



**MATERIAL MANAGEMENT DIVISION
AI ENGINEERING SERVICES LIMITED
THIRUVANANTHAPURAM**

SCOPE OF WORK

Introduction:

AI Engineering Services Limited (AIESL), MRO Trivandrum, intends to procure, through the GeM portal, the supply, installation, testing, and commissioning of a wireless network infrastructure and a CCTV surveillance system at its MRO premises, Trivandrum in accordance with GeM General Terms & Conditions and the Scope of Work defined herein.

Project A: Wireless Network Infrastructure

Supply, installation, configuration, testing, and commissioning of a wireless networking infrastructure at AIESL work premises.

Project B: CCTV Surveillance System

Supply, installation, testing, and commissioning of a CCTV camera system with DVR/NVR recording facility for work cubicles at AIESL premises.

1. Objective

To supply, install, configure, and commission a fully integrated Wi-Fi network and a CCTV surveillance system at AIESL MRO, Trivandrum, meeting operational, security, and connectivity requirements. The project shall ensure reliable wireless connectivity for seamless data transmission and comprehensive surveillance coverage to enhance real-time monitoring and security.

2. General Description of Work

2.1 Project A – Wireless Network Infrastructure

- a) Provide Wi-Fi connectivity within two closed B737 Aircraft Parking Hangars and in the open areas outside the hangars within AIESL premises where aircraft are parked.
- b) Existing internet connectivity consists of 1 Gbps FTTH and 100 Mbps ILL. Internet from the MRO premises (SD-WAN/Network Room) shall be routed through fiber optic cabling and distributed via Wi-Fi access points.
- c) Supply, install, splice/terminate, and test 12-core single-mode fiber optic cable.
- d) Supply and install managed Layer-3 Gigabit switches, Wi-Fi 6 (IEEE 802.11ax) enterprise-grade wireless access points(AP), patch panels, media converters, and all relevant accessories.
- e) Lay approximately 900 meters of Cat6 cable in PVC ducts/conduits with a neat and professional finish.
- f) Perform end-to-end connectivity testing, Wi-Fi signal strength and coverage testing, and ensure no blind zones.
- g) Provide one-time training to AIESL IT/Engineering personnel covering device configuration, password/credential management, and basic troubleshooting.



**MATERIAL MANAGEMENT DIVISION
AI ENGINEERING SERVICES LIMITED
THIRUVANANTHAPURAM**

2.2 Project B – CCTV Surveillance System

- a) The selected vendor shall be responsible for the supply, installation, testing, commissioning, and warranty support of a 4-channel CCTV system with data storage.
- b) Supply and install CCTV cameras, DVR/NVR, storage, monitor, and accessories as per the technical specifications in Section 6.
- c) Install cabling using proper ducts, clamps, and conduits, ensuring a neat, safe, and professional finish.
- d) Handover system user credentials, backup procedures, and provide basic operational training to AIESL personnel.

2.3 Standards and Compliance

All equipment, accessories, cabling, and components for Project A and Project B shall comply with CE, ISI (where applicable), and RoHS standards. Products shall be sourced from reputed OEMs, be free from manufacturing defects, and conform to international electrical, electromagnetic, and environmental standards suitable for mission-critical aviation maintenance environments.

2.4 Documentation

Submission of installation layout drawings, system configuration details, and warranty certificates upon completion.

2.5–2.9 General Conditions

- All installation manpower, tools, consumables, safety gear, and equipment shall be arranged by the vendor at their own cost.
- Vendor shall prepare and submit layout plans for **AP positioning**, camera locations, and cable routing for approval before execution.
- All transportation, installation, testing, and commissioning charges shall be borne by the vendor.
- Work shall be executed without disruption to AIESL operations and without causing damage to aircraft, equipment, property, or customer assets.

3. Delivery and Completion Time

The entire scope of work (supply, installation, testing, and commissioning) shall be completed within **15 days** from the date of Purchase Order. Delays may attract liquidated damages as per AIESL procurement policy.



**MATERIAL MANAGEMENT DIVISION
AI ENGINEERING SERVICES LIMITED
THIRUVANANTHAPURAM**

4. Payment Terms

- a) Payment shall be made only through the GeM portal and strictly in accordance with GeM General Terms & Conditions.
- b) 100% payment shall be released after successful supply, installation, testing, commissioning, and acceptance by AIESL's Engineer-in-Charge, and after submission of all required documents on GeM.
- c) Payment shall be released within the timelines prescribed by GeM after generation of the Consignee Receipt & Acceptance Certificate.

5. Eligibility Criteria

- a) Minimum 5 years of experience in supplying, installing, and commissioning wireless networking systems and CCTV/surveillance solutions.
- b) Successful execution of at least two similar works in PSU/Government/Corporate organizations.
- c) Availability of local service support office or authorized representative in Trivandrum, Kerala.
- d) Bidder should not be blacklisted or debarred by any Government, PSU, or corporate body.

6. Technical Specifications

Project A – Wireless Network Infrastructure

Sl. No.	Item Description	Qty	Preferred Specifications
1	Wi-Fi Access	7 Nos	Wireless Access Points (IEEE 802.11ax – Wi-Fi 6) with backward compatibility to 802.11a/b/g/n/ac, suitable for enterprise deployment
2	Patch Panel	2 Nos	16-port CAT6, 19-inch rack-mount, T568A/B compliant, metal body with cable management.
3	Access Switches	2 Nos	Managed Gigabit L3 switches with adequate PoE+ (IEEE 802.3at) power budget.
4	Optical Fiber Cable	1 Lot	Minimum 400 m, 12-core single-mode fiber, including termination and testing.
5	Cat6 Cable & Accessories	1 Lot	Approx. 900 m Cat6 cable, RJ45 connectors, junction boxes, PVC ducted.
6	Media Converter	2 Nos	Gigabit Ethernet, 1000Base-T to 1000Base-LX/FX (Single-Mode), plug-and-play.



**MATERIAL MANAGEMENT DIVISION
AI ENGINEERING SERVICES LIMITED
THIRUVANANTHAPURAM**

7	Installation, Testing & Commissioning	1 Lot	Complete installation, configuration, testing, and functional demonstration.
---	---------------------------------------	-------	--

Project B – CCTV Surveillance System (4-Channel)

Sl. No.	Description	Qty	Minimum Specification
1	Indoor Dome CCTV Camera	1 No	5 MP, 1/2.7" CMOS, IR night vision, fixed 2.8 mm lens, DVR/NVR compatible.
2	DVR/NVR	1 No	4-channel, HDMI/VGA output, H.265 compression, local playback, USB export.
3	Surveillance HDD	1 No	4 TB, 24×7 rated, SATA, ≥64 MB cache.
4	Cables & Accessories	1 Lot	RG59 or Cat6, approx. 5 m per camera, PVC ducted.
5	Power Supply Unit	1 No	12 V DC regulated SMPS with surge, overload, and short-circuit protection.
6	Monitor	1 No	20-inch LED, Full HD (1920×1080), HDMI/VGA input.
7	Installation, Testing & Commissioning	1 Lot	Complete installation, configuration, and functional demonstration.

7. Warranty and Maintenance

- a) Minimum 1-year replacement warranty from final acceptance. If identical parts unavailable, vendor to provide equal or higher specification replacements at no extra cost.
- b) Free on-call maintenance support for 3 years from installation date.
- c) Complaint response time: within 48 hours.
- d) Any rectification due to installation defects shall be carried out at vendor's cost.

8. Documents to be Submitted

- a) Company profile and experience details.
- b) Purchase orders / completion certificates for similar works.
- c) Product brochures and technical datasheets.
- d) Copy of GST registration and PAN.



**MATERIAL MANAGEMENT DIVISION
AI ENGINEERING SERVICES LIMITED
THIRUVANANTHAPURAM**

- e) Cancelled Check and UDYAM Certificate if MSME registered.
- e) Warranty undertaking letter.

9. Evaluation Criteria

Mandatory site visit for bidding. Only technically compliant bids shall be considered for price evaluation. For price bid evaluation, the bidder shall submit the prices for Project A and Project B separately in the BOQ format attached as Annexure A, and evaluation shall be carried out based on the combined total price of both projects.

10. Liquidated Damages

Delay in Delivery / Installation / Commissioning: The bidder will be liable to pay liquidated damages to AIESL @ 0.5 % (half percent) of the contract value (amount as per deliverables for which the delay has occurred) per week of delay or part thereof, subject to a maximum of 10% of the contract value for delay in successful commissioning of the Solution / Services for reasons solely attributable to the bidder. The amount will be deducted / invoked from the pending invoices. If the delay exceeds 60 days from the scheduled date of delivery/ Installation/ Commissioning, AIESL reserves the right to cancel the entire contract.



**MATERIAL MANAGEMENT DIVISION
AI ENGINEERING SERVICES LIMITED
THIRUVANANTHAPURAM**

BOQ/ ANNEXURE -A

Project A: Wireless Network Infrastructure

Sl. No.	Item Description	Qty	Preferred Specifications	Price
1	Wi-Fi Access	7 Nos	Wireless Access Points (IEEE 802.11ax – Wi-Fi 6) with backward compatibility to 802.11a/b/g/n/ac, suitable for enterprise deployment	
2	Patch Panel	2 Nos	16-port CAT6, 19-inch rack-mount, T568A/B compliant, metal body with cable management.	
3	Access Switches	2 Nos	Managed Gigabit L3 switches with adequate PoE+ (IEEE 802.3at) power budget.	
4	Optical Fiber Cable	1 Lot	Minimum 400 m, 12-core single-mode fiber, including termination and testing.	
5	Cat6 Cable & Accessories	1 Lot	Approx. 900 m Cat6 cable, RJ45 connectors, junction boxes, PVC ducted.	
6	Media Converter	2 Nos	Gigabit Ethernet, 1000Base-T to 1000Base-LX/FX (Single-Mode), plug-and-play.	
7	Installation, Testing & Commissioning	1 Lot	Complete installation, configuration, testing, and functional demonstration.	
Total Amount				

Project B – CCTV Surveillance System (4-Channel)

Sl. No.	Description	Qty	Minimum Specification	Price
1	Indoor Dome CCTV Camera	1 No	5 MP, 1/2.7” CMOS, IR night vision, fixed 2.8 mm lens, DVR/NVR compatible.	
2	DVR/NVR	1 No	4-channel, HDMI/VGA output, H.265 compression, local playback, USB export.	
3	Surveillance HDD	1 No	4 TB, 24×7 rated, SATA, ≥64 MB cache.	



**MATERIAL MANAGEMENT DIVISION
AI ENGINEERING SERVICES LIMITED
THIRUVANANTHAPURAM**

4	Cables & Accessories	1 Lot	RG59 or Cat6, approx. 5 m per camera, PVC ducted.	
5	Power Supply Unit	1 No	12 V DC regulated SMPS with surge, overload, and short-circuit protection.	
6	Monitor	1 No	20-inch LED, Full HD (1920×1080), HDMI/VGA input.	
7	Installation, Testing & Commissioning	1 Lot	Complete installation, configuration, and functional demonstration.	
Total Amount				