CSIR-Central Glass & Ceramic Research Institute
KOLKATA (WEST BENGAL) INDIA

CORRIGENDUM

REFERENCE NO. : - P/NC/48/APS/SO/OTE/25-26 **DATE: 21/08/2025**

NAME OF EQUIPMENT: SUPPLY, INSTALLATION, COMMISSIONING, DEMONSTRATION & TRAINING OF "ADDITIVE MANUFACTURING SIMULATION SOFTWARE (SINGLE USER PERPETUAL LICENSE WITH 1 YEAR TECS/AMC" [CPP PORTAL TENDER ID: 2025_CSIR_243030_1].

NOTE: The Bids must be submitted in the Central Public Procurement Portal (URL:https://etenders.gov.in/eprocure/app) only. Manual/Offline bids shall not be accepted under any circumstances. Bidders should quote in INR only.

CONSEQUENT TO THE PRE-BID MEETING HELD ON 08/08/2025, THE REVISED TECHNICAL SPECIFICATION IS ATTACHED IN ANNEXURE – A GIVEN BELOW:-

BIDDERS SHALL ALSO NOTE THAT AS PER CLARIFICATIONS GIVEN BY DPIIT VIDE THEIR O.M. No. P-45021/2/2017-PP(BE-II)-Part (4) Vol. II dated 08th July, 2025 REGARDING EXEMPTION LIMITS OF SMALL PURCHASES MADE BY SCIENTIFIC AND RESEARCH INSTITUTIONS, THE TENDERED ITEM QUALIFIES TO FALL UNDER CATEGORY OF "***SMALL PURCHASES***". ACCORDINGLY, THE TENDERED ITEM STANDS EXEMPTED FROM THE PROVISIONS OF PUBLIC PROCUREMENT (PREFERENCE TO MAKE IN INDIA) ORDER DATED 2017 ISSUED BY THE GOVERNMENT OF INDIA. A COPY OF THE AFORESAID GOVERNMET OF INDIA OFFICE MEMORANDUM NO. P-45021/2/2017-PP (BE-II)-Part (4) Vol. II dated 08th July, 2025 IS AVAILABLE ON THE WEBSITE OF DPIIT AT https://dpiit.gov.in/sites/default/files/ScientificResearch_Institutions_09July2025.pdf

All other Tender terms and conditions remain unchanged.

21/8/2025

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CSIR-CENTRAL GLASS & CERAMIC RESEARCH INSTITUTE
196, राजा एस. सी. मल्लिक रोड/ 196, Raja S.C. Mullick Road
कोलकाता / Kolkata-700 032

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Annexure-A

ADDITIVE MANUFACTURING SIMULATION SOFTWARE (SINGLE USER PERPETUAL LICENSE WITH 1 YEAR TECS/AMC

REVISED TECHNICAL SPECIFICATION

Technical specification

Product description: Additive Manufacturing Simulation Software single user perpetual license with 1 year TECS/AMC. **Scope of Work :** Supply, Installation, Demonstration and Training.	**Quantity** One
Technical Specifications	
1.	**Software:** Additive Manufacturing Simulation standalone software solution for optimizing Additive manufacturing process parameters. • Include ready-to-use workflows for polymer and polymer composite additive manufacturing processes. • Must include ready-to-use AM application templates to reduce simulation setup time.
2.	**Materials scope:** • Polymer [PLA, PEEK, PEKK, PA12(Nylon), PC (Polycarbonate), PPS] • Composites [Short and Continuous fiber reinforced composites eg. Carbon, glass fibers, ceramics filled polymer matrix] • Must include a ready-to-use material database with AM-specific polymer and polymer-composite materials from established material suppliers of 3d printing materials like Markforged Inc. , Stratasys Inc., Syensqo specialty polymers etc.. • Must allow defining and simulating the custom polymer and polymer composite materials for optimization of the 3d printing process parameters. Software must have capability for simulation of custom polymer and composite material by defining with these parameters : • Mechanical data (matrix & reinforcement): ▪ Young's modulus with respect to temperature. ▪ Poisson ratio. ▪ A table defining the Prony series of the shear modulus for thermo-viscolelastic material. ▪ A table defining the Prony series of the bulk modulus for thermo-viscolelastic material.

	▪ Coefficient of thermal expansion with respect to temperature for thermo-viscolelastic material • Thermal data (matrix & reinforcement): ▪ Conductivity with respect to temperature ▪ Specific heat capacity over temperature: the temperature range should go from process temperature to beyond melting temperature. ▪ Semi-crystalline material specific inputs: melting and crystallization temperatures. ▪ Emissivity • Microstructure data: ▪ For fiber filled materials:-The fibers aspect ratio. The fiber orientation tensor whose local orientation is the filament deposition direction in FFF and FDM, and the global X direction. ▪ For particle filled material: - Particle filler percentage. Particle size variation. • Powder characteristics (SLS only): ▪ Powder diameter ▪ Powder conductivity ▪ Powder density The Software should also have material database available for commercial available 3d printable polymers and composites like PLA, ABS, NYLON, PEEK, PEKK with reinforcement of glass beads, carbon fiber, ceramics etc that contains ready to use material data base from established material suppliers of 3d printing materials like Markforged Inc. , Stratasys Inc., Syensqo specialty polymers etc. The software should also allow defining and simulating the custom materials for optimization of the 3d printing process parameters.
3.	Ready-to-use Workflow template/GUI for Process Simulation of the following additive manufacturing techniques • Selective laser sintering (SLS) • Fused Filament Fabrication or Fused deposit Modeling (FFF or FDM)
4.	Input parameters for setting up the FFF or FDM simulation: • Component geometry in .stl file format. • Toolpath data • Chamber temperature • Extrusion Temperature • Bead Width • Draw Speed • Room temperature

	Input parameters for setting up the SLS simulation: • Chamber temperature • Number of lasers • Laser power • Convection coefficient • Scan Speed • Beam Diameter • Room temperature
5.	The software should have calibrated digital twins of the FDM, FFF and SLS based 3D printers' manufactured by globally leading manufacturers. The software should be capable to calibrate and optimize the process parameter of the existing FDM based 3D printer at CSIR-CGCRI Kolkata.
6.	Software should allow to investigate the effect of process parameters on the prediction of warpage, residual stresses, temperature fields, crystalline evolutions, layer adhesion, porosity, minimize part-to-part variability and manufacturing defects through sensitivity analysis of parameters. The software must support the prediction of the above mentioned parameters across a continuous range of magnitudes/scale. It shall not be constrained by predefined resolution levels or upper/lower quantitative bounds. The software must ensure flexibility in simulation accuracy and scale.
7.	The software should be compatible and installed in the existing computer workstation with the following specifications • OS Windows 11 professional • intel Xeon Silver 4216 2.1 GHz processor with 16 Cores and • 64 GB DDR4 RAM • 2 TB Hard disk • NVIDEA RTX 16 Gb Graphics card
8.	Training: 2 days for 6 persons at CSIR-CGCRI Kolkata.
9.	Warranty : 1 year AMC/TECS