



TrEST RESEARCH PARK

Thiruvananthapuram, Kerala

EXPRESSION OF INTEREST (EOI)

Empanelment of Training Agencies / Entities for Delivery of Product Development and Engineering Simulation Training Programmes under TrEST Academy, TrEST Research Park

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1. Introduction

TrEST Research Park, the autonomous deep-tech innovation and incubation ecosystem promoted by the Government of Kerala, is establishing TrEST Academy as a Deep-Tech Skill Development Platform. The Academy is conceived as a focal point for creating industry-ready professionals in Electric Vehicle (EV) Engineering, Semiconductor Design, Embedded Systems, Advanced Electronics, AI and other allied frontier technology domains.

TrEST Academy is envisioned as a structured capacity-building platform that brings together academia, startups, industry professionals, and government initiatives under a common umbrella. It is intended to serve as a key enabler for the upcoming Kerala Research Park, Kerala Knowledge Valley, University Townships as well as for the broader deep-tech and advanced manufacturing ecosystem being nurtured by the State.

As part of the Faculty Development, Nurture and Align (FDNA) initiative, TrEST Research Park intends to design and conduct structured, outcome-oriented training programmes that focus on modern product development methodologies, digital engineering practices, and engineering simulation technologies. These programmes are aimed at bridging the prevailing skill gaps among faculty, students, startups, and industry professionals in Kerala.

Accordingly, through this Expression of Interest (EoI), TrEST Research Park invites proposals from qualified, experienced, and competent organizations for empanelment as training partners under TrEST Academy. The empanelment is intended to create a readily accessible pool of credible agencies that can be engaged, on a need basis, for delivering high-quality, industry-relevant training programmes.

2. Background

The global engineering landscape is undergoing a rapid transformation driven by digitalization, electrification, and the convergence of mechanical, electrical, and software domains. Modern engineering product development increasingly relies on proficiency in digital engineering tools, simulation-driven design, virtual validation, system integration, and model-based development practices.

Kerala, with its strong base of engineering institutions, a growing startup ecosystem, and ambitious initiatives such as research parks, knowledge valley and the broader semiconductor and electronics mission, requires a skilled workforce that is conversant with these modern tools and methodologies. However, there exists a significant gap between the skills imparted through conventional academic curricula and the competencies demanded by industry.

TrEST Research Park, given its mandate to support innovation, incubation, and industry-academia collaboration, is well positioned to address this gap. TrEST intends to collaborate with competent external agencies possessing demonstrated expertise in these areas.

This EoI is therefore floated to identify, evaluate, and empanel such training agencies, who can be engaged on an as-required basis to deliver high-quality programmes aligned with the objectives of TrEST Academy and the FDNA initiative.

3. Objective of the EoI

The objectives of this empanelment exercise are to:

- Identify competent training organizations capable of delivering advanced technical programmes in product development and engineering simulation domains.
- Establish a panel of domain experts, subject matter specialists, and training agencies that can be engaged on a continuing basis.
- Support the design and delivery of Faculty Development Programmes (FDPs) for engineering colleges and polytechnics across Kerala.
- Support student skill development initiatives, including project-based learning and simulation-based workshops.
- Conduct industry upskilling programmes for professionals working in EV, semiconductor, embedded systems, and allied sectors.
- Support startup capacity-building initiatives through customized, hands-on training modules.
- Facilitate technology transfer and adoption of advanced engineering software tools, hardware platforms, and methodologies within the Kerala innovation ecosystem.
- Build long-term institutional relationships with credible training partners for sustained capacity development under TrEST Academy.

4. Scope of Work

Selected agencies may be engaged, either individually or in collaboration with other empanelled agencies, for one or more of the following categories of activities. The actual scope, duration, and deliverables for each engagement shall be defined through a specific work order or programme-level agreement issued at the time of engagement.

4.1 Faculty Development Programmes (FDPs)

- Designing and conducting training programmes for faculty members from Engineering Colleges, Polytechnics, and ITIs across Kerala, with focus on emerging technology domains.
- Conducting certification-oriented programmes aligned with recognized industry certification frameworks (e.g., software-specific certifications, professional body certifications).

- Developing faculty competency frameworks, skill matrices, and structured progression pathways for continuous professional development.
- Conducting Train-the-Trainer (TTT) programmes to build a sustainable internal training capacity within partner institutions.

4.2 Student Development Programmes

- Designing and delivering industry-oriented training programmes for undergraduate and postgraduate engineering students.
- Developing and facilitating project-based learning (PBL) modules that integrate simulation tools with real-world engineering problems.
- Conducting simulation-based engineering workshops, hackathons, and design challenges.
- Providing mentorship and technical guidance for student projects, including capstone and final-year projects aligned with industry requirements.

4.3 Industry and Startup Training

- Designing customized training programmes tailored to the specific requirements of industry partners and startups incubated at TrEST Research Park.
- Conducting startup-focused product development programmes covering the full product lifecycle, from concept to validation.
- Conducting design validation workshops, including simulation-driven verification and virtual testing methodologies.
- Providing technical advisory and short-duration consulting support, where applicable, as an extension of training engagements.

4.4 Curriculum Development

- Preparation of detailed training curricula, session plans, and learning outcome frameworks for each proposed programme.
- Development of laboratory manuals, simulation exercise guides, and

step-by-step hands-on tutorials.

- Development of assessment frameworks, including quizzes, practical evaluations, and project-based assessments.
- Periodic review and updating of curricula to ensure continued alignment with evolving industry tools, standards, and practices.

5. Technical Domains

Agencies may propose training programmes in one or more of the following technical domains. Agencies are encouraged to clearly indicate their core areas of strength while also identifying domains in which they can deliver introductory or intermediate-level programmes.

5.1 Electric Vehicle (EV) Engineering

- EV Powertrain Design and Architecture
- Electric Motor Design, Analysis, and Validation
- Battery Systems Engineering, including Cell Selection and Pack Design
- Battery Thermal Management Systems
- Power Electronics for EV Applications
- Inverter Design and Control Strategies
- Vehicle-Level System Integration
- Functional Safety in Automotive and EV Systems (ISO 26262 and related frameworks)

5.2 Structural Analysis

- Computer-Aided Design and Manufacturing (CAD/CAM)
- Finite Element Analysis (FEA) for Structural Applications
- Structural Analysis and Design Optimization
- Fatigue Analysis and Durability Assessment
- Multiphysics Simulations (Coupled Structural, Thermal, and Fluid Domains)

5.3 CFD and Thermal Engineering

- Fluid Flow Simulations and Computational Fluid Dynamics (CFD)
- Thermal Management System Design
- HVAC Simulations for Automotive and Industrial Applications
- Cooling System Design for Electronic and Electrical Systems
- Battery Thermal Analysis and Simulation

5.4 Electronics and Semiconductor Engineering

- Very Large Scale Integration (VLSI) Design
- FPGA Development and Programming
- Register Transfer Level (RTL) Design
- Functional and Formal Verification Methodologies
- Physical Design and Layout
- Design for Testability (DFT)
- Chip Validation and Bring-up

5.5 Embedded Systems

- Embedded Hardware Design
- Embedded Software Development (Bare-metal, RTOS-based)
- Real-Time Systems Design and Analysis
- Internet of Things (IoT) Systems Development

5.6 Systems Engineering

- Model-Based Systems Engineering (MBSE)
- Digital Twin Development and Applications
- Software-in-the-Loop (SIL) and Hardware-in-the-Loop (HIL) Testing
- System-Level Simulation and Co-Simulation

5.7 AI and Data Analytics for Engineering

- Artificial Intelligence (AI) Applications in Engineering Design and Analysis
- Predictive Maintenance using Data-Driven Approaches
- Engineering Optimization using AI/ML Techniques

- Machine Learning Applications in Product Development and Validation

6. Expected Deliverables

For each training programme undertaken, the selected agency shall provide the following deliverables, as applicable to the nature and scope of the engagement:

- A detailed course curriculum, including session-wise breakdown of topics, learning objectives, and expected outcomes.
- A comprehensive training schedule, indicating duration, mode (online/offline/hybrid), and resource requirements.
- Training presentations, reference materials, and supplementary reading resources for participants.
- Hands-on laboratory exercises, simulation files, and datasets required for practical sessions.
- Relevant case studies and real-world examples that reinforce the application of concepts taught.
- Participant assessment mechanisms, including pre- and post-training evaluations to measure learning outcomes.
- Detailed evaluation reports summarizing participant performance, feedback, and recommendations for follow-up.
- Course completion certificates for successful participants, co-branded with TrEST Academy where applicable.
- Post-training support, including access to query resolution channels, follow-up sessions, or supplementary resources, wherever applicable and agreed upon.

7. Eligibility Criteria

7.1 Mandatory Requirements

The applicant organization shall fulfil all of the following mandatory requirements to be considered for empanelment:

- Be a legally registered entity in India, in the form of a company

(under the Companies Act), Limited Liability Partnership (LLP), academic/research institution, society, trust, or a registered training organization.

- Have a minimum of three (3) years of operational experience as on the date of submission of this EoI, evidenced through appropriate registration and operational documents.
- Have demonstrated experience in engineering training, technical consulting, or capacity-building programmes relevant to the domains listed in Section 5.
- Not be currently blacklisted or debarred by any Central or State Government department, public sector undertaking, or autonomous body in India.

7.2 Technical Experience

In addition to the mandatory requirements above, the applicant organization should possess demonstrated technical experience in at least one of the following areas:

- Product Development (Mechanical, Electrical, or Electronics domains).
- Engineering Simulation (FEA, CFD, Multiphysics, or related tools).
- Electric Vehicle (EV) Engineering.
- Semiconductor Design (VLSI, FPGA, RTL, Verification, Physical Design, etc.).
- Embedded Systems (Hardware and/or Software).
- Digital Engineering (MBSE, Digital Twins, SIL/HIL Testing, etc.).

7.3 Desirable Qualifications

While not mandatory, applicant organizations possessing the following will be viewed favourably during evaluation:

- Prior experience in conducting training programmes for academic institutions, particularly engineering colleges and polytechnics in Kerala or other states.
- Established partnerships or authorized training provider status with

leading engineering software OEMs (e.g., ANSYS, MATLAB/Simulink, Cadence, Siemens, Altium, Xilinx/AMD, Synopsys, Altair, dSPACE, NI, AVL).

- Experience in delivering programmes funded or supported by Central/State Government schemes, AICTE, NPTEL, or similar bodies.
- A pool of qualified trainers with relevant industry and academic credentials, including advanced degrees and professional certifications.
- ISO certification or equivalent quality management accreditation for training delivery processes.

8. Evaluation Criteria

Proposals received in response to this EoI shall be evaluated by an Evaluation Committee constituted by TrEST Research Park, based on the parameters and weightages indicated below. The Committee may, at its discretion, seek clarifications, additional documents, or conduct presentations/interactions with applicant organizations as part of the evaluation process.

S.No.	Evaluation Parameter	Weightage (%)
1	Organization Experience	20
2	Technical Expertise	25
3	Trainer Qualifications	20
4	Previous Training Engagements	15
5	Industry Collaborations	10
6	Infrastructure Availability	10
	Total	100

Applicant organizations shall be required to score a minimum of 60% will be called for a technical presentation and/or interaction with the Evaluation Committee prior to final empanelment decisions.

9. Infrastructure Requirements

Agencies are requested to indicate the availability of the following infrastructure and resources, as applicable to their proposed training areas:

- Available software tools and licensing arrangements (perpetual, subscription, academic, or cloud-based licenses).
- Dedicated training laboratories, including seating capacity and computing infrastructure.
- Hardware facilities, including development kits, prototyping equipment, and test benches, wherever relevant to the proposed domain.
- Cloud infrastructure for remote access to simulation tools, virtual labs, or computing resources.
- Certification partnerships with software OEMs, professional bodies, or accreditation agencies.

The mode of engagement for training programmes may be offline (at TrEST Research Park premises, partner institution campuses, or agency facilities), online (via virtual platforms), or hybrid, depending on the requirements of each specific programme.

Preference may be given to agencies possessing access to, or authorized partnerships for, industry-standard platforms including but not limited to:

- ANSYS
- MATLAB/Simulink
- Cadence
- Siemens (NX, Simcenter, etc.)
- Altium Designer
- Xilinx/AMD Vivado
- Synopsys
- Altair (HyperWorks suite)
- dSPACE
- NI LabVIEW
- AVL Tools

or other equivalent and industry-recognized technologies relevant to the domains listed in Section 5.

10. Duration of Empanelment

The empanelment arising from this EoI shall initially remain valid for a

period of three (3) years from the date of issue of the empanelment letter to the selected agency.

TrEST Research Park reserves the right to extend the empanelment period, either in part or in full, based on the satisfactory performance of the empanelled agency, subject to mutual agreement on terms and conditions. TrEST Research Park also reserves the right to review the panel periodically and to add new agencies or discontinue existing empanelled agencies based on performance, changing requirements, or other administrative considerations.

11. Commercial Model

Empanelment through this EoI shall not, by itself, guarantee any minimum business commitment, assured number of programmes, or exclusivity to the empanelled agency. Engagement for specific programmes shall be at the sole discretion of TrEST Research Park, based on programme requirements, agency expertise, performance track record, and commercial terms.

Programme-specific engagements may be undertaken through one or more of the following models, as may be determined appropriate by TrEST Research Park on a case-by-case basis:

- **Nomination Basis:** Direct engagement of an empanelled agency for a specific programme based on its demonstrated expertise in the relevant domain.
- **Limited Bidding:** Inviting commercial proposals from a subset of empanelled agencies possessing relevant expertise for a specific programme, followed by selection based on technical and commercial evaluation.
- **Revenue Sharing Arrangements:** Joint delivery of programmes with revenue/cost sharing arrangements mutually agreed upon between TrEST Research Park and the agency.
- **Training Fee-Based Models:** Programmes where participants pay a training fee, with the empanelled agency engaged on agreed commercial terms for content delivery.
- **Sponsored Programme Models:** Programmes funded by third-party sponsors (government schemes, industry partners, CSR initiatives,

etc.), with the empanelled agency engaged as the delivery partner. Detailed commercial terms, including fee structures, payment schedules, and applicable taxes, shall be finalized at the time of issuing a specific work order for each programme.

12. Submission Requirements

Interested agencies shall submit a comprehensive proposal comprising the following documents and information via email and as hardcopy. Proposals that are incomplete or do not contain the requisite documents may be considered non-responsive and liable for rejection.

- Organizational Profile, including details of legal structure, year of establishment, areas of operation, and an overview of relevant capabilities.
- Registration Documents (Certificate of Incorporation/Registration, Partnership Deed/LLP Agreement, Society/Trust Registration Certificate, as applicable).
- GST Registration Certificate.
- PAN Details of the organization.
- Relevant Experience Certificates, including work orders, completion certificates, or client testimonials for previous training/consulting engagements.
- List of Trainers/Subject Matter Experts proposed to be deployed, along with their qualifications, areas of expertise, and brief profiles/CVs.
- Proposed Training Areas, mapped to the technical domains listed in Section 5, along with indicative programme titles and durations.
- Infrastructure Details, as outlined in Section 9, including software licenses, laboratory facilities, and hardware resources.
- A sample report of 5 day training program schedule, detailing all infrastructure requirement and expected financials
- Previous Client List, including names of institutions/organizations served, nature of engagement, and approximate scale (number of participants, duration, etc.).

- Details of any Accreditations or Certifications held by the organization or its trainers (e.g., OEM authorized training partner status, ISO certifications, professional body certifications).

While submitting hardcopy, all pages shall be signed and sealed by competent authority.

13. Rights of TrEST Research Park

TrEST Research Park reserves the right to:

- Accept or reject any proposal, in part or in full, without assigning any reason.
- Seek additional information, clarifications, or documents from any applicant organization at any stage of the evaluation process.
- Conduct technical presentations, demonstrations, or interactions with applicant organizations as part of the evaluation process.
- Modify, amend, or expand the scope of work, technical domains, or other terms of this EoI at any time, with appropriate notice to applicants where feasible.
- Empanel one or multiple agencies for the same or overlapping technical domains, as deemed appropriate.
- Cancel, withdraw, or annul this EoI process at any stage, without assigning any reason and without any liability towards the applicant organizations for costs incurred in preparing and submitting proposals.

14. Contact Details

All queries, clarifications, and proposals related to this EoI shall be addressed to:

Chief Executive Officer

TrEST Research Park

Opposite College of Engineering Trivandrum, Kulathoor Rd,
Sreekariyam, Trivandrum, Kerala 695016

Email: trestpark@kerala.gov.in Phone: 9188933426

15. Conclusion

Through this initiative, TrEST Academy aims to establish a sustainable ecosystem for advanced engineering education, faculty development, startup enablement, and industry-oriented skill development. By empanelling a credible and diverse pool of training agencies across the technical domains outlined in this EoI, TrEST Research Park seeks to build the human capital required to support Kerala's emergence as a leading deep-tech innovation hub, including flagship initiatives such as K-EVIP and the broader electronics and semiconductor mission of the State.

TrEST Research Park looks forward to receiving proposals from competent and committed organizations who share this vision and are interested in contributing to the capacity-building of Kerala's engineering and innovation ecosystem

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