भारतीय प्रौद्योगिकी संस्थान गोवा
गोवा अभियांत्रिकी महाविद्यालय परिसर, फार्मागुड़ी, फ़ोंडा – 403401, गोवा
Indian Institute of Technology Goa
Goa College of Engineering Campus, Farmagudi, Ponda – 403401, Goa

Ref: IITGOA/2024-25/022 Date: 03/03/2025

To,

M/s. Syngient Technologies Private Limited.,

944, Block C, Sushant Lok,

Phase – 1, Sector 43, Gurugram, Haryana,

HR 122001

Sir/Madam,

Sub: Enquiry for “Altair PSIM Software Package”.

IIT Goa invites online bid(s) from the manufacturers/ suppliers for supply of item(s) / goods as per specification mentioned in Appendix-1: -

“Altair PSIM Software Package” - Qty 10 Licenses.

(As per the technical specifications mentioned in the tender enquiry)

Online bids should be submitted through www.eprocure.gov.in latest by 17:00 Hrs. on or before 10th March, 2025.

Please do the needful.

Regards,

Assistant Registrar (S&P)

IIT Goa

GSTIN: 30AABAI1653D1ZF PAN: AABAI1653D TAN: BLRI08261B

Tender Enquiry

Enquiry No: IITGOA/2024-25/022 **Date: 03/03/2025**

IIT Goa invites online bid(s) from the manufacturers/ suppliers for supply of item(s) / goods as per specification mentioned in Appendix-1 of tender document available at our website www.iitgoa.ac.in and central public procurement portal i.e. www.eprocure.gov.in.

Sl. No.	Description of Item	Qty. (Nos.)
1	Altair PSIM Software Package	10 Licenses

Terms & Conditions: -

1. The technical bid and the financial bid should be submitted through www.eprocure.gov.in before the last date & time of submission specified in tender document.
2. Technical bid should contain all the technical details and specification of the product. It should also contain techno-commercial terms and conditions, compliance certificates, proprietary certificates (if applicable), undertaking/self-declaration for bid security, declaration of local content, any other certificates/details etc. along with Annexure-A.
3. Financial bid should contain duly filled BOQ in excel format and a scanned copy of the same signed and stamped on the company letterhead in pdf format.
4. All taxes and duties will be paid extra and such amounts of mandatory/statutory taxes & duties shall be explicitly mentioned in BOQ while submitting bid. If GST amount not quoted in the BOQ (financial bid), the total cost will be treated as inclusive of GST. The prices filled in the e-procurement site will be treated final and shall be binding on the bidder.
5. At any time prior to the due date for submission of bids, the Institute may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the bidding documents by issuing a corrigendum.

6. Corrigendum related to the tenders issued by this Institute shall be placed in its website. As such, all prospective bidders are expected to visit IIT Goa website before formulating and submitting their bids to take cognizance of the corrigendum, if any.
7. Estimated cost of the tendered items is Rs. 30 Lakhs (Inclusive of taxes).
8. Bid(s) must be valid for at least 90 days from the date of opening of technical bid.
9. The GSTIN should invariably be mentioned in your offer. The bidder has to submit a copy of GSTIN, last filled ITR and last filed GST return.
10. Bid Security or EMD: 2% of the estimated cost of the tender or bidders should submit "Bid Securing Declaration Form" on company letter head as per Annexure-B of this tender document.
11. EMD amount can be deposited in IIT Goa Main Account by RTGS/NEFT/SWIFT.
    Account No. : 520101252594859
    Bank Name and address : Union Bank of India, Farmagudi Branch
    IFSC Code : UBIN0913286
    A copy of the transaction details of EMD must be submitted along with the technical bid.
12. Kindly attach a compliance certificate along with the technical quote.
13. Model no. of the product and HSN or SAC code should be given with catalogue (if any).
14. Price: Price should be quoted in INR, with free delivery at IIT Goa campus at the site.
15. Custom Duty Exemption Certificate (CDEC) will be provided in case of GTE only.
16. Payment terms: 100% within 30 days after the delivery and successful installation of items against submission of performance security.
    - Note: All payments due under the contract shall be paid after deduction of statutory levies at source (Like ESIC, IT(TDS), GST etc.), wherever applicable.
17. Delivery should be made within 14 days from the date issue of Purchase Order.
18. Installation should be made within 07 days after the successful delivery (if applicable).
19. The items after inspection, if found defective or damaged or not according to the specifications of the supply order will be returned at the bidder's cost and risk.
20. Part supply and billing is not acceptable unless permitted by the Competent Authority.
21. Liquidated Damages: If the items are not delivered and installed within 21 days from the date of issue of Purchase Order, 0.5% as pre-estimated damages per week of the total amount subject to maximum of 10%.
22. Successful bidder has to submit a Performance Bank Guarantee for 3% of the purchase order value and valid till one year or up to warranty period, plus 60 days whichever is later from the date of successful installation of the item.
23. All items quoted must have standard one-year OEM warranty with free updates, upgrades and technical support during the warranty period.

24. Software licenses must be fully featured (Industrial Grade) Perpetual Academic Research Licenses, Student Edition licenses with limited capabilities or features will not be considered.
25. Installation, commissioning & training for entire items should be done and demonstrated onsite at IIT Goa.
26. Vendors quoting must have the similar past experience in supplying the similar products to other central / state government institutions or organizations.
27. The bidder shall provide the banking details along with their quote on their letterhead duly signed and stamped.
28. The Institute is following and shall abide with the revised Public Procurement (Preference to Make in India), Order 2017 P- 45021/2/2017 – B. E. -II dated 16.09.20 issued by DPIIT, Ministry of Commerce and Industry, Govt. of India & subsequent amendments/instructions of Ministry. Accordingly, preference will be given to the make in India products while evaluating the bids. However, it is sole responsibility of the bidder(s) to specify the product quoted by them is of Make in India along with respective documentary evidence in the technical bid itself. A self-declaration as per Annexure- C related to local content should be submitted with technical bid.
29. If the bidder is a Micro or Small Enterprise as per latest definitions under MSME rules or a startup, the bidder shall be exempted from the requirement of “EMD/Bid security”, "Bidder Turnover" criteria and "Experience Criteria". If the bidder is OEM of the offered products, it would also be exempted from the "OEM Average Turnover" criteria. In case any bidder is seeking exemption from Turnover/Experience Criteria or EMD/Bid security, the supporting documents to prove his eligibility for exemption must be submitted with technical bid.
30. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Department for Promotion of Industry and Internal Trade (DPIIT). This is also applicable for bidders bidding for finished goods procured directly/indirectly from the vendors from the countries sharing land border with India. A self-declaration as per Annexure- D should be submitted with technical bid.
31. IIT Goa reserves the right to accept and/or reject any/all bids or to cancel the entire tendering process at any stage of the procurement process without assigning any reason in public interest. All disputes are subject to Goa Jurisdiction only.
32. A self-declaration is to be submitted as per Annexure- E that the organization has not been blacklisted by any Central/State Government Department/Organization.
33. Bidder who does not manufacture the goods it offers to supply shall submit Manufacturers’ Authorization Form as per Annexure- F specified in the bidding document to demonstrate

that it has been duly authorized by the manufacturer of the goods to quote and / or supply the goods/services.

34. Evaluation of bids: Initially, the technical bids shall be opened and evaluated by the competent committee(s). The bidders who do not fulfil the eligibility, technical and financial qualification criteria shall be rejected during the evaluation of technical bid. At the second stage, financial bids of only the technically qualified bidders shall be opened and evaluated. Among all responsive financial bids, the lowest bid will be termed as L1 and recommended for awarding the purchase order/contract by the competent committee.
35. For any technical clarification, you may kindly contact Dr. Sheron Figarado (E-mail: sheron@iitgoa.ac.in). For any other clarification, you may contact the Assistant Registrar, Stores & Purchase section (email: purchase@iitgoa.ac.in / ar_sp@iitgoa.ac.in).
36. The bidders are expected to examine all instructions, forms, terms, and specifications in the bidding documents. Failure to furnish all information required by the bidding documents or submission of a bid not substantially responsive to the bidding documents in every respect will be at the bidder's risk and may result in rejection of its bid.
37. Online bids should be submitted through www.eprocure.gov.in latest by 17:00 Hrs. on or before 10th March, 2025.

Registrar, IIT Goa

Appendix-1

Technical Specifications of PSIM Software Package

The tool should include functionalities for designing power supplies and motor drives, simulating power electronics and motor drive systems with analog and digital control, and automatically generating embedded C code for TI microcontroller hardware.

The tool must consists of following features:

- Design LLC resonant power supplies automatically for a given input specification with minimum effort
- Design Buck, Boost, and Flyback power supplies automatically with peak current mode control with minimum effort. Implement control in both control block and PWM IC hardware for easier implementation.
- Design common-mode and differential-mode EMI filters of power converter and motor drive systems automatically and with minimum effort based on EMI noise levels and required EMI standards.
- Design motor drive systems with current controller and speed/torque controller determined automatically.
- Design HEV (Hybrid Electric Vehicle) and PHEV (Plug-in Hybrid Electric Vehicle) powertrain systems with current controller, speed/torque controller, and voltage controller determined automatically.
- Simulate power converter systems and motor drive systems with control implementation in s-domain block diagram, z-domain block diagram, op. amp. circuit, custom C code, or VHDL or Verilog code.
- Provide integrated models to simulate power converters with different levels of fidelity based on simulation needs.
- Provide the capability to simulate magnetics of any structures.
- Simulate power converter transient and conducted EMI of power electronics and motor drive systems, including effect of cables.
- Calculate power converter losses with devices from different manufacturers. Provide the capability to capture semiconductor device datasheet information graphically.
- Calculate inductor losses based on inductor structure and magnetic materials.
- Provide the capability to run simulation in scripts so that a simulation run of hundreds or thousands of simulations can be automated.
- Provide the capability to generate efficiency maps of power converter and motor drive systems.
- Generate embedded C code automatically for TI microcontroller hardware. Provide the capability to simulate the schematic before code generation.
- Provide the function to visualize waveforms and modify parameters of TI microcontroller code in real time for easy debugging.
- Provide PIL (Processor-In-the-Loop) simulation with the power stage in the software and the control stage in the actual control hardware.
- Provide integrated environment to run SPICE simulation (e.g. LTspice) through co-simulation link.
- Provide link to work with real-time simulator Typhoon HIL.
- Provide support to VHDL and Verilog code through co-simulation link with software ModelSim/Questa.
- Provide link to power converter design software SmartCtrl and RidleyWorks.
- Provide FMI interface to link with FMI supported software.
- Provide link to Altair Activate, Embed, and Flux/FluxMotor.
- Model & simulate (solve) equations (linear, nonlinear, discrete, continuous & any combination of) represented as block diagrams (These block diagrams are called Simulation Models).
- Generate efficient and compact ANSI C code for dynamic systems involving scaled, fixed-point operations. Tune parameters and monitor real-time data.
- Automatically converts your block diagrams and state diagrams to microcontroller unit (MCU) hardware-ready code.
- Interactive Hardware-in-the-Loop (HIL) Testing; capability to run plant model on the host computer while the control algorithm runs in real-time on the target MCU, communicating via a Hotlink.
- JTAG hotlink for MCU-in-the-loop verification

- Execute Automatic Code Generation Models on microcontrollers (microcontrollers are called Targets). Should supports over 1500 Targets including families from Arduino, Raspberry Pi, Texas Instruments, and ST Micro.
- Should also supports PC In the Loop operation: In this configuration the PC based model executes in real time* and may be used for data collection or closed loop control. The following communication methods are supported**: (1) General Purpose I/O boards, (2) OPC servers, (3) MQTT brokers, (4) serial.
- Camera and image processing toolbox (OpenVision) with Neural Net support for Caffe, Darknet, ONNX, TensorFlow, and Torch models
- Visual Real-Time Operating System(RTOS).
- Full On-chip Peripheral Support ADC, PWM, GPIO, CAN, SPI, SCI(RS232, UART), I2C.
- Communication using JSON & MQTT for Internet of Things Applications.
- Self-Documenting block diagrams make intellectual property easier to reuse
- DLL wizard for Custom Block creation using C, C++, Fortran, or Pascal
- Real-Time Data Monitoring and Acquisition, Exchange data with PCAN USB CAN device
- Model discrete behavior using finite state-transition system Create, edit, and simulate state charts, Trigger state actions and transitions Integrated debugger with logging and breakpoints
- Example libraries for motor control, multiple microcontrollers addressing automotive and other similar domains with C Code generation capabilities for each example model.
- Real time advanced drive controller implementation.
- Must provide the co-simulation features for drive and control analysis for the machines with its associated control strategy. Several levels of couplings must available in 2D and 3D, from lumped model extraction to full co-simulation.
- Tool must help users to generate optimized and high-performance products, in less time and with fewer prototypes with analysis, design and optimization of modern applications features.
- Tool must do complex multidisciplinary and multiphysics analysis and design problems involving combinations of phenomena including motors, vibrations, temperature, systems and electromagnetics.
- Software tool must focuses on the pre-design of electric rotating machines and must have an optimization tool that runs automatic simulations by piloting parameters variations in order to explore the design space and find the optimum solution
- Must provide global design workflows, and provides import of CAD models like CATIA, Pro/E, IGES, STEP, Parasolid, NX, Solidworks; allowing to deal with complex 3D CAD input files in an efficient way.
- Thermal applications in software / tool.
- Build-in magneto thermal coupling in 2D and 3D
- Magneto Thermal analysis: Couple with CFD simulation tools
- To deliver reliable analysis results, tool must have the most advanced numerical methods available in it, to deal with complex modeling situations. Must have multi-parametric capabilities allow an efficient search of the design space for optimal performance of your device. Customization, automation and connection to CAD tools are available for maximum productivity.
- Different options must available to fine tune the models and the solvers, bringing accurate results in the most efficient way. With its embedded scripting tools and the ability to write macros, It must captures simulation processes and automates them, thus speeding-up the everyday use of the software.
- It should provide true Multiphysics Capabilities: Design efficient, silent and robust machines via the seamless connections to the global creative environment.
- Software tool must focus on the pre-design of electric rotating machines, to enables users to design and create motors from standard or customized parts, as well as to intuitively add windings and materials to run a selection of tests and compare machine behavior.
- Advanced physical properties for high performance calculations
- Software tool must provides a full range of physical models to simulate the low frequency behavior of electromagnetic devices.
- Magnetic: Static, steady state AC magnetic, transient
- Electric: Electrostatic, conduction, steady-state AC electric
- Thermal: Steady state AC thermal, transient
- Thermal couplings: Electro-thermal, magneto-thermal
- Embedded electric circuits and rigid body motion capabilities

- Efficient Geometry Description and Meshing
- Accelerate pre-processing using tool kit: sketcher / modeler, defeaturing functions, dedicated e-Motor environment, smart auto-adaptive mesh and focus on exploring 2D/skew/3D innovative designs.
- Must have powerful, modeling techniques & modeling solutions for fast and accurate analysis: non-meshed coils, non-linear anisotropic material behavior, hysteresis, skin and proximity loss in windings for accurate analysis.
- Must provides advanced modeling techniques for model set-up time reduction and fast solving, while keeping high accuracy.
- Complete workflow in a single user interface with 2D, 3D and skew
- Skew modeling capabilities avoiding long 3D analysis thanks to 2,5D models.
- Non-meshed coils to reduce solving time in 3D
- Thin regions represented by surface models (no need to mesh the thickness)
- Non-linear anisotropic material behavior, hysteresis modeling
- Skin and proximity losses in windings
- Advanced correcting functions to adapt the initial CAD drawing to FEM calculation:
- Automatic healing (for possible intersections)
- Automatic faces stitching
- Automatic solid assembly
- Powerful 3D meshing
- Volume elements visualization
- Layers mesh generator for skin effect
- Hysteresis modeling: Preisach's model
- Results preview during solving
- Accelerated computation of iron losses
- 3D curves dedicated to rotating machines
- Import/Export context improved for Multiphysics
- Robust transient non-linear solving
- In-built overlays for various rotating machines.
- Should provide motor templates in 2D, SKEW and 3D
- The overlays consist geometry, mesh and windings
- Magnet demagnetization during solving process
- Takes magnet demagnetization phenomena into account during solving process
- For 2D and 3D transient applications
- Offers more accuracy on typical quantities such as motor torque or electromotive force and new analysis like the evolution of the remnant flux density
- It must provides dedicated module for the pre-design of electric rotating machines, with some specialized techniques:
- Must have a design environment to build a machine from standard or customized parts, add windings and materials to run a selection of tests and compare results.
- Effective machine parts management (slots, magnet shapes, etc.) with possible customizations
- Automated tests ready to be performed:
- Open circuit tests with cogging torque and back-emf
- Torque-speed curves & efficiency maps
- A dedicated e-Motor environment with automated tests
- A user-friendly environment facilitating explorations to non-experts, or accelerating standard analysis to daily users
- Automates e-Motors computations for performance mapping
- Various maps available for efficient post-processing activities
- Available in 2D, 3D and skew for the magnetic transient application
- Must provides 3D curves dedicated to rotating machines
- Postprocessing option in transient magnetic
- Useful for NVH analysis of electrical machines
- 3D curve of magnetic pressure over the stator
- Two different representations
- Real domain: time and angular position
- Frequency domain: frequency and spatial order; typical input for vibratory analysis

- Must have a Simple and Flexible Mesh Generator
- Smart automatic mesh generation based on geometry
- Fine manual control of mesh size and distribution
- Linked and extrusive mesh
- Mixed mesh (Tets and quads)
- Auto-adaptive mesh refinement during solving
- Volume tetrahedral mesh generator, that enables high quality meshes to be achieved in a reduced time.
- Quickly get a precise mesh for accurate results.
- Some extended post-processing capabilities
- Accelerated computation of iron losses
- Results preview during solving
- 3D curves dedicated to rotating machines
- New post-processing capabilities for NVH analysis, magnetic pressure graphs, etc.
- Available for time domain (time and angular position) and frequency domain (frequency and spatial order) representations
- Import/Export context improved for Multiphysics
- Specific contexts for thermal and mechanical coupling
- Any spatial quantity can be post-treated and exported
- Export for 3D full device can be generated from a 2D simulation
- Circuit coupling:
- Advanced embedded electrical circuit editor
- Allows to model the drive of the actuator in the same model
- Modeling motion: Easy modeling of motion thanks to electromechanical coupling.
- Translation: Constant or variable speed, Coupled load (mechanical dynamics) Solving of the mechanical equations.
- Multi-position: 3D complex CAD geometries - Import of 3D meshes directly provided in the same licensing scheme; bringing new capabilities for CAD geometry simplification and meshing.
- Parametric simulation to define a geometric dimension or physical characteristic users can intuitively explore the influence of any parameter.
- Distribution of the calculations, allowing for the evaluation of numerous design configurations with an optimized computational time.
- Parametric solver with geometrical or physical parameter sweeps
- Parameters can be linked by equations
- Distributed parametric studies across several cores or machines.
- Auto-adaptive mesh and time-step
- Choice of iterative or direct linear solvers with multiprocessing
- Robust non-linear solvers
- Motor analysis Features:
- Model both star and delta connected motors.
- Provide macros to drive motor with PWM signals
- The tool must able to drive through groovy language; user subroutines for hysteresis's current control.
- Demagnetization of permanent magnets during solving process
- The modelling of machines have a rotor or stator with Skew slots.
- Non- meshed coils which allows to create complex coils, like circular coils, rectangular coils, composed coils, multi saddle coils, and saddle coils.
- Mathematical model to consider thickness of lamination of both stator and rotor core.
- Jiles Atherton model to calculate hysteresis losses
- Efficiency maps, High productivity gain etc
- Automatically driven workflow offering an efficient user-oriented environment to different level of users, Facilitated project management, allow a quick access to past studies and to manage the full range of products & creating a model of an electric motor and evaluating its technical-economic potential within a few minutes
- Powerful Project Management: The motor catalogue environment allows easy management of motors projects, helping the user to classify the machine and offering quick access to past studies
- The general data and performance of several machines can be compared and help simplify the machine choice

- Customization, automation and connection to CAD tools are available for maximum productivity.
- With its embedded scripting tools and the ability to write macros, It must captures simulation processes and automates them, thus speeding-up the everyday use of the software.
- More than 150 Macros should be available, Create your own macros in the tool.
- Interoperable: Tool must enable users to work in a global creative environment. Can be coupled to the best available 3D analysis software to consider multiphysics and get the most realistic representation of phenomena, or to system level simulation tools to design control strategy.
- Can be used for global design workflows, and can be easily connected to other software, for multiphysics analysis, optimization or system-level simulation.
- Efficient vibro-acoustic analysis for minimizing the vibrations of electric machines
- Ability to couple and calculate the vibrations generated by electromagnetic forces in electric machines. Must be able to drive both electromagnetic and structural coupled models to search for the optimal shape of the machine.
- Should provide the vibro-acoustics coupling to reduce noise and vibration, coupled with vibration analysis tools Compute and export magnetic pressure to mechanical environment in order to analyse mechanical structures. 2D, 3D and Skew modeling capabilities.
- Visualization of results with display of electromagnetic forces distribution for each computed harmonic on mechanical nodes.
- Deliver electromagnetic forces as data inputs for mechanical environment
- Design of energy efficient electric drive systems
- Must have capability to design complex drives to the study of load impact. Co-simulation must available for 2D, 3D and Skew models and devices such as rotating machines, sensors, transformers, or linear actuators can be considered. Considering motion and eddy currents, the coupling allows the implementation of control strategies and the computation of all the associated losses, giving insight into the global performance of the system.
- Tool must provide an open integration platform for modeling, simulating, and optimizing multi-disciplinary systems-of-systems using inherent 1D block diagrams. Users have the option to include subsystem models either from 3D tools or from 3rd-party tools. Models can also be imported from Simulink
- Other Features:
- Hierarchical systems-of-systems defined as parameterized models
- Signal-based and physical modeling can be conveniently combined to define a system model
- Built-in block libraries can be easily managed and extended
- Model exchange or co-simulation achieved through FMI / FMU
- Multi-disciplinary models can include multi-body models, electromagnetic models, FEA models, CFD models, and more
- 0D, 1D, and 3D modeling can be used together, allowing the best approach for different types of subsystems
- Tool must provide features to Improve System Level Performance Simulate and improve the dynamic behavior of multi-disciplinary systems. Easily model, simulate, and validate smart systems where users can incorporate functions of sensing, actuation, and control coming from diverse components. Integrated computing facility with service execution.
- Perform what-if analyses at the system level to quickly test numerous designs and investigate the interactions of all components and subsystems comprising a system. Gain Product-level Functional Insight Early Identify product-level problems early in the design process while ensuring that all the design requirements are met. Must provides its users with a standard set of predefined blocks that can easily be combined to model systems.
- Users must easily leverage the large library of Modelica® physical components to further describe the plant and the controller. Capabilities Build Diagrams Intuitively
- Drag, drop, and connect paradigm to rapidly construct models
- Multiple window configuration with the ability to modify diagrams between windows using the drag-and-drop and copy-and-paste operations
- Support for concurrent loading of multiple models in a session Hybrid Modeling Model and simulate continuous and discrete dynamic systems. Multi-disciplinary Modeling software must allows users to model and simulate the combined system behavior of real-world systems with support for multiple domains such as Mechanical, Electrical, and more.
- Hierarchical and Parametric Modeling
- Should support build hierarchical component-based models of a real-world system using 1D block diagram modeling libraries

- Should have mix signal-based and physical modeling blocks in the same model, when modeling large or complex systems, easily create super blocks by encapsulating multiple blocks in a diagram into a single block
- Software should have super blocks that are modular, reusable, can be masked, and fundamentally behave like regular blocks allowing more flexibility
- Hierarchical and parameters must be defined at different levels, should provides an 'all available parameters' option which lets users navigate in a diagram and get a report of all parameters that are known or defined at a current level Built-in Block-based Model Libraries Tool must includes large variety of predefined blocks available in an easy-to-use library of palettes. Users can also create their own custom blocks in C or math scripts in OML and save them to new or existing libraries.
- Signal Generators • Signal Viewers • Signal Importers • Signal Exporters • Signal Conversions • Signal Properties • Math Operations • Dynamic • Hybrid • Routing • Logical Operations • Activation Operations • Matrix Operations • Lookup Tables • Ports • Buffers • Bus Operations • Optimization • Cosimulation • FlipFlops • Custom Block
- Physical Component Modeling Using Modelica and SPICE In addition to the signal-based blocks listed above, It must comes with the Modelica standard library (MSL) – a collection of blocks describing the physical behavior of Electrical, Electromagnetic, Mechanical, and Thermal components.
- Library Management Easily create components and assemble custom applications. Llibrary manager needed to create and edit custom libraries. Should also provide an IDE along with API functions for users to further leverage library management. Hybrid Simulator provides users with several high-performance numerical solvers that accurately and robustly solve dynamic systems including continuous, discrete-time, and event-based behaviors.
- Optimization: Must formulate optimization problems to improve the system parameters and design robust control strategies with multiple options.
- Graphical optimization tool: The simplest way to formulate and solve optimization problems
- Script-based optimization: Must provide a powerful mechanism for solving general optimization problems where the cost and constraints may be obtained from a combination of simulation results and math scripts BOBYA Optimizer block: • This optimization block must be used directly in a model and doesn't require any external calling function or link-up • Cascade multiple optimization blocks to formulate max-min and min-max problems
- Model Exchange and Co-simulation via Functional Mock-up Interface (FMI)
- Must support FMI 2.0 standard for both model exchange and co-simulation of dynamic systems including the ability to import and export FMUs (Functional Mock-up Units). Linearization Tool must allow users to create linear models from blocks by linearization. The operating point can be computed either by running the simulation at a given time instant or by computing a steady-state point by imposing constraints on inputs, outputs, states, and state derivatives. Compiling Models Into Executable Code Tool must support code generation for system performance & IP protection
- Extensive Commands and Math Libraries • Elementary math • Logic operators • Linear algebra • Vectors & matrices • System commands • Time commands • Trigonometry commands • Polynomial math • Calculus • Differential equations • Signal processing • Statistical analysis • Control design • Optimization • CAE data readers • String operations • Plotting etc.
- Should be compatible with Windows 10 or higher.
- Cloud based license (perpetual/ life time) management for users.

Annexure - A

Check List Documents for comprising the bid

Sr. No.	Enquiry/tender requirement	Compliance	Document Submitted
1	"Bid Security Declaration form" on Company Letter Head as per Annexure-B	Yes / No	Yes / NA
2	Declaration of local content as per Annexure-C.	Yes / No	Yes / NA
3	Certification as per memorandum No. F.18/37/2020-PPD dated 8th February 2021, Dept. of Expenditure, Ministry of Finance, Govt. of India as per Annexure-D.	Yes / No	Yes / NA
4	Certification of non-black listing (Self Certification) as per Annexure-E.	Yes / No	Yes / NA
5	Manufacturers Authorization Form (MAF) (If applicable) as per Annexure – F	Yes / No	Yes / NA
6	Name of the Firm / Agency / Dealer / Supplier with full address including contact number and email id etc as per Annexure- G	Yes / No	Yes / NA
7	GSTIN of the Supplier/Firm/Bidder.	Yes / No	Yes / NA
8	PAN of the Supplier/Firm/Bidder	Yes / No	Yes / NA
9	Up to date GST return / any other tax clearance certificate. (last filed GST return)	Yes / No	Yes / NA
10	Up to date Income Tax Return (Last filled ITR)	Yes / No	Yes / NA
11	Proprietary Certificate from OEM to be uploaded along with the Technical Bid in case of Proprietary items	Yes / No	Yes / NA
12	Certificate under MSME, NSIC, Make-in-India & Startup as per Govt. of India Norms (if applicable).	Yes / No	Yes / NA
13	Experience, if any, with govt. sector /Public Undertaking /Private sector (if applicable) (May be relaxed for MSME, NSIC & Startup as per Govt. of India Norm)	Yes / No	Yes / NA
14	Supplier/Firm/Bidder should accept all Terms & Conditions and specification of the items given in the Tender Document.	Yes / No	

(Signature of the Bidder, with date and seal)

Annexure - B

Undertaking/Self-Declaration for Bid Security

(To be issued by the bidder on company's letterhead in lieu of EMD)

To,
The Registrar,
Indian Institute of Technology Goa,
At GEC Campus, Farmagudi, Ponda – Goa

We, M/s ..... (name of the firm), with ref. to enquiry no. ..... dtd ..... hereby undertake that:

1) We accept all the terms and conditions of the tender document.
2) We accept that, we will not modify our bid during the bid validity period, submit performance guarantee within the stipulated period and honor the contract after award of contract.
3) In the event of any modification to our bid by us or failure on our part to honor the contract after final award or failure to submit performance guarantee, our firm may be debarred from participation in any tender/contract notified by Indian Institute of Technology, Goa for a period of one year.

Yours faithfully,

(Signature of the bidder with date and seal)

Annexure - C

DECLARATION OF LOCAL CONTENT

(To be given on company letter head - For tender value below Rs.10 crores)
(To be given by Statutory Auditor/Cost Auditor/Cost Accountant/CA for tender value above Rs.10 crores)

Date:

To,
The Registrar,
Indian Institute of Technology Goa,
At GEC Campus, Farmagudi, Ponda - Goa

Sub: Declaration of Local content

Tender Reference No:_____

Name of Tender: - _____

Country of Origin of Goods being offered: _____

We hereby declare that an item offered has % local content. _____

"Local Content" means the amount of value added in India which shall, be the total value of the item being offered minus the value of the imported content in the item (including all customs duties) as a proportion of the total value, in percent.

We understand that, as per Office Memorandum dated 04/03/2021 issued by Ministry of Commerce and Industry, services such as transportation, insurance, installation, commissioning, training and after sales support like AMC/CMC etc. are not considered as local value addition.

"*False declaration will be in breach of Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law."

Yours faithfully,

(Signature of the Bidder, with date and seal)

Annexure - D

(To be submitted on the bidder's letterhead)

(As applicable)

Sub: Compliance to Government of India order OM No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020 and OM No. F.18/37/2020-PPD dated 8th February, 2021 regarding restrictions under Rule 144 (XI) of the General Financial Rules (GFRs), 2017.

Item Name:	
Enquiry No.:	

We M/s. .....(name of the bidder company) have read the clauses pertaining to the Department of Expenditure's (DoE) Public Procurement Division Order (Public procurement no 1,2 & 3 vide ref. F.No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020) regarding restrictions on procurement from a bidder of a country that shares a land border with India.

(*Tick wherever applicable)

☐ We hereby certify that we are not from such a country and eligible to be considered for this tender.

OR

☐ We are from such a country which shares a land border with India & have been registered with the Competent Authority as specified in the above-said order. We hereby certify that we fulfill all requirements in this regard and are eligible to be considered.

Evidence of valid registration by the Competent Authority is attached.

(Note: Non-compliance of above said GoI Order and its subsequent amendment, (if any), by any bidder(s) shall lead to commercial rejection of their bids by IIT Goa)

For and behalf of .....(Name of the bidder)

(Signature of the Bidder, with date and seal)

Annexure - E

NON-BLACKLISTING SELF CERTIFICATE

[To be submitted on the bidder's letterhead]

I/We hereby certify that the ---------- [Name of the company / firm] has not been ever blacklisted/debarred by any Central / State Government / Public Undertaking / University / Institute on any account.

I/We also certify that firm will provide material as per the specification given by IIT Goa and also abide all the terms and conditions stipulated in the bid document.

I/We also certify that the information given in bid is true and correct in all aspects and in any case at a later date it is found that any details provided are false and incorrect, contract given to the concerned firm or participation may be summarily terminated at any stage, the firm will be blacklisted and IIT Goa may impose any action as per the rules.

(Signature of the Bidder, with date and seal)

Annexure - F

MANUFACTURERS' AUTHORIZATION FORM (MAF)

[The Bidder shall require the Manufacturer to fill in this Form in accordance with the instructions indicated. This letter of authorization should be on the letterhead of the Manufacturer and should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer.]

Date : [insert date (as day, month, and year) of bid submission]

Tender No. : [insert number from invitation for bids]

To : [insert complete name and address of purchaser]

WHEREAS

We [insert complete name of Manufacturer], who are official manufacturers of [insert type of goods manufactured], having factories at [insert full address of Manufacturer's factories], do hereby authorize [insert complete name of Bidder] to submit a bid the purpose of which is to provide the following Goods, manufactured by us [insert name and or brief description of the Goods], and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with clause 14 of the terms and conditions, with respect to the Goods offered by the above firm.

Signed: [insert signature(s) of authorized representative(s) of the Manufacturer]

Name: [insert complete name(s) of authorized representative(s) of the Manufacturer]

Title: [insert title]

Duly authorized to sign this Authorization on behalf of: [insert complete name of Bidder]

Dated on _____ day of _____, _____ [insert date of signing]

Annexure - G

(To be printed on letterhead of the bidder)

Bidder's Information

1.	Name of the Bidder	
2.	Address of the Bidder	
3.	PAN No.	
4.	GSTIN	
5.	E-mail	
6.	Contact Person's Name & Designation	
7.	Mobile No.	

Place: _____

Date: _____ (Signature of the Bidder, with date and seal)

FORMAT FOR PERFORMANCE BANK GUARANTEE

(To be typed on Non-judicial stamp paper of the value of Indian Rupees of One Hundred) (TO BE ESTABLISHED THROUGH ANY OF THE NATIONAL BANKS (WHETHER SITUATED AT GOA OR OUTSTATION) WITH A CLAUSE TO ENFORCE THE SAME ON THEIR LOCAL BRANCH AT GOA OR ANY SCHEDULED BANK SITUATED AT GOA. BONDS ISSUED BY CO-OPERATIVE BANKS ARE NOT ACCEPTED.

To,
The Registrar,
Indian Institute of Technology Goa
Farmagudi, Ponda,
Goa – 403401

LETTER OF GUARANTEE

WHEREAS Indian Institute of Technology Goa (Buyer) have invited Tenders vide Tender No..... Dt. ..... for purchase of .....

AND

WHEREAS the said tender document requires that any eligible successful tenderer (seller) wishing to supply the equipment / machinery, etc. in response thereto shall establish an irrevocable Performance Guarantee Bond in favour of **"Registrar, Indian Institute of Technology, Goa"** in the form of Bank Guarantee for Rs ..... (**3% (three percent) of the purchase order value**) and valid till **one year plus sixty days or up to warranty period whichever is later** from the date of issue of Performance Guarantee Bond may be submitted within 15 (Fifteen) days from the date of Order Acknowledgment as a successful bidder.

NOW THIS BANK HEREBY GUARANTEES that in the event of the said tenderer (seller) failing to abide by any of the conditions referred in tender document / purchase order / performance of the equipment / machinery, etc. this Bank shall pay to Indian Institute of Technology, Goa on demand and without protest or demur Rs..... (Rupees.....).

This Bank further agrees that the decision of Indian Institute of Technology, Goa (Buyer) as to whether the said Tenderer (Seller) has committed a breach of any of the conditions referred in tender document / purchase order shall be final and binding.

We, ... (name of the Bank & branch) hereby further agree that the Guarantee herein contained shall not be affected by any change in the constitution of the Tenderer (Seller) and/ or Indian Institute of Technology, Goa (Buyer).

Notwithstanding anything contained herein:

1. Our liability under this Bank Guarantee shall not exceed Rs. ..... . (Indian Rupees ..... only).
2. This Bank Guarantee shall be valid up to .....(date) and
3. We are liable to pay the guaranteed amount or any part thereof under this bank guarantee only and only if IIT Goa serve upon us a written claim or demand on or before ..... (date).
4. This Bank further agrees that the claims if any, against this Bank Guarantee shall be enforceable at our branch office at ..... situated at ..... (Address of local branch).

Date:

Yours truly,

Signature and seal of the Guarantor:

Name of Bank:

Instruction to Bank: Bank should note that on expiry of PBG Period, the Original PBG will not be returned to the Bank. Bank is requested to take appropriate necessary action on or after expiry of PBG period.