

Core Areas for Entry Test

MS Computing Programs · Competency Framework

7 areas · 80+ topics · 100% coverage

Computer Networks & Cloud infrastructure & protocols

WEIGHT 10%

Data Communication

Computer Networks

Data Link Layer

Network Layer

Transport Layer

Application Layer

Wireless Networks

Cloud Computing

Network Security (Networks Perspective)

Next Generation Networks

Programming C++ / Java / Python

WEIGHT 10%

Programming Fundamentals

Data Types & Variables

Operators & Expressions

Control Structures

Functions / Methods

Input / Output Handling

Strings & Text Processing

Arrays & Collections

Object-Oriented Programming (OOP)

Memory Management Concepts

Exception & Error Handling

Modules, Packages & Libraries

Advanced Programming Concepts

Concurrency & Parallelism (Intro)

Debugging, Testing & Optimization

Software Development Practices

Data Structures & Algorithms foundations & optimization

WEIGHT 10%

Foundations of DSA

Linear Data Structures

Non-Linear Data Structures

Searching Algorithms

Sorting Algorithms

Hashing

Tree Algorithms

Graph Algorithms

Algorithm Design Techniques

Advanced Data Structures

String Algorithms

Complexity & Optimization

Operating Systems

core concepts

WEIGHT 5%

Introduction to Operating Systems

Operating System Structures

Process Management

CPU Scheduling

Thread Management

Cyber Security

principles & practice

WEIGHT 5%

Introduction to Cyber Security

Security Fundamentals & Principles

Cryptography Basics

Network Security

Operating System Security

Web Application Security

Malware & Attack Techniques

Authentication & Access Control

Secure Software Development

Wireless & Mobile Security

Cloud & Virtualization Security

Digital Forensics

Incident Response & Management

Security Monitoring & Auditing

Cyber Laws & Ethics

Emerging Trends in Cyber Security

Databases

design, SQL, & modern systems

WEIGHT 10%

Introduction to Database Systems

Database System Architecture

Data Models

Relational Database Concepts

Relational Algebra & Calculus

Structured Query Language (SQL)

Advanced SQL

Database Design & Normalization

Transaction Management

Concurrency Control

Recovery Management

Indexing & File Organization

Query Processing & Optimization

Database Security

Distributed Databases

NoSQL & Modern Databases

Data Warehousing & Data Mining (Intro)

Problem Solving & Analytical Skills reasoning & application

WEIGHT 20%

Introduction to Problem Solving

Problem Understanding & Analysis

Logical Reasoning Fundamentals

Algorithms & Flow Control

Data Representation & Abstraction

Pattern Recognition & Generalization

Mathematical & Quantitative Reasoning

Algorithmic Thinking

Critical Thinking & Decision Making

Debugging & Error Analysis

Complexity & Efficiency Awareness

Problem Solving Using Programming

Data-Driven Problem Solving

Creative & Innovative Thinking

Real-World Problem Solving

Communication & Documentation of Solutions

7 core areas · 80+ topics · structured reference

MS Computing · entry test framework

COMPETENCY FRAMEWORK