Washington Office of Superintendent of
PUBLIC INSTRUCTION

GUIDANCE ON TEACHING COMPUTER SCIENCE IN WASHINGTON STATE K–12 PUBLIC SCHOOLS

Authorizing legislation: HB 1577, SHB 5088

2020

COMPUTER SCIENCE STATE COURSE CODE GUIDANCE

During the 2019–20 Legislative session, SHB 1577 concerning K–12 computer science education data was passed into law. Beginning June 30, 2020, and by June 30 annually after that, school districts must submit to the Office of the Superintendent of Public Instruction (OSPI), and the OSPI must post conspicuously on its website, a report for the preceding academic year that must include the following data:

- Total number of computer science courses offered in each school and whether these courses are advanced placement classes.
- Number and percentage of students who enrolled in a computer science program.
- Disaggregated by gender, race and ethnicity, special education status, English learner status, eligibility for the free and reduced-price lunch program, and grade level.
- Number of computer science instructors at each school, disaggregated by certification, if applicable, gender, and highest academic degree.

Data collection will be done through the Comprehensive Education Data and Research System (CEDARS), a longitudinal data system managed by the Office of the Superintendent of Public Instruction (OSPI) to collect, store, and report data related to students, courses, and teachers. The data collected is either mandated by state or federal law or approved by the Data Governance Group at the OSPI.

CEDARS contains a course catalog of all courses in each grade offered at each public school. Student-related information in CEDARS includes each student's gender, grade level, demographics, eligibility for specific education programs, and a record of all courses attempted by the student. For students in grades 9 through 12, final grades and credit information for each course attempted and earned by the student are also stored in CEDARS. There is also information in CEDARS about the staff member teaching each course or assigned to a homeroom, including each staff member's gender, academic degrees, and certification.

State Course Codes are reported within the Comprehensive Education Data and Research System (CEDARS) and were developed using the National Center for Educational Statistics (NCES) course codes. Reporting State Course Codes are required for all courses reported to CEDARS. Local education agencies (LEAs) determine the state course code most appropriate for each class offered. Course information is amended with data populated from CEDARS.

Data to fulfill the legislation will be directly retrieved from CEDARS. For the data to be accurate, school districts must code their Computer Science courses with the correct state course code. The following list is the courses that will count as Computer Science courses in fulfilling the legislative intent of SHB5088 requiring all comprehensive high schools to offer a Computer Science course by the 2022–23 school year.

Table 1 of this document lists the state course codes that will meet the legislative requirement.

Table 2 contains the CTE CIP codes and recommended state course codes. If you are offering any courses using the following CIP codes, please review the State Course Code and Course Name in the table. Based on your framework submitted under that CIP code, please use the appropriate State Course Code according to the Course Name in the table. If done correctly, this will allow OSPI to report the requested data in above mentioned SHB 1577. So, if you are using any of the CIP codes listed and have an appropriate State Course code from this table, your district will meet the criteria of the legislation.

Table 3 contains the Course Descriptions to help determine where the course you are teaching the best fits.

COMPUTER SCIENCE STATE COURSE CODES

*** New State Course Codes Starting 2021–22**

Table 1: Computer Science State Course Codes

State Course Code	Course Name
10011	Computer Science Principles
10012	Exploring Computer Science
10013	**PLTW Computer Science Essentials***
10014	**PLTW Computer Science A***
10015	**PLTW Computer Science Principles***
10016	**PLTW Cybersecurity***
10019	AP Computer Science Principles
10020	**Cybersecurity***
10052	Database Management and Data Warehousing
10053	Database Applications
10054	Data Systems/Processing
10097	Management Information Systems—Independent Study
10098	Management Information Systems—Workplace Experience
10099	**Information Technology-Other***
10101	Network Technology
10102	Networking Systems
10108	Network Security
10109	Essentials of Network Operating Systems
10148	Networking Systems—Workplace Experience
10149	Networking System – other
10152	Computer Programming
10153	Visual Basic (VB) Programming

State Course Code	Course Name
10154	C++ Programming
10155	Java Programming
10156	Computer Programming—Other Language
10157	AP Computer Science A
10159	IB Computer Science
10160	Particular Topics in Computer Programming
10197	Computer Programming Independent Study
10198	Computer Programming— Workplace Experience
10199	Computer Programming — Other
10201	Web Page Design
10203	Interactive Media
10205	Computer Gaming and Design
10206	Mobile Applications
10251	Computer Technology
10253	Information Support and Services
10254	IT Essentials: PC Hardware and Software
10297	Information Support Services Independent Study
10298	Information Support and Services—Workplace Experience
10301	**Computer Forensics***

CTE CIP CODES AND STATE COURSE CODES

*** New State Course Codes Starting 2021–22**

♦ **Not Computer Science**
Theses course are information technology courses

Table 2: CTE CIP Codes and State Course Codes

CIP Code	Teacher Cert V-Code	State Course Code	Course Name	SUBJECT	Course Description
110201 Preparatory	V070000 V078000 V141000 V210100 V470110 V521206	10011	Computer Science Principles	Computer Programming Brainbench	A course that focuses on the general writing and implementation of generic and customized programs to drive operating systems and that generally prepares individuals to apply the methods and procedures of software design and programming to software installation and maintenance. Includes instruction in software design, low- and high-level languages and program writing; program customization and linking; prototype testing; troubleshooting; and related aspects of operating systems and networks.
		10014	***PLTW Computer Science A**		
		10015	***PLTW Computer Science Principles**		
		10019	AP Computer Science Principles		
		10152	Computer Programming		
		10153	Visual Basic (VB) Programming		
		10154	C++ Programming		
		10155	Java Programming		
		10156	Computer Programming—Other Language		
		10157	AP Computer Science A		
		10159	IB Computer Science		
		10197	Computer Programming—Independent Study		
		10199	Computer Programming— Other		

CIP Code	Teacher Cert V-Code	State Course Code	Course Name	SUBJECT	Course Description
110204 Preparatory	V070000 V078000 V141000 V210100 V470110 V521206	10205	Computer Gaming and Design	Computer Game Programming	A program that prepares individuals to apply the knowledge and skills of design and computer programming to the development of computer games. Includes training in character and story development, computer programming, computer graphics, game design, game physics, human-computer interaction, human-centered design, and usability.
		10253	Information Support and Services		
110701 Exploratory	V07000 V07800 V141000 V210100 V521206 V470110	10012	Exploring Computer Science	Introduction to Computer Science	A program that focuses on computer theory, computing problems and solutions, and the design of computer systems and user interfaces from a scientific perspective. Includes instruction in the principles of computational science, computer development and programming, and applications to a variety of end-use situations.
		10013	***PLTW Computer Science Essentials**		
		10152	Computer Programming		
		10160	Particular Topics in Computer Programming		
110801 Preparatory	V070000 V078000 V100100 V470110 V521206	10201	Web Page Design	Webpage/ Digital/ Multimedia and Information Design CIW Foundations	A course that prepares individuals to apply HTML, XML, JavaScript, graphic applications, and other authoring tools to the design, editing, and publishing (launching) of documents, images, graphics, sound, and multimedia products on the World Wide Web. Includes instruction in internet theory; web page standards and policies; elements of web page design; user interfaces; vector tools; special effects; interactive and multimedia components; search engines; navigation; morphing; e-commerce tools; and emerging web technologies.
		10203	Interactive Media		
		11151	**♦Digital Media Technology**		
		11153	**♦Digital Media Design and Production**		

CIP Code	Teacher Cert V-Code	State Course Code	Course Name	SUBJECT	Course Description
110802 Preparatory	V070000 V078000 V470110 V521206	10052	Database Management and Data Warehousing	Data Modeling and Database Administration MCDBA	A course that prepares individuals to design and manage the construction of databases and related software courses and applications, including the linking of individual data sets to create complex searchable databases (warehousing) and the use of analytical search tools (mining). Includes instruction in database theory, logic, and semantics; operational and warehouse modeling; dimensionality; attributes and hierarchies; data definition; technical architecture; access and security design; integration; formatting and extraction; data delivery; index design; implementation problems; planning and budgeting; and client and networking issues.
		10053	Database Applications		
		10054	Data Systems/Processing		
110803 Preparatory	V070000 V078000 V100100 V470110 V480101 V521206	**10202**	**♦Computer Graphics**	Video Game Design/Digital Computer Animation for Game Design Skill Connect Assessment	A course that focuses on the software, hardware, and mathematical tools used to represent, display, and manipulate topologically, two and three-dimensional objects on a video screen and prepares individuals to function as computer graphics/video game development specialists. Includes instruction in graphics software and systems; computer programming; digital multimedia; graphic design, video game design and development; graphics devices, processors, and standards; attributes and transformations; projections; surface identification and rendering; color theory; algebra; geometry; trigonometry and introduction to various mathematical concepts related to interactive computer and computer graphic-based applications.
		10203	Interactive Media		
		10205	Computer Gaming and Design		
		10206	Mobile Applications		

CIP Code	Teacher Cert V-Code	State Course Code	Course Name	SUBJECT	Course Description
110901 Preparatory	V070000 V078000 V470110 V470101	10101	Network Technology	Computer Systems Networking and Telecommunications Network +	A course that focuses on the design, implementation, and management of linked systems of computers, peripherals, and associated software to maximize efficiency and productivity, and that prepares individuals to function as network specialists and managers at various levels. Includes instruction in operating systems and applications; systems design and analysis; networking theory and solutions; types of networks; network management and control; network and flow optimization; security; configuring; and troubleshooting. The second 180 hours of this course should lead to industry certification such as Cisco Certified Network Associate (CCNA) certification.
		10102	Networking Systems		
		10108	Network Security		
		10109	Essentials of Network Operating Systems		
111003 Preparatory	V070000 V078000 V141000 V210100 V470110 V521206	**10016**	***PLTW Cybersecurity**	Computer and Information Systems Security/Auditing /Information Assurance	A program that prepares individuals to assess the security needs of computer and network systems, recommend safeguard solutions, and manage the implementation, auditing, and maintenance of security devices, systems, and procedures. Includes instruction in computer architecture, programming, and systems analysis; networking; telecommunications; cryptography; security system auditing and design; applicable law and regulations; risk assessment and policy analysis; contingency planning; user access issues; investigation techniques; and troubleshooting.
		10020	***Cybersecurity**		

CIP Code	Teacher Cert V-Code	State Course Code	Course Name	SUBJECT	Course Description
111004 Preparatory	V100100 V470110 V070000 V078000	10201	Web Page Design	Web/ Multimedia Management and Webmaster CIW Foundations	A program that prepares individuals to develop and maintain web servers and the hosted web pages at one or a group of web sites, and to function as designated webmasters. Includes instruction in computer systems and editing; information resources management; web policy and procedures; Internet applications of information systems security; user interfacing and usability research; and relevant management and communications skills.
		10202	**♦Computer Graphics**		
		10203	Interactive Media		
111006 Preparatory	V070000 V078000 V470110 V521206	10251	Computer Technology	Computer Support Specialist A+	A course that prepares individuals to analyze problems and research solutions; identify, test, and implement solutions; manage working relationships with customers; install, configure, and test new operating and application software and software upgrades; operate a computer system and run system applications; and monitor and analyze system performance. Includes instruction in troubleshooting; facilitation and customer service; hardware and software installation, configuration, and upgrades; and system operations, monitoring, and maintenance.
		10253	Information Support and Services		
		10254	IT Essentials: PC Hardware and Software		
		10301	Computer Forensics		
118888 Exploratory	V600096 V600097	10098	Management Information Systems—Workplace Experience	Computer and Information Sciences and Support Services Cooperative Worksite Experience	A learning experience in which the student has completed a Career and Technical Education sequence in their T&I Pathway education prior to the co-op experience or concurrently enrolls in a Career and Technical Education class at school and works in a related occupation. WAC 392-410-315 outlines regulations for granting credit for cooperative work-based learning experiences.
		10149	Networking Systems—Workplace Experience		
		10199	Computer Programming—Workplace Experience		
		10248	**♦Media Technology—Workplace Experience**		
		10998	**♦Information Technology—Workplace Experience**		

CIP Code	Teacher Cert V-Code	State Course Code	Course Name	SUBJECT	Course Description
151202 Preparatory	V470110	10251	Computer Technology	Computer Technology/ Computer Systems Technology	A program that prepares individuals to apply basic engineering principles and technical skills in support of professionals who use computer systems. Includes instruction in basic computer design and architecture, programming, problems of specific computer applications, component, and system maintenance, and inspection procedures, hardware and software problem diagnosis and repair, and report preparation.
		12053	Information Support and Services		

Course Descriptions

*** New State Course Codes Starting 2021–22**

Table 3: Course Descriptions

Course Code	Course Name	Description	Computer Science Standards
10011	Computer Science Principles	Computer Science Principles courses provide students the opportunity use programming, computational thinking, and data analytics to create digital artifacts and documents representing design and analysis in areas including the Internet, algorithms, and the impact that these have on science, business, and society. Computer Science Principles courses teach students to use computational tools and techniques including abstraction, modeling, and simulation to collaborate in solving problems that connect computation to their lives.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 3. Data & Analysis 4. Algorithms & Programming 5. Impacts of Computing
10012	Exploring Computer Science	Exploring Computer Science courses present students with the conceptual underpinnings of computer science through an exploration of human computer interaction, web design, computer programming, data modeling, and robotics. While these courses include programming, the focus is on the computational practices associated with doing computer science, rather than just a narrow focus on coding, syntax, or tools. Exploring Computer Science courses teach students the computational practices of algorithm design, problem solving, and programming within a context that is relevant to their lives.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 3. Data & Analysis 4. Algorithms & Programming 5. Impacts of Computing
10013	***PLTW Computer Science Essentials**	Following Project Lead the Way's suggested curriculum, PLTW Computer Science Essentials (formerly known as PLTW Introduction to Computer Science) courses introduce students to computational thinking concepts, fundamentals, and tools. Students will increase their understanding of programming languages through the use of visual and text-based programming. Projects will include the creation of apps and websites to address real-life topics and problems.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 3. Data & Analysis 4. Algorithms & Programming 5. Impacts of Computing

Course Code	Course Name	Description	Computer Science Standards
10014	***PLTW Computer Science A**	Following Project Lead the Way's suggested curriculum to prepare students for the College Board's Advanced Placement Computer Science A exam, PLTW Computer Science A (formerly known as PLTW Computer Science Applications) courses focus on extending students' computational thinking skills through the use of various industry-standard programming and software tools. In these courses, students collaborate to design and produce solutions to real-life problems.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 3. Data & Analysis 4. Algorithms & Programming 5. Impacts of Computing
10015	***PLTW Computer Science Principles**	Following Project Lead the Way's suggested curriculum to prepare students for the College Board's Advanced Placement Computer Science Principles exam, PLTW Computer Science Principles (formerly known as PLTW Computer Science and Software Engineering) courses are designed to help students develop computational thinking, and introduce students to possible career paths involving computing. These courses help students build programming expertise and familiarity with the Internet using multiple platforms and programming languages. Course content may include application development, visualization of data, cybersecurity, and simulation.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 3. Data & Analysis 4. Algorithms & Programming 5. Impacts of Computing
10016	***PLTW Cybersecurity**	Following Project Lead the Way's suggested curriculum, PLTW Cybersecurity courses introduce students to the tools and concepts of cybersecurity. In these courses, students are encouraged to understand vulnerabilities in computational resources and to create solutions that allow people to share computing resources while retaining privacy. These courses also introduce students to issues related to ethical computing behavior.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 3. Data & Analysis 4. Algorithms & Programming 5. Impacts of Computing

Course Code	Course Name	Description	Computer Science Standards
10019	AP Computer Science Principles	Following the College Board's suggested curriculum designed to parallel college-level computer science principles courses, AP Computer Science Principles courses introduce students to the fundamental ideas of computer science and how to apply computational thinking across multiple disciplines. These courses teach students to apply creative designs and innovative solutions when developing computational artifacts. These courses cover such topics as abstraction, communication of information using data, algorithms, programming, the Internet, and global impact.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 3. Data & Analysis 4. Algorithms & Programming 5. Impacts of Computing
10020	***Cybersecurity**	Cybersecurity courses introduce students to the concepts of cybersecurity. These courses provide students with the knowledge and skills to assess cyber risks to computers, networks, and software programs. Students will learn how to create solutions to mitigate cybersecurity risks. These courses may also cover the legal environment and ethical computing behavior related to cybersecurity.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 3. Data & Analysis 4. Algorithms & Programming 5. Impacts of Computing
10052	Database Management and Data Warehousing	Database Management and Data Warehousing courses provide students with the skills necessary to design databases to meet user needs. Courses typically address how to enter, retrieve, and manipulate data into useful information. More advanced topics may cover implementing interactive applications for common transactions and the utility of mining data.	CS includes subjects and standards in these core areas: 3. Data & Analysis 4. Algorithms & Programming May include these areas: 2. Networks & the Internet
10053	Database Applications	Database Application courses provide students with an understanding of database development, modeling, design, and normalization. These courses typically cover such topics as SELECT statements, data definition, manipulation, control languages, records, and tables. In these courses, students may use Oracle WebDB, SQL, PL/SQL, SPSS, and SAS and may prepare for certification.	CS includes subjects and standards in these core areas: 3. Data & Analysis 4. Algorithms & Programming May include these areas: 2. Networks & the Internet

Course Code	Course Name	Description	Computer Science Standards
10054	Data Systems/Processing	Data Systems/Processing courses introduce students to the uses and operation of computer hardware and software and to the programming languages used in business applications. Students typically use BASIC, COBOL, and RPL languages as they write flowcharts or computer programs and may also learn data-processing skills.	CS topics include subjects and standards in these core areas: 3. Data & Analysis 4. Algorithms & Programming May include these areas: 2. Networks & the Internet
10097	Management Information Systems—Independent Study	Management Information Systems—Independent Study courses, often conducted with instructors as mentors, enable students to explore topics related to management information systems. Independent Study courses may serve as an opportunity for students to expand their expertise in a particular specialization, to explore a topic in greater detail, or to develop more advanced skills.	CS topics include subjects and standards in these core areas: 3. Data & Analysis 4. Algorithms & Programming May include these areas: 2. Networks & the Internet
10098	Management Information Systems—Workplace Experience	Management Information Systems—Workplace Experience courses provide work experience in fields related to management information systems. Goals are typically set cooperatively by the student, teacher, and employer (although students are not necessarily paid). These courses may include classroom activities as well, involving further study of the field or discussion regarding experiences that students encounter in the workplace.	CS topics include subjects and standards in these core areas: 3. Data & Analysis 4. Algorithms & Programming May include these areas: 2. Networks & the Internet
10101	Network Technology	Network Technology courses address the technology involved in the transmission of data between and among computers through data lines, telephone lines, or other transmission media, such as hard wiring, wireless, cable networks, and so on. These courses may emphasize the capabilities of networks, network technology itself, or both. Students typically learn about network capabilities and network technology, including the software, hardware, and peripherals involved in setting up and maintaining a computer network.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 3. Data & Analysis 4. Algorithms & Programming May include these areas: 5. Impacts of Computing

Course Code	Course Name	Description	Computer Science Standards
10102	Networking Systems	Networking Systems courses are designed to provide students with the opportunity to understand and work with hubs, switches, and routers. Students develop an understanding of LAN (local area network), WAN (wide area network), wireless connectivity, and Internet-based communications (including cloud-based computing), with a strong emphasis on network function, design, and installation practices. Students acquire skills in the design, installation, maintenance, and management of network systems that may help them obtain network certification.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 3. Data & Analysis 4. Algorithms & Programming May include these areas: 5. Impacts of Computing
10108	Network Security	Network Security courses provide students with an understanding of network security principles and implementation. Course topics usually include authentication, the types of attacks and malicious code that may be used against computer networks, the threats and countermeasures for e-mail, Web applications, remote access, and file and print services. These courses may also cover a variety of security topologies as well as technologies and concepts used for providing secure communication channels, secure internetworking devices, intrusion detection systems, and firewalls.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet
10109	Essentials of Network Operating Systems	Essentials of Network Operating Systems courses provide students with an overview of multi-user, multi-tasking network operating systems. In these courses, students study the characteristics of operating systems, such as Linux, and various Windows network operating systems and explore a range of topics including installation procedures, security issues, back-up procedures, and remote access. Advanced topics may include network administration, including account management, training, evaluating new technology, developing system policies, troubleshooting, email and business communications and Web site management.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet

Course Code	Course Name	Description	Computer Science Standards
10148	Networking Systems—Workplace Experience	Networking Systems—Workplace Experience courses provide students with work experience in fields related to networking systems. Goals are typically set cooperatively by the student, teacher, and employer (although students are not necessarily paid). These courses may include classroom activities as well, involving further study of the field or discussion regarding experiences that students encounter in the workplace.	CS topics include subjects and standards in these core areas: 2. Networks & the Internet 3. Data & Analysis 4. Algorithms & Programming
10149	Networking System – other	Other Networking Systems courses.	
10152	Computer Programming	Computer Programming courses provide students with the knowledge and skills necessary to construct computer programs in one or more languages. Computer coding and program structure are often introduced with the BASIC language, but other computer languages, such as Visual Basic (VB), Java, Pascal, C++, and C#, may be used instead. Students learn to structure, create, document, and debug computer programs. Advanced courses may include instruction in object-oriented programming to help students develop applications for Windows, database, multimedia, games, mobile and Web environments. An emphasis is placed on design, style, clarity, and efficiency. In these courses, students apply the skills they learn to relevant authentic applications.	CS topics include subjects and standards in these core areas: 1. Computing Systems 3. Data & Analysis 4. Algorithms & Programming May include these areas: 2. Networks & the Internet 5. Impacts of Computing
10153	Visual Basic (VB) Programming	Visual Basic (VB) Programming courses provide an opportunity for students to gain expertise in computer programs using the Visual Basic (VB) language. As with more general computer programming courses, the emphasis is on how to structure and document computer programs and how to use problem-solving techniques. These courses cover such topics as the use of text boxes, scroll bars, menus, buttons, and Windows applications. More advanced topics may include mathematical and business functions and graphics.	CS topics include subjects and standards in these core areas: 1. Computing Systems 3. Data & Analysis 4. Algorithms & Programming May include these areas: 2. Networks & the Internet 5. Impacts of Computing

Course Code	Course Name	Description	Computer Science Standards
10154	C++ Programming	C++ Programming courses provide an opportunity for students to gain expertise in computer programs using the C++ language. As with more general computer programming courses, the emphasis is on how to write logically structured programs, include appropriate documentation, and use problem-solving techniques. More advanced topics may include multi-dimensional arrays, functions, sorting, loops, and records.	CS topics include subjects and standards in these core areas: 1. Computing Systems 3. Data & Analysis 4. Algorithms & Programming May include these areas: 2. Networks & the Internet 5. Impacts of Computing
10155	Java Programming	Java Programming courses provide students with the opportunity to gain expertise in computer programs using the Java language. As with more general computer programming courses, the emphasis is on how to structure and document computer programs, using problem-solving techniques. Topics covered in the course include syntax, I/O classes, string manipulation, and recursion.	CS topics include subjects and standards in these core areas: 1. Computing Systems 3. Data & Analysis 4. Algorithms & Programming May include these areas: 2. Networks & the Internet 5. Impacts of Computing
10156	Computer Programming—Other Language	Computer Programming—Other Language courses provide students with the opportunity to gain expertise in computer programs using languages other than those specified (such as Pascal, FORTRAN, Python, or emerging languages). As with other computer programming courses, the emphasis is on how to structure and document computer programs, using problem-solving techniques. As students advance, they learn how to utilize best the features and strengths of the language being used.	CS topics include subjects and standards in these core areas: 1. Computing Systems 3. Data & Analysis 4. Algorithms & Programming May include these areas: 2. Networks & the Internet 5. Impacts of Computing
10157	AP Computer Science A	Following the College Board's suggested curriculum designed to mirror college-level computer science courses, AP Computer Science A courses emphasize object-oriented programming methodology with a focus on problem solving and algorithm development. These courses cover such topics as object-oriented program design; program implementation; program analysis; standard data structures; standard algorithms; and the ethical and social implications of computing systems.	CS topics include subjects and standards in these core areas: 1. Computing Systems 3. Data & Analysis 4. Algorithms & Programming May include these areas: 2. Networks & the Internet 5. Impacts of Computing

Course Code	Course Name	Description	Computer Science Standards
10159	IB Computer Science	IB Computer Science courses prepare students to take the International Baccalaureate Computer Science exams. The courses emphasize system fundamentals, computer organization, and networks, as well as the fundamental concepts of computational thinking, the development of practical computational solutions, and programming. IB Computer Science courses also cover the applications and effects of the computer on modern society as well as the limitations of computer technology.	CS topics include subjects and standards in these core areas: 1. Computing Systems 3. Data & Analysis 4. Algorithms & Programming May include these areas: 2. Networks & the Internet 5. Impacts of Computing
10160	Particular Topics in Computer Programming	These courses examine particular topics in computer programming other than those already described elsewhere in this classification system.	
10197	Computer Programming—Independent Study	Computer Programming—Independent Study courses, often conducted with instructors as mentors, enable students to explore topics related to computer programming. Independent Study courses may serve as an opportunity for students to expand their expertise in a particular specialization, to explore a topic in greater detail, or to develop more advanced skills.	CS topics include subjects and standards in these core areas: 1. Computing Systems 3. Data & Analysis 4. Algorithms & Programming May include these areas: 2. Networks & the Internet 5. Impacts of Computing
10198	Computer Programming—Workplace Experience	Computer Programming—Workplace Experience courses provide students with work experience in fields related to computer programming. Goals are typically set cooperatively by the student, teacher, and employer (although students are not necessarily paid). These courses may include classroom activities as well, involving further study of the field or discussion regarding experiences that students encounter in the workplace.	CS topics include subjects and standards in these core areas: 1. Computing Systems 3. Data & Analysis 4. Algorithms & Programming May include these areas: 2. Networks & the Internet 5. Impacts of Computing

Course Code	Course Name	Description	Computer Science Standards
10199	Computer Programming — Other	Other Computer Programming courses.	CS topics include subjects and standards in these core areas: 1. Computing Systems 3. Data & Analysis 4. Algorithms & Programming May include these areas: 2. Networks & the Internet 5. Impacts of Computing
10201	Web Page Design	Web Page Design courses teach students how to design websites by introducing them to and refining their knowledge of site planning, page layout, graphic design, and the use of markup languages—such as Extensible Hypertext Markup, JavaScript, Dynamic HTML, Document Object Model, and Cascading Style Sheets—to develop and maintain a web page. These courses may also cover security and privacy issues, copyright infringement, trademarks, and other legal issues relating to the use of the Internet. Advanced topics may include the use of forms and scripts for database access, transfer methods, and networking fundamentals.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 3. Data & Analysis 4. Algorithms & Programming May include these areas: 5. Impacts of Computing
10203	Interactive Media	Interactive Media courses provide students with the knowledge and skills to create, design, and produce interactive digital media products and services. The courses may emphasize the development of digitally generated and/or computer-enhanced media. Course topics may include 3D animation, graphic media, web development, and virtual reality. Upon completion of these courses, students may be prepared for industry certification.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 3. Data & Analysis 4. Algorithms & Programming May include these areas: 5. Impacts of Computing

Course Code	Course Name	Description	Computer Science Standards
10205	Computer Gaming and Design	Computer Gaming and Design courses prepare students to design computer games by studying design, animation, artistic concepts, digital imaging, coding, scripting, multimedia production, and game play strategies. Advanced course topics include, but are not limited to, level design, environment and 3D modeling, scene and set design, motion capture, and texture mapping.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 3. Data & Analysis 4. Algorithms & Programming May include these areas: 5. Impacts of Computing
10206	Mobile Applications	Mobile Applications courses provide students with opportunities to create applications for mobile devices using a variety of commercial and open source software. These courses typically address the installation and modification of these applications, as well as customer service skills to handle user issues.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 3. Data & Analysis 4. Algorithms & Programming May include these areas: 5. Impacts of Computing
10251	Computer Technology	Computer Technology courses introduce students to the features, functions, and design of computer hardware and provide instruction in the maintenance and repair of computer components and peripheral devices.	CS topics include subjects and standards in these core areas: 1. Computing Systems 3. Data & Analysis 4. Algorithms & Programming May include these areas: 2. Networks & the Internet 5. Impacts of Computing
10253	Information Support and Services	Information Support and Services courses prepare students to assist users of personal computers by diagnosing their problems in using application software packages and maintaining security requirements.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 4. Algorithms & Programming May include these areas: 3. Data & Analysis 5. Impacts of Computing

Course Code	Course Name	Description	Computer Science Standards
10254	IT Essentials: PC Hardware and Software	IT Essentials: PC Hardware and Software courses provide students with in-depth exposure to computer hardware and operating systems. Course topics include the functionality of hardware and software components as well as suggested best practices in maintenance and safety issues. Students learn to assemble and configure a computer, install operating systems and software, and troubleshoot hardware and software problems. In addition, these courses introduce students to networking and often prepare them for industry certification.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 4. Algorithms & Programming May include these areas: 3. Data & Analysis 5. Impacts of Computing
10297	Information Support and Services—Independent Study	Information Support and Services—Independent Study courses, often conducted with instructors as mentors, enable students to explore topics related to computer information support and services. Independent Study courses may serve as an opportunity for students to expand their expertise in a particular specialization, to explore a topic in greater detail, or to develop more advanced skills.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 4. Algorithms & Programming May include these areas: 3. Data & Analysis 5. Impacts of Computing
10298	Information Support and Services—Workplace Experience	Information Support and Services—Workplace Experience courses provide students with work experience in fields related to information support and service. Goals are typically set cooperatively by the student, teacher, and employer (although students are not necessarily paid). These courses may include classroom activities as well, involving further study of the field or discussion regarding experiences that students encounter in the workplace.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 4. Algorithms & Programming May include these areas: 3. Data & Analysis 5. Impacts of Computing
10301	***Computer Forensics**	Computer Forensics courses address the preservation, identification, extraction, documentation, and interpretation of computer data. Topics covered may include legal concepts, evidence handling and preservation, file system structures, chain of custody, and identification and recovery of computer data. These courses may also cover the need to perform an investigation and how to collect evidence and analyze data.	CS topics include subjects and standards in these core areas: 1. Computing Systems 2. Networks & the Internet 3. Data & Analysis 4. Algorithms & Programming 5. Impacts of Computing