

**MICHIGAN TECHNOLOGICAL UNIVERSITY  
CLASSIFICATION DESCRIPTION**

**Job Title:** TELECOMMUNICATIONS ENGINEER II (PIT Level 4)  
**Department:** TELECOMMUNICATIONS  
**Salary Guideline:** NEGOTIABLE BASED ON EXPERIENCE (No Less Than \$48,000)  
**Supervisor:** DIRECTOR, TELECOMMUNICATIONS

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**SUMMARY:** Member of the engineering team responsible for the University's communications systems. The primary system is the University's data network. Other systems include IP voice, cable TV, private land mobile, physical distribution plant, etc.

**ESSENTIAL DUTIES AND RESPONSIBILITIES** include the following. Other duties may be assigned.

Manage telecommunications projects.

Participate in the installation, configuration, testing, and troubleshooting of the University's data network.

Be solely responsible for the installation, maintenance, and testing of selected telecommunications systems and services.

Interact with external vendors.

Represent Telecommunications on University committees.

Keep current with new technologies through internal and external training opportunities.

**SUPERVISORY RESPONSIBILITIES:**

Functional supervision may be exercised over student assistants.

**QUALIFICATION REQUIREMENTS:** To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

**EDUCATION and/or EXPERIENCE:**

**REQUIRED:**

Bachelor's degree in telecommunications engineering, network engineering, or a related field, or an equivalent combination of education and experience from which comparable knowledge and abilities can be acquired.

Two years of progress responsibility for network procurement, installation, documentation, testing, and troubleshooting.

Experience supporting networks in a multi-vendor environment.

Experience with several layer 2 network protocols such as STP, MSTP, RSTP, PVST, 802.1x, IGMP, 802.1p/q.

Experience with Ethernet networks.

Experience with a variety of network management and troubleshooting tools and protocols such as RMON, SNMP, Netflow, Tcpdump, WireShark, iperf, Airwave management, and Ciscoworks deployed on a variety of platforms (Unix, Windows, MacOS).

Knowledge of network applications and application-layer protocols, such as NFS, H.323, SIP, LDAP, SMTP, IMAP, HTTP, H.264, CIFS, iSCSI, VMWARE, etc.

**DESIRABLE:**

Experience with several router-related protocol, such as BGP, OSFP, ISIS, VRRP, HSRP, PIM, MSDP, etc.

Experience with a variety of transport mechanisms, such as DSP, microwave, millimeterwave, fiber optic, DS1, DS3, OC3, etc.

Knowledge of structured cabling system and standards.

Experience installing and testing fiber, coax, and/or copper cabling.

Experience with physical-layer testing tools such as spectrum analyzers, OTDRs, TDRs, Fluke testers, etc.

Knowledge of applicable safety standards and practices.

Experience in one or more of the following technical areas:

Programming in one or more of: Java, Perl, PHP, Python, TCL/TK, ASP

Computer system administration on a variety of platforms

Wireless services including Wifi, point-to-point, multipoint, or private land mobile cellular wireless systems

Security protocols and services such as IPSec, firewalls, SSL, VPN, ACLs, or filters

Cable television systems

Telephone switching or VoIP systems

Audio/video systems

## TELECOMMUNICATIONS ENGINEER II – TELECOMMUNICATIONS

### **OTHER SKILLS AND ABILITIES:**

#### **REQUIRED:**

Excellent verbal and written communication skills.  
Demonstrated ability to organize, prioritize, and manage individual projects and project team responsibilities.  
Demonstrated problem solving skills.  
Demonstrated ability to interact effectively with customers, colleagues, and vendors.  
Demonstrated ability to work both independently and in a team environment.  
Demonstrated ability to track and account for expenditures.

#### **DESIRABLE:**

Work experience at a higher-education institution.

**PHYSICAL DEMANDS:** The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is regularly required to sit, stand, and walk; talk and hear; use hands to finger, handle, or feel objects, tools, or controls; climb or balance; stoop, kneel, crouch, or crawl and ready with hands and arms. The employee is occasionally required to smell.

The employee must occasionally lift and/or move more up to 100 pounds. Specific vision abilities required by this job include close, distance, color, and peripheral vision; depth perception, and the ability to adjust focus.

**WORK ENVIRONMENT:** The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this job, the employee is occasionally required to work in high, precarious, outdoor weather conditions, and is exposed to the risk of electrical shock. The employee occasionally works in wet, humid conditions, extreme heat or cold; near moving mechanical parts and vibration, and is occasionally exposed to risk of radiation, fumes, or airborne particles, and toxic or caustic chemicals.

The noise level in the work environment ranges from quiet to loud.