AfriRemoteLabs Itemized Station Sponsorship Budget

JOOUST Remote Laboratory Demonstration Centre

November 2026

There are 13 stations to be implemented in 5 years.

Phase	Delivery	Total USD
1	Years 1-2	$507,300
2	Years 3-4	$503,025
3	Year 5	$485,125
Total	Five years	$1,495,450

Planning allowances in USD. Instrument access, delivery costs and terms are subject to written quotations and site review.

Funding boundaries

Phase	Stations	Shared setup	Operations	Contingency	Total USD
1	$197,000	$105,000	$160,000	$45,300	$507,300
2	$233,500	$30,000	$200,000	$39,525	$503,025
3	$307,500	$10,000	$120,000	$47,625	$485,125
Total	$738,000	$145,000	$480,000	$132,450	$1,495,450

Contingency is 15% of station allocations and shared setup. The station allocation includes partner-access packages where applicable.

Operating funds support all commissioned stations through the end of Year 5. The Year 5 rates cover centre operations. Partner SEM and TEM session packages are budgeted separately in the phases where each service is commissioned.

SEM and TEM allowances cover defined teaching and research access during Years 3-5 and Year 5 respectively. Written agreements must confirm eligible specimens, rates, booking capacity, live participation, data export and access terms. Partner operators run instruments and may deliver approved recordings and datasets when live participation is unavailable.

No new building is assumed. Budget packages should be procured within the shown ceilings, including applicable delivery and taxes. Confirm landed costs, site readiness, staffing and partner access before committing funds. Post-Year-5 operations are outside the implementation budget.

Mechanics and motion
Phase 1 | Years 1-2 | Physics

Item or service	Qty	Unit USD	Subtotal USD
Dynamics track and carts	1	$2,200	$2,200
Motion detectors	2	$300	$600
Force sensors	2	$250	$500
Wireless acceleration sensors	2	$200	$400
Photogates and timers	2	$200	$400
Springs, masses and friction apparatus	1	$600	$600
DAQ and wireless interfaces	1	$1,000	$1,000
Guarded actuator and local stop	1	$1,300	$1,300
Mounts and experiment fixtures	1	$1,000	$1,000
Host workstation CPU/RAM/SSD	1	$1,500	$1,500
Monitor, keyboard, NIC and interface accessories	1	$1,000	$1,000
Acquisition/control licence allocation	1	$1,500	$1,500
Analysis/SDK/support allocation	1	$1,000	$1,000
Station gateway computer/interface	1	$800	$800
Demonstration camera and mounting	1	$600	$600
Driver/API development (engineering hours)	36	$50	$1,800
Station testing and recovery validation	1	$800	$800
Installation and acceptance allowance	1	$1,000	$1,000
Operator training allowance	1	$600	$600
Initial method validation/calibration allowance	1	$400	$400
Station total			**$19,000**

Physics - Verify Newton’s second law.
Chemistry - Compare sliding friction of polymer surfaces.
Biology - Analyze forces in a model limb.

Atomic force microscopy
Phase 1 | Years 1-2 | Physics / materials

Item or service	Qty	Unit USD	Subtotal USD
AFM including native scanner controller	1	$78,000	$78,000
Vibration isolation allowance	1	$5,000	$5,000
Probe starter stock	20	$150	$3,000
Reference specimens and calibration standards	1	$2,000	$2,000
Sample mounts and preparation kit	1	$2,000	$2,000
Host workstation CPU/RAM/SSD	1	$3,000	$3,000
GPU allowance	1	$1,000	$1,000
Monitor, keyboard, NIC and interface accessories	1	$1,000	$1,000
Acquisition/control licence allocation	1	$3,600	$3,600
Analysis/SDK/support allocation	1	$2,400	$2,400
Station gateway computer/interface	1	$900	$900
Demonstration camera and mounting	1	$700	$700
Driver/API development (engineering hours)	118	$50	$5,900
Station testing and recovery validation	1	$2,500	$2,500
Installation and acceptance allowance	1	$4,000	$4,000
Operator training allowance	1	$2,400	$2,400
Initial method validation/calibration allowance	1	$1,600	$1,600
Station total			**$119,000**

Physics - Measure thin-film roughness.
Chemistry - Compare surface texture of polymer coatings.
Biology - Measure topography of a prepared cellulose film.

UV-Vis spectrophotometry
Phase 1 | Years 1-2 | Chemistry

Item or service	Qty	Unit USD	Subtotal USD
Programmable UV-Vis with native acquisition	1	$13,500	$13,500
Quartz cells	10	$150	$1,500
Automated sample accessory allowance	1	$2,000	$2,000
Standards, holders and sampling accessories	1	$1,000	$1,000
Host workstation CPU/RAM/SSD	1	$1,800	$1,800
Monitor, keyboard, NIC and interface accessories	1	$1,200	$1,200
Acquisition/control licence allocation	1	$1,800	$1,800
Analysis/SDK/support allocation	1	$1,200	$1,200
Station gateway computer/interface	1	$900	$900
Demonstration camera and mounting	1	$700	$700
Driver/API development (engineering hours)	48	$50	$2,400
Station testing and recovery validation	1	$1,000	$1,000
Installation and acceptance allowance	1	$1,500	$1,500
Operator training allowance	1	$900	$900
Initial method validation/calibration allowance	1	$600	$600
Station total			**$32,000**

Physics - Characterize transmission and absorbance.
Chemistry - Determine dye concentration by Beer-Lambert calibration.
Biology - Estimate pigment concentration from a prepared plant extract.

Digital microscopy
Phase 1 | Years 1-2 | Biology

Item or service	Qty	Unit USD	Subtotal USD
Digital microscope optical system	1	$6,000	$6,000
Microscope camera	1	$2,500	$2,500
Motorized stage/focus controller	1	$3,000	$3,000
Calibration slide	1	$500	$500
Illumination accessories	1	$1,000	$1,000
Prepared specimens and mounts	1	$1,000	$1,000
Host workstation CPU/RAM/SSD	1	$2,400	$2,400
GPU allowance	1	$800	$800
Monitor, keyboard, NIC and interface accessories	1	$800	$800
Acquisition/control licence allocation	1	$1,500	$1,500
Analysis/SDK/support allocation	1	$1,000	$1,000
Station gateway computer/interface	1	$800	$800
Demonstration camera and mounting	1	$600	$600
Driver/API development (engineering hours)	36	$50	$1,800
Station testing and recovery validation	1	$800	$800
Installation and acceptance allowance	1	$1,250	$1,250
Operator training allowance	1	$750	$750
Initial method validation/calibration allowance	1	$500	$500
Station total			**$27,000**

Physics - Calibrate optical magnification and resolution.
Chemistry - Measure dimensions of a prepared salt crystal sample.
Biology - Compare cell sizes on prepared slides.

Thermal measurements
Phase 2 | Years 3-4 | Physics

Item or service	Qty	Unit USD	Subtotal USD
Temperature probes	4	$100	$400
Temperature DAQ/logger	1	$900	$900
Calorimetry and heating apparatus	1	$800	$800
Independent temperature cutoff	1	$400	$400
Approved heater controller	1	$600	$600
Fixtures and insulated vessels	1	$400	$400
Host workstation CPU/RAM/SSD	1	$1,200	$1,200
Monitor, keyboard, NIC and interface accessories	1	$800	$800
Acquisition/control licence allocation	1	$900	$900
Analysis/SDK/support allocation	1	$600	$600
Station gateway computer/interface	1	$500	$500
Demonstration camera and mounting	1	$375	$375
Driver/API development (engineering hours)	23	$50	$1,150
Station testing and recovery validation	1	$475	$475
Installation and acceptance allowance	1	$750	$750
Operator training allowance	1	$450	$450
Initial method validation/calibration allowance	1	$300	$300
Station total			**$11,000**

Physics - Fit a cooling curve.
Chemistry - Compare heat transfer for water and dilute salt solution.
Biology - Use a water phantom to model tissue cooling.

Scanning tunnelling microscopy
Phase 2 | Years 3-4 | Physics / materials

Item or service	Qty	Unit USD	Subtotal USD
STM including low-noise native controller	1	$35,000	$35,000
Vibration/acoustic isolation allowance	1	$5,000	$5,000
Conductive reference samples	1	$1,500	$1,500
Tip stock and preparation tools	1	$2,000	$2,000
Sample holders and mounts	1	$1,500	$1,500
Host workstation CPU/RAM/SSD	1	$2,400	$2,400
GPU allowance	1	$800	$800
Monitor, keyboard, NIC and interface accessories	1	$800	$800
Acquisition/control licence allocation	1	$2,400	$2,400
Analysis/SDK/support allocation	1	$1,600	$1,600
Station gateway computer/interface	1	$900	$900
Demonstration camera and mounting	1	$700	$700
Driver/API development (engineering hours)	90	$50	$4,500
Station testing and recovery validation	1	$1,900	$1,900
Installation and acceptance allowance	1	$3,000	$3,000
Operator training allowance	1	$1,800	$1,800
Initial method validation/calibration allowance	1	$1,200	$1,200
Station total			**$67,000**

Physics - Fit tunnelling current versus distance.
Chemistry - Compare graphite before and after a technician-applied surface treatment.
Biology - Analyze graphite data as a conductive biosensor substrate case study.

Automated titration
Phase 2 | Years 3-4 | Chemistry

Item or service	Qty	Unit USD	Subtotal USD
Automated titrator and native controller	1	$15,000	$15,000
Sample changer	1	$7,000	$7,000
Dosing/burette assemblies	2	$1,500	$3,000
pH/conductivity probes	2	$1,000	$2,000
Reagent/waste containment	1	$1,000	$1,000
Reference buffers and accessories	1	$2,000	$2,000
Host workstation CPU/RAM/SSD	1	$1,500	$1,500
Monitor, keyboard, NIC and interface accessories	1	$1,000	$1,000
Acquisition/control licence allocation	1	$1,800	$1,800
Analysis/SDK/support allocation	1	$1,200	$1,200
Station gateway computer/interface	1	$900	$900
Demonstration camera and mounting	1	$700	$700
Driver/API development (engineering hours)	48	$50	$2,400
Station testing and recovery validation	1	$1,000	$1,000
Installation and acceptance allowance	1	$2,000	$2,000
Operator training allowance	1	$1,200	$1,200
Initial method validation/calibration allowance	1	$800	$800
Station total			**$44,500**

Physics - Characterize electrode response and stabilization.
Chemistry - Find acid concentration by potentiometric titration.
Biology - Compare buffering in a cell-free bicarbonate model.

Biological assays
Phase 2 | Years 3-4 | Biology

Item or service	Qty	Unit USD	Subtotal USD
Multimode reader with native controller	1	$25,000	$25,000
Temperature-controlled incubation	1	$3,500	$3,500
Precision pipette set	1	$1,500	$1,500
Plate and reagent starter stock	1	$1,500	$1,500
Temperature probes/logger	1	$1,000	$1,000
Sample-preparation bench equipment	1	$1,500	$1,500
Small ancillary assay equipment	1	$1,000	$1,000
Host workstation CPU/RAM/SSD	1	$1,800	$1,800
Monitor, keyboard, NIC and interface accessories	1	$1,200	$1,200
Acquisition/control licence allocation	1	$2,400	$2,400
Analysis/SDK/support allocation	1	$1,600	$1,600
Station gateway computer/interface	1	$900	$900
Demonstration camera and mounting	1	$700	$700
Driver/API development (engineering hours)	48	$50	$2,400
Station testing and recovery validation	1	$1,000	$1,000
Installation and acceptance allowance	1	$2,000	$2,000
Operator training allowance	1	$1,200	$1,200
Initial method validation/calibration allowance	1	$800	$800
Station total			**$51,000**

Physics - Check the stability of a temperature-controlled measurement.
Chemistry - Fit reaction-rate curves from absorbance data.
Biology - Compare enzyme activity at different temperatures.

Scanning electron microscopy
Phase 2 | Years 3-4 | Shared / materials

Delivery through a proposed partner facility with operator-led acquisition and data export.

Item or service	Qty	Unit USD	Subtotal USD
Operator-led SEM sessions (24/year for three years)	72	$500	$36,000
Sample preparation and coating batches	24	$400	$9,600
Specimen logistics and intake batches	12	$300	$3,600
Remote delivery setup, calibration and data handover	1	$7,200	$7,200
Teaching reference dataset and facilitator training	1	$3,600	$3,600
Station total			**$60,000**

Physics - Compare detector contrast and charging in approved data.
Chemistry - Compare morphology of prepared catalyst particles.
Biology - Measure dimensions of prepared pollen or diatom specimens.

Optical characterization
Phase 3 | Year 5 | Physics

Item or service	Qty	Unit USD	Subtotal USD
Optical bench and alignment mounts	1	$3,000	$3,000
Light sources and holders	1	$2,000	$2,000
Optical sensors and meters	2	$1,000	$2,000
Motorized stage/filter assembly	1	$2,000	$2,000
Optical sensor DAQ	1	$1,000	$1,000
Filters, lenses and reference samples	1	$2,000	$2,000
Host workstation CPU/RAM/SSD	1	$1,800	$1,800
Monitor, keyboard, NIC and interface accessories	1	$1,200	$1,200
Acquisition/control licence allocation	1	$1,200	$1,200
Analysis/SDK/support allocation	1	$800	$800
Station gateway computer/interface	1	$800	$800
Demonstration camera and mounting	1	$600	$600
Driver/API development (engineering hours)	36	$50	$1,800
Station testing and recovery validation	1	$800	$800
Installation and acceptance allowance	1	$1,250	$1,250
Operator training allowance	1	$750	$750
Initial method validation/calibration allowance	1	$500	$500
Station total			**$23,500**

Physics - Measure laser wavelength by diffraction.
Chemistry - Compare transmission through safe dye standards.
Biology - Measure diffraction through a prepared wing specimen.

FTIR and Raman spectroscopy
Phase 3 | Year 5 | Chemistry

Item or service	Qty	Unit USD	Subtotal USD
FTIR with native acquisition	1	$30,000	$30,000
ATR sampling accessory	1	$5,000	$5,000
Raman with native detector/controller	1	$45,000	$45,000
Raman enclosure and laser safeguards	1	$8,000	$8,000
Reference standards	1	$2,000	$2,000
Sample holders and preparation tools	1	$2,000	$2,000
Mapping-stage allowance	1	$3,000	$3,000
Host workstation CPU/RAM/SSD	1	$3,000	$3,000
GPU allowance	1	$1,000	$1,000
Monitor, keyboard, NIC and interface accessories	1	$1,000	$1,000
Acquisition/control licence allocation	1	$4,800	$4,800
Analysis/SDK/support allocation	1	$3,200	$3,200
Station gateway computer/interface	1	$900	$900
Demonstration camera and mounting	1	$700	$700
Driver/API development (engineering hours)	146	$50	$7,300
Station testing and recovery validation	1	$3,100	$3,100
Installation and acceptance allowance	1	$4,000	$4,000
Operator training allowance	1	$2,400	$2,400
Initial method validation/calibration allowance	1	$1,600	$1,600
Station total			**$128,000**

Physics - Compare vibrational modes across reference spectra.
Chemistry - Identify a polymer using diagnostic bands.
Biology - Analyze a reference cellulose or chitin spectrum.

Transmission electron microscopy
Phase 3 | Year 5 | Biology / materials

Delivery through a proposed partner facility with operator-led acquisition and data export.

Item or service	Qty	Unit USD	Subtotal USD
Operator-led TEM sessions with diffraction where suitable	60	$1,200	$72,000
Thin specimen and grid preparation batches	30	$1,000	$30,000
Specimen logistics and intake batches	20	$300	$6,000
Remote delivery setup, calibration and data handover	1	$15,000	$15,000
Teaching dataset, facilitator training and scheduling support	1	$12,000	$12,000
Station total			**$135,000**

Physics - Interpret calibrated electron diffraction from a suitable standard.
Chemistry - Measure size distributions of prepared nanoparticles.
Biology - Measure features in a fixed teaching specimen or approved archived images.

Sensors and data acquisition
Phase 3 | Year 5 | Shared

Item or service	Qty	Unit USD	Subtotal USD
Multi-channel DAQ development kit	1	$3,000	$3,000
Wireless gateway/receivers	1	$1,000	$1,000
Motion detectors	2	$300	$600
Force sensors	2	$250	$500
Temperature probes	4	$100	$400
Voltage/current/light sensor assortment	1	$1,200	$1,200
Calibration references	1	$1,000	$1,000
Isolated I/O and protection	1	$1,500	$1,500
Cables and connectors	1	$800	$800
Host workstation CPU/RAM/SSD	1	$1,800	$1,800
Monitor, keyboard, NIC and interface accessories	1	$1,200	$1,200
Acquisition/control licence allocation	1	$1,200	$1,200
Analysis/SDK/support allocation	1	$800	$800
Station gateway computer/interface	1	$800	$800
Demonstration camera and mounting	1	$600	$600
Driver/API development (engineering hours)	36	$50	$1,800
Station testing and recovery validation	1	$800	$800
Installation and acceptance allowance	1	$1,000	$1,000
Operator training allowance	1	$600	$600
Initial method validation/calibration allowance	1	$400	$400
Station total			**$21,000**

Physics - Quantify sensor sampling error and aliasing.
Chemistry - Calibrate a conductivity probe with salt standards.
Biology - Track light and temperature in a plant-growth model.