The California State University
Office of the Chancellor
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Long Beach, CA 90802-4275
(310) 985-2669

Date: April 19, 1996

To: Presidents

From: June M. Cooper
Vice Chancellor
Human Resources and Operations

Subject: Information Technology Series - New Classification and Qualification Standards

Effective April 1, 1996, the new Information Technology (IT) Series is available for use. The IT Series consists of six broadly defined classifications and was designed to meet the following goals:

- Develop standards for information technology work which reflect and accommodate rapidly changing technology:

- Incorporate broad definitions of work and levels within the standards to allow for campus flexibility in designing jobs and assigning work; and

- Provide a system which encourages employee skill development and allows for career opportunity.

The IT Series introduces new CSU classification and compensation concepts and terminology as highlighted below:

- Work within each IT classification is organized into core functions with typical activities and core skills. Additionally, a position may have cross functions and project/lead functions assigned to meet specific campus needs.

-Over-

Distribution: (All with Attachments)
Asst. Vice Chancellor, Personnel Officers
Information Resources & Technology Payroll Supervisors
Vice Presidents, Academic Affairs Employee Relations Designees
Vice Presidents, Administration Budget Officers
Vice Presidents, Information Resources Employee Relations/CO
Vice Presidents/Deans of Students
Associate Vice Presidents/Deans, Faculty Affairs
Information Resources Directors
Each IT classification has three broad skill levels which allows the campus to assess the skill and ability level of each incumbent as Foundation, Career, or Expert. Factors used to determine the different skill levels include technical know-how, critical thinking skills, and interaction capabilities.

In-classification progression replaces the reclassification process for movement between skill levels within IT classifications. This allows an employee to move through skill levels as the job evolves and the employee acquires higher level skills within the same classification.

All IT classifications have open salary ranges with sub ranges identified for each skill level: Foundation, Career, and Expert.

Monthly stipends are available for employees who meet the criteria outlined for technical coordination and/or lead assignments. Please note these assignments are made at the discretion of campus management and are campus funded.

The following attachments are provided to assist in the introduction and implementation of this new series:

- Attachment A: List of new classification and qualification standards and class codes and a list of classifications to be abolished.
- Attachment B: Transmittal sheet and copies of the new Information Technology Series Classification and Qualification standards.

Pay Letter 96 - 04 identifying the new salary structure and salary ranges for the IT classifications will be issued at the end of April.

Human Resources staff will offer training in the summer to assist campus personnel in implementing the new IT series. Information on the training workshops will be provided in early May.

Employees are to be moved into the new IT classifications no later than November 1996 at which time the old data processing related classification standards listed in Attachment A will be abolished. Please note that there are no systemwide funds available for the implementation process and any increase in an employee’s salary must be funded by campus resources.

If you have questions regarding the Information Technology Series, please contact either Ron Hull at (310) 985-2653 or Pamela Chapin at (310) 985-2652. Thank you.

JMC/pc
Attachments
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<th>Class Code</th>
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## List of Information Technology Classification and Qualification Standards and Class Codes - cont.

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## List of Classifications to be Abolished

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ATTACHED ARE NEW CLASSIFICATION AND QUALIFICATION STANDARDS FOR THE INFORMATION TECHNOLOGY SERIES (R09):

<table>
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<tr>
<th>Class Codes</th>
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<tr>
<td>0400-0402</td>
<td>Analyst/Programmer</td>
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<td>Network Analyst</td>
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<td>Equipment/Systems Specialist</td>
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<tr>
<td>0450-0452</td>
<td>Operations Specialist</td>
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The effective date for these new classification and qualification standards is April 1, 1996.

Cathy Robinson, Senior Director
Human Resources Administration
Human Resources
Information Technology Series

Introduction

The Information Technology Classification Series is a set of six classifications:

<table>
<thead>
<tr>
<th>Class Title</th>
<th>Class Code</th>
<th>Date Established</th>
<th>Date Revised</th>
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<td>Information Technology Consultant</td>
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<td>4/1/96</td>
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</table>

The information technology classification series includes positions in the computing infrastructure, data and voice communications, media, including instructional development and broadcasting, and academic and department-based technology. Each classification includes the multiple information technology disciplines of data, voice, and video technologies.

Positions classified within the information technology series are directly responsible for developing, providing, integrating, and/or supporting information technology-based solutions and systems. The series is intended for positions whose primary functional purpose and requisite skill sets are information technology-based. In determining whether a position is appropriate for an information technology classification, the following questions are important to consider:

- What is the primary functional purpose of the position? Is it to develop, provide, or support technology-based solutions or systems or does it use these systems as tools to achieve results?

- What are the critical skill sets to perform the position’s responsibilities? Are the primary skill sets information technology-based? What is the relative importance of subject matter expertise in other functional areas?

The information technology series is structured to meet continuing changes in technology and organizational structure. Work within each classification is organized into core functions with typical activities and core skills. Additionally, a position may have cross functions and project/lead functions assigned to meet specific campus needs. The skill level definitions in this introduction apply to all of the classifications within the information technology series. The key components of the information technology classification series are defined below:
Core Function

Each of the six classifications in the series has identified core functions. A core function is a major
category of work within a broadly defined classification. Each core function includes descriptions of
typical work activities and core technical skills without regard to value or skill level. A position in an
information technology classification has the majority of its ongoing work assignments in one or more
of the core functions defined for that classification; however, work assignments from a related
classification in the information technology series may also be included. Work examples and core
technical skills cited in the classification standard are illustrative to assist in the classification process and are
not intended to be prescriptive.

The six classifications in the information technology series and their core functions are summarized as
follows.

**Analyst/Programmer:** Analyzes and develops systems and technology-based solutions to meet user
needs including applications, databases, and related systems. The core functions for Analyst/Program-
ner are:

- Systems analysis and development
- Applications programming
- Database analysis

**Operating Systems Analyst:** Responsible for operating systems and their interfaces to all other
multi-disciplinary systems. The core functions for Operating Systems Analyst are:

- Operating systems analysis
- Operating systems administration

**Information Technology Consultant:** Provides consultative support to students, staff, and
faculty to enhance the use and access of technology and information systems. The core functions for
the Information Technology Consultant are:

- User consultation
- Site administration
- Development

**Network Analyst:** Provides engineering, analysis, and support of all networks carrying voice, data,
video, or broadcast transmissions. The core functions for the Network Analyst are:

- Network planning and implementation
- Network analysis and management
- Network administration and support

**Equipment/Systems Specialist:** Responsible for installation, modification, and maintenance of
equipment and systems with a hardware and systems configuration focus. The core functions for the
Equipment/Systems Specialist are:

- Equipment services
- Systems integration

**Operations Specialist:** Responsible for the effective operation, monitoring, and control of multi-
system information systems in data, voice, or video processing. The core functions for the Operations
Specialist are:

- Technical operations
- Operations support
- Operations analysis
Cross Function
Cross functions are work assignments outside of the classification where the majority of work is performed. They are core functions from another classification within the information technology series that may be used to promote skill development or meet unique department needs.

Project Coordination/Lead Functions
Project coordination/lead functions include responsibilities for technical coordination of projects and/or providing work direction to others. These responsibilities are in addition to those included in the core skills and core functions of the individual classification. Assignment of these functions will be based on the following criteria.

Technical Project Coordination: The project assignment must include the full scope of responsibility and accountability for a technical project including feasibility studies; project design and planning; ongoing resource, materials, and time management; and implementation. The project must have a tangible, measurable outcome, a duration of six months or more, and a scope that is moderately complex to complex involving interdepartmental and multidisciplinary coordination.

Lead: Lead work assignments must include direction to ongoing regular administrative, technical, or professional staff (this excludes student assistants). Lead work direction must include the full scope of responsibilities: evaluating and setting work priorities; scheduling and assigning work; reviewing work against standards and providing performance feedback; and determining training needs and training staff.

Skill Level Definitions
Three broad skill levels are defined for the information technology series: Foundation, Career, and Expert. The factors used to determine different skill levels include technical know-how, critical thinking skills, and interaction capabilities.

A position is placed at a skill level based on the skill requirements of the position. An individual may be working at different skill levels in various work assignments or skill dimensions; however, the overall skill level determination is based on where the majority of the skill requirements fall in the skill level continuum.

The following skill level definitions apply to all six classifications within the series. It is important to note these definitions do not delineate entry requirements at each level, but are composites of the typical incumbent at each level. Entry qualifications are identified within each standard for initial entry into each classification at the foundation level.

Foundation: Incumbents at this level meet the entry qualifications as defined by the individual classification. The incumbent may be inexperienced or have limited experience in the specific technical field, but usually possesses the general education, training, license or certification pertinent to the body of knowledge encompassed by the technical specialty. Typically, the incumbent works under direct supervision and is able to demonstrate a basic understanding of the standard principles and terminology associated with the technical specialty, address common problems of limited scope, and demonstrate work-ready communication skills.

Career: The career level is broad and includes intermediate through senior level positions. Incumbents at this level work relatively independently and possess the experience to be fully proficient in performing most or all of the work assignments defined for their position. Typically, incumbents have acquired the requisite skills and knowledge through a combination of education, training, and progressive work experience to be able to demonstrate competence in independently applying technical
Information Technology Series

judgment to standard and nonstandard applications and systems, solving a wide range of problems and developing practicable and thorough solutions, and using effective communication and listening skills.

**Expert**: Incumbents at the expert level work almost completely independently on the most complex problems and work assignments. They possess an advanced and comprehensive knowledge of the technical specialty and a working knowledge of related specialties and are able to apply this extensive expertise as a generalist or specialist. Experts are proactive and understand problems from broad, interactive perspective and are able to develop solutions that combine information and ideas in new, unprecedented ways. Incumbents at this level are capable of leading teams and implementation efforts for assigned projects using advanced communication and listening skills.

**Classification Series Overview**

**Analyst/Programmer**
(Example)

- Core Functions
  - Systems Analysis and Development
  - Applications Programming
  - Database Analysis

<table>
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<tr>
<th>Typical Activities</th>
<th>Core Skills</th>
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- Skill Level
  - Foundation
  - Career
  - Expert

**Classification Process**

The classification process requires an analysis of both a position's work assignments and the skills required to perform the work. Following is a summary of the classification and skill level determination process.

1. Review the position's primary work assignments and categorize them into appropriate core functions. The position is then assigned to one of the six classifications in the information technology series based on where the majority of work assignments fall.

2. Identify work assignments that fall outside of the designated classification. If appropriate, these work assignments may be categorized as cross functions and/or project coordination/lead functions.

3. Identify the skills necessary to perform all work assignments and determine the appropriate skill level based on the total set of skills required for the position compared against the skill level definitions.

4. Introduction
Information Technology Series

Analyst/Programmer

Classification Overview
Positions in this classification are primarily responsible at varying levels for the analysis, design, modification, installation and maintenance of application programs, integrated systems, or software solutions including databases to meet user and organizational information needs at the systemwide, campuswide, or individual unit level.

Positions in this classification may reside in the central computing department or in individual administrative or academic departments or schools. Common working titles include Applications Programmer, Software Developer, Systems Analyst, Programmer/Analyst, Database Analyst, Data Administrator, Data Analyst, etc.

Entry Qualifications
To enter this classification, a basic foundation of knowledge and skills in applications programming and systems analysis and related programming support functions is a prerequisite. This foundation would normally be obtained through a bachelor’s degree, preferably in computer science or business, or equivalent training and applied experience. Foundation knowledge and skills for the Analyst/Programmer, depending on the position assignment, may include working knowledge of a specific industry standard applications programming language and knowledge of standard systems analysis techniques.

Further progress within this classification is based on department needs and work assignments requiring higher levels of skills and knowledge. Refer to the Information Technology Series Introduction for skill level definitions.

Core Functions
The core functions of the Analyst/Programmer are:

♦ Systems Analysis and Development
♦ Applications Programming
♦ Database Analysis

These core functions represent major categories of work within the Analyst/Programmer classification. Typical activities and core skills for each core function cited below are illustrative; campus assignments may vary.

Analyst/Programmer • 1
Core Function—Systems Analysis and Development

Typical Activities

Systems Analysis: Analyze user system and application needs, determine and evaluate alternative solutions and approaches to meeting those needs, and select the optimal technology solution. Examples of typical work activities include:

- Consult with users to identify and document software/system purpose, work flow issues, output needs and to determine overall functional and technical system requirements and specifications;
- Develop alternative solutions and conduct feasibility studies;
- Evaluate the procurement of third party software and troubleshoot new software installations.

Systems Development: Develop specifications and requirements for the optimal integration and implementation of systems and equipment. Examples of typical work activities include:

- Develop requests for proposals for system components;
- Evaluate specifications and requirements against available systems;
- Design fully integrated systems which may include applications, databases, networks, and related systems;
- Ensure system integrity and efficiency.

Application Design/Modification: Design application programs to meet user requirements that optimize the use of available resources. Examples of typical work activities include:

- Develop program specifications and review them with the user to ensure that requirements are met;
- Design user-friendly interfaces to systems, applications, and databases;
- Recommend modifications to third party software to meet user needs;
- Act as a software vendor liaison.

Core Skills

Systems Analysis and Development

- Ability to use systems work flow and logic flowchart techniques.
- Knowledge of formal data flow analysis methodologies.
- Ability to apply and use operations analysis and structured design analysis techniques.
- Knowledge of campus-defined systems, applications, and standards.
- Ability to identify hardware/software interface problems.
- Knowledge of system/equipment capability, design restrictions, and security requirements.
- Knowledge of systems development life cycle and structured systems development concepts.

2 Analyst/Programmer
General knowledge of network connectivity, integration, configuration, and protocols.
Understanding of and ability to integrate all systems including operating systems, applications, networks, and databases, as well as knowledge of distributed processing technology.
Knowledge of client/server technologies.
Ability to communicate effectively.
Ability to apply consultative skills to assess user needs and communicate technology systems and solutions.
Ability to perform systems and applications needs analysis, prepare requests for proposals, and conduct feasibility studies.
Ability to use project management tools.
Ability to research and evaluate the functionality of vendor software to meet user needs, assess vendor proposals, and serve as a technical/vendor liaison.

Core Function—Application Programming

Typical Activities

**Programming and Software Development:** Develop succinct, timely programming code or modify software in a logical fashion which optimizes programming resources and meets functional user requirements. Examples of typical work activities include:

- Write code to meet user specifications;
- Use productivity tools to develop and modify applications software to meet user needs;
- Work with users to test and debug programs;
- Verify data acquisition and output media and format;
- Modify existing or third party software;
- Write documentation to provide user support for new or modified programs and production/operation procedures.

**Applications Installation and Maintenance:** Maintain and support assigned systems to ensure minimal downtime and loss of productivity and service. Examples of typical work activities include:

- Evaluate and enhance the efficiency of existing programs in meeting current and future user needs;
- Maintain and support associated databases;
- Install new, modified or third party software releases and/or updates;
- Evaluate and supplement vendor supplied documentation for third party software.
Core Skills

Application Programming

Ability to use one or more industry standard programming languages and various report/screen generators as required by the position.
Ability to use applications software, data structures and utilities, operating systems, and communication interfaces within the computing environment.
Ability to perform interactive debugging and to test and analyze program failures.
Knowledge of structured programming techniques and the ability to use appropriate productivity tools to provide for more rapid development of applications.
Ability to write/modify programs using multiple applications and databases.
Ability to develop program implementation plans, install software, and apply fixes.
Understanding of technical and vendor documentation and ability to maintain internal documentation.
Knowledge of network configuration, programming, and protocols.
Specialized skills in new systems and programming technologies.

Core Function—Database Analysis

Typical Activities

Analysis: Structure, implement and maintain database systems to optimize data access and security. Examples of typical work activities include:

- Design database systems and programs which include access methods, access time, file structures, device allocation, validation checks, statistical methods, and security;
- Work with user community to understand data access and integration needs;
- Ensure the integration of systems through the database structure;
- Monitor database standards and procedures, system usage and performance;
- Troubleshoot and resolve database and data problems;
- Develop and administer disaster recovery plans.

Data Administration and Support: Establish and administer policies, standards and procedures for strategic data planning, data analysis and modeling, and data element standardization and use to ensure accurate, useful and readily accessible data. Examples of typical activities include:

- Develop and administer data use policies, procedures, and standards.
- Monitor, analyze, and verify data to ensure data integrity; develop assigned databases to support specific applications.
- Analyze data requirements, develop and document data dictionary, and develop data models.
- Maintain the database archives by acquiring and installing data sets and documentation.
- Assist in data transfers or sharing of files.
- Develop policies and procedures to access or interact with remote resources.
- Conduct file maintenance.
- Maintain the data dictionary.

**Core Skills**

**Database Analysis**

Knowledge of formal data structure design, relational database design, and file structure.

Ability to design data structures to maximize efficiency and flexibility.

Ability to perform database maintenance tasks, develop access routines, and maintain dictionary.

Knowledge of data administration principles and data modeling concepts.

Ability to identify and resolve software/hardware interface problems, data requirements, and access methods.

Ability to establish and execute data security standards and procedures and disaster recovery plans.

Knowledge of distributed processing and client/server technologies.

Ability to perform database backup and recovery procedures as part of database management system utilities.

Ability to use data resource and productivity tools applicable to the database management system.

General knowledge of network configuration, programming, and protocols.

Ability to provide database support in a multiple hardware platform and operating system environment.

Ability to work and communicate with users to define and meet database needs and requirements.
Information Technology Series

Operating Systems Analyst

Classification Overview
Positions in this classification are primarily responsible at varying levels for the analysis, modification, maintenance, and installation of operating systems, utilities, and related software and systems, including physical databases, to meet campus needs. Responsibilities include ensuring the availability, integrity, and reliability of assigned systems.

Positions in this classification typically support systems that serve the entire campus. Operating System Analyst positions may also exist in large administrative departments or academic schools that have responsibility for their own configuration(s) of mainframes, mini-computers, file servers, and/or workstations. Common working titles include Software Systems Analyst/Programmer, Operating Systems Analyst/Programmer, Systems Programmer, Software Systems Specialist, Database Administrator, Systems Administrator, etc.

Entry Qualifications
To enter this classification, a basic foundation of knowledge and skills in operating systems programs, maintenance, and systems administration features is a prerequisite. This foundation would normally be obtained through a bachelor's degree, preferably in computer science, mathematics, or a related technical field, or equivalent technical training and/or experience. Foundation knowledge and skills for the Operating Systems Analyst include a working knowledge of the assigned computer operating systems, systems analysis, and systems-level programming.

Further progress within this classification is based on department need and work assignments requiring higher levels of skills and knowledge. Reference the Information Technology Series Introduction for level definitions.

Core Functions
The core functions for the Operating Systems Analyst are:

- Operating Systems Analysis
- Operating Systems Administration

These core functions represent major categories of work within the Operating Systems Analyst classification. Typical activities and core skills for each core function cited below are illustrative; campus assignments may vary.
Core Function—Operating Systems Analysis

Typical Activities

Operating System Development/Installation: Ensure operating system software is properly installed, tested, and tuned to maximize operating efficiency. Examples of typical work activities include:

- Develop and implement plans for fully integrated systems, including operating systems, network systems, database systems and applications;
- Develop plans, schedules, and requirements for the installation and maintenance of new and/or revised software;
- Install, configure, and tune operating systems software for optimal performance;
- Integrate operating systems with other systems;
- Evaluate and recommend hardware and system software procurements;
- Assess the impact of new software on existing systems and users and develop modification plans as needed.

Operating System Programming/Modification: Customize and upgrade operating and related systems to meet ongoing user needs. Examples of typical work activities include:

- Plan and implement modifications and upgrades to system configuration to improve utilization based on analysis of application and production requirements;
- Plan system capacity and develop expansion plans;
- Allocate and organize data storage;
- Write and develop efficient software and code for operating systems;
- Develop system utility programs and procedures to enhance operations, applications, and general system usage;
- Document operations procedures and installation methodologies and modifications.

Operating Systems Performance Analysis: Evaluate level of systems operation and recommend measures to improve overall performance. Examples of typical work activities include:

- Conduct analytical studies of system processing time and resource capacity, measuring system performance against predetermined or standard benchmarks (e.g., operating time, error rates, and types);
- Determine system compatibility and performance, and impact of integration with new systems or upgrades;
- Perform analysis, testing, and/or simulation of equipment and software configurations;
- Research and identify system expansions to meet anticipated future workload.

Operating Systems Maintenance: Monitor and maintain operating and related systems to ensure minimal interruption of production systems and to maintain maximum system availability. Examples of typical work activities include:

- Diagnose and resolve operating systems and program failures;
- Develop and execute test schemes and diagnostic procedures;
- Monitor and analyze system performance and capacity and install corrections as necessary.

2 ◆ Operating Systems Analyst
Information Technology Series

- Review all systems software and hardware to ensure system integrity;
- Work with maintenance vendor to develop and implement solutions specific to the campus needs.

**Operations Support:** Provide technical support to computer operations and applications programming staff to ensure availability of production and on-line systems. Examples of typical work activities include:

- Analyze application failures and work with computer operations and applications programming staff to develop solutions;
- Provide guidelines for applications development structure and security;
- Provide procedures training and support;
- Assist in resolving production problems.

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**Core Skills**

**Operating Systems Analysis**

Knowledge of internal operating system technology, computer operations and hardware, and network communications theory.

Ability to use operating system languages as defined by the campus and ability to perform systems level programming in a distributed, networked environment.

Ability to use performance monitoring software and interpret results.

Ability to perform preventative and remedial maintenance to operating system(s).

Ability to interface/integrate campus defined operating system(s) with software and other systems.

Ability to evaluate existing and proposed systems and recommend upgrades and/or modifications.

Knowledge of applications programming techniques and procedures.

Understanding of job control and production procedures with an ability to troubleshoot and isolate production problems and applications code.

Ability to research and survey new products and/or releases, such as productivity tools.

Ability to establish and document operations procedures.

Knowledge of network operating system and network architecture, configuration, and protocols.

Knowledge of client server technologies.
Core Function—Operating Systems Administration

**Typical Activities**

**Database Maintenance/Management:** Design, create, manage and maintain physical databases including database storage management, procedures and tools for access, database security, and monitoring and tuning the database to ensure ongoing operation and access. Examples of typical work activities include:

- Install, structure, tune, and maintain database operating systems and software on mainframe or mini-computers;
- Manage database organization and data storage;
- Monitor database system usage and performance;
- Troubleshoot and resolve database problems;
- Create databases and/or migrate databases between machines;
- Support client/server database access tools;
- Develop benchmarks for testing new software releases;
- Provide consultation to programmers on relational database design;
- Oversee vendor software fault resolution.

**Security Management:** Ensure safety and security of information system assets and protect systems from inappropriate access or destruction. Examples of typical work activities include:

- Run checks on data integrity; plan and execute disaster recovery plans;
- Develop system backup and archival methodology;
- Maintain data security and integrity by developing system access standards and procedures;
- Evaluate the adequacy of controls and security measures;
- Conduct virus avoidance procedures;
- Work with users to understand security needs and evaluate level of security required.

**Storage Administration:** Design system storage capacity to provide for efficient and timely response and operating time. Examples of typical work activities include:

- Calculate data storage media and cost alternatives;
- Specify sources and methods of data storage;
- Plan for efficient allocation of system storage capacity.

**Core Skills**

*Operating Systems Administration*

- Knowledge of system management and security/control procedures.
- Knowledge of database design, structure development, features, operations, programming, and data access principles.
- Knowledge of data communication network architecture, configuration, protocols, and interfaces.
Knowledge of operating systems and storage capacity, including ability to perform capacity planning.
Ability to identify and implement critical maintenance fixes and to isolate and correct malfunctions, including interface problems.
Ability to develop and execute disaster recovery plans.
Ability to establish data security standards and procedures.
Ability to tune database systems and maintain database software.
Information Technology Series

Information Technology Consultant

Classification Overview

Positions in this classification have varying levels of responsibility for direct consultative support and training to students, staff, and faculty on information technology-based systems primarily in the areas of applications software, multimedia, database resources, and network support, but may include a moderate degree of hardware consultation and support. Positions in this classification may have responsibility for supporting academic or administrative departments, lab and/or classroom needs, using available information technologies and resources. The Information Technology Consultant typically has a broad knowledge of multiple software and instructional/media technology applications, database systems and sources, and equipment types, but is not usually involved in design and systems analysis on an ongoing basis which would require an in-depth knowledge of engineering or programming techniques.

Positions in this classification may reside in administrative or academic departments as well as within centralized information technology or academic computing departments. Common working titles may include: Computing Consultant, User Consultant, User Support Representative, Lab Manager, Instructional Designer/Technologist, Instructional Computing Coordinator, Multimedia Specialist, etc.

Entry Qualifications

To enter this classification, a basic foundation of knowledge and skills in technical information systems and application program packages is a prerequisite. This foundation would normally be obtained through a bachelor's degree in computer science, information systems, educational technology, communications, or related fields, or similar certified coursework in applicable fields of study. Foundation knowledge and skills for the Information Technology Consultant, depending on the nature of the position assignment, may include working knowledge of common software application packages, equipment platforms, reference database systems and sources, and training methods and a basic understanding of networks, data communication, and multimedia systems.

Further progress within this classification is based on department need and work assignments requiring higher levels of skills and knowledge. Reference the Information Technology Series Introduction for level definitions.

Core Functions

The core functions for the Information Technology Consultant are:

- User Consultation
- Site Administration
- Instructional/Multimedia Development
These core functions represent major categories of work within the Information Technology Consultant classification. Typical activities and core skills for each core function cited below are illustrative; campus assignments may vary.

**Core Function—User Consultation**

**Typical Activities**

**User Support:** Provide consultative support and services to the user community to ensure problem resolution, system/data access, and optimal system performance. Examples of typical work activities include:

- Provide telephone or on-site support;
- Assist users to develop or use applications and software packages and their features;
- Install, configure, and modify applications, networks, databases, and other systems;
- Provide academic course management and related services to faculty;
- Act as a liaison and interface between faculty, staff, and information systems resources and staff.

**Resource Evaluation and Needs Analysis:** Provide technical advice and expertise in the evaluation, purchase, upgrading, and maintenance of software and/or hardware resources. Examples of work activities include:

- Advise and assist faculty, staff, and students in the selection of available software, hardware and/or database systems, and sources to meet their needs;
- Research available products and systems and recommend alternatives to meet identified needs;
- Participate in needs assessments and evaluate potential purchases for compatibility with existing systems;
- Specify maintenance contracts;
- Prepare requests for proposals, cost estimates, and justifications.

**Data Administration and Support:** Administer databases and ensure that data sources are accurate and readily accessible to the user community. Examples of work activities include:

- Develop assigned databases using database management packages/systems;
- Develop and administer data policies, procedures and standards;
- Analyze and define data requirements;
- Maintain database archives by acquiring/installing data sets and documentation;
- Assist in data transfers and file sharing via utility programs;
- Monitor, analyze, and verify data to ensure integrity;
- Develop policies and procedures for access to remote resources and provide access to these resources.

**Training:** Provide training and communication materials to users that maximize their ability to utilize system capabilities, features, and other resources. Examples of work activities include:

- Develop and/or conduct formal training programs, lab/equipment orientations and demonstrations, and self-guided tutorials on equipment, applications, databases, and related systems.
Write user documentation, user guides, instructor guides, training outlines, and technical training publications;
Assess campus training needs and develop and coordinate plans for training delivery.

Core Skills
User Consultation

Ability to apply consultative skills to assess user needs and provide appropriate support.
Knowledge of information technology systems and/or applications, including campuswide systems and multimedia environments, access procedures, networks, and/or databases.
Ability to integrate multiple applications and/or systems.
Proficiency using standard software packages.
Ability to analyze data requirements and research data availability and access methods.
Knowledge of data administration principles and techniques.
Knowledge of network administration.
Ability to coordinate and implement data exchanges and conversions.
Knowledge of training theory and practices demonstrated by an ability to develop and deliver technical training and user documentation.
Demonstrated interpersonal and communication skills in working with users to interpret needs and provide appropriate solutions.
Knowledge of statistical and/or research databases.
Subject matter expertise in a specialized discipline or body of knowledge.

Core Function—Site Administration

Typical Activities

Site Operation: Ensure lab, studio, classroom, and/or stand-alone information systems are fully operational and secure. Examples of work activities include:

- Analyze and monitor system performance and usage;
- Coordinate multimedia components for lab or classroom use;
- Coordinate lab or media studio operations and projects;
- Schedule facility use and ensure appropriate staffing;
- Monitor facilities software and media libraries and inventories;
- Establish facility security and operational policies and procedures.
Site System Maintenance: Ensure proper maintenance and support of assigned lab/classroom/stand-alone systems. Examples of work activities include:

- Use utility and file programs to recover and back up data;
- Re-install damaged or deleted software;
- Troubleshoot errors in system operation and initiate repairs;
- Configure media components and/or local area networks (LANs);
- Administer site LAN including maintenance of related hardware and software;
- Maintain file/network servers and all lab stations.

### Core Skills

#### Site Administration

- Ability to identify, develop, and coordinate plans for use of site resources (e.g., staffing, budget, and materials) and to define site procedures for ongoing administration and maintenance.
- Ability to maintain materials, inventory, and technical references and administer facility and system security practices.
- Knowledge of system utilities, features, installation and maintenance procedures, and general operation.
- Basic knowledge of data and file structures, database systems and related utilities, operating systems, and communication interface programs.
- Ability to perform system, database, and network maintenance tasks and to use standard software packages.
- Knowledge of local area network system configuration, protocols, and/or transmission media.
- Ability to analyze and troubleshoot system connection and interface malfunctions.
- General knowledge of operating systems and hardware for problem identification and analysis.
- Knowledge of copyright laws and Industry standards.
- Demonstrated ability to assist others in completing work assignments including the ability to provide basic work direction and training.

### Core Function—Instructional/Multimedia Development

#### Typical Activities

**Instructional Design:** Develop instructional and/or research techniques and applications using technology to enhance and facilitate academic and educational objectives. Examples of work activities include:

- Devise methods for integrating technical tools and applications into faculty instructional delivery and student projects;
- Develop models and prototypes for research projects using appropriate software packages, utilities, and product features;
Develop courseware and curriculum software tools;
Aid faculty in researching computing and media software materials;
Conduct needs analysis and monitor instructional/research needs on campus;
Conduct research and prepare technical justification for grants.

**Multimedia Origination:** Create multimedia programs that meet academic and administrative goals. Examples of work activities include:

- Develop and execute multimedia presentation proposals that incorporate all technical and media elements;
- Develop detailed production plans for multimedia projects including staff, budget, facility contracted services, and production schedules;
- Develop multimedia and/or computer-based interactive instructional applications and materials that include such elements as moving video, sound, computer animation, and text for faculty use in classrooms and teleclassrooms;
- Function as a producer and director for multimedia projects ensuring coordination of all media and technical elements including narration, computer graphics, audio and visual effects, recording, mixing, and transmission as appropriate to the project.

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**Core Skills**

*Instructional/Multimedia Development*

Knowledge of instructional design theories and methodologies and ability to apply them.
Knowledge of database sources and large-scale computing and information resource networks.
Knowledge of and ability to evaluate instructional software, courseware development, and multimedia applications.
Ability to perform research design using statistical methodology and application resources.
Knowledge of systems design and technology integration techniques.
Ability to provide software development and programming support for instructional applications.
Knowledge of user interface design principles and applications.
Ability to develop and create multimedia/video productions.
Demonstrated ability to work and communicate with users to effectively identify and efficiently meet their requirements.
Ability to design, develop, and implement instructional applications.
Subject matter expertise in a specialized discipline or body of knowledge.
Information Technology Series

Network Analyst

Classification Overview

Positions in this classification are primarily responsible at varying levels for the design, installation, ongoing analysis, administration, and/or control of voice, data, and video networks, and/or distance learning technologies. Work includes the design, engineering, programming, monitoring, and maintenance of wide area or local area networks or comparable transmission networks to meet user needs and maximize remote computing, telecommunications, or transmission capabilities.

Positions in this classification may reside in the central computing department, instructional media areas, or in the telecommunications department. Network Analyst positions may also be located in administrative or academic departments based on need and the complexity of the network system. Common working titles may include Network Analyst, Network Specialist, Network Consultant, Telecommunications Engineer, Network Administrator, Telecommunications Analyst, etc.

Entry Qualifications

To enter this classification, a basic foundation of knowledge and skills in technical, information network systems is a prerequisite. This foundation would normally be obtained through a bachelor's degree in computer science, engineering, industrial technology, telecommunications or a related technical field, or equivalent training and experience. Foundation knowledge and skills for the Network Analyst include a basic knowledge of telecommunications and transmission technologies, including network architecture, topologies, protocols, programming applications and interfaces appropriate to the defined work area and assignments. Based on specialized assignments, a position may also require background, and/or licensure if required, in computer operating systems, broadcast network functions, or telecommunication switching systems.

Further progress within this classification is based on department need and work assignments requiring higher levels of skills and knowledge. Reference the Information Technology Series Introduction for level definitions.

Core Functions

The core functions for the Network Analyst are:

- Network Planning and Implementation
- Network Analysis and Management
- Network Administration and Support

These core functions represent major categories of work within the Network Analyst classification. Typical activities and core skills for each core function cited below are illustrative; campus assignments may vary.
Core Function—Network Planning and Implementation

Typical Activities

*Design and Configuration:* Design and engineer network installations to meet information processing and traffic needs. Examples of typical work activities include:

- Develop systems and/or network configurations, including hardware, software, and integration requirements;
- Plan, design, and engineering of assigned networks;
- Determine network architecture, topology, and transmission media appropriate for the installation;
- Develop/recommend network standards and protocols;
- Design networked facilities (e.g., studios, classrooms, teleconference facilities);
- Design terrestrial or satellite microwave transmission systems.

*Evaluation/Research:* Evaluate user needs, systems, and new technologies to recommend the most effective communication and transmission systems. Examples of typical work activities include:

- Research and evaluate network/systems, performance capacity, and compatibility with existing systems;
- Analyze information processing, transmission, and data movement needs;
- Analyze system elements such as system cabling and software and expansion capacity;
- Evaluate software/hardware network features;
- Coordinate network development activities with systems as appropriate;
- Act as the technical liaison for network product or system vendors.

Core Skills

*Network Planning and Implementation*

Knowledge of network architecture, configuration, protocols, and interconnectivity requirements for internal/external information transmission.

Ability to use engineering techniques in the design of network and transmission systems.

Computer/video skills on specific applicable hardware and software; understanding of system functionality and components.

Specialized vendor training or licensing to meet a specified departmental need.

Ability to interpret data on system usage and develop engineering specifications to support changing service levels.

Ability to interpret and apply broad regulatory standards and technical specifications to assignments.

Ability to monitor and manage vendor relationships to ensure responsiveness and quality.
Core Function—Network Analysis and Management

Typical Activities

Analysis/Performance Monitoring: Analyze and monitor network activity to ensure optimal network operation. Examples of typical work activities include:

- Monitor network traffic, usage, and performance;
- Run diagnostics to forecast performance thresholds;
- Perform analysis of network efficiency (e.g., channel, trunks, etc.) and routing of traffic, troubleshoot system failures and ensure appropriate corrective actions are taken;
- Maintain signal quality performance standards in line with regulatory requirements and system user’s expectations.

Control/Security: Control network activity to ensure sound and secure operations. Examples of typical work activities include:

- Secure network resources from inappropriate access;
- Maintain network security and integrity of data on the network;
- Implement disaster recovery procedures;
- Assure compliance with industry regulations (e.g., FCC and NEC).

Core Skills

Network Analysis and Management

Knowledge of communication transmission technologies (e.g., circuit and packet switching, satellite uplink, etc.).

Knowledge of network traffic and performance parameters to interpret variance and service impact to users.

Ability to analyze network/systems problems using appropriate test structures and related diagnostics (e.g., protocol analyzer, T-bit analyzer, spectrum analyzer, etc.).

Ability to operate applicable network equipment and application software programs.

Understanding of information distribution systems access and security systems (e.g., E-mail, digital voice processing equipment, electronic media distribution systems, etc.).

Ability to resolve impaired service conflicts.

Understanding of connectivity, system integration, and traffic issues.

Ability to determine most cost-effective structure and design for network.
Core Function—Network Administration and Support

Typical Activities

Network Administration: Administration of assigned network to optimize services and access to telecommunications and related networks. Examples of typical work activities include:

- Install, configure, maintain, and support network equipment and network operating systems (e.g., routers, bridges, servers, switches, and/or port selectors);
- Troubleshoot network problems, referring to vendor or technicians as appropriate;
- Provide (or order) network connectivity, ensuring appropriate integration of data, voice, and video networks;
- Conduct network tests;
- Recommend and modify network configuration to improve efficiency and cost effectiveness;
- Recommend network database policies and procedures;
- Assist in monitoring network database integrity.

Network Maintenance and Support: Ensure that the installed network is fully operational and appropriately integrated for access with other systems. Examples of typical work activities include:

- Install, upgrade, and maintain network software and related hardware and maintain documentation;
- Oversee compliance with industry and campus standards;
- Determine appropriate transmission media requirements for voice, data, and video applications;
- Act as a liaison with product vendors;
- Configure network and/or third party software application programs to provide improved response time, quality, or cost effectiveness;
- Customize or develop new reports from network control or billing databases;
- Perform file conversions and system backups;
- Develop interface programs;
- Ensure adequate inventory of network supplies.

Core Skills

Network Administration and Support

General knowledge of telecommunication network design, topology, systems interface, and protocols to meet support requirements.

Understanding of telephone switching technology support, data/video communications, and transmission media and their performance capabilities.

Knowledge of telecommunications and video industry standards.

Ability to use specified software application packages and query, utility, or report generation features and database systems.

Ability to translate user-defined requirements into telecommunication specifications and features.
Ability to install network subsystems and to modify local, customized software programs/features (e.g., voice mail, electronic mail, and telecom features).
Ability to interpret variance reports and resolve connectivity, traffic, and congestion problems as they impact services provided.
Information Technology Series

Equipment/Systems Specialist

Classification Overview

Positions in this classification are primarily responsible at varying levels for technical system support and capabilities, including the installation, maintenance, modification, and repair of equipment, products, and/or systems. Technical systems may be electromechanical or computerized (e.g., computer and peripheral equipment, telecommunications and network devices, audio and video equipment, and related transmission equipment and systems) and typically are integrated with or interconnected to larger systems. Positions in this classification may also have a role as a technical/hardware user support representative.

Positions in this classification typically reside in the computer center, telecommunications, media, administrative or academic departments, or extended education/university television. Common working titles include Electronic Technician, Electromechanical Technician, Equipment Repair Technician, Computer Technician, etc.

Entry Qualifications

To enter this classification, a basic foundation of knowledge and skills in technical systems and equipment is a prerequisite. This foundation would normally be obtained through an associate of arts degree in electronics, telecommunications, or industrial technology or equivalent education, training, and/or directly related experience. Foundation knowledge and skills for the Equipment/Systems Specialist include a basic knowledge of electronic (digital or analog) theories, mechanical design, and understanding of the operation and use of the equipment and systems commonly utilized in the assigned area.

Further progress within this classification is based on department need and work assignments requiring higher levels of skills and knowledge. Reference the Information Technology Series Introduction for level definitions.

Core Functions

The core functions for the Equipment/Systems Specialist are:

- Equipment Services
- Systems Integration

These core functions represent major categories of work within the Equipment/Systems Specialist classification. Typical activities and core skills for each core function cited below are illustrative; campus assignments may vary.
Core Function—Equipment Services

**Typical Activities**

**Hardware Operation and Maintenance:** Ensure that equipment and systems in assigned areas are in good condition and are properly maintained. Examples of typical work activities include:

- Perform preventative maintenance, equipment alignment and calibration;
- Replace or repair worn parts;
- Evaluate replacement alternatives;
- Perform equipment and system set up (including necessary interconnections) and performance monitoring;
- Maintain and repair media/video production equipment systems and facilities;
- Provide technical set-up of teleconferencing systems;
- Maintain technical shop facilities, inventory, repair logs and/or work order systems;
- Maintain licensing agreements and operations manuals.

**Field Service:** Service user equipment or systems quickly and efficiently with minimal disruption. Examples of typical work activities include:

- Diagnose equipment and/or system malfunctions and perform corrective action;
- Use of appropriate test structures;
- Pre-test and configure equipment and/or systems following service procedures;
- Research system/equipment malfunction history;
- Service microwave and/or satellite transmission sites;
- Analyze and adjust equipment to restore proper operation;
- Coordinate repair or maintenance through vendor resources;
- Repair voice and data circuit problems.

**Prototype Development:** Develop prototype equipment and/or systems to meet specialized user requirements. Examples of typical work activities include:

- Design and fabricate nonstandard equipment or subsystems;
- Redesign of systems at the component level;
- Design test boards;
- Retrofit system/equipment;
- Construct temporary systems.

Core Skills

**Equipment Services**

- Ability to differentiate between hardware and software problems.
- Ability and manual dexterity to assemble components and parts, and/or cable or wiring, by reading and interpreting reference manuals and schematics.
- Familiarity with materials, methods, and techniques used in the completion of equipment service assignments. Adept at using required tools, including computer systems, to accomplish tasks.
Knowledge of applicable industry and safety codes and/or standards that apply to work environment and equipment.
May possess specialized vendor training or licenses as required.
General knowledge of digital and analog theories (or related technical areas) and ability to apply these in resolving equipment repair and system performance problems.
Ability to use a variety of test equipment and diagnostic software to ensure system operation.
Machine tooling capability and/or ability to work at the component level.

Core Function—Systems Integration

Typical Activities

Physical Installation: Perform the installation of equipment and/or systems in a timely manner ensuring appropriate installation and connections. Examples of typical work activities include:

- Assist in planning and implementing installations and/or facility layouts;
- Install and test PC/workstations, printers and other peripherals;
- Determine routing and placement of cabling, wiring, etc.;
- Perform physical installation (e.g., wiring, cables, microwave/satellite communications modules, components, and sound systems and necessary interface cards);
- Document and/or log equipment/system installations and/or modifications;
- Act as vendor liaison;
- Move or relocate equipment;
- Plan, estimate, and order equipment and materials necessary for project completion;
- Construct multimedia production sets (e.g., lighting systems, monitors, displays);
- Ensure compliance with building and/or safety codes.

System Configuration: Configure systems to optimize operations, meet connectivity needs and future expansion requirements. Examples of typical work activities include:

- Recommend equipment/system configuration and interface alternatives;
- Participate in system enhancement and equipment evaluation and planning;
- Implement system/equipment upgrade migration and required modifications;
- Prepare equipment purchase recommendations and cost justification;
- Reconfigure and test newly installed systems;
- Alert network staff to network failures;
- Prepare and maintain documentation on systems and networks.

System Software: Provide PC/workstation support for hardware and systems software interfaces. Examples of typical work activities include:

- Install and configure standard operating and network systems and integrate them with related systems;
- Ensure system integrity between hardware and operating systems.
Information Technology Series

- Troubleshoot errors in system operations and related networks;
- Perform software and hardware modifications;
- Maintain and support hardware and software for stand-alone systems;
- Perform local area network (LAN) and system backups;
- May administer and maintain a LAN, file server, and/or network operating system.

Core Skills
Systems Integration

Ability to physically install and configure equipment, connections, wiring and cable as required working from layout or plans.

Ability to read and understand technical manuals and related documentation for equipment/systems that interconnect with or interface to installed equipment base.

Basic knowledge and ability to use operating system features and network protocols as applicable to equipment area. Able to use common package application programs.

Basic knowledge of programming concepts; has the technical understanding to work with vendors and/or subject experts in systems programming to isolate and solve equipment related problems.

Ability to track system performance and ensure system/equipment reliability using knowledge of system/equipment operation thresholds and optimal performance levels.

Ability to utilize specialized software utilities and features in assigned equipment, and install and configure standard software.

Ability to create system layout and develop operating procedures.

Familiar with cable and wiring standards as defined by the institution and industry standards and configure systems to meet requirements.

Ability to prepare network diagrams or system schematics with an understanding of component functionality.
Classification Overview

Positions in this classification are primarily responsible at varying levels for the effective operation, monitoring, and control of multysystem information processing or transmission equipment. Types of systems and equipment supported may include mainframe consoles, on-line terminals, peripheral equipment (e.g., tape drives, printers), micro/multi computers, super computers, network devices, file servers, telecommunication systems and devices, and media production and broadcast equipment.

Positions in this classification typically reside in central computing, telecommunications, network, or media operations. In some cases, this classification may be found in administrative or academic departments where complex, integrated systems have been developed independent of centralized operations requiring dedicated technical operations support staff. Typical titles include: Computer Operator, Network Operator, TV Production Operator, Telecom Operator and Computer Operations Analyst.

Entry Qualifications

To enter this classification, a basic foundation of knowledge and skills in information processing and/or transmission equipment and the ability to read and interpret descriptive and quantitative information (e.g., technical manuals, equipment diagrams, and specifications) is required. In addition, a basic knowledge of mathematics and written and oral communication skills is necessary to communicate and document operational information. This foundation would normally be obtained through a general high school education and limited experience in related technical operations. Directly related coursework applicable to the position’s area of technology may be preferred.

Further progress within this classification is based on department need and work assignments requiring higher levels of skills and knowledge. Based on position requirements, it may be appropriate to obtain formal educational or theoretical background in industrial technology, communication, electronics, or related technical fields. Refer to the Information Technology Series Introduction for level definitions.

Core Functions

The core functions for the Operations Specialist are:

- Technical Operations
- Operations Support
- Operations Analysis

These core functions represent major categories of work within the Operations Specialist classification. Typical activities and core skills for each core function cited below are illustrative; campus assignments may vary.
Core Function—Technical Operations

Typical Activities

**Multi-System Operation:** Ensure effective operation of assigned systems and equipment. Examples of typical work activities include:

- Operate multiple systems (e.g., mainframe consoles, peripheral equipment, telecommunication devices, broadcast equipment), and/or operate and monitor network devices (e.g., multiplexors and router, file and print servers, port selectors, and other communication devices), and/or operate media origination and transmission or broadcast equipment (e.g., video recorders, cameras, switches, modulators, transmitters);
- Verify systems and network availability and respond to error messages;
- Calibrate, adjust, and align equipment;
- Perform backup/recovery procedures;
- Reset malfunctioning lines or connections;
- Ensure that operations documentation and procedures are accurate and current, and maintain event logs.

**System Maintenance and Administration:** Ensure that all equipment or system components are adequately maintained. Examples of typical work activities include:

- Conduct preventative maintenance and cleaning of equipment and facilities;
- Perform minor or simple repairs;
- Analyze system or equipment problems and request repair service as required;
- Determine points of equipment and/or program failure and work with analyst or vendors to resolve problems;
- Maintain user accounts;
- Update system messages;
- Maintain line location records;
- Assemble support facilities.

**Security:** Ensure that physical equipment, systems, and data or products are secured and undamaged. Examples of typical work activities include:

- Monitor authorization levels for system access and/or equipment usage;
- Develop or recommend department security policies and procedures;
- Monitor environmental conditions;
- Enforce physical security of equipment and materials;
- Administer alarm systems.

*Core Skills
Technical Operations*

Knowledge of applicable system and related technical terminology, applications, features, and/or services.

Ability to interpret applicable reference manuals and apply department procedures.
Understanding of procedures for setting up and operating assigned systems and/or equipment.

Ability to perform regular preventative maintenance and service on assigned equipment/systems, including ability to identify, solve, and prevent problems.

Ability to use basic diagnostic and test equipment and interpret and document operations-related malfunctions.

Ability to interpret system status reports and messages.

Familiarity with network and operating system requirements.

Ability to monitor and adjust environmental and security systems.

Core Function—Operations Support

**Typical Activities**

**Scheduling:** Ensure that scheduling of jobs/orders is prioritized to best meet user requests. Examples of typical work activities include:

- Schedule computer jobs and maintain production run schedules;
- Provide for network access and timesharing;
- Prioritize or rearrange job/work order sequence;
- Communicate with users on scheduling requirements and job status;
- Determine work flow of equipment or systems installation requests;
- Determine videotape channel assignments;
- Provide electronic or physical distribution of instructional media to classrooms.

**Production/Quality Control:** Ensure quality control of system or equipment output. Examples of typical work activities include:

- Maintain quality assurance using appropriate test and system monitoring procedures;
- Identify system aborts and/or equipment failure and take corrective action;
- Ensure integrity of production files and output;
- Modify production procedures as needed;
- Ensure integrity of on-line systems (e.g., video broadcast signals, on-line data files).

**Material Maintenance:** Ensure materials, inventory, records, storage, and distribution systems are properly maintained. Examples of typical work activities include:

- Plan and implement methods for storage, retrieval, and processing of applicable materials and inventories;
- Initialize and prepare storage media (e.g., tapes, cartridges, film);
- Maintain library and archival storage;
- Initiate orders;
- Ensure inventory records are up to date and accurate;
- Issue equipment loans to faculty and students;
- Provide video copying services.
Core Skills

- Knowledge of production job flow and required inputs and outputs.
- Ability to interpret, communicate, and act on scheduled job/work orders.
- Ability to maintain work order and inventory record systems.
- Ability to run the material and/or equipment distribution function.
- Ability to develop schedules for materials and personnel resources based on estimates of resource allocations.
- Demonstrated competence in service and/or product delivery.
- Ability to manipulate jobs, queues, timeshare sessions, or electronic distribution to meet client needs.
- Ability to interpret equipment/system output, detect errors, and take corrective action.
- Ability to use applicable procedural and/or application software.
- Demonstrated ability to work and communicate with users to effectively identify and efficiently meet their requirements.

Core Function—Operations Analysis

Typical Activities

Performance Analysis: Analyze systems and operations and recommend changes to maximize efficiency. Examples of typical work activities include:

- Monitor overall system or operation performance, utilization, and response time;
- Conduct remote diagnostics;
- Determine overall production turnaround time to optimize resources;
- Evaluate events log to identify potential problems;
- Prepare troubleshooting checklists and procedures for use in resolving or correcting operating problems;
- Consult with systems and technical staff regarding operating requirements and problems;
- Analyze ongoing transmission quality and signal levels;
- Track traffic and response time statistics.

Application/Database Support: Optimize system and equipment features fully utilizing programmatic and database functions. Examples of typical work activities include:

- Select programmatic parameters (e.g., define system options most suitable to operations); recommend or program new features, services, or procedures;
- Develop command level applications and program formats;
- Install single utilities;
- Monitor application software;
- Ensure database integrity and produce system reports.
Core Skills

*Operations Analysis*

Knowledge of operating system and/or equipment features and ability to take appropriate action in response to system failures or inaccessibility.

Demonstrated ability to perform remote diagnostics and ability to perform analysis and tuning of system.

Ability to apply statistical techniques and simulation in measuring and resolving performance problems.

Ability to use performance monitoring software and interpret results; basic knowledge of database management software.

Ability to distinguish operational performance trends and recommend modifications to improve performance.

Demonstrated ability to schedule and monitor projects and coordinate with others to achieve desired outcomes.