
A K R I T I PRECISION SYSTEMS

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The Lab Justification Document Pack

Everything an HOD or lab in-charge needs to move a CNC purchase through the institution — written in the format approval committees expect.

- ✓ Budget justification letter (AICTE / RUSA format)
- ✓ Technical specification sheet — ready for tender documents
- ✓ Lab utilization plan — experiments mapped to curriculum
- ✓ Comparison annexure vs imported alternatives

Prepared for: _____ (Institution Name)

Date: _____

What's inside this pack

01 Budget Justification Letter

AICTE MODROB / RUSA-format request letter — ready for your institution's letterhead.

02 Technical Specification Sheet

Full spec comparison across Meteor, Meteor HD, Majestic 6040 and Majestic 9060 Pro — drop straight into a tender document.

03 Lab Utilization Plan

A 15-week semester plan mapping experiments to NSQF Levels 3-5, with real Don Bosco Shillong & Guwahati outcomes.

04 Comparison Annexure

Akriti vs a typical imported CNC alternative, across warranty, service, power and lifecycle cost.

Fields in [brackets] throughout this pack need to be filled in by the HOD / lab in-charge before submission. For a version pre-filled with your institution's details, WhatsApp the Akriti education desk at +91 90190 54837.

Budget Justification Letter

AICTE MODROB / RUSA format — copy onto your institution's letterhead.

Ref. No.: [Department Ref. No. / Date]

Date: [DD/MM/YYYY]

To,

The Chairman / Director,

[Committee Name — e.g. AICTE MODROB Committee / RUSA State Project Directorate]

[Institution Name], [City, State]

Through: The Head of Department, [Department Name]

Subject: Request for sanction of budget for procurement of CNC machine(s) for the [Department Name] teaching laboratory under [AICTE MODROB / RUSA / Institutional Development Plan], Academic Year [20XX–XX] — regarding.

Respected Sir/Madam,

With reference to the subject cited above, it is respectfully submitted as follows:

1. Need for the equipment. The Department of [Department Name] currently lacks hands-on CNC machining infrastructure required to deliver the practical component of [Course Codes / Names] and to align laboratory outcomes with the National Skill Qualification Framework (NSQF). Industry engagement consistently flags a machining-skills gap among graduating students; India's manufacturing sector is projected to reach USD 2.47 trillion by 2031 (CAGR 7.26%), against a reported shortage of roughly 12 million skilled workers nationally. A dedicated CNC laboratory directly addresses this gap for our students.

2. Curriculum and NSQF alignment. The proposed machine will support hands-on training mapped to NSQF Levels 3–5 (CNC Operator — Turning/Milling; Machining Technician), covering machine setup, G-code/CAM programming, tool selection and quality inspection. It further enables integration with short-term certification modules under Pradhan Mantri Kaushal Vikas Yojana (PMKVY), typically 300–600 training hours, with placement assistance.

3. Technical suitability. The [Machine Model — e.g. Meteor / Meteor HD / Majestic 6040 / Majestic 9060 Pro] CNC machine, manufactured by Akriti Precision Systems, Bengaluru, offers a [Working Area] working envelope, a Teknomotor (Italy) spindle rated up to 24,000 RPM, Hiwin/THK ball-screw drives with certified repeat positioning accuracy under 50 microns, and single-phase 220V/16A power — matching standard laboratory electrical infrastructure without requiring a three-phase supply upgrade. Full specifications are enclosed as Annexure A.

4. Cost-effectiveness and lifecycle economics. The machine carries a lifetime warranty on its composite superstructure, so the core structure is expected to serve multiple student batches over decades without replacement. Annual Maintenance Contracts are available at approximately 5.5% of invoice value, and the machine ships fully assembled and commissioned (plug-and-play), minimising installation overheads. A comparison against a representative imported alternative is enclosed as Annexure D.

5. Reference implementations. Akriti CNC machines are already deployed in teaching / skill-centre laboratories at VIT Chennai, MANIT Bhopal, Don Bosco Technical School (Shillong), Don Bosco Technical Institute (Guwahati) and Chinmaya institutions in Kerala. At Don Bosco Shillong, three Akriti 3-axis CNC machines support a dedicated skill centre delivering NCVT/NSQF Level 4 training to over 100 students annually, with 80% placement in local industries.

6. Utilization plan. A semester-wise lab utilization plan mapping planned experiments, batch size and weekly machine hours to curriculum outcomes is enclosed as Annexure C.

It is therefore requested that sanction of the amount indicated in the enclosed quotation (Annexure B) may kindly be accorded at the earliest, to enable procurement and commissioning of the equipment before the commencement of [Semester / Academic Year].

Thanking you,

Yours faithfully,

Submitted by:

Forwarded / Recommended by:

[Name]

[Designation]

Department of [Department Name]

[Name of HOD]

Head of Department

[Department Name]

Encl.: Annexure A — Technical Specification Sheet; Annexure B — Vendor Quotation; Annexure C — Lab Utilization Plan; Annexure D — Comparison vs Imported Alternatives.

Technical Specification Sheet

Insert the column for your selected model directly into the tender's technical-specification annexure. All prices are starting prices, ex-GST and shipping.

Specification	Meteor	Meteor HD	Majestic 6040	Majestic 9060 Pro
Axes	3	3	3	4
Working Area (X x Y)	400x300 mm	400x300 mm	600x400 mm	900x600 mm
Z-axis Travel	100 mm	100 mm	150 mm	150 mm
Chassis	Carbon Fiber / Fiber Glass composite superstructure on mild-steel base — desktop/tabletop			
Controller	Arduino (USB, GSender/UGS)	LinuxCNC PC-based; non-PC options available		
Spindle	0.73 kW / 24,000 RPM	2.2 kW / 24,000 RPM	2.2 kW / 24,000 RPM	2.2 kW / 24,000 RPM
Spindle Origin	Teknomotor, Italy (Mechatron/Spinogy upgrades available up to 8.5 kW)			
Drive / Guides	16mm screw / 20mm guide	20mm screw / 25mm guide	20mm screw / 25mm guide	20mm screw / 25mm guide
Repeat Positioning Accuracy	Certified <50 microns; tested 15-25 microns (0.015-0.025 mm)			
4th Axis (A-axis)	—	—	—	650mm usable, 125mm 4-jaw chuck, <5 arcmin backlash
Power Input	Single-phase 220V/110V, 16A plug point			
Materials Supported	PCB, plastics, wood, MDF, graphite	+ EN steel, aluminium, copper, brass, composites, stones	+ EN steel, aluminium, copper, brass, composites, stones	+ EN steel, aluminium, copper, brass, composites, stones
Certification	ISO 9001 & CE Certified; Mitutoyo-calibrated; 24/7 rated			
Warranty	1 yr all parts + lifetime superstructure warranty; extended AMC up to 10 yrs			
Ship Configuration	Fully assembled, plug-and-play; no on-site tuning required			
Starting Price (ex-GST, ex-shipping)	Rs 3,60,000	Rs 4,60,000	Rs 5,75,000*	On request*

*Majestic pricing varies by configuration (servo motors, enclosure, spindle upgrade, 4th axis). Confirm the exact figure with the Akriti education desk before finalising the tender document.

Lab Utilization Plan

A ready-to-adapt semester plan showing how one CNC machine supports NSQF-aligned outcomes across a teaching term. Adjust batch sizes and hours to your intake.

Module / Week	Experiment / Activity	NSQF Level	Batch Size	Hrs/Wk
Weeks 1-2	Machine orientation, safety induction, CAM software basics (Fusion 360 / VCarve)	Level 3	8-10	4
Weeks 3-5	G-code fundamentals, manual tool setup, facing & profiling on soft materials (wood, MDF, acrylic)	Level 3-4	8-10	6
Weeks 6-8	PCB prototyping — Excellon/Gerber to G-code, drilling & isolation routing	Level 4	6-8	6
Weeks 9-11	Non-ferrous metal machining — aluminium, brass, copper component fabrication	Level 4	6-8	8
Weeks 12-13	Composites module — carbon fiber / fiber glass with mist coolant, dust management & safety protocol	Level 4-5	4-6	6
Weeks 14-15	Capstone project — student-designed part, quality inspection & tolerance verification	Level 5	All batches (rotational)	10
Ongoing	PMKVY-aligned short-term certification track (300-600 hrs) run in parallel for external / placement-track candidates	Level 4-5	Cohort-based	Off-peak

Skills covered	Reference outcomes — Don Bosco Shillong	Reference outcomes — Don Bosco Guwahati
Machine setup, G-code/CAM programming, tool selection, work-holding, quality inspection, dust & safety management for composites — aligned to CNC Operator (Turning/Milling) and Machining Technician NSQF roles.	Three Akriti 3-axis CNC machines support 100+ students annually with 80% placement in local industries, integrated with PMKVY certification.	Four Akriti machines (3 & 4-axis) support a new skill centre targeting 150+ trainees yearly, with local industry internship partnerships.

Comparison Annexure

Akriti vs a typical imported CNC alternative — indicative, for the tender's annexure. Replace the imported-machine column with figures from your actual competing quotation before submission.

Parameter	Akriti Precision Systems	Typical Imported Alternative
Manufacturer status	Manufacturer (not importer/reseller) — Bengaluru, India	Imported; local partner is typically a reseller/distributor
Superstructure warranty	Lifetime warranty on composite superstructure — no sagging, hogging, rust or corrosion	Typically 1-2 years on frame; steel frames may corrode over time
Made-in-India content	Up to 75-80% Made-in-India components; zero Chinese parts	Fully or largely imported; sourcing origin varies by vendor
Power requirement	Single-phase 220V/110V, 16A — fits standard lab wiring	Often three-phase; may require electrical infrastructure upgrade
Service & spares turnaround	Local team, Bengaluru; full mechanical rebuilds in 2-3 days; downtime ~1-2 wks/yr (worst case)	Spares typically shipped internationally; longer lead times and customs delays
AMC cost	~5.5% of invoice value per year	Often higher once freight, customs and forex are factored in
Commissioning	Ships fully assembled, plug-and-play; no on-site tuning required	May require a specialist commissioning visit
Spindle	Teknomotor, Italy (0.73-2.2 kW standard; German/Indian upgrades to 8.5 kW)	Varies by vendor
Indicative starting price (ex-GST)	Rs 3,60,000 (Meteor) - Rs 5,75,000+ (Majestic)	Insert competing quotation here

Figures on Akriti's side are drawn from published product specifications and the whitepaper "Empowering Future Innovators: The Role of Akriti Precision Systems' CNC Machines in Educational Skill Training and Development." Replace the imported-alternative column with vendor-specific figures before final submission.

Want this pack customised with your institution's letterhead and a formal quotation? WhatsApp the Akriti education desk at **+91 90190 54837**.