Colorado CTE

Business Information Technology (2015): Grades 9, 10, 11, 12, Higher Education

Adopted 2015

Develop the ability to analyze, synthesize, and evaluate situations at home, school, or work, and then apply technology to solve problems and complete tasks efficiently and effectively. MAIT.01

01. **Impact on Society: Assess the impact of information technology in a global society.** MAIT.01.01
    a. Analyze how developments in information technology affect the supply/demand characteristics of the job market. MAIT.01.01.A
    b. Examine how information technology changes the breadth and level of worker responsibilities. MAIT.01.01.B
    c. Assess how information technology changes the manner in which training is offered and implemented. MAIT.01.01.C
    d. Analyze and compare society's influence on information technology and information technology's influence on society. MAIT.01.01.D

02. **Hardware: Describe current and emerging hardware; configure, install, and upgrade hardware; diagnose problems; and repair hardware.** MAIT.01.02
    a. Remove, upgrade, store, and install computer hardware and supportive software. MAIT.01.02.A
    b. Repair computer hardware and solve supportive software problems. MAIT.01.02.B
    c. Troubleshoot advanced hardware and supportive software problems. MAIT.01.02.C
    d. Evaluate and recommend hardware to solve specific problems. MAIT.01.02.D
    e. Analyze cost benefit and life cycle of hardware. MAIT.01.02.E
    f. Evaluate hardware vendors, warranties, and purchasing options. MAIT.01.02.F

03. **Operating Systems and Utilities: Identify, evaluate, select, install, use, upgrade, customize, and diagnose and solve problems with various types of operating systems and utilities.** MAIT.01.03
    a. Compare and contrast the functions, features, and limitations of different operating systems and utilities (e.g., open source, mobile, and proprietary operating systems). MAIT.01.03.A

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b. Select operating systems and utilities appropriate for specific hardware, software, and tasks. MAIT.01.03.B

c. Install and customize operating systems and utilities. MAIT.01.03.C

d. Diagnose and repair installations and operational problems of operating systems and utilities. MAIT.01.03.D

e. Identify and use appropriate help resources (e.g., help desks, online help, and manuals) to install, configure, upgrade, diagnose, and repair operating system and utilities. MAIT.01.03.E

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04. Input Technologies: Use various input technologies to enter and manipulate information appropriately. MAIT.01.04

a. Develop proper input technologies (e.g. keyboarding, 10-key touch pad, scanning, speech recognition, hand typing, digital inking, digital cameras, student response systems, and the use of a touch screen, mouse, or stylus). MAIT.01.04.A

b. Select appropriate input technology to optimize performance. MAIT.01.04.B

c. Apply a variety of input technologies to maximize productivity. MAIT.01.04.C

d. Optimize academic and workplace performance using a variety of input technologies. MAIT.01.04.D

e. Compose documents using a variety of input technologies. MAIT.01.04.E

f. Explore translation and digital language input tools and resources for effective global communication. MAIT.01.04.F

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05. Productivity Software: Identify, evaluate, select, install, use, upgrade, and customize productivity software; diagnose and solve software problems. MAIT.01.05

a. Research advance software functions using knowledge-based tools (e.g., user communities, RSS feeds, tech support). MAIT.01.05.A

b. Use the collaborative features of productivity software to accomplish organizational tasks. MAIT.01.05.B

c. Diagnose and solve problems resulting from productivity software's installation and use. MAIT.01.05.C

d. Demonstrate the transferability of skills between productivity software applications. MAIT.01.05.D

e. Select and integrate productivity software products appropriate for various computer platforms. MAIT.01.05.E

f. Identify, evaluate, and select software specific to an organizational function and/or industry. MAIT.01.05.F

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06. Interactive Multimedia: Use multimedia software to create media rich projects. MAIT.01.06

a. Identify and select appropriate multimedia file formats and properties (e.g., plug-ins, codes, compression). MAIT.01.06.A

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b. Create multimedia content and prepare it for delivery (e.g. compressions, resolution). MAIT.01.06.B

c. Configure and build multimedia delivery tools (e.g. blogs, podcasting, webcasting). MAIT.01.06.C

d. Analyze multimedia delivery tools and their impact on business functions. MAIT.01.06.D

e. Select and integrate multimedia software products appropriate for various computer platforms. MAIT.01.06.E

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07. Web Development and Design: Design, develop text, implement, update, and evaluate web solutions. MAIT.01.07

a. Identify client and target needs and create content that is readable, accessible, searchable, and sticky. MAIT.01.07.A

b. Research and apply accessibility guidelines and laws affecting website design and research and analyze hosting and domain solutions. MAIT.01.07.B

c. Design, develop, and deliver advanced web content and applications using authoring tools. MAIT.01.07.C

d. Build a comprehensive website using collaborative tools. MAIT.01.07.D

e. Design e-business and e-commerce solutions. MAIT.01.07.E

f. Troubleshoot advanced server and site dilemmas. MAIT.01.07.F

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08. Information Retrieval and Synthesis: Gather, evaluate, use, cite, and disseminate information from technology sources. MAIT.01.08

a. Analyze the effectiveness of online information resources to support collaborative tasks, research, publications, communications and increased productivity. MAIT.01.08.A

b. Synthesize information from data sources to formulate decisions. MAIT.01.08.B

c. Use mathematical and/or statistical methods to manipulate data into useful information. MAIT.01.08.C

d. Present analyzed information in a meaningful format. MAIT.01.08.D

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09. Database Management Systems: Use, plan, develop, and maintain database management systems. MAIT.01.09

a. Explain the nature and interrelationships of bytes, field, records, and databases. MAIT.01.09.A

b. Use database application development tools to create information systems to solve organization problems. MAIT.01.09.B

c. Identify and select logical and physical structures appropriate for specific applications. MAIT.01.09.C

d. Explore industry standards for cross-platform interface development (e.g. XML, ASP, PHP). MAIT.01.09.D

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e. Develop retention schedules that adhere to organization policies and federal and state law. MAIT.01.09.E

f. Design and implement a database server solution. MAIT.01.09.F

g. Use data mining techniques to extract useful information. MAIT.01.09.G

10. **Systems Analysis and Design: Analyze and design information systems using appropriate development tools.** MAIT.01.10

a. Identify and explain the steps in the systems development life cycle. MAIT.01.10.A

b. Use project management tools to manage information systems development projects. MAIT.01.10.B

c. Define system requirements using structures systems analysis tools. MAIT.01.10.C

d. Incorporate appropriate human interface design principles. MAIT.01.10.D

e. Develop design specifications for record types, output, and data stores. MAIT.01.10.E

f. Create appropriate documentation for information systems. MAIT.01.10.F

g. Develop a testing plan and a training plan. MAIT.01.10.G

11. **Programming and Application Development: Design, develop, test, and implement programs.** MAIT.01.11

a. Choose the appropriate language or application development tool for specific tasks. MAIT.01.11.A

b. Develop both procedural and object-oriented programs. MAIT.01.11.B

c. Use application development tools to create code. Code common tasks (e.g. creating, adding, deleting, sorting, and updating records). MAIT.01.11.C

d. Code a program solution in more than one programming language. MAIT.01.11.D

e. Create a project to solve a business problem integrating mobile platforms. MAIT.01.11.E

12. **Telecommunications and Infrastructures: Develop the skills to design, deploy, and administer networks and telecommunications systems.** MAIT.01.12

a. Identify network devices, including network connectivity hardware, and describe their function. MAIT.01.12.A

b. Use appropriate tools to document network topologies and configurations (e.g., graphic modeling tools, network analyzers). MAIT.01.12.B

c. Apply theoretical models (OSI) and the concept of layers to design, to manage, and troubleshoot networks. MAIT.01.12.C

d. Describe server functions, including specialized servers (e.g., Web, DHCP, DNS, mail, proxy servers), and identify hardware and software requirements. MAIT.01.12.D

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e. Install and configure routers to simulate a LAN/WAN environment. MAIT.01.12.E

f. Establish interoperability in a multiserver, multivendor network operating system environment. MAIT.01.12.F

g. Identify, analyze, and evaluate emerging communications technologies for use in organizations. MAIT.01.12.G

13. **Information Technology Planning and Acquisition: Plan the selection and acquisition of information technologies.** MAIT.01.13

a. Identify and analyze user needs within an organization and identify the information technology solutions to meet organization needs. MAIT.01.13.A

b. Analyze, compare, and contrast total costs of ownership for information technology solutions. MAIT.01.13.B

c. Develop a request for proposal for an information system and evaluate bid specifications received from vendors. MAIT.01.13.C

d. Develop and present a project plan for identifying, evaluating, selecting, purchasing, installing, and supporting an information system. MAIT.01.13.D

14. **Security, Privacy, and Risk Management: Design and implement security, privacy, and risk management policies and procedures for information technology.** MAIT.01.14

a. Implement procedures used to recover information from failures and security breaches (e.g., malware, viral infection). MAIT.01.14.A

b. Implement controls to prevent loss of integrity of data and other information resources. MAIT.01.14.B

c. Identify and select controls for personnel, facilities, data, communications systems and applications appropriate to specific risks. MAIT.01.14.C

d. Design and implement a security plan for an information system, including communications systems. MAIT.01.14.D

15. **Ethical and Legal Issues: Describe, analyze, develop, and follow policies for managing ethical and legal issues in organizations and in a technology-based society.** MAIT.01.15

a. Implement organization policies and procedures dealing with legal and ethical issues. MAIT.01.15.A

b. Analyze legal and ethical dilemmas within the framework of current laws and legislation (e.g., virus development, hacking, threats, phishing). MAIT.01.15.B

c. Read, interpret, and adhere to software license agreements and legal mandates. MAIT.01.15.C

d. Write organization policy for the legal and ethical use of information (e.g., code of ethics). MAIT.01.15.D

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Technical Support and Training: Develop the technical and interpersonal skills and knowledge to train and support the user community. MAIT.01.16

a. Develop technical writing, digital communication, and presentation skills to work effectively with globally and culturally diverse individuals. MAIT.01.16.A

b. Use a logical and structured approach to isolate and identify problem sources and resolve problems. MAIT.01.16.B

c. Identify, evaluate, and use resources (e.g., hardware, software, and online) for problem identification and resolution. MAIT.01.16.C

d. Train end users to recognize and solve typical information technology problems. MAIT.01.16.D

e. Develop training materials for users. MAIT.01.16.E

f. Plan, design, deliver, and evaluate user training. MAIT.01.16.F

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17. **Information Technology and Business Functions: Describe the information technology components of business functions and explain their interrelationships.** MAIT.01.17

a. Identify and explain the major components of marketing and sales information technologies and their interrelationships. MAIT.01.17.A

b. Identify and explain the major components of Accounting and finance information technologies and their interrelationships. MAIT.01.17.B

c. Identify and explain the major components of manufacturing and logistics information technologies and their interrelationships. MAIT.01.17.C

d. Identify and explain the major components of research and development information technologies and their interrelationships. MAIT.01.17.D

e. Identify and explain the major components of human resource management information technologies and their interrelationships. MAIT.01.17.E

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18. **Explore positions and career paths in information technology.** MAIT.01.18

a. Identify common tasks performed by information technology workers. MAIT.01.18.A

b. Describe education, experience skills, and personal requirements for careers in information technology. MAIT.01.18.B

c. Describe the impact of technological change on information technology positions and the resulting need for lifelong learning and retraining. MAIT.01.18.C

d. Experience an information technology career (e.g., internship, volunteer, entry level job). MAIT.01.18.D

e. Identify the benefits of industry certifications and higher education pathways for various information technology fields. MAIT.01.18.E