

**Department of Physics, University of Kerala, Kariavattom,
Thiruvananthapuram, Kerala, India – 695581**

PHY/3D/001/2023

15/07/2023

Quotation Notice

Quotations are invited for the upgradation of existing 3D printer for research and development purpose with the following requirements and technical specifications:

Requirements

1. The printer should have two extrusion heads, enabling it to dispense two separate polymer blends simultaneously and at various intervals.
2. The nozzle should be able to extrude polymer blends with particles having size in the 1-5 micrometer range.
3. Proper curing of polymer blends has to be ensured to manufacture integrated structures.
4. The nozzle temperature should be controllable from room temperature to 250°C.
5. The printer should be able to print layered filler reinforced polymer-based structures having minimum layer thickness of 0.1 mm.
6. The printer should have a good precision, which is, ≥ 0.05 mm.

Technical Specifications to meet the requirements

SI No.	Product	Specifications	
1	Hardware Modification	Gantry System	Steel rails with Sliding Block (Resolution < 0.05 mm in XY and < 0.1mm in Z direction)
		Steppers	Nema 17 with Torque > 10KGCM
		Stepper Driver	TMC 2209 or higher
		Bed Levelling	Automated Piezo Based
		Extrusion System	Dual head paste Extrusion with provision to avoid particle agglomeration
		Display	TFT Information Display

2	Software	Firmware	Dual Extrusion capable firmware
		Interface	Web/Desktop Interface
		Slicer	Capable of slicing Objects with complex pattern and multilaterals
3	Curing Unit	In Built print time Fast Curing Unit for resin and polymer	
Additional Requirements		Minimum 1 year warranty	

Note: The existing 3D printer at Department of Physics, University of Kerala is a Core X-Y type printer that utilizes Fused Deposition Modelling (FDM) extrusion technology. It is constructed with aluminium profiles and features POM wheels for smooth movement. The printer is powered by customized Klipper Firmware for efficient and reliable operation. The upgradations should not compromise the features of the existing printer.

Cost should be inclusive of the cost, freight, taxes, etc. The above product should be delivered at the Department of Physics, University of Kerala, Kariavattom, Thiruvananthapuram.

The quotes shall be addressed to Dr. Subodh G, Assistant Professor, Department of Physics, University of Kerala, Kariavattom, Thiruvananthapuram 695581. Kindly submit the lowest quote on or before **25/07/2023 3.00 PM**.

