

Title: **SUPPLY OF SPECIALISED
COMPUTER EQUIPMENT FOR
SPECIALISED & QUALITY
ENGINEERING DEPARTMENT**

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1. PURPOSE

The purpose of this document is to define the products needed from the supplier/s to provide:

- 1.1 A new 3D printer desktop experimental for Engineering Design section
- 1.2 High specification laptops to be utilized by the Drawing office team
- 1.3 Time lapse cameras for the Industrial Engineering team
- 1.4 4K monitors for the department
- 1.5 Overhead projector and audio for second floor boardroom

2. Scope of Supply and Specifications

2.1 3D Printer desktop:

The printer can be used to print prototypes or jigs and fixtures out of plastics.

The Fused Deposition Modelling 3D printer, should have the following minimum specifications:

Extruder quantity	1
Printing precision	100±0.1 mm
Layer thickness	0.05 – 0.3 mm
Position precision	X/Y axis: 0.0125 mm Z axis: 0.0025 mm
Build size (min)	350 x 350 x 350 mm
Nozzle diameter	0.4 mm(default) 0.6mm/0.8mm/0.25mm(optional)
Printing speed	600mm/s
Max Acceleration	30000mm/s ²
Extruder temperature of at least	280°C
Heating bed setting support of at least	120°C
Close design (Enclosure)	Yes

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Filament type	ABS, PLA, PETG, PET, TPU, PA, ASA, PC, PLA-CF, PA-CF, PET-CF
Filament diameter	1.75 mm
Power supply	IAC 200~240V, 50Hz
Net weight	Less than 40kg
Compatible Slicing Software	Open Source, Prusa Slicer/ Cura /Orca Slicer
Input file type	3MF/ STL/ OBJ/ FPP/ BMP/ PNG/ JPG/ JPEG/ AMF
Output file type	G-code
Printing connection	USB Disk/ WIFI/ Ethernet
Working temperature	15-30°C
Compatible operating system	Win7/8/10/11 Linux supports Ubuntu 20.04 and later versions The Mac OS supports 10.9 and later versions
Auxiliary levelling	Full-auto one-click levelling (Platform pressure sensor)
Filament running out sensor	Yes
Replaceable print bed	Yes
Power loss recovery (resume print)	Yes
Intelligent door sensor	Yes
Remote camera watching	Yes
Time-lapse video	Yes

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Air purifier	Yes
Build Surface	Flexible built plate (PEI Sheet)
Glass printing bed	Yes
Cloud	Yes
Automatic shutdown (Sleep mode)	Yes
Touchscreen for inputs	Yes

CONSUMABLES

The following list of consumables needs to be supplied with the 3D printer:

1x Hardened steel nozzle 0.4mm

Spare nozzles of the following size:

2x 0.4 mm

2x 0.6 mm

2x 0.8 mm

Filament 1.75mm

4x 1kg PLA

4x 1kg ABS

2x 1kg TPE/TPU

2x 1kg PET/PETG

2x 1kg PA/Nylon

1x Filament drying unit.

1x 4 bay (minimum) filament storage unit and multicolor dispenser (de-hydration / dehumidifying).

2.2 High Spec laptops:

The equipment required from the Supplier is 8 workstation laptops as specified below.

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TECHNICAL SPECIFICATIONS

The laptops shall meet the following minimum specifications:

1. Processor Chip Type: i9-14900HX (preferred) (acceptable).
2. Processor Clock speed: 6 GHZ;
3. Memory: 128GB (4x32GB) DDR5 6400MHz DIMM ;
4. Data Storage Capacity:
 - a. 1TB PCIe-3x4 2280 NVMe TLC Solid State Drive
 - b. 4TB PCIe NVMe Three Layer Cell 2nd Solid State Drive
5. Screen Size: 17.3 inch UHD (3840x2160) Anti-Glare LED UWVA 550 ALSensor;
6. Display Type: NVIDIA RTX 3000 Ada Generation;
7. Network: WWAN:L860-GL CAT16 M.2, WLAN: INTEL WIFI 6 AX201 (GIG+) + Bluetooth 5.1 VPRO;
8. Connections: 3 X USB A 3.2 GEN 1, 2 X USB-C Thunderbolt 3, USB-C, HDMI 2.0 Headphone / Mic Combo, RJ45
9. Sound: 2 X 2W Stereo Speakers;
10. Pointing Device: Mouse Pad;
11. Battery Type: 8 Cell LI-ION 94 WHr Long Life;
12. Power Supply: 200 Watt Smart PFC Slim AC Adapter;
13. Included Software Type: Windows 10 ENT;
14. 3 Year Warranty;
15. Dual Point Backlit spill-resistant Premium Keyboard

Note: the above requirements are essential, other items may be added to the laptop. The specifications listed are the lowest acceptable, higher specifications will be considered.

CONFORMANCE TO STANDARDS

The supplier shall notify ERI as to the standards to which the laptops conform for information.

KEY DELIVERABLES

The Key Deliverables for this scope of supply is as follows:

1. 8 laptops as specified above.
2. 17.3" Laptop Backpack
3. 27" 4K USB-C Monitor, 1X HDMI, 1 X Displayport,1 X USB Type-C

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4. Security Cable Lock
5. Thunderbolt 4 280W G4 Dock w/Combo Cable
6. Wireless Keyboard and Mouse

2.3 Time Lapse Cameras:

The supply of 10 X Time lapse cameras is required.

- The brand of Time Lapse Camera cannot be specified by ERI but needs to be adequate to capture data in a dusty environment and outdoor use.
- Waterproof casings must be included.
- All cameras must have a lithium-ion internal battery with a spare battery or 2 sets (required amount for the camera) of reachable 2000mAh minimum batteries that is supplied with a charger.
- Time interval between pictures 1, 2, 3, 5, 10, 20, 30 SEC/ 1, 2, 3, 5, 10, 20, 30 MIN
- All camera's must have a minimum storage capacity of 128gb either internal memory or by additional memory card, memory card must be supplied.
- Minimum class 10 memory cards must be used.

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BCC300 SD Card Compatibility List

SD Card Brand	Capacity	Model
ADATA	32GB 128GB	SDHC. Class10. U1. V10
Kingston	32GB 128GB	SDHC. Class10. U1
Lexar	32GB 128GB	SDHC. Class10. U1. V10
Samsung EVO	128GB	SDXC. Class10. U3. V30
Samsung ProPlus	128GB	SDXC. Class10. U3. V30
SanDisk	32GB 128GB	SDHC. Class10. U3. V30
Transcend	128GB	SDXC. Class10. U3. V30

Annex A

- All cameras and accessories must be delivered to ERI-TGS head office, Lower Germiston Rd.

1. SPECIFICATION

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Resolution	1080P HDR
LCD screen	1.44" IPS LCD
Camera setting	Night shooting scene, Exposure mode
Capture Mode	Time Lapse
Aperture	f/2.0
Field of View	118°
Focal length	19 mm (35mm equivalent)
Optic Lens	CS lens (Interchangeable)
Schedule Setup	Daily & Weekly
Maximum Storage Capacity	128GB (SD card)
Battery life (@ 5 min int.)	100 days
Power Source	4 AA Batteries / DC IN 5V 1A (micro-USB connector)
Operating temperature	32°F ~ 113°F(0°C ~ 45°C)

2.4 4K UHF Monitors

- 2.4.1 Quantity Required : 16
- 2.4.2 Screen Size : 27inch (68cm) diagonal measurement, with anti glare
- 2.4.3 Resolution : 3840 x 2160
- 2.4.4 Aspect Ratio : 16 x 9
- 2.4.5 LED Backlighting
- 2.4.6 Ports : USB-C, USB
- 2.4.7 Inputs : HDMI, USB-C, DVI, Display Port
- 2.4.8 Refresh rate : 60Hz

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2.4.9 Mechanical: Tilt, height, swivel, pivot adjustment.

2.4.10 Supply to include : power cable; HDMI cable, USB-C to USB-C data transmission cable.

2.5 Overhead projector and audio

•GENERAL REQUIREMENTS

Projector

- Quantity 1
- Supply WUXGA laser display with the following specifications:

Projection System

3LCD Technology, RGB liquid crystal shutter

LCD Panel

0,67 inch with C2 Fine

Color Light Output

5.200 Lumen- 3.640 Lumen (economy) In accordance with IDMS15.4

White Light Output

5.200 Lumen - 3.640 Lumen (economy) In accordance with ISO 21118:2020

Resolution

WUXGA

Resolution Enhancement

Full HD

Aspect Ratio

16:10

On-Screen Pixel Count

2,304,000

Contrast Ratio

5.000.000 : 1

Light source

Laser

Laser Light source

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20.000 hours Durability High,

30.000 hours Durability Eco

Zoom

Manual, Factor: 1 - 1,6

Projection Lens Zoom Ratio

1,35 - 2,2 : 1

Lens

Optical

Screen Size

50 inches - 500 inches

Interfaces

RS-232C, VGA in (2x), VGA out, HDMI in (2x), HDBaseT, Jack plug out, Jack plug in (2x), USB 2.0-A, USB 2.0, Ethernet interface (100 Base-TX / 10 Base-T), Wireless LAN IEEE 802.11a/b/g/n/ac (optional)

Supply Voltage

AC 100 V - 240 V, 50 Hz - 60 Hz

Cables

- 1 x 15m HDMI cable
- 1 x 15m Power cable

Manual pull down screen

- Quantity 1
- Supply 1 projector screen with the following specifications

Size

100 inches

Ratio

16:9

Viewing area (mm)

2000 x 1250

Bluetooth Conference speaker

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•Quantity 1

Weight mono / duo 965g (1570g include packaging)

AC power supply Yes

Certifications

Regulatory Approvals: CE, FCC, IC, EAC, RRC, CCC, RCM, KCC, TELEC, iDA, NCC, RoHS, REACH, ETA, SIRIM, SDPPI, RCM, NTC

Industrial Certifications: Bluetooth 4.1, Skype for Business, Cisco, Avaya, Mitel,

Bluetooth device Yes

NFC Yes

Operating range Up to 30 m/100 ft

Headset bandwidth Wideband

Connection (mini jack, USB, etc) USB/Bluetooth/3.5 mm jack

Bluetooth wireless technology Bluetooth version 4.1

Speaker sensitivity 80±2dB@1W/1m

Speaker impedance 4 ohm

Speaker Max Input Power 6W

Speaker Frequency Range 100Hz – 20KHz

Microphone type Digital MEMS, bottom port

Microphone Sensitivity VDD=1.8V, FCLK =2.4MHz, (0dBFS2=1V/Pa@1kHz), Min-29dB, Normak: -26dB, Max -23dB

Microphone Frequency Range 20Hz – 8K Hz

Supported Bluetooth profiles A2DP (v1.2), Hands Free Profile (v1.6), Headset Profile (v1.2), AGHFP (v1.6)

Bluetooth wireless technology Bluetooth 4.1

Speaker bandwidth Music mode HiFi

Speaker bandwidth Speak mode Wideband

Microphone bandwidth Wideband

Cord length USB Cord Length: 2.1 m, 3.5 mm jack Cord length 1.2 m

Operating temperature -10 °C to + 50 °C

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Storage temperature

-30 °C to + 80 °C Storage temperature range: (-20°C to +35°C 6 months), (+35°C to +45°C 3 months), (+45°C to +45°C 1 month),

(+60°C to +70°C 1 hour with no degradation), (+70°C to +85°C max. 1 hour (<20% degradation))

Supported modes SCO, eSCO, Sniff mode

Security Pairing, Authentication and Encryption (Bluetooth standard)

Paired devices Up to 900 trusted devices

Features

ZoomTalk™ microphone with adaptive array 5 m/15 ft. range (15 persons), Microphone focus (zoom on the person speaking) Connectivity:

USB, BT/NFC & 3.5 mm jack (AUX), USB charge out for tablets and mobile phones, Kensington lock slot, Intuitive.

Popup dock

- Quantity 1

Minimum connections

1 x 220V

1 x HDMI

2 x RJ45

1 x VGA

3. Hardware Maintenance and Spares

The supplier shall have the necessary facilities and trained personnel to periodically carry out maintenance on the equipment to ensure the equipment is in proper working order and carry out repairs on the equipment should it be required.

The supplier must be able to supply ERI with spare parts that may require replacement due to wear and tear or damage.

The maintenance shall be carried out at intervals recommended by the OEM or as required.

4. Software Maintenance

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The selected supplier shall advise ERI when the required software license is updated by the OEM and provide ERI with a quote for the update. Upon receipt of a Purchase Order from ERI, the supply will provide the required software and updated license file or update the dongle license software (if applicable).

5. Technical Support

The supplier shall have in their employ, competent, trained personnel to provide support on the hardware and software related to the equipment provided. The personnel shall be available during normal working hours. Should the need arise for support outside of working hours, its shall be at the discretion of the supplier.

6. Training

Training shall be included with the supply of any new hardware equipment and new software features.

7. SUPPORTING DOCUMENTS - Returnables

NB: The following documentation must be returned with the tender submission:

1. Brochures of the equipment detailing dimensions, accessories, software requirements where applicable, ratings and all performance/model specifications.
2. Information relating to maintenance of the equipment and/or software i.e., maintenance requirements and maintenance intervals.
3. All equipment must be accompanied by a certificate as a proof of calibration and/or ready to be used.
4. All components and accessories must be delivered to ERI-TGS head office, Lower Germiston Rd.

8. DOCUMENT SUPPORTED BY:

NAME	POSITION	SIGNATURE	DATE
Reinaldo Da Veiga	Engineering Manager		

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