



REQUEST FOR PROPOSAL

Supply of Machines and laboratory Equipment's
for Mechanical Engineering in the Premises of
Government Polytechnic, Gulzarbagh, Patna 7

RFP Number:-...03/2026-27... dated-05.09.2026

Issued on 05/09/2026

Government Polytechnic, Gulzarbagh, Patna 7

ADDRESS- GULZARBAGH, PATNA 800007

Under the

**Department of Science, Technology and Technical Education
Government of Bihar**

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1. Abbreviations and Definitions

Abbreviations	Descriptions
DSTTE	Department of Science, Technology and Technical Education
DSC	Digital Signature Certificate
EMD	Earnest Money Deposit
FAT	Final Acceptance Test
GST	Goods & Service Tax
INR	Indian Rupees
LOI	Letter of Intent
NIT	Notice Inviting e-Tender
PBG	Performance Bank Guarantee
PAN	Permanent Account Number
PSU	Public Sector Undertaking
SLA	Service Level Agreement
UOM	Unit of Measures

2. Notice Inviting Tenders

1. **Government Polytechnic, Gulzarbagh, Patna 7** has been constituted under the Department of Science, Technology and Technical Education, Government of Bihar to cater to the needs of technical education. The **Government Polytechnic, Gulzarbagh, Patna 7** intend to invite bids from eligible entities supply of Machines and laboratory Equipment's for Mechanical Engineering in the institute Premises as mentioned in the tender document.
2. The contract will be signed between **Government Polytechnic, Gulzarbagh, Patna 7** and the successful agency/bidder.
3. To participate in the e-tendering process, the bidder/agency are required to get themselves registered with eproc2.bihar.gov.in.
4. **Schedule of Events:**

Sn.	Event Description	Timeline
4.1	Last date & time of downloading the RFP	Till 18.09.2026 up to 11:59 PM, on eproc2.bihar.gov.in
4.2	Pre-bid meeting	15.09.2026 at 11:00 AM
4.3	Submission (upload) of online bidding document.	18.09.2026 till 11:59 PM, on eproc2.bihar.gov.in
4.4	Submission of EMD	Offline by 19.09.2026 till 11:00 AM to "Government Polytechnic Patna 7"
4.5	Opening of Technical Bid	21.09.2026 on the eproc2.bihar.gov.in
4.6	Opening of Financial Bid	After Evaluation of Technical Bid on eproc2.bihar.gov.in
4.7	Pre- bid meeting venue	Government Polytechnic, Gulzarbagh, Patna 7 and Address Gulzarbagh Patna 800007, Bihar
4.8	Contact person	Principal Government Polytechnic, Gulzarbagh, Patna 7 Mobile no.-9934053202 Email ID- gpgulzarbaghpatna7@gmail.com; gpp7-bih@nic.in
4.9	Method of Selection	Least Cost Selection (LCS) quoted among technically qualified bidder/agency

Note

- i.) Interested bidders may obtain further information about this Notice Inviting Tender (NIT) from the office of **Government Polytechnic, Patna 7**
 - ii) No tender will be accepted after closing date and time in any circumstances.
5. Bidder may also download the tender document available from eproc2.bihar.gov.in and submit the tender by using the downloaded document.
 6. The **Government Polytechnic, Gulzarbagh, Patna 7** will select the bidder based on Least Cost Selection (LCS) method for supply of Machines and laboratory Equipment's for Mechanical Engineering in the Institute Premises.
 7. The tender shall be accompanied by **Earnest Money Deposit (EMD) of 150000/- (One Lakh Fifty Thousand rupees only)** in the shape of Demand Draft from any Schedule Bank in favour of Government Polytechnic, Patna 7.
 8. The technical and financial bids must be submitted through eproc2.bihar.gov.in before the date and time specified in the tender document. The **Government Polytechnic, Gulzarbagh, Patna 7** doesn't take any

- responsibility for the delay / Non-Submission of Tender / Non-Reconciliation of online Payment caused due to Non-availability of Internet Connection, Network Traffic/ Holidays, or any other reason.
9. The bidders shall submit their eligibility and qualification details, Certificates as mentioned in the tender document, in the online standard formats given in eproc2.bihar.gov.in at the respective stage(s) only.
 10. The bidders shall upload the scanned copies of all the relevant certificates, documents etc., in support of their eligibility criteria / technical bids and other certificate /documents in the eproc2.bihar.gov.in.
 11. The bids must be uploaded (e-mode/online) at the eproc2.bihar.gov.in.
 12. All prospective bidders may attend the Pre-Bid meeting. The venue, date and time are indicated in Schedule of Events as in above **section 4**.
 13. The Earnest Money should be deposited on or before the closing date & time indicated above in the **Government Polytechnic, Patna 7**, failing which the tenders will be treated as late tender and would be summarily rejected. Proof of the same shall be uploaded on the eproc2.bihar.gov.in during the bid submission.
 14. In the event of any of the above-mentioned dates being declared as a holiday/ closed day for the **Government Polytechnic, Gulzarbagh, Patna 7** the tenders/EMD will be opened/received on the next working day at the scheduled time.
 15. **Government Polytechnic, Gulzarbagh, Patna 7** reserves the right to accept or reject any or all tender or change the terms and condition of NIT or cancel the NIT without assigning any reasons at any stage and time.
 16. For further enquiry and information, contact the following officer during office hours **10:00 AM to 05:00 PM-Principal, Contact No.-. 9934053202**
 17. All further notifications/Corrigendum/Addendum if any shall be posted on eproc2.bihar.gov.in.
 18. When reading this document if you identify any errors or omissions, please advise **Government Polytechnic, Gulzarbagh, Patna 7** in writing, in 5 calendar days, giving a brief description of the problem, its location within document and your contact details.

Confidentiality

This document contains privileged and confidential information pertaining to the “supply of Machines and laboratory Equipment’s for Mechanical Engineering in the Institute Premises” at **Government Polytechnic, Patna 7**. The access level for the document is specified above. The addressee should honour access rights by preventing intentional or accidental access outside access scope.

Principal
Government Polytechnic
Patna 7

3. Instruction to Bidders

- a. The bidder shall submit his bid/tender on eproc2.bihar.gov.in.
- b. The bidder may use their Digital Signature Certificate (DSC) if they already have. They can also take Digital Signature Certificate (DSC) from any of the authorized agencies.
- c. For user-id they must get registered themselves on eproc2.bihar.gov.in and submit their bids online. Offline bids shall not be entertained by the Tender Inviting Authority (TIA).
- d. Bids not submitted, as per the above Performa / Instructions mentioned in this RFP document, will be summarily rejected.
- e. The bidders shall submit their eligibility and qualification details, technical bid, financial bid, etc., in the online standard formats given on eproc2.bihar.gov.in.
- f. The bidders shall upload the scanned copies of all the relevant certificates, documents etc. with indexing and paging, in support of their eligibility criteria / technical bids and other certificates /documents on the eproc2.bihar.gov.in.
- g. The bidder shall digitally sign the supporting statements, documents, certificates, uploaded by him, owning responsibility for their correctness/authenticity. The bidder shall attach all the required documents for the specific tender after uploading the same during the bid submission as per the tender notice and bid document.
- h. The rate quoted by the bidder shall remain same throughout the contract period including any extension thereon. No increment in rates would be permitted in any circumstances.
- i. The Bidder is obliged to work closely with [Government Polytechnic, Patna 7](#), act within its own authority and abide by directives issued by [Government Polytechnic, Gulzarbagh, Patna 7](#) from time to time.
- j. All the required documents should be attached at the proper place and with proper nomenclature (as mentioned in the e-forms) otherwise the tender of the bidder will be rejected.
- k. The bid (technical and financial details of the bidder) shall be submitted on or before the last date of submission in online mode only. Tenders submitted after the stipulated date & time (closing date and time for uploading the tender and submission of EMD as mentioned in Clause 4, Notice Inviting Tender (NIT)) shall not be considered and would summarily be rejected.
- l. The decision of [Government Polytechnic, Gulzarbagh, Patna 7](#) in regard to interpretation of the Terms & Conditions and the Agreement shall be final and binding on the bidder.
- m. In case of any disputes on execution of the work during the period of contract, the decision of the principal, [Government Polytechnic, Gulzarbagh, Patna 7](#) shall be binding and final, agreeable in full by both the parties. Any legal disputes shall be subject to Bihar jurisdiction.
- n. Any change/corrigendum/extension of closing/ opening dates in respect of this RFP shall be issued through website only and no press notification will be issued in this regard. Bidders are therefore requested to regularly visit eproc2.bihar.gov.in website for updates.
- o. All available technical literature, catalogues, and other data in support of the specifications and details of the items should be furnished along with the offer.
- p. Samples of any product, if called for, should be submitted free of all charges by the tenderer and Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of non-acceptance of tender, the tenderer will have to remove the samples at his own expenses.
- q. Equipment's offered should strictly conform to the specifications. The tenderer should also indicate the Make/Type number of the equipment's offered and provide catalogues, technical literature, and sample, whatever necessary along with the quotation. Test certificates wherever necessary should be forwarded along with supplies.
- r. The bidder will be liable to replace if any hardware faulty during the contract period without any extra cost during the warranty period.
- s. The bidder has to arrange necessary insurance coverage to the workmen/machines/equipment's etc deployed by him and shall arrange necessary safety measures before starting the work.

4. Tendering Expense

The bidder shall bear all costs and expenditure incurred and/or to be incurred by it in connection with its tender including preparation, mailing and submission of its tender and subsequently processing the same. The Government Polytechnic, Gulzarbagh, Patna 7 shall in no case be responsible or liable for any such cost, expenditure etc. regardless of the conduct or outcome of the tendering process.

5. Right to Accept Any Offer and to Reject Any or All Offers

Government Polytechnic, Gulzarbagh, Patna 7 reserves the right to accept or reject any tender offer, and to terminate the tendering process and reject all tenders at any time prior to award of contract, without thereby incurring any liability to the affected vendor(s) or any obligation to inform the affected vendor(s) of the grounds for such action.

6. Language of the tender

The tender submitted by the bidder and documents relating to the tender shall be written in the English language only.

7. Taxes

The Bidders shall fully familiarize themselves about the applicable domestic taxes (such as GST, income taxes, duties, fees, levies, etc.) on amounts payable by the Purchaser under the resultant Agreement. All such taxes with foundation creation (if required) must be included by Bidders in the financial proposal.

8. Concessions permissible under statutes

Government Polytechnic, Gulzarbagh, Patna 7 while quoting against this tender, must take cognizance of all concessions permissible, if any, under the statutes and ensure the same is passed on to the Purchaser, failing which it will have to bear extra cost. In case Bidder does not avail concessional rates of levies like customs duty, excise duty, Cess etc. Government Polytechnic, Gulzarbagh, Patna 7 will not take responsibility towards this.

9. Amendments to Tender Documents

At any time prior to the deadline for submission of tenders, the Government Polytechnic, Gulzarbagh, Patna 7 may, for any reason deemed fit by it, modify the tender document/s by issuing suitable amendment(s) to it. Such an amendment will be notified on eproc2.bihar.gov.in website and the same shall be binding to all prospective bidders. Government Polytechnic, Gulzarbagh, Patna 7 will not issue any separate communication in this regard.

10. Pre-Bid Meeting

To provide response to any doubt regarding terms and conditions, scope of work and any other matter given in the tender document, a pre-bid meeting has been scheduled to be held in the office of Government Polytechnic, Gulzarbagh, Patna 7 or an online meeting may be scheduled. The clarification sought by representative of prospective bidders shall be responded appropriately. However, they shall clarify and will be asked to submit their written request by close of office next working day. The Government Polytechnic, Gulzarbagh, Patna 7 shall upload written response on the eproc2.bihar.gov.in website to such requests for clarifications, without identifying its source. In case required, amendments issued, shall be binding on all prospective bidders. Further, the issue raised having been clarified shall be final. Bidders are advised to visit the eproc2.bihar.gov.in website regularly for any updates/ corrigendum/ amendments etc.

11. Earnest Money Deposit (EMD)

- a) The bid shall be accompanied Earnest Money Deposit (EMD) of 150000/- (One Lakh Fifty Thousand rupees only) through eperoc2 portal.
- b) The EMD of unsuccessful bidder will be returned to them without any interest, after execution of the contract. The EMD of the successful bidder will be returned without any interest, after receipt of performance security as per the terms of contract.

- c) The EMD shall be forfeited by Government Polytechnic, Gulzarbagh, Patna 7 hereunder or otherwise, under the following conditions:
- If a bidder engages in a corrupt practice, fraudulent practice, coercive practice, undesirable practice, or restrictive practice.
 - If a bidder withdraws its bid during the period of bid validity as specified in this Tender and as extended by the Government Polytechnic, Gulzarbagh, Patna 7 from time to time.

12. Bid Validity

The submitted bids shall remain valid for a period of 180 days after the date of submission.

13. Duration

The contract, if awarded, shall be valid for a period of one year from the date of award. In case of breach of contract or in the event of not fulfilling the minimum requirements/ statutory requirements, Government Polytechnic, Gulzarbagh, Patna 7 shall have the right at any time to terminate the contract forthwith in addition to forfeiting the Performance Security amount deposited by the bidder and initiating administrative actions for blacklisting, etc.

14. Eligibility & Evaluation Criteria

This invitation is open to organisation who fulfil the eligibility & qualification criteria specified here under:-

1. The financial bid must include the cost of main machines, equipment's and its accessories.
2. The rates should be quoted in figures as well as in words.
3. Bidder and OEMs must have record of supplying of same or similar machines in any State Government/ Central Government institution/department/ PSU or any recognized university for last 3 financial years. Minimum order values should be of 50 Lakhs.
4. (a) Bidders/OEM should be the manufacturer/authorized dealer. Letter of authorization from original equipment manufacturer on the same & specific to the tender should be enclosed.

(b) An undertaking from the original manufacturer is required stating that they would facilitate the bidder on a regular basis with technology/product updates and extend support for the warranty as well.
5. The supplier will be responsible for three years of trouble-free operation of machines and equipment's from the date of handing over of commissioned machines & equipment's.
6. The supplier will provide three-year onsite warranty of machines & equipment's and all other items. All associated consumables and spares of supplied machines & reequipments during three years of warranty period will be provided by the supplier.
7. The supplier must have to give full specifications along with details of spare parts against the items quoted by them.
8. The supplier must have to ensure that the items supplied by them are fully covered with their specification submitted.
9. The bidder/OEM should have a positive net worth in last three financial years. Certificate from the Statutory Auditor/CA should be attached.
10. The technical bids will be opened before the purchase committee and after thorough verification of technical bids, the purchase committee will then prepare a detailed comparative statement in the light of terms & conditions laid down in the tender document and after full satisfaction of the purchased

committee for the technical qualification the financial bids of the technically qualified tenders will be opened.

11. The successful & qualified Bidders/OEM must have to give the letter of acceptance of order within five days by email from the date of placement of order by the Institute.
12. No interest will be payable on EMD amount deposited by the Bidders/OEM.
13. In case of any dispute, the legal jurisdictions will be at Buxar.
14. All tenders in which any of the prescribed conditions is not fulfilled or any condition is put forth by the Bidders/OEM shall be summarily rejected.
15. Number of items may increase or decrease by the Institute.
16. Machines and other items will be delivered at Government Polytechnic, Patna 7.

Additional Terms and conditions

1. The bidder/OEM should have 3 years of experience in manufacturing such equipment in their manufacturing facility.
2. The bidder and OEM should have not been debarred/blacklisted by any State Government/ Central Government institution/department for any reason. An affidavit in this regard on stamp paper should be submitted by the bidder and OEM.
3. Copies of acknowledgement of GST returns for the latest quarter of Financial Year 2026-27 are to be submitted.
4. EMD in favour of The Principal, Government Polytechnic, Gulzarbagh, Patna 7 should be submitted before bid opening.
5. Bidder/OEMs must produce a work order for a minimum amount of 50 lakhs, of which 80% payment must have been received.
6. Bidder/OEMs must provide the details (Name of OEM (Make) and Model Number) of all the equipment to be supplied by them. Bidder/OEMs are also required to submit the OEM's product catalogue/brochure indicating the specifications of offered equipment for technical suitability.
7. OEM Should have its own manufacturing facility & should enclose Original Photos Images of the Manufacturing Plant as proof of OEM.
8. Bidder/OEM must have a Solvency Certificate of amount 80% of bid value issued by Scheduled Nationalize Bank. The same should be submitted along with the bid. The issue date should not be more than 6 months old from the date of last day of submission of bid.
9. Copies of acknowledgement of Income tax returns for the Financial Year 2023-24, 2024-25, and 2025-26 are to be submitted.
10. Sample product/ online product tutorial of product can be demanded from during technical evaluation to ascertain quality & specification as per discretionary of Institute. Bidders/OEM must provide sample within 10 days or online product within 2 days of demand otherwise bid may be rejected.
11. The OEM must submit MSME & NSIC Certificate, if applicable.

12. Factory licence of OEM as proof of manufacturing for the past three years from the date of approval, Process of Manufacturing in the Factory and List of Plant & Machinery should be submitted by the bidder.
13. Payment will be released only after satisfactory delivery, installation, foundation(if required), demonstration and acceptance of goods at the Institute.
14. All bid submitted shall also include the following information or documents in the technical bid. The bidder must submit the copy of PAN Card. The bidder must submit copies of their GST registration certificate from the competent authority.
15. The bidder/OEM average annual turnover in India should be at least Rs. 10 Cr (Ten Crores) for the last 3 Financial Years (FY2023-24, FY2024-25 and FY-2025-26). The same should be supported by balance sheet audited by CA.
16. Bidder/OEM must have active service support and required to furnish contact details of Service Executive, details to be furnished on Bidder/OEM letter head.
17. Bidder should submit valid ISO 9001, ISO 45001 and ISO 14001 certificate of OEM
18. OEM must have NABL Calibration Facility for past three years on Own or through its Sister Concern. Documents in support should be submitted with the bid.
19. Bidders who do not meet the criteria given above are subject to be disqualified, if they have made untrue or false representation in the forms, statements and attachments submitted in proof of the qualification requirements or have a record of poor performance, not properly completing the contract, inordinate delays in completion or financial failure, any false declaration, etc.
20. All products should carry a three-year onsite warranty.
21. Details of Comprehensive Annual Maintenance Contract (CAMC) after the warranty period may be clearly mentioned in the Financial Bid Documents.
22. The price must be inclusive of GST, packing, freight, unloading, installation & foundation etc.
23. Principal, Government Polytechnic, Gulzarbagh, Patna 7 reserves the right to cancel the bid at any time without assigning any reasons thereof.
24. The bidder must provide the hard copies of detailed manuals/brochures with each item/equipment.
25. In case of any conflict in term and condition, the ATC will be accepted.

15. Technical Evaluation criteria

All documents to be provided as mentioned in Eligibility & Evaluation Criteria and additional terms and conditions.

Note: Bidders providing all documents as mentioned above in Eligibility & Evaluation Criteria and additional terms and conditions shall qualify for the financial evaluation.

16. Financial Evaluation

Financial bids shall be opened only for the vendors whose bids are found to be Technically fit/ substantially responsive and complying with minimum eligibility criteria.

- i) **Government Polytechnic, Gulzarbagh, Patna 7** will open the financial bids of only Technically Qualified bidders as per eproc2.bihar.gov.in.
- ii) Discrepancy in the financial bid, it will be dealt as per the following:
 - a. 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.
 - b. If there is a discrepancy between words and figures, the amount in words shall prevail.
- iii) Of all the Financial Bids opened, the bidder whose financial bid is lowest (hereby referred to as L1 bidder) will be considered eligible and award of contract.

17. Scope of Work:

Broad scope of work should be:

- To supply all Mechanical Lab equipments as per BOQ mentioned in the RFP.
- Ensuring adherence to the agreed Service Levels and Service Quality for each of the deliverables executed by them.
- Ensure the delivery of equipment and installation of entire Mechanical Equipments at the institute within 8 weeks from the date of award of contract.
- Provide Solution compliant with applicable guidelines provided by DST, Bihar.
- Provide appropriate training to the designated/nominated staffs of the institute.
- Should carry necessary civil and related restoration work etc.

18. Bill of Quantity

MECHANICAL ENGINEERING LAB

List of Equipments for Theory of Machine Lab:			
S. No	Name of Equipment, Tools and Software	Broad Specifications	Qty
1.	Working Model Set of Common Mechanical Mechanisms	Working Models (Acrylic) of Mechanisms including Slider-Crank Mechanism, Hooke's Joint (Universal Joint), Inversions of Four-Bar Mechanism (Locomotive Coupling, Beam Engine, Pantograph, Pendulum Pump), Rotary I.C. Engine Mechanism, Oscillating Cylinder Engine Mechanism, Whitworth Quick Return Mechanism, Shaper Quick Return Mechanism, Scotch Yoke Mechanism, Elliptical Trammel Mechanism, and Oldham's Coupling, suitable for classroom demonstration and laboratory use.	1
2.	Different Types of cams, followers and cam/follower arrangements	Working Models (Acrylic) of Different Types of Cams, Followers, and Cam-Follower Arrangements, including Disc (Radial) Cam, Cylindrical (Barrel) Cam, Knife-Edge Follower, Roller Follower, Flat-Faced Follower, and Spherical-Faced Follower, suitable for classroom demonstration and laboratory use.	1
3.	Different Types of gears	Set of Different Types of Gears comprising Spur Gear, Helical Gear, Double Helical (Herringbone) Gear, Bevel Gear, Spiral Bevel Gear, Worm and Worm Wheel, Rack and Pinion, and Internal Gear and others manufactured from metallic materials, suitable for classroom demonstration and laboratory use.	1

4.	Working models of Gear trains	Working Models (Acrylic) of Gear Trains including Simple, Compound, Reverted and Epicyclic (Planetary) Gear Train, suitable for classroom demonstration and laboratory use.	1
5.	Governors	Working Models (Metallic) of Watt and Porter Governors for demonstration and laboratory use.	1
6.	Various types of brake assemblies	Working and cut section models (Shoe brake, Band brake, Internal expanding shoe brake, Disc Brake)	1
8.	Various types of clutch assemblies.	Working and cut section models (Single-plate clutch, Multi-plate clutch, Centrifugal Clutch)	1
9.	Static and Dynamic Balancing Apparatus	Bench-mounted, rigid metallic construction. Variable-speed FHP AC/DC motor drive with electronic speed control. Maximum operating speed: Minimum 3000 RPM. Digital RPM indicator/display. Power supply: 230 V AC $\pm 10\%$, 50 Hz, Single Phase. Stainless steel rotating shaft mounted on anti-friction bearings. Minimum four adjustable stainless steel balancing masses with provision to vary both the magnitude and position of unbalance. Arrangement for accurate measurement of the angular (0–360°) and longitudinal positions of balancing masses. Heavy-duty metallic base frame with vibration-resistant construction. Transparent acrylic safety guard (minimum 6 mm thick), may be provided. Complete with necessary accessories, operating manual, and experiment manual. Suitable for conducting experiments on static balancing, dynamic balancing, determination of unbalance, and balancing of rotating systems.	1

List of Equipments for Engineering Metrology and Instrumentation Lab:

S. No	Name of Equipment, Tools and Software	Broad Specifications	Qty
1.	Surface roughness Taylor Hobson's	Max. sample length 0.8mm	1
2.	Profile projector with gear profile/Thread profile Templates	Opaque fine grained ground glass screen with 90°, 60°, 30° cross line Location; fitted with graduated ring (0-360°) L.C. 1mm; Optics Std 10X, 20X, Measuring Range Std 100mm x 100mm; Opt X axis up to 400mm, Y axis up to 200mm; Focusing Travel 100mm; Magnification Accuracy Contour $\pm 0.05\%$ Surface $\pm 0.05\%$; Illumination Counter 24V/150W halogen lamp with illumination control; Resolution 0.005/0.001/0.0005 mm.	1
3.	Tool maker's microscope	Monocular optical tube, erect image, angle reading: min 6', Range 360 degree, Eyepiece magnification 15x, Objective magnification 2x, Light source Tungsten bulb	1
4.	Parkinson's Tester/ Gear Rolling Tester with master gears	Accuracy 0.25mm, Gear diameter of 40-80mm, Base size 320 x 100mm, Project magnification 5x, Involute profile testing.	1

5.	Strain Gauge Kit with Cantilever beam	Parameter Measured: Strain in terms of grams on a cantilever beam Transducer: Temperature compensated strain gauge Type: Cu-Ni foil with polyamide carrier base Gauge Resistance : 350 Ohms (Nominal) Gauge Length: 6mm Gauge Width: 4 mm Gauge Base: 5 mm x 4.3 mm Gauge Factor: 2:1 (approx.) With complete mounting accessories.	1
6.	Diaphragm Pressure Gauge	dial size: 150mm: mercury / gas actuated stem & bulb :SS 316 stem & bulb DIA : 6mm, 8mm, 10mm & 12mm stem length (std.) : up to 300mm capillary material : MS / SS 316 micro bore capillary protection : SS 304 tubing, pvc, SS armored dial	1
7.	Sensor - Bourdon tube C type with	3.5 digit display for pressure/ displacement measurement	1
8.	Differential Pressure Bellows	Range 0-80" water column to 0-800" water column (or Equivalent) Uni-Directional or Bi-Directional Accuracy $\pm 1\%$ F.S. Standard, $\pm 1/2\%$ F.S. Optional Dial Size 6" (Standard), 4-1/2" (Optional) Working Pressure up to 6000 PSIG (400 bar) Material of Construction – Body Aluminum, Brass, Carbon Steel, 316/316L Stainless Steel Materials of Construction - Internals Copper Alloy or Stainless Steel	1

List of Equipments for Hybrid Automobile Engineering Lab:

S. No	Name of Equipment, Tools and Software	Broad Specifications	Qty
3.	Fuel Cell trainer kits	Bench-top PEM Fuel Cell Trainer complete with PEM fuel cell stack, hydrogen generation/storage arrangement (electrolyzer or equivalent), electronic load, digital measurement of voltage, current, and power, safety devices, experiment manual, and accessories for studying fuel cell characteristics and efficiency.	1
4.	Battery Management System Trainer	Bench-mounted trainer with Lithium-Ion battery modules or equivalent, Battery Management System, cell balancing, over-voltage/under-voltage protection, over-current protection, temperature monitoring, SOC/SOH estimation, CAN communication, fault simulation, digital display, and software interface.	1
5.	BLDC Motor Test Rig	Bench-mounted BLDC Motor Test Rig with variable-speed BLDC motor, electronic controller, loading arrangement (electrical/mechanical), digital measurement of voltage, current, speed, torque, power, and efficiency. Suitable for speed control and performance characteristic experiments. Complete with accessories and manuals.	1

6.	Assembling and dismantling of a four stroke four-cylinder petrol engine	Engine setup will be prepared by using good working condition petrol engine with all the fittings of the engine along with air filter, starter, battery, alternator, indication meters, fuel tank, electrical wiring. All mounted on to a sturdy iron frame with caster wheels (mobile trolley). All the fittings such as meter, fuel tank, radiator along with the engine will be arrange on to the trolley with its original fittings. With the help of this engine the students can practice assembly & disassembly under the supervision of their teacher. The engine is provided with swirling stand & the same can be mounted on the swirling stand for assembling and dismantling. Tools required for assembly & disassembly also to be provided.	1
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List of Equipments for Strength of Material Lab:

S. No	Name of Equipment, Tools and Software	Broad Specifications	Qty
1.	Impact Tester Machine	Charpy & Izod: Heavy-duty pendulum type impact testing machine suitable for Charpy and Izod tests on metallic specimens. Maximum impact energy: 300 J for Charpy and 168 J for Izod. Pendulum release angle: 140° for Charpy and 90° for Izod. Striking velocity: approximately 5–6 m/s for Charpy and 3–4 m/s for Izod. Calibrated pendulum/hammer of approximately 20–25 kg effective mass, or as required by the specified energy and standard. Minimum scale graduation: 2 J or better.	1
2.	Brinell hardness testers	3000 kgf minimum; 500–3000 kgf load range; 10, 5 and 2.5 mm tungsten-carbide ball indenters; optical microscope; 0.01 mm measurement resolution; ≥400 mm test height; ≥200 mm throat depth; automatic loading; certified test blocks; IS 2281/ISO 6506/ASTM E10.	1
3.	Rockwell hardness testers	10 kgf preliminary load; 60/100/150 kgf total loads; 120° diamond cone; 1/16" carbide ball minimum; HRA/HRB/HRC scales; digital indication; 0.1 HR resolution; ≥200 mm test height; ≥150 mm throat depth; certified HRB/HRC blocks; IS 3804/ISO 6508/ASTM E18.	1
4.	Combined Shear Force and Bending Moment apparatus	Total length: 1100mm - span: 800mm Weights - 3x 1N (hanger) - 3x 1N (weight holder) - 12x 1N - 9x 5N - max. weight per hanger and weight holder: 20N Measuring ranges - bending moment via force gauge and lever arm -- lever arm: 100mm -- force gauge: ±100N -- bending moment: ±10Nm - shear force: ±50N - tape measure: 1000mm, graduation: 1mm LxWxH: 1100x320x780mm (assembled) LxWxH: 1180x490x180mm (storage system) Total weight: approx. 40kg	1

5.	Slope and Deflection of Beam Apparatus	A bench-mounted apparatus with a beam length of minimum 1000 mm and effective span of minimum 800 mm, comprising a rigid steel base with adjustable supports at both ends. The supports shall be suitable for fitting knife edges or clamp plates to facilitate simply supported and cantilever beam configurations. The apparatus shall include a suitable steel beam, two load hangers and two dial gauges for measuring beam deflection and slope, along with a micrometer, Vernier caliper, graduated scale, slotted weights and necessary accessories.	1
6.	Torsion Testing Machine	Grips for round and flat specimens Torsional speed of 0.1/0.2 RPM Maintenance free gear box Auto range selection with range selector wheel Load unload capability Variable speed drive Suitable of 440 V. A.C. single phase. Minimum Torque Capacity 100 Nm.	1
7.	Digital Spring Testing Machine	Electrically operated laboratory type machine suitable for testing close-coiled helical compression and tension springs, with a minimum load capacity of 5 kN, digital load measurement with accuracy of $\pm 1\%$ or better, displacement measurement range of minimum 50 mm with 0.01 mm or better resolution, The machine shall be supplied with suitable compression and tension spring fixtures and minimum 3 standard test springs. Power supply: 230 V AC, 50 Hz, single phase.	1

List of Equipments for Fluid Mechanics Lab:

S. No	Name of Equipment, Tools and Software	Broad Specifications	Qty
1.	Centrifugal pump test rig (constant and variable speed)	Bench/floor-mounted laboratory rig comprising a 1 HP centrifugal pump coupled to a variable-speed DC motor or equivalent variable-speed drive, with sump tank (1000 × 700 × 300 mm approx.), measuring tank (600 × 400 × 250 mm approx.) with graduated scale, pressure gauge, vacuum gauge, energy meter/power measurement arrangement, tachometer, flow-control valve and ON/OFF control panel. Suitable for measuring discharge, head, speed, power and pump efficiency at different speeds.	1
2.	Pelton Turbine Test Rig	Turbine: - Output: 5W at 500min ⁻¹ , approx. 30L/min, H=2m - Impeller: 14 vanes, Vane width: 33.5mm, External diameter: 132mm Needle nozzle: - Jet diameter: 10mm Measuring ranges: Braking force (spring balance): 10N Pressure: 0 to 1bar	1

3.	Red wood viscometer	Electrically heated, stainless-steel/corrosion-resistant construction, flow range 20–2000 Redwood seconds, with precision oil cup and jet, digital temperature controller, thermometer, 50 mL receiver, digital stopwatch (0.01 s resolution), levelling arrangement and safety protection. Power: 220–230 V AC, 50 Hz, single phase; Power consumption: ≤ 800 W. Manufacturer shall be ISO 9001:2015 certified or latest applicable revision	1
4.	VENTURIMETER AND ORIFICEMETER TEST RIG	The experimental unit contains single piece machined venturimeter and two piece orifice meter to determine the flow rate. These instruments are designed with transparent cases in order to visualise how they operate and function. Pressurized twin tube water manometers is used in order to determine the pressure distribution in the Venturi nozzle or the orifice plate flow meter. The unit should also include sump tank and measuring tank made of Stainless Steel (Grade 304) of 2mm thickness. A centrifugal pump should also be included to make the unit recirculating. Experiments • flow measurement with orifice plate flow meter Venturi nozzle • comparison of different instruments for flow measurement • determining the corresponding flow coefficients • calibrating measuring instruments Technical data Venturi nozzle: $A=84\ldots 338\text{mm}^2$ • angle at the inlet: 10.5° • angle at the outlet: 4° Orifice plate flow meter: $\varnothing 14\text{mm}$ Structure • The structure should be of 32mm x 32mm square pipe • Measuring tanks and sump-tank should be made of stainless steel (304 grade) with 2mm thickness. • Unit should be of lockable castor wheels	1
5.	Bernoulli's theorem apparatus (with technical manual)	Compact, robust & stand-alone setup comprising of the following (but not limited to): 1. Inlet tank of suitable capacity 2. Supply Tank (optional) of suitable capacity 3. Measuring Tank of suitable capacity fitted with Piezometer Tube & Scale 4. Piezometer Tubes: Material P.U. Tubes (suggested) 5. Pump: A 220 volt AC, 0.5 HP, single phase monoblock ISI pumpset (suggested) with suitable pipe fittings, strainer foot valve, and switch 6. Piping: GI / PVC Size BSP (suggested) 7. Stop Watch: Electronic 8. Sump Tank of suitable capacity Floor Area: Limited to 2 x 1 m	1
6	Reynolds Apparatus	Reynolds apparatus for Laminar & Turbulent flow:- This unit will consists of : 12mm or suitable dia Perplex / Glass pipe of 1500mm length with provision for die inlet. Die bottle and injector, Graduated measuring cylinder etc. and suitable size S.S. water tank-2 or 3 Nos, as required. Suitable water pump and necessary valves, pipes etc. all fitted in a	1

		table/structure. Minimum warrantee period to be mentioned.	
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List of Equipments for Basic Thermodynamics Lab:

S. No	Name of Equipment, Tools and Software	Broad Specifications	Qty
1.	Digital Thermometer	Range –50 to 300°C or wider; resolution 0.1°C or better; accuracy $\pm 1^\circ\text{C}$ or better; stainless-steel probe; LCD display	1
2.	Laboratory Glass Thermometer	Mercury-free; range 0–110°C or wider; least count 1°C or better; accuracy $\pm 1^\circ\text{C}$ or better; stem length approx. 250–300 mm.	1
3.	Bourdon Tube Pressure Gauge	Dial 100 mm minimum; range 0–10 bar; accuracy $\pm 1.0\%$ FS or better; 1/2" BSP connection.	1
4.	Digital Pressure Gauge	Range 0–10 bar or wider; resolution 0.01 bar or better; accuracy $\pm 0.5\%$ FS or better; LCD display; battery operated.	1
5.	Pressure Gauge with Calibration Pump	Hand-operated; pressure generation capability minimum 10 bar; suitable for calibration/testing of 0–10 bar pressure gauges; complete with hoses, fittings and connections.	1
6.	Heat Pump Test Rig	Vapour-compression type heat pump; capacity: 1–2 TR; hermetically sealed reciprocating compressor; suitable refrigerant; water-cooled condenser and evaporator; expansion device (TXV/capillary); high- and low-pressure gauges; digital temperature measurement with 0.1°C resolution or better; water flow measurement; digital power/energy meter; insulated refrigerant and water piping; complete with control panel, safety devices, mounting frame and all necessary accessories.	1
7.	Boiler Mountings and Accessories	Complete set of boiler mountings and accessories comprising water-level indicator, safety valve, fusible plug, pressure gauge, main steam stop valve, feed check valve, blow-off cock, manhole and mud box. Boiler accessories shall include superheater, economizer and air preheater, complete with necessary piping, valves, fittings and safety arrangements.	1
8.	2-Stroke Petrol Engine Cut Section	Non-working actual cut-section model of 2- stroke petrol engine showing major engine components, with stand and accessories.	1
9.	4-Stroke Petrol Engine Cut Section	Non-working actual cut-section model of 4-Stroke Petrol Engine showing major engine components, with stand and accessories.	1
10.	4-Stroke Diesel Engine Cut Section	Non-working actual cut-section model 4-Stroke Diesel Engine showing major engine components, with stand and accessories.	1

11.	2-Stroke Diesel Engine Cut Section	Non-working actual cut-section model 2-Stroke Diesel Engine showing major engine components, with stand and accessories.	1
12.	Cochran Boiler Cut Section	Non-working cut-section model of Cochran boiler showing shell, furnace, fire tubes and major mountings.	1
13.	Benson Boiler Cut Section	Non-working cut-section model of Benson Boiler showing economizer, evaporator and superheater.	1
13.	Locomotive Boiler Cut Section	Non-working cut-section model of Locomotive Boiler showing fire box, fire tubes, smoke box and chimney.	1
15.	Lamont Boiler Cut Section	Non-working cut-section model of Lamont Boiler showing circulation system, economizer, evaporator and superheater.	1
16.	Loeffler Boiler Cut Section	Non-working cut-section model of Loeffler Boiler showing evaporator, superheater, economizer and circulation system.	1
17.	Lancashire Boiler Cut Section	Non-working cut-section model of Lancashire Boiler showing shell, furnace tubes, combustion chamber and flue path.	1
18.	Multi-Stage Impulse Steam Turbine	Non-working model of Multi-Stage Impulse Steam Turbine showing rotor, nozzles and multiple impulse stages.	1
19.	Multi-Stage Reaction Steam Turbine	Non-working model of Multi-Stage Reaction Steam Turbine showing rotor, fixed blades and moving blades.	1
20.	Steam Power Plant Model	Non-working model of Steam Power Plant Model showing boiler, turbine, condenser, pump and generator.	1

List of Equipments for Applied Thermodynamics and HVAC:

S. No	Name of Equipment, Tools and Software	Broad Specifications	Qty
1.	Vapour Compression Refrigeration Test Rig	SPECIFICATIONS: Type: Vapour compression. • Compressor: 1/3 to 1 HP, hermetically sealed • Refrigerant: R-134a. • Evaporator / Freezer: 5 Litre • Type of Cooling: By Capillary tube method, By Throttle Valve method • Condenser: Air Cooled • Thermostat: Digital type • Pressure Indicators: 4 Nos. Analogue gauges before & after Expansion in HP & LP Lines. • Temperature Indicator: Digital Indicator in HP & LP line, for cooled medium in Freezer Compartment. • Power meter: Digital • Rota meter: 1 No., for flow measurement of refrigerant • Rota meter: 1 No., for flow measurement of water. • The complete unit is to be mounted on a Self-contained Control panel. Accessories: • Standard Electrical Multimeter: 1 Nos • Temperature Indicator: Multichannel (8 channel) • Thermocouple :: -15 to 60 oC (1 nos), 0 to 200 oC (1 nos), K-type.	1

2.	Vapour Absorption Refrigeration Test Rig	Specification Input Supply: 220–240 V AC Input Power: 90 W Energy Consumption: 1.07 kWh Refrigeration Capacity: 1.5 TR Working Pair: Water–LiBr or Ammonia–Water Ammeter: Digital, 0–20 A AC Voltmeter: Digital, 0–300 V AC Pressure Gauges: 2 Low-pressure and 2 High-pressure gauges Temperature Sensors: 5 Nos. Temperature Indicator: 6-channel digital Temperature Range: –50 to 150°C Pump: 0.25–0.5 HP	1
3.	Stefan Boltzmann's Apparatus	• The Set-up is used for determining the Stefan Boltzmann constant of thermal radiation. It consists of a hemisphere fixed to a Bakelite plate with jacketed outer surface to heat it. Hot water to heat the hemisphere is obtained from a hot water tank fixed above the hemisphere. The copper test disc is introduced at the center of hemisphere. The temperatures of hemisphere and test disc are measured with the help of temperature sensors. Hot water to heat the hemisphere is obtained from a hot water tank fixed above the hemisphere and fitted with a heater controlled via Digital Temperature Controller. Hemisphere Diameter 200 mm (approximate) made of copper. • Test Disc Size 20 mm Diameter ×1.5 mm thickness (approximate) made of copper • Water Tank Stainless Steel 12 Ltr capacity (minimum). • Heater Nichrome wire immersion heater. Control panel comprising of Digital Temperature Controller: PID Controller, 0 to 199.9°C (for water tank). Digital Temp. Indicator: 0 to 199.9°C, with multi-channel switch. Temperature sensors: RTD PT-100 Type with temperature transmitter and local digital display - 2 Nos. (at least) With standard make on/off switch, Mains Indicator etc. One ceramic bare sensor will be welded on test directly. There will be no other material in between ceramic sensor and test specimen to avoid any losses.	1

		test disc is introduced at the center of hemisphere. The temperatures of hemisphere and test disc are measured with the help of temperature sensors. Hot water to heat the hemisphere is obtained from a hot water tank fixed above the hemisphere and fitted with a heater controlled via Digital Temperature Controller. Hemisphere Diameter 200 mm (approximate) made of copper. · Test Disc Size 20 mm Diameter × 1.5 mm thickness (approximate) made of copper · Water Tank Stainless Steel 12 Ltr capacity (minimum). · Heater Nichrome wire immersion heater. Control panel comprising of Digital Temperature Controller: PID Controller, 0 to 199.9°C (for water tank). Digital Temp. Indicator: 0 to 199.9°C, with multi-channel switch. Temperature sensors: RTD PT-100 Type with temperature transmitter and local digital display - 2 Nos. (at least)	
4.	Thermal conductivity of Metal Rod Apparatus	Complete setup for determining thermal conductivity of metals in linear and radial directions, comprising interchangeable SS, copper and brass specimens ($\varnothing 25 \times 40$ mm approx.) for linear conduction, brass disc ($\varnothing 110 \times 5$ mm approx.) for radial conduction, water-cooling jacket with insulation, Nichrome heater 0–100 W, minimum 9 RTD PT-100 sensors for linear and 6 RTD PT-100 sensors for radial measurements, water-flow measurement by measuring cylinder and stopwatch, digital PID temperature controller, digital energy meter, multi-channel temperature indicator, MCB and SS-304 base plate.	1

List of Equipments for Advanced Manufacturing Engineering and cost estimation Lab:

S. No	Name of Equipment, Tools and Software	Broad Specifications	Qty
1.	Advanced Casting and Green Sand Molding Setup	Standard pattern materials, patterns(single piece pattern, multi piece pattern, gated pattern, sweep pattern, match plate pattern and loose piece pattern) commonly used moulding sand, moulding boxes/flasks of size 200–600 mm square and 75–1000 mm deep, screw motor drive, reciprocating screw and barrel, heaters, thermocouples, ring plunger, moulds, tie bars, crucibles, hand riddles, shovels, hand/peen/floor rammers, sprue pins, strike-off bars, mallets, draw spikes, vent rods/wires, lifters, trowels, slicks,	1
2.	Injection molding machine	Purpose To produce plastic components of intricate shapes, Shot weight 90 g or more, Stroke Volume 100 cm ³ or more, Capacity 75-100 tons, Material compatibility Thermoplastic materials (PLA, PU, ABS, PP, PC, PET, PA, PS and PEEK), Temperature range upto 500 °C melting range, Heater • Ceramic high-performance heaters for high temperature material. • Nitride barrel	1

		Power: 10 kW or more, Injection pressure 145 MPa or above, Injection velocity 300 mm/s or higher, Opening stroke 400 mm or more, Allowable Mold weight 500 kg	
3.	Blow molding	The machine shall be a laboratory-scale single-station Blow molding machine suitable for HDPE, LDPE, PP and similar thermoplastics, with 25–35 mm screw diameter, L/D ratio $\geq 20:1$, minimum 5 Ton clamping force, and 100–1000 ml molding capacity. It shall have 3 or more heating zones, temperature control up to 300°C, PLC/HMI control, adjustable extrusion/blowing pressure, parison	1

List of Equipments for Manufacturing Engineering Lab:

S. No	Name of Equipment, Tools and Software	Broad Specifications	Qty
1.	Punching-Blanking Press	Minimum 10-ton capacity mechanical power press suitable for educational and laboratory applications, including punching, blanking and piercing of small sheet-metal components such as washers, brackets and similar specimens. Complete set of suitable punches and dies shall be provided.	1
2.	Spot Welding Setup	Resistance spot-welding machine of minimum 5 kVA capacity, with adjustable welding current, welding time 0–10 seconds, adjustable electrode pressure, replaceable copper/copper-alloy electrodes, suitable for 0.5–3 mm sheet thickness, foot-operated control, heavy-duty transformer, overload and thermal protection, emergency stop, and 415 V, 3-phase, 50 Hz power supply. The setup shall include electrodes, holders, cables and necessary tools.	1
3.	Portable Gas welding and cutting machine	Working / Power gas Oxy-Acetylene Type of Transportation Portable Steel Thickness for Welding Up-to 25 mm or more Steel Thickness for cutting Up-to 30 mm or more Overall Dimensions Minimum 300x150x500 mm Weight Maximum 40 kg Capacity of Oxygen Bottle Minimum 5 litre, Capacity of Acetylene Bottle Minimum 5 litre	1
4.	Soldering Station, Solder, Flux	Temperature-controlled soldering station with rapid heating capability and adjustable temperature range of 200°C–480°C, temperature stability of $\pm 1^\circ\text{C}$ under stationary air/no-load conditions, tip-to-ground resistance $< 2\ \Omega$, tip-to-ground potential $< 2\ \text{mV}$, maximum station power 60 W, soldering iron power 50 W at 24 V AC, soft-touch up/down temperature-control keys, and key-card/password protection for temperature settings. The station shall be supplied with a suitable pointed soldering tip and SMD hot tweezer attachment/tip.	1

5.	Tool Makers microscope	Precision optical microscope with minimum 30× magnification, 50 × 50 mm or larger X–Y measuring range, 0.01 mm or better linear resolution, 360° rotatable stage, 1° or better angular measurement, coarse and fine focusing, reflected and transmitted LED illumination, digital readout, and suitable accessories for measurement of tool angles, radii, threads, profiles, punches, dies and small precision components.	1
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Note:

- Prices should be quoted in Indian Rupee only and indicated both in figures and words. The amount mentioned in words will prevail.
- It is bidders' responsibility to install, commission, test, and go live.
- All the items' counts mentioned above is only tentative number, it may exceed or less as per the work.
- The BoQ mentioned in the RFP is for the entire scope of work and duration mentioned in this RFP. Bidders are requested to do site visits to check the feasibility and to ensure achievement of the objective and scope of work of this RFP.

19. Warranty Services

The bidders will provide comprehensive warranty details for all the equipment. It would be the bidder's responsibility to arrange all updates and upgrades through respective OEMs. The bidder must provide all updates and upgrades for the proposed Equipments free of cost during warranty period.

The bidder shall put in place all back-to-back support agreements for the proposed Mechanical equipment with respective OEMs for warranty services and submit documents in support of the same.

Note: Warranty support services for all Mechanical equipment during the execution of the project before the project is signed off shall be provided by the bidder at no cost to Government Polytechnic, Patna 7.

20. Documentation

The Bidder shall provide the following documentation. The content and format of the documentation will be discussed and agreed with Government Polytechnic, Gulzarbagh, Patna 7 prior to development/delivery of the documentation.

- a) Comprehensive configuration of all equipments
- b) Manuals of all Equipments (hard and/or soft copies).
- c) A comprehensive test report covering all the areas.

21. Payment Schedule:

The Bidder shall submit the invoice along with following documents: -

- a. Physical verification by the Institute supported by Delivery challan/Courier receipt or any other supporting document.
- b. Document clearly mapping list of the materials with Make, Model, Serial number.

100 % Payment of the total cost on delivery of material/equipment's, Installing, Commissioning and Final acceptance test by the institute, commissioning and Go-Live.

22. Penalty

The bidder shall ensure the delivery of Mechanical equipment and installation of entire equipments at the institute within 8 weeks from the date of award of contract. If not completed in the specified timeline suitable penalty would be imposed as decided by the principal of Government Polytechnic, Patna 7.

23. Indemnity

The supplier shall indemnify, protect, and save Government Polytechnic, Gulzarbagh, Patna 7 against all claims, losses, costs, damages, expenses, action suits and other proceedings resulting from infringements in respect of all hardware and software supplied to Government Polytechnic, Patna 7. Government Polytechnic, Gulzarbagh, Patna 7 also stand indemnified from any compensation arising out of accidental loss of life or injury sustained by any manpower while working on the project.

24. Termination, Dispute Resolution & Other

24.1. Termination of Contract

- a) If bidder found to be involved in fraudulent practices (misrepresentation or omission of facts or suppression/hiding of facts or disclosure of incomplete facts), in order to secure eligibility to the bidding process during the submission of bid or after release of Letter of Intent (LoI) or agreement formalization after signing of contract, shall be liable for punitive action amounting to blacklisting of the bidder, including the forfeiture of concerned EMD and/or Performance Security also, whatever it relates.
- b) Notwithstanding contained here, the Government Polytechnic, Gulzarbagh, Patna 7 prejudice to any other contractual rights and remedies available to it, shall by written notice of any default in service / installation/ testing /commissioning etc. sent to the bidder, terminate the contract in whole or in part, if the bidder fails to perform services as specified in the present contract read with the terms of the contract agreement or any other contractual obligations within the time period specified in the contract and the firm may be blacklisted, consequently the performance security may be forfeited.
- c) **Termination for Insolvency** - If the bidder becomes bankrupt or otherwise insolvent, it will inform to the Government Polytechnic, Gulzarbagh, Patna 7 within 30 days written notice to terminate the contract. Government Polytechnic, Gulzarbagh, Patna 7 reserves the right to terminate, without any compensation, whatsoever, to the bidder, and may forfeit the performance security.
- d) **Termination by mutual consent** - In the event the Government Polytechnic, Gulzarbagh, Patna 7 and the bidder mutually agrees to the terminate the contract, either party shall give 90 days' written notice to the other party and after the consent of both the parties contract may be terminated without any Legal or financial obligation on any party to the contract.

24.2. Force Majeure

- a) For purposes of this clause, Force Majeure means an event beyond the control of the bidder and not involving the bidder's fault or negligence, and which is not foreseeable and not brought about at the instance of, the party claiming to be affected by such event and which has caused the non – performance or delay in performance. Such events may include wars or revolutions, hostility, acts of public enemy, civil commotion, sabotage, fires, floods, explosions, earthquake, epidemics, quarantine restrictions, strikes excluding by its employees, lockouts excluding by its management, and freight embargoes.
- b) If a Force Majeure situation arises, the bidder shall promptly notify the Government Polytechnic, Gulzarbagh, Patna 7 in writing of such conditions and the cause thereof within 7 days of occurrence of such

event. Unless otherwise directed by the bidder in writing, the bidder shall continue to perform its obligations under the contract as far as reasonably practical and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

- c) If the performance in whole or in part or any obligation under this contract is prevented or delayed by any reason of Force Majeure for a period exceeding thirty days, either party may at its option terminate the contract without any financial repercussion on either side.

24.3. Notices

Notice, if any, relating to the contract given by one party to the other, shall be sent in writing or e-mail or by post. The addresses of the parties for exchanging such notices will be the addresses as incorporated in the contract between the **Government Polytechnic, Gulzarbagh, Patna 7** and the bidder.

24.4. Resolution of Disputes

- a) Any dispute, difference, or claim arising out of or in relation to this Agreement, will be settled by reaching a mutual understanding between the parties.
- b) If any further dispute arises between the parties thereupon, the same will be settled as per the extant law of land through the competent court of law under the territorial jurisdiction of Patna only.

24.5. Applicable Law

The contract shall be governed by and interpreted in accordance with the laws of India for the time being in force.

<Company Letter head>

TECHNICAL DATA SHEET

Details of contractor/ service provider

Sr. No.	Description	Information												
1	Name of Tenderer & Contact person with complete address, email & mobile No: -													
2	Status of the Tenderer (attach documents if registered company/partnership/ proprietorship/LLP) with year of establishment.													
3	Statutory details (photocopy to be attached) a) Registration No. of the Firm- b) PAN- c) GST Reg. No.-													
4	Number of Project Experience in supply of Machines and laboratory Equipment's for Mechanical Engineering for a Central / State Government Organization / Public Sector Unit (PSU)/ Private University Recognized /affiliated to UGC/ AICTE in India. With minimum contract value of 50 lakhs													
	<table border="1"> <thead> <tr> <th>Name of the Project</th><th>Client Name & Contact information</th><th>Project Value (INR)</th></tr> </thead> <tbody> <tr> <td>1.</td><td></td><td></td></tr> <tr> <td>2.</td><td></td><td></td></tr> <tr> <td>3.</td><td></td><td></td></tr> </tbody> </table>	Name of the Project	Client Name & Contact information	Project Value (INR)	1.			2.			3.			
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1.														
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5	Average turnover of the Bidder/OEM in the last 3 years													
	<table border="1"> <thead> <tr> <th>FY 2023-24</th><th>FY 2024-25</th><th>FY 2025-26</th></tr> </thead> <tbody> <tr> <td></td><td></td><td></td></tr> </tbody> </table>	FY 2023-24	FY 2024-25	FY 2025-26										
FY 2023-24	FY 2024-25	FY 2025-26												
6	The bidder must have at least 3 years' experience in supply of Machines and laboratory Equipment's for Mechanical Engineering with a Central / State Government Organization / Public Sector Unit (PSU)/ Private University Recognized /affiliated to UGC/ AICTE in India.													
	<table border="1"> <thead> <tr> <th>Name of the Project</th><th>Client Name & Contact information</th><th>Duration (Year)</th></tr> </thead> <tbody> <tr> <td>1.</td><td></td><td></td></tr> <tr> <td>2.</td><td></td><td></td></tr> <tr> <td>3.</td><td></td><td></td></tr> </tbody> </table>	Name of the Project	Client Name & Contact information	Duration (Year)	1.			2.			3.			
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1.														
2.														
3.														
7	Declaration that the bidder has not been debarred/blacklisted by any Government/Semi-Government/ PSU (As per Annexure 4)													

Note: Attach necessary documentary evidence to substantiate information mentioned above.

< Authorized Signature > Name:

Designation:

<Company Letter head>

FINANCIAL BID FORMAT (Rs in Lakh)

To,

The Principal**Government Polytechnic, Gulzarbagh, Patna 7**

Government Polytechnic Gulzarbagh, Patna-7						
List of Equipments for Theory of Machine Lab:						
S. No	Name of Equipment, Tools and Software	Broad Specifications	Qty	Amt. (A)	GST /Tax amount (B)	Total Amount (C=A+B)
1.	Working Model Set of Common Mechanical Mechanisms	Working Models (Acrylic) of Mechanisms including Slider-Crank Mechanism, Hooke's Joint (Universal Joint), Inversions of Four-Bar Mechanism (Locomotive Coupling, Beam Engine, Pantograph, Pendulum Pump), Rotary I.C. Engine Mechanism, Oscillating Cylinder Engine Mechanism, Whitworth Quick Return Mechanism, Shaper Quick Return Mechanism, Scotch Yoke Mechanism, Elliptical Trammel Mechanism, and Oldham's Coupling, suitable for classroom demonstration and laboratory use.	1			
2.	Different Types of cams, followers and cam/follower arrangements	Working Models (Acrylic) of Different Types of Cams, Followers, and Cam-Follower Arrangements, including Disc (Radial) Cam, Cylindrical (Barrel) Cam, Knife-Edge Follower, Roller Follower, Flat-Faced Follower, and Spherical-Faced Follower, suitable for classroom demonstration and laboratory use.	1			
3.	Different Types of gears	Set of Different Types of Gears comprising Spur Gear, Helical Gear, Double Helical (Herringbone) Gear, Bevel Gear, Spiral Bevel Gear, Worm and Worm Wheel, Rack and Pinion, and Internal Gear and others manufactured from metallic materials, suitable for classroom demonstration and laboratory use.	1			
4.	Working models of Gear trains	Working Models (Acrylic) of Gear Trains including Simple, Compound, Reverted and Epicyclic (Planetary) Gear Train, suitable for classroom demonstration and laboratory use.	1			
5.	Governors	Working Models (Metallic) of Watt and Porter Governors for demonstration and laboratory use.	1			
6.	Various types of brake assemblies	Working and cut section models (Shoe brake, Band brake, Internal expanding shoe brake, Disc Brake)	1			
8.	Various types of clutch assemblies.	Working and cut section models (Single-plate clutch, Multi-plate clutch, Centrifugal Clutch)	1			

9.	Static and Dynamic Balancing Apparatus	Bench-mounted, rigid metallic construction. Variable-speed FHP AC/DC motor drive with electronic speed control. Maximum operating speed: Minimum 3000 RPM. Digital RPM indicator/display. Power supply: 230 V AC $\pm 10\%$, 50 Hz, Single Phase. Stainless steel rotating shaft mounted on anti-friction bearings. Minimum four adjustable stainless steel balancing masses with provision to vary both the magnitude and position of unbalance. Arrangement for accurate measurement of the angular (0–360°) and longitudinal positions of balancing masses. Heavy-duty metallic base frame with vibration-resistant construction. Transparent acrylic safety guard (minimum 6 mm thick), may be provided. Complete with necessary accessories, operating manual, and experiment manual. Suitable for conducting experiments on static balancing, dynamic balancing, determination of unbalance, and balancing of rotating systems.	1			
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List of Equipments for Engineering Metrology and Instrumentation Lab:

S. No	Name of Equipment, Tools and Software	Broad Specifications	Qty			
1.	Surface roughness Taylor Hobson's	Max. sample length 0.8mm	1			
2.	Profile projector with gear profile/Thread profile Templates	Opaque fine grained ground glass screen with 90°, 60°, 30° cross line Location; fitted with graduated ring (0–360°) L.C. 1mm; Optics Std 10X, 20X, Measuring Range Std 100mm x 100mm; Opt X axis up to 400mm, Y axis up to 200mm; Focusing Travel 100mm; Magnification Accuracy Contour $\pm 0.05\%$ Surface $\pm 0.05\%$; Illumination Counter 24V/150W halogen lamp with illumination control; Resolution 0.005/0.001/0.0005 mm.	1			
3.	Tool maker's microscope	Monocular optical tube, erect image, angle reading: min 6', Range 360 degree, Eyepiece magnification 15x, Objective magnification 2x, Light source Tungsten bulb	1			
4.	Parkinson's Tester/ Gear Rolling Tester with master gears	Accuracy 0.25mm, Gear diameter of 40-80mm, Base size 320 x 100mm, Project magnification 5x, Involute profile testing.	1			
5.	Strain Gauge Kit with Cantilever beam	Parameter Measured: Strain in terms of grams on a cantilever beam Transducer: Temperature compensated strain gauge Type: Cu-Ni foil with polyamide carrier base Gauge Resistance : 350 Ohms (Nominal) Gauge Length: 6mm Gauge Width: 4 mm Gauge Base: 5 mm x 4.3 mm Gauge Factor: 2:1 (approx.) With complete mounting accessories.	1			

6.	Diaphragm Pressure Gauge	dial size: 150mm: mercury / gas actuated stem & bulb :SS 316 stem & bulb DIA : 6mm, 8mm, 10mm & 12mm stem length (std.) : up to 300mm capillary material : MS / SS 316 micro bore capillary protection : SS 304 tubing, pvc, SS armored dial	1			
7.	Sensor - Bourdon tube C type with	3.5 digit display for pressure/ displacement measurement	1			
8.	Differential Pressure Bellows	Range 0-80" water column to 0-800" water column (or Equivalent) Uni-Directional or Bi-Directional Accuracy $\pm 1\%$ F.S. Standard, $\pm 1/2\%$ F.S. Optional Dial Size 6" (Standard), 4-1/2" (Optional) Working Pressure up to 6000 PSIG (400 bar) Material of Construction – Body Aluminum, Brass, Carbon Steel, 316/316L Stainless Steel Materials of Construction - Internals Copper Alloy or Stainless Steel	1			

List of Equipments for Hybrid Automobile Engineering Lab:

S. No	Name of Equipment, Tools and Software	Broad Specifications	Qty			
3.	Fuel Cell trainer kits	Bench-top PEM Fuel Cell Trainer complete with PEM fuel cell stack, hydrogen generation/storage arrangement (electrolyzer or equivalent), electronic load, digital measurement of voltage, current, and power, safety devices, experiment manual, and accessories for studying fuel cell characteristics and efficiency.	1			
4.	Battery Management System Trainer	Bench-mounted trainer with Lithium-Ion battery modules or equivalent, Battery Management System, cell balancing, over-voltage/under-voltage protection, over-current protection, temperature monitoring, SOC/SOH estimation, CAN communication, fault simulation, digital display, and software interface.	1			
5.	BLDC Motor Test Rig	Bench-mounted BLDC Motor Test Rig with variable-speed BLDC motor, electronic controller, loading arrangement (electrical/mechanical), digital measurement of voltage, current, speed, torque, power, and efficiency. Suitable for speed control and performance characteristic experiments. Complete with accessories and manuals.	1			
6.	Assembling and dismantling of a four stroke four-cylinder petrol engine	Engine setup will be prepared by using good working condition petrol engine with all the fittings of the engine along with air filter, starter, battery, alternator, indication meters, fuel tank, electrical wiring. All mounted on to a sturdy iron frame with caster wheels (mobile trolley). All the fittings such as meter, fuel tank, radiator along with the engine will be arrange on to the trolley with its original fittings. With the help of this engine the students can practice assembly & disassembly under the supervision of their teacher. The engine is provided with swirling stand & the same can be mounted on the swirling stand for assembling and dismantling. Tools required for assembly & disassembly also to be provided.	1			

List of Equipments for Strength of Material Lab:						
S. No	Name of Equipment, Tools and Software	Broad Specifications	Qty			
1.	Impact Tester Machine	Charpy & Izod: Heavy-duty pendulum type impact testing machine suitable for Charpy and Izod tests on metallic specimens. Maximum impact energy: 300 J for Charpy and 168 J for Izod. Pendulum release angle: 140° for Charpy and 90° for Izod. Striking velocity: approximately 5–6 m/s for Charpy and 3–4 m/s for Izod. Calibrated pendulum/hammer of approximately 20–25 kg effective mass, or as required by the specified energy and standard. Minimum scale graduation: 2 J or better.	1			
2.	Brinell hardness testers	3000 kgf minimum; 500–3000 kgf load range; 10, 5 and 2.5 mm tungsten-carbide ball indenters; optical microscope; 0.01 mm measurement resolution; ≥400 mm test height; ≥200 mm throat depth; automatic loading; certified test blocks; IS 2281/ISO 6506/ASTM E10.	1			
3.	Rockwell hardness testers	10 kgf preliminary load; 60/100/150 kgf total loads; 120° diamond cone; 1/16" carbide ball minimum; HRA/HRB/HRC scales; digital indication; 0.1 HR resolution; ≥200 mm test height; ≥150 mm throat depth; certified HRB/HRC blocks; IS 3804/ISO 6508/ASTM E18.	1			
4.	Combined Shear Force and Bending Moment apparatus	Total length: 1100mm - span: 800mm Weights - 3x 1N (hanger) - 3x 1N (weight holder) - 12x 1N - 9x 5N - max. weight per hanger and weight holder: 20N Measuring ranges - bending moment via force gauge and lever arm -- lever arm: 100mm -- force gauge: ±100N -- bending moment: ±10Nm - shear force: ±50N - tape measure: 1000mm, graduation: 1mm LxWxH: 1100x320x780mm (assembled) LxWxH: 1180x490x180mm (storage system) Total weight: approx. 40kg	1			
5.	Slope and Deflection of Beam Apparatus	A bench-mounted apparatus with a beam length of minimum 1000 mm and effective span of minimum 800 mm, comprising a rigid steel base with adjustable supports at both ends. The supports shall be suitable for fitting knife edges or clamp plates to facilitate simply supported and cantilever beam configurations. The apparatus shall include a suitable steel beam, two load hangers and two dial gauges for measuring beam deflection and slope, along with a micrometer, Vernier caliper, graduated scale, slotted weights and necessary accessories.	1			

6.	Torsion Testing Machine	Grips for round and flat specimens Torsional speed of 0.1/0.2 RPM Maintenance free gear box Auto range selection with range selector wheel Load unload capability Variable speed drive Suitable of 440 V. A.C. single phase. Minimum Torque Capacity 100 Nm.	1			
7.	Digital Spring Testing Machine	Electrically operated laboratory type machine suitable for testing close-coiled helical compression and tension springs, with a minimum load capacity of 5 kN, digital load measurement with accuracy of $\pm 1\%$ or better, displacement measurement range of minimum 50 mm with 0.01 mm or better resolution, The machine shall be supplied with suitable compression and tension spring fixtures and minimum 3 standard test springs. Power supply: 230 V AC, 50 Hz, single phase.	1			

List of Equipments for Fluid Mechanics Lab:

S. No	Name of Equipment, Tools and Software	Broad Specifications	Qty			
1.	Centrifugal pump test rig (constant and variable speed)	Bench/floor-mounted laboratory rig comprising a 1 HP centrifugal pump coupled to a variable-speed DC motor or equivalent variable-speed drive, with sump tank (1000 × 700 × 300 mm approx.), measuring tank (600 × 400 × 250 mm approx.) with graduated scale, pressure gauge, vacuum gauge, energy meter/power measurement arrangement, tachometer, flow-control valve and ON/OFF control panel. Suitable for measuring discharge, head, speed, power and pump efficiency at different speeds.	1			
2.	Pelton Turbine Test Rig	Turbine: - Output: 5W at 500min ⁻¹ , approx. 30L/min, H=2m - Impeller: 14 vanes, Vane width: 33.5mm, External diameter: 132mm Needle nozzle: - Jet diameter: 10mm Measuring ranges: Braking force (spring balance): 10N Pressure: 0 to 1bar	1			
3.	Red wood viscometer	Electrically heated, stainless-steel/corrosion-resistant construction, flow range 20–2000 Redwood seconds, with precision oil cup and jet, digital temperature controller, thermometer, 50 mL receiver, digital stopwatch (0.01 s resolution), levelling arrangement and safety protection. Power: 220–230 V AC, 50 Hz, single phase; Power consumption: ≤ 800 W. Manufacturer shall be ISO 9001:2015 certified or latest applicable revision	1			

4.	VENTURIMETER AND ORIFICEMETER TEST RIG	The experimental unit contains single piece machined venturimeter and two piece orifice meter to determine the flow rate. These instruments are designed with transparent cases in order to visualise how they operate and function. Pressurized twin tube water manometers is used in order to determine the pressure distribution in the Venturi nozzle or the orifice plate flow meter. The unit should also include sump tank and measuring tank made of Stainless Steel (Grade 304) of 2mm thickness. A centrifugal pump should also be included to make the unit recirculating. Experiments • flow measurement with orifice plate flow meter Venturi nozzle • comparison of different instruments for flow measurement • determining the corresponding flow coefficients • calibrating measuring instruments Technical data Venturi nozzle: A=84...338mm² • angle at the inlet: 10.5° • angle at the outlet: 4° Orifice plate flow meter: Ø 14mm Structure • The structure should be of 32mm x 32mm square pipe • Measuring tanks and sump-tank should be made of stainless steel (304 grade) with 2mm thickness. • Unit should be of lockable castor wheels	1			
5.	Bernoulli's theorem apparatus (with technical manual)	Compact, robust & stand-alone setup comprising of the following (but not limited to): 1. Inlet tank of suitable capacity 2. Supply Tank (optional) of suitable capacity 3. Measuring Tank of suitable capacity fitted with Piezometer Tube & Scale 4. Piezometer Tubes: Material P.U. Tubes (suggested) 5. Pump: A 220 volt AC, 0.5 HP, single phase monoblock ISI pumpset (suggested) with suitable pipe fittings, strainer foot valve, and switch 6. Piping: GI / PVC Size BSP (suggested) 7. Stop Watch: Electronic 8. Sump Tank of suitable capacity Floor Area: Limited to 2 x 1 m	1			
6	Reynolds Apparatus	Reynolds apparatus for Laminar & Turbulent flow:- This unit will consists of : 12mm or suitable dia Perspex / Glass pipe of 1500mm length with provision for die inlet. Die bottle and injector, Graduated measuring cylinder etc. and suitable size S.S. water tank-2 or 3 Nos, as required. Suitable water pump and necessary valves, pipes etc. all fitted in a table/structure. Minimum warranty period to be mentioned.	1			

List of Equipments for Basic Thermodynamics Lab:

S. No	Name of Equipment, Tools and Software	Broad Specifications	Qty			

1.	Digital Thermometer	Range -50 to 300°C or wider; resolution 0.1°C or better; accuracy $\pm 1^\circ\text{C}$ or better; stainless-steel probe; LCD display	1			
2.	Laboratory Glass Thermometer	Mercury-free; range 0–110°C or wider; least count 1°C or better; accuracy $\pm 1^\circ\text{C}$ or better; stem length approx. 250–300 mm.	1			
3.	Bourdon Tube Pressure Gauge	Dial 100 mm minimum; range 0–10 bar; accuracy $\pm 1.0\%$ FS or better; 1/2" BSP connection.	1			
4.	Digital Pressure Gauge	Range 0–10 bar or wider; resolution 0.01 bar or better; accuracy $\pm 0.5\%$ FS or better; LCD display; battery operated.	1			
5.	Pressure Gauge with Calibration Pump	Hand-operated; pressure generation capability minimum 10 bar; suitable for calibration/testing of 0–10 bar pressure gauges; complete with hoses, fittings and connections.	1			
6.	Heat Pump Test Rig	Vapour-compression type heat pump; capacity: 1–2 TR; hermetically sealed reciprocating compressor; suitable refrigerant; water-cooled condenser and evaporator; expansion device (TXV/capillary); high- and low-pressure gauges; digital temperature measurement with 0.1°C resolution or better; water flow measurement; digital power/energy meter; insulated refrigerant and water piping; complete with control panel, safety devices, mounting frame and all necessary accessories.	1			
7.	Boiler Mountings and Accessories	Complete set of boiler mountings and accessories comprising water-level indicator, safety valve, fusible plug, pressure gauge, main steam stop valve, feed check valve, blow-off cock, manhole and mud box. Boiler accessories shall include superheater, economizer and air preheater, complete with necessary piping, valves, fittings and safety arrangements.	1			
8.	2-Stroke Petrol Engine Cut Section	Non-working actual cut-section model of 2- stroke petrol engine showing major engine components, with stand and accessories.	1			
9.	4-Stroke Petrol Engine Cut Section	Non-working actual cut-section model of 4-Stroke Petrol Engine showing major engine components, with stand and accessories.	1			
10.	4-Stroke Diesel Engine Cut Section	Non-working actual cut-section model 4-Stroke Diesel Engine showing major engine components, with stand and accessories.	1			
11.	2-Stroke Diesel Engine Cut Section	Non-working actual cut-section model 2-Stroke Diesel Engine showing major engine components, with stand and accessories.	1			
12.	Cochran Boiler Cut Section	Non-working cut-section model of Cochran boiler showing shell, furnace, fire tubes and major mountings.	1			
13.	Benson Boiler Cut Section	Non-working cut-section model of Benson Boiler showing economizer, evaporator and superheater.	1			
13.	Locomotive Boiler Cut Section	Non-working cut-section model of Locomotive Boiler showing fire box, fire tubes, smoke box and chimney.	1			

15.	Lamont Boiler Cut Section	Non-working cut-section model of Lamont Boiler showing circulation system, economizer, evaporator and superheater.	1			
16.	Loeffler Boiler Cut Section	Non-working cut-section model of Loeffler Boiler showing evaporator, superheater, economizer and circulation system.	1			
17.	Lancashire Boiler Cut Section	Non-working cut-section model of Lancashire Boiler showing shell, furnace tubes, combustion chamber and flue path.	1			
18.	Multi-Stage Impulse Steam Turbine	Non-working model of Multi-Stage Impulse Steam Turbine showing rotor, nozzles and multiple impulse stages.	1			
19.	Multi-Stage Reaction Steam Turbine	Non-working model of Multi-Stage Reaction Steam Turbine showing rotor, fixed blades and moving blades.	1			
20.	Steam Power Plant Model	Non-working model of Steam Power Plant Model showing boiler, turbine, condenser, pump and generator.	1			

List of Equipments for Applied Thermodynamics and HVAC:

S. No	Name of Equipment, Tools and Software	Broad Specifications	Qty			
1.	Vapour Compression Refrigeration Test Rig	SPECIFICATIONS: Type: Vapour compression. - Compressor: 1/3 to 1 HP, hermetically sealed - Refrigerant: R-134a. - Evaporator / Freezer: 5 Litre - Type of Cooling: By Capillary tube method, By Throttle Valve method - Condenser: Air Cooled - Thermostat: Digital type - Pressure Indicators: 4 Nos. Analogue gauges before & after Expansion in HP & LP Lines. - Temperature Indicator: Digital Indicator in HP & LP line, for cooled medium in Freezer Compartment. - Power meter: Digital - Rota meter: 1 No., for flow measurement of refrigerant - Rota meter: 1 No., for flow measurement of water. - The complete unit is to be mounted on a Self-contained Control panel. Accessories: - Standard Electrical Multimeter: 1 Nos - Temperature Indicator: Multichannel (8 channel) - Thermocouple :: -15 to 60 oC (1 nos), 0 to 200 oC (1 nos), K-type.	1			
2.	Vapour Absorption Refrigeration Test Rig	Specification Input Supply: 220–240 V AC Input Power: 90 W Energy Consumption: 1.07 kWh Refrigeration Capacity: 1.5 TR	1			

		Working Pair: Water–LiBr or Ammonia–Water Ammeter: Digital, 0–20 A AC Voltmeter: Digital, 0–300 V AC Pressure Gauges: 2 Low-pressure and 2 High-pressure gauges Temperature Sensors: 5 Nos. Temperature Indicator: 6-channel digital Temperature Range: –50 to 150°C Pump: 0.25–0.5 HP				
3.	Stefan Boltzmann's Apparatus	• The Set-up is used for determining the Stefan Boltzmann constant of thermal radiation. It consists of a hemisphere fixed to a Bakelite plate with jacketed outer surface to heat it. Hot water to heat the hemisphere is obtained from a hot water tank fixed above the hemisphere. The copper test disc is introduced at the center of hemisphere. The temperatures of hemisphere and test disc are measured with the help of temperature sensors. Hot water to heat the hemisphere is obtained from a hot water tank fixed above the hemisphere and fitted with a heater controlled via Digital Temperature Controller. Hemisphere Diameter 200 mm (approximate) made of copper. • Test Disc Size 20 mm Diameter ×1.5 mm thickness (approximate) made of copper • Water Tank Stainless Steel 12 Ltr capacity (minimum). • Heater Nichrome wire immersion heater. Control panel comprising of Digital Temperature Controller: PID Controller, 0 to 199.9°C (for water tank). Digital Temp. Indicator: 0 to 199.9°C, with multi-channel switch. Temperature sensors: RTD PT-100 Type with temperature transmitter and local digital display - 2 Nos. (at least) With standard make on/off switch, Mains Indicator etc. One ceramic bare sensor will be welded on test directly. There will be no other material in between ceramic sensor and test specimen to avoid any losses.	1			

		test disc is introduced at the center of hemisphere. The temperatures of hemisphere and test disc are measured with the help of temperature sensors. Hot water to heat the hemisphere is obtained from a hot water tank fixed above the hemisphere and fitted with a heater controlled via Digital Temperature Controller. Hemisphere Diameter 200 mm (approximate) made of copper. • Test Disc Size 20 mm Diameter × 1.5 mm thickness (approximate) made of copper • Water Tank Stainless Steel 12 Ltr capacity (minimum). • Heater Nichrome wire immersion heater. Control panel comprising of Digital Temperature Controller: PID Controller, 0 to 199.9°C (for water tank). Digital Temp. Indicator: 0 to 199.9°C, with multi-channel switch. Temperature sensors: RTD PT-100 Type with temperature transmitter and local digital display - 2 Nos. (at least)				
4.	Thermal conductivity of Metal Rod Apparatus	Complete setup for determining thermal conductivity of metals in linear and radial directions, comprising interchangeable SS, copper and brass specimens (Ø25 × 40 mm approx.) for linear conduction, brass disc (Ø110 × 5 mm approx.) for radial conduction, water-cooling jacket with insulation, Nichrome heater 0–100 W, minimum 9 RTD PT-100 sensors for linear and 6 RTD PT-100 sensors for radial measurements, water-flow measurement by measuring cylinder and stopwatch, digital PID temperature controller, digital energy meter, multi-channel temperature indicator, MCB and SS-304 base plate.	1			

List of Equipments for Advanced Manufacturing Engineering and cost estimation Lab:

S. No	Name of Equipment, Tools and Software	Broad Specifications	Qty			
1.	Advanced Casting and Green Sand Molding Setup	Standard pattern materials, patterns (single piece pattern, multi piece pattern, gated pattern, sweep pattern, match plate pattern and loose piece pattern) commonly used moulding sand, moulding boxes/flasks of size 200–600 mm square and 75–1000 mm deep, screw motor drive, reciprocating screw and barrel, heaters, thermocouples, ring plunger, moulds, tie bars, crucibles, hand riddles, shovels, hand/peen/floor rammers, sprue pins, strike-off bars, mallets, draw spikes, vent rods/wires, lifters, trowels, slicks,	1			
2.	Injection molding machine	Purpose To produce plastic components of intricate shapes, Shot weight 90 g or more, Stroke Volume 100 cm³ or more, Capacity 75-100 tons, Material compatibility Thermoplastic materials (PLA, PU, ABS, PP, PC, PET, PA, PS and PEEK), Temperature range upto 500 °C melting range, Heater • Ceramic high-performance heaters for high temperature material. •	1			

		Nitride barrel • Power: 10 kW or more, Injection pressure 145 MPa or above, Injection velocity 300 mm/s or higher, Opening stroke 400 mm or more, Allowable Mold weight 500 kg				
3.	Blow molding	The machine shall be a laboratory-scale single-station Blow molding machine suitable for HDPE, LDPE, PP and similar thermoplastics, with 25–35 mm screw diameter, L/D ratio $\geq 20:1$, minimum 5 Ton clamping force, and 100–1000 ml molding capacity. It shall have 3 or more heating zones, temperature control up to 300°C, PLC/HMI control, adjustable extrusion/blowing pressure, parison	1			

List of Equipments for Manufacturing Engineering Lab:

S. No	Name of Equipment, Tools and Software	Broad Specifications	Qty			
1.	Punching-Blanking Press	Minimum 10-ton capacity mechanical power press suitable for educational and laboratory applications, including punching, blanking and piercing of small sheet-metal components such as washers, brackets and similar specimens. Complete set of suitable punches and dies shall be provided.	1			
2.	Spot Welding Setup	Resistance spot-welding machine of minimum 5 kVA capacity, with adjustable welding current, welding time 0–10 seconds, adjustable electrode pressure, replaceable copper/copper-alloy electrodes, suitable for 0.5–3 mm sheet thickness, foot-operated control, heavy-duty transformer, overload and thermal protection, emergency stop, and 415 V, 3-phase, 50 Hz power supply. The setup shall include electrodes, holders, cables and necessary tools.	1			
3.	Portable Gas welding and cutting machine	Working / Power gas Oxy-Acetylene Type of Transportation Portable Steel Thickness for Welding Up-to 25 mm or more Steel Thickness for cutting Up-to 30 mm or more Overall Dimensions Minimum 300x150x500 mm Weight Maximum 40 kg Capacity of Oxygen Bottle Minimum 5 litre, Capacity of Acetylene Bottle Minimum 5 litre	1			
4.	Soldering Station, Solder, Flux	Temperature-controlled soldering station with rapid heating capability and adjustable temperature range of 200°C–480°C, temperature stability of $\pm 1^\circ\text{C}$ under stationary air/no-load conditions, tip-to-ground resistance $< 2\ \Omega$, tip-to-ground potential $< 2\ \text{mV}$, maximum station power 60 W, soldering iron power 50 W at 24 V AC, soft-touch up/down temperature-control keys, and key-card/password protection for temperature settings. The station shall be supplied with a suitable pointed soldering tip and SMD hot tweezer attachment/tip.	1			

5.	Tool Makers microscope	Precision optical microscope with minimum 30× magnification, 50 × 50 mm or larger X–Y measuring range, 0.01 mm or better linear resolution, 360° rotatable stage, 1° or better angular measurement, coarse and fine focusing, reflected and transmitted LED illumination, digital readout, and suitable accessories for measurement of tool angles, radii, threads, profiles, punches, dies and small precision components.	1			
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Quoted Price: Total Amount (C=A+B) (< Price in Word and Figure>)

Note: -

- Prices should be quoted in Indian Rupee only and indicated both in figures and words. The amount mentioned in words will prevail.
- It is bidders' responsibility to install, commission, test, and go live. Any other cost for accessory or any other sundry items needed for installation would be borne by the Bidder only.
- All the items' counts mentioned above is only tentative number, it may exceed or less as per the work.
- The BoQ mentioned in the RFP is for the entire scope of work and duration mentioned in this RFP. Bidders are requested to do site visits to check the feasibility and to ensure achievement of the objective and scope of work of this RFP.

• **<Authorised Signature>**

Name:

Designation

Format for Declaration by the bidder for not being Blacklisted/ Debarred:

(To be executed on a non-judicial stamp paper of appropriate stamp duty (as per Stamp Act of Bihar)

Date:

To,

The Principal

Government Polytechnic, Gulzarbagh, Patna 7

Subject: Submission of proposal in response to the Tender for “_____”

Ref: Tender No.:

Dear Sir,

I, authorized representative of _____, hereby solemnly confirm that the Company _____ is not blacklisted / banned / debarred/ declared ineligible / declared having dissatisfactory performance/ Suspended by any Ministry and not banned by the Government of Bihar/ Any other State Government/ Government of India which includes any Government Department, Public Sector Undertakings of the Government, Statutory Department formed by the Government, Local Bodies in the State, Co-operative Institutions in the State, Universities and Societies formed by the Government for any reason as on last date of submission of the Bid. In the event of any deviation from the factual information/ declaration, **Government Polytechnic, Gulzarbagh, Patna 7** reserves the right to reject the Bid or terminate the Contract without any compensation to the Company.

Thanking you.

Yours faithfully,

<Authorized Signatory >

Name:

Designation:

Address:

Telephone & Fax: