Copper Valley Telephone Cooperative

Position Title:	Telecom Network Engineer I, II, III	Department:	Engineering
Reports To:	Switching and Network Manager	FLSA Status:	Non-Exempt

General Summary:

Designs, implements, maintains, and upgrades all aspects of the core, access, and distribution networks and associated equipment, including the design and support of services deployed via Ethernet, IP, MPLS, OTN, SONET, and WDM-based platforms. Responsible for network planning, Central Office engineering, and working with various teams to support customer service issues, new growth activity and coordination, damaged facilities, emergency repairs and replacements, and upgrades of the telecommunications facilities engineer's area of responsibility. Supports Sales & Marketing, Operations, and Regulatory Departments on a regular basis.

At its discretion, Copper Valley may transition a Telecom Network Engineer I to an Engineer II or Engineer III. This requires additional education, certifications, experience, essential job functions, knowledge, skills, and abilities.

Essential Job Functions

Telecom Network Engineer I:

- Understand general engineering of transport and switching infrastructures.
- Basic understanding of LAN, WAN, VLAN and VPN operations.
- General understanding of network design principles.
- General knowledge of various protocols and systems such as TCP/IP, SIP, Sonet, Ethernet, VoIP and be able to identify/analyze and troubleshoot.
- Research, evaluate and recommend appropriate network tools, software and documentation to assure quality maintenance, monitoring and network administration of local and wide area networks.
- Monitor and coordinate contract installations and assist in performing acceptance testing.
- Basic design/troubleshooting of SIP and Hosted PBX voice services.
- Maintain engineering files and organized mapping filing system.
- Oversee construction by making inspections for compliance with RUS specifications, permits and regulations. Ensure compliance with project plans and specifications.
- Prepare close out documents upon project completion.
- Provide significant internal and external projects for new growth construction associated with outside plant activity, including being simultaneously involved with various developers/engineering firms, through all stages, ensuring optimal customer satisfaction.
- Network planning and Central Office engineering (switching, power bay, battery plant, MDF, and transport).
- Design network equipment with a focus on maximizing uptime while providing redundancy.
- Implement equipment (which may be unfamiliar) while working in tandem with vendors to complete installs.
- Perform other duties and responsibilities as assigned by management*

Telecom Network Engineer II:
In addition to the Engineer I essential job functions, an Engineer II will also:

- Plan, design, and develop detailed specifications and cost analyses for Central Office power, switching and transmission equipment.
- Monitor installations of Central Office and transmission equipment, and initiates actions to resolve installation problems.
- Prepare construction sheets, equipment design drawings, and schematics.
- Research and prepare information for right-of-way permits, easements, radio station licenses, and for providing environmental impact information for permits as required by various agencies.
- Coordinate and conduct traffic studies. Analyze traffic data and perform forecasting, trending, and capacity projections.
- Assist in managing capital and operating expenses. Provide input in the preparation of capital and expense budgets.
- Advanced design/trouble-shoot SIP and Hosted PBX voice services.
- Perform other duties and responsibilities as assigned by management*

Telecom Network Engineer III:
In addition to the Engineer II requirements, and Engineer III will:

- Provide technical engineering support and training to peers and others as needed.
- Prepare and review AKP HUBB and various other FCC reports.
- Provide technical engineering support for Central Office and transmissions facilities including, testing, trouble analysis and training.
- Develop and maintain documentation, procedures, and records as required.
- Prepare cost estimates including short and long range budgets and plans.
- Work closely with Accounting to open and correctly close work orders in a timely fashion. Prepare close out documents upon project completion.
- Work independently with no direct supervision throughout the service area.
- Lead and coordinate workflow and assignments for Engineering group to maximize department efficiency.
- Assist in OSP construction contracts and ISP space and power contracts.
- Monitor installations of Central Office and transmission equipment and will initiate actions to resolve installation problems.
- Research, analyze, and make recommendations regarding status of existing facilities, alternative technologies and equipment, application of technology to tariff development, and construction standards, methods, and specifications.
- Perform other duties and responsibilities as assigned by management*

*These tasks do not meet the Americans With Disabilities Act definition of essential job functions and are usually less than 5% of time spent. However, these tasks still constitute important performance aspects of the job.

<u>Knowledge, Skills, and Abilities:</u>
Telecom Network Engineer I:
An Engineer I is a subject matter expert for all technical aspects of outside plant facilities and associated work such as cable sizing, cable counts, cable records, and permitting in Rights-of-Way and dedicated easements. Required knowledge and skills:

- Telephone switching and basic translations
- Power systems (AC and DC) and their operation
- Digital data and analog data communications
- Fiber DSLAMS/ONT's/Splitters
- T1 and special service equipment installation and maintenance
- Carrier Ethernet and DWDM, Active E., GPON and Metro-Ethernet experience
- Telecommunications construction and engineering practices
- Plant records-keeping
- Ability to gain knowledge and insight into unfamiliar products and services through vendor interaction

Telecom Network Engineer II:
In addition, an Engineer II is required to have knowledge of, and experience with:

- Telephone switching and advanced translations
- SS7, digital data and analog data communications
- AC and DC power systems (and their operations)
- Fiber DSLAMS/ONT's/Splitters, T1 and special service equipment installation and maintenance
- Carrier Ethernet, DWDM, Active E., GPON and Metro-Ethernet
- Telecommunications construction, engineering practices, and plant record keeping

Telecom Network Engineer III:
In addition to the having the same knowledge and experience as an Engineer I and II, an Engineer III is required to have in depth knowledge of The Alaska Plan and the various reports associated with it.

Education and Experience:

Telecom Network Engineer I:
CCENT Certification
Associate degree in Electrical Engineering and two years of demonstrated job experience in appropriate telephony technologies. An equivalent combination of college study and experience may also be accepted.

Telecom Network Engineer II:
CCENT, CCNA, and CCNP certifications.
Associate degree in Electrical Engineering and four years of demonstrated job experience in appropriate telephony technologies. An equivalent combination of college study and experience may be accepted.

Telecom Network Engineer III:
Microsoft Office Specialist, CCENT, CCNA, CCNP, CCIE, JNCIS, and SONET certifications.
Bachelor's degree in Electrical Engineering (or Computer Sciences) and a minimum of 10 years of demonstrated job experience in appropriate telephony technologies. An equivalent combination of college study and experience may be accepted.

Physical Requirements (Telecom Network Engineer I, II, and III):

PHYSICAL REQUIREMENTS	0-24%	25-49%	50-74%	75-100%
Seeing: Must be able to read computer screen and various reports.				X
Hearing: Must be able to hear well enough to communicate with employees and industry contacts.				X
Standing/Walking: Must be able to use snowshoes and travel through snow, mud, water, and thick brush areas.		X		
Climbing/Stooping/Kneeling:	X			
Lifting/Pulling/Pushing: Must be able to lift and transport records weighing up to 50 lbs.	X			
Fingering/Grasping/Feeling: Must be able to write, type, and use phone system.				X

Working Conditions (Telecom Network Engineer I, II, and III):

This factor measures the surroundings or physical conditions under which a job must be done and the extent to which those conditions make the job disagreeable. Consider the presence and relative amount of exposure to dust, dirt, heat, fumes, contaminants, cold, noise, vibration, wetness, etc.

Good working conditions: may involve occasional exposure to some of the elements listed above.

Note: The statements herein are intended to describe the general nature and level of work being performed by employees, and are not to be construed as an exhaustive list of responsibilities, duties and skills required of personnel so classified. Furthermore, they do not establish a contract for employment and are subject to change at the discretion of the employer.