**Centre for IT Enabled Services & Emerging Technologies**
**UNIVERSITY OF JAMMU, Jammu-180006**
**(NAAC Accredited A++ University)**

**EOI No:** CIT/JU/2026/1629 **Date:** 18.05.26

# EXPRESSION OF INTEREST (EOI)

Centre for IT Enabled Services & Emerging Technologies, University of Jammu invites Expression of Interest (EOI) from reputed and **experienced Bidders/System Integrators for the design, supply, implementation, testing and commissioning of a state-of-the-art campus-wide networking infrastructure (Phase-II: OFC Backbone Upgradation).**

**Submission Details:**
**Last Date for Submission of EOI:** 15-06-2026
**Availability of Detailed EOI Document:** The detailed EOI document containing eligibility criteria, scope of work, terms & conditions, and submission procedure is available on the University website: **www.jammuuniversity.ac.in**

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**Director, Centre for IT Enabled Services & Emerging Technologies**
University of Jammu

**Expression of Interest (EOI)**

**For Networking Infrastructure Upgradation**

**University of Jammu**

## 1. Introduction

The University of Jammu invites Expression of Interest (EOI) from reputed and experienced Bidders/System Integrators for the design, supply, implementation, testing, and commissioning of a robust campus-wide Optical Fibre Cable (OFC) backbone infrastructure. The objective of this initiative is to establish a high-speed, secure, redundant, and future-ready OFC backbone network that shall serve as the primary communication backbone for the entire University campus.

The proposed OFC backbone shall interconnect all academic departments, administrative blocks, libraries, hostels, laboratories, examination wings, research centres, and other allied facilities of the University, ensuring seamless and uninterrupted data connectivity.

## 2. Background & Existing Challenges

The existing campus backbone connectivity is facing several limitations and operational challenges:

- The present backbone network is largely dependent on old and fragmented fibre connectivity with limited bandwidth capacity
- Several OFC routes are non-redundant, resulting in single points of failure
- Frequent fibre cuts and physical damage lead to disruption of internet and internal network services
- Existing fibre pathways are not adequately planned for future expansion and redundancy.
- Difficulty in maintenance and fault isolation because of unstructured fiber layout and insufficient documentation.

## 3. Project Objective

The University intends to establish a robust, high-capacity, and future-ready Optical Fiber Cable (OFC) backbone network to serve as the core communication infrastructure of the campus. The primary objectives of this initiative are:

- To design and implement a redundant and resilient OFC backbone architecture interconnecting all academic departments, administrative blocks, hostels, libraries, laboratories, and other university facilities.

- To upgrade the existing backbone from limited capacity to a multi-gigabit, high-bandwidth optical network, capable of supporting present and future data demands.
- To ensure high availability and fault tolerance through ring/mesh topology, eliminating single points of failure and enabling uninterrupted network services.
- To deploy single-mode optical fiber infrastructure capable of supporting scalability up to 10G/40G/100G and beyond, without requiring major physical re-cabling in the future.
- To implement proper OFC laying standards, including underground ducting, HDPE piping, route protection, and labeling, ensuring durability, safety, and ease of maintenance.
- To ensure structured termination, splicing, and testing of fiber links using industry standards (OTDR testing, power budget analysis), guaranteeing optimal performance and reliability.
- To establish well-defined pathways and alternate routes for critical fiber links to ensure quick restoration in case of fiber cuts or failures.
- To maintain proper documentation and mapping of the OFC network, including route diagrams, fiber core allocation, and splicing details for effective network management and troubleshooting.

**5. Scope of Work – Phase II (OFC Backbone)**

The selected bidder shall be responsible for end-to-end planning, design, supply, execution, testing, and commissioning of a robust and scalable Optical Fiber Backbone network across the University campus. The scope shall include all civil, passive, and integration works required to ensure a fully operational, redundant, and future-ready fiber infrastructure.

**5.1 Site Survey & Planning**

The bidder shall conduct a comprehensive on-site survey of the entire campus to assess existing infrastructure and identify optimal pathways for Optical Fiber Cable (OFC) deployment. This shall include Detailed physical verification of all buildings, departments, and interconnecting routes.

- Identification of shortest and most efficient fibre laying paths.
- Assessment of existing ducts, trenches, poles, and utility corridors.
- Preparation of detailed route maps indicating proposed fibre pathways.
- Development of implementation methodology with minimal disruption to

ongoing campus activities.

- Submission of detailed survey reports and preliminary execution plan.

**5.2 Network Design**

The bidder shall design a highly resilient and scalable fibre optic network architecture in alignment with international standards. The design shall include:

- Implementation of ring / mesh / hybrid topology ensuring high availability.
- Provisioning of dual-path redundancy for all critical network segments.
- Logical segregation of core, distribution, and access connectivity layers.
- Bandwidth planning to support current and future requirements (10G/40G/100G and beyond).
- Scalable architecture design supporting future expansion of campus infrastructure.
- Integration capability with existing legacy infrastructure without service disruption.
- Optimization of latency, throughput, and fault tolerance across the backbone.

**5.3 OFC Deployment**

The bidder shall execute complete civil and fiber laying works including:

- Trenching, excavation, and reinstatement of surfaces as required.
- Installation of HDPE ducts, sub-ducts, and protective conduits.
- Proper bedding, warning tapes, and safety markings as per standards.
- Laying of Optical Fiber Cable in accordance with industry best practices.
- Protection of existing utilities and infrastructure during execution.
- Restoration of all affected areas including roads, pavements, and landscaping to original condition or better.
- Ensuring compliance with safety, environmental, and statutory regulations.

**5.4 Fiber Splicing & Termination**

The bidder shall ensure high-quality fiber termination and connectivity through:

- Fusion splicing of optical fibers using precision splicing equipment.
- Installation and termination of LIU (Light Interface Units) / FODP (Fiber Optic Distribution Panels).
- Use of high-quality LC/SC connectors as per design requirements.
- Proper dressing and management of fiber within racks and enclosures.
- Structured labeling and identification of all fiber cores, links, and termination points.

- Maintenance of detailed splice and termination records for future reference.

**5.5 Testing & Commissioning**

Comprehensive testing and validation of the entire fiber network shall be carried out including:

- OTDR (Optical Time Domain Reflectometer) testing for all fiber links.
- Insertion loss measurement and power level testing.
- End-to-end connectivity verification and link certification.
- Identification and rectification of faults, bends, or losses.
- Performance validation under simulated load conditions.
- Final commissioning certificate submission after successful testing.

**5.6 Documentation**

The bidder shall submit complete technical documentation including:

- As-built drawings reflecting final executed network topology.
- Fiber allocation charts and core mapping details.
- Detailed Bill of Materials (BoM) with specifications.
- Splicing records and fiber test reports.
- Operation and maintenance manuals.
- Asset tagging and inventory documentation.

**5.7 Redundancy & Future Provisioning**

The proposed fiber backbone shall incorporate strong redundancy and future scalability features including:

- Fully redundant fiber paths for all mission-critical and high-priority nodes.
- Minimum 20% spare fiber capacity in all backbone routes for future expansion.
- Loop-free and fail-safe architecture ensuring automatic rerouting in case of link failure.
- Modular and scalable design enabling expansion without major civil work.
- High availability architecture ensuring minimal downtime and service continuity.

**6. Vendor Participation Requirement (Key Clause)**

Interested bidders are required to submit a comprehensive technical proposal, which must include:

**6.1 Mandatory Design Submission**

Each bidder must submit a complete end-to-end network design proposal, which shall include but not be limited to:

- Detailed campus-wide Optical Fibre Backbone topology
- Integration design for core, distribution, and access layers
- Clearly defined redundancy architecture (ring / mesh / hybrid model)
- Bandwidth provisioning plan and capacity forecasting model
- Migration and integration strategy for existing network infrastructure
- Scalability roadmap covering short-term, medium-term, and long-term expansion

**6.2 Detailed Documentation**

- Network diagrams (L1, L2, L3)
- Fiber routing maps
- Bill of Materials (BoM)
- Implementation methodology

**6.3 Presentation Requirement**

Shortlisted bidders shall be required to make a detailed technical presentation before the University Evaluation Committee. The presentation shall cover:

- Overall design and architecture approach
- Selection of technologies, equipment, and standards compliance
- Redundancy, resiliency, and failover strategy
- Scalability roadmap for future upgrades and expansion
- Implementation strategy with minimal service disruption
- Project execution timeline and milestone planning
- Support, maintenance, and post-implementation service model
- The University reserves the right to seek clarifications, modifications, or additional information during the evaluation and presentation process.

**7. Eligibility Criteria**

**7.1 Technical Eligibility**

The bidder must meet the following technical eligibility requirements:

**A. Project Experience**

The bidder must have successfully executed at least three (03) similar projects in any of the following sectors:

- Universities / Higher Educational Institutions
- Government Departments / Public Sector Undertakings (PSUs)
- Large Enterprises / Corporate Organizations

**B. Optical Fiber Deployment Experience**

The bidder must have demonstrated experience in Optical Fiber Cable (OFC) deployment of minimum 10 kilometers in a single project.Documentary evidence such as work orders, completion certificates, or client testimonials must be provided.

**C.TechnicalExpertise**

The bidder must possess proven expertise in the following areas:

- OFC Laying and Deployment
- Underground (duct-based / trenching / HDD methods)
- Fiber Management
- Fiber splicing, termination, and jointing
- OTDR testing and link certification
- Network Infrastructure
- Structured cabling (LAN)
- Network design, planning, and implementation

**D. Supporting Documentation**

The bidder shall submit:

- Copies of relevant work orders and completion certificates
- Detailed project descriptions including scope, value, and duration
- Client certificates or performance reports

**7.2 OEM Authorization**

The bidder must have valid authorization and partnership with leading networking Original Equipment Manufacturers (OEMs). This ensures that the proposed solution is based on reliable, industry-standard technologies and that proper technical support and warranty services are available.

- The bidder should be an authorized partner/reseller/integrator of reputed networking OEMs
- OEM authorization certificates must be submitted along with the proposal
- The OEM should provide necessary support for design validation, implementation, and post-deployment services
- Preference may be given to bidders associated with globally recognized networking brands

**8. Evaluation Criteria**

Proposals will be evaluated based on:

- Technical design quality and innovation
- Redundancy and scalability approach
- Compliance with requirements
- Past experience and project credentials
- Presentation and technical clarity

**9. Right to Accept or Reject EOI**

The University of Jammu reserves the right to accept or reject any or all Expressions of Interest (EOIs) received, without assigning any reason whatsoever. The University may also cancel, withdraw, or modify the EOI process at any stage without incurring any liability or obligation to any bidder.

The decision of the University in this regard shall be final and binding on all participating bidders.

# Network Control Room, Campus Network Redesign & NOC Setup

## 1. Objective

To establish a centralized **Network Operations Centre (NOC)**, redesign the campus network architecture for efficient management, monitoring, and scalability, and set up a dedicated **Network Laboratory** for training, testing, troubleshooting, and future technology validation.

## 2. Background & Justification

With the progressive expansion of the University's digital infrastructure across multiple phases, the need for a centralized and intelligent network management system has become critical.

At present, network monitoring, troubleshooting, and configuration management are handled in a **distributed and partially manual manner**, resulting in:

- Delayed fault detection and resolution
- Limited real-time visibility of network performance
- Lack of centralized configuration and control
- Increased dependency on manual intervention
- Absence of a controlled environment for testing and training

To address these limitations, it is essential to establish:

- A **centralized Network Operations Centre (NOC)**
- A **logically redesigned, scalable network architecture**
- A **dedicated Network Laboratory** for training and validation

This initiative will ensure **efficient operations, improved uptime, enhanced security, and long-term sustainability** of the campus network.

## 3. Scope of Work

The project shall include the following major components:

- Establishment of a **Central Network Control Room (NOC)**
- Campus-wide **logical network redesign and optimization**
- Setup of a **Network Laboratory**
- Deployment of **monitoring, alerting, and management systems**
- Development of **Standard Operating Procedures (SOPs)** for network operations and incident management

## 4. Key Components

### 4.1 Centralized Network Control Room (NOC)

The NOC shall function as the **central command and control center** for monitoring

and managing the entire campus network.

**Infrastructure Components**

- NOC Room (approx. 30 ft × 30 ft)
- Administrator Room
- Monitoring Room
- Dedicated Rack Room
- Video wall / centralized monitoring displays
- Network monitoring consoles
- Core and management network racks
- UPS and power backup systems
- Precision cooling and environmental monitoring
- Access control systems and CCTV surveillance
- Fire detection and suppression systems
- Helpdesk and ticketing system

**Functional Capabilities**

- Real-time monitoring of Core, Distribution, Access, and Wi-Fi networks
- Link and device status monitoring
- Bandwidth utilization analysis
- Fault detection, alerting, and escalation
- Device health and performance monitoring
- Configuration backup and restoration
- Centralized incident response and management

**4.2 Campus Network Redesign**

A comprehensive redesign of the existing network architecture shall be undertaken to improve performance, scalability, and manageability.

**Activities**

- Review and assessment of existing network topology
- Optimization of Core–Distribution–Access architecture
- VLAN segmentation and subnet restructuring
- IP addressing scheme redesign
- Routing protocol optimization
- Security zoning and access control redesign
- Implementation of redundancy and failover mechanisms
- Internet gateway and bandwidth optimization
- Data center and server network redesign
- Integration of services such as VoIP, Wi-Fi, ERP, CCTV, and Smart Campus systems

**Expected Outcomes**

- Improved fault isolation and faster recovery
- Efficient traffic management
- Simplified troubleshooting and maintenance
- Enhanced network security

- Scalable and future-ready architecture

### 4.3 Network Laboratory Setup

A dedicated Network Laboratory shall be established to support training, testing, and innovation.

**Objectives**

- Capacity building of technical staff
- Hands-on learning for students
- Pre-deployment testing of network solutions
- Security testing and simulation
- Validation of emerging technologies

**Lab Components**

- Layer 2 and Layer 3 managed switches
- Enterprise-grade routers
- Firewall appliances
- Wireless controllers and Access Points
- Servers for LDAP, RADIUS, DNS, DHCP, and monitoring tools
- Fiber splicing kits and OTDR testing equipment
- Rack setup with patch panels
- Structured cabling demonstration setup
- Network simulation and testing software
- Workstations for students and engineers

**Use Cases**

- Certification and training programs
- Pilot testing before production deployment
- Disaster recovery simulations
- Security testing and vulnerability assessments
- Troubleshooting and fault simulation exercises

## 5. Monitoring & Management Systems

The following systems shall be integrated into the NOC for comprehensive network management:

- Network Monitoring System (NMS)
- SIEM-ready logging and security integration
- Syslog and centralized logging server
- Configuration backup and automation tools
- Performance analytics and dashboard visualization
- Helpdesk and ticketing platform
- Asset and inventory management system
- Network documentation and knowledge portal

**6. Benefits**

- Centralized visibility and control of the entire network
- Faster fault detection and resolution
- Improved uptime and service reliability
- Enhanced security and compliance
- Skilled manpower through lab training
- Future-ready infrastructure supporting expansion and smart campus initiatives

**Details of EOI Submission**

Interested and eligible agencies/firms may submit their sealed Expression of Interest (EOI) complete in all respects, along with requisite documents, technical credentials, experience details, and authorization certificates, duly superscribed as:

**"Phase-II EOI for Campus-Wide Optical Fibre Cable (OFC) Backbone Upgradation Project"**

The EOI shall be submitted to the

~~Office of the~~ **Director Centre for IT Enabled Services & Emerging Technologies, University of Jammu, Jammu – 180006.** on or before 15-06-2026.

The date and time for presentation/demonstration of the proposed solution by the technically eligible bidders shall be communicated separately through email. The presentation shall broadly cover the proposed network architecture, OFC backbone design, implementation methodology, project execution plan, integration approach, scalability, redundancy, security features, monitoring mechanism, and technical specifications of the proposed solution.

The detailed EOI document containing eligibility criteria, scope of work, technical specifications, terms & conditions, and submission procedure can be downloaded from the University website: www.jammuuniversity.ac.in

Note:The University reserves the right to accept or reject any or all EOIs without assigning any reason thereof.