# C-ID Descriptor
# Systems and Network Administration

## Descriptor Details

- **Descriptor Title**: Systems and Network Administration
- **C-ID Number**: 155
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## General Description

This course will provide a student with the knowledge and skills required to maintain reliable computer systems in a multi-user environment. The student will learn about system hardware, software, storage, best practices, disaster recovery, and troubleshooting, with additional coverage of virtualization, cloud technologies, security, and scalability.

## Prerequisites

No information provided

## Corequisites

No information provided

## Advisories

Business Information Systems/Computer Information Systems (ITIS 120)

This course should help to prepare students for the current version of CompTIA's Server+ certification exam.

## Content

1. Server Architecture
   a. Purpose and function of server form factors.
   b. Blade enclosure.
   c. Install, configure, and maintain server components.
   d. Power and cooling components.
   e. Cloud computing data centers.

2. Server Administration
   a. Install and configure server operating systems.
   b. Server roles and requirements.
   c. Access and control methods to administer a server.
   d. Server maintenance techniques.
   e. Asset management and documentation.
   f. Purpose and operation of virtualization components.
   g. Cloud and cloud compute resources .

3. Storage
   a. Primary storage devices.
   b. Redundant Array of Independent Disks (RAID) best practices.
   c. Storage technologies.
   d. Storage capacity and plan for future growth.

4. Security
   1. Physical security methods and concepts.
   2. Server hardening techniques.
   3. Network security systems and protocols.
   4. Logical access control methods.
   5. Data security methods and secure storage disposal.
   6. Environmental controls and techniques.

5. Networking
   a. Internet Protocol (IP) addressing and network infrastructure services.
   b. Ports and protocols.
   c. Proper cable management procedures.

6. Disaster Recovery
   a. Principles.
   b. Backup techniques.
   c. Troubleshooting theory and methodologies.
   d. Hardware troubleshooting tools and methods.
   e. Software troubleshooting software problems.

f. Network troubleshooting tools and methods.

g. Storage troubleshooting tools and methods.

h. Security troubleshooting tools and methods.

## Lab Activities

No information provided

## Objectives

*At the conclusion of this course, the student should be able to:*

1. Understand, configure and support server components on premise and in the cloud.
2. Manage and maintain servers, including operating system (OS) configuration, access control and virtualization.
3. Implement storage technologies, including capacity and growth planning.
4. Apply physical and network data security techniques.
5. Configure systems for network connectivity, including physical and logical elements.
6. Understand disaster recovery and implement backup techniques.
7. Manage an organization's computers and users using directory services, such as Active Directory and OpenLDAP.
8. Diagnose and resolve system hardware, software, connectivity, storage and security issues.
9. Efficiently implement cloud computing and related technologies.

## Evaluation Methods

Evaluation will include hands-on projects and a combination of examinations, presentations, discussions, or problem-solving assignments.

## Textbooks

- McMillan, Troy, *CompTIA SERVER+ SK0-004 Certification Study Guide*, Sybex
- Microsoft Corporation, *Installing and Configuring Windows Server 2016: Exam 70-740 (Microsoft Official Academic Course Series)*

- Microsoft Corporation *Installation, Storage, and Compute with Windows Server 2016 (Microsoft Official Academic Course Series)*, Wiley
- Eckert, J. & Schitka, M. J., *Linux+ Guide to Linux Certification*, including the Lab Manual by Sawicki, E.
- Limoncelli, T., Hogan C. & Chalup, S., *The Practice of System and Network Administration*, Addison-Wesley Professional