, University of Jaffna.</p> <p>j. Performance Guarantee for 12 months, from the date of commissioning.</p>			
	CAPACITY	Lifting Capacity			
	Hoist	10 ~ 15 Metric Tonnes			
	SPAN	Wheel Centre to Wheel Centre Dimensions			
	Long Travel (LT)	24,000 mm			
	Cross Travel (CT)	9,000 mm			
	Height of Lift	7,000 mm [Effective Height of Lift]			
	DUTY CYCLE	Related to Drive Motor & Mechanisms			
	Hoist	40 % E D			
	Long Travel	40 % E D			
	Cross Travel	40 % E D			
	SPEED	Operating / Working Speed [Maximum]			
	Hoist	7.5 mtrs./minute.			
	Cross Travel (CT)	30.0 mtrs./minute.			
	Long Travel (LT)	70.0 mtrs./minute.			

	MOTOR RATINGS	Electric Drive Motor Ratings & Frame Sizes			
	Hoist	33.6 kW ; Frame Size – 225 M / 6 Pole			
	Cross Travel (CT)	5.5 kW ; Frame Size – 132 M / 6 Pole			
	Long Travel (LT)	2 x 23.7 kW ; Frame Size – 225 M / 6 Pole			
	GEAR BOX	Gear Box Size			
	Hoist	HR 650			
	Cross Travel (CT)	VR 400			
	Long Travel (LT)	VR 650			
	ACCELERATION				
	Cross Travel (CT)	300 mm / sec.sq.			
	Long Travel (LT)	300 mm / sec. sq.			
	HOIST ROPE DETAILS	Size and Number of Falls of Rope			
	Hoist	Dia. 18 mm ; Falls - 8			
	CONTROL	Cabin Operation and Remote Control			
	Type of Control	Master Control and Radio Remote Control			
	Control Voltage	110 V AC			
	Input Power Supply	415 ± 10% Volts , 50 ± 3% Hz, 3 Phase- AC			
	Duty Class	Class – 3 [Outdoor Service]			
	Mechanism Group Classification	M 6			
	DESIGN STANDARD	BS/EN			
	Runway Rail Size				
	Cross Travel	(CT) ISR 60 Lbs./Yard			
	Long Travel	(LT) ISR 105 Lbs/Yard			
	Wheel Size				
	Cross Travel (CT)	Dia. 320 mm			
	Long Travel (LT)	Dia. 630 mm			
	Brake Drum Size	Hoist Brake Drum Sizes			
	Hoist	Dia. 300 mm			
	Cross Travel (CT)	Dia. 200 mm			
	Long Travel (LT)	Dia. 300 mm			
	Parking brake	Dia. 300 mm			
	MAIN FEATURES	Crane Operational Features			
	Control System	Conventional master control for all motions			
	Remote Control	Radio Remote Control for all motions			
	Crane Operation	Through Cabin Control and Radio Remote			

		Control with option for control selection			
	Operator Cabin	Totally enclosed out door type cabin located on one end of the crane			
	STRUCTURAL FABRICATION	Crane Structure Constructional Details			
	Bridge / Leg	Box type Construction			
	Raw Material	Only steel plates, tested and certified for quality by reputed inspection authorities, shall be used. Test Certificates to be produced for Faculty of Engineering/UoJ verification and form part of the documentation.			
	Welded Joints	To be followed for Bridge/leg Fabrication			
	Number of Joints allowed	For Span upto 23 mtrs. - Two joints For Span 23 mtrs. to 32 mtrs. - Three joints			
	Welding Electrodes	c. For all Horizontal Welding E 7018 Electrode only should be used. d. For all Vertical Welding E 7048 Electrode only should be used.			
	Welded Joint Testing	All Butt Welded Joints (both compression / tension and flanges / web joints) shall be subjected to 100% X-Ray Testing and X-Ray Films to be produced for BHEL evaluation and Form part of the documentation.			
	Splice Joints	NO SPLICE JOINT IS ALLOWED IN GIRDER FABRICATION [Girder has to be of SINGLE PIECE only].			
	Leg connection	Leg to bridge connection shall be designed for Double shear.			

	Platform on Girders	The Platforms provided on both the Girders shall be fixed through BOLTED JOINTS using fit bolt only.			
	Wheel Assembly	The Wheel Assembly coming for Cross Travel (CT) & Long Travel (LT) shall be of LIVE AXLE SYSTEM with L-Type Bearings.			
	Heat Treatment & NDT Examination	The Trolleys shall be Stress Relieved by thermal heat-treatment process after welding and NDT examinations. All weldings shall be tested by NDT means [MPI, LPI & RT] after Stress Relieving operation.			
	Machining Operation	All mechanical mating surfaces and wheel seating areas are to be machined to the required finish and protected			
	Surface Cleaning	Both the Girders and the Trolleys are to be shot blasted or chemically treated for surface cleaning, after completion of all operations but prior to painting.			
	Painting	The crane parts are to be painted as follows : c. One coat of Primer with 25 microns of DFT (Dry Film Thickness) and 48 hours of compulsory curing after painting. d. Two coats of Enamel Paint (Colour – Tractor Orange) each with a DFT of 25 microns and intermittent curing of minimum 16 hours.			
	MECHANICAL ELEMENTS				
	Gears	Gears in all the Stages			

		shall be helical in design and to be of machined & ground and hardened.			
	Gear Box Casing	Shall be of fabricated type and stress relived by thermal heat-treatment process, prior to machining.			
	Rope Drum	Shall be of fabricated type and stress relieved. The circumferential weld joints shall be tested by 100 % X-Ray for quality assurance.			
	Type of Coupling	Only GEARED COUPLING to be used d. between Electric Motor and Gear Box e. between Gear Box and Rope Drum f. between Gear Box and Trolley Wheels			
	Wheels	The Wheels shall be of Die-Forged and Wheel Tread hardened to 300/350 BHN. Wheels shall be fitted with L-Type Bearings			
	Mechanical Joints	Fit Bolts as per BS/EN for all joints coming in main members and platform with reamed holes			
	Pulley Dimension	Rope Pulley diameter shall be 23 times that of Rope diameter			
	Hook	Hook latch shall be provided for both hooks			
	Wind Clamp	Wind clamp shall be provided in all four corners			
	Roof Covering	Single Roof cover shall be provided for trolley and long travel mechanisms			
	ELECTRICAL ELEMENTS				
	Operational Controls	The Crane shall be provided with the following controls :			

		c. Cabin Control [Master Control] d. Radio Remote Control [Push Button Type]			
	Control Voltage	110 V AC			
	Type of Brakes	e. Hoist - DC Brake f. Cross Travel – Thruster Brake g. Long Travel – Thruster Brake h. Parking brake - DC brake			
	Protection	All Panels, Limit-Switches and Motors shall have IP 54 protection. (OUTDOOR SERVICE)			
	Electric Motors	All Electric Motors shall be as per BS/EN and also suitable for 500 starts per hour and 40 % CDF.			
	Electric Contactors	All Panels shall have only SIEMENS Contactors and shall be suitable for AC3 Duty Class.			
	Contactors Rating	The rating of all Contactors shall be atleast 50% higher than the respective electric motor full load current, at the specified duty cycle.			
	Resistance	Stainless steel punched grid resistance continuous rating			
	Long Travel Motion	A dual Drive Mechanism shall be provided for Long Travel Motion.			
	Illumination	c. Four numbers of 500 Watts Halogen Lamps shall be provided under the Bridge d. All Electric Panels shall be provided with suitable illumination for visibility and trouble shooting.			
	Controller Steps	A 5-Step Controller has to be provided for d. Main Hoist			

		e. Long Travel f. Cross Travel			
	Load Cell for Main Hoist	c. Load Weighing System with LOAD CELL to be fixed / provided at the equalizer pulley. d. The display shall be of 100 mm size (JUMBO)			
	Crab Wiring	The CRAB shall be fully wired with junction box.			
	Hoist Limit	Each hoist shall be provided with both rotary and counter weight limits			
	Cabin	Electric Light, Fan, Exhaust-Fan, Warning Bell and Emergency Stop Push Button shall be provided in the Operator Cabin			
	DOCUMENTS/DETAILS for APPROVAL	The following documents and details are to be submitted for Faculty of Engineering/UoJ Approval, prior to taking up the manufacture of the crane.			
	Drawings and Documents	j. GA Drawing of the Crane. k. GA Drawing of Crab with Trolley l. GA Drawing of Individual Mechanisms. m. Drawings of Bridge, End-Carriage and their connection. n. Sub-Assembly Drawing for Wheels, Hook Blocks, Gear Boxes & Hoist Drums. o. Calculations for Selection of Electric Motors, Gear Reducers, Brakes, Couplings, etc. p. Calculations for Bridge Girder, Crab, End - Carriage and their connections. q. Wiring Diagram with			

		<p>Logic Circuits.</p> <p>r. Cable Selection based on Current Rating.</p>			
	Technical Details	<p>g. Total Weight of the Crane including all Electrical Equipment</p> <p>h. Total Weight of Trolley including all Electrical Equipment</p> <p>i. Weight of each Bridge assembled and ready for erection with and without Mechanical and Electrical Equipment.</p> <p>j. Weight of each End - Carriage assembled and ready for erection</p> <p>k. Total Weight of Structural, Mechanical and Electrical Equipment and indicated separately also.</p> <p>l. Weight of Operator's Cabin together with all Equipment mounted in it.</p>			
	INSPECTION	The following Schedule of Stage Inspections is to be strictly adhered to, prior to dispatch from the Supplier's Works			
	STAGE – I	<p>f. Verification of Test Certificate for Raw Materials used for Girders, End-Carriages, Trolleys, Gear Box Casings, etc.</p> <p>g. Verification of X-Ray Report of Butt-Joints coming in the Girders and Random Testing on the Welds, by physical examination.</p> <p>h. Box Girder setting before closing of the Bottom Flanges – for inspecting the quality of welding and</p>			

		<p>presence of waviness</p> <p>i. Trolley Frame Fabrication before setting the Mechanisms</p> <p>j. End – Carriage Fabrication</p>			
	STAGE – II	<p>d. Inspection of Bridges and End – Carriages with Wheel Assembly and Alignment checking.</p> <p>e. Verification of Span & Diagonal Dimensions, Checking of Wheel Alignment, Mechanical Assemblies and Total Alignment.</p> <p>f. Free running of the all the Mechanisms.</p>			
	STAGE – III [Final Inspection]	<p>e. Measurement of CAMBER in the Bridges.</p> <p>f. Full / Rated Load Test and Deflection Test.</p> <p>g. Deflection and Permanent Set Measurement.</p> <p>h. 25% OVER-LOAD Lifting Ability Check.</p>			
	CRANE ERECTION & COMMISSIONING				
	Mechanical Erection	Erection of the Crane will be done by Faculty of Engineering/UoJ, as per the guidelines furnished in the Erection Manual given			
	Crane Commissioning	Commissioning of the Crane and Performance Prove –Out for the Crane’s Capacity and Smooth Functioning of the Crane (at Faculty of Engineering/UoJ) shall be the RESPONSIBILITY of the supplier.			
	O & M MANUALS	Each Crane shall be provided with THREE Copies of Erection, Operation & Maintenance			

		Manual hard copy as well as soft copy in CD, containing the following technical details			
	Drawings & Details	<ul style="list-style-type: none"> l. Crane GA Drawing m. Crab Assembly Drawing n. Total Crane Wiring Schematics o. Detailed Wiring Diagrams for Sub-Systems / Panels p. VVVF Drive's Logic Circuits q. Wheel Assembly Drawings r. Bottom Block Assembly Drawing s. Gear Box Assembly Drawings t. Coupling Drawing and Details u. Specifications/Ratings of All Bought-Out-Items v. Warranty / Guarantee Card for all Bought-Out-Items <p>Trouble Shooting Chart for Main and all Sub-Systems</p>			
	PERFORMANCE GUARANTEE	The Performance of the Total Crane and/or the Components / Sub-Assemblies / Bought-Out-Items shall be guaranteed for a minimum period of twelve months from the date of performance acceptance at Faculty of Engineering/UoJ.			
5.1	Arduino Starter Kit / Genuino Starter Kit (Original)				
	Country of Origin	Specify			
	Kit should include	Arduino Projects Book (170 pages) (1 No)			
		Arduino / GenuinoUnoboard rev.3 (1 No)			
		USB cable (1 No)			
		Breadboard 400 points (1			

	No)			
	Easy-to-assemble wooden base (1 No)			
	9v battery snap (1 No)			
	Solid core jumper wires (70 Nos)			
	Stranded jumper wires (2 Nos)			
	Photoresistor [VT90N2 LDR] (6 Nos)			
	Potentiometer 10kilohm (3 Nos)			
	Pushbuttons (10 Nos)			
	Temperature sensor [TMP36] (1 No)			
	Tilt sensor (1 No)			
	alphanumeric LCD (16x2 characters) (1 No)			
	LED (bright white) (1 No)			
	LED (RGB) (1 No)			
	LEDs (red) (8 Nos)			
	LEDs (green) (8 Nos)			
	LEDs (yellow) (8 Nos)			
	LEDs (blue) (3 Nos)			
	Small DC motor 6/9V (1 No)			
	Small servo motor (1 No)			
	Piezo capsule [PKM17EPP-4001-B0] (1 No)			
	H-bridge motor driver [L293D] (1 No)			
	Optocouplers [4N35] (2 Nos)			
	Transistor [BC547] (5 Nos)			
	Mosfet transistors [IRF520] (2 Nos)			
	Capacitors 100nF (5 Nos)			
	Capacitors 100uF (3 Nos)			
	Capacitor 100pF (5 Nos)			
	Diodes [1N4007] (5 Nos)			
	Transparent gels (red, green, blue) 3 Nos)			
	Male pins strip (40x1) (1 No)			
	Resistors 220 ohm (20 Nos)			
	Resistors 560 ohm (5 Nos)			

		Resistors 1 kilohm (5 Nos)			
		Resistors 4.7 kilohm (5 Nos)			
		Resistors 10 kilohm (20 Nos)			
		Resistors 1 megohm (5 Nos)			
		Resistors 10 megohm (5 Nos)			
	Qualification of bidders	The organization who bid for the tender should be an authorized service provider of quoted product line and an authorized letters from principals to certify these should be attached.			
5.2	Arduino MEGA 2560 / Genuino MEGA 2560 (Original)				
	Country of Origin	Specify			
	Microcontroller	ATmega2560			
	Operating Voltage	5V			
	Input Voltage (recommended)	7-12V			
	Input Voltage (limit)	6-20V			
	Digital I/O Pins	54 (of which 15 provide PWM output)			
	Analog Input Pins	16			
	DC Current per I/O Pin	20 mA			
	DC Current for 3.3V Pin	50 mA			
	Flash Memory	256 KB of which 8 KB used by bootloader			
	SRAM	8 KB			
	EEPROM	4 KB			
	Clock Speed	16 MHz			
	Length	101.52 mm			
	Width	53.3 mm			
	Weight	37 g			
	Qualification of bidders	The organization who bid for the tender should be an authorized service provider of quoted product line and an authorized letters from principals to certify these should be attached.			
5.3	Arduino Due				
	Country of Origin	Specify			
	Microcontroller	AT91SAM3X8E			
	Operating Voltage	3.3V			
	Input Voltage	7-12V			

	Input Voltage (limits)	6-16V			
	Digital I/O Pins	54 (of which 12 provide PWM output)			
	Analog Input Pins	12			
	Analog Output Pins	2 (DAC)			
	Total DC Output Current on all I/O lines	130 mA			
	DC Current for 3.3V Pin	800 mA			
	DC Current for 5V Pin	800 mA			
	Flash Memory	512 KB all available for the user applications			
	SRAM	96 KB (two banks: 64KB and 32KB)			
	Clock Speed	84 MHz			
	Length	101.52 mm			
	Width	53.3 mm			
	Weight	36 g			
	Qualification of bidders	The organization who bid for the tender should be an authorized service provider of quoted product line and an authorized letters from principals to certify these should be attached.			
5.4	Raspberry Pi 2 Model B				
	Country of Origin	Specify			
	Processor Chipset	Broadcom BCM2836 ARMv7 Quad Core Processor powered Single Board Computer running at 900 MHz			
	Processor Speed	QUAD Core @900 MHz			
	RAM	1GB SDRAM @ 400 MHz			
	Storage	MicroSD			
	USB 2.0	4x USB Ports			
	Power	5V micro USB input. 800mA rating			
	GPIO	40 pin			
	Ethernet Port	Yes			
	Qualification of bidders	The organization who bid for the tender should be an authorized service provider of quoted product line and an authorized letters from principals to certify these should be attached.			

5.5	Microelektronika Easy PIC V7					
	Country of Origin	Specify				
	Supported MCUs	8bit DIP packing PICs with 8, 14, 18, 20, 28 and 40-pin footprints				
	USB 2.0 programmer/debugger	mikroProg™ hardware In-Circuit Debugger				
	Programming with ICD2/ICD3	RJ-12 connector compatible with Microchip® ICD2® and ICD3® external programmers				
	Additional Accessories:	Character LCD 2x16 with blue backlight				
		Graphic LCD 128x64 with TouchPad				
	Qualification of bidders	The organization who bid for the tender should be an authorized service provider of quoted product line and an authorized letters from principals to certify these should be attached.				
5.6	Microchip MPLAB ICD 3 In-Circuit Debugger					
	Country of Origin	Specify				
	Accessories	MPLAB ICD3 In-Circuit Debugger Diagnostic Test Interface Module USB 2.0 to PC interface cable RJ-11 Cable from MPLAB ICD3 to target				
5.7	Multifunction DAQ					
	Country of Origin	Specify				
	Brand	Specify				
	Model	Specify				
	General					
	Measurement Type	Voltage				
	Form Factor	USB				
	Operating System / Target	Linux Mac OS Pocket PC Windows				
	RoHS Compliant	Yes				
	Analog Input					
	Single-Ended Channels	8				
	Differential Channels	4				

Analog Input Resolution	14 bits			
Maximum Voltage Range				
Range	-10 V - 10 V			
Accuracy	7.73 mV			
Minimum Voltage Range				
Range	-1 V - 1 V			
Accuracy	1.53 mV			
On-Board Memory	512 Bytes or more			
Analog Output				
Number of Channels	2			
Resolution	12 bits			
Maximum Voltage Range				
Range	0 V - 5 V			
Accuracy	7 mV			
Minimum Voltage Range				
Range	0 V - 5 V			
Accuracy	7 mV			
Update Rate	150 S / s			
Current Drive Single	5 mA			
Current Drive All	10 mA			
Digital I / O				
Bidirectional Channels	12			
Timing	Software			
Logic Levels	TTL			
Digital Input				
Input Type	Sinking Sourcing			
Maximum Voltage Range	0 V - 5 V			
Digital Output				
Output Type	Sinking Sourcing			
Current Drive Single	8.5 mA			
Current Drive All	102 mA			
Maximum Voltage Range	0 V - 5 V			
Counters / Timers				
Counters	1			
Max Source Frequency	5 MHz			
Size	32 bits			
Timebase Stability	50 ppm			
Logic Levels	TTL			
Timing / Triggering / Synchronization				
Triggering	Digital			
Physical Specifications				
Length	Specify			
Width				
Height				
I / O Connector	Screw terminals			

	USB Power	Bus-Powered			
5.8	Interactive Ultra Short Throw Multimedia Projector with Wall Mounting Accessory				
	Make	Should be a Branded Product (with ISO 9000 certification for manufacturing)			
	Model Name	(Specify)			
	Dimensions (WxDxH)	(Specify)			
	Weight	(Specify)			
	System Type	Ultra short Throw Projector			
	Brightness	3300 lumens or more			
	Aspect Ratio:	4:3 and 16:9			
	Native Resolution:	1280 x 800 (WXGA) or high			
	Lamp Type	(Specify)			
	Lamp Life:	4000 hours or more			
	Throw Ratio Range	0.3:1			
	Provided Mount	Compatible Wall Mount / Ceiling mount			
	Keystone Correction:	Automatic			
	Contrast Ratio	10,000:1 or more			
	Color Reproduction:	Up to 1.07 billion colors			
	Image Optimizer	Yes			
	Projection Lens Type:	Powered			
	PC-Less Interactive	Yes			
	PC-Less Presentation	Yes			
	Network LAN Wireless IEEE802.11b/g/n Support	Yes			
	Speakers Output	Stereo x 8W or more			
	Interfaces:	Computer Input: mini D-sub 15 pin x 1 or more			
		Computer Output: mini D-sub 15 pin x 1			
		Video input: HDMI x 2 or more			
		Composite video: RCA x 1			
		Audio input: 3.5mm Stereo mini jack x 1			
		Audio Output: 3.5mm Stereo mini jack x 1			
		Network LAN: RJ-45			
		USB connector: Type A x 1 (PC-free and other)			
		USB connector: Type B x 1 (USB Plug 'n Play)			
		RS232C Control: 9-pin D-sub			
	Compatibility:	VGA, SVGA, XGA, WXGA, WXGA+, SXGA, SXGA+, UXGA, MAC 16" NTSC, NTSC4.43, PAL, PAL-M, -N, SECAM, 480i, 480p,			

		576i, 720p, 1080i, 1080p			
	Operating Temperature	(10° to 35° C)			
	Power Supply Voltage:	240 V ±10%, 50/60 Hz			
	Power Consumption:	(Specify)			
	Fan Noise:	Less than 40dB			
	Security:	Kensington®-style lock			
	Remote Control Features	Source search selection, power, volume, A/V mute, freeze, menu, page up and down, auto, mouse functions			
	Remote Control operating distance	5m or more			
	Wall Mounting accessory	Should be provided			
	Warranty	3 Years Comprehensive			
	Bidders qualifications	The organization who bid for the tender should be an authorized service provider of quoted product line for at least five years and an authorized letters from principals to certify these should be attached.			
		The manufacturer should have minimum of ten years' experience in manufacturing the same brand			
		Having a service centre in Jaffna or close proximity area is preferred			
		Broachers/Technical documents for the bided items must be provided			
	Documentation	All relevant technical brochures forwarded with Tender Documents.			
		Comprehensive user guide			
		Complete track record on where the supplier has supplied the product			
		Recommendation letter about the product from the institutions where the supplier has supplied the product			
5.9	24" Wide LED Monitor				
	Make	Should be a Branded Product (with ISO 9000 certification for manufacturing)			
	Model	Specify			
	Country of Origin	Specify			

	Screen Size	24" Wide			
	Resolution	1920x1080			
	Signal Inputs(With connectors)	HDMI			
		DVI			
		Analog RGB			
	Backlight Technology	WLED			
	OS Compatibility	Mac & Windows			
	Stand	(Simple, Tilt) & Wall mount			
	Warranty	3Years			
	Qualification of bidders	The organization who bid for the tender should be an authorized service provider of quoted product line for at least five years and an authorized letters from principals to certify these should be attached.			
		The manufacturer should have minimum of ten years' experience in manufacturing the same brand			
		Having a service center in Jaffna or close proximity area is preferred			
		Broachers/Technical documents for the bided items must be provided			
		All relevant technical brochures forwarded with tender documents <ul style="list-style-type: none"> • Comprehensive user guide • Complete track record on where the supplier has supplied the product Recommendation letter about the product from the institution where the supplier has supplied the product.			
5.10	Tower Model Computer				
	Make	Should be a Branded Product (with ISO 9000 certification for manufacturing)			
	Model	Specify			
	Country of Origin	Specify			
	Chassis	Mini tower			
	Processor Family	4th Generation Intel® Core™ i5			
	External rated clock speed	3.40 GHz			
	Data width	64 bit			

Number of cores	4			
Level 1 cache size	2 x 64 KB instruction cache, 2 x 64 KB data caches or similar			
Level 2 cache size	2 x 512 KB			
Level 3 cache	6 MB shared			
Main Memory	8 GB, DDR3 SDRAM (1600 MHz)			
Chipset	Intel® H81 Express or equivalent			
IO Ports	1 full height PCIe x16			
	3 full height PCIe x1			
	2 External USB 3.0 ports and			
	6 External USB 2.0 ports (2 in the front, 6 in the back)			
Network Interfaces	Integrated Ethernet LAN 10/100/1000 Mbps full duplex Ethernet Port with RJ45 connector			
Graphic Adapter & Interface	Integrated Intel® HD Graphics 4600,			
	Video ports : VGA/DVI and HDMI with dual display capability			
Hard Disk Drive	Minimum of 1 TB SATA (7200 rpm or better) disk drives			
Optical Storage	16X Max DVD RW with Dual Layer Write Capabilities			
Audio Interface	Integrated Realtek, High Definition Audio Codec or equivalent			
Monitor	23" WHD Monitor with WLED with direct AC power input (should be the same brand)			
Power supply Rated Capacity	265W rated for continuous operation with forced circulation cooling system			
Operating Voltage	180V to 250V			
Input frequency	47Hz-63Hz			
Security Features	Manual Lockable side openings			
Weight (lbs/kg)	Specify			
Keyboard	USB Keyboard			
Mouse	USB optical mouse			
Operating System	Preloaded and activated Windows 7 Professional (with Genuine activation Keys)			
	(Recovery Media should be provided)			
Warranty	3 years comprehensive warranty inclusive of Parts and Labour			

		for ALL system components and peripheral devices supplied			
	Qualification of bidders	The organization who bid for the tender should be an authorized service provider of quoted product line for at least five years and an authorized letters from principals to certify these should be attached.			
		The manufacturer should have minimum of ten years' experience in manufacturing the same brand			
		Having a service centre in Jaffna or close proximity area is preferred			
		Broachers/Technical documents for the bided items must be provided			
		All relevant technical brochures forwarded with tender documents			
		Comprehensive user guide			
		Complete track record on where the supplier has supplied the product			
		Recommendation letter about the product from the institution where the supplier has supplied the product.			
5.11	UPS				
	Model	Specify			
	Country of Origin	Specify			
	Output power rating	1.2 KVA			
	Output voltage	220V/240V +/- 5			
	Input voltage range	180V-260V AC,50Hz			
	Mode of operation	line interactive with voltage conditioning			
	output	<u>50Hz sine wave</u>			
	Output socket	4 IEC outlets			
	Battery backup time	8-10 min at full load and 12-16 min at half load			
	Battery type	Maintenance-free sealed- Lead-Acid battery with suspended electrolyte; Leak proof			
	Other technical features	Surge and Noise protection			
		Should have audible fault detection / alarm			
		LED status display with On			

		Line, On Battery, Charge level, Replace Battery and Overload indicators			
		Should have automatic measure to prevent complete run down of battery			
		Should have management interface			
	Other features	The organization who bid for the tender should be an authorized service provider of quoted product line for at least five years and an authorized letters from principals to certify these should be attached.			
		The manufacturer should have minimum of ten years experience in manufacturing the same brand			
		Having a service centre in Jaffna or close proximity area is preferred			
		Broachers/Technical documents supporting offered features must be provided			
		All relevant technical brochures forwarded with tender documents			
		<ul style="list-style-type: none"> Comprehensive user guide 			
		<ul style="list-style-type: none"> Complete track record on where the supplier has supplied the product 			
		<ul style="list-style-type: none"> Recommendation letter about the product from the institution where the supplier has supplied the product. 			
	Warranty	Two year comprehensive – Warranty should cover the whole unit including battery.			
5.12	Laptop				
	Make	Should be a Branded Product (with ISO 9000 certification for manufacturing)			
	Model Name				
	Dimensions (WxDxH)				
	Weight				
	System Type	Notebook			
	Processor	Intel Core i5 (5 th Generation)			

Processor Speed	(up to 2.70 GHz, 3 MB L3 cache, 2 cores/4 threads)			
Video Card	Intel® HD Graphics or equivalent			
RAM	8GB Dual Channel DDR3L 1600MHz (4GBx2)			
Hard Drive	1TB – 5400 rpm SATA			
Optical Storage	DVD±RW			
Display	15.6-inch HD resolution (1366 x 768) LED-Backlit Display Wide Viewing Angle (IPS)			
Audio Output	Integrated sound			
Speakers	Stereo – built in			
Network adapter	Ethernet, Fast Ethernet, Gigabit Ethernet			
Wireless LAN support	Built in + built in antenna			
Supported wireless protocols	IEEE 802.11ac, IEEE 802.11b, IEEE 802.11g, IEEE 802.11n (draft)			
Bluetooth	Bluetooth 4.0 + built in antenna			
Connectivity Interfaces – USB	Three or more USB ports with Two or more Super-Speed USB 3.0			
Connectivity Interfaces – Audio/Video	VGA x 1, HDMI™ 1.4a x 1, Stereo microphone in x 1, Stereo headphone x1			
Camera	Integrated HD Webcam			
Connectivity Interfaces Networking	1 x network – Ethernet 10 Base-TX/1000Base-T – RJ-45			
Power	AC 160 – 230 V (50/60HZ)			
Battery	Lithium Ion 4-Cell			
Battery Capacity	Specify			
Operating System	Preloaded and activated Windows 10 Home 64-bit English (with Genuine activation Keys)			
Warranty	3 Years Comprehensive			
Bidders qualifications	The organization who bid for the tender should be an authorized service provider of quoted product line for at least five years and an authorized letters from principals to certify these should be attached.			
	The manufacturer should have minimum of ten years experience in manufacturing the same brand			

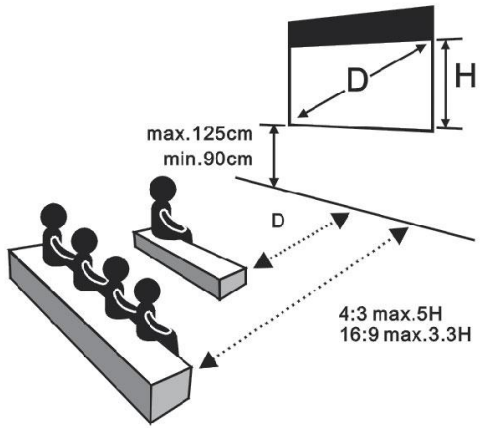
		Having a service centre in Jaffna or close proximity area is preferred			
		Broachers/Technical documents for the bided items must be provided			
	Documentation	All relevant technical brochures forwarded with Tender Documents.			
		Comprehensive user guide			
		Complete track record on where the supplier has supplied the product			
		Recommendation letter about the product from the institutions where the supplier has supplied the product			
5.13	EV3 Core and Expansion Set + Software Classroom 30 Student Pack				
		<ul style="list-style-type: none"> • 15 LEGO® MINIDSTORMS® Education EV3 Core Sets • 15 LEGO MINIDSTROMS Education EV3 Expansion Sets • 1 EV3 Software and Site License 			
5.14	Microsoft Office Academic 2013				
	Standard Microsoft Office Academic 2013				
5.15	Duplo Machine				
	Master-making/Printing methods	High-speed digital master-making / Fully automatic one pass two color stencil printing			
	Original type	Book, Sheet			
	Scanning area (max.)	297mm x 432mm			
	Paper supply capacity	Minimum 1000 sheets (64g/m2)			
	Print paper weight	Standard: 46g/m2 – 210g/m2, When using the Card Feed Kit (option): 100g/m2–400g/m2			
	Image processing mode	Line, Photo (Standard/Portrait/Group), Duo (Line/Photo/Shadow off), Pencil (Darker/Lighter)			
	Resolution	Scanning resolution: 600dpi x 600dpi Printing image resolution: 600dpi x 600dpi			
	Master-making time (for A4/Portrait/100% reproduction ratio)	Dual color print: Approx. 57 seconds Single color print with drum 1: Approx. 24 seconds			

		Single color print with drum 2: Approx. 34 seconds			
	Printing area (max.)	291mm x 413mm			
	Print speed	60ppm – 150ppm, Five steps variable from the control panel (60, 80, 100, 110, 120ppm) 150ppm: Selectable from the touch panel			
	Ink supply	Fully automatic (1000ml per cartridge)			
	Master supply/Disposal	Fully automatic (approx. 220 sheets per roll)			
	Master disposal box capacity	Approx. 80 sheets per box			
	User interface	LCD Touch Panel with Progress Arrow indicators			
	Input port	USB2.0*3, Ethernet (100BASE-TX, 10BASE- T) *4			
	Sound level (100ppm at operating position)	Less than 65dB			
	Power source	220V – 240V AC, 50Hz – 60Hz			
5.16	Wide Angle Camera				
	<ul style="list-style-type: none"> • Up 1080p video calling at 30 frames-per-second (up to 1920 x 1080 pixels) • H.264/SVC video compression • 90/120degree field of view • Zoom to 4X in 1080p • Autofocus • External privacy shutter • Built-in dual stereo mics with automatic noise reduction • Automatic low-light correction • Hi-Speed USB 2.0 certified (USB 3.0 ready) Tripod-ready universal clip fits laptops, LCD or CRT monitors				
5.17	Photocopier				
	Copying Process	Indirect Electrostatic Photographic Method			
	Copying Type	Laser Electronic			
	Original Reading Method	CCD Line Sensor			
	Copy/Print Resolution	2400x600dpi			
	Copy/Print Speed	35 ppm or above			
	Duty Cycle	Minimum 120,000 Copies			
	Multiple Copying	Up to 999 copies			
	Acceptable Paper Size	Minimum 12"x18"			
	Memory	Main : 256MB/Page: 32MB/40GB HDD			
	Reduction/Enlargement	25% to 400%			

Bypass	100-Sheet			
Control Panel	Half VGA Tilttable LCD Touch Panel, Key Top			
Paper Supply	Up to 3700 Sheet Input Capacity Standard 2x550 sheet Cassettes			
Toner Control	Automatic Toner Density Monitoring			
Print Support	PCL6 & PostScript 3			
Operating Systems	Windows 7 or above			
Connectivity	10BaseT/100BaseTX Ethernet, Wireless LAN, USB.			
Scan Resolution	600 dpi or above			
Scan Speed	50 OPM			
File Format	TIFF-MMR, TIFF-S, PDF, JPEG			
Scan Agent	Scan to file (USB), Scan to e-mail, Scan to e-file.			
Operation Method	Touch Screen Control Panel or Client PC			
Reversing Auto Document Feeder (RADF)	Simplex Originals, Duplex Originals			
Printing & Scanning Module	Should be include			
5.18	Multimedia Projector with Screen			
Display system -3 LCD system Display device : Size of effective display area- 0.63” (16.0 mm) Display device : Number of pixels –XGA (1024 x 768) Display device : Aspect ratio – 4:3 Projection lens : Focus –Manual Projection lens : Zoom > Powered / Manual –Manual Projection lens : Zoom > Ratio –Approx. 1.2 x Projection lens : Lens shift > Powered / Manual Projection lens : Lens shift > Range > Vertical Projection lens : Lens shift > Range > Horizontal Projection lens : Throw ratio – 1.47:1 to 1.77:1 Light source : Type –Lamp Light source : Wattage -210 W type Light source : System Recommended lamp replacement time (The figures are the expected maintenance time and not guaranteed. They will depend on the environment or how the projector is used) : Lamp mode: High -3000 H Recommended lamp replacement time (The figures are the expected maintenance time and not guaranteed. They will depend on the environment or how the projector is used) : Lamp mode: Standard – 5000 H Recommended lamp replacement time (The figures are the				

<p> expected maintenance time and not guaranteed. They will depend on the environment or how the projector is used) : Lamp mode: Low -7000 H Recommended lamp replacement time (With two lamp sequential use) : Filter cleaning / replacement cycle(The figures are the expected maintenance time and not guaranteed. They will depend on the environment or how the projector is used) (Max.) – 1000 H (cleaning) Screen size – 30” to 300” Screen size – (0.76 m to 7.62 m) Light output : Lamp mode: High – 2300 lm Light output : Lamp mode: Standard- 1800 lm(The values are 125stimate) Light output : Lamp mode: Low -1500 lm(The values are 125stimate) Color light output : Lamp mode: High – 2300 lm Color light output : Lamp mode: Standard – 1800 lm(The values are 125stimate) Color light output : Lamp mode: Low – 1500 lm(The values are 125stimate) Contrast ratio (full white / full black)(This value is average) – 2500:1 Input : Composite video > BNC Input : Composite video > Pin Jack – 1 Input : S video > Mini DIN 4-pin Input : Computer > 5BNC Input : Computer > Mini D-sub 15-pin -1 Input : Component Input : DVI-D (HDCP) Input : HDMI (HDCP) – 1 Input : Audio > Pin Jack (L/R) Input : Audio > Stereo mini jack – 1 Output : Monitor > Mini D-sub 15-pin Output : Audio(Works as an audio switcher function. Output from a selected channel; not available in standby) > Stereo mini jack I/O, Control, Others : RS-232C > D-sub 9-pin I/O, Control, Others : LAN > RJ-45, 10BASE-T/100BASE-TX I/O, Control, Others : IR (Control S) input > Stereo mini jack, Plug in power DC 5 V I/O, Control, Others : IR (Control S) output > Stereo mini jack I/O, Control, Others : USB > Type A I/O, Control, Others : USB > Type B I/O, Control, Others : Microphone input > Mini jack I/O, Control, Others : Wireless Speaker 1 W x 1 (monaural) Keystone correction (Max.)(Depends on resolution) : Vertical+/- 30° Keystone correction (Max.)(Depends on resolution) : </p>		
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Horizontal
Power requirements – AC 100 V to 240 V
Power requirements – 2.9 A to 1.2 A, 50/60 Hz
Power consumption : AC 100 V to 120 V > Lamp mode: High – 275 W
Power consumption : AC 100 V to 120 V > Lamp mode: Standard – 228 W(The values are 126estimate)
Power consumption : AC 100 V to 120 V > Lamp mode: Low - 195 W(The values are 126estimate)
Power consumption : AC 220 V to 240 V > Lamp mode: High – 263 W
Power consumption : AC 220 V to 240 V > Lamp mode: Standard – 221 W(The values are 126estimate) **Power consumption : AC 220 V to 240 V > Lamp mode: Low** 189 W(The values are 126estimate)
Standby mode power consumption : AC 100 V to 120 V >Standard
Standby mode power consumption : AC 100 V to 120 V > Low
Standby mode power consumption : AC 220 V to 240 V > Standard
Standby mode power consumption : AC 220 V to 240 V > Low
Heat dissipation : AC 100 V to 120 V – 939 BTU
Heat dissipation : AC 220 V to 240 V – 898 BTU
Dimensions (W x H x D) (without protrusions) -315 x 75 x 230.5 mm
Dimensions (W x H x D) (without protrusions) -12 13/32 x 2 15/16 x 9 1/16 in
Mass – 2.5 kg / 5 lb 7 oz
Supplied accessories : Remote commander –RM-PJ8
Supplied accessories : Wireless LAN Module
Optional accessories : Replacement lamp – LMP-D213
Screen



5.19	Printer			
	Functions Print, copy, scan Multitasking supported Yes Print speed black:			

	<p>Normal: Up to 18 ppm (Exact speed varies depending on the system configuration, software program, and document complexity.) First page out (ready)</p> <p>Black: As fast as 8.5 sec (Exact speed varies depending on the system configuration, software program, and document complexity.) Duty cycle (monthly, A4) Up to 8000 pages (Duty cycle is defined as the maximum number of pages per month of imaged output.) Recommended monthly page volume 250 to 2000 (HP recommends that the number of pages per month of imaged output be within the stated range for optimum device performance, based on factors including supplies replacement intervals and device life over an extended warranty period.)</p> <p>Print technology - Laser</p> <p>Print quality black (best) Up to 600 x 600 dpi (1200 dpi effective)</p> <p>Print languages Host-based</p> <p>Display Dual digit numeric LED</p> <p>Processor speed 400 MHz</p> <p>Automatic paper sensor No</p> <p>Replacement cartridges HP LaserJet Black Print Cartridge CC388A</p> <p>Minimum system requirements</p> <ul style="list-style-type: none"> • Microsoft® Windows® 7, Windows Vista®, Windows® XP, Windows® Server 2003: 1 GHz processor, 1 GB RAM, 700 MB free hard disk space, SVGA 800 x 600 with 16-bit colour display, Internet Explorer 5.5 or higher, USB or Ethernet port • Mac OS X v 10.4, v 10.5, v 10.6 • PowerPC G3, G4, G5, or Intel processors • 1 GB RAM • 200 MB available hard disk space • CD-ROM drive • USB or network port <p>Compatible operating systems Windows 8, Windows 7, Windows Vista, Windows XP, Windows Server 2003, Windows Server 2008 Mac OS X v10.4, v10.5, v10.6 Linux (see hplip.net) (For Windows® Server 2003 and Windows® Server 2008, add print and scan drivers only)</p>			
5.20	External Hard disk			
	<p>Hard Disk-1tb USB 3.0(2y) Weight:320.00GM</p>			

	<p>Size: 130.8mm×80.8mm×21.7mm (1TB); Op. Voltage: USB DC 5V Op. Temperature: 5°C (41°F) to 55°C (131°F) Storage Media: 2.5 Weight: 256g Certificates: CE, FCC, BSMI RPM: 5400 Buffer: 8MB Interface: USB 2.0/3.0 Power Saving Mode: 10 mins Features: SuperSpeed USB 3.0 compliant and backwards compatible with USB 2.0 Durable anti-shock silicone outer shell Connection bandwidth up to 5Gbits per second One Touch Auto-backup button Easy Plug and Play operation – no drivers required Extra-large storage capacity USB powered – no external adapter necessary LED power / data transfer activity indicator D power / data transfer activity indicator</p>			
6.1	Demonstration Table			
	<p>Timber works shall be season teak. Dimensions of furniture are given in the drawing. Timber to be applied two coats of wood preservative. Locks to be approved quality with duplicate keys. Butt hinges and handle to be oxidized brass. Timber to be furnished with one coat of sanding sealer and two coats of polyurethane varnish. See Drawing -6.1</p>			
6.2	Work Bench			
	<p>Timber works shall be season teak. Dimensions of furniture are given in the drawing. Timber to be applied two coats of wood preservative. Locks to be approved quality with duplicate keys. Butt hinges and handle to be oxidized brass. Timber to be furnished with one coat of sanding sealer and two coats of polyurethane varnish. See Drawing -6.2</p>			
6.3	Wooden Reading Table			
	<p>Timber works shall be season teak. Dimensions of furniture are given in the drawing. Timber to be applied two coats of wood preservative. Locks to be approved quality with duplicate keys. Butt hinges and handle to be oxidized brass. Timber to be furnished with one coat of sanding sealer and two coats of polyurethane varnish. See Drawing -6.3</p>			
6.4	Laboratory Stool			

	<p>Timber works shall be season teak. Dimensions of furniture are given in the drawing. Timber to be applied two coats of wood preservative. Locks to be approved quality with duplicate keys. Butt hinges and handle to be oxidized brass. Timber to be furnished with one coat of sanding sealer and two coats of polyurethane varnish. See Drawing -6.4</p>			
6.5	Table – Electrical Lab			
	<p>Timber works shall be season teak. Dimensions of furniture are given in the drawing. Timber to be applied two coats of wood preservative. Locks to be approved quality with duplicate keys. Butt hinges and handle to be oxidized brass. Timber to be furnished with one coat of sanding sealer and two coats of polyurethane varnish. Provide two G clamp for joint two table back to back. The sockets should be 13A. All 12 sockets should be powered from two 16A wires. See Drawing -6.5</p>			
6.6	Stool – Electrical Lab			
	<p>Timber works shall be season teak. Dimensions of furniture are given in the drawing. Timber to be applied two coats of wood preservative. Locks to be approved quality with duplicate keys. Butt hinges and handle to be oxidized brass. Timber to be furnished with one coat of sanding sealer and two coats of polyurethane varnish. See Drawing -6.6</p>			
6.7	Computer Table			
	See Drawing -6.7			
6.8	Computer Chair			
	<ul style="list-style-type: none"> • Material:Plastic • Size:W65*D28*H56.5CM • Base:250 mm chrome base • Gas lift: 100 mm chrome • Armrest: With armrest • Feeling: comfortable and relax • Color: Black or blue • Warranty: 3 year 			
7.1	Filing Cabinet-Steel			
	<ul style="list-style-type: none"> • Drawer – 4 • Gauge – 24 • Size – approximately (135cmx63cmx48cm) • Lock – 3 Point Lock • Warranty :10 years 			
7.2	Cupboard-Steel			
	<ul style="list-style-type: none"> • Material : High quality Cold Roll Steel Plate Q235 			

	<ul style="list-style-type: none"> • Thickness :0.5-1.0mm • Surface Treatment: Acidwashed,PhosphorizedandElectrostaticpowder • Size : H1800*W850*D390mm • Lock : Cam lock ,Code lock ,Pad lock ,Coin lock ,Electronic lock • Loading Capacity : 202pcs/20GP 489pcs/40HQ • G.W. : 40~60KGS • Color :gray color • Warranty :10 years 			
7.3	Cupboard-Steel-Glass fronted			
	<ul style="list-style-type: none"> • 5 shelves with 2 partitioned glass door • Size – approximately W900*D400*H1800 • Material – High quality cold-rolled steel plate • Surface Treatment – Electrostatic powder coating, epoxy resin finish • Environment Protection Non – Phosphorus, water filtering system • Lock – 3 Point Lock • Warranty :10 years 			
7.4	Wooden Table			
	<ul style="list-style-type: none"> • Desk Top: High quality MDF with Laminated • Frame: Cold rolling steel sheet,Metal with powder coated, Strong • With Two Drawers • Desk Size: 1200L*700W*750Hmm • Warranty :10 years 			
7.5	Cushion Chair			
	<ul style="list-style-type: none"> • Sit comfortably in this Office Star Visitors Chair • Visitors chair features a thick, padded seat and back • Steel frame and legs make this chair sturdy • Overall Dimensions: 32 H x 23 W x 25 D • Seat Size: 19-inch W x 19.5-inch D x 3.5-inch T • Back Size: 19-inch W x 14.5-inch H x 3.5-inch T • Arms Max Inside: 19-inch • Arms to Floor Min: 25.25-inch • Seat Height Min: 18.5-inch 			
7.6	Conference Table with Chairs			

	<p>Conference table Material: MDF faced with wood veneer, finished by painting Hardware accessories with high quality; Scratch resistant; Size(mm):7000*3000*760 mm Color:walnut/ reddish Conferencechairs (30) Size: High back Material: Seating upholstered by Quality top leather/ PU High Quality Modeled Sponge Molded Plywood Shell Stainless steel arm frame with leather o PU upholstered Gas Lift Instant Height Adjustment Multi functional Mechanism, Tilt Tension Control 5 Star Aluminum Base With Durable PP Castors Features: 5 Star Mirror stainless steel frame 360 Degree Swivel Rotation Dual PP Wheel Casters for Easy Movement Meets or exceed ANSI/BIFMA standards Color: walnut/ reddish Style: Executive chair Warranty – 10 years</p>			
7.7	Sofa Settee			

	<p>Sofa Legs Stylish stainless steel base, sturdier and more elegant.</p> <p>Fine Stitches Enhanced quality upholstery and fine stitching workmanship.</p> <p>Pocket Spring High density polyurethane foam come with pocket spring, to ensure a long lasting shape of the sofa, and provide resilience for greater support and best seating comfort even for long seating hours.</p> <p>Sponge High density polyurethane sponge, provides soft and cushiony seating feeling.</p> 			
7.8	Book Shelf (Library)			
	See Drawing 7.8			
7.9	Wood Almirah (Library)			
	See Drawing 7.9			
7.10	Book ends			
	See Drawing 7.10			
7.11	Reading Chair (Library)			
	See Drawing 7.11			

Section VII.

Contract Data

The following Contract Data shall supplement and / or amend the Conditions of Contract (CC). Whenever there is a conflict, the provisions herein shall prevail over those in the CC.

CC 1.1(i)	The Purchaser is: University of Jaffna
CC 1.1 (m)	The Project Site(s)/Final Destination(s) is/are: University of Jaffna
CC 8.1	For notices, the Purchaser's address shall be: Bursar Attention: Bursar Address: University of Jaffna, P.O Box 57, Thirunelvely, Jaffna. Telephone:021-2222644
CC 11	Goods shall be supplies in compliance with the quality and the specification given.
CC 15.1	CC 15.1—The method and conditions of payment to be made to theSupplier under this Contract shall be as follows: A: For Goods offered within Sri Lanka Payment shall be made in Sri Lanka Rupees within thirty (30) days of presentation of claim supported by a certificate from the Purchaser declaring that the Goods have been delivered and that all other contracted Services have been performed. i) On Delivery: up to a maximum of ninety (90) percentage of the Contract Price, shall be paid on receipt of the Goods. ii) On Acceptance: the remaining ten (10) percentage of theContract Price shall be paid to the Supplier within ninety (90) days. After the certification of acceptance.
CC 17.1	A Performance Security – 10%
CC 26.1	The liquidated damage shall be: 2%per week
CC 26.1	The maximum amount of liquidated damages shall be:10 %



UNIVERSITY OF JAFFNA
INVITATION FOR BIDS

Supply of Civil, Computer Engineering, IT Equipment & Laboratory Furniture
UJ/F/PO/T/02/2016

Chairperson, Department Procurement Committee, University of Jaffna, Jaffna, Sri Lanka, invites sealed bids from eligible bidders for supply of following items to the University of Jaffna.

1. Bidding will be conducted through the National Competitive Bidding (NCB) procedure.
2. Bidder should have at least three years experience in the relevant field in Sri Lanka.
3. Interested eligible bidders may obtain further information from the Senior Assistant Bursar / Supplies of the University of Jaffna, and inspect the bidding documents at the Supplies Branch of the University between 9.00 am to 3.00 pm from **22.04.2016 to 24.05.2016**.
4. A complete set of bidding documents in English may be purchased by interested bidders on submission of a written application to the Senior Assistant Bursar / Supplies, University of Jaffna and upon payment of a non-refundable fee of Rupees 2,000/=in cash at the Shroff Counter of the University of Jaffna. The bidder can also download the bidding documents from the University website www.jfn.ac.lk. Those who are obtaining bidding documents from the University website should submit the complete documents along with a Bank Draft drawn in favour of the “Bursar, University of Jaffna, Sri Lanka” for Rs. 2,000/=as non-refundable fee or the payments could be made to Peoples Bank, Jaffna University Branch, account no: **162-1-001-6-0000880**, and the **cash receipt/deposit slip to be attached with the bidding documents**. The documents may be purchased until 2.30 p.m from **22.04.2016 to 24.05.2016**.
5. Bids must be delivered in duplicate to be addressed **Bursar, University of Jaffna, Thirunelvely**, on or before **2.00p.m on 19.04.2016**. Please indicate the “**Supply of Civil, Computer Engineering, IT Equipment & Laboratory Furniture- UJ/F/PO/T/02/2016 – 25.05.2016**” on the left hand corner of the envelope.
6. All bids must be accompanied by a Bid Security addressed to the **Chairperson, Department Procurement Committee, University of Jaffna**, valid for 120 days from the date of the bid opening as specified in the following Table.

Serial No	Description Items and Quantity	Bid Security
Package 01 – Surveying Equipment		
1.1	Measuring Wheel	05
1.2	Land Chain Arrow	20
1.3	Change plate	10
1.4	Surveyor's umbrella for theodolite	10
1.5	Mallet	10
1.6	Crowbar	10
1.7	Survey boots	10
Package 02 – Water Resource Equipment		
2.1	Hydrogen Bubble Flow Visualisation System	02
2.2	Soil/Water Model Tank	01

2.3	Centrifugal Pump Demonstration Unit + interface unit	01		
2.4	Demonstration Lysimeter	01		
2.5	Series and Parallel Pump + interface unit	01		
2.6	Series Liquid Manometers	02		
2.7	River Flow Simulator	01		
2.8	Pitot Tubes + Adjustable tripod stand	02		
2.9	Drainage and Seepage Tank	01		
Package 03 – Environmental Engineering Equipment				
3.1	Particle Size Analyser	01		334,750.00
3.2	Total Organic Carbon analyser	01		
3.3	Analytical Balances: 4 digit precision (grammes)	02		
3.4	Analytical Balances: 4 digit precision (grammes)	01		
3.5	Calibration mass: 1mg – 200g	01		
3.6	Calibration mass: 50g – 50kg	01		
3.7	Electronic Floor Balances	03		
3.8	Water Bath: Stable Temperature	01		
3.9	Shaking Water Bath: Stable Temperature	01		
3.10	Immersion circulator with clamp:	02		
3.11	Chest type Freezer	01		
3.12	Stable temperature Refrigerators	01		
3.13	Ice-cube Maker	01		
3.14	Dry-Ice Chest	01		
3.15	Volumetric Automatic Titrator (Electronic)	03		
3.16	Direct Reading Flow meter for air	03		
3.17	Bottletop Dispenser (Burette)	03		
3.18	Burettes	10		
3.19	Peristaltic Pumps	02		
3.20	Peristaltic Pumps	6		
3.21	Pipette (adjustable Volume)	12		
3.22	Laboratory Autoclave	01		
3.23	Sterilizer	02		
3.24	Manometers	04		
3.25	Pressure transmitters	05		
3.26	Tweezer Set	02		
3.27	Heating Blocks and heater	02		
3.28	Bunsen Burners	04		
3.29	Furnace	02		
3.30	Beakers	72		
3.31	Conical Flasks	24		
3.32	Measuring Cylinders	30		
3.33	Crucibles (to be used in furnace as well)	120		
3.34	Water filtration units	04		
3.35	Bottle top Water filtration (single) units	08		
3.36	Syringe and Syreinge filters	3500 5000		
3.37	Petri dishes	2000		
3.38	Tongs	10		

3.39	Graduated Sample containers	WN 1850 SN 1850	
3.40	Laboratory Organizers	1	
3.41	Acid Bath	3	
3.42	Deionized water unit	1	
3.43	Magnetic Stirrer bars	50	
3.44	Magnetic Stirrers	10	
3.45	Dissolved Oxygen meter and kit	3	
3.46	pH meter	3	
3.47	Laboratory bench-top Turbidity meter	2	
3.48	Hand held turbidity meters	5	
3.49	Pocket pH testers	3	
Package 04 – Supply of Gantry Crane			
4.1	Gantry Crane With Double Girders	1	20,000.00
Package 05 – Computer Engineering & IT Equipment			
5.1	Arduino Starter Kit / Genuino Starter Kit (Original)	10	131,360.00
5.2	Arduino MEGA 2560 / Genuino MEGA 2560 (Original)	10	
5.3	Arduino Due	05	
5.4	Raspberry Pi 2 Model B	05	
5.5	Microelektronika Easy PIC V7	06	
5.6	Microchip MPLAB ICD 3 In-Circuit Debugger	06	
5.7	Multifunction DAQ	15	
5.8	Interactive Ultra Short Throw Multimedia Projector with Wall Mounting Accessory	02	
5.9	24” Wide LED Monitor	05	
5.10	Tower Model Computer	52	
5.11	UPS	54	
5.12	Laptop	8	
5.13	EV3 Core and Expansion Set + Software Classroom 30 Student Pack	1	
5.14	Microsoft Office Academic 2013	8	
5.15	Duplo Machine	1	
5.16	Wide Angle Camera (Webcam)	1	
5.17	Photo Copier	1	
5.18	Multimedia Projector with Screen	2	
5.19	Printer	6	
5.20	External Hard disk	2	
Package 06 – Laboratory Furniture			
6.1	Demonstration Table	15	37,190.00
6.2	Work Bench	15	
6.3	Wooden Reading Table	15	
6.4	Laboratory Stool	100	
6.5	Table – Electrical Lab	16	
6.6	Stool – Electrical Lab	64	
6.7	Computer Table	60	

6.8	Computer Chair	60	
Package 07 – Office and Library Furniture			
7.1	Filing Cabinet-Steel	15	28,450.00
7.2	Cupboard-Steel	15	
7.3	Cupboard-Steel-Glass fronted	15	
7.4	Wooden Table	10	
7.5	Cushion Chair	10	
7.6	Conference Table with Chairs	1	
7.7	Sofa Settee	2	
7.8	Book Shelf (Library)	20	
7.9	Wood Almirah (Library)	7	
7.10	Book ends (Library)	200	
7.11	Reading Chair (Library)	20	

➤ **For Bid Documents & Details visit University website www.jfn.ac.lk**

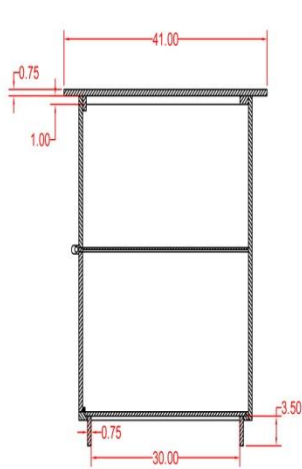
7. Pre Bid meeting will be held on **11th May 10.00 a.m.** in the Board Room of University of Jaffna
8. The bids shall be deposited in the ‘Tender Box’ available in the Bursar’s Office of the University, or sent under Registered Cover to be received before the deadline to the address given Clause No.5.
9. Late bids will be rejected.
10. The bids will be opened at **2.00p.m on 25.05.2016**, in presence of the bidders or their authorized representatives who choose to attend the bid opening at the board room of the University.

The Chairperson,
Department Procurement Committee,
University of Jaffna,
Jaffna.
TP. / Fax No: 021-2220962, 021-2222644

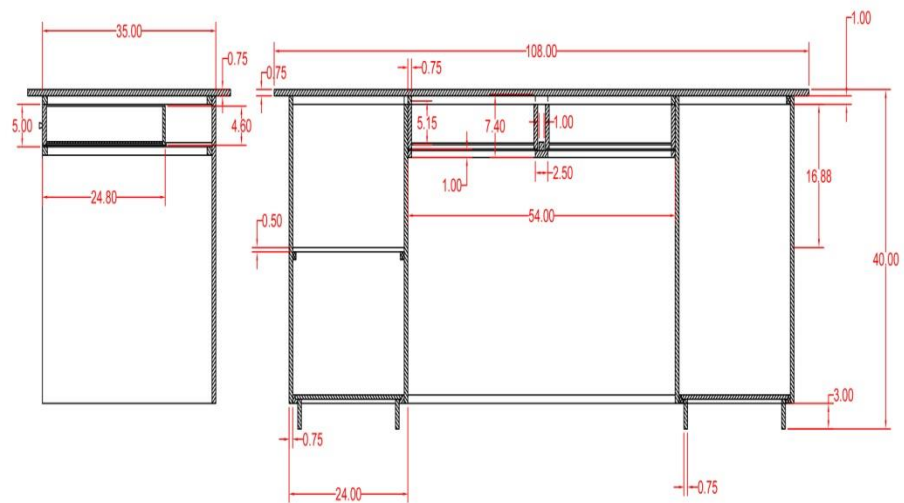

M. G. L. Maveekumbura
Senior Assistant Bursar (Supplies)
University of Jaffna
Jaffna

Drawings

Drawing No	Description
6.1	Demonstration Table
6.2	Work Bench
6.3	Wooden Reading Table
6.4	Laboratory Stool
6.5	Table – Electrical Lab
6.6	Stool – Electrical Lab
6.7	Computer Table
7.8	Book Shelf (Library)
7.9	Wood Almirah (Library)
7.10	Book ends
7.11	Reading Chair (Library)



SECTION C-C

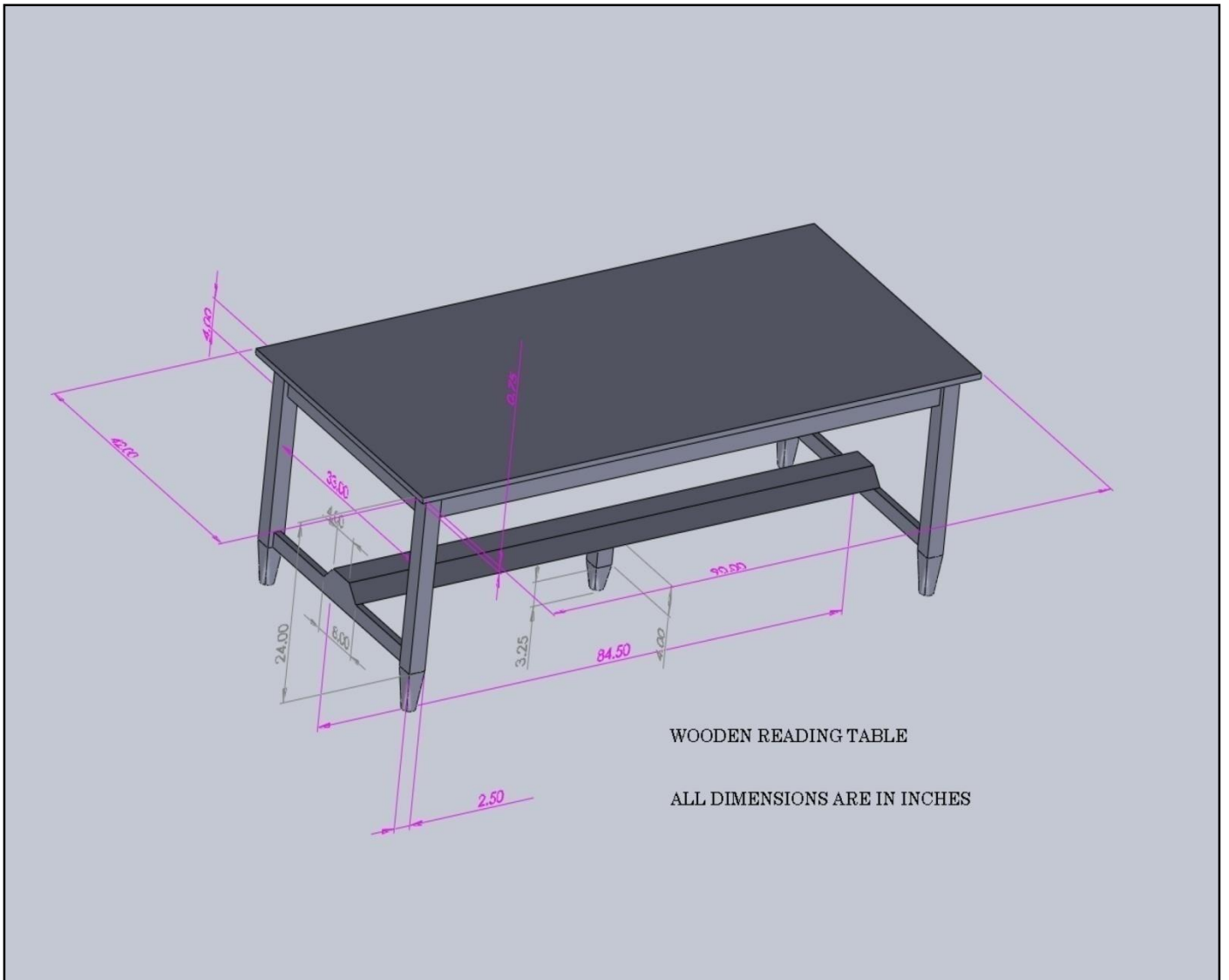


SECTION T-T

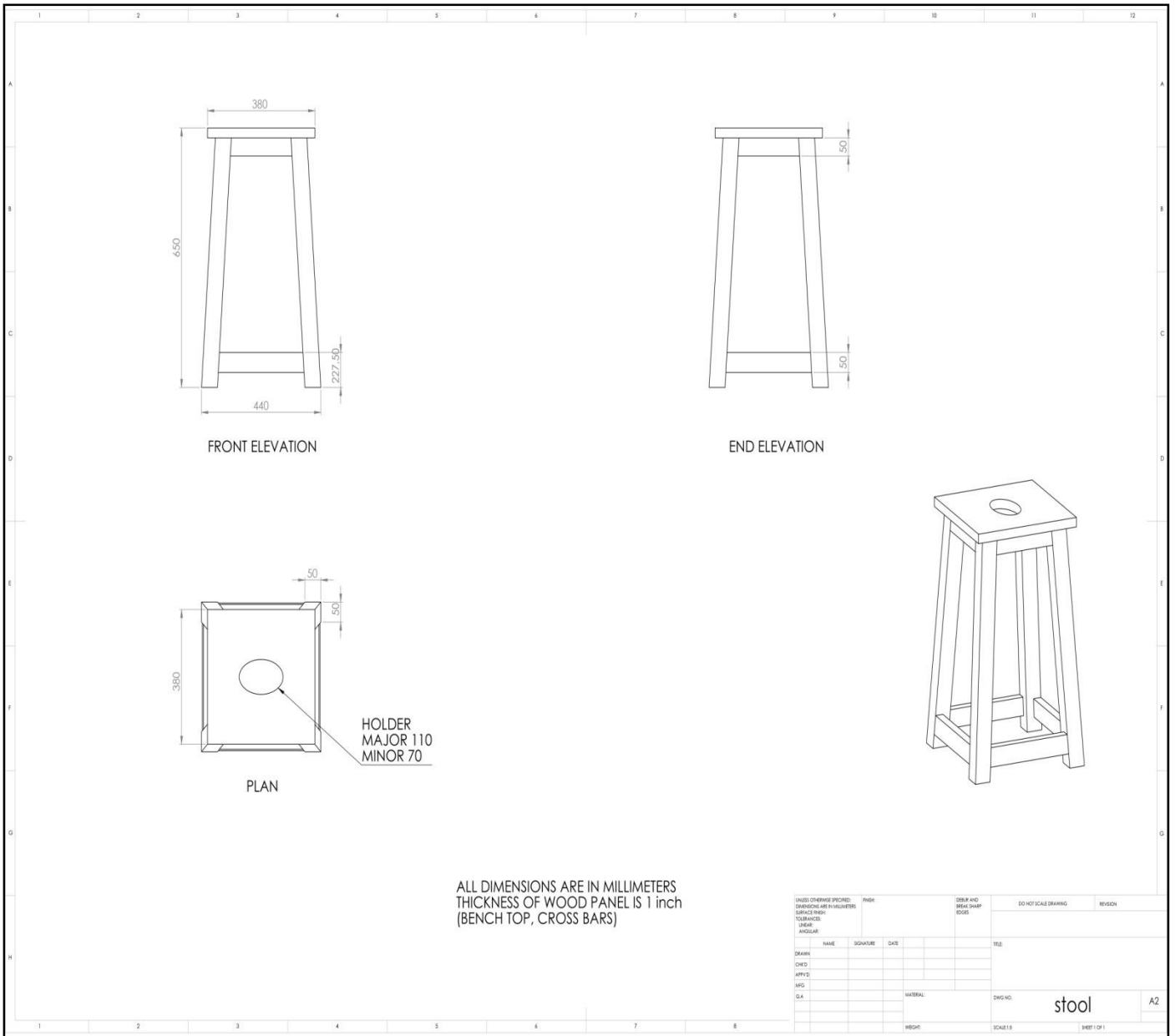
DEMONSTRATION TABLE FOR LECTURE HALL

ALL DIMENSIONS ARE IN INCHES

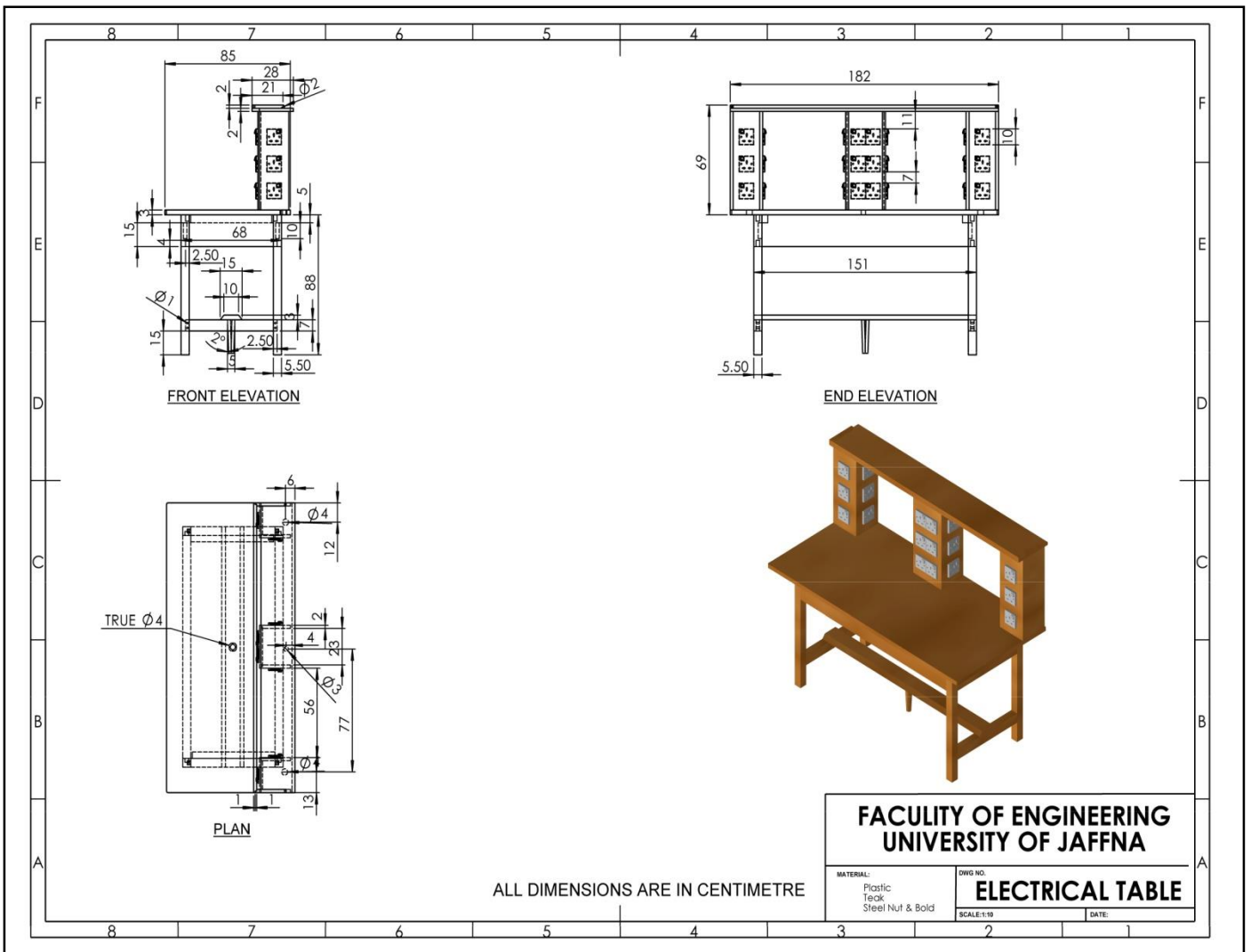
Drawing 6.1 Demonstration Table



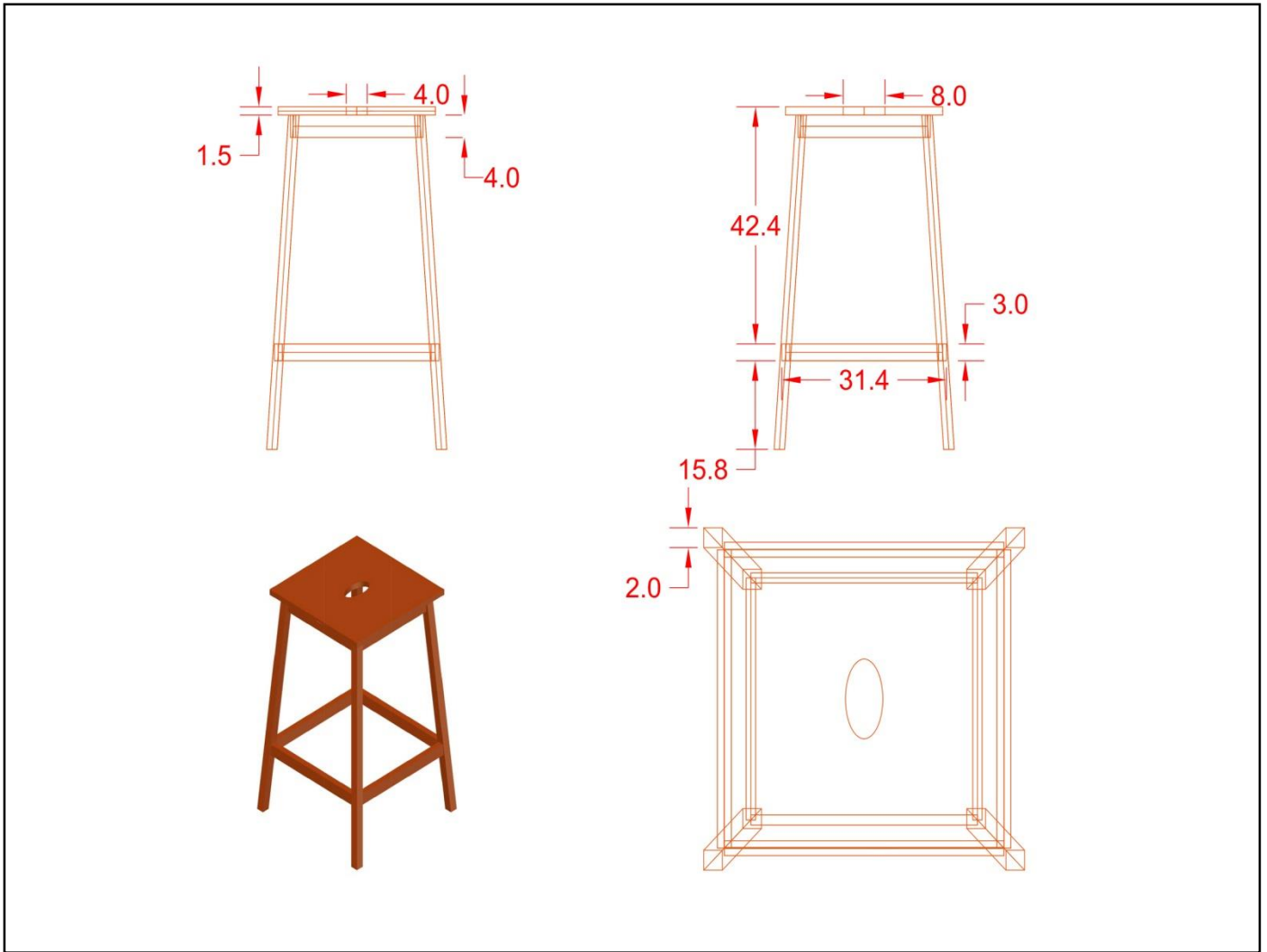
Drawing 6.3 Wooden Reading Table



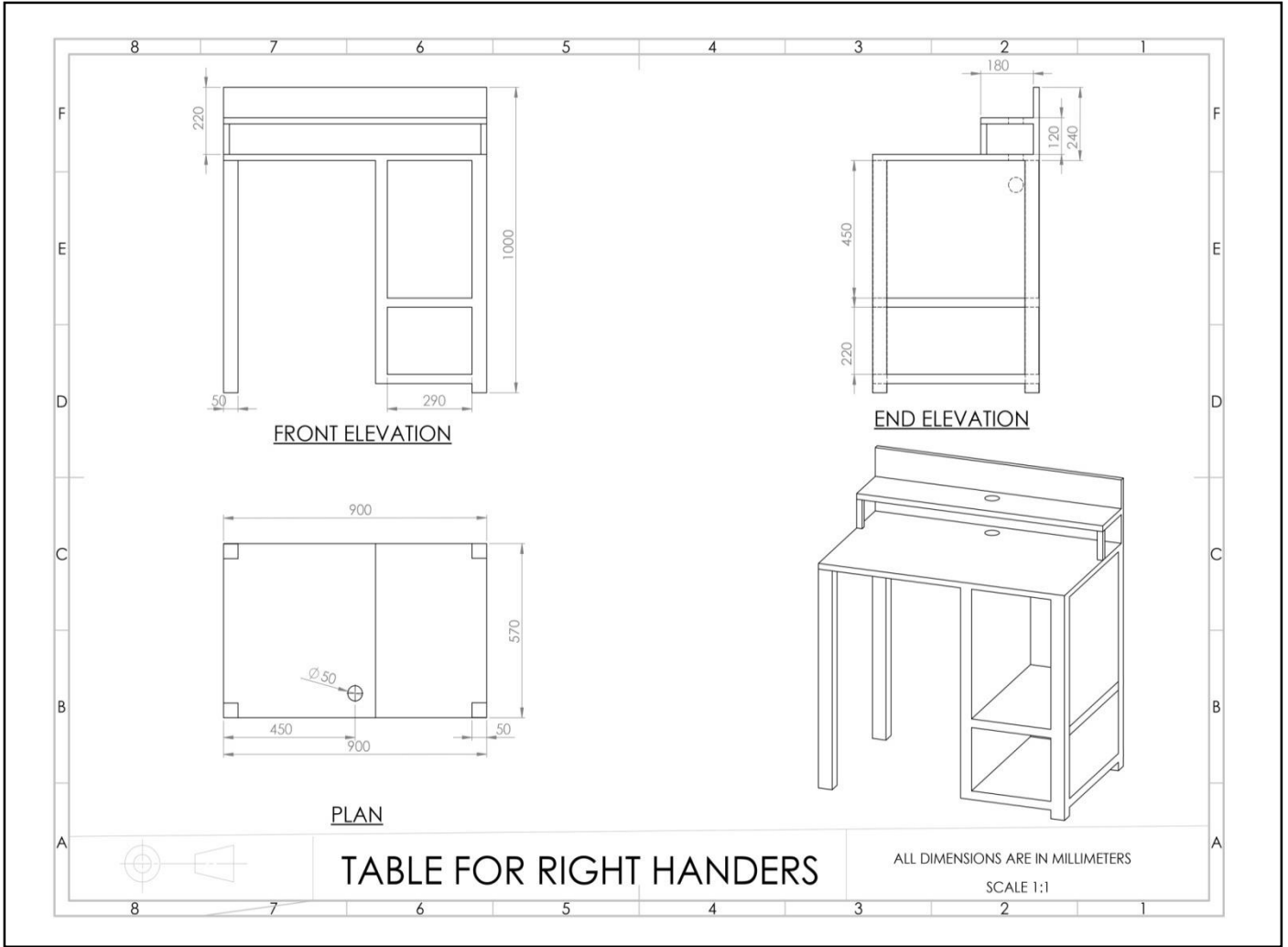
Drawing 6.4 Laboratory Stool



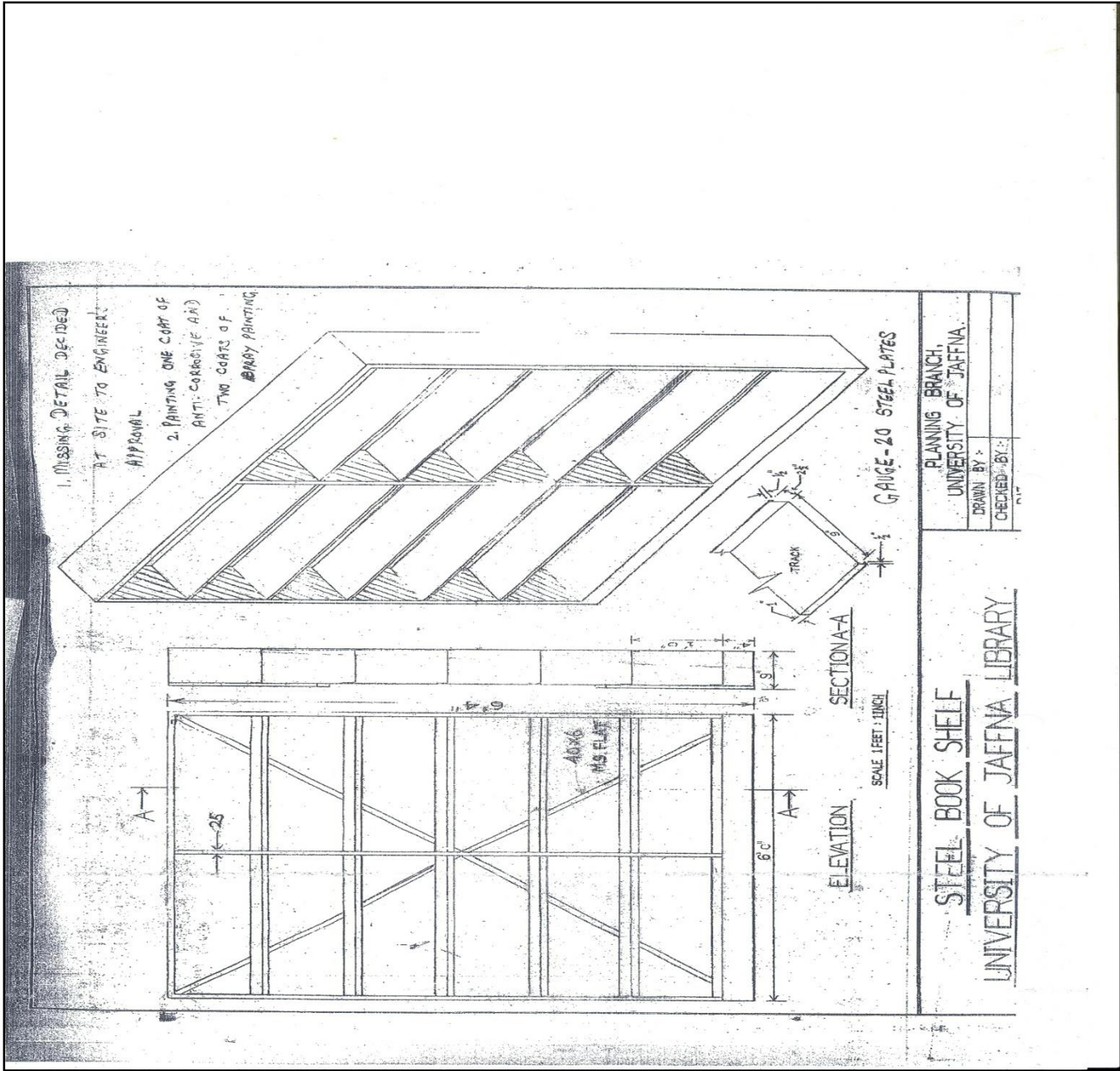
Drawing 6.5 Table – Electrical Lab



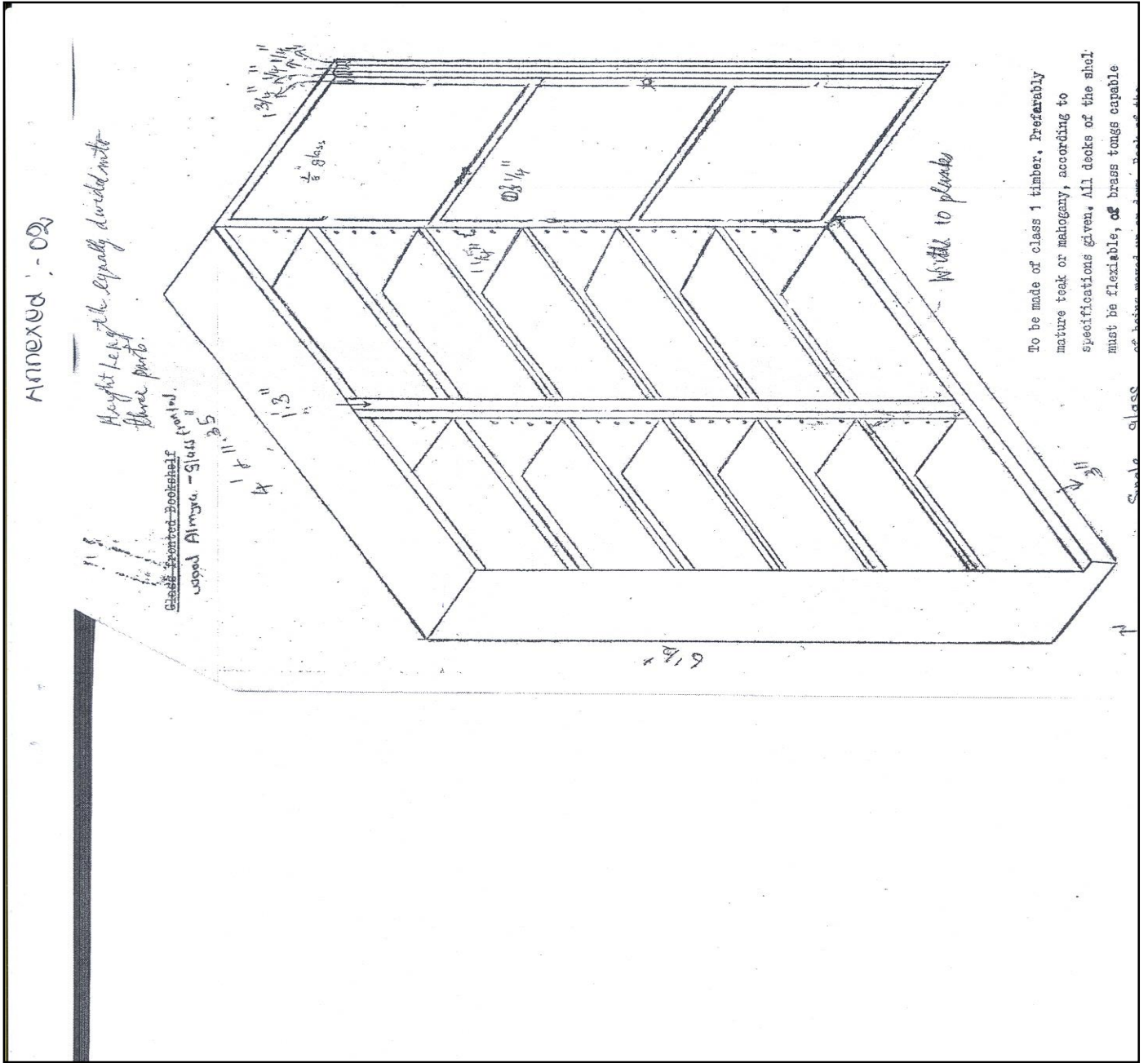
Drawing 6.6 Stool – Electrical Lab



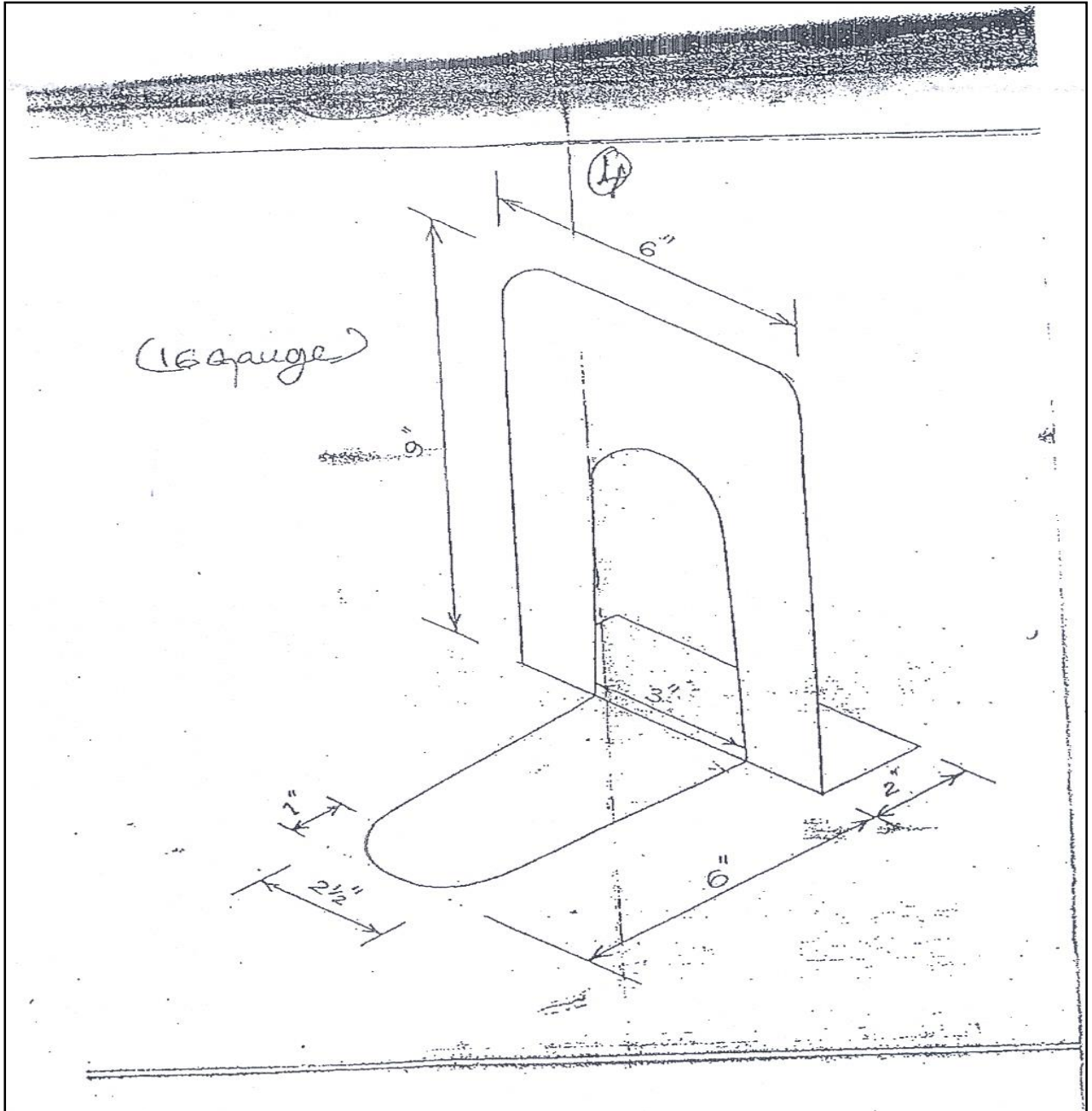
Drawing 6.7 Computer Table



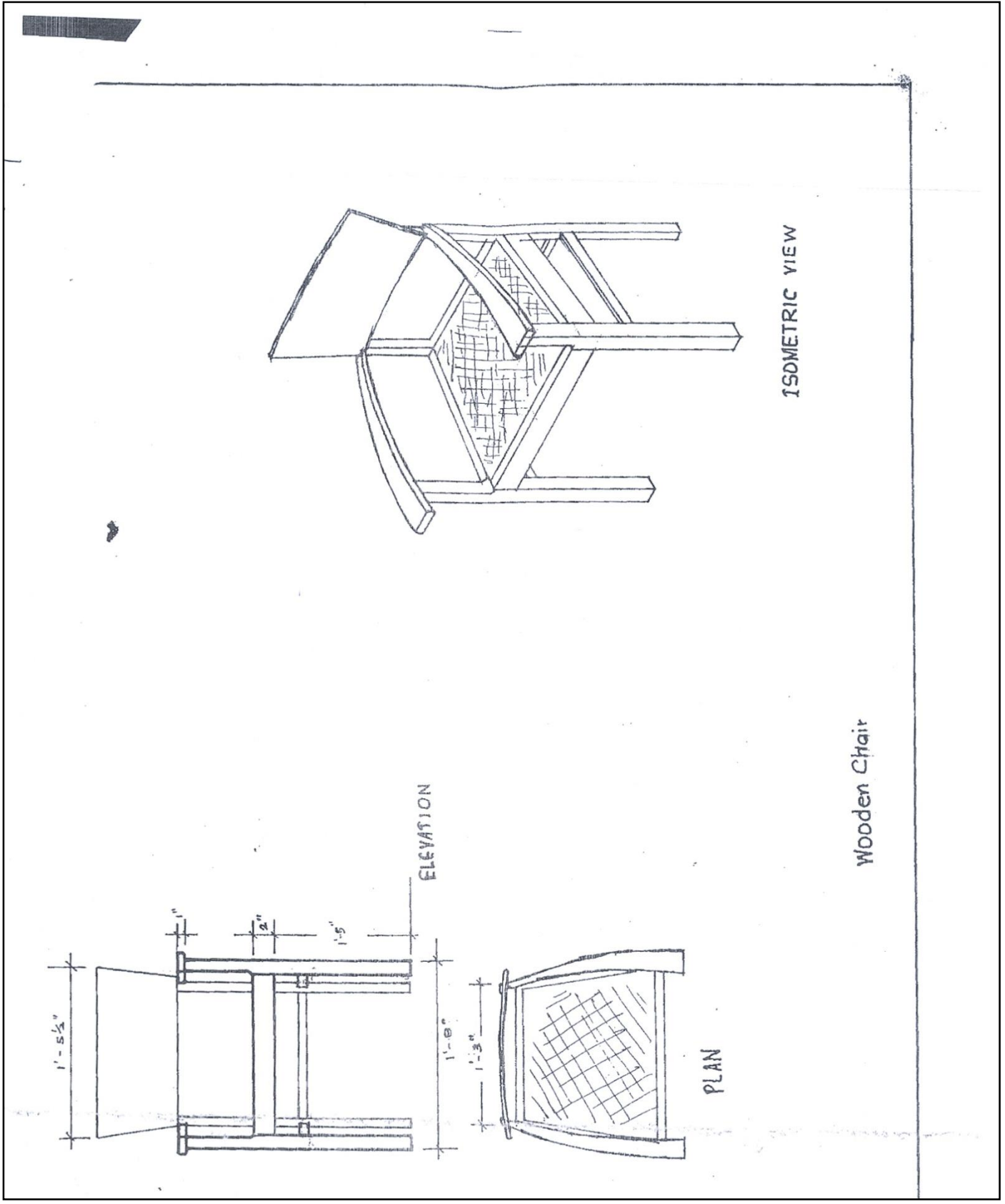
Drawing 7.8 Book Shelf (Library)



Drawing 7.9 Wood Almira (Library)



Drawing 7.10 Book ends



Wooden Chair

Drawing 7.11 Reading Chair