

Manhattan School of Music Position Description

Title:	Systems Engineer (Full-time)
Department:	Distance Learning and Recording Arts
Reports To:	Dean of Distance Learning and Recording Arts
Supervises:	N/A
Internal Contacts:	Department, IT, and Production Staff; Students & Faculty
External Contacts:	Vendors, Freelance Videographers; University Network Engineers, K-12 media specialists, production assistants and general public
Start Date:	June 3, 2019 or As Soon As Possible

DOMAINS:

Network and Systems Administration

- Design, implement and maintain network infrastructure supporting Distance Learning and Recording Arts activities. Includes LAN subnet, plus connectivity to WAN (Internet2 and commodity networks via Columbia University) and MSM administrative network.
- Maintain computing environment for all departmental program activities (non-administrative) including audio and video workstations and servers. Includes installing new or rebuilding servers and workstations; configuring and testing hardware, networking software, operating system software and application software. Troubleshooting and investigating issues and evaluating and modifying system performance, as needed.
- Maintain and monitor network integrity and server deployment; analyze and isolate issues; ensure connectivity and availability to specific users.
- Perform network address assignment; assign routing protocols and routing table configuration.
- Implement authentication configuration for department services.
- Implement network security measures in order to protect data, software, hardware and networking environment. Maintain intrusion detection systems, monitor regularly and develop disaster recovery plan.
- Perform regular back-up operations, ensuring all file systems and system data are successfully backed up to appropriate media, servers, disks or tapes.

Systems Programming

- Develop and maintain consolidated long-term data archiving and distribution system for all department audio and video products and services, including web delivery system.
- Develop and maintain distance learning website; Integrate appropriate databases into website back end to allow for automated event scheduling, client data management, billing and “pay for play.”
- Design, development and implementation of systems to aid workflow processes. Consult with users on needs assessment. (E.g., Issue tracking, distribution/delivery requirements).

Distance Learning Technical and Infrastructure Support

- Provide audio, video, and networking (AVN) technical support for distance learning transmissions of small and large-scale programs with partner institutions in the United States and foreign countries. (Includes videoconferencing and web streaming technologies.)
- Execute AVN test sessions with partner institutions in preparation for distance learning programs; Troubleshoot technical issues, as needed.
- Communicate with partner institution technical staff prior to and throughout select distance learning transmissions to maintain audio, video, and network quality commensurate with program content requirements.
- Integrate video equipment into technology infrastructure as needed for program events and sessions.
- Diagnose and resolve technical issues related to SDI video transmission, routing, and switching.
- Select and set-up microphones/cabling/stands requisite to videoconference or webcast program needs. Integrate and execute audio mixing. Interface with Myers Recording Studio staff on the integration of audio systems and equipment for Hall events.
- Execute video capture, editing and post-production of recorded Distance Learning programs; Includes video format conversions and data compression techniques, as needed. Produce finished physical or online media for video copy orders, archive and promotional purposes.
- Run network diagnostic programs to troubleshoot network issues on commodity and Internet2 networks; install, update and upgrade system software.
- Maintain distance learning studios, audio and video equipment and computers. Run routine diagnostics to ensure system performance and functionality.

Administrative

- Participate in planning meetings and production debriefings for distance learning program events. Confer with departmental staff to determine or solve hardware, software or system function needs and specifications.
- Research and recommend technology integrations and upgrades for distance learning systems and studio to improve functionality, efficiency, and capacity.
- Maintain written system documentation.
- Attend monthly staff meetings and report on technology updates.

JOB REQUIREMENTS:

Network/Systems Administration/Programming

- Working knowledge of networking concepts and protocols (OSI model fundamentals, IPv4 addressing, CIDR notation, topology considerations, isolation techniques, etc.).
- Strong knowledge of Linux, Windows and MAC operating systems.
- Deployment, configuration, and maintenance of network infrastructure, including knowledge of network diagnostics and security using iperf, traceroute, proxys, firewalls, NAT, NMAP, SNORT, iptables, etc..
- Working knowledge of server virtualization (QEMU) and Linux containerization.
- Working knowledge of video conference technologies (ITU H.323, H.460, SIP).
- Working knowledge of network hardware configuration, including Cisco IOS and Linux iptables based routing and firewalling.

- Knowledge of system administration, databases, content management systems and basic programming (e.g., DNS, DHCP, Samba/CIFS/NFS, MD based RAID arrays, , SQL, PHP, C++, Python, JavaScript, HTML5, CSS, Bash/shell scripting, RESTful service client and server implementations, etc.).
- Basic knowledge of third-party IAAS systems (eg. AWS, GCP, Azure).

Video

- Strong understanding of professional digital HD video signals (SDI, HD-SDI, DVI, HDMI; interlaced vs. progressive, aspect ratios, frame rates, color space); Sony VISCA camera control protocol.
- Understanding of audio and video clock/sync signal generation and distribution.

Streaming

- Practical knowledge of audio and video data compression (H.264 profiles, etc.); live streaming protocols (RTMP) and encoding; non-linear video editing (e.g., Adobe Premiere, Final Cut).

Audio

- Strong understanding of fundamentals of pro audio technology: Signal Flow and Gain structure; Signal Processing; Microphone patterns and type; cables and connectors; amps and speakers; bus architecture in analog and digital mixers; Experience with Steinberg Nuendo, Cubase or Protools a plus.
- Strong background and understanding of classical and jazz music.

Other Requirements

- Willingness to work flexible hours (weekends or evenings for special events).
- Basic mechanical aptitude for facilitating physical installation of equipment, and related recommendations.
- Must be able to climb and lift at least 50 lbs to move or install equipment.

CONTACT INFORMATION:

Send cover letter and résumé including three references to: **Chris Shade**, Associate Director of Recording Arts at cshade@msmny.edu.

This position is covered by a collective bargaining agreement between Manhattan School of Music and I.A.T.S.E. Local 1.

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