



EXCEPTIONAL. UNCONVENTIONAL.

REQUEST FOR QUOTATION

LAKEHEAD UNIVERSITY
955 OLIVER ROAD
THUNDER BAY, ONTARIO
CANADA P7B 5E1

RFQ #2018-060

SUPPLY andINSTALL HIGH RESOLUTION TRANSMISSION ELECTRON MICROSCOPE THUNDER BAYCAMPUS

RFQ ISSUED:
Friday March 16th, 2018

QUESTIONS CLOSE:
Wednesday April 4th, 2018

FINAL ADDENDUM ISSUED:
Tuesday April 10th, 2018

RFQ CLOSE DATE:
**Tuesday, April 17th
3:00:00 pm (local time)**

SECTION I PURPOSE AND CONTENT

- 1.1 Lakehead University invites qualified suppliers to submit quotations for the supply and installation of a:

HIGH RESOLUTION ELECTRON MICROSCOPE

for use at its Thunder Bay Campus in the city of Thunder Bay.

RFQ documents available at: <https://www.lakeheadu.ca/faculty-and-staff/departments/services/finance/purchasing/tenders>

and/or www.Merx.com

1.2 SPECIFICATIONS

See Appendix - Any deviations from specifications listed in the attached appendix are to be in clear/unambiguous terms and supported by relevant technical literature.

1.3 OPTIONS

See Appendix

1.4 SHIPPING AND INSURANCE COSTS

All shipping, insurance, duties and brokerage charges to be included
FOB - Lakehead University, Thunder Bay, Ontario

1.5 INSTALLATION AND ON-SITE TRAINING

To be included in cost of equipment

1.6 CONTRIBUTION

Vendor may provide a CFI-eligible in-kind contribution to the project
(minimum 20% of the best educational price)
Show list price, best educational price and in-kind contribution.

1.7 PAYMENT TERMS

Net30

1.8 TAXES

Goods and services sales tax extra

1.9 OTHER

Voltage required to operate each electrical component to be specified in quotation.

All electrical equipment must be CSA (Canadian Standards Association) and/or ESA (Electrical Safety Authority) approved and marked.

(If ESA approval required it will be at vendor's expense)

All equipment to be submitted must meet Ontario (provincial) and Canadian (federal) safety codes.

SECTION II INSTRUCTIONS TO BIDDERS

- 2.1 QUOTATIONS MUST BE RECEIVED IN THE LAKEHEAD UNIVERSITY PURCHASING DEPARTMENT, ROOM BB-1002A, BY 3:00:00 pm local time ON Tuesday April 17th, 2018 IN A SEALED ENVELOPE MARKED: RFQ #2018-060, Supply and installation of One (1) HIGH RESOLUTION ELECTRON MICROSCOPE ADDRESS SUBMISSIONS TO:**
LAKEHEAD UNIVERSITY
955 OLIVER ROAD
BRAUN BUILDING
ROOM BB1002A
ATTN: GEOFFREY MATTE
THUNDER BAY, ONTARIO
P7B 5E1
- 2.2 Quotations received after the above closing time and date will not be considered and will be returned to the bidder.**
- 2.3 Three (3) paper copies and one (1) USB flash drive of the quotation are required to be submitted.**
- 2.4 Lakehead University accepts no responsibility or liability for misdirected, unreadable, incomplete bids or electronic mail questions and it is the sole responsibility of the bidder to ensure their bids and e-mail have been received by the authorized representative of the University in a timely manner.
- 2.5 Quotation documents must be completed in accordance with the requirements of the Request for Quotation documents and no amendment or change to proposals will be accepted after the closing date and time.
- 2.6 Quotations shall be originally signed by an authorized signatory of the bidder. If the bidder is an incorporated company, the corporate seal of the bidder shall be affixed or a certified true copy of a resolution of the corporation naming the person(s) in question as
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authorized to sign agreements on behalf of the corporation shall be attached to the proposal.

- 2.7 Bidders who are sole proprietorships or partners shall sign their bid in such a way as to irrevocably bind the bidder in an authorized manner.
- 2.8 All questions regarding this Request for Quotation to be submitted in writing (fax, mail or email only) by 12:00:00 noon LOCAL TIME on Wednesday March 28, 2018.

CONTACT INFO:

**GEOFFRY MATTE
PURCHASING MANAGER
LAKEHEAD UNIVERSITY
955 OLIVER ROAD
THUNDER BAY, ONTARIO P7B 5E1
TELEPHONE 807 343-8455
E-MAIL gmatte@lakeheadu.ca**

- 2.9 **It is the sole responsibility of each potential bidder to check the Lakehead University Purchasing website on a regular basis for addendum.**
<http://finance.lakheadu.ca/current-tenders/>

Should the question be considered relevant to all bidders, the University will provide both the question and the written answers in the addendum. Bidders are solely responsible for ensuring the University has a current address and fax number on file for the bidder.

- 2.10 In the event the bidder can not comply with any term, condition, or requirement of this Request for Quotation, such non-compliance must be clearly noted on the bidder's letterhead and submitted with the proposal. Bidders are cautioned that such non-compliance may result in disqualification of the bidder's proposal. No allowance will be made for un-noted non-compliance of any kind by the bidder.
 - 2.11 No other representative of the University is to be contacted regarding this Request for Quotation. The University accepts no responsibility for, and the bidder agrees not to rely upon, any verbal or written statements or representations from any other person, whether or not employed by the University.
 - 2.12 While the University will not consider more than one bid from a bidder under the same or different names, the University is prepared to consider, in addition to the original bid, alternative bids submitted within the same bid package providing such are clearly marked as alternatives.
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- 2.13 Bidders are cautioned that quotations will be solely evaluated upon the disclosed evaluation criteria and no linkage of offers to donations, scholarships or similar arrangements will be considered.
- 2.14 The laws of the Province of Ontario shall apply to this Request for Proposal and any contract formed as a result of this Request for Proposal and the Courts of Ontario shall have exclusive jurisdiction over any contract formed as a result of this Request for Proposal.
- 2.15 The Lakehead University's name, logo, crest, etc, shall not be used without the prior written consent of the University.

SECTION III EVALUATION AND AWARD

- 3.1 Lakehead University intends to award a contract to the bidder whose proposal offers the best value to the University. However, the University is under no obligation to award any contract in whole or in part and the University reserves the right in its sole discretion to cancel this Request for Proposal process at any time before or after closing without providing reasons for such cancellation. The evaluation may include a bidder presentation and system demonstration.

The lowest or any proposal may not necessarily be accepted.

- 3.2 All quotations will be evaluated upon the following criteria:
 - A) Price including ongoing support costs **45%**
 - B) Product specifications **25%**
 - C) Technical and support services including training **30%**
 - 3.3 Any award made by the University shall be made in writing and shall be subject to the availability of funding at the time of award (if any).
 - 3.4 In the event of mathematical errors in extension of prices or other ambiguities, unit prices shall govern over total bid prices and words shall govern over numbers.
 - 3.5 In order to obtain the most advantageous offer for the University, the University reserves the right in its sole discretion:
 - a) to waive irregularities and / or minor non-compliance by any bidder with the requirements of this Request for Quotation
 - b) to request clarification and / or further information from one or more bidders after closing without becoming obligated to offer the same opportunity to all bidders
 - c) to enter into negotiations with one or more bidders without being obligated to negotiate with, or, offer the same opportunity to, all bidders.
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Bidders are advised however to submit a complete offer as their bid. Any waiver, clarification or negotiation will not be considered as an opportunity for bidders to correct errors in their bids.

- 3.6 The University shall not be responsible for any expenses or charges incurred by a bidder in preparing or submitting a quotation nor in providing any additional information considered necessary by the University for evaluation of quotations.
- 3.7 The University reserves the right in its sole discretion to amend this Request for Quotation at any time prior to close of bidding and bidders are cautioned to ensure they have received all addenda (if any) prior to submitting a bid.

SECTION IV AWARD CONTRACT

- 4.1 The successful bidder (if any) may not assign or subcontract any of the award contracts without the prior written consent of the University.
 - 4.2 Indemnification: The successful Bidder shall indemnify Lakehead University for all damage suffered by it as a result of the negligent actions or wrongful acts of the successful Bidder, its employees, servants and/or agents. The successful Bidder shall indemnify and hold harmless Lakehead University, its Board of Governors, students, employees, servants and/or agents from all claims, demands, losses, costs, damages, actions, suits, or proceedings initiated by third parties arising from the negligence of the successful Bidder, its employees, servants, and/or agents.
 - 4.3 General Liability Insurance: The successful Bidder must carry general liability insurance with a limit of not less than \$5,000,000 inclusive per occurrence for bodily injury (including death), and damage to property including the loss of the use thereof. Such insurance shall include coverage for broad form property damage, contractual liability, completed operations and product liability, and non-owned automobile liability and such other types of insurance, as would be carried by a prudent person and as Lakehead University may from time to time require. Lakehead University shall be named as an additional insured on the policy, but only with respect to the operations of the successful Bidder.
 - 4.4 This quotation shall be open for acceptance by the Owner for a period of **sixty (60)** days after submission. The Owner reserves the right to accept any quotation, and to reject any or all quotations. The Owner will issue a purchase order to the selected contractor that will serve as a formal agreement between these parties for performance of the required work. Invoices shall be accompanied by a **Workplace Safety and Insurance Board Clearance Certificate** and a **Statutory Declaration** certifying that monies have been appropriately distributed. Holdback monies will be administered in accordance with provisions of the Construction Lien Act.
 - 4.5 The successful bidder (if any) shall warrant its work and/or products for a period of not less than three (3) years from completion, installation or supply against all defects and deficiencies in manufacture, workmanship and installation. The successful bidder (if
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any) shall also promptly remedy or replace any defect or deficiency, in the goods or services as solely determined by the University, upon notice from the University to do so, and at no cost to the University.

- 4.6 The following policies are in effect on the Owner's premises and contractors performing work on these premises are required to observe their provisions:

1. Smoking on University Premises;
2. Harassment and Discrimination Policy and Procedures;
3. Lakehead University Traffic & Parking Regulations;
4. Hot Work Permit procedure for work that involves potential sources of ignition.

Copies of these policies may be reviewed at the Physical Plant office. For parking requirements other than short-term stops for delivery of materials, obtain and pay for parking permits in accordance with Lakehead University regulations.

- 4.7 Successful bidders are to submit the following documentation:

1. Prior to commencement of work, (and with each invoice) a Workplace Safety and Insurance Board Clearance Certificate; (when applicable)
2. Prior to commencement of work, a copy of the firm's Health and Safety Policy and Procedures. (when applicable)
3. Prior to commencement of work a list with names and contact numbers for all personnel associated with servicing the contract. (when applicable)
4. Shop drawings for Owner's review (when applicable);
5. Certificates of Inspection for electrical installations issued by the authority having jurisdiction; (when applicable)
6. Product operation, maintenance and warranty information;
7. Record drawings showing "as-built" conditions (when applicable).

- 4.8 Perform work in accordance with Occupational Health and Safety Act, Regulations for Construction Projects, WHMIS Regulation, and Regulation respecting Asbestos on Construction Projects in Building and Repair Operations. A report identifying asbestos containing materials which may be encountered in this project will be provided by the Owner. Erect barricades or hoarding as required to protect the public, workers and public and private property from injury or damage. Delineate project site with appropriate, legible signage. Enclose electric arc welding sites with opaque screening to protect passersby from eye injury caused by flashes. Securely cover openings in building envelope resulting from construction activity to prevent entry of unauthorized persons. **All persons on a project site shall wear protective headwear.**

- 4.9 Perform electrical work in conformity to the Ontario Electrical Safety Code. **Provide Owner with minimum 24 hour advance notice of requirement for disconnecting power supply circuits. Circuits shall be locked out of service and tagged by both the Owner's electrician and the contractor's electrician, with the Owner's lock being attached first and removed last.**
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The Owner reserves the right to require the contractor to remove from the site any of its personnel not properly observing or complying with the safety requirements prescribed herein or policies listed in paragraph 4.8.

- 4.10 **Interruption of building services during occupied periods is not permitted** except with Owner's express consent. Provide 24-hour advance notice of requirements for interruptions to building services for making connections thereto. At least one week prior to intended time of interruption, arrange to review locations and condition of service shutoff equipment with Owner's maintenance staff to ensure that it is functional and will effectively isolate the point at which connections must be made. Perform work in accordance with Owner's Lock and Tag Procedure. Prior to performing work in machine rooms or other spaces containing elevator equipment, consult with the firm contracted by Owner to provide elevator maintenance service.
- 4.11 Should the successful bidder (if any) fail to remedy any defect or deficiency promptly with a reasonable time after notice to do so, the University may remedy the defect or deficiency, at the successful bidder's (if any) cost.
- 4.12 Any products supplied and installed by the successful bidder (if any) shall be installed in such a manner as to preserve any and all manufacturer's warranties, for the benefit of the University.
- 4.13 The University and the successful bidder (if any) acknowledge and agree that they are independent contractors in a contract for goods and/or services and no employer - employee, partnership nor agency relationship is intended or created by their agreement.
- 4.14 Notwithstanding the above, while at Lakehead University, personnel of the successful bidder (if any) must observe all regulations and policies of the University including parking and traffic regulations. Vehicles shall be parked in areas, at the successful bidder's (if any) expense, as directed by the Security Manager.
- 4.15 In addition to any rights of termination at law or in equity, Lakehead University shall have the right to terminate any contract formed with the successful bidder (if any) upon written notice to the successful bidder.

SPECIFICATIONS INCLUDED WITH THIS RFQ.

Specifications and Allied Technical Details- Specification {including the list of spares & optional items) for HRTEM (High Resolution Transmission Electron Microscope)

Item #	Requirements/ parameters / parts	Specifications in detail
1	Requirement for: General Description	The equipment is intended for use with samples such as metals, semiconductors, insulators, including inorganic, organic, polymeric, composites, carbon materials etc. in order to investigate the nanostructure, elemental and structural composition by using HRTEM, STEM, SAED, EDS
	Main Equipment	
2	Accelerating Voltage	300 kV - Variable from 80 kV - 300 kV (or 200 kV?) can be changed continually Stability: $\leq 1 \times 10^{-6}$ / min
3	Electron Source	Schottky field emitter with Probe current ≤ 1 nA for 1 nm probe Maximum beam current: 50 nA. Drift: < 1 nm/min Energy resolution: ≤ 0.7 eV
4	Objective Lens	Spherical aberration: ≤ 1.5 mm Chromatic aberration: ≤ 1.6 mm Minimum step: 3 nm
4	Resolution	Lattice resolution: 0.12 nm or less TEM Point resolution: 0.25 nm or less
5	Magnification	TEM Magnification: Range $50\times$ to $1000\times$ or higher STEM Magnification: Range $150\times$ to $2000\times$ or higher
6	Vacuum System	Microscope should have oil free vacuum system FEG gun vacuum $< 10^{-6}$ Pa TEM column vacuum $< 10^{-6}$ Pa
7	Specimen chamber	Goniometer maximum tilt should be ± 80 degrees or higher Minimum specimen tilt angle with a standard double tilt holder should be $(\alpha) \pm 30^\circ / \pm 30^\circ$ Eucentric goniometer with all 5-axis motorized TEM Stage drift: 0.5 nm or better
8	STEM detector	1. STEM should be consisting of BF, OF and HAADF detectors. 2. The STEM resolution should be less than 0.20 nm. 3. At least one of the OF STEM detectors should be having 4 segments with capability to read each segment individually 4. 4 parallel imaging channels should be available to acquire 4 or more images at the same time from different STEM detectors 5. STEM maximum magnification should be at least $200\times$ or more
9	Recording System: COMS Camera	1. Bottom Mounted, EELS compatible high resolution COMS camera of minimum $4k \times 4k$ pixel. 2. Camera dynamic range should be 16 bit

		3. Camera should be usable at 80-200kV HT range 4. Camera should be retractable and EELS compatible 5. TEM maximum Magnification on TEM camera plane should be at least 1.5Mx or more
10	TEM Standard	Au/any other standard sample for TEM resolution
11	STEM Standard	Si 110 dumbbells for STEM resolution
12	Future Upgradation	TEM should be upgradable for 3D-tomography, EELS etc. in future
13	Equipment software	1. Full software package for TEM control, data acquisition, analysis and display 2. Software should be capable of image processing, video clips, EDX analysis; electron based imaging and selected area electron diffraction analysis. 3. All future up-gradation of software should be supplied free of cost 4 Software License
	Energy Dispersive X-ray Spectroscopy (EDS)	
14	EDS Detector	Silicon Drift Detector having a total active area 100 mm ² or higher. EDX solid angle should be 0.9 sr or more.
15	Elemental detection	Capability to detect elements with atomic number > 5 (from B onwards)
16	Energy resolution	Resolution at Mn-K α should be \leq 136 eV at 10,000 spectra/s or better
17	Software for EDS	1. Windows 7 or higher version /PC based software compatible with TEM operating software 2. Quantitative Elemental analysis and elemental mapping facility 3. The system software should have facility to track and correct the image shift during longer acquisition time required for critical mapping applications. 4. Calibration should be software controlled 5. All future up-gradation of software should be supplied free of cost 6. Software License
	Essential ancillary equipment for break free operation	
18	chiller	Suitable chiller
19	UPS	1. Suitable UPS with at least One Hour back - up for the main equipment. 2. Suitable UPS with at least One Hour back -up for the chiller separately.
20	Computer Hardware (2: one for TEM and one for EDS)	1. All control, data acquisition, analysis and diagnostics software loaded and tested on a Latest, Branded (HP/IBM/DELL) PC with latest hardware and

		<p>software configuration, the minimum features being the following:</p> <ol style="list-style-type: none"> 2. Processor: 3.2 GHz (or higher) i5 or higher version 3. Memory: 16 GB (or higher) 4. Internal Drives: 2 TB 5. All software used to operate the instrument, acquire and process the data should be based on 64-bit platform such as Win 7 or compatible higher version. 6. 24" (or bigger) TFT monitor. 7. CD/DVD reader and writer combo
21	Ultra-microtome Ion milling system	<p>For sectioning of samples</p> <p>For preparing thin samples for TEM observation</p>
	Spares and Consumables	
22	Sample holder	<ol style="list-style-type: none"> 1. Low-background Double-tilt Holder- 1 number 2. Single-tilt Holder - 1 number 3. Double tilt holder- 1 number 4. Multi specimen holder- 1 number for holding 3 samples
23	Spare-parts Kit, and consumables	<p>Provide a complete list of all recommended set of spares and consumables with item -wise price.</p> <p>The supplier of the instrument must confirm in writing that the spares for the entire instrument will be available for a period of at least ten years after the installation of the instrument.</p>
	Installation, Warranty, Training and Services	
24	Pre-installation	Site inspection and qualification must be performed by vendor's authorized representative, well in advance of the system delivery.
25	Installation & Demonstration	Installation, complete interfacing of the system with its subsystems, and commissioning is to be carried out by the vendor's factory trained engineers, followed by a demonstration of the system's performance fully in accordance with the specifications and equipment capabilities.
26	Power Supply	All power supplies must conform to the mains supply: 230 ±10 volts, 50 Hz. (or IIOV?)
27	Warranty	<p>Three year Comprehensive Warranty from the date of installation on the complete system, including all the subsystems.</p> <p>Warranty should cover:</p> <ol style="list-style-type: none"> 1. FEG emitter (minimum 5 years warranty?) 2. Free maintenance and service 3. Regular up-gradation of software.
28	Training	Comprehensive training by experienced and qualified engineers on the operation, basic maintenance of the system (for both the hardware and software) and trouble-shooting must be provided on-site for a period of 15 days in two sessions for 10 persons

Following items are
Optional

DEVIATION STATEMENT FORM

Name of Specifications / Parts / Accessories of Tender Enquiry	Specifications of Quote Model/ Part / Accessory	Deviation, if any to be indicated in unambiguous terms (The compliance/ Deviation should be supported by relevant Technical Literature)
Technical Deviations		
Commercial Deviations		