

**MBA Research Comparison of Standards**  
**BPA: Management Information Systems Standards**  
 compared to MBA Research Standards

**Computer Network Technology (S|PS) (300)**

Business Professionals of America	MBA Research Standards	LAP
Demonstrate knowledge of OSI model		
Demonstrate knowledge of IPv4		
Demonstrate knowledge of network adapters		
Demonstrate knowledge of network cabling		
Demonstrate knowledge of bridges and routers		
Demonstrate knowledge of network connectivity		
Demonstrate knowledge of network troubleshooting		
Demonstrate knowledge of network protocols		
Demonstrate knowledge of TCP/IP subnetting and routing		
Demonstrate knowledge of DNS		
Demonstrate knowledge of WINS		
Demonstrate knowledge of DHCP		
Demonstrate knowledge of IPv6		
Demonstrate knowledge of troubleshooting tools		
Remote access protocols		
Demonstrate knowledge of network operating systems		
Demonstrate knowledge of network clients		

## Computer Network Technology (S | PS) (300) (cont'd)

Business Professionals of America	MBA Research Standards	LAP
Demonstrate knowledge of directory services		
Demonstrate knowledge of administrative utilities		

## PC Servicing & Troubleshooting (S|PS) (305)

Business Professionals of America	MBA Research Standards	LAP
Identify PC components		
Add and remove components	NF:091 Establish specifications for selecting hardware/software systems	
Demonstrate knowledge of system resources	KM:013 Analyze content management structures (e.g., taxonomies, metadata, retention)	
Utilize peripheral ports		
Demonstrate knowledge of IDE, SATA. & SCSI devices		
Utilize peripheral devices		
Troubleshoot problems		
Perform preventative maintenance and safety	NF:091 Establish specifications for selecting hardware/software systems OP:064 Maintain data security	
Demonstrate knowledge of RAM characteristics		
Demonstrate knowledge of system board characteristics		
Demonstrate knowledge of printer characteristics	OP:199 Operate printer	
Demonstrate knowledge of basic networking concepts	NF:086 Describe the scope of the Internet	
Demonstrate knowledge of OS functions and OS upgrades		
Demonstrate knowledge of disk/file management	KM:015 Maintain knowledge management systems	
Demonstrate knowledge of Windows installation		
Demonstrate booting procedures		
Configure device drivers		
Demonstrate knowledge of error codes		
Demonstrate knowledge of Internet components	NF:086 Describe the scope of the Internet	

## PC Servicing & Troubleshooting (S|PS) (305) (cont'd)

Business Professionals of America	MBA Research Standards	LAP
Replace system components	NF:091 Establish specifications for selecting hardware/software systems	

## Server Administration Using Microsoft (S|PS) (310)

Business Professionals of America	MBA Research Standards	LAP
Troubleshooting Windows 7, Windows 8, Windows 10, Windows Server 2008, 2008 R2, Windows Server 2012 operating systems installation		
Monitor, manage, and troubleshoot access to files and folders	KM:003 Explain the use of technology in knowledge management	
Manage and troubleshoot access to shared folders		
Manage printers and print jobs	OP:199 Operate printer	
Configure and manage file systems	KM:003 Explain the use of technology in knowledge management	
Monitor and optimize system performance and reliability		
Recover system state data and user data	OP:209 Follow procedures used to restart and recover from situations	
Configure and troubleshoot the desktop environment		
Encrypt data on a hard disk by using Encrypting File Systems (EFS)		
Monitor, configure, troubleshoot, and control access to websites		
Configure and troubleshoot hardware devices and drivers		
Configure and troubleshoot Windows Network connections		
Configure, monitor, and troubleshoot remote access		
Configure inbound connections		
Implement, configure, manage, and troubleshoot auditing, local security policy, and policies in a Windows environment		

## Network Administration Using Cisco (S|PS) (315)

Business Professionals of America	MBA Research Standards	LAP
Demonstrate knowledge of OSI model		
Demonstrate knowledge of IPv4		
Demonstrate knowledge of router configuration		
Demonstrate knowledge of network management		
Demonstrate knowledge of LAN/WAN design		
Demonstrate knowledge of LAN/WAN security		
Demonstrate knowledge of network topologies		
Demonstrate knowledge of LAN/WAN routed and routing protocols		
Demonstrate knowledge of network components		
Demonstrate knowledge of IPv6		
Demonstrate knowledge of LAN/WAN switching theory and VLANS		

## Computer Security (S|PS) (320)

Business Professionals of America	MBA Research Standards	LAP
Demonstrate knowledge of security threats	OP:064 Maintain data security	
Understand infrastructure security	OP:064 Maintain data security	
Demonstrate knowledge of cryptography, access control, and authentication	OP:064 Maintain data security	
Demonstrate security tactics to prevent against external attack	OP:064 Maintain data security OP:105 Develop strategies to protect digital data OP:206 Adhere to safety and security policies	
Demonstrate knowledge of operational and organization security	OP:064 Maintain data security OP:206 Adhere to safety and security policies	
Identify security threats	OP:064 Maintain data security	
Demonstrate hardening internal Windows and Linux systems and services		
Demonstrate knowledge of TCP/IP		
Demonstrate hardening Internet work devices and services		
Demonstrate knowledge of network defense fundamentals		
Create security policies		
Perform a risk analysis	EC:011 Determine factors affecting business risk SM:075 Explain the nature of risk management	LAP-EC-003 LAP-SM-075
Demonstrate knowledge of biometrics		
Demonstrate knowledge of cryptography		
Create router and access control lists		
Demonstrate knowledge of internet security issues		
Manage certificates		
Monitor security infrastructure		

## Network Design Team (S|PS) (325)

Business Professionals of America	MBA Research Standards	LAP
Apply technical skills in the network design		
Evaluate and delegate responsibilities needed to perform required tasks	HR:386 Delegate work to others	
Utilize problem solving techniques	PD:077 Demonstrate problem-solving skills	LAP-PD-077
Demonstrate teamwork skills needed to function in a business setting	EI:045 Participate as a team member	LAP-EI-045
Analyze existing and planned network systems management		
Diagram the completed network		
Analyze end-user work needs		
Plan for placement and management of resources	SM:064 Explain managerial considerations in organizing	LAP-SM-064
Plan for decentralized resources or centralized resources		
Incorporate redundancy into the network		
Design a remote access solution		
Analyze network infrastructure, protocols, and hosts		
Estimate upgrade cost based on existing environment		
Incorporate future expansion into the network	NF:091 Establish specifications for selecting hardware/software systems	
Demonstrate an ability to meet software requirements		
Demonstrate a knowledge of VPNs		
Identify the company's tolerance for risk	RM:094 Assess business risks	
Analyze technical support structure		
Design a routing strategy		
Develop multiple recommendations to scenarios		



## Network Design Team (S|PS) (325) (cont'd)

Business Professionals of America	MBA Research Standards	LAP
Produce business reports	IM:390 Prepare written reports for decision-making CO:094 Prepare simple written reports	

## Visual Basic/C# Programming (S|PS) (330)

Business Professionals of America	MBA Research Standards	LAP
Demonstrate knowledge of object-oriented concepts and techniques		
Demonstrate understanding of general computer concepts and computer language	NF:0841 Discuss principles of computer systems NF:254 Explain the use of computer systems in problem solving (e.g., computer programs, scripts, algorithms, data structure)	
Use structured design techniques, algorithms, and object-oriented concepts		
Create a program/GUI using variables, looping, controls, logical operations, calculations, classes, totals, sequence, data structures, selection, and I/O operations		

## C++ Programming (S | PS) (335)

Business Professionals of America	MBA Research Standards	LAP
Demonstrate understanding of general programming concepts and C++ computer language		
Use programming skills for proper development of a C++ computer program		
Demonstrate knowledge of C++ computer language		
Implement program logic (algorithms, structured design)		
Use structural design techniques and object-oriented concepts		
Create a C++ program using calculations, totals, selection, logical operators, classes, sequential file access, I/O operations, loops, methods, arrays, and data structures (linked lists, structures, etc.)		

## Java Programming (S|PS) (340)

Business Professionals of America	MBA Research Standards	LAP
Demonstrate knowledge of Java computer language		
Use structured design techniques and object-oriented concepts		
Apply programming concepts such as classes, operators, loops, control breaks, sequential file access, data structures, error handling, and I/O operations		
Understand and implement UML diagrams		
Demonstrate knowledge of error handling techniques		

## SQL Database Fundamentals (S|PS) (345)

Business Professionals of America	MBA Research Standards	LAP
Identify various types of databases	NF:009 Demonstrate basic database applications NF:083 Explain the role of information systems	
Create and employ tables, rows, columns	NF:009 Demonstrate basic database applications	
Create and understand roll of keys	NF:124 Demonstrate advanced database applications	
Understand and create indexes	NF:124 Demonstrate advanced database applications	
Identify relationship types	NF:125 Mine databases for information	
Define relational integrity		
Understand and employ the role of constraints		
Determine data relationships		
Identify normal forms and normalize to 3NF		
Understand and employ SQL syntax		
Understand the importance of data types and when to use them	NF:125 Mine databases for information	
Understand SQ: Server schemas and data dictionaries		
Understand/use DDL commands such as CREATE, DROP, ALTER database		
Add primary and foreign key constraints		
Understand/use DML commands such as INSERT, SELECT, UPDATE, DELETE		
Select data from multiple tables using the WHERE clause		
Use different JOIN types		
Use SQL UNION and INTERSECT		
Use aggregate and scalar functions		
Create and use views		

## SQL Database Fundamentals (S|PS) (345) (cont'd)

Business Professionals of America	MBA Research Standards	LAP
Understand database security concepts	OP:064 Maintain data security	
Understand how to back up databases		
Understand the use of Stored Procedures		

## Linux Operating System Fundamentals-Pilot (S|PS) (350)

Business Professionals of America	MBA Research Standards	LAP
Use Linux command line utilities		
Configure and use Linux shell environments		
Manage Linux system startup/shutdown, system processes		
Use Linux package management		
Manage and storage devices in Linux formats		
Manage the Linux file system, configure networking and printing		
Manage users and groups in Linux		
Configure, monitor and manage system access in Linux		

## Computer Programming Concepts—Open Event (S|PS) (390)

Business Professionals of America	MBA Research Standards	LAP
Demonstrate understanding of general programming concepts		
Demonstrate knowledge of computer languages		
Demonstrate knowledge of program logic (algorithms, structured design)		
Demonstrate knowledge of structural design techniques and object-oriented concepts		
Demonstrate knowledge of selection, logical operators, classes, sequential file access, I/O operations, data structures, and loops		
Demonstrate knowledge of the software development process		
Demonstrate knowledge of software design tools (UML, flowcharts, pseudo code)		
Demonstrate knowledge of structured query language		
Demonstrate knowledge of strings and arrays		



## Information Technology Concepts—Open Event (S|PS) (391)

Business Professionals of America	MBA Research Standards	LAP
Demonstrate knowledge of information technology concepts	NF:083 Explain the role of information systems	
Demonstrate knowledge of programming language evolution		
Describe the history and evolution of computers		
Apply skills in programming language evolution		
Identify hardware and software basics	NF:012 Determine venture’s information technology needs	
Demonstrate understanding of graphics concepts		
Identify components related to printers	OP:199 Operate printer	
Demonstrate understanding of operating systems	NF:085 Use basic operating systems	
Demonstrate understanding of security, law, and ethics	BL:001 Describe legal issues affecting businesses EI:073 Apply ethics to digital communications NF:111 Explain the role of ethics in information management OP:441 Explain information privacy, security, and confidentiality considerations in business	
Describe ergonomics and environmental concerns	OP:207 Apply ergonomic techniques to technology tasks	
Demonstrate basic understanding of network concepts		